Klohn Crippen Berger

Yukon Government

Faro Mine Complex, Yukon

Emergency Response Plan for:

Intermediate Dam, Cross Valley Dam, Little Creek Dam, Faro Creek Diversion Channel, Rose Creek Diversion Channel and Vangorda Creek Diversion Flume

March 2014
M09770A03.730

Klohn Crippen Berger

March 31, 2014

Yukon Government
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Karen Furlong, EIT
Project Manager

Dear Ms. Furlong:

Faro Mine Complex, Yukon Territory
Emergency Response Plan for: Intermediate Dam, Cross Valley Dam, Little Creek Dam, Faro Creek Diversion Channel, Rose Creek Diversion Channel and Vangorda Creek Diversion Flume

We are pleased to submit the Emergency Response Plan (ERP) for: Intermediate Dam, Cross Valley Dam, Little Creek Dam, Faro Creek Diversion Channel, Rose Creek Diversion Channel and Vangorda Creek Diversion Flume. This updated ERP is based on the earlier version prepared by BGC Engineering (BGC 2008), and a recent dam breach and inundation study completed by Klohn Crippen Berger (KCB 2014a). It represents the result of a joint effort by the Yukon Government (YG), Tlicho Engineering and Environmental Services (TEES) and Klohn Crippen Berger (KCB).

The updated ERP provides relevant information, guiding the response of site staff in an emergency at the above mentioned dams and diversion structures, including procedures for notifying responders in the affected community.

Yours truly,
KLOHN CRIPPEN BERGER LTD.

Robert C. Lo

Robert C. Lo, P.Eng.
Project Manager

RCL:dl

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CLARIFICATIONS REGARDING THIS REPORT

Klohn Crippen Berger Ltd. coordinated the joint effort by the Yukon Government (YG), Tlicho Engineering and Environmental Services (TEES) and Klohn Crippen Berger (KCB) to update this Emergency Response Plan report for the account of Yukon Government, the current care and maintenance manager of the Faro Mine Complex. The contents of the report reflect the judgment of KCB staff in light of the information available to KCB at the time of report preparation. Any use which a third party (i.e. other than YG, TEES, KCB and emergency responders) makes of this report, or any reliance on decisions to be based on it are the responsibility of such third parties. KCB accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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1 PURPOSE

The purpose of this document is to provide an Emergency Response Plan (ERP) for the following dams and diversion structures on the Faro Mine Complex (FMC), located near Faro, Yukon Territory as shown in Figure A-001:

- Intermediate Dam located near the downstream end of the Rose Creek Diversion Channel, shown on Figures B-003 and B-004;
- Cross Valley Dam located immediately downstream from the Intermediate Dam, shown on Figures B-003 and B-004;
- Little Creek Dam located on the Vangorda Plateau, just below the Vangorda rock dump, as shown on Figures B-005 and B-006;
- Rose Creek Diversion Channel (RCDC) located south of the tailings impoundment, which includes the Intermediate and Cross Valley Dams, as shown on Figures B-003 and B-004;
- Faro Creek Diversion Channel located to the north of the Faro Pit, shown on Figures B-003 and B-004; and
- Vangorda Creek Diversion Flume located north east of Vangorda Pit, shown on Figures B-005 and B-006.

This ERP is written for the Care and Maintenance contractor at the FMC and is to be used in the event of an emergency affecting any of the above listed dams and water diversion structures. The reader should refer to the OMS Manual (KCB 2014b) and 2013 Annual Geotechnical Review (2014c) to acquire necessary background information about the site facilities. The reader should also refer to the Dam Breach and Inundation Study report (KCB 2014a) for details of the dam breach analysis and potential downstream impacts for Intermediate, Cross Valley and Little Creek Dams.

2 INCIDENT LEVEL CRITERIA

Incidents may be categorized into those that threaten the safety of the dams and the diversion channels and those that do not. Incidents that threaten the safety of the dams and the channels are the focus of this ERP. Potential incidents can be classified into the following three categories based on the level of response action that will be required:

- Alert Level
- Emergency Level
- Failure Level

Further explanation of each of these categories is provided in the following sections.

2.1 Alert Level

The alert level is the first or lowest level of action for a given incident. This level of action is assigned to typical operations and maintenance conditions and is dealt with under the OMS Manual. No external (off minesite) notification is required. Response to incidents is done internally under the protocols and procedures provided in the OMS Manual. Typical incidents that may be observed at the alert level may include the following:

- seasonal frost cracking at the dam crest or its upstream/downstream berms;
- minor seepage;
- piezometric response to changing pond levels;
- minor erosion gullies due to runoff;
- spillway flowing at design capacity with no erosion; and
- diversion channel flowing at design capacity with no erosion.

The OMS Manual provides guidelines and protocols for prompt action in dealing with these "routine" incidents and system failures that can be easily and quickly corrected or repaired. Some of these incidents, if ignored, may develop into emergency situations that must be dealt with outside of the normal scope of OMS activities. The OMS Manual identifies the "trigger levels" or thresholds at which the ERP plan is put into action.

As part of this documentation, a record should be kept of the Alert Level incidents that occur on the site. This record can then be reviewed to evaluate how often incidents at this level occur for understanding of the overall performance of the system and potentially resetting the circumstances corresponding to the alert level in the future.

2.2 Emergency Level

The emergency level is the first level of potential danger to the safety of dam and channel to be assigned to an unusual event or condition. The event would result in an immediate and significant threat to the safety of the structure and would therefore involve activation of the ERP. The ERP addresses emergency situations that require urgent remedial action outside the normal scope of OMS activities. External communication, according to the notification procedure as outlined in Figure A-007, is required to mobilize the resources and elicit response that are required to eliminate the threat to the structure. Immediate action would be required to plan and execute remedial action and repairs. The required remedial measures and actions should be initiated and completed within a short time frame to eliminate the immediate threat, or prevent it from getting worse.

The incident level may be downgraded from emergency to alert level or upgraded to failure level, depending on the change in conditions at the structure or as new information or analysis becomes available.

2.3 Failure Level

At failure level, the incident has progressed to the point where failure of the structure is imminent. A failure level incident would require immediate notification of any downstream impacted area by means of the general and local warning systems. The failure level response (as outlined in Figure A-007) should be implemented immediately upon verification that a dam or a channel is in one of the following conditions:

- a dam or channel is failing;
- a dam or channel is about to fail; or
- as a precautionary measure, when there is a significant probability that a dam or channel may fail.

Any emergency repair measure that has some potential to avert, delay or retard the rate of failure should be initiated. In addition, measures for post-failure monitoring and assessment should be initiated.

3 EMERGENCY IDENTIFICATION

3.1 Dam Overtopping

3.1.1 Identification

Dam overtopping refers to a dam failure scenario, where water enters the pond upstream of a dam exceeding the combined capacity of the spillway and pond storage, and flows over the top of the dam. This may be due to an extreme flood event, blockage of the spillway, failure of a perimeter by-pass system or external creek diversion, failure of a beaver dam or a landslide generated wave. In some cases, the pond operating level may have exceeded the normal operating range due to poor control, resulting in reduced pond storage capacity. Wave action under reduced freeboard condition may also result in dam overtopping and erosion. System failure of a mine water reclaim system due to mechanical problem, power outage, pipeline rupture or sinking of a pump barge may also lead to a hazardous rise in pond water level.

An extreme precipitation event or extreme snowfall accompanied by rapid melting or a combination of both events will usually result in a rapid rise in pond level, which may exceed design capacities of the pond storage and spillway discharge. If these conditions exist or are in the forecast, visual inspection of all pond levels and assessment of snowpack depth and density or rainfall amount should be conducted to assess the risk of dam overtopping.

3.1.2 Incident Levels

- Alert Level:
  - Pond level is greater than the full supply level but lower than the top of the core of the dam, i.e., the emergency spillway is operating within the design limit.
- Emergency Level:
  - Pond level begins to rise above the top of the core of the dam but is still below the dam crest elevation. The emergency spillway is in operation beyond its design limit.
- Failure Level:
  - Water is flowing over the crest of the dam and/or outside of the emergency spillway. Failure of the dam is imminent.

