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Document Description

Annual Physical Stability Assessment Report – Victoria Gold – Eagle Gold Project

Project Description:

Visual inspection of the following structures: Open Pit, Platinum Gulch Dump, Lower Dublin South (Control) Pond, Secondary Crusher, Primary Crusher, 90 Day Stockpile, Adsorption, Desorption and Recovery Plant, Heap Leach Facility, Event Pond, Ditch A, B, and C, Former Nuway Crusher Pad, Orica Laydown, Various Un-named Stockpiles.

REVISION HISTORY

Revision	Status	Date	Prepared By	Checked By	Approved By	Description of Revision
A	IFR	9/25/2019	JDS	DDW	DDW	Issued for Review
0	IFA	10/29/2019	JDS	DDW	DDW	Issued for Approval

Status:

PRE	- Preliminary	IFP	- Issued for Procurement
IFR	- Issued for Review and Comment	IFC	- Issued for Construction
IFA	- Issued for Approval	AB	- As Built
IFQ	- Issued for Quotation		

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1 BACKGROUND

In September, 2019, Allnorth Consultants Limited (Allnorth) was retained by Victoria Gold Corp. (VGC) to conduct a visual physical stability assessment for their Eagle Gold mining operation located in Mayo Mining District, Yukon, Canada in support of Quartz Mining License QML-0011. Jordan Smith, EIT of Allnorth conducted the inspection on September 24th, and 25th. The inspection was limited to visual inspection and did not include any specific geotechnical or structural testing or evaluation. Visual inspection generally consisted of traversing the structures on foot, and viewing the structures in their entirety from accessible vantage points. Any issues that were discovered were investigated and documented with detailed notes and photographs. The Allnorth inspector was given complete freedom in determining what to look at, and was not permanently restricted for access to any locations within the site. Conditions on site were wet, and the on-site representative indicated that there had been heavy rain recently.

Allnorth previously completed a similar inspection in September of 2018. Some photos taken during this inspection were used for comparison, although many areas had no basis for comparison, as construction was underway during the previous inspection, and has since been completed. Included photos from the previous 2018 inspection are noted.

The mining project is currently extracting, storing, processing, and refining ore at the time of inspection. A few remaining areas are under construction. As the project is in the early stages, there are no historical records for survey data related to stability monitoring to review and compare. This will likely become part of the physical stability assessment in the future.

2 SCOPE

This report outlines the findings of the physical stability assessment conducted from September 24th-25th of 2019. This report documents the findings of the physical stability assessment and makes recommendations for remediation, additional inspection or monitoring of the issues identified. The following structures were included in the assessment:

- Lower Dublin South (Control) Pond and outfall,
- 90 Day Stockpile,
- Heap Leach Facility,
- Open pit
- Platinum Gulch Dump
- Cut and fill slopes of the primary and secondary crushers including MSE walls,
- Cut and fill slopes of the Adsorption, Desorption and Recovery Plant,
- Event Pond,
- Diversion Ditches A, B, and C,
- Nuway Crusher Pad,
- Orica Laydown,
- Various un-named stockpiles

The purpose of the inspection is to identify any visual indicators associated with instability of mass earth structures, including but not limited to tension cracking, bulging, pooled water above the slope or near the toe of the slope, falling material, indications of creep, slumps, deposits of debris, or cracking in bedrock. Additionally, constructed slopes were reviewed for slope angles and compared against the

recommend slope angles for known material types on site. Refer to **Appendix A** for a map showing structure locations.

3 LOWER DUBLIN SOUTH (CONTROL) POND

3.1 Spillway

No issues to note in the spillway (Figure 1). There is an outlet sump and weir which have been constructed since the previous inspection (Figure 2).

Figure 1: LDSP – Spillway

Figure 2: LDSP – Outlet Sump and Weir

3.2 1500mm Spillway Outlet Culvert

1. The condition of this culvert appears to be similar to the previous year's inspection (Figure 3). No water was observed flowing through the culvert. The 2018 inspection noted some standing water below the riprap, but above the geotextile. This water was not passing through the 1500mm culvert; therefore, it is likely that the water is left from rainfall runoff that cannot pass quickly through the granular subgrade of the culvert. No concerns at this time.

