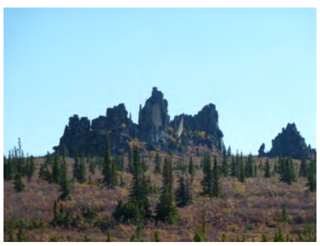
REPORT

Casino Mining Corporation

Casino Project
Access Overview for Submission to YESAB



November 2013

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Date 6/11/2013
#04-13-70

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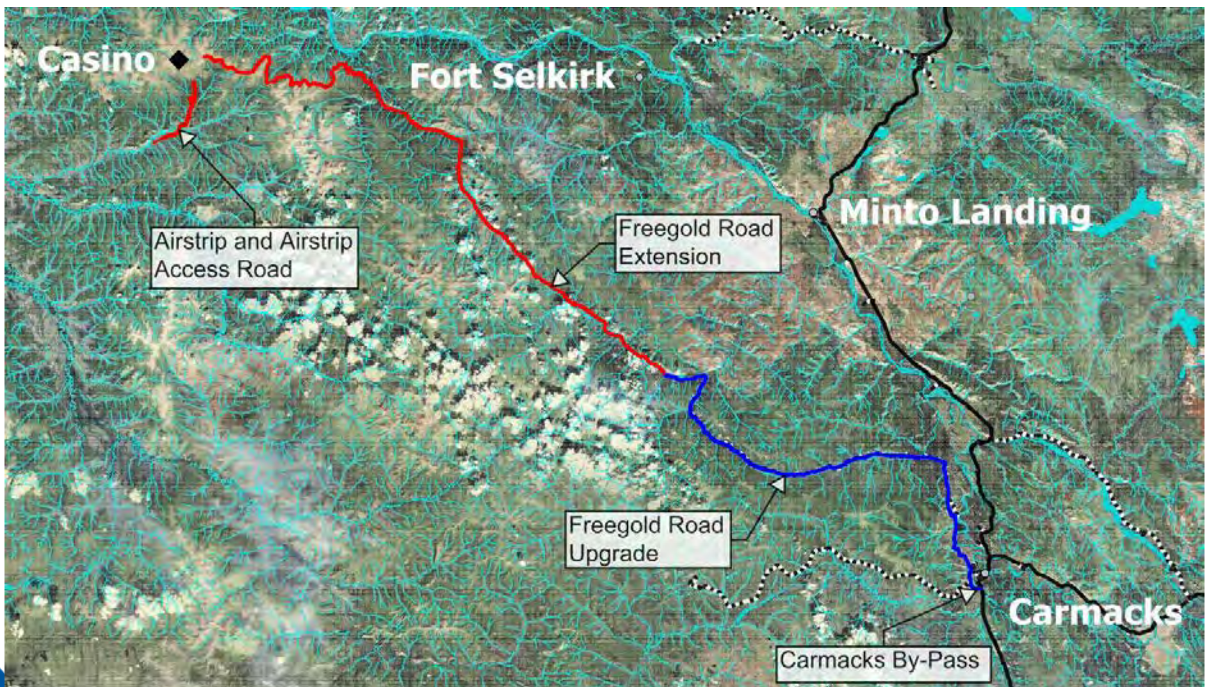
1 Introduction

1.1 PROJECT DESCRIPTION

Casino Mining Corporation (CMC) plans to develop a copper, gold and molybdenum mine at their Casino property located roughly 200 km northwest of the Village of Carmacks, in central Yukon. Currently, the mine site is accessed by small aircraft or by a combination of boat and vehicle via the Yukon River. Several new and upgraded access components are proposed to provide safe, reliable and timely access to the mine site. To improve vehicular access it is proposed to construct the Carmacks Bypass which would connect the Klondike Highway and Freegold Road with 5 km of new gravel roadway and a bridge over the Nordenskiold River. From there, the existing Freegold Road runs north and then west from Carmacks along the Seymour Creek Valley. Upgrades to 83 km of the existing Freegold Road and construction of 120 km of new access road are proposed to extend the route all the way to the mine with a design speed of 70 km/hr throughout. The proposed extension of the Freegold Road generally follows the historic Casino Trail along the Big Creek and Hayes Creek drainages to the Selwyn River where it ascends the north face of the Dawson Range to the mine.

In addition to road access, a new airstrip is proposed to provide access to the mine by air. The airstrip site is located in the Dip Creek valley approximately 12 km southwest of the mine. The airstrip and will provide access for Hawker Sidley 748 or Dash 8 sized aircraft. A new 14 km access road will provide a connection between the airstrip and the mine. Figure 1-1 shows the access study area.

Figure 1-1
Casino Access Study Area



1.2 SCOPE OF ACCESS OVERVIEW REPORTING

The purpose of this report is to provide a detailed overview of the Casino Project access components to support the Company's YESAB Project Proposal. The overview includes discussions of the specific design criteria and proposed construction methods for the access roads and airstrip, as well as descriptions of required preconstruction infrastructure and activities. This report also covers the construction plans for temporary camps, borrow pits, bridges, culverts, and early road access. Finally, the report provides an overview of Casino Mining Corporation's intended schedule and sequencing for all required activities related to the access construction. The report is supported by appendices setting out the conceptual designs associated with the facilities described together with traffic projections provided by CMC. Traffic projections are attached in Appendix H.

2 Main Access Road Construction Activities

2.1 FREEGOLD ROAD UPGRADE

Description of Existing Road

The Freegold Road is an existing gravel resource road with a road width of 4.5 - 6.0 m, and a posted speed limit of 40 km/hr. The road starts at the intersection of the Mt. Nansen Road in Carmacks, YT, and runs north and west to the confluence of Seymour and Bow Creeks, providing access to a number of properties along its length. Yukon Government owns and maintains the road on a seasonal basis up to km 60. The road is unmaintained for an additional 23 kilometres until it ends at Big Creek, where the existing bridge crossing has been washed out.

The existing Freegold Road generally follows the contours of the surrounding topography while avoiding areas of poor ground. This has resulted in a narrow, winding road with a rolling vertical profile. Grades in excess of 6% are common, and there are some areas with grades up to 14%. The Freegold Road is largely located on the valley side slope on the north side of Seymour Creek. The valley slopes along the existing road vary between 20 – 60%, with some areas as steep as 85%.

Previous Work by Yukon Government

In the mid-1990s, the Yukon Government selected a route and completed a design for the upgrade and realignment of the Freegold Road from km 0 at the intersection of the Mt. Nansen Road to just beyond km 32 at intersection of the Carmacks Copper Access Road. The design was prepared to an RCU80 classification (rural collector undivided, 80 km/hr). Yukon Government completed a significant amount of fieldwork in support of the road design that includes the following:

- Topographic survey of the right of way from km 0 to km 35 (km's are referenced to the Yukon Government Design Alignment)
- Preliminary geotechnical investigations along the new alignment from km 5 to km 23
- Detailed Geotechnical investigation at km 5 and the production and stockpile of granular material for use on the road upgrade
- Clearing of the right of way from km 3.35 to km 21.3

Based on the engineering work already completed by Yukon Government up to the Carmacks Copper Access Road, Associated Engineering has confirmed that the proposed road upgrades to this point will meet the required design criteria for the Casino Project.

Freegold Road Upgrades – Carmacks Copper Access Road to Big Creek

The discussions on the Freegold Road upgrade contained within this subsection of the report are focussed on the section starting from the Carmacks Copper Access Road to Big Creek. Kilometre references are to the distance along the existing Freegold Road except where otherwise noted; km 0 is located at the intersection of the Mt. Nansen Road. The Freegold Road will be upgraded to meet a 70 km/hr design speed with an 8.2 m wide gravel surface. The maximum grade will be 8%. Sketches of the proposed Freegold Road alignment can be found in Appendix B. From the Carmacks Copper Access Road to the confluence of Seymour and Bow Creek, the existing Freegold Road is particularly winding and narrow and has steep grades. The alignment restricts the actual operating speeds through many areas to less than the posted speed of 40 km/hr. The road is largely located on the north side slopes of Seymour Creek Valley. The proposed upgrades and realignments of the Freegold Road generally relocate the road downslope of the existing road in order to straighten the alignment while minimizing earthworks quantities.

Road construction techniques will be a combination of cut/fill construction, and overlanding on a fill embankment. Overlanding will be used through areas of low lying wet lands, and areas of permafrost and will involve the placement of suitable embankment material over the undisturbed organic material. A layer of geotextile will be placed between the undisturbed ground and subgrade, which will prevent the unsuitable material from mixing with the imported embankment. Cut/fill construction consists of excavating suitable material from areas of cut along the alignment, and placing it to construct the road embankment in areas of fill. Unsuitable material will be disposed of, and not used for embankment construction. Further geotechnical investigations will be required to identify and confirm areas of permafrost, as well as confirm the suitability of road construction material in any cut/fill locations. Borrow pits will also be required as a source for embankment and road surfacing material. Preliminary geotechnical investigations have been completed along the Freegold Road.

The existing Crossing Creek Bridge at km 25.4 will be replaced to accommodate the Yukon Government alignment, and the required traffic loads. The proposed bridge location is approximately 20 m upstream from the existing crossing. The proposed bridge will consist of steel girders and precast concrete deck panels on steel pipe pile abutments. The estimated bridge length is approximately 18.2 m. Contours from the DEM base mapping were used in the development of the Crossing Creek bridge concept. A detailed topographic survey will be required to confirm the 1:100 year flow event elevation and bridge concept.

The area upstream of the existing Seymour Creek bridge has previously been disturbed due to Placer mining activity. There are a number of ponds and braided channels throughout the mine tailings. The proposed road alignment will be located on the north side of the disturbed area, and crosses Seymour Creek upstream of the existing bridge. The bridge approach fills will be elevated and armoured to protect them from erosion during high flows. A bridge concept for Seymour Creek was developed based on the DEM base mapping and aerial photographs. The bridge concept is attached in Appendix F. The proposed concept includes a 27 m steel girder bridge with precast concrete deck panels that will span the main channel, and a 12 m precast concrete slab bridge that will span a side channel. Detailed topographic survey, and additional field investigation and engineering work are required to confirm the 1:100 year flow elevation and bridge concept.

Little Salmon Carmacks First Nation settlement land is located on the south side of the Freegold Road right of way from Blue Ribbon Road (approximate km 48 of the existing road), to nearly the confluence of Seymour and Bow Creek. A roadway alignment that meets the requirements of a 70 km/hr design speed cannot be achieved within the existing right of way adjacent to the settlement lands. To overcome this, a realignment is proposed from km 49 to km 62.6 down the slope through the settlement land in order to achieve the desired design criteria. Realignment upslope is not possible due to steep terrain. A further realignment of the roadway through the settlement land is proposed at km 67.7 for a length of 2.5 km. This portion of the road is located through the previously mined area of Seymour Creek, and is necessary to achieve the design criteria, and reach the proposed bridge crossing location.

Roadway drainage will be managed through ditches and cross-culverts installed at regular intervals and at natural low spots along the road profile.

2.2 FREEGOLD ROAD EXTENSION

The Freegold Road Extension will be a 120 km, two-lane, gravel resource road designed for all weather use by haul trucks with highway legal loads. The road design criteria satisfies the guidelines in the BC Ministry of Forests and Range Forest Road Engineering Guidebook (2nd Edition, 2002) for a 70 km/h design speed with some short 50 km/h sections where road geometry is limited by the terrain. The road will be 8.2 m wide with maximum grades of 8%. The road alignment and vertical profile designs provide adequate stopping sight distance for drivers to identify wildlife or other hazards on the road and stop in time to avoid a collision.

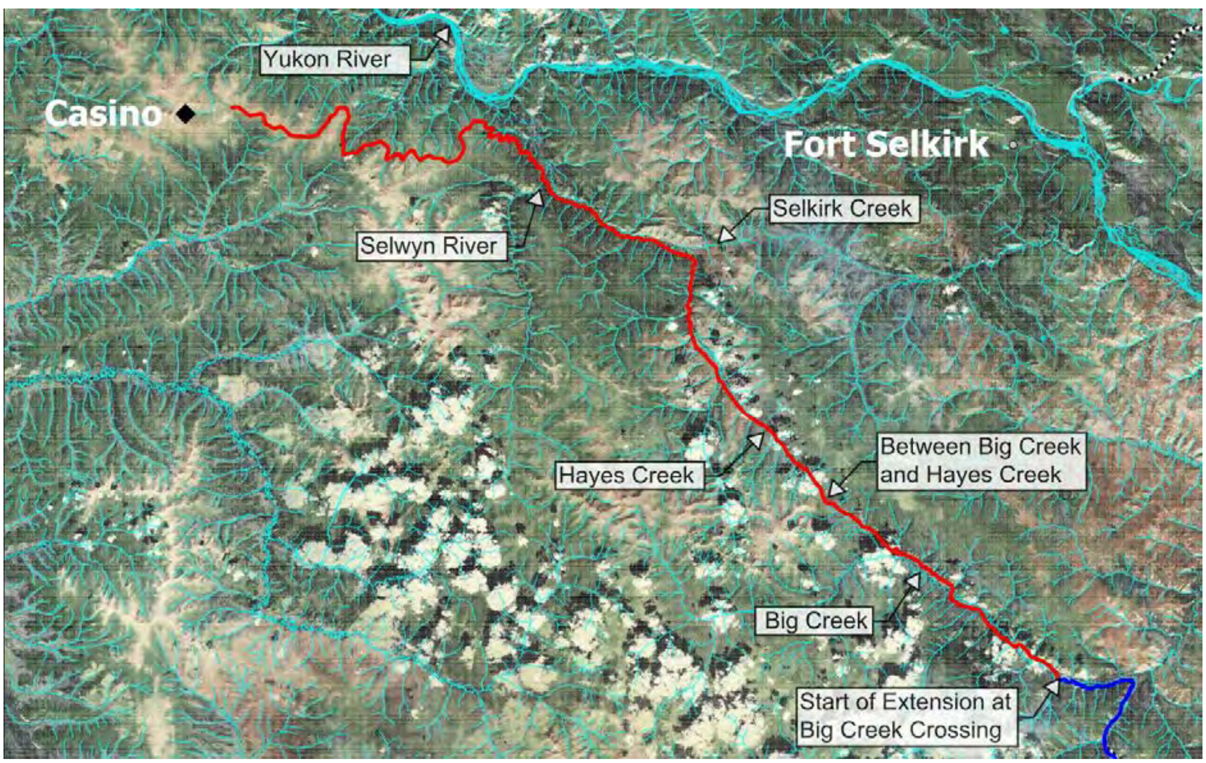
Route Description

The starting point of the Freegold Road Extension is located at end the existing Freegold Road (km 83) near an old washed out bridge on Big Creek. A new bridge crossing is proposed further upstream from where the washout occurred on a more stable section of the creek. After crossing Big Creek another small bridge is required over a side channel before reaching the north side of the valley. The road passes some steep terrain and crosses Big Creek twice more before reaching the height of land between Big Creek and Hayes Creek. Part of the Big Creek valley section of the route passes through Selkirk First Nations settlement lands.