3.2 Dam Embankment Instability

3.2.1 Identification

Signs of dam instability include: appearance of tension cracks on the crest or upstream/downstream face of dam, development of a head scarp with vertical and/or horizontal displacement and bulging of the dam face and any other abnormal appearances. Visual inspection of the dam crest, both dam faces and toe area from a safe vantage point is the first step to assess dam instability. Detailed close inspection of the dam should follow, once the personal safety of the observer is assured. Significant

change in pore pressures may also be indicative of instability. A significant change in the seepage rate at weir monitoring locations or observation of murky seepage in dam vicinity may also be a concern. The observer should be aware of the fact that the zone of dam instability may not coincide with the area covered by dam instrumentation.

Embankment instability may occur following a rapid drop in pond water level (rapid drawdown), an earthquake event, an extreme precipitation or rapid snowmelt event, during or following a prolonged period of piping erosion or a significant change in operating practices. These events should trigger an immediate visual inspection of the dam.

3.2.2 Incident Levels

- Alert Level:
  - Warning signs include: appearance of new cracks or the opening of existing cracks on the dam crest and/or upstream/downstream dam faces, slope slumps, or significant trend of increasing pore pressures in several piezometers or high one-time reading from a single piezometer or unusual movement in an inclinometer (only for Canal Dyke).
- Emergency Level:
  - Continual and accelerating growth of cracks and slope slumps in length and width, observation of toe bulges, continual rapid rise of piezometric levels, continual increase of seepage rate and/or seepage turbidity, and/or increasing trend of observed dam or channel-retention dyke deformation.
- Failure Level:
  - Continual deterioration of dam instability leads to potential collapse of dam crest due to crest settlement and/or slope failures. Upstream slope failure with attendant erosion of dam materials and/or any slope failure involving the dam crest are signs of severe dam distress.

3.3 Piping – Internal Erosion of Dam

3.3.1 Identification

Seepage water visibly coloured by suspended sediment, typically occurring at localized exit points on the downstream face or toe of a dam in excessive or abnormal quantities, is a sign of internal erosion. Seepage may also be visible in the dam foundation, abutment and toe areas downstream of the dam itself. Due to the high seepage gradient, a cavity or "pipe" may develop at the location of the exit point, which gradually progresses in an upstream direction along the seepage path. As it progresses, the rate of seepage and amount of transported sediment through internal erosion will increase. With time, the “pipe” could potentially connect to the water body of the upstream pond. Left uncontrolled, the rapid growth and enlargement of the “pipe” could eventually lead to a breach of the dam.

Therefore, visual inspection of the entire dam, noting the location of seepage exit points and turbidity of observed seepage on a regular basis is crucial to establish a baseline. By comparing an abnormal seepage condition with the baseline condition, one could recognize potential development of a "piping" internal erosion problem. Thus, ongoing careful monitoring, documentation and analysis of dam seepage condition is the first line of defence against the "piping" failure mode.

3.3.2 Incident Levels

- Alert Level:
  - Potential signs of "piping" development include: appearance of new seepage discharge location, increase of monitored seepage turbidity and/or seepage rate, decreased piezometric level in piezometers near the downstream toe. Judgment is required to differentiate those normal changes related to recent precipitation, change in pond level or influence of surface runoff on observed seepage.
- Emergency Level:
  - Rapid increase in monitored seepage turbidity and/or seepage rate, or development of surface depressions or sinkholes on dam crest or upstream/downstream dam face.
  - Development of "boils" or cavities on downstream side of dam or the ground surface downstream of dam, which remain relatively stable in size or in equilibrium with seepage flow.
- Failure Level:
  - Formation and progressive development or enlargement of soil cavities, sinkholes, "boils" on the dam and/or in its vicinity, or "whirl pools" in the upstream pond are signs of imminent dam failure. At the advanced stage, dam failure may be accompanied by slope failures resulting from erosion of dam materials by high-velocity seepage flow, and eventually lead to dam breach by overtopping.

3.4 Seismic Instability and Large Earthquake Events

3.4.1 Identification

Any seismic event that is felt by the on-site staff warrants an immediate visual inspection of all significant tailings and water retaining and water diversion structures and reading of all the piezometers and weir flows. The Natural Resources Canada (NRCAN) Pacific Geoscience Centre (PGC), located in Sidney, B.C., and operated by the Geological Survey of Canada (GSC), monitors earthquake activity around the world and includes virtually real-time information on earthquake activity in western Canada. This information is available on their website:

http://www.earthquakescanada.nrcan.gc.ca/

Site staff can obtain information updates regarding distant as well as local events. The person monitoring for site seismic activity should subscribe to their RSS feed.

Earthquake information is also available from the US Geological Survey website:

http://earthquake.usgs.gov/earthquakes/map/

The person monitoring for site seismic activity should subscribe to the following automated earthquake notification service:

https://sslearthquake.usgs.gov/ens/

3.4.2 Incident Levels

- Alert Level:
  - An earthquake event is felt at the mine site or in the Town of Faro or the earthquake is within 100 km of the mine site and with a magnitude greater than 3, based on the PGC.
- Emergency Level:
  - The earthquake is within 100 km of the mine site and with a magnitude greater than 4.5, based on the PGC, or visible physical damages occur on site following the event, but ground failures such as landslides and/or dam slope deformation and settlement do not appear to have the potential to trigger a dam failure mode.
- Failure Level:
  - The earthquake is within 45 km of the mine site and with a magnitude greater than 6, based on the PGC, or significant physical damage occurs at a dam or a diversion channel following the seismic event.

3.5 Diversion Channel Overtopping

3.5.1 Identification

Diversion channel overtopping occurs when the water level in the channel exceeds the level of the banks, either due to flood events larger than design values or due to blockage of the channel. The resulting spill of water from the Faro or Vangorda Flume diversion channel would enter the respective pit lake (see Figure B-003 and B-005) and increase the amount of water that has to be treated before its release into the environment. In a worst-case scenario, the channel overtopping event could continue until the storage capacity of the affected open pit is used up, resulting in the release of non-compliant water from the overflowing pit lake.

As shown in Figure B-003, an overtopping event at the Rose Creek Diversion Channel would lead to additional flow into the Secondary (including Original) and/or Intermediate tailings impoundment area and/or Cross Valley Pond (also called Polishing Pond). The excess inflow to the impoundment(s) and/or pond(s) has to be treated before its release to the environment. If the additional inflow uses up the storage capacity of the impoundment(s) and/or pond(s), it would cause the release of non-compliant water over the emergency spillway(s). In a worst-case scenario, the channel overtopping event has the potential to cause the overtopping of the Intermediate and/or Cross Valley Dam.

3.5.2 Incident Levels

- Alert Level:
  - For the Rose Creek Diversion Channel, the alert level is reached when the water reaches the 50-year flood level, i.e., 0.5 m below the crest of the Canal Dyke.
  - For the Faro Creek Diversion Channel, the alert level is reached when the water is 0.8 m below the adjacent road surface.
  - For the Vangorda Diversion Flume, the alert level is reached when the overall Flume is more than 1/3 full.
- Emergency Level:
  - For the Rose Creek Diversion Channel, the emergency incident level is defined by the water being within 0.25 m of the crest of the Canal Dyke, or if water is flowing over the emergency overflow at the (fuse-plug) diversion dam (see Figure B-003) adjacent to the Secondary Tailings Dam.
  - For the Faro Creek Diversion Channel (Fig. B-004), the emergency incident level is reached if the water level is within 0.2 m of overtopping the adjacent road.
  - For the Vangorda Diversion Flume (Fig. B-005), the emergency level is reached if the overall flume is full.
- Failure Level:
  - Failure level is reached for all three diversion channels, when the water begins to overtop the containment dyke or road.

3.6 Diversion Channel Slope Instability

3.6.1 Identification

Slope instability may occur within the channel banks, at the natural slopes above the channel, the containment dyke or road, or the slopes below the channel (pit wall slopes). Instability may occur in rock or soil materials. In general, rock slope instability is governed by the presence of discontinuities, which are oriented to permit slope movement towards the open channel cut. Where the diversion channel is located along the rim of an excavated open pit, the stability of the channel is dependent on the rock mass forming the pit wall brim. Rockfall or soil slump from the natural slope above the channel may partially block the channel. If the rock/soil debris remains in the channel under the ambient flow condition, the blockage will reduce channel capacity. Large rockfall or bank slide may completely block the channel, and lead to channel overtopping upstream of the blockage.