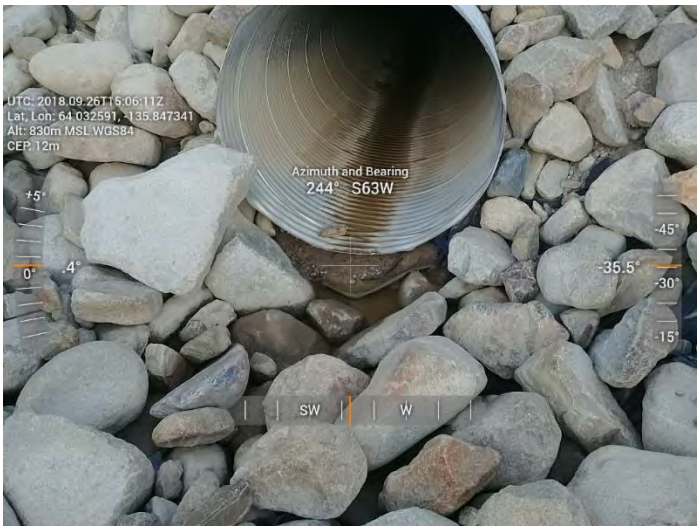

Figure 3: LDSP - 1500mm Culvert 2018 Inspection

Figure 4: LDSP - 1500mm Culvert 2019 Inspection

3.3 Cut slopes

1. Some saturated material and erosion was noted on the slope of the southwest corner of the Control Pond over the width of the narrow access road (Figure 5). Water flowing down Ditch A may be leaking into the fill in this area. There was some flow into this area from a culvert crossing a former construction access road.

Figure 5: LDSP – Erosion on the Southwest slope

Figure 6: LDPS – Some flow from adjacent culvert

4 90 DAY STOCKPILE

4.1 Benches and Cut Slopes

1. The 90 Day Stockpile is currently under construction (Figure 7). During the time of inspection, some over-steepened cut slopes were observed, however they are currently being cut back with material being hauled to a stockpile in another area of the mine site.

Figure 7: 90 Day Stockpile under construction

4.2 Perimeter Interception Ditch

1. A perimeter interception ditch extends around the downhill toe of the 90 Day Stockpile area (Figure 8 and Figure 9). The construction of this ditch is not yet complete, as it is currently un-lined with no rock armoring, and is founded on native soils, and over-steepened and sloughing in places.

Figure 8: Perimeter Ditching

Figure 9: Perimeter Ditching

2. In one location some pooling of water has occurred as it appears that the final grade has not been completed (Figure 10).

Figure 10: Pooling water in perimeter ditch

3. The outlet of one side of the perimeter ditch does not currently tie into the collection sump (Figure 11), such that a large flow of runoff could be directed down towards the access road until the tie in is completed. Site representatives indicated that this ditch will eventually be tied into the collection sump.

Figure 11: Collection Sump

5 HEAP LEACH FACILITY

The Heap Leach Facility (HLF) is currently operational including the deployment of irrigation network and the placing of over-liner drain fill on the phase 1A pad area (Figure 12).

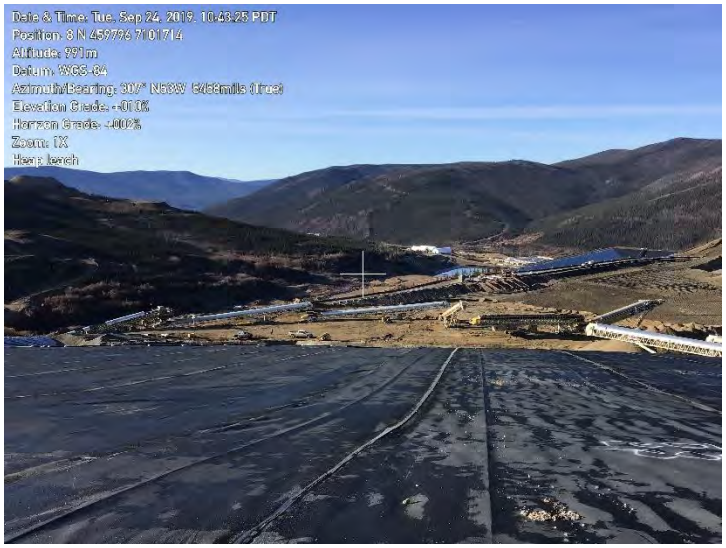

Figure 12: Heap Leach Facility Overview

5.1 Cut and Fill Slopes

1. Some minor erosion issues noted along the cut slopes adjacent to the upper access road (Figure 13 and Figure 14). Small amount of material is collecting at the toe of the cut slope. In locations measured, slopes are cut back to less than a 50% grade. Minor sloughing noted along the length of the bench above the HLF pad, as shown below in Figure 15. Site representatives indicated that these slopes will be further cut back during the Phase 1B HLF expansion.