Continuing northwest, the road enters the Hayes Creek Valley and travels along the north edge of the valley bottom. The valley narrows and steepens in sections and bridge crossings are required over Hayes Creek and several of its tributaries. Hayes Creek curves back and forth across the valley bottom before turning to the west where Selkirk Creek runs into the valley. The road continues to follow along the valley bottom to the west, crossing Hayes Creek twice more before arriving at the junction with the Selwyn River valley in the Battle Creek region.

The proposed alignment then diverges from Hayes Creek and crosses the Selwyn River. It follows the Selwyn River valley to the north for a short distance before turning northwest to begin the climb out of the valley. The next section is characterised by steeper grades and tight curves as the road works its way westward in and out of drainage gullies. Once reaching the highpoint, the proposed route passes by several mountaintops and rock outcroppings before making the final descent to the Casino Project site. Figure 2-1 shows the proposed Freegold Road extension alignment.

Figure 2-1
Freegold Road Extension



Design and Construction Methods

Key road design considerations include user safety, truck turn-around times, constructability, capital costs, and environmental and socioeconomic impacts. The preliminary main access road design drawings are shown in Appendix C.

In order to maximize the design speed and avoid unstable terrain, the route is located as much as possible in valley bottoms. Adequate road drainage systems to control runoff and to provide a barrier and storage for snow and falling rocks have also been considered in the road design.

The road surface elevation is designed to be 2.0 m above existing ground in poorly drained areas or where thaw susceptible permafrost is found. The 2.0 m embankment height stabilises the road against washouts and protects against permafrost degradation under the road. Embankment construction will follow the same overlanding methods proposed for the Freegold Road Upgrades where fill material will be place over a geotextile layer on undisturbed soils.

Disturbance of permafrost is a major concern for road construction in southern and central Yukon, as permafrost related settlements and landslides are often triggered by road construction activities. To reduce the risk of encountering permafrost, the roadway has been located on south facing slopes as much as possible. Excavation has been avoided wherever possible in areas where permafrost is known to be present in order to limit permafrost degradation. Special consideration is required in areas where the road passes over ice-rich, thaw susceptible permafrost. This includes insulation of any unavoidable cut slopes and limiting the time open cuts are exposed to the sun. Other mitigation techniques may involve localised slope flattening or air convection embankments to reduce snow accumulation and allow cold air to propagate into the embankment during the winter.

Where the road climbs out of the valley bottoms, the road construction method will include a combination of cut and fill. Suitable material will be excavated, and placed to construct the road embankment. Unsuitable material will be disposed of adjacent to the road right of way, and not used for embankment construction. Permafrost rich areas with unavoidable cut slopes will require further geotechnical investigation and may require buttressing with a layer of angular rock fill on top of geotextile or other suitable methods to prevent permafrost degradation and improve slope stability.

Most of the fill required for road construction will be developed from borrow pits located along the road alignment and then hauled to where it is needed. The section of road from the Selwyn River to the mine is located in soil that is mainly suitable for road embankment construction and can be utilized for fill. Further soil testing may reveal other locations with borrow suitable for road construction which will result in shorter haul distances, reduced road construction costs, and reduced disturbance to areas outside of the road right of way.

Clearing of trees and stumps will be required along the road right of way. The average width of clearing is 15 m on either side of the alignment. Actual clearing widths will vary, but a minimum cleared width of 3.0 m is required beyond the toe of all cut and fill slopes. It is anticipated that this work will be completed in the winter to prepare the corridor for the summer construction season. Winter clearing will present some challenges including clearing snow cover and removing stumps from frozen ground. However, frozen ground will assist access to clearing areas along temporary winter roads.

Road drainage and surface water runoff is accommodated by ditches and small corrugated steel pipes in 500 mm and 600 mm diameter sizes. The two sizes were selected to reduce shipping costs by shipping one inside the other. Cross culvert spacing will be determined by road gradient, material type, and natural depressions along the route to provide adequate roadway drainage. Road sections located in valley bottoms generally follow the bottom of the valley slope. This creates a ditch on the uphill side of the road to convey runoff to a natural low spot or drainage course. Surface and subsurface drainage for roads located in wet valley bottoms can be partially facilitated through the angular rock that makes up the road prism.

2.3 STRUCTURES

In terms of construction, there are two types of structures required on the Freegold Road Upgrade, Freegold Extension, and Airstrip Access Road; bridges across the 27 major watercourses and short bridges or culverts on the 82 minor stream crossings. It is proposed that the larger structures are built during the winter months as a separate operation to the road construction and their construction is discussed in more detail in Section 4.3 of this report. The structures across the minor stream crossings will be installed as part of road building.

2.3.1 Fish Bearing Stream

There are 66 minor stream crossings required on the Freegold Road extension and 7 minor stream crossings required on the Airstrip Access Road. An additional 9 minor stream crossings require upgrade or relocation on the existing Freegold Road. Fieldwork completed by Palmer Environmental Consulting Group in 2013 identified that many of these streams are fish bearing. A list of all the proposed stream crossings is included in Appendix G.

Two options are proposed for crossing fish bearing streams: short span bridges, and embedded CSP fish passable culverts. Short-span bridges have been proposed as a preferred alternative to embedded culverts in a proactive effort by CMC to protect fish habitat. The bridges will be clear span structures and will be constructed outside of the stream's high water mark. This results in significantly less environmental impact when compared to embedded culverts, which require installation directly in the stream channel.

Selection of the appropriate crossing option will be based on site conditions, environmental and fisheries requirements, geotechnical considerations, constructability, schedule, and cost. It is expected that culverts will be selected where the proposed road geometry such as high fills or sharp curves would require a longer bridge. Stream crossing evaluations and site specific designs will be completed during the detailed design phase of the project. The sections below discuss each option for crossing fish bearing streams.

Short Span Bridges

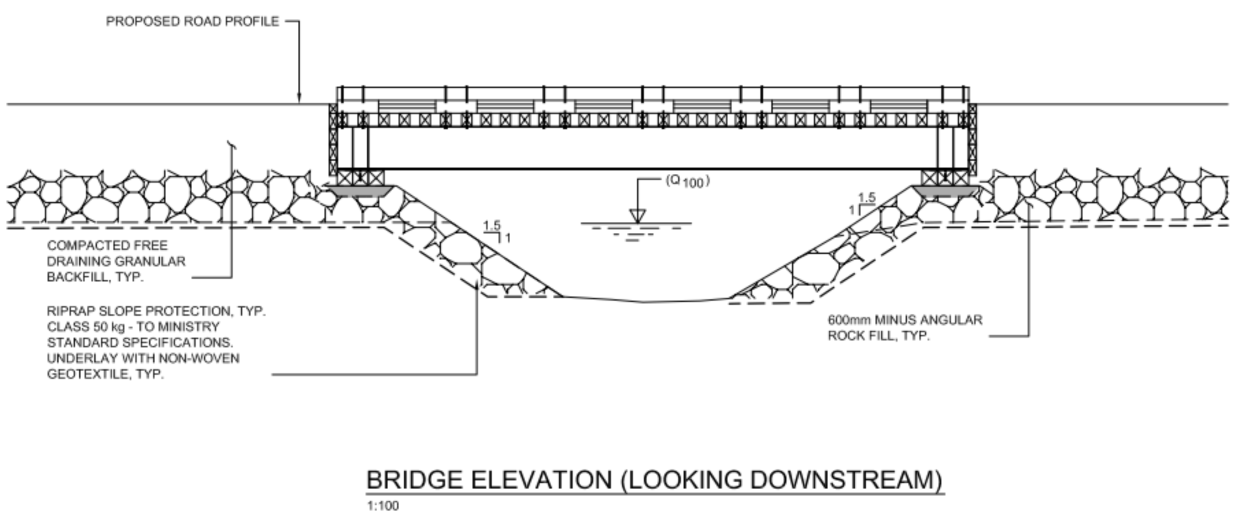
The short span bridges will be designed and constructed to meet the Department of Fisheries Operational Statement for Clear Span Bridges and if all conditions of the Operational Statement are met, the bridge can be constructed without being subject to the DFO review process. All work will occur outside of the high water mark, resulting in reduced environmental impact when compared to embedded culverts. Additional advantages of short-span bridges include straightforward construction methods, rapid construction schedule, robust building materials, and low maintenance requirements.

Two types of short-span bridges are proposed: a steel girder bridge with a timber deck, and a pre-cast concrete slab bridge. The bridges will be single lane, with pullouts constructed at each approach. Typical drawings showing the general arrangement of each bridge option are included in Appendix G. The bridge abutments will be either timber sills for the steel girder bridges, or concrete sills for the pre-cast slab bridges. The sills will be placed on compacted fill or rock. Figure 2-2 shows a typical short span bridge installation.

The steps below outline the general construction procedure for the short-span bridges:

Step 1: Layout the bridge.
Step 2: Install erosion and sediment control measures.
Step 3: Construct embankment/ rock base (All work to be outside of the high water mark).
Step 4: Compact granular leveling course and install the timber or concrete sills.
Step 5: Place geotextile and rip rap.
Step 6: Install steel girders or concrete slab on the sills.
Step 7: Install timber deck panels.
Step 8: Construct bridge approaches and pullouts.

Figure 2-2
Typical Short Span Bridge



Embedded Culverts

Results of the stream crossing evaluations will determine whether a short-span bridge is feasible or if a culvert will be required instead. Culverts required on fish bearing streams will typically be 1600 mm or 2400 mm in diameter and embedded by a depth of 40% of the culvert diameter with material replicating the natural streambed. The embedded elevation and grade will match the existing stream channel. To prevent subsurface flow through the embedded material during low flow periods, a watertight sill plate will be installed at the outlet. This sill plate will also prevent the embedded material from washing out during high flows, in addition to forcing the stream to flow at depth above the embedded material. Figures 2-3 and 2-4 show a sample culvert installation and embedment detail. A typical embedded culvert design is included in Appendix G.

Culverts will be installed in the dry, which will involve isolating the culvert work site. Isolation of the work site may be carried out using cofferdams, or temporary stream channel diversions. Where practical, water can be pumped from the upstream side to the downstream of the work site. If pumping is used to isolate the worksite, fish screens will be placed at all pump intakes.

Alternatively, culverts could be installed adjacent to the existing stream and a new stream channel constructed to divert flow through the new culvert location. This method may have less impact on the natural stream during construction, and be more favourable from a constructability perspective as cofferdams, and pumping of the creek would be avoided.

The steps below outline the typical installation of a culvert:

Step 1: Layout of the culvert and any temporary channel diversions.
Step 2: Install erosion and sediment control measures.
Step 3: Isolate work site so the culvert can be installed in a dry condition. This can be done through coffer dams, diversion channels, or pumping of the water from the upstream to the downstream channel.
Step 4: Excavate the culvert location to the lines and grades shown on the detailed design drawings.
Step 5: Place and compact the bedding material.
Step 6: Install culvert and place substrate to replicate the natural streambed in the culvert bottom. Embedment depth will be 40% of the culvert diameter.
Step 7: Backfill and compact culvert excavation with suitable backfill material.
Step 8: Install riprap and slope protection at the culvert inlet and outlet.
Step 9: Allow flow through installed culvert and remove any temporary cofferdams, stream channel diversions, or drainage structures.

Figure 2-3
Sample Culvert Elevation View

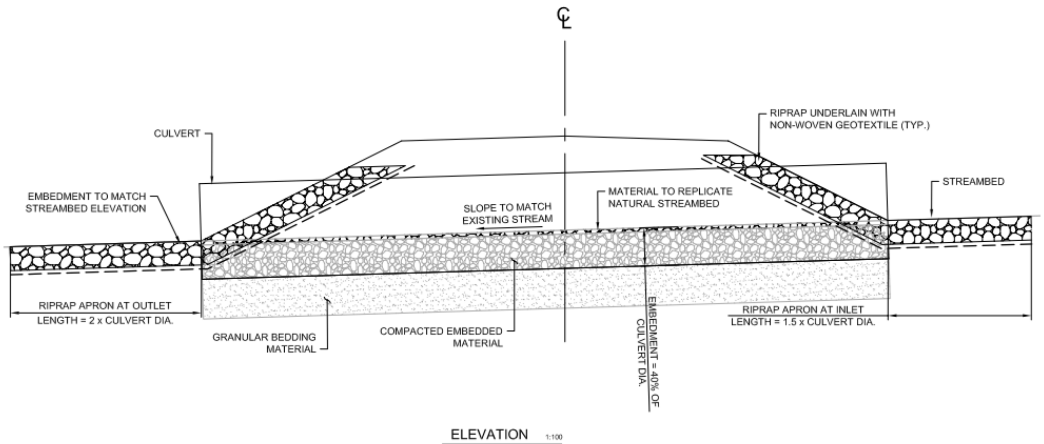
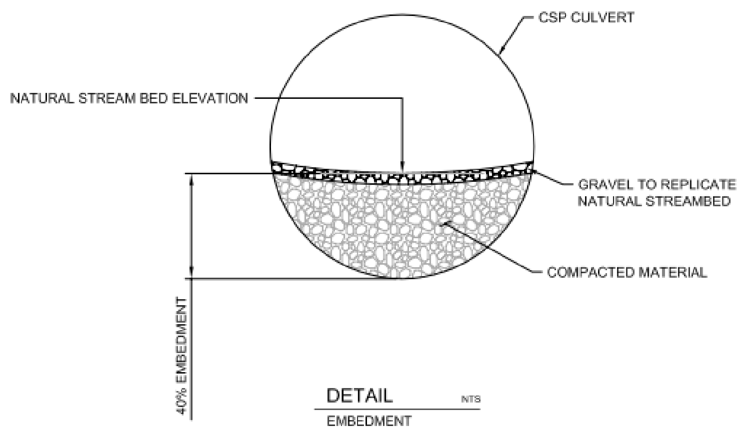


Figure 2-4
Sample Embedment Detail



2.3.2 Non-Fish Bearing Streams

Culverts on non-fish bearing streams will not be embedded. Culvert inverts will be installed at the elevation and grade of the existing stream channel. Non-fish bearing culverts will also be installed in the dry, and will follow the same steps outlined for fish bearing culverts. Without embedding the culverts, a smaller diameter culvert can be used to convey the same flow volume. In some cases, short-span bridges may also be considered on non-fish bearing streams. Evaluation of the appropriate option for each crossing location will be completed during the detailed design phase of the project.