Soil slope instability usually occurs in the form of mudflow, rotational, block or retrogressive slide. In most cases, the instability occurs in the overburden overlying bedrock on the side slopes above the channel. It should be noted that a reach of the Faro Creek Diversion Channel passes through overburden, which forms a part of the channel side slopes adjacent to the Faro Pit Lake. This is a recognized area of concern, which has undergone previous remedial work. Small soil slumps into the

channel may be washed away, resulting in only temporary reduction of channel capacity. Larger soil/rock slide may completely block a channel, leading very quickly to a channel overtopping situation upstream of the slide debris pile.

Overburden instability may occur relatively rapidly (such as mudflow or due to earthquake) or slowly depending on a variety of factors. In general, channel slope stability decreases during periods of high groundwater discharge, such as during the spring thaw, or periods of sustained precipitation. Inspection of channel slopes must be done regularly to identify cracks, scarps, slope slump, toe bulging or other signs of slope deformation as well as slide debris accumulation in the channel. Frequency of inspection should be increased during spring thaw and snowmelt season.

3.6.2 Incident Levels

- Alert Level:
  - Slumping occurs on the downhill side of the diversion channel, but does not interfere with road access. New tension cracks, either parallel or perpendicular to the channel alignment, are observed on either side of the channel slopes and/or below the diversion channel. Minor rockfall occurs involving few, small rock fragments. Evidence of ground thawing at depth along the Rose Creek Diversion Channel, accompanied by shear displacement detected in the slope inclinometer at similar depth.
- Emergency Level:
  - Large slope slump occurs on the access road downhill of the diversion channel. Growth of monitored tension cracks in terms of width, depth and length. Slide debris accumulated in the channel reaches about 1/3 of its original overall sectional area. Increased shear displacement occurs at the slope inclinometers installed along the Rose Creek Diversion Channel.
- Failure Level:
  - Blockage of diversion channel by debris from slope slump or rockfall leads to channel overtopping. Slope failure on the downhill side of the diversion channel removes any portion of the channel section along its reach adjacent to the pit lake, tailings impoundment or pond.

4 POTENTIAL DOWNSTREAM IMPACTS OF DAM FAILURE

A preliminary dam breach and inundation study was completed for the Intermediate Dam, the Cross Valley Dam and the Little Creek Dam by Klohn Crippen Berger in 2014 (KCB 2014a). The results of the dam breach and inundation study are summarized in this section, however personnel responsible for emergency response planning and implementation must read and be familiar with the details of the analysis and the results presented in the dam breach and inundation study report.

The following failure modes were considered for the dam breach and inundation study:

- Intermediate Dam: rainy-day failure;
- Cross Valley Dam: sunny-day failure;
- Cross Valley Dam: rainy-day failure;
- Intermediate Dam and Cross Valley Dam: rainy-day cascading failure;
- Little Creek Dam: sunny-day failure; and
- Little Creek Dam: rainy-day failure.

There is very little difference in the volume of water for the sunny day failure and the rainy day failure of the Intermediate Dam, and the volume of water for both failure scenarios is only about 5% of the total tailings plus water storage volume. Given the small difference in total storage volumes, the peak dam breach flows for the sunny day failure and the rainy day failure of the Intermediate Dam would be almost the same. Since there is no public infrastructure or population centres downstream of the dam, the consequences of a dam failure would mostly be related to environmental impacts. Therefore, only the rainy day failure scenario was analysed for the Intermediate Dam because it would have a larger extent of flooding and environmental impact than the sunny day failure.

The Intermediate Dam and the Cross Valley Dam are located on Rose Creek. Since the Cross Valley Dam is located immediately below the Intermediate Dam, a failure of the Intermediate Dam will likely cause a failure of the Cross Valley Dam. This scenario is referred to as a cascading failure. A failure of the Cross Valley Dam would not necessarily cause a failure of the Intermediate Dam. The flood resulting from a breach of the dams would discharge into Rose Creek, which flows approximately 16 km downstream from the dams before joining Anvil Creek. Anvil Creek flows another 34 km before joining Pelly River approximately 50 km downstream of the Town of Faro. No infrastructure was identified within the potential flood zone along Rose and Anvil Creeks, or along Pelly River. The nearest community on Pelly River downstream of Faro is Pelly Crossing, about 180 km (straight distance) to the west of Faro.

The Little Creek Dam is located adjacent to the Vangorda Creek, and the flood resulting from a breach of the dam would discharge into the creek. Vangorda Creek flows approximately 12 km to the southwest before joining Pelly River. Along Vangorda Creek the flood wave would pass several local road crossings, the foot bridge on the Vangorda Falls hiking trail upstream of the Town of Faro, the Town of Faro (including the road crossing at Campbell Street), and the Vangorda Creek bridge downstream of the town. The Vangorda Creek Bridge carries vehicles and a sewer line. The nearest

structure on Pelly River is the highway bridge across the river located immediately downstream of the Pelly River/Vangorda Creek confluence. No other infrastructure was identified within the potential flood zone along the Pelly River. As mentioned above, the nearest community on Pelly River downstream of Faro is Pelly Crossing.

Copies of the flood inundation maps are presented in Appendix VI, and the estimated extents of flooding for the various dam breach scenarios are summarized in Table 4.1 below.

Table 4.1 Extent of Downstream Incremental Impact of Dam Breaches

Breach Scenario	Extent of Downstream Impact
Intermediate and Cross Valley Dam, Rainy-day Cascading Failure	Along Rose and Anvil Creeks to Pelly River, and along Pelly River up to 140 km downstream of the Town of Faro
Cross Valley Dam, Sunny-day Failure	Along Rose and Anvil Creeks to Pelly River, and along Pelly River up to 140 km downstream of the Town of Faro
Cross Valley Dam, Rainy-day Failure	Along Rose and Anvil Creeks to Pelly River, and along Pelly River up to 105 km downstream of the Town of Faro
Little Creek Dam, Sunny-day Failure	Along Vangorda Creek to Pelly River, and along Pelly River up to 45 km downstream of the Town of Faro
Little Creek Dam, Rainy-day Failure	Along Vangorda Creek to Pelly River

Note: Distances shown are straight distances between two points.

General observations of the dam breach and inundation analysis results are as follows:

Failure of Intermediate Dam and/or Cross Valley Dam

- Failures of the Cross Valley Dam under sunny-day or rainy-day conditions, and the cascading failure of the Intermediate Dam and Cross Valley Dam under rainy-day conditions, would result in significant flooding along Rose and Anvil Creeks, as well as Pelly River. This failure could result in water quality impacts to the downstream watercourses for wildlife and fish, as well as potential loss of life to recreational users of the creeks or river. As indicated above, no infrastructure was identified along the flood route between the dams and the downstream flood impact limits.
- The Intermediate Dam and the Cross Valley Dam currently have a dam safety classification of High. The results of the dam breach and inundation study confirmed that this classification is appropriate for both dams.

Failure of Little Creek Dam

The estimated incremental flood depths (i.e., depths over and above the natural flow in the creek or river) resulting from sunny-day and rainy-day failures of the Little Creek Dam are summarized in Table 4.2 and Table 4.3, respectively. The incremental flood depths for the rainy-day failure are smaller than the sunny-day failure because the incremental depth is taken as the increase in depth over and above the natural flow depth in the stream. For the rainy-day failure, the stream is assumed to be already at the natural flood stage when the

dam fails therefore the increase in flow depth is smaller compared to the sunny-day failure. Nevertheless, the flood depths along Vangorda Creek are relatively large for both failure scenarios and the road and foot crossings across the creek are expected to be washed out.

Table 4.2 Little Creek Dam Sunny-day Failure Peak Flow Depths

Creek/River	Creek/River Chainage (m)	Incremental Flood Depth (m)	Comments
Vangorda Creek	0+000	6.4	Little Creek Dam Location
	4+000	7.3	Local road at 4+500 washed out
	7+000	6.1	Local road washed out
	8+000	5.1	Foot bridge on Vangorda Falls trail washed out
	9+500	11.0	Campbell St. crossing over-topped*
	12+000	6.9	Vangorda Creek Bridge and Sewer Line Crossing overtopped
Pelly River	0+000	0.9	Location of Highway Bridge across Pelly River
	50+000	0.6	Breach flow attenuated

Chainages shown are measured along the river channel, and are not straight distances between points.
*The Campbell Street culverts in the Town of Faro are assumed to be blocked.