Figure 13: Noted sloughing material

Figure 14: Some erosion on slopes

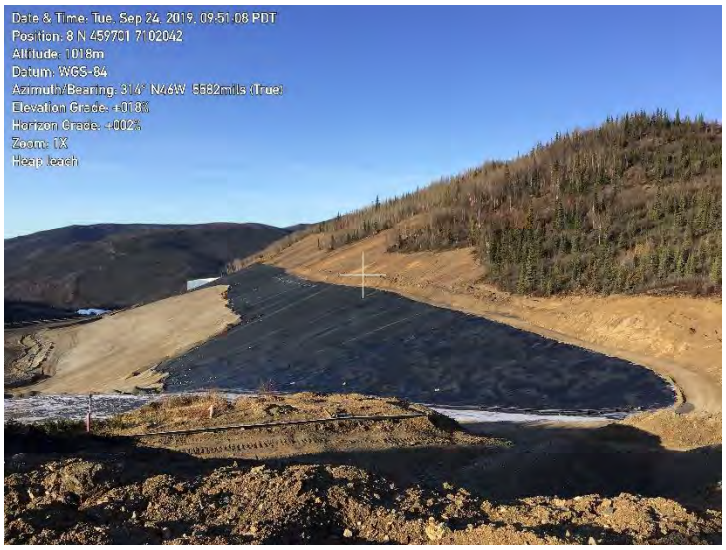

Figure 15: Some erosion/sloughing on slopes above the existing HLF pad

5.2 Temporary Overburden Stockpile above Phase 1A of the HLF

1. Scouring associated with rainfall runoff was noted on the access road that leads to the upper overburden stockpile and interception ditch (Figure 16).

Figure 16: Scour on access road

2. The upper overburden stockpile is located adjacent to the HLF access road / upper bench. Some erosion on the sides of the stockpile has occurred (Figure 17) and material being carried down the slope was noted. This temporary stockpile appears to be over-steepened in places. Site representatives indicated that this stockpile will be moved during Phase 1B pad expansion.

Figure 17: Stockpile adjacent to access road

3. Some ponded water was noted on top of the stockpile, likely from recent rainfall. (Figure 18).

Figure 18: Top of stockpile

5.3 Phase 1 Interception Ditch

1. The phase 1 interception ditch appears to have been constructed in a sound manner and is stable (Figure 19). Rock armoring appears to be class 25kg to 50kg, and approximately 100mm to 150mm thick. Geotextile was visible in several locations.

Figure 19: Typical Phase 1 Ditch

2. The interceptor ditch west end appears incomplete and outfalls to an un-vegetated area that slopes into the surrounding forest (Figure 20).

Figure 20: Outlet of HLF Phase 1 Interceptor Ditch

3. Some minor scour and slope instability was noted on the uphill cut slope adjacent to the ditch (Figure 21). Some material has been deposited into the ditch (Figure 22).

Figure 21: Sloughing slope

Figure 22: Material deposited into ditch

4. Settlement and movement was noted in one section of the temporary access road, which extends along the south and down gradient side of the ditch (approximate 0+650 along the ditch alignment) (Figure 23). Tension cracking in the soil is present. This is likely due to settlement after road construction, which occurred during winter and likely incorporated snow/ice when building up the fill section. Movement or failure of the fill section could impact the functionality of the interception ditch, however, fill slopes were measured to be less than 50%, and the consequences of further movement are likely low, as there is moderate setback from the toe of the downhill slope to the closest access road (Figure 24). This deteriorated temporary road only accesses a short section of the interception ditch.

Figure 23: Road settlement along temporary access road

Figure 24: Downhill slope from road settlement

6 OPEN PIT

1. The pit walls appear stable, and constructed in competent rock. Figure 25 below was provided by Victoria Gold, and reviewed by Allnorth.

Figure 25: Pit Walls

7 PLATINUM GULCH DUMP

1. Platinum Gulch Dump is currently operational, and the side slopes appear to be stable. Figure 26 and 27 below were provided by Victoria Gold, and reviewed by Allnorth.