3 Airstrip Construction Activities

3.1 AIRSTRIP, TAXIWAY, APRON AND BUILDINGS

Existing airstrip facilities located at the Casino exploration camp are limited and will be removed at some point during the construction of the new mine. The existing gravel runway does not currently meet any required design standards. Initially, the airstrip was constructed for exploration use only. In order to satisfy aviation demands for the Casino Project, the existing airstrip facility will be replaced with a facility that permits safe and efficient all season operations.

The mine site is remote and personnel access during construction and operation will be best served by aircraft. The workforce is presently projected to be in the order of 1,000 during construction and about 600 during operations. Based on turnaround schedules common in the industry, this would lead to an anticipated workforce departure and arrival of between 300 and 400 per week. Given the size of the workforce it is expected that flights will likely originate from Whitehorse connecting with scheduled flights from Vancouver or other major centres. This will continue for the project duration.

Two possible aircraft are being considered to fly to the mine. These include the Hawker-Sidley HS 748 turbo- prop aircraft which can be configured with 40-58 seats and the Bombardier Dash 8-100 or 200 series turbo-prop aircraft which can be configured with 37-39 seats. These aircraft are well suited to fly in the area due to their slower operating speeds and short takeoff and landing capabilities.

The airstrip engineering and design criteria of the proposed facilities have been developed to conform to the most current version of the Transport Canada Aerodrome Standards and Recommended Practices (TP 312). Pursuant to Canadian Aviation Regulations (CARS), this manual serves as the authoritative document of airport standards for runway dimensions, lighting, markers, pavement markings and signage. Design criteria are dependent on the operational characteristics of the selected design aircraft.

The Hawker Sidley 748 is the limiting design aircraft and will require a runway length of 1,600 m (5,250 ft) and 120 m (394 ft) overrun to satisfy the necessary requirements for Code 3C runway facilities. Runway length requirements and code are specific to the aircraft model as well as specific airspace and terrain characteristics.

The proposed airstrip is located in the Dip Creek Valley and it is aligned in the northeast – southwest direction. It will have a runway length of 1,600 m long and 60 m overruns on either end. At the northeast end of the runway several facilities are proposed including a taxiway, apron, parking area, buildings, and the starting point of the access road. Buildings will consist of a maintenance building and a small terminal building for passengers in transit and temporary storage for luggage and supplies.

Dip Creek is located down the slope to the northwest of the airstrip and several drainage channels drain from the slopes above to the southeast. The mine site is located roughly northeast of the airstrip location. Preliminary design sketches of the proposed airstrip are shown in Appendix D.

Design and Construction Methods

Preventing the degradation of permafrost under the airstrip embankment will be a priority, particularly in areas known to be ice-rich. It is assumed that a minimum embankment height of 1.8 m built above undisturbed ground is sufficient to insulate the permafrost layer. Fill material will be placed over undisturbed soils and any existing vegetative matt. A layer of geotextile will be placed between the undisturbed ground and subgrade, which will prevent the unsuitable material from mixing with the imported embankment. Three borrow sources are proposed near the Dip Creek Valley, and will be the source of fill material required for the airstrip and access road construction.

Drainage control will be required to prevent thawing due to ponding of water on the uphill side of the embankment. This will include measures to intercept water from sub-surface flows and existing drainage channels and then divert water around the airstrip. Additional mitigation techniques may be required for areas with extensive ground ice. These could include localised slope flatting or air convection embankments to reduce snow accumulation and allow cold air to propagate into the embankment during the winter.

The airstrip drainage system consists of two main elements. Firstly, water from existing channels and subsurface flow will be diverted by a diversion channel located approximately 20 m upslope from the airstrip embankment. Secondly, runoff from the airstrip surface and the final 20 m below the diversion channel will be collected by a ditch running along the upslope toe of the Airstrip embankment. To prevent permafrost degradation at the ditch and channel sites, ice rich soil will be removed to a depth of 2 m below the invert and replaced with an insulating layer of thaw stable granular material. Water from both the diversion channel and the ditch will be diverted around the airstrip and into existing channels downslope.

Clearing of trees and stumps will be required on the airstrip site prior to construction. All clearing will be completed during the winter.

3.2 AIRSTRIP ACCESS ROAD

The airstrip will require the construction of an access road to connect it to the mine site. The proposed airstrip access road consists of approximately 14 km of single lane between the airstrip in and the tailings dam access road at the mine site.

The road design satisfies the criteria in the BC Ministry of Forests and Ranges Forest Road Engineering Guidebook (2nd Edition, 2002). This is a private access road not intended for public use. It is a single lane, 5.0m wide, gravel surfaced access road with pullouts. The design speed is 30km/hr with maximum grades of 12%. The road alignment and vertical profile design provides adequate stopping sight distance based on the 30 km/hr design speed.

The Airstrip Access Road originates from a parking area adjacent to the aircraft apron at the northeast end of the proposed airstrip. From here the road heads east along the southeast slope staying above the poorly drained Dip Creek valley bottom. It crosses several small drainage channels before turning north and descending the slope to cross Dip Creek. The route then climbs the northwest slope on the opposite side of the valley and curves in and out of several drainage gullies now travelling north. The road climbs gradually again and then turns left to the northwest into the Brynelson Creek valley. It crosses Brynelson Creek and then turns sharply to the right to begin the steep climb out of the valley. The road switches back left around a ridge top and continues climbing steeply, now traveling north. It then continues parallel to the top of the ridge line until it ties in to the tailings dam access road for the final approach to the mine. Preliminary airstrip access road design drawings are shown in Appendix E.

Design and Construction Methods

In general, the Airstrip Access Road construction methods are similar to those used for the main access roads. In wet areas and where permafrost is present construction will consist of overlanding, where fill material will be placed over a layer of geotextile on top of undisturbed soils and any existing vegetative matt. For cut and fill areas, suitable material will be excavated, and placed to construct the road embankment. Permafrost rich cut areas will require further geotechnical investigation.

The Airstrip Access Road has a lower design speed and narrower cross-section then a main access road, which allows for more flexibility in the alignment and profile. Horizontal and vertical curves with smaller radii and k values along with steeper road grades are used to avoid large cuts and fills especially in areas with permafrost or slope stability concerns.

Clearing of trees and stumps will be required along the road right of way. The average width of clearing is 25m. The actual width will vary, but clearing should extend a minimum of 3.0 m beyond all cut and fill slopes. All clearing is expected to take place during winter.

Drainage for the Airstrip Access Road is managed using similar methods to the main access roads. Surface water drainage is accommodated by small corrugated steel pipes in 500 mm and 600 mm diameter sizes. Spacing is dependent on the road gradient and natural depressions. Ditches on the upslope side of the road convey water to the nearest adjacent cross culvert.

4 Preconstruction Activities

A number of preconstruction activities will need to be completed prior to commencement of construction on the main access roads and airstrip. These include preparation of camps, facilities, and infrastructure to support full construction operations.

Most of the bridge construction, borrow pit preparation and vegetation clearing activities will be completed during the winter months as part of the preconstruction activities. This will prevent construction access delays at bridge crossings and ensure as much time as possible is allocated to the main access construction activities during the short summer construction season. Similarly, the Carmacks by-pass road and bridge over the Nordenskiold River will be completed as preconstruction activities to provide a suitable access route for construction traffic and deliveries of fuel, supplies, and equipment, to avoid traveling through the Village of Carmacks.

The following sections describe the required preconstruction activities.

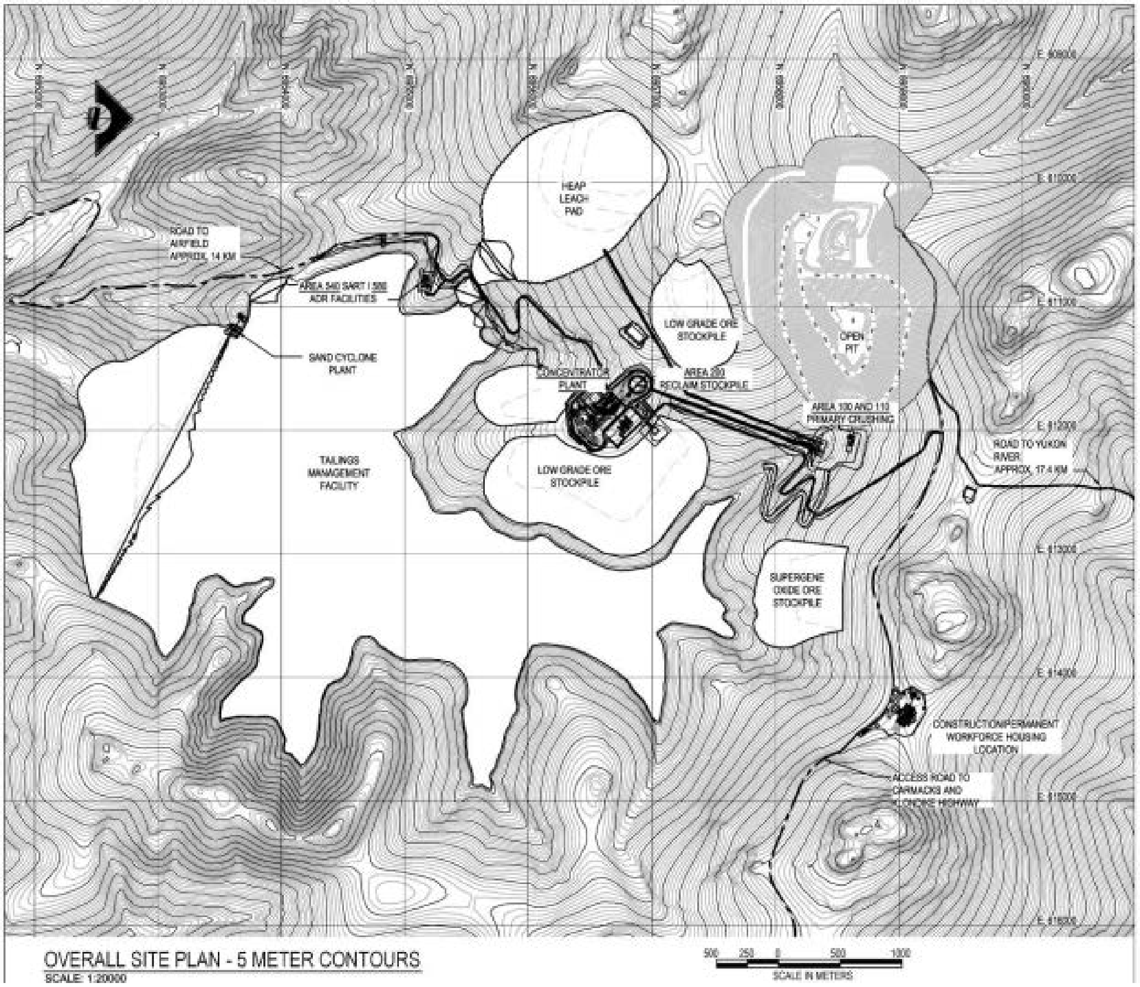
4.1 CONSTRUCTION CAMPS

Mine Camp

A nominal 1000-man capacity camp will be built in stages to support construction of the mine. The camp is located on a ridge top approximately 2 km to the east of the mine site. This mine construction camp will be utilised to support the construction of the access roads and airstrip. The access construction personnel will share the communal camp facilities with the larger mine construction operation. Additional equipment, fuel storage, and materials laydown area will be required to support the access construction, but the incremental increase in camp footprint will be minimal. Starting from the mine camp, construction activities will proceed east along the Freegold Road extension towards the Selwyn River as well as south to complete the airstrip access road and airstrip construction in the Dip Creek Valley.

This construction camp will be converted to serve as residence for the mine operations staff as construction activities wind down. Further details of the camp location and facilities can be found under a separate report discussing construction of the mine. Figure 4-1 shows the overall mine plan and proposed mine camp location.

Figure 4-1
Mine Camp Location



Freegold Road Camp

A temporary construction camp will also be required near the end of the existing Freegold Road. The selected camp location is an open, flat, valley section near the first crossing of Big Creek. Some clearing has already been completed at this site for previous access roads and mining activities. This camp will support construction of the new Freegold Road extension towards the mine and construction of upgrades on the existing Freegold Road back towards Carmacks.

The camp will consist of prefabricated modular trailer units with capacity to accommodate and support up to 84 people. Provided facilities will include bunk houses, kitchen, dining area, recreation space, office space, washrooms, showers, and a camp dry. Other camp infrastructure to support of personnel will include diesel generators for power, heating, water supply, solid waste disposal, and an approved septic tank/field or lagoon sewage treatment system. Solid waste will be incinerated or hauled off site for recycling or disposal.

A laydown area will be required for construction materials and equipment. Parking will be provided for pickups and other vehicles. Construction vehicles and heavy equipment will be serviced in a dedicated shop. Fuel storage and distribution will be required with enough fuel storage capacity to support two weeks of construction. The fuel storage will be enclosed within a lined earthen berm for secondary containment. The berm enclosure will be sized to contain 110% of the fuel tank capacity with a 300 mm freeboard. The fuel storage enclosure will be located a minimum horizontal distance of 30 m from the water's edge of adjacent watercourses and it will be constructed at a height sufficiently above normal high water elevation.

The construction camp will require a footprint of approximately 6 Hectares. Camp preparation will consist of clearing trees from the area, and placing imported granular fill to raise the site above flood elevation. The site embankment will be capped with gravel surfacing to provide adequate site drainage and a suitable driving surface for construction vehicles and heavy equipment. The Freegold temporary construction camp is shown on Figure B-6 attached in Appendix B.

Following the completion of access construction activities, the camp will be decommissioned. As part of decommissioning, all structures, equipment, and facilities will be removed. The original slope angles and drainage patterns will be restored and the area reclaimed.

4.2 CARMACKS BY-PASS AND NORDENSKIOLD BRIDGE

The Carmacks By-Pass will provide a route for construction and mine related traffic to bypass the Village of Carmacks. Yukon Government surveyed the route and prepared a road design in 1997. In 1998-1999 the right of way was cleared, and the first section of By-Pass road was constructed from the Klondike Highway to the east side of the Nordenskiold River.

The route is 5 km long beginning at the Klondike Highway in the Garvice Industrial Subdivision. The route crosses the Nordenskiold River and ascends to join the Mt. Nansen Road. The route is then generally a realignment and upgrade of the Mt. Nansen Road to where it ties into the Freegold Road. The design prepared by Yukon Government is a 9.0 m wide gravel road that meets a 70 km/hr design speed. The Carmacks By-Pass preliminary design drawings are included in Appendix A.