Table 4.3 Little Creek Dam Rainy-day Failure Peak Flow Depths

Creek/River	Creek/River Chainage (m)	Incremental Flood Depth (m)	Comments
Vangorda Creek	0+000	5.5	Little Creek Dam Location
	4+000	5.6	Local road at 4+500 washed out
	7+000	4.5	Local road washed out
	8+000	3.7	Foot bridge on Vangorda Falls trail washed out
	9+500	3.0	Campbell St. crossing over-topped*
	12+000	3.0	Vangorda Creek Bridge and Sewer Line Crossing overtopped
Pelly River	0+000	0.3	Breach flow attenuated in Pelly River
	50+000	0.1	-

Chainages shown are measured along the river channel, and are not straight distances between points.
*The Campbell Street culverts in the Town of Faro are assumed to be blocked.

- It is our understanding that the local roads, which cross the Vangorda Creek upstream of the Town of Faro, are not maintained and are generally not passable, except for the access ramps to the haul road between Faro and Vangorda mine sites. However, there could be loss of life if someone was present in the vicinity of the creek at the time the flood wave passes through.
- There could be loss of life if recreational users are on the Vangorda Falls trail foot bridge, in Vangorda Creek, or nearby.
- The washout of the Campbell Street embankment might cause loss of life if someone was present in the area at the time the flood wave passes through. The washout of the Campbell Street embankment would also result in the loss of the main access into the town.

- The washout of the Vangorda Creek Bridge might cause loss of life if someone was present in the area at the time the flood wave passes through. The washout of the bridge would also result in the loss of a secondary access into the town and it would also damage the town's sewer line.
- The incremental flood depths in the Pelly River are less than 1 m, however a sudden rise of the river water level would affect people present in or adjacent to the river, and there is a potential for loss of life. The low flood depth is not expected to cause any serious damage to the highway bridge across the river.
- The Little Creek Dam is a water retaining structure, and it contains seepage and runoff from the Vangorda waste rock dump. The contact water is pumped from the retention pond to the Vangorda water treatment plant prior to release. The quality of the water in Vangorda Creek and Pelly River could be affected by the release of this water into the environment.
- The Little Creek Dam is currently classified as a Low hazard structure in terms of dam safety. The results of the dam breach and inundation study suggest that the classification should be increased to either Significant or High. A more detailed dam breach and inundation analysis is required to confirm the classification.

The dam breach and inundation study completed for the three dams was at a preliminary level and the report noted some limitations due to the lack of detailed topography for the study. The report recommended that a detailed dam breach and inundation study using better topography be completed for the Little Creek Dam due to the potential impacts of dam failure. This ERP should be updated if the detailed dam break and inundation analysis for the Little Creek Dam is completed.

5 EMERGENCY AND FAILURE RESPONSE PLANS

The identification of incident levels that lead to implementation of the ERP is described in Section 3. This section describes the response actions that will be required by on-site staff to carry out emergency operations and repairs for each of the failure modes. Potential constraints on action plan implementation are discussed in Section 6. The required notification plans referred to in this section are described in detail in Section 7. The equipment, operators, supplies and materials required for implementation of the response plan are listed in Section 8. Some of the response actions involve obtaining and placing rock and soil materials. Figures B-008 to B-010 show the surficial geology and locations of soil and rock borrow areas within the mine site area.

CH2MHILL (2013) initiated in the summer of 2013 a program to evaluate the quality and quantity of available construction materials at various borrow sources. Relevant information obtained from this ongoing program will be added to the future updates of ERP as an appendix, so that emergency responders are aware of the sources of suitable soil and rockfill materials that can be used in the event of an emergency.

For the scenarios discussed further in these sections, it has been assumed that despite reaching the "Failure Level", the loss of the specific dam or diversion channel has not yet occurred. Thus, the following recommendations for the failure level are actions that can be taken to prevent the dam or channel from complete failure and/or to reduce the downstream loss from the evolving incident. If a complete failure of the dam or diversion channel does occur, actions by site staff should be focused on mitigating any danger to site personnel and downstream population and minimizing the failure impact, both on site and downstream to reduce environmental and property damage.

5.1 Dam Overtopping

- Emergency Level:
  - Execute Emergency Notification Plan (as outlined in Figure A-007).
  - Lower pond level with siphons, pumps or both. Sample and test water for environmental monitoring purposes. Spill reporting will be required if quality of spilled water is non-compliant (see Appendix II, http://www.gov.yk.ca/legislation/regs/oic1996_193.pdf). Pump water from the Intermediate Pond (IP) and Cross Valley Pond (CVP) to Faro Pit in an emergency situation.
  - Where feasible and safe to do, attempt to increase spillway discharge capacity by clearing out any new debris arriving in the channel, widening existing spillway channel or excavating a new channel, with riprap protection, through an abutment area to prevent dam overtopping in order to preserve integrity of embankment dam.
  - Maintain 24-hour/7-day vigilance of pond level until safe level is restored to below the maximum operating level as defined in the OMS Manual for the specific structure.
  - Visually inspect dam for potential erosion and/or reduction of freeboard.

- Repair affected areas of dam and its appurtenant structures as recommended by Geotechnical Consultant.

- Failure Level:
  - Execute Failure Notification Plan (as outlined in Figure A-007).
  - Lower pond level with pumps, siphons or both. Sample and test water for environmental monitoring purposes. Spill reporting will be required if quality of spilled water is non-compliant. Pump water from the IP or CVP to the Faro Pit.
  - Continue attempts to increase spillway discharge capacity.
  - Maintain 24-hour/7-day vigilance of pond level, until safe level is restored to below the maximum operating level as defined in the OMS Manual for the specific structure.
  - Visually inspect dam for potential erosion and/or reduction of freeboard.
  - Repair affected areas of dam and its appurtenant structures as per recommendations of Geotechnical Consultant.

5.2 Dam Embankment Instability

- Emergency Level:
  - Execute Emergency Notification Plan (as outlined in Figure A-007).
  - Lower pond level using siphons, pumps or both. Sample and test water for environmental monitoring purposes. Spill reporting will be required if quality of spilled water is non-compliant. Pump water from the IP or CVP to the Faro Pit.
  - Initiate daily inspections and readings of all instruments, or as required by the Geotechnical Consultant.
  - Undertake remedial repairs as recommended by the Geotechnical Consultant.
  - Likely repair measures include: construction of a stabilizing buttress berm at the area of concern and placement of erosion-resistant earth/rockfill in areas of dam distress.

- Failure Level:
  - Execute Failure Notification Plan (as outlined in Figure A-007).
  - Lower pond level using siphons, pumps or both. Spill reporting will be required if quality of spilled water is non-compliant.
  - Maintain 24-hour/7-day vigilance of distressed structure as directed by Geotechnical Consultant.
  - Continue and adjust repair work based on observation of dam performance in response to the fill placement in the repaired area.

5.3 Piping - Internal Erosion of Dam

- Emergency Level:
  - Execute Emergency Notification Plan (as outlined in Figure A-007).
  - Lower pond level with pumps, siphons or both. Sample and test water for environmental monitoring purposes. Spill reporting will be required if quality of released water is non-compliant.
  - For an isolated, relatively low-head seep in an area beyond the dam toe, construct a sand-bag dyke enclosure to contain the flow exit area. Fill the dyked-in space with free-draining filter material, as required, to stop piping at the flow exit.
  - Construct weighted filters with sand and gravel/cobbles/rockfill over the seepage discharge area on a dam slope with progressively coarser material over the finer material beneath, or as directed by the Geotechnical Consultant.
  - Where feasible and safe to do, dump filter material (preferably medium to coarse sand) into any sinkholes on the dam, including the upstream slope and beach area.
  - Repair or construct upstream impervious blanket as directed by Geotechnical Consultant.
  - Initiate daily readings of all relevant instrumentation, or as directed by Geotechnical Consultant.
  - Maintain 24-hour/7 day vigilance in dam inspection until remedial measures arrest the progress of internal erosion.
- Failure Level:
  - Execute Failure Notification Plan (as outlined in Figure A-007).
  - Lower pond level with pumps, siphons or both. Sample and test water for environmental monitoring purposes. Spill reporting will be required if quality of released water is non-compliant.
  - Dump non-acid-rock-drainage (non-ARD) rockfill or waste rock that meets filter criteria for the existing embankment material over repaired seepage areas to prevent further loss of dam material.
  - Undertake additional remedial repairs as recommended by Geotechnical Consultant.
  - Maintain 24-hour/7-day vigilance of dam inspection until remedial repairs arrest the progress of internal erosion.

5.4 Seismic Instability and Large Earthquake Events

- Emergency Level:
  - Execute Emergency Notification Plan (as outlined in Figure A-007).