Figure 26: Dump Overview

Figure 27: Dump Fill Slope

8 PRIMARY CRUSHER

8.1 MSE Walls

1. No apparent damage or deterioration was noted during the inspection of the Primary Crusher MSE wall (Figure 28, Figure 29, Figure 30 and Figure 31). Most of the construction in this area was completed after the previous inspection in 2018, and no baseline data is available for comparison. The structure is now complete and operational.

Figure 28: Primary Crusher

Figure 29: Northwest Face

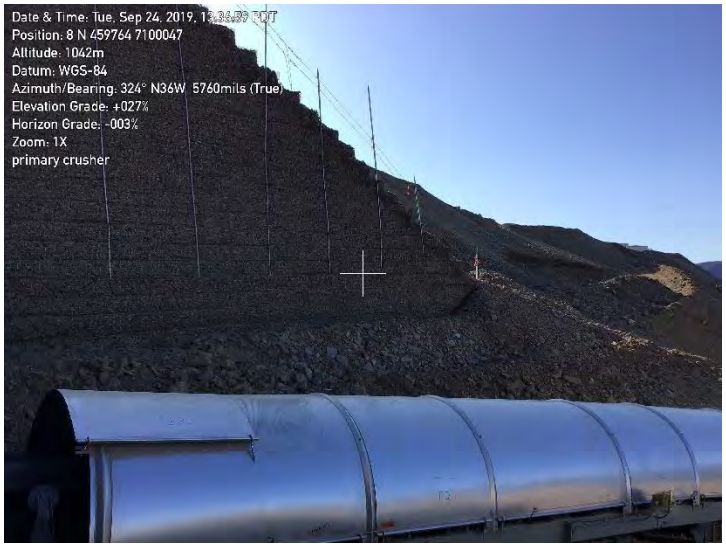

Figure 30: Southeast Face

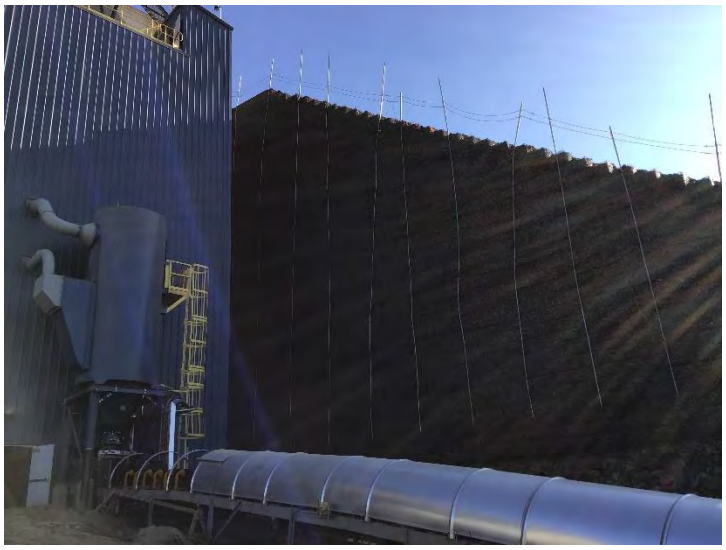

Figure 31: Southeast Face

8.2 Cut and Fill slopes

1. Measured fill slopes appear to be acceptable, and meet recommended guidelines. Fill slopes at the side of the MSE wall were measured to be approximately 1.5:1 (Figure 32).

Figure 32: Southeast Face

2. Cut slopes behind the Primary Crusher were measured to be approximately 50%, and within recommended guidelines (Figure 33). A small ore stockpile is located in this area.

Figure 33: Cut slope and small ore stockpile behind primary crusher

9 SECONDARY/TERTIARY CRUSHER

9.1 MSE Wall

1. No apparent damage or deterioration was noted during the inspection (Figure 34). Much of the construction in this area has been completed since the previous inspection in 2018, and little baseline data is available for comparison. The structure is complete and operational. Survey benchmarks were present on the face of the wall (Figure 35).

Figure 34: South side of MSE wall

Figure 35: MSE wall behind secondary/tertiary crusher

9.2 Cut and Fill Slopes

1. Measured locations behind the secondary crusher were found to be approximately 50%, and within recommended limits for construction. Some outcrops of rippable rock visible.