A detailed site survey of the Nordenskiold River crossing was completed in June 2013. A hydro-technical analysis of the crossing was carried out to establish the bridge height and required hydraulic opening. A bridge concept was then developed based on the site conditions, road geometry, geotechnical conditions, and environmental considerations The Nordenskiold Bridge concept is attached in Appendix F.

The proposed Nordenskiold Bridge is a single lane bridge, with steel girders and precast concrete deck panels. Pullouts are provided at each approach to allow for the safe passing of vehicles. The bridge will have two spans with a pier located in the river channel. Two metres of freeboard above the 1 in 100 year flow elevation is provided to allow clearance of debris during a flood event.

4.3 BRIDGES (WINTER CONSTRUCTION)

Bridge Design

Bridge design criteria is based on British Columbia Ministry of Forests, Lands, and Natural Resource Operations standard L100 vehicular loading. All bridges along the Freegold Upgrade and Freegold Extension are non-composite single lane bridges with pullouts on the approaches to allow safe passing of oncoming vehicles. The Nordenskiold River Bridge will be a composite single lane bridge. For consistency and reduced construction costs, all 27 bridges on the project will consist of prefabricated steel girders and precast concrete deck panels, or precast concrete slabs with timber curbing lining the outsides of the bridge. Rip Rap is required at the bridge abutments to provide scour protection. All bridges are clear span with the exception of the Nordenskiold River crossing as noted earlier, which is a two span structure.

For bridges with a span length of 15 m or more, bridge foundations have assumed to be steel pipe piles and precast concrete pile caps with the steel girders secured to the pile caps. For bridges less than 15 m in length, the foundation will be timber sills placed directly on rock or compacted fill. The timber sill option is faster to construct than driving piles and it allows more flexibility to adjust bridge approach elevations should settlement occur.

There are 27 major bridge crossings identified for the access components. These bridges include:

- 1 bridge crossing Nordenskiold River on the Carmacks By-Pass
- 3 bridges over Crossing Creek, Seymour Creek, and Bow Creek on the Freegold Road upgrade
- 21 bridges on the Freegold Road extension including crossings of Big Creek, Hayes Creek, and Selwyn River, as well as several tributaries and side channels.
- 2 bridges crossing Dip Creek and Brynelson Creek on the airstrip access road

In 2011, Associated Engineering completed detailed field investigations and topographic site surveys for each bridge location along the Freegold Road extension and Airstrip Access Road. Hydro-technical analysis for the waterways at each bridge crossing was also completed in 2011. Conceptual bridge designs have been prepared using the results from the hydro-technical analysis and information gathered in the field. The bridge concept drawings are included in Appendix F and a list of all identified major stream crossings is included in Appendix G.

Bridge lengths and minimum deck elevations are determined from hydro-technical analysis, environmental requirements, geotechnical information and road/stream alignment. The hydro-technical analysis for each crossing consisted of two phases: a hydrologic analysis to estimate the design flow that each crossing structure must accommodate during the 1:100 year return event; and a hydraulic analysis to predict the water surface elevation and water velocity for the design flow. The following presents a description of each phase and a discussion of the results.

During the hydrologic analysis, four additional bridge crossings were identified. This was confirmed through field work completed by Palmer Environmental Consulting Group in the summer of 2013. These crossings are located at 18+900, 61+830, 63+870, and 75+410 on the Freegold Road Extension. Topographic survey and hydraulic analysis is required to develop bridge concepts for these four crossings, and will be carried out in the future design phases of the project.

Hydrologic Analysis

In order to estimate the design flow for each crossing, Associated Engineering performed a regional flood frequency analysis using information from the Water Survey of Canada (WSC) and Yukon Environment – Water Resources Branch. In order to confirm the results, flows were then estimated using the procedures outlined in the Design Flood Estimating Guidelines for the Yukon Territory (INAC, 1989).

Watershed Delineation and GIS Analysis

Watershed delineation and GIS analysis was based on the National Topographic Series (NTS) 1:50,000 scale digital maps. The DEMs used to generate contours and delineate watershed boundaries were the 30 m resolution DEM dataset generated and distributed by Environment Yukon – Geomatics.

Geographic information system (GIS) was used to delineate the upstream watershed boundary for each crossing and calculate the resulting watershed area. Other physiographic parameters such as average overland slope, maximum, minimum and average elevation, and the longest flow path were also obtained. Similar analysis was performed for the WSC and Yukon Environment stream gauge locations in the area.

Hydraulic Analysis

Detailed site surveys were performed be AE personnel in the fall of 2011 at each crossing location and DTMs were developed from the site surveys. This information, along with the estimated flows at each crossing, formed the basis for the hydraulic analysis. The hydraulic analysis was then completed using in-house software to confirm water surface elevation and water velocity through the proposed structures hydraulic opening. A freeboard allowance ranging from 0.6 m to 1.0 m was provided at each crossing based on the typical potential for bedload and debris movement.

Bridge Construction Methods

To avoid the expense of temporary bridges, it is planned that only the permanent structures will be used to cross the major rivers and creeks during the road development. These will be constructed during the winter prior to commencing the road construction in the summer. The bridges will have to be complete to allow continuous construction of the roadway and avoid delays at each crossing while construction is being completed.

Temporary winter access will be required for construction equipment to reach each proposed bridge crossing location and begin construction. The winter access route will be constructed parallel to the proposed final access alignment but will be offset within the cleared right of way. In the spring this will allow proposed access road construction to begin without delays from thawing and decommissioning of the winter road. Temporary ice bridges will need to be constructed to allow equipment to cross the channel and construct each abutment. Ice bridges will be removed in the spring to prevent unnatural ice jamming or flooding from occurring. Temporary winter stream crossings will be constructed to meet the Department of Fisheries Operational Statements for Ice Bridges and Snow Fills.

To the extent possible, the footprint of the bridge construction will be limited to prevent disturbance to riparian areas. Bridges will be designed and constructed to meet the Department of Fisheries Operational Statements for Clear Span Bridges. All work will conform to applicable permits and environmental regulations. Bridge construction methods will involve initial construction of foundations and placement of riprap at both abutments. The superstructure can then be erected. Temporary bridge approach embankments can be constructed to provide access over the structure. The bridge approaches will be finalised as part of the first stage of road construction.

4.4 FIRST STAGE ROAD

The purpose of the first stage road will be to provide the ability to supply fuel and materials for the on-going road development and to support other construction activities for the Casino Project. The road will be a single lane first stage road with pullouts to facilitate early vehicular access to the mine site. The road will have lower operating speeds than the final road. The early establishment of a limited access capability is necessary to support the subsequent road construction and construction activity at the Casino Project site.

The first stage road will be constructed from the end of the Freegold Road and will generally be no more than five metres wide, providing a continuous route from Carmacks to Casino. It will follow the proposed Freegold Road extension alignment and in low lying valley sections embankments will be constructed to nearly full height to protect against high water levels and washouts during flood events. Complete construction of all bridge and culvert stream crossings will be required, with major bridge construction occurring during the winter months prior to road construction and short span bridge and culvert construction occurring at the same time as road construction in the summer. The road will be widened at stream culvert locations to insulate the culverts and provide pullouts and turnarounds for construction traffic. Where permafrost is located at stream culvert crossings, further investigation is required to determine the extent of mitigation that may be required. Suitable roadway drainage, consisting of ditches and cross culverts, will be installed to meet required standards. Additional ditches and cross culverts will be added later as required during final stage road construction.

4.5 BORROW PIT PREPARATION AND ACCESS

Most of the fill and surfacing material required for road and airstrip embankment construction will be developed from borrow pits and then hauled to where it is required. The chosen borrow sites are located as close to the road alignment and fill areas as possible to reduce haul distances and impact on the environment. Any areas in close proximity to flood plains, watercourses, unstable terrain, and environmentally sensitive features have been avoided. Other areas have been avoided because they are known or suspected to be ice-rich or acid generating.

Sources of bedrock and granular material are proposed along the Freegold Road extension at an average spacing of 3.8 km. The estimated volume of material available from these sources far exceeds the anticipated 1,300,000 m^3 of borrow required for road construction. As a result, only a portion of some borrow pit areas will be required. On the Freegold Road upgrades, preliminary geotechnical investigations have been carried out, and material types identified. However further geotechnical field testing is required to determine the suitability and volume of material available.

Development of borrow pit areas will require clearing of trees and stripping of organic material. Granular borrow source material will be excavated and stockpiled for hauling. Road building material from bedrock sources will be prepared using a combination of ripping, blasting, and crushing. Drainage ditches will be constructed to divert runoff around the borrow pits and prevent erosion and transport of sediment into nearby watercourses to comply with applicable legislation. Borrow pit slope angles will be limited to the natural angle of repose for the material in each pit, but may be steeper for active excavation slopes.

Construction of temporary borrow pit access roads will be required to connect the pits to construction areas. Borrow pit access roads will be 5.0 m wide and will be gravel surfaced on an embankment designed to stabilise the road over poorly drained soils and organic material. Road grades will be limited to 15%. The borrow pit access roads will follow the natural topography as closely as possible while still maintaining the minimum standards for safe operations of a construction haul road.

Winter preparation of the borrow pit areas is proposed as part of the preconstruction activities. Winter activities would likely be limited to clearing and grubbing of the borrow pit areas and associated access roads, but some material will need to be produced in the winter for rip rap and temporary bridge end fills. By developing borrow pit areas early, it will minimise the delay before production of material can begin at the start of the summer road construction season. Borrow material production will primarily occur at the same time as road construction. The rate of borrow production will depend on road construction progress and the demand for material within each segment of the road.

Borrow pits will be progressively decommissioned when they are no longer needed or suitable material has been used up. Decommissioning will include re-vegetation, slope grading, and restoration of natural drainage patterns.

5 Construction Schedule and Sequencing

Casino Mining Corporation's intention is to complete the construction of the access road and all airstrip components within three years. CMC have set a target to complete the first stage road access by the end of the first year. Several preconstruction activities will need to be completed prior to the commencement of the access road construction. Preconstruction activities will include procurement of materials and equipment, setup of temporary construction camps, construction of bridges, and preparation of borrow pits. The Carmacks By-pass will also be required early in the construction process to provide construction access. This will ensure construction and mine related traffic through Carmacks is limited.

Construction of the Carmacks By-Pass and upgrades to the Freegold road will be supported from staging areas near Carmacks. Being a Territorially owned road, development of this section of the access is expected fall under the purview of the Yukon Territorial Government.

Construction of the new Freegold Road extension will proceed from the end of the Freegold Road towards the mine supported by a temporary construction camp located near the confluence of Seymour Creek and Bow Creek. The main construction camp near the mine will support two additional construction fronts. One front proceeding eastward to meet construction originating from the Freegold Road, and the other proceeding south to construct the new airstrip access road and airstrip.

An initial single lane first stage road will be constructed as early as possible to facilitate the transportation of supplies and construction equipment to the mine site. The first stage road will follow the proposed Freegold Road extension alignment and provide a continuous route for slow moving vehicles all the way to the mine.

The construction sequence of the access components is envisaged as follows:

1. Issue tenders for the provision of construction materials, including fuel, equipment, and supplies for road construction. The successful contractor(s) will be responsible for securing all licenses and authorisations in the provision and delivery of these services.
2. Setup temporary construction camps to support construction activities
3. Construct Carmacks By-Pass Road and bridge over Nordenskiold River
4. Commence winter construction activities including bridge construction, borrow pit preparation, and right of way clearing.
5. Commence summer road construction starting from Carmacks for the upgrade of the existing Freegold Road.
6. Commence summer road construction starting from the western limit of the existing Freegold Road moving westward towards Casino for the Freegold Road extension.
7. Commence summer road construction starting from Casino in a generally easterly direction to meet the construction front originating from the Freegold Road, and heading south to construct the Airstrip Access Road and Airstrip.

8. CMC's objective in the first year of road construction is to develop a limited access road that will provide a continuous route from Carmacks to Casino. The purpose of the limited access road is to provide the ability to supply fuel, equipment, and materials for the mine construction activities and on-going road development.
9. To the extent practical, permanent stream and river crossings will be constructed to provide a limited access road capability within the first two construction years. In some instances it may be necessary to employ temporary (leased) bridges until the permanent bridges and culverts can be constructed.
10. CMC intends to have the Airstrip Access Road and Airstrip completed by the end of the second year.
11. CMC intends to complete the construction of the existing Freegold Road upgrade and new Freegold Road extension within three years.
12. The Summer Construction season is assumed to be 4 months long operating with two shifts of 10 hours each.
13. The Winter Construction season is assumed to be a maximum of 6 months long operating with a single 10 hour shift per day.
14. There is expected to be at least 1 month in the spring and 1 month in the fall where construction activities will be limited due to freeze-thaw activities.

6 Road Decommissioning

Following the completion of mining and the active phase of closure activities, a decision could be made, with the agreement of all stakeholders, to decommission the Freegold Road Extension. Decommissioning of the road will ensure that future vehicular access will not be possible. The public portion of the existing Freegold Road will remain open for public use under the ownership and maintenance of Yukon Highways and Public Works.

The proposed road decommissioning will extend from the south side of Big Creek at the end of the existing Freegold Road to the mine site. The purpose of road decommissioning will be to stabilize the road footprint and restore natural drainage patterns while maintaining water quality and reducing the risk of landslides. The level of decommissioning activities that are required to achieve these objectives will vary depending on characteristics of each road segment. Factors such as slope failure risks, safety hazards, erosion potential, water quality, water quantity, and fish habitat proximity will all influence the chosen mitigation strategies. Typically the road decommissioning will include most, if not all of the following activities.

All bridges, stream culverts, and surface drainage cross-culverts along the road will be carefully removed. Removal of stream culverts and bridges may require restoration of the natural stream channel width and gradient, and armouring of the stream banks with rock. Work in fish-bearing streams will occur during timing windows that minimize fish impacts as prescribed by the Department of Fisheries. Cross-culverts will be removed and replaced with cross-ditches to move surface runoff from the road top and roadside ditches to non-erodible soils downslope. Cross-ditches located on longitudinal grades will require ditch blocks installed to intercept ditch runoff. Cross-ditches located at natural low spots will not require ditch blocks and will be broader with gentler slopes to capture the converging runoff. Rock armouring will be placed at all cross-ditch outlets. Cross-ditches will be prepared for natural revegetation and may be planted or seeded with local species to prevent erosion of exposed fine grained soils.

Along the entire length of the road, the top surface will be scarified and left in a condition that promotes natural revegetation. Any available local windrowed topsoil may be re-used on the surface and seeding or planting of local species may be completed along the road where appropriate.