- Lower the pond level using pumps and siphons, or both. Sample and test water for environmental monitoring purposes. Spill reporting will be required if quality of released water is non-compliant.
- Conduct visual inspection of all dams and relevant diversion channels and report to Geotechnical Consultant.
- Monitor all piezometers, inclinometers, survey prisms, survey reference rods and pins.
- Undertake initial repairs of dams and channels, as required.
- Undertake any additional remedial work as recommended by Geotechnical Consultant after his (her) post-earthquake inspection.

- Failure Level:
  - Execute Failure Notification Plan (as outlined in Figure A-007).
  - Lower pond level using pumps, siphons or both. Sample and test water for environmental monitoring purposes. Spill reporting will be required if quality of released water is non-compliant.
  - Continue surveillance of relevant dams and channels and report to Geotechnical Consultant.
  - Undertake any additional repair work as dictated by ongoing review with Geotechnical Consultant regarding the performance of dams and channels in response to the seismic event and subsequent repair.

5.5 Channel Failures

5.5.1 Consequences of Failure vs. Response

The consequences of failure are not the same for all channels. For example, a failure of the Rose Creek Diversion Channel could have serious consequences because it has the potential to cause the overtopping of the Intermediate and/or the Cross Valley Dam. On the other hand, a failure of the Faro Creek Diversion Channel or the Vangorda Diversion Flume would not be as serious because it would take time for the pit(s) to fill up before pit overflow occurs. The consequences of failure should be taken into consideration when deciding upon the response measures outlined in the following sections.

5.5.2 Channel Overtopping Response

- Emergency Level:
  - Execute Emergency Notification Plan (as outlined in Figure A-007).
  - Attempt to remove channel obstruction, if practical. Consider possible diversion of channel flow to facilitate channel clearance and/or repair work.

- Place, crushed rock, or rockfill in areas of erosion and sand/gravel with riprap protection in low-bank areas to maintain freeboard. Maintain on-going, visual inspection of downhill pit-lake level and begin planning for emergency operation of pit-lake dewatering system. If pumping is initiated, monitor flow rates.
- Consider potential options for excavating a cut in the channel bank slope at a strategic location to effect a temporary controlled breach of the channel in order to reduce the channel flow during the emergency, if water from the breach can be managed in a compliant manner.
- Maintain 24-hr/7-day vigilance in monitoring channel condition.

- Failure Level:
  - Execute Failure Notification Plan (as outlined in Figure A-007).
  - Continue channel repair, clearance and diversion work as outlined above.
  - Continue monitoring pit-lake level and carrying out pumping from the pit, as required.
  - Geotechnical Consultant to conduct site inspection and recommend additional repair work.
  - Maintain 24-hr/7-day vigilance in monitoring channel condition, and ongoing review update with Geotechnical Consultant.

5.5.3 Channel Slope Instability Response

- Emergency Level:
  - Execute Emergency Notification Plan (as outlined in Figure A-007).
  - Contact Geotechnical Consultant for directions on stabilizing options.
  - Check condition of side slopes and channel in the vicinity of unstable areas to assess safety precautions required, before entering and undertaking slope stabilizing work.
  - Consider temporary diversion of channel flow to facilitate access and construction.
  - Remove slope-slump debris from channel and stabilize the area of concern by flattening slope, adding drain holes or slope reinforcement such as rock anchors and wire mesh or shotcreting.
  - Place buttressing rockfill in local areas as required to prevent further erosion and slope undercutting.
  - Place rockfill to buttress Canal Dyke along Rose Creek Diversion Channel, if required.
  - Maintain daily visual inspection of channel condition.
  - Maintain on-going, visual inspection of downhill pit-lake level and begin to plan for emergency operation of pit dewatering system. If pumping is initiated, monitor flow rates.

- Failure Level:
  - Execute Failure Notification Plan (as outlined in Figure A-007).
  - Ensure personnel safety and the safety of adjacent critical structures.
  - Continue channel bank slope repair, channel clearance and diversion work as outlined above.
  - Contact Geotechnical Consultant for site inspection and advice regarding immediate stabilization options.
  - Maintain daily visual inspection of channel condition and ongoing update review with Geotechnical Consultant.
  - Maintain on-going, visual inspection of downhill pit-lake level and begin planning for emergency operation of pit dewatering system. If pumping is initiated, monitor flow rates.

6 POTENTIAL CONSTRAINTS ON RESPONSE PLAN IMPLEMENTATION

6.1 Access Roads

Primary access to the mine site from the Town of Faro is by a 23 km long road leading to the main gate at the Faro Mine Complex. Site security staff man the main gate. Procedures are in place to log in all persons entering the mill and mining area. These procedures include:

- receiving Care and Maintenance Contractor management authorization;
- sign-in and waiver requirements; and
- having the required personal safety equipment for the intended areas and activities.

These procedures will remain in place with amendments as required from time to time to control access into the mine site and to minimize risks to the public and worker safety.

The Highways and Public Works department of the Yukon Government has maintained the main access road since 2006 to allow summer and winter access to a standard for the safe passage of heavy loads, such as float trucks used to move heavy equipment. Maintenance activities have included localized resurfacing, grading, patching, steaming culverts and snow clearing.

Access by road is possible to all dams from the main gate area and is maintained by Care and Maintenance Contractor. Figure B-002 shows a plan of the site access roads for the entire Faro Mine Complex property. Road access from the main gate to the Vangorda Plateau mine site is via the 13 km long heavy haul road. This road must be maintained to the same standard as the mine access road from Faro to ensure safe passage of heavy loads on float trucks. Road access from the Town of Faro to the Vangorda Plateau mine site has been blocked since 1998, except for brief periods when special protocols were implemented to allow direct access for contractor work (Gartner Lee 2003-2008).

All access roads have gates installed, including Blind Creek, access to Grum and the emergency access road on haul road. The ATV crossing of the haul road will be maintained as accessible in order to allow First Nations and recreational access to the land upslope of the haul road.

Access to the north end of the Intermediate Dam is obtained by driving down and across the Intermediate Dam spillway and then up the retention dyke on the south side of the spillway (see Figure B-003). As a result, during a flood event, access will not be possible from the north side of the valley, and vehicular access is also, in general, blocked by Sclair pipelines present on the spillway. Access to both the toe and the crest of this dam is also possible from top of the Canal (RCDC) Dyke of the Rose Creek Diversion Channel (RCDC) along two access roads downstream of the south abutment. The access road to the crest of the south abutment was constructed as required for grading of the crest and the downstream face.

The crest of the Cross Valley Dam is accessed from the toe area. Access to the toe exists from the north valley wall, but it crosses the area where the spillway discharge passing through two culverts

(see Figure B-003). If the spillway discharge flow is too high, the toe access would be cut off by the flood. Thus, during a flood event, similar access constraint exists for the Cross Valley Dam north abutment. However, access to the toe area is available from the road on the RCDC dyke. There is no direct access to the Cross Valley Dam south abutment crest from the RCDC dyke. In 2014 TEES will determine a potential route and cost for such a road, for YG's consideration.

Access to the Rose Creek Diversion Channel (RCDC) is available at both ends of the channel (see Figure B-003), and along either north or south valley wall.

Access to the Little Creek Dam is from the main access road to the Vangorda Pit (see Figure B-005). The access road is along the crest of the dam, and road access would be prevented if the crest is unstable or being overtopped. Access is also possible along the east and south sides of the Vangorda rock dump onto the south abutment of the dam, by following the road adjacent to the Vangorda Northeast Interceptor as shown on Figure B-005. However, this access seems to require some improvement at three short segments along the route to reach the south abutment of the Little Creek Dam.

Access to the Faro Creek Diversion Channel (FCDC) is generally from the road on Faro Northeast rock dumps and then west along the crest of the downstream reach of the diversion channel dyke (see Figure B-003). Access for heavy equipment is also possible from the north via the Northwest rock dumps and old exploration roads that pass around the north side of the main pit to the upstream end of the FCDC. This access is passable by light vehicles and equipment but is a very rough access for dump trucks, but it is passable.

Access to the Vangorda Creek Diversion Flume (VCDF) is available from two directions; both of which are commonly used and of good quality (see Figure B-005). The "bottom end" is accessed from the main haul road and then uphill along the western side of the Vangorda Pit along the dyke crest access road. The "top end" is accessed via the Grum Interceptor Ditch/ Water Treatment Plant access road that crosses Vangorda Creek near the VCDF headworks.