10 ADSORPTION, DESORPTION, AND RECOVERY PLANT (ADR)

10.1 Cut and Fill Slopes

1. Cut slopes behind the ADR area appear to be competent rock, and currently stable (Figure 36). Minor accumulation of small debris was noted at the toe of the slope, collecting in the ditch. Minor debris accumulation was also noted in the 2018 inspection. Condition of the slopes appears similar to the 2018 inspection (Figure 37).

Figure 36: Slopes behind ADR (2019)

Figure 37: Slopes behind ADR (2018)

10.2 North Toe Ditch

1. There is a small V ditch, referred to here as the North Toe Ditch, with sides close to 1:1 cut at the base of a large steep slope which is cut into bedrock; the ditch is not armored and contains loose gravel and fines, although there are no apparent scouring issues. There is also a culvert which has been installed along the ditch alignment, possibly to widen the laydown area.

Figure 38: Typical North Toe Ditch cross section

2. Currently the north toe ditch is directed through the culvert and into a smaller roadside ditch, which runs along the uphill side of the ADR access road (Figure 39). This ditch is also not armored and contains loose gravel and fines.

Figure 39: Flow into roadside ditch

11 EVENT POND

11.1 Cut/Fill Slopes

1. The event pond was constructed since the previous inspection in 2018. Measured fill slopes are within recommended guidelines (2:1 slopes).

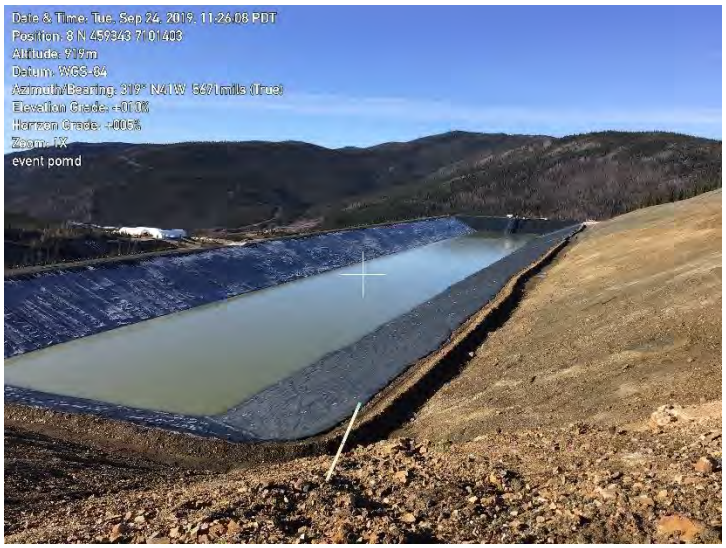

Figure 40: Overall view of event pond

11.2 Heap Leach Spillway

1. Some minor scouring of the cut slopes along the heap leach spillway bench/access was noted. Some material has accumulated on the bench and into the spillway (Figure 41, Figure 42 and Figure 43). The spillway is constructed with a concrete-filled fabric liner and appears stable.

Figure 41: Slopes from heap leach spillway

Figure 42: Slopes from heap leach spillway

Figure 43: Slopes from heap leach spillway

2. Five plastic culverts have been installed under the embankment access road at the head of the HLF spillway (Figure 44). Minor sloughing is occurring from the fill overlying the culvert outlets. Otherwise the engineered structure appears stable

Figure 44: Culverts installed under HLF embankment access road crossing

11.3 Events Pond Emergency Spillway

1. The emergency spillway is in place, constructed of similar material as the HLF spillway, and appears stable (Figure 45). The spillway is directed downslope towards Dublin Gulch. No concerns at this time.

Figure 45: Events Pond Emergency spillway

12 DITCH A

1. Ditch A carries flow from Platinum Gulch down to the Control Pond. The ditch is armored with approximately 50kg rock, and appears to be un-lined for the majority of it's length. The ditch flows into a lined collection sump several hundred meters down from it's initial point of collection (Figure 46 and Figure 47). Water collects in the sump and flows through a 36" HDPE pipe for the remainder of it's length. An overflow weir is present at the sump over the collection pipe, which would direct flow into the ditch during higher water level events. During the time of inspection, the ditch was mostly dry downstream from the collection sump, with all of the visible flow handled by the 36" HDPE pipe.