Where the road is located on steep side slopes or potentially unstable terrain, slopes angles may need to be restored by pulling back side cast material on select sections of road to reduce the risk of slope failure. Any retaining walls and potentially unstable fills will be removed. Waterbars, berms or outsloping of the remaining road structure may also be required in some areas to intercept water running down the road and divert it to the stable slopes below. Steep slopes will be revegetated to improve slope stability and re-establish natural vegetation successional pathways.

Where the road is located in valley bottoms or on stable terrain with gentler side slopes, road fills are expected to be stable and will remain in place. Re-sloping of the road top will be completed in select locations to control surface run-off, limit erosion of fine grained soils, and facilitate the removal of culverts and bridges.

Further details of road decommissioning will be developed as part of the detailed project decommissioning planning and in accordance with the requirements of an approved road management plan.

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Ray Korpela
Group Manager – Resource Infrastructure

PS/RK/af

Appendix A - Preliminary Carmacks By-Pass Design

CARMACKS BY-PASS ROAD

68+000 CONTINUOUS ROAD STATION OF PROPOSED ROUTE. 0+000 REFERENCED AT INTERSECTION OF KLONDIKE HIGHWAY.

EXISTING FREEGOLD ROAD ALIGNMENT

PROPOSED FREEGOLD ROAD ALIGNMENT

SETTLEMENT LAND

FOR DISCUSSION ONLY

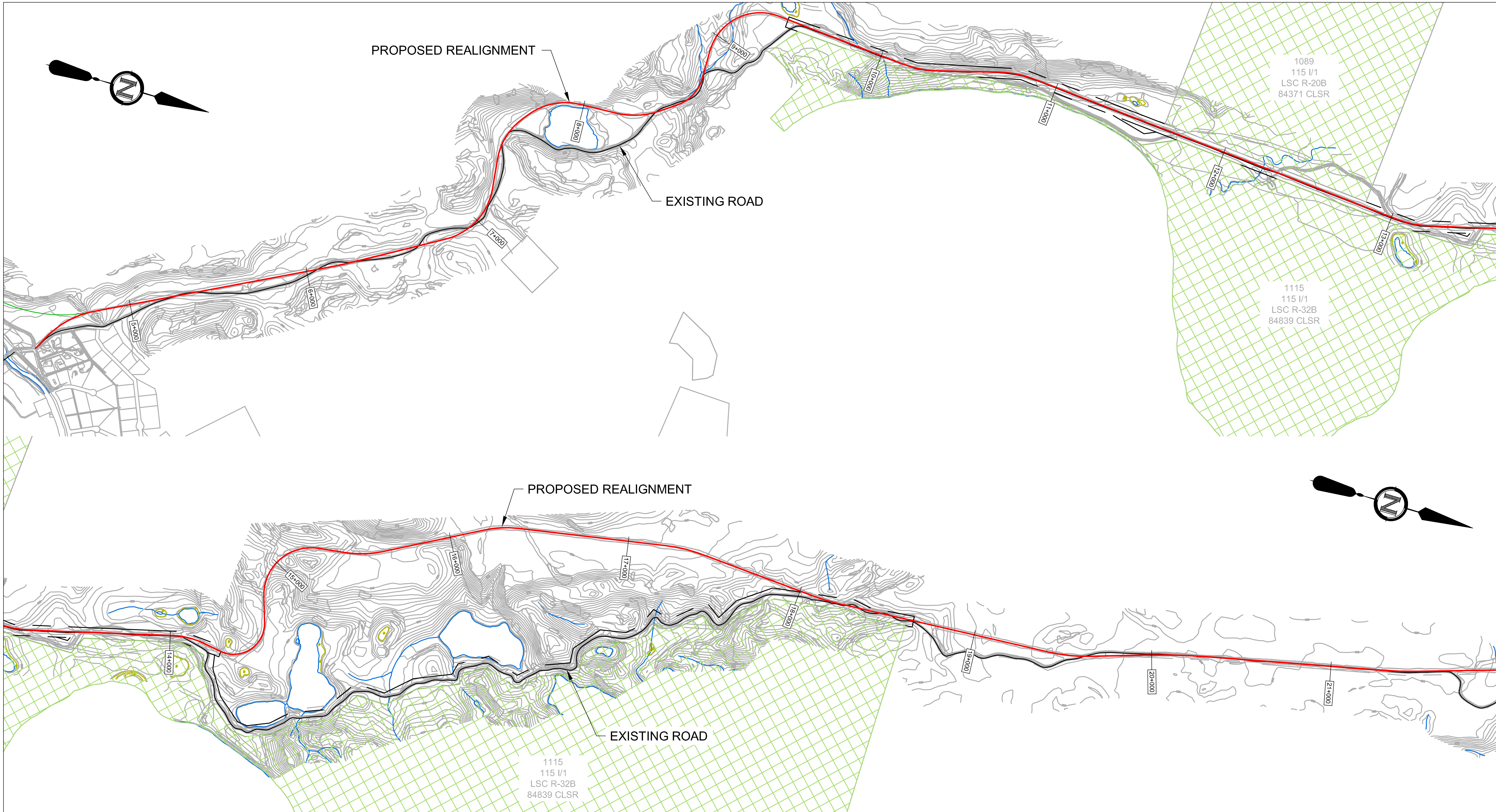
DRAFT

CASINO MINE PROJECT
FIGURE A-1
CARMACKS BY-PASS ROAD

Date: Sept 12, 2013
Scale: 1:10,000

Associated Engineering

Appendix B - Preliminary Freegold Road Upgrade Design



68+000 — CONTINUOUS ROAD STATION OF PROPOSED ROUTE. 0+000 REFERENCED AT INTERSECTION OF KLONDIKE HIGHWAY.

EXISTING FREEGOLD ROAD ALIGNMENT

PROPOSED FREEGOLD ROAD ALIGNMENT

SETTLEMENT LAND

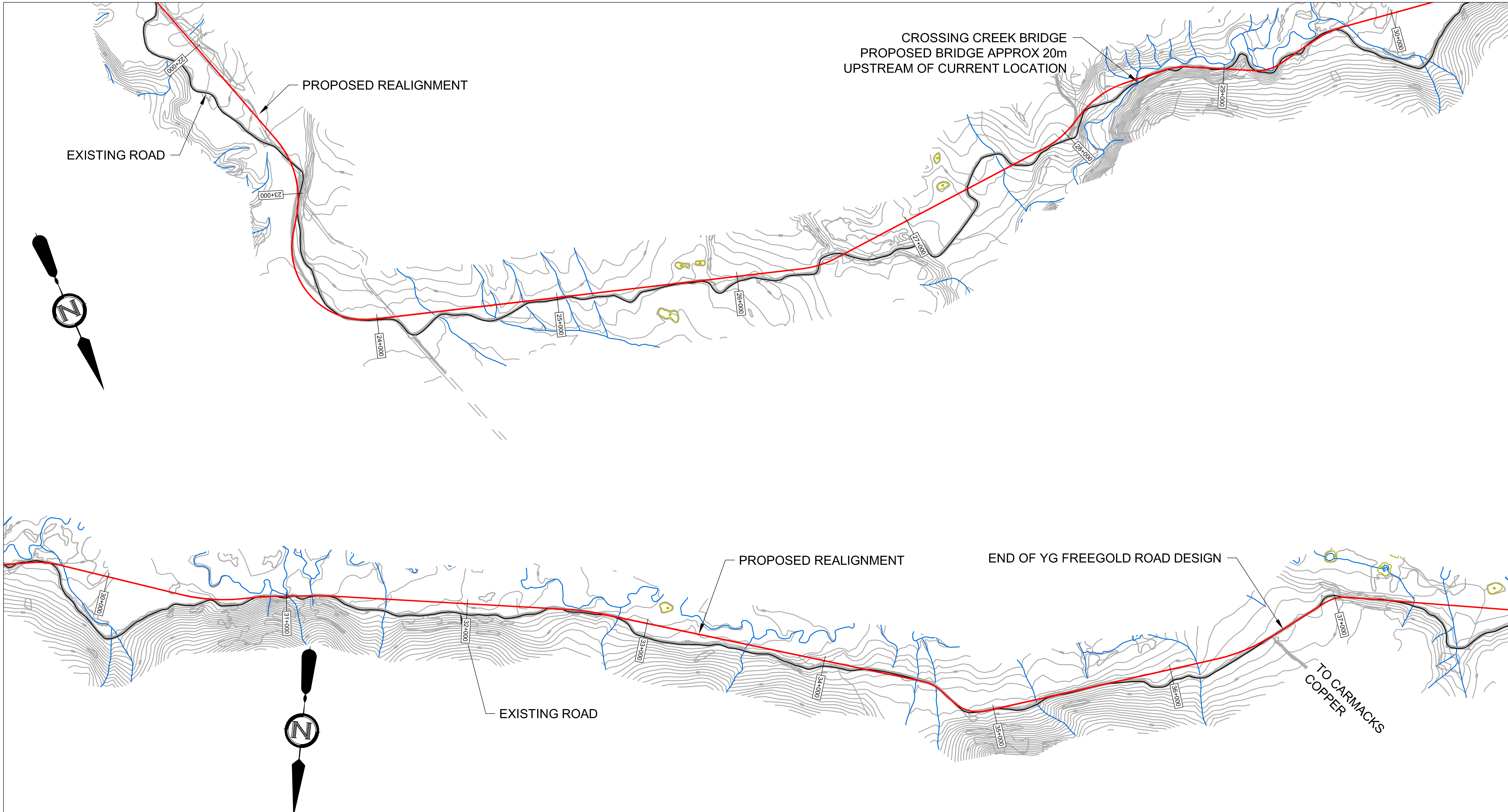
FOR DISCUSSION ONLY

DRAFT

CASINO MINE PROJECT
Figure B-1
Existing Freegold Road Upgrade

Date: Sept 12, 2013
Scale: 1:20,000

Associated Engineering



68+000 CONTINUOUS ROAD STATION OF PROPOSED ROUTE. 0+000 REFERENCED AT INTERSECTION OF KLONDIKE HIGHWAY.

EXISTING FREEGOLD ROAD ALIGNMENT

PROPOSED FREEGOLD ROAD ALIGNMENT

SETTLEMENT LAND

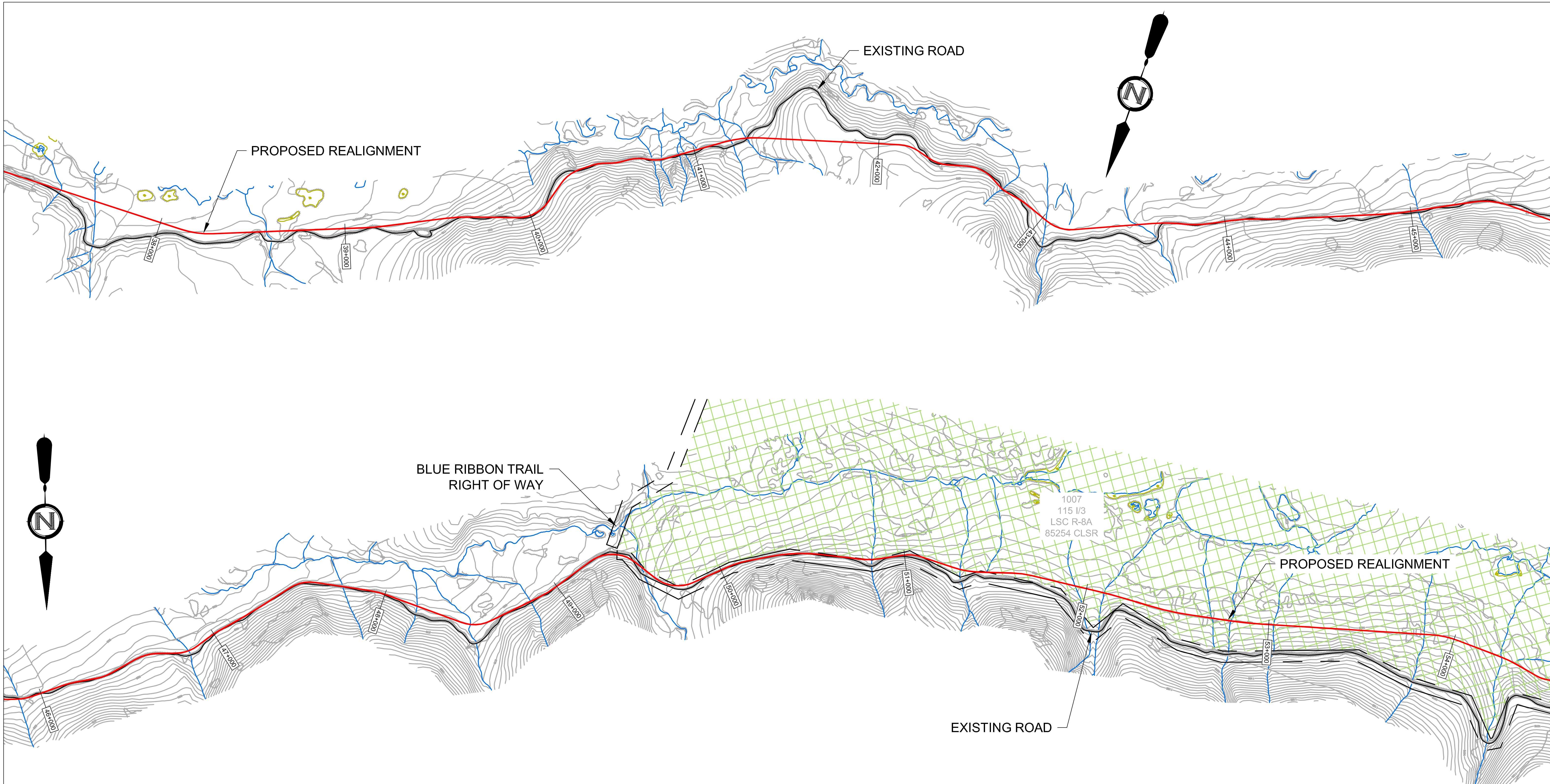
FOR DISCUSSION ONLY

DRAFT

CASINO MINE PROJECT
Figure B-2
Existing Freegold Road Upgrade

Date: Sept 12, 2013
Scale: 1:20,000

Associated Engineering



68+000	CONTINUOUS ROAD STATION OF PROPOSED ROUTE. 0+000 REFERENCED AT INTERSECTION OF KLONDIKE HIGHWAY
(black line)	EXISTING FREEGOLD ROAD ALIGNMENT
(red line)	PROPOSED FREEGOLD ROAD ALIGNMENT
(green hatch)	SETTLEMENT LAND