In the summer, roads are passable by 2-wheel drive vehicles. During the winter, roads must be maintained by ploughing to permit vehicle access. Four-wheel drive vehicles are required in the winter due to drifting snow that may cover portions of the road, even after ploughing.

The critical period for accessing most dams and diversions is in the spring, when snowmelt in combination with rainfall has the potential to create extreme flood conditions. During this period, access roads may be at risk of being washed out due to erosion or culvert failure. Culvert capacity may become diminished due to icing, snow or blockage by debris. Common practice is to position critical pieces of equipment in strategic locations during high risk periods in order to respond to emergencies more efficiently.

Loss of road access is a serious concern, since it will delay or prevent inspection of dam and channel facilities as well as the repair of any damage that has occurred. Under the mine site ERP, the contingency plan that is already in place includes the following (Gartner Lee 2003-2008):

- Use snowmobiles in the winter when the snow is not ploughed from all roads.

- Maintain a grader, plough truck, front-end loader and gravel truck on-site or maintain contact with off-site contractors for emergency provision of road repair services.
- Aggressively steam ice from culverts and clear ice from roadside ditches through the winter and spring, as required, to maintain culvert/ditch flow and prevent road washout.

6.2 Power and Communications

6.2.1 Power

The Faro Mine Site Complex is connected to the Whitehorse-Aishihik-Faro Grid via a 38 kV power line, as shown on Figures B-002, B-003 and B-005. Transformers are located at the Faro Mill, which steps down the power for on-site distribution. A standby diesel generator is available to provide emergency power supply. The Vangorda Plateau site is connected to the Faro Mill by a 27 kV overhead power line, as shown on Figures B-002, B-004 and B-005. This line feeds a 4160-volt distribution system for the Grum and Vangorda Mine site, which is mounted on single log poles. A distribution of 4160-volt lines feeds power to various substations around the site where temporary ground lines are used to connect to equipment (Gartner Lee 2003-2008).

A general loss of power could occur at the mine site, if the Whitehorse-Aishihik-Faro hydroelectric power grid were to fail as a result of a local or regional disruption or accident. In this event, all site operations would be shut down except those that are powered by a portable on-site generator such as one Intermediate Pond pump (Gartner Lee 2003-2008). The major project equipment that would be shut down in this event includes the following (Gartner Lee 2003-2008):

- Faro Pit pumping;
- Zone 2 Pit pumping;
- Grum Pit pumping;
- Vangorda Pit pumping;
- Mill water treatment system; and
- Grum/Vangorda water treatment plant.

Experience has demonstrated that the regional power supplier has restored power quickly. The contingency plan at the site provides for two alternate power sources in the event of an imminent environmental emergency:

- The Town of Faro diesel generator; and
- The Onan generator that can power the guard house, welding and repair shop and diesel dispenser. One Intermediate Pond pump could also be supported by the Onan generator.

The contingency plan requires that in the case of a general loss of power, the following steps be followed (Gartner Lee 2003-2008):

- Conduct an operational check of equipment status such that equipment are configured appropriately for restart.
- Contact regional power supplier to confirm status and ascertain restart timeframe.
- Arrange with regional power supplier to reinstate power to the mine from the Town of Faro diesel generator, if an environmental emergency was imminent.
- Maintain on-site emergency generator that can be utilized in an environmental emergency.

6.2.2 Communications

The mine site is connected by a microwave phone system installed in 2003 along with a site radio system that is operated site wide through a repeater system. The two systems are connected into Northwestel system located in the Town of Faro. The electronics are located at the CKRW shack located behind the recreation centre in the Town of Faro and transmitted to the mine site via an antenna system located on Rose Hill and further transmitted to the guardhouse. Each system is equipped with back up emergency power in the event of a power outage and will remain running (approximately 6 hrs to 12 hrs).

The handheld portable radios are connected into cellular service for emergency purposes and employees can dial out utilizing the keypads on the radios within the foot print of the mine area.

Satellite internet is also available on site located at the guard house and a dedicated VOIP line (line 7) is also available in the event the phone system has a total failure other than loss of power.

The Guest Houses are also equipped through Northwestel with phones/fax machines and internet, although the YG Guest House at 248 Dawson is sometimes shut down for the winter months.

6.3 Darkness

During the winter, the length of daylight hours at the mine site may be less than 6 hours. During the summer, daylight may extend for 24 hours, with a minimal light equivalent to twilight conditions for a short period.

The darkness factor increases the difficulty in responding to emergency events during the winter, when combined with the potential for extreme cold and snow conditions characteristic of the regional climate. Available outside lighting sources will be extremely limited, especially at the dam sites, being restricted to that provided by vehicles and portable flashlights. As noted in Table 8.1, portable light-plants may be required to support response plans. Currently there are two light plants on site, and an additional plant could be rented for use in an emergency.

The site security area, Norcan shop area and fuel stations are lit during emergencies. Depending on the emergency, lighting in additional areas can be activated.

6.4 Snow Cover

During the winter, snow cover and/or rain events that result in icy surfaces on access roads, dams and structures will severely hamper emergency response activities. A cleared roadway is required before heavy equipment can be transported on float trucks, as discussed above in Section 6.1. In an emergency, access by mine staff can be made with snowmobiles or possibly helicopters (if available) to provide preliminary assessment of conditions and to initiate appropriate emergency response measures, including notification of stakeholders.

In general, site activities will be limited during the winter due to the logistical constraints associated with snow cover and maintenance of access. Winter activities such as the excavation of frozen material from borrow sources may be very difficult, if the moisture content is high. Extensive thick snow cover can actually insulate the subsurface, and may assist in the prevention of hard, frozen subsoil condition.

Winter is also a time when the risk to dam structures is low, due to lowered water levels, channel flows and frozen conditions. The most critical period is the spring, when snow/rain storms may coincide with high water levels during the break up period. The contingency measures listed in Section 6.1 above should be followed, or augmented to suit specific structures that may be at risk.

7 NOTIFICATION PLAN

7.1 Emergency Level vs. Failure Level

Activation of the ERP will be done when incident levels for any of the potential failure modes reach the emergency level condition, as described in Section 3. The site Emergency Management Plan (EMP) by TEES (2012), the Care and Maintenance Contractor, is also included here as Appendix V. The EMP describes the notification procedures for any emergency incident occurring on site. The ERP notification plan presented here in Section 7 defines the lines of communication between the Care and Maintenance Contractor site staff and Assessment and Abandoned Mines Branch, Yukon Government (YG) and the notification of outside agencies and stakeholders by the YG.

The main distinction between the Emergency Level and Failure Level notification procedures is the degree of involvement of outside agencies. Figure A-007 is a decision-based flow chart illustrating the steps in the notification plan from the perspective of the first on-scene individual. The decision path provides a guide for notification for the following incident levels:

- Observation of an incident at the Emergency Level;
- Observation of an incident at the Emergency Level, which progresses to the Failure Level; and
- Observation of an incident at the Failure Level.

For all incident levels, the first response is to ensure personal safety and the safety of others. This may require erecting barricades, warning indicators or posting guards to prevent or control access while notifying the Care and Maintenance Contractor Site Manager.

For an Emergency Level incident, notification is primarily internal, within the mine site and the YG Project Manager, except when non-compliant water must be released. Releases of non-compliant water require reporting to the Yukon Spill Line. Implement the Emergency Response Plan(s) for the appropriate failure mode(s) as outlined in Sections 3 and 5.

If the incident progresses from the Emergency Level to the Failure Level, external notification of all downstream interests and external emergency response organizations is required by the Care and Maintenance Contractor Site Manager, who will also contact the YG Project Manager. The YG Project Manager will notify relevant stakeholders as required by the ERP notification procedure.

If the incident is immediately recognized as a Failure Level condition, the initial observer should notify the Care and Maintenance Contractor Site Manager, who will then assess and implement notification of all downstream interests and external emergency response organizations (fire, police, medical) so that they can initiate their own emergency response plans to deal with the situation as soon as possible. The Site Manager will then contact the YG Project Manager, who in turn will contact the appropriate external agencies. The Site Manager will also contact the Technical Consultant and implement the Failure Response Plan(s) as outlined in Section 5.