Figure 46: Looking down Ditch A

Figure 47: Flow into collection sump

2. Sediment flow into the ditch was noted near the truck shops. Site representative indicated that this took place over the previous week following heavy rains. As per the site representative, this flow is coming primarily from thawing permafrost uphill from the ditch, and may also have received flow from the 90-day stockpile perimeter ditch outlet, which as noted in Section 4, is still under construction. Future plans include construction of a ditch/pipe structure to carry water from the 90-day stockpile sump to Ditch A in a controlled manner. Site conditions have been too wet and unstable in the permafrost terrain to complete this work, and are planned for the winter season.

Figure 48: Debris and flow from thawing permafrost terrain and the 90-day stockpile area

3. Fill along portions of the access road adjacent to Ditch A appears to have been pushed onto trees and debris in the subgrade (Figure 49).

Figure 49: Trees in fill subgrade

13 DITCH B

1. Ditch B begins at a small watercourse known as Suttles Gulch. A small stream, known as Eagle Creek, is currently captured by a small berm and then directed into Ditch B under the berm via a small diameter HDPE pipe (Figure 50). The ditch flows West towards the Control Pond. The ditch is armored with approximately class 25kg rock. Some slope instability was noted near the control pond, with erosion carrying sediment down the cut slope. Site representatives are already aware of this issue, and sediment is being actively managed using silt fencing (Figure 51).

Figure 50: Top of Ditch B

Figure 51: Silt fencing constructed in areas of erosion on cut slopes

14 DITCH C

1. Diversion ditch C begins at the 1500mm outlet culvert for the Control Pond (Figure 52), and terminates in Haggart Creek (Figure 53 and Figure 54). This ditch acts as both an emergency spillway if the Control Pond is filled over capacity or a conveyance channel for water released from the control pond through the low level outlet. The ditch is armored with approximately class 10kg rock, and liner is visible in several locations. The ditch has several road crossings which are spanned by culverts. No issues identified at the time of inspection.

Figure 52: Outlet from control pond spillway and weir sump

Figure 53: Ditch C typical section

Figure 54: Ditch C Outfall to Haggart Creek

15 FORMER NUWAY CRUSHER PAD

1. This area is not currently being used, but the site representative indicated that it may be used in the future as a stockpiling area. Observed some over steepened slopes (Figure 55), with material collecting at the toe of these slopes.

Figure 55: Over steepened slopes

16 ORICA LAYDOWN

1. One section of cut slope has been over-steepened while expanding the laydown (Figure 56). Sloughing of material and some undercutting present. Site representative indicated that this area will be addressed prior to placing new buildings in their final location

Figure 56: Section of over-steepened slope

2. Lower section of the laydown appears to have some wet material on the slope. Some water is ponding around the base of the slope in a sediment control sump apparently installed in this area to manage runoff (Figure 57). No visible water flow is evident. Water may be percolating through the subsurface at the base of the slope. The remainder of the cut slopes appear to be competent material.

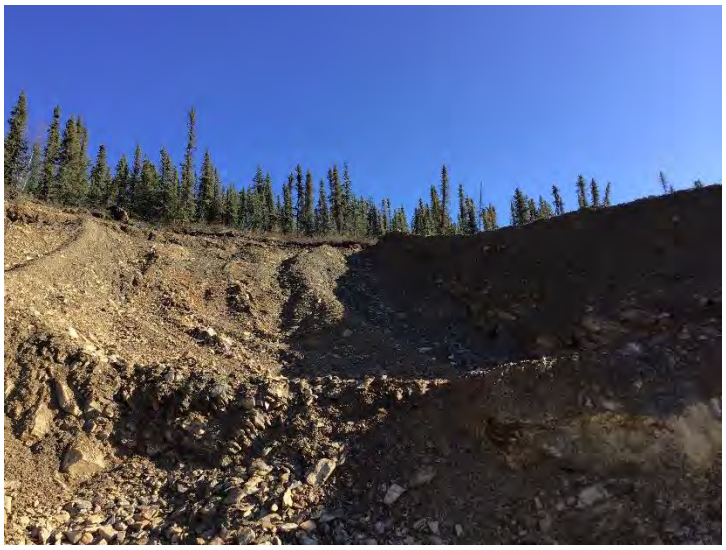

Figure 57: Sediment control sump

17 UN-NAMED STOCKPILE AREA

17.1 Stockpile Sloping

1. Several un-named overburden stockpiles have been placed to the south of the HLF and Event Pond (Figure 58). Some of the stockpiles have over-steepened sides, but there is little risk to other infrastructure. The area is currently mostly un-used.