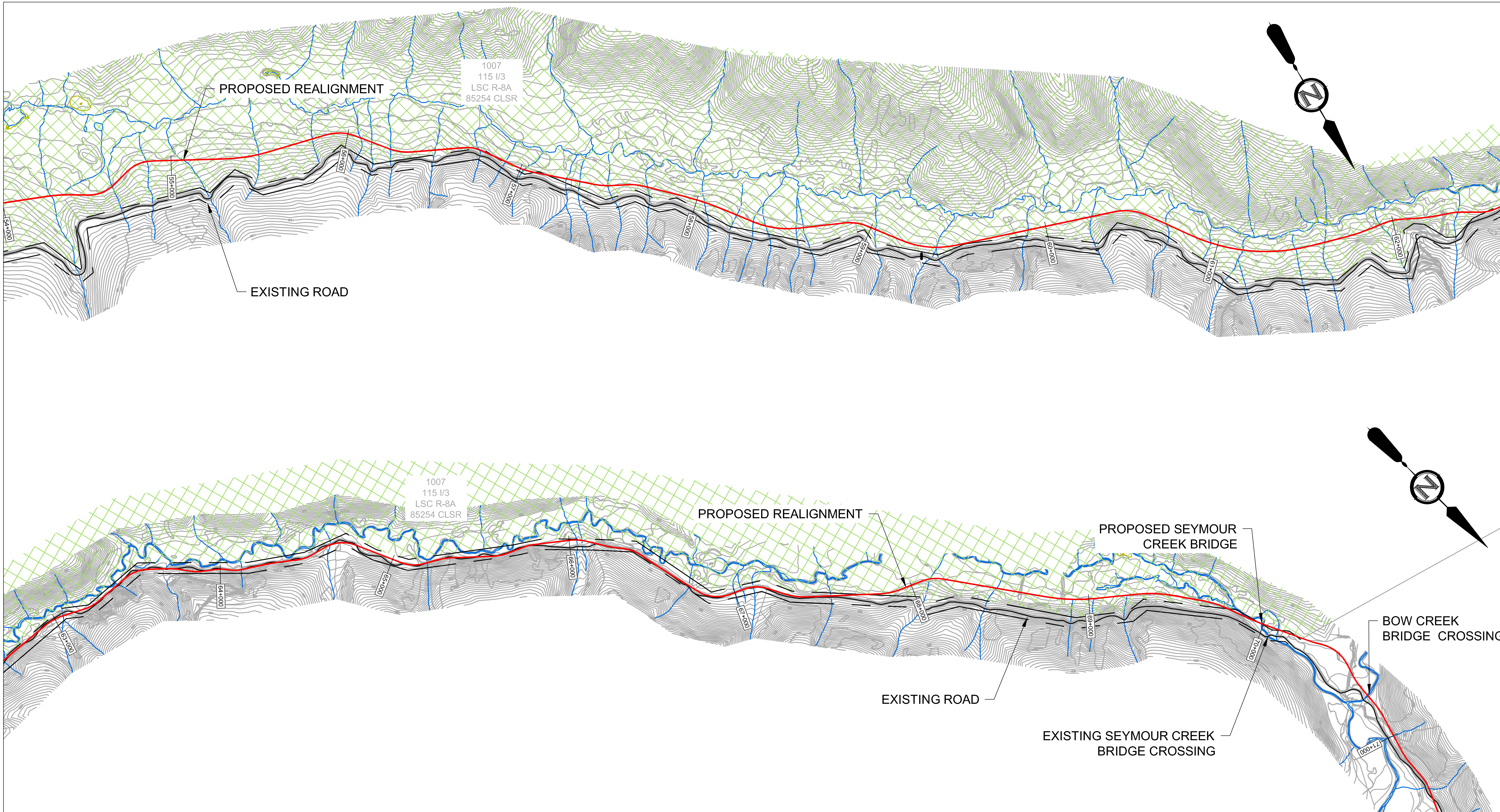
FOR DISCUSSION ONLY

DRAFT

CASINO MINE PROJECT
Figure B-3
Existing Freegold Road Upgrade

Date: Sept 12, 2013
Scale: 1:20,000

Associated Engineering



68+000	CONTINUOUS ROAD STATION OF PROPOSED ROUTE. 0+000 REFERENCED AT INTERSECTION OF KLONDIKE HIGHWAY
(black line)	EXISTING FREEGOLD ROAD ALIGNMENT
(red line)	PROPOSED FREEGOLD ROAD ALIGNMENT
(green hatch)	SETTLEMENT LAND

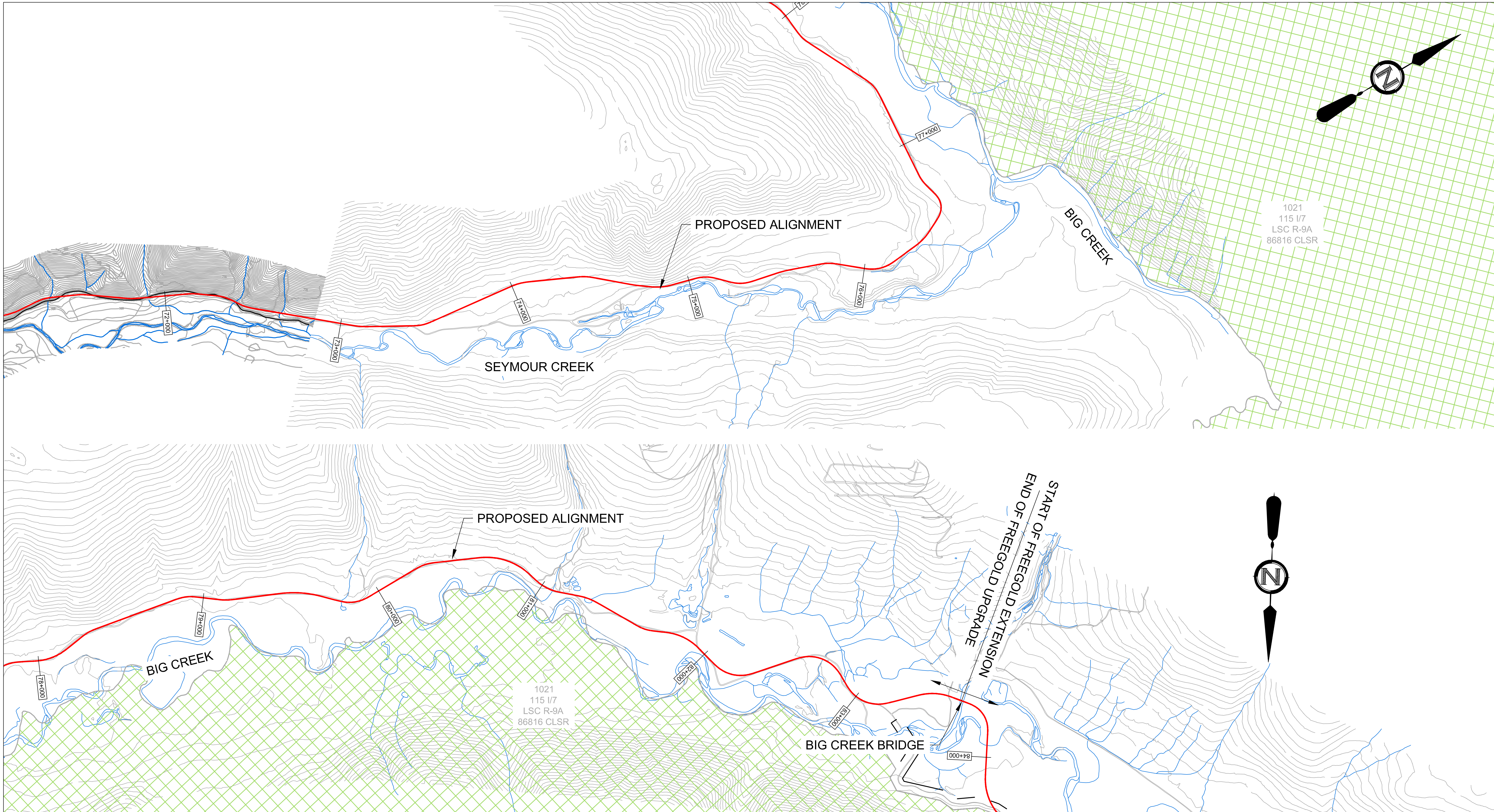
FOR DISCUSSION ONLY

DRAFT

CASINO MINE PROJECT
Figure B-4
Existing Freegold Road Upgrade

Date: Sept 12, 2013
Scale: 1:20,000

Associated Engineering



68+000 — CONTINUOUS ROAD STATION OF PROPOSED ROUTE. 0+000 REFERENCED AT INTERSECTION OF KLONDIKE HIGHWAY

EXISTING FREEGOLD ROAD ALIGNMENT

PROPOSED FREEGOLD ROAD ALIGNMENT

SETTLEMENT LAND

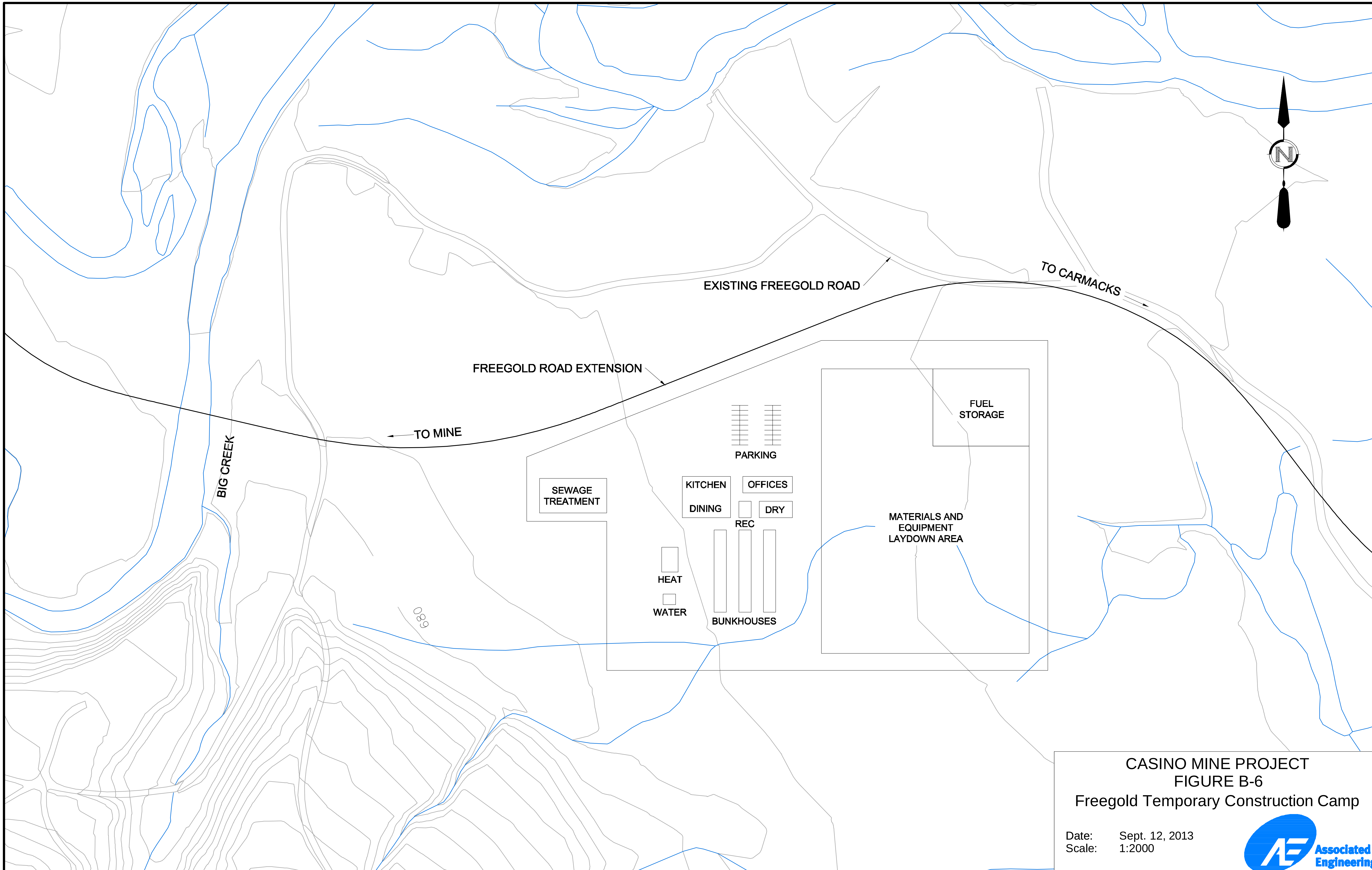
FOR DISCUSSION ONLY

DRAFT

CASINO MINE PROJECT
Figure B-5
Existing Freegold Road Upgrade

Date: Sept 12, 2013
Scale: 1:20,000

Associated Engineering



CASINO MINE PROJECT
FIGURE B-6
Freegold Temporary Construction Camp

Date: Sept. 12, 2013
Scale: 1:2000

Associated Engineering

Appendix C - Preliminary Freegold Road Extension Design

WESTERN COPPER AND GOLD CORPORATION

DRAWING LIST			
DRAWING NUMBER	DESCRIPTION	REV.	DATE
20092374-00-1-100	KEY PLAN	1	2011/02/25
20092374-00-1-101 TO 117	PLAN / PROFILE	2	2012/04/20
20092374-00-1-118	ROAD DESIGN CRITERIA	1	2011/02/25
20092374-00-1-200 TO 231	CROSS SECTIONS	1	2012/04/20