7.2 Contacts

Appendix I.1 provides the contact list compiled at the mine site. Appendix I.2 provides the contact list for technical support personnel. The following are the key contacts for notification when the ERP is implemented:

7.2.1 Internal Site Staff and Government of Yukon – Assessment & Abandoned Mines

TEES Staff:

Site Security - Faro Mine	TEES Radio Call (867) 994-2600 (w) ext. 0000
Barry Wilson – Acting Site Manager	(867) 994-2600 (w) ext. 0001 (867) 334-4765 (m)
Robert Wren – Site Superintendent	(867) 994-2600 (w) ext. 0002 (867) 334-3343 (m)
Site Administrator – Jodi Boyd	(867) 994-2600 (w) ext. 0003 (867) 335-3240 (m)
Environmental Coordinator - Tracey Parkin	(867) 994-2600 (w) ext. 0004 (867) 969-2856 (h) (867) 335-6595 (m)
WTP Supervisor - Dan Duivenvoorden	(867) 994-2600 (w) (867) 994-2849 (h)
Site Services Supervisor – Chris Wilkinson	(867) 994-2600 (w) (867) 994-3289 (h)
Site Satellite Phone	011 881 631 655 459

Assessment & Abandoned Mines – Government of Yukon:

Project Manager – Karen Furlong	(867) 456-6764 (w) (867) 332-4431 (m) (867) 334-3348 (personal cell)
Alternate Contact #1- Deborah Pitt	(867) 456-6762 (w) (867) 332-4154 (m)
Alternate Contact #2- Stephen Mead	(867) 393-6904 (w) (867) 332-4041 (m)

7.2.2 Emergency Response Agencies

Faro Fire Department	(867) 994-2222
Faro Nursing Station	(867) 994-4444
Faro RCMP (emergency)	(867) 994-5555
Faro RCMP (non-emergency)	(867) 994-2677
Faro Ambulance Service	(867) 994-4444
Faro Municipal Airport	(867) 994-2791
Conservation Officer (TJ Grantham)	(867) 994-2862

Yukon Wildfire Management	(867) 393-7415
Department of Highways (Drury Creek)	(867) 994-3046
Whitehorse General Hospital	(867) 393-8700
Poison Control Center	1-800-267-1373
YG Report a Fire Line	(888) 798-FIRE (3473)

7.2.3 Key Technical Consultants

Table 7.1 Key Technical Consultant Contact Information

Geotechnical	Robert Lo	Klohn Crippen Berger	(604) 251-8455 (w) (604) 278-7126 (h)
Geotechnical – Alternate	Jaco Esterhuizen	CH2M HILL	(541) 602-0309
Hydrotechnical	Arvind Dalpatram	Klohn Crippen Berger	(604) 251-8511 (w) (604) 434-3907 (h)
Environmental (YG)	Adrienne Turcotte	Assessment and Abandoned Mines	(867) 667-3153 (w) (867) 334-9799 (c)
Environmental Engineering	Leslie Gomm	Gomm Environmental	(867) 334-7237

7.2.4 Regulators

YTG 24 Hour Spill Report Hotline	(867) 667-7244
Yukon Health and Safety Board 24 Hour Emergency Line	(867) 667-5450
Chief Mine Inspector	(867) 456-6812
YTG Type II Management Team	(867) 667-3208

8 RESPONSE PLAN RESOURCES

For the various activities covered in the response plans reviewed herein, manpower, mobile equipment, supplies and support will be required on site. The following section outlines the mobile equipment that is available at the Faro Mine Complex as well as from other sources in the area. In addition, a suggested list of materials and supplies is also provided. Thus, site staff can decide if additional support and/or supplies are required for a given emergency based on the existing on-site inventory.

Currently the following mobile equipment is located at the Faro Mine Complex:

- Earth Moving
  - Cat 14 M Grader;
  - Cat D9 dozer;
  - Cat D5 dozer (rental during 3 summer months);
  - Cat 336 excavator
  - Cat 345 excavator;
  - Cat 336EL excavator;
  - Volvo L150G front end loader;
  - Case 4WD 580SM extendable backhoe loader;
  - Cat 730 rock truck ;
  - two highway-rated dump trucks; and
  - heavy equipment float and tractor.

- Lifting
  - Cat forklift;
  - Kalmar forklift;
  - Sellick forklift;
  - one Kenworth tandem-axle Hiab crane truck; and
  - one Peterbuilt tandem-axle Hiab crane truck.

- Generators
  - Cat 285 kW diesel genset;
  - Cummins/Onan 300 kW diesel genset; and
  - various small portable gasoline generators.

- Miscellaneous equipment
  - two trailer mounted Enviro-fuel tanks;
  - Ingersol Rand Packer;
  - various rock and sand screens;
  - two 4WD ATV's;
  - two snowmobiles;

- one medical response vehicle;
- fire truck;
- various 4WD light trucks;
- various flat deck utility trailers;
- Gorman/Rupp Duetz diesel water pump;
- four 30 hp Flygt electric water pumps;
- various small pumps;
- hand held radios; and
- radio-telephones.

Site staff should be familiar with the on-site equipment, since they use it on a regular basis. It is assumed that all of this equipment is properly maintained and "certified" for use, as in the case of cranes. It is also assumed that operators for this equipment are located in the Town of Faro, although contacting staff may be problematic at short notice and during weekends and holidays. Cranes require the use of certified operators, which may not be immediately available following an emergency incident.

The Town of Faro and the YG road maintenance yard have additional equipment such as excavators, graders, loaders, steamer truck, generators, flat deck trucks and various dump trucks. On a regular basis external contractors are on site. This equipment or equipment from the Town of Faro or YG can be used in emergency, if available.

Local contractors in the Faro-Ross River area and other Yukon-based contractors can provide a variety of equipment to supplement the mine equipment on site. Since contractors' capabilities may change with time and new contractors may come into the area, site staff should undertake at least on an annual basis a review of local contractors' capabilities and inspect the equipment in their yards. This document does not endorse use of any of the particular contractors named below or limit the selection to those listed. The names given below are for reference only, and should be verified on a regular basis.

Two contractors in Ross River are potentially able to supply the following equipment:

1. Clifford McLeod Contracting, Phone 867-969-2364
    - 1985&88 Western Star dump trucks;
    - Cat 966C loader;
    - Cat 270 excavator;
    - Cat D6D dozer;
    - Grader- size unknown; and
    - Other miscellaneous light-duty mobile equipment.
2. Tim Moon Construction. Phone 867-969-2519
    - Three Cat 235 excavators (or equivalent);
    - Cat D8 and D7 dozers;
    - Cat 14G grader;

- Cat 966 loader (or equivalent); and
- Other miscellaneous light-duty mobile equipment.

In addition to the above two local contractors, there are two major contractors in the Yukon Territory that have worked extensively at Faro Mine. They have extensive suites of mining and heavy hauling equipment, and their contact information is listed below:

1. Golden Hill Ventures Ltd.
   Whitehorse, YT Y1A 3V7
   Phone: 867-668-7807
   Fax: 867-668-7762

2. Pelly Construction Ltd.
   Whitehorse, YT Y1A 2T7
   Phone: 867-667-6161

Each of the contractors may have some equipment within the Faro regional area and they should be contacted, if response plans dictate the need for their resources, which may include operators for the equipment.

For all equipment, fuel and oil will be required for their operation. It is assumed that an appropriate amount of both is located on site and that additional required amounts can be moved from the Town of Faro to site.

In addition to mobile equipment and operators, equipment, materials and supplies will be required to implement the various response plans reviewed earlier. Table 8.1 outlines some of the potential requirements.