Figure 58: Some stockpiles with steep side slopes

17.2 Water Management

1. There are some minor water management issues in the area, with water flowing down and around the stockpiles as apparent from the small gulley forming at the base (Figure 59). Some ponding water and saturated material is present in the laydown areas. The bottom of the area

appears to be trenched out towards the Control Pond, although there is ponding water in this area (Figure 60).

Figure 59: Scouring and gulley forming adjacent to stockpiles

Figure 60: Ponding downhill of stockpiles

17.3 Dublin Gulch Culvert Crossing

1. The culvert crossing in this area was found to be in good condition. Riprap armoring at the inlet and outlet appears to be functioning well, with no signs of scour observed (Figure 61 and Figure 62).

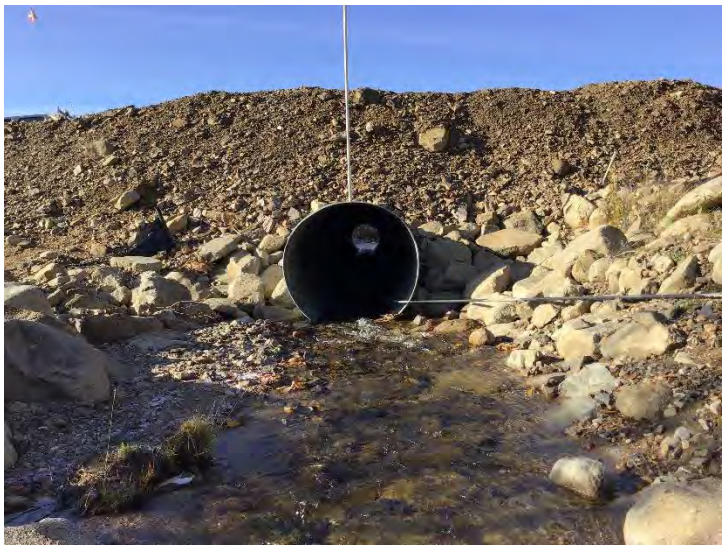

Figure 61: Dublin Gulch Culvert Inlet

Figure 62: Dublin Gulch Culvert Outlet

18 RECOMMENDATIONS

18.1 General

1. VGC should assign a qualified, on site, individual to be responsible for monitoring and documentation of any mass earth structures that have significant risks in the case of a failure. The individual should develop a standard operating procedure for the monitoring and risk management of these structures. This individual should be responsible for coordination with a qualified professional to review monitoring data for concerns and trends, if they are not qualified themselves.
2. VGC should continue to assign individuals to document and be responsible for the monitoring and construction review to determine if such structures are constructed in accordance with design. Any variations between design documents and final construction should be included in final record drawings.
3. Any finalized construction of mass earth structures should include a final construction report that includes any operational and maintenance requirements (if any) to ensure stability of the structure.
4. VGC should consider a monitoring program to assist in early warning and detection of any movements in mass earth structures. Such a program might use permanent survey points, slope inclinometers, piezometers, or other tools to measure internal/external movements and pore water pressures. Such a monitoring program should be developed with the assistance of and be implemented with the oversight of a qualified professional.

18.2 LDSP (Control Pond)

1. Address erosion occurring on the southwest slope of the pond. This is likely due to water infiltration from Ditch A or the adjacent culvert outlet. This section of ditch may require further armoring or installation of a liner to properly direct water away from the Control Pond slope.

18.3 90 Day Stockpile

1. Pull back over-steepened walls along the perimeter ditch which are sloughing into the ditch. This ditch may require a liner and/or rock armoring, and final grading to attain physical stability and prevent pooling.
2. Tie perimeter ditch into the collection sump, directing water away from the road.

18.4 HLF

1. Continue to monitor the cut slopes around the perimeter of the HLF for erosion. Maintain the upper bench and remove sloughing material as required.
2. Install further ditching at the top of the temporary upper overburden stockpile area to control water flow and address scouring issue on the access road.
3. Consider re-shaping the temporary upper overburden stockpile to reduce risk of material sloughing down towards the access road.