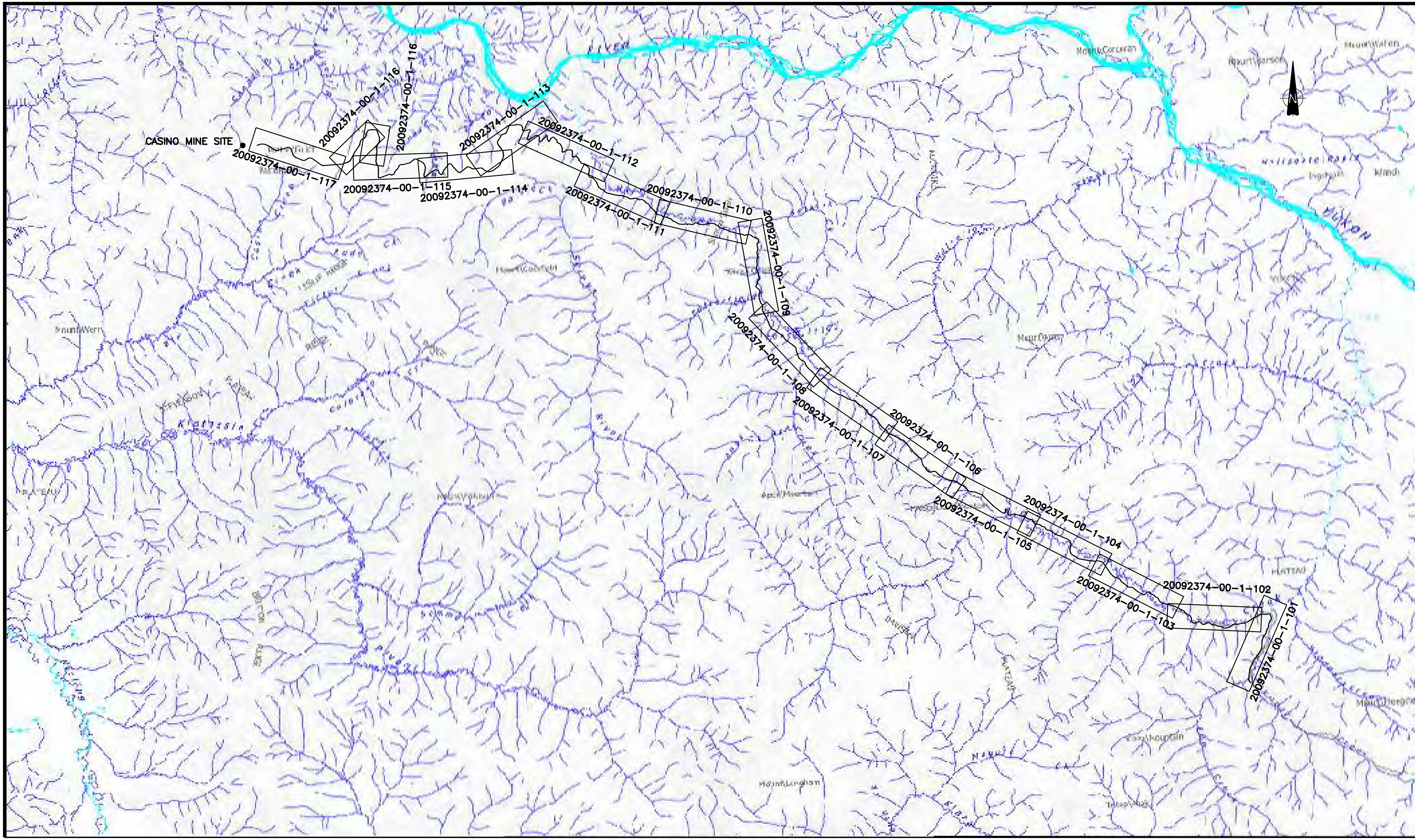
CASINO MINE PROJECT

TRANSPORTATION ROUTE PRELIMINARY ROAD DESIGN

AE Project Number: 20092374

Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

This Drawing Is For The Use Of The Client And Project Indicated
No Representations Of Any Kind Are Made To Other Parties



NO.	DATE	ENG.	BY	SUBJECT
1	2011/02/25		PS	UPDATED ALIGNMENT STA. 6+400 TO 14+400

REVISIONS

PRELIMINARY
NOT FOR CONSTRUCTION

BAR IS 20mm ON ORIGINAL DRAWING
0 20mm
IF NOT 20mm ON THIS SHEET, ADJUST SCALES ACCORDINGLY

western COPPER AND GOLD

Associated Engineering

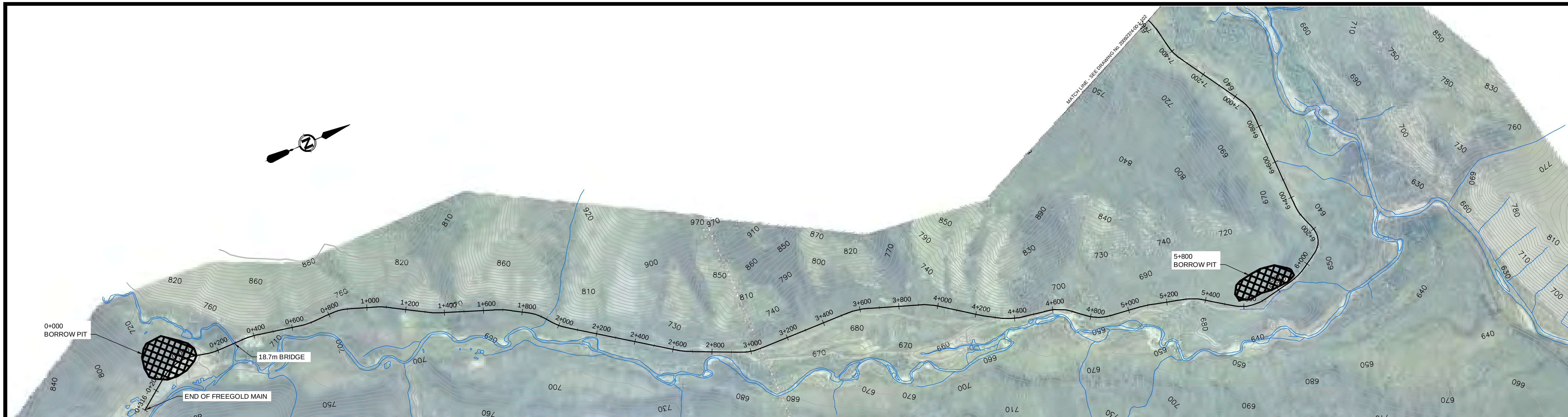
PROJECT No.	20092374
SCALE	1:150,000
DRAWN	MIKE ERICKSON
DESIGNED	P. STANCOMBE
CHECKED	
APPROVED	
DATE	INITIAL

WESTERN COPPER AND GOLD CORPORATION

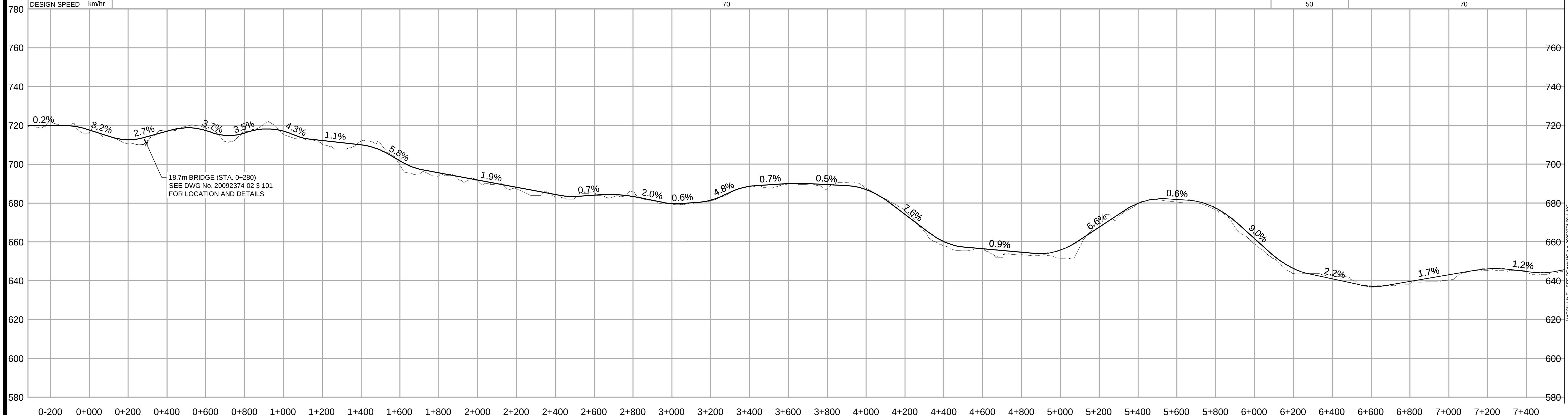
KEY PLAN

CASINO MINE PROJECT
TRANSPORTATION ROUTE
PRELIMINARY ROAD DESIGN

DRAWING NUMBER	REV. NO.	SHEET
-	2	



		SOME ORGANIC COVER, LIMITED GROUND ICE
SOIL TYPES		MOSTLY SAND AND GRAVEL, WELL DRAINED, LIMITED GROUND ICE
CLEARING	sq. m	237,474
STRIPPING	cu. m	44,600
EXCAVATION	cu. m	62,349
EMBANKMENT	cu. m	97,461
BORROW	cu. m	40,780
SURFACING	cu. m	20,529
DESIGN SPEED	km/hr	70 / 50 / 70



NO.	DATE	ENG.	BY	SUBJECT
2	2012/04/20	-	PS	UPDATED ALIGNMENT, PROFILE, QUANTITIES, AND BRIDGE CROSSINGS
1	2011/02/25		PS	UPDATED ALIGNMENT/PROFILE STA. 6+400 TO 14+400, SOIL TYPES AND QUANTITIES

REVISIONS

PRELIMINARY
NOT FOR CONSTRUCTION

BAR IS 20mm ON ORIGINAL DRAWING
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IF NOT 20mm ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT No.	20092374
SCALE	H=1:10,000, V=1:1,000
DRAWN	H. YIN
DESIGNED	P. STANCOMBE
CHECKED	R. KORPELA
APPROVED	
DATE	INITIAL

WESTERN COPPER AND GOLD CORPORATION

PLAN / PROFILE

CASINO MINE PROJECT
TRANSPORTATION ROUTE
PRELIMINARY ROAD DESIGN

DRAWING NUMBER	REV. NO.	SHEET
20092374-00-1-101	2	

This Drawing Is For The Use Of The Client And Project Indicated
No Representations Of Any Kind Are Made To Other Parties

SOIL TYPES		SOME ORGANIC COVER, LIMITED GROUND ICE / SOME ORGANIC COVER, GROUND ICE, PERMAFROST <0.5m BELOW SURFACE / MOSTLY SAND AND GRAVEL, WELL DRAINED, LIMITED GROUND ICE / SOME ORGANIC COVER, LIMITED GROUND ICE / SAND AND GRAVEL OVER BEDROCK, WELL DRAINED, LIMITED GROUND ICE
CLEARING	sq. m	240,000
STRIPPING	cu. m	41,969
EXCAVATION	cu. m	29,406
EMBANKMENT	cu. m	102,384
BORROW	cu. m	75,650
SURFACING	cu. m	20,696
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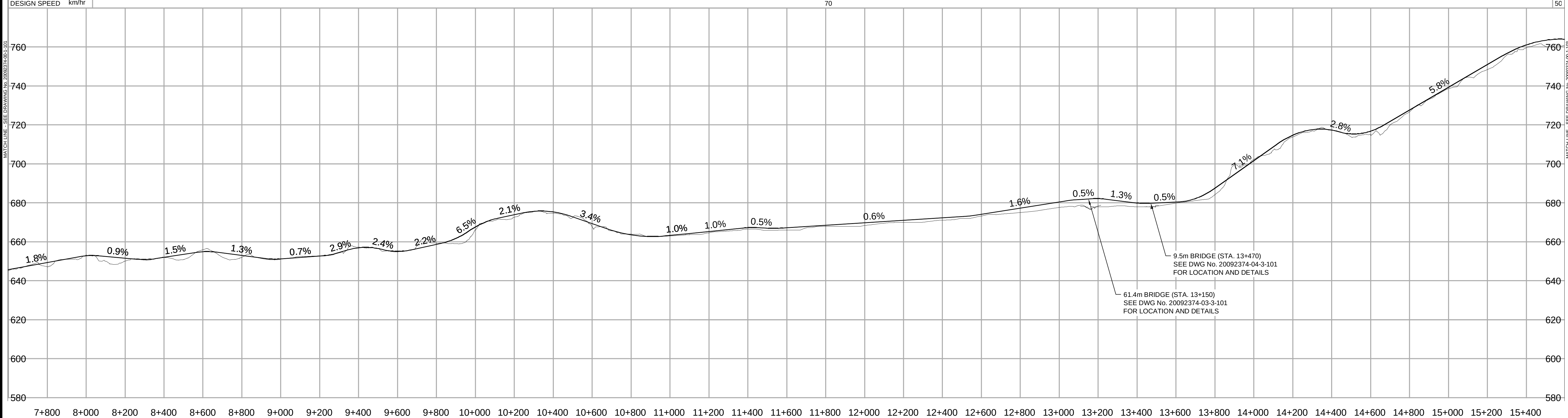


NO.	DATE	ENG.	BY	SUBJECT
2	2012/04/20	-	PS	UPDATED ALIGNMENT, PROFILE, QUANTITIES, AND BRIDGE CROSSINGS
1	2011/02/25		PS	UPDATED ALIGNMENT/PROFILE STA. 6+400 TO 14+400, SOIL TYPES, AND QUANTITIES

REVISIONS

PRELIMINARY
NOT FOR CONSTRUCTION

BAR IS 20mm ON ORIGINAL DRAWING
0 —— 20mm
IF NOT 20mm ON THIS SHEET, ADJUST SCALES ACCORDINGLY

western COPPER AND GOLD

Associated Engineering

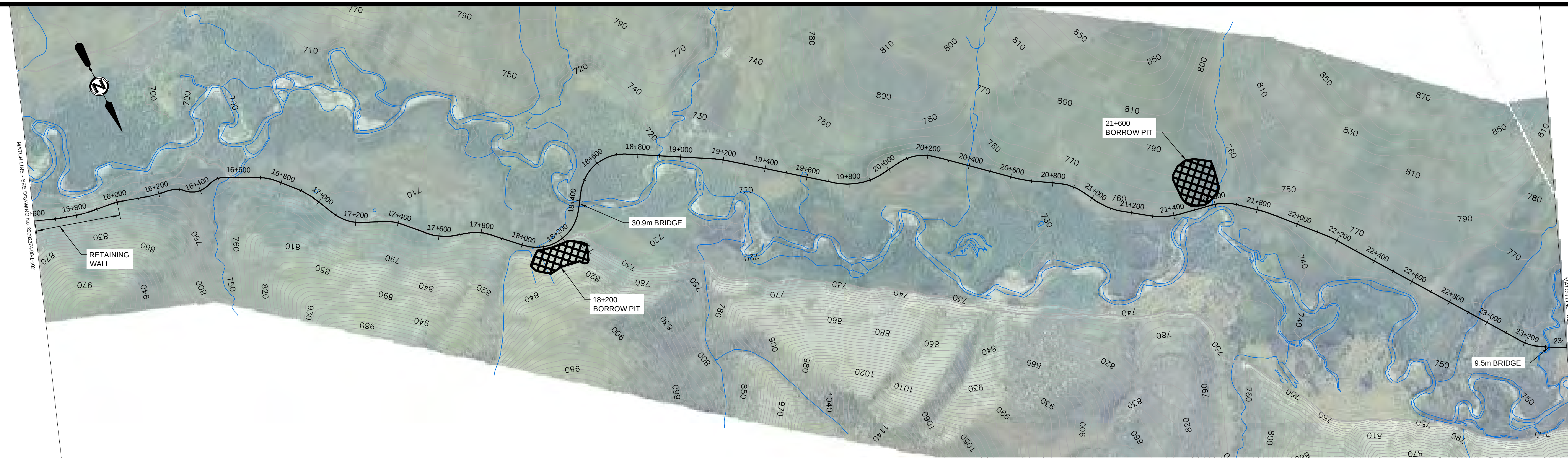
PROJECT No.	20092374	
SCALE	H=1:10,000, V=1:1,000	
DRAWN	H. YIN	
DESIGNED	P. STANCOMBE	
CHECKED	R. KORPELA	
APPROVED		
DATE		INITIAL