4. Review requirements of the Phase 1 Interception ditch outfall. Currently the ditch terminates at the top of an un-vegetated slope, and would be more stable with an armored exfiltration outfall/sediment sump.
5. Monitor road settlement around 0+650 of the interceptor ditch alignment. Currently this section requires some additional fill to facilitate truck traffic. Additional settlement could impact the functionality of the interception ditch. Additional settlement or failure is unlikely to impact other infrastructure, due to adequate setback from the toe of the slope.

18.5 Open Pit

1. No specific recommendations at this time.

18.6 Platinum Gulch Dump

1. No specific recommendations at this time.

18.7 Primary Crusher and MSE Wall

1. A monitoring program should be established using regular survey of the MSE walls, to detect any potential movement.

18.8 Secondary/Tertiary Crusher and MSE Wall

1. A monitoring program should be established using regular survey of the MSE walls, to detect any potential movement.

18.9 ADR

1. Review engineering requirements for the North Toe Ditch to confirm ditch size, and need for rock armoring. Toe ditch is currently tied into the roadside ditch, which should also be reviewed for engineering requirements. Recommend reviewing hydraulic design of both ditches to determine what is necessary.

18.10 Event Pond

1. Monitor minor erosion of cut slopes and maintain as required.

18.11 Ditch A

1. Complete construction of the feeder ditch which will carry flow from the 90-day Stockpile perimeter ditch to Ditch A. This work is currently planned for this winter as per the site representative.

18.12 Ditch B

1. Continue to manage sediment entering the ditch from the cut slopes on the downstream end. Silt fencing is currently in place to address this.

18.13 Ditch C

1. No specific recommendations at this time.

18.14 Former Nuway Crusher Pad

1. Pull back over-steepened slopes prior to utilizing this area.

18.15 Orica Laydown

1. Material used to construct a sediment sump on the lower laydown cut slope may not be stable if slopes become saturated. Water should be managed in this area to minimize ponding to prevent the saturation of the fill material in the laydown.
2. Pull back over-steepened slopes prior to utilizing this area.

18.16 Un-Named Stockpile Area

1. Consider additional ditching and water management in the area to prevent scouring of the road surfaces and erosion around the stockpiles. Ditch water away from the laydown areas to prevent ponding.

19 CONCLUSION

The structures reviewed in this inspection generally show little evidence of movement or risk indicators. Where risk of movement was identified, there risk is typically low and the consequence of a small instability is managed by minimizing exposure to workers, infrastructure or high value natural resources. Slopes reviewed meet the recommendations for slope angles in most locations.

The lack of previous stability review reports for the completed infrastructure due to the age of the project, the fact that some current infrastructure is currently incomplete and in construction, and the lack of any established survey or instrumentation monitoring program leaves insufficient baseline data for comparison, but will improve with subsequent reviews.

There are some minor erosional and stability concerns within the project, that can be addressed with some minor planning and maintenance as final construction is completed and mining operations continue in order to moderate or eliminate the associated risks.

We trust this report satisfies your requirements at this time and thank you for the opportunity to work with you on the project. If you have questions or concerns do not hesitate to contact our office.

Yours truly,

ALLNORTH CONSULTANTS LIMITED

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Reviewed By:

OCT 2 9 2019

Don Williams, P. Eng.
Division Manager

Any opinions of probable cost provided in the report are based on Allnorth's experience and information available to Allnorth at the time such estimates are made. Client acknowledges that due to assumptions that must be made, Allnorth shall not be liable for the accuracy of such estimates.

Appendix A Map Showing Structure Locations


N
Phase 1 Interception Ditch
Upper Overburden Stockpile
Heap Leach Facility
Phase 1 Heap Leach Facility
Borrow Pit / Future Landfill
ADR Plant
ADR
Event Pond
Events Pond
Stockpile
Unnamed Stockpile Area
Ditch C
Control Pond
Camp
Septic Field
Warehouse
Stockpile
Ditch B
LDSP (Control) Pond
Stockpile
Conveyor
Future EP WRSA
90 Day Stockpile
Stockpile
Secondary and Tertiary Crusher
Camp Road
Power Plant Substation
Waste Management
90 Day Storage
Crushing Circuit
Primary Crusher
Open Pit
Open Pit
Ditch A
Possible Future Ice Rich Material Storage
PG WRSA In Use
Platinum Gulch Dump
Explosives Storage
Orica Laydown
Transmission Line
0
250
500
1,000
Meters