WESTERN COPPER AND GOLD CORPORATION

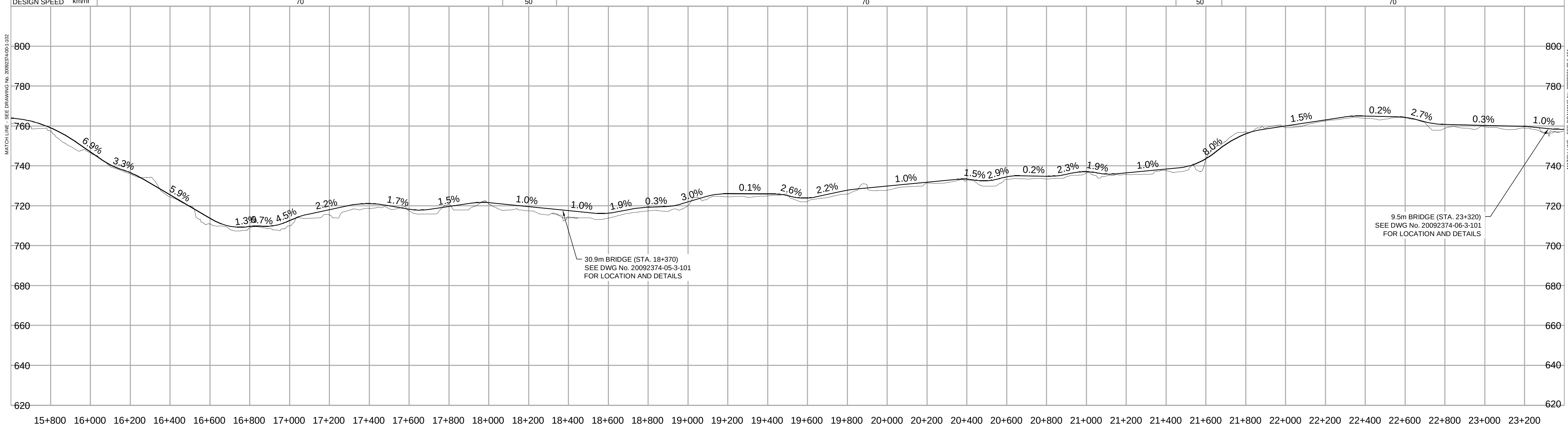
PLAN / PROFILE

CASINO MINE PROJECT
TRANSPORTATION ROUTE
PRELIMINARY ROAD DESIGN

DRAWING NUMBER	REV. NO.	SHEET
20092374-00-1-102	2	



SOIL TYPES		>1.0m ORGANICS, POORLY DRAINED, PERMAFROST APPROX. 1.0m BELOW SURFACE; SAND AND GRAVEL OVER BEDROCK, WELL DRAINED, LIMITED GROUND ICE; MOSTLY SILT, SAND AND GRAVEL, WELL DRAINED, LIMITED GROUND ICE; >0.5m ORGANICS, PERMAFROST 0.5-1.0m BELOW SURFACE; >1.0m ORGANICS, POORLY DRAINED, PERMAFROST APPROX. 1.0m BELOW SURFACE; MOSTLY SILT, SAND AND GRAVEL, WELL DRAINED, LIMITED GROUND ICE
CLEARING	sq. m	234,000
STRIPPING	cu. m	26,123
EXCAVATION	cu. m	27,906
EMBANKMENT	cu. m	138,514
BORROW	cu. m	113,145
SURFACING	cu. m	20,176
DESIGN SPEED	km/hr	70 / 50 / 70 / 50 / 70



NO.	DATE	ENG.	BY	SUBJECT
2	2012/04/20	-	PS	UPDATED ALIGNMENT, PROFILE, QUANTITIES, AND BRIDGE CROSSINGS
1	2011/02/25		PS	UPDATED SOIL TYPES AND QUANTITIES

REVISIONS

PRELIMINARY
NOT FOR CONSTRUCTION

BAR IS 20mm ON ORIGINAL DRAWING
0 — 20mm
IF NOT 20mm ON THIS SHEET, ADJUST SCALES ACCORDINGLY

western COPPER AND GOLD

Associated Engineering

PROJECT No.	20092374	
SCALE	H=1:10,000, V=1:1,000	
DRAWN	H. YIN	
DESIGNED	P. STANCOMBE	
CHECKED	R. KORPELA	
APPROVED		
DATE		INITIAL

WESTERN COPPER AND GOLD CORPORATION

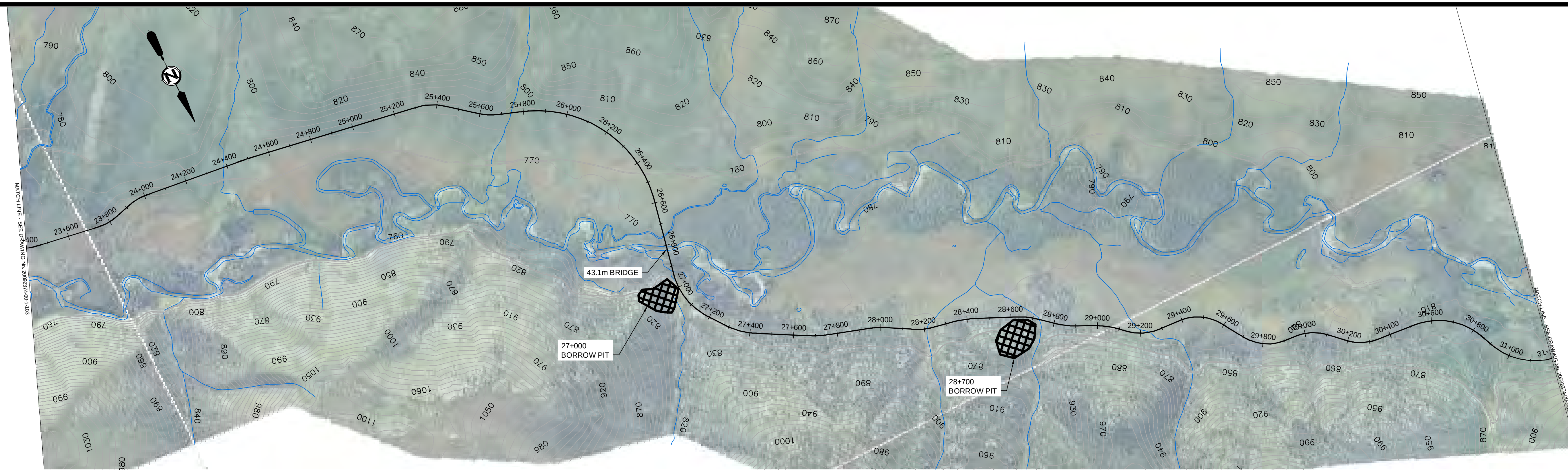
PLAN / PROFILE

CASINO MINE PROJECT
TRANSPORTATION ROUTE
PRELIMINARY ROAD DESIGN

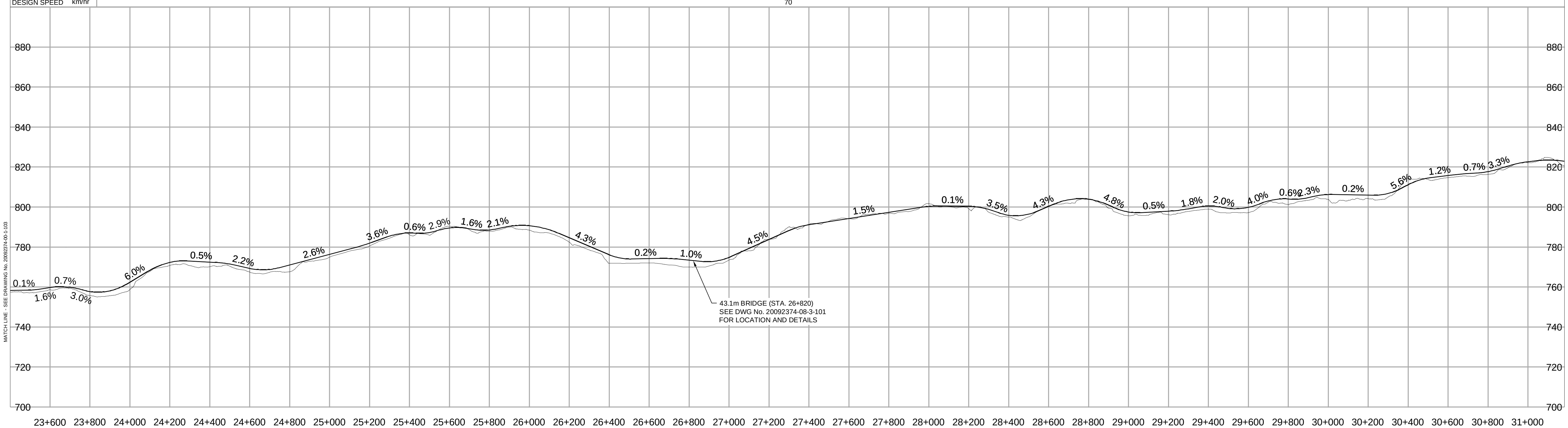
DRAWING NUMBER	REV. NO.	SHEET
20092374-00-1-103	2	

P:\20092374\00_Casino\Mine_Access\Working_Dwgs\100_Civil\20092374-00-1-103.dwg
DATE: 6/4/2012 3:38:46 PM, Helen Yin

This Drawing Is For The Use Of The Client And Project Indicated
No Representations Of Any Kind Are Made To Other Parties



SOIL TYPES		>1.0m ORGANICS, POORLY DRAINED, PERMAFROST APPROX. 1.0m BELOW SURFACE; SILT, SAND AND GRAVEL, STEEP SLOPE, PERMAFROST <0.5m BELOW SURFACE; >1.0m ORGANICS, POORLY DRAINED, PERMAFROST <1.0m BELOW SURFACE; MOSTLY SILT, SAND AND GRAVEL, WELL DRAINED, PERMAFROST <0.5m BELOW SURFACE; >1.0m ORGANICS, POORLY DRAINED, PERMAFROST <1.0m BELOW SURFACE
CLEARING	sq. m	234,000
STRIPPING	cu. m	28,259
EXCAVATION	cu. m	27,685
EMBANKMENT	cu. m	137,228
BORROW	cu. m	112,060
SURFACING	cu. m	20,124
DESIGN SPEED	km/hr	70



NO.	DATE	ENG.	BY	SUBJECT
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Associated Engineering

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DRAWN	H. YIN		
DESIGNED	P. STANCOMBE		
CHECKED	R. KORPELA		
APPROVED			
DATE		INITIAL	

WESTERN COPPER AND GOLD CORPORATION

PLAN / PROFILE

CASINO MINE PROJECT
TRANSPORTATION ROUTE
PRELIMINARY ROAD DESIGN

DRAWING NUMBER	REV. NO.	SHEET
20092374-00-1-104	2	

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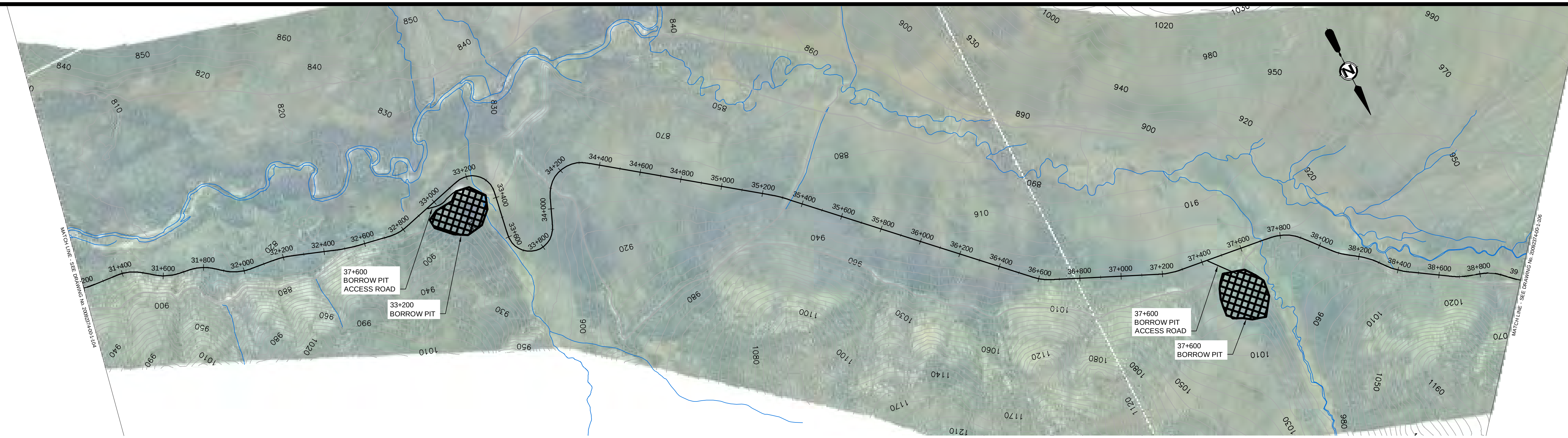

SOIL TYPES		THIN ORGANICS, PERMAFROST APPROX. 1.0m BELOW SURFACE; >0.5m ORGANICS, PERMAFROST <1.0m BELOW SURFACE; >0.5m ORGANICS, POORLY DRAINED, PERMAFROST 1.0m BELOW SURFACE; THIN ORGANICS, MODERATELY WELL DRAINED, PERMAFROST >1.0m BELOW SURFACE; >1.0m ORGANICS, V. POORLY DRAINED, PERMAFROST 1.0m BELOW SURFACE
CLEARING	sq. m	234,000
STRIPPING	cu. m	31,875
EXCAVATION	cu. m	38,703
EMBANKMENT	cu. m	94,508
BORROW	cu. m	59,323
SURFACING	cu. m	20,280
DESIGN SPEED	km/hr	70 / 50 / 70

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DRAWING NUMBER	REV. NO.	SHEET
20092374-00-1-105	2	