In the event that helicopters are required, the following are some of the helicopter companies in the Yukon:

1. Trans North Helicopters

Whitehorse headquarters	phone: 867-668-2177	
Carmacks base	phone: 867-863-5551	cell: 867-335-2221
Ross River base	phone: 867-969-2374	cell: 867-335-2374

2. Horizon Helicopters

Whitehorse	phone: 867- 633-6044

3. Fireweed Helicopters

Whitehorse	phone: 867-668-5888

Table 8.1 Potential Equipment, Materials and Supplies for Emergency Response

Article	Purpose	Commentary/Location
Riprap	Erosion protection of eroded areas, channels and dam faces.	Cobbles and boulders exist in the granular borrow areas: • North Fork Rose Creek Quarry • West of the Cross Valley Dam, and • Quarry area at the Vangorda Waste Dump. A stockpile of angular riprap is located both near the Faro Valley Dumps on the Faro Side of the property and at the Grum quarry on the Vangorda side of the property. Old rockfill quarries are located on the south side of the Rose Creek Diversion Channel (RCDC). Supply of extensive amounts of riprap would be problematic. Large rockfill fragments from the waste rock dumps could possibly be used, but material may be acid-generating. Identification of non-acid-generating rockfill from these potential sources is required. Figures B-008 to B-010 show surficial geology and locations of soil and rock borrow information.
Rockfill and general fill	Backfill for settled areas. Construction of access roads, pads, dykes and buttress berms.	As noted above. Borrow pits also located along the mine site access road coming from the Town of Faro. Large amounts of till located on the Vangorda Plateau with accessible amounts overlooking the Vangorda Pit slopes. Figures B-008 to B-010 show surficial geology and locations of soil and rock borrow information.
Sand	Required for bedding and covering of liners. May be required for filters and drainage layers.	Granular borrow areas as noted above. Significant granular deposits located just above the north abutment of the Intermediate Dam. If critical, tailings could also be used but metal leaching and ARD concerns would result. Figures B-008 to B-010 show surficial geology and locations of soil and rock borrow information.
Geotextile	Required for separation and/or filtration for filters and drainage layers.	Relatively heavy-duty non-woven geotextile would likely be required for separation purposes. 9 rolls on site: 6 rolls of geotextile, 1 roll of Bithum, 2 rolls of bentamax.
Geocomposite liner (GCL)	Required to control seepage by reducing seepage input and leakage from channels.	GCL products, such as Bentofix and Bentomat, are installed with overlapping seams only. Powdered bentonite is required for seam overlaps. 2 rolls of Bentomat are currently at site. Additionally on site are 1.5 rolls of Asphalt
Siphon pipes	Required to lower pond levels rapidly when needed.	Various lengths of 8, 16, 20 and 24-inch diameter plastic pipe are located on site. Starting siphon pipes require valves or cranes to fill the pipe ends. In addition, small suction pumps and pipe tie-in locations are required to evacuate trapped air.
Light plants	Required to assist night time operations and operations during winter	Three light plants are required at site; one should be dedicated to the guardhouse, one mounted on wheels for towing and the other to be man-portable. Currently there are two light plants on site, and a third one could be rented, if needed.
Pumps	Required to pump water and to remove air from siphon pipes.	Various types and sizes of pumps will be required. Pumps will need to be portable and hence gasoline or diesel driven may be the most useful, dependent upon electrical services in the area.

As discussed in Section 6.4, frozen material with higher moisture content (e.g., till and sand versus riprap) will be difficult to excavate from borrow pits. Consideration should be given to developing stockpiles of borrow materials that would allow some natural drainage to occur, thus limiting the moisture content. If rainfall occurs immediately preceding snowfall and freeze-up, even stockpiles may be frozen solid. Figures B-008 to B-010 show the surficial geology and locations of rock and soil borrow sites in the mine site area.

Following the 2013 CH2M HILL borrow investigation, additional work should be undertaken to develop an inventory of the quantity and quality of available borrow materials. Relevant information obtained from this ongoing program should be added to the future updates of ERP as an appendix, so that emergency responders are aware of the sources of suitable soil and rockfill materials that can be used in the event of an emergency.

9 RECOMMENDATIONS

9.1 Site Staff Training on ERP Content

Copies of the ERP must be distributed by the site manager to appropriate staff. The site manager will also be responsible for ensuring that site staff are properly trained, and have the latest version of the ERP. The telephone numbers and names of persons to be contacted should be updated on a regular basis; at least annually as noted by CDA (2007).

Training is necessary to ensure that all mine site personnel as well as individuals involved in the ERP are thoroughly familiar with all the elements of the ERP, their responsibilities and duties, and the availability of equipment. Mine site staff that may have limited geotechnical and dam experience, should be trained in identifying potential problems. They should also be trained to describe clearly and accurately their site observations. These abilities are critically important in emergency situations so that the encountered incidents can be properly diagnosed by technical supports, and appropriate remedial measures be implemented effectively with minimum delay. The training is to cover personnel at all levels of responsibility, beginning with on-site observer through to Care and Maintenance Contractor Site Manager and YG Project Manager. Training should cover a sufficient number of people to ensure adequate coverage at all times (CDA, 2007). The training seminar can be put on CD for the training of new staff. This is an on-going requirement.

9.2 Site Drill for Emergency Response

An important component of the ERP is testing the plan through site drills to ensure that the contents of the document and the training of the individuals and involved parties are adequate (CDA, 2007). Initially, testing can be done as a table-top exercise to review the identification and initial response to various incident levels. Larger scale simulations should include notification of external emergency response agencies and regulators and full-scale emergency simulations including multiple failure events. The purpose of these simulations is to identify problems with communications, resources and logistics so that deficiencies in the ERP and associated Emergency Preparedness Plan (EPP) can be improved. An important component in the simulation drills is to give the site staff the experience and confidence with respect to dealing with emergencies and having a good understanding of the time involved in responding to various incidents.

9.3 Borrow Materials

As outlined in Section 5, some of the response measures will require placing various types of fill materials such as till, sand and gravel, crushed rock and rockfill on and/or near the structures. Figures B-008 to B-010 show the surficial geology and locations of various soils and rock borrow areas in the mine site. As the CH2MHILL borrow investigation program progresses, an assessment should be made to determine the need for creating stockpiles of various materials of adequate quantities close to Intermediate, Cross Valley and Little Creek Dams, so that they will be readily available in case of an emergency. Consideration needs to be given to ensuring that the material is thermally protected from becoming frozen, and remains in a dry or drained condition at all times.

9.4 Light Plants

As mentioned in Section 6.3, a portable light plant could be rented to aid in carrying out response activities in time of emergency.

9.5 Potential Extension of ERP

In order to have a mine site ERP that includes all dams and diversion channels that present a significant hazard, consideration should be given to extend the ERP to include the following additional structures in the next update of the manual:

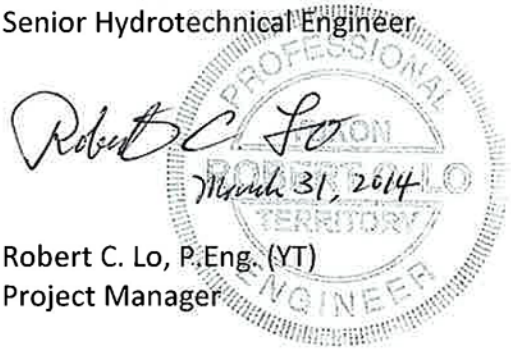
- The Secondary Tailings Dam - It contains mainly tailings with nominal amount of surface water in the Original and Secondary Tailings Impoundments.
- North Valley Wall Interceptor Ditch and North Fork Rose Creek Diversion Channel – Failure of the interceptor ditch could increase inflow to the Intermediate Pond and/or Cross Valley Pond and thereby impact the safety of these two dams, while the failure of the diversion channel could erode and undermine the downstream buttress berm of the Secondary Tailings Dam.
- Grum Interceptor Ditch – Failure of the interceptor ditch could increase inflow to the Grum Pit and cause faster rise of the pit-lake level and increase the amount of water to be treated.
- Vangorda Northeast Interceptor Ditch - Failure of the interceptor ditch could increase inflow to the Vangorda Pit and cause faster rise of the pit-lake level and increase the amount of water to be treated.

10 CLOSURE

This ERP has been updated for the Intermediate, Cross Valley and Little Creek Dams, the two main pit diversion channels at Faro and Vangorda Open Pits, and the Rose Creek Diversion Channel. This ERP should be considered a "living document" that is periodically reviewed and updated to reflect current site conditions and information. At a minimum, the equipment and contact lists should be updated yearly. Furthermore, considerations should be given to extend the coverage of the ERP to other structures such as the Secondary Tailings Dam, and other diversion ditches and channels that could impact the Intermediate and Cross Valley Dams and Grum and Vangorda Pit Lakes.

KLOHN CRIPPEN BERGER LTD.

Arvind Dalpatram, P.Eng. (BC)
Senior Hydrotechnical Engineer



March 31, 2014

Robert C. Lo, P.Eng. (YT)
Project Manager

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BGC 2008. Emergency Response Plan for: Intermediate Dam, Cross Valley Dam, Little Creek Dam, Rose Creek Diversion Channel, Vangorda Creek Diversion Flume. Submitted to Deloitte & Touche.

CDA 2007. Dam Safety Guidelines. Canadian Dam Association, twelve sections, November.

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Gartner Lee 2003-2008 Water Licence Renewal Application Report, Anvil Range Mining Corporation (Interim Receivership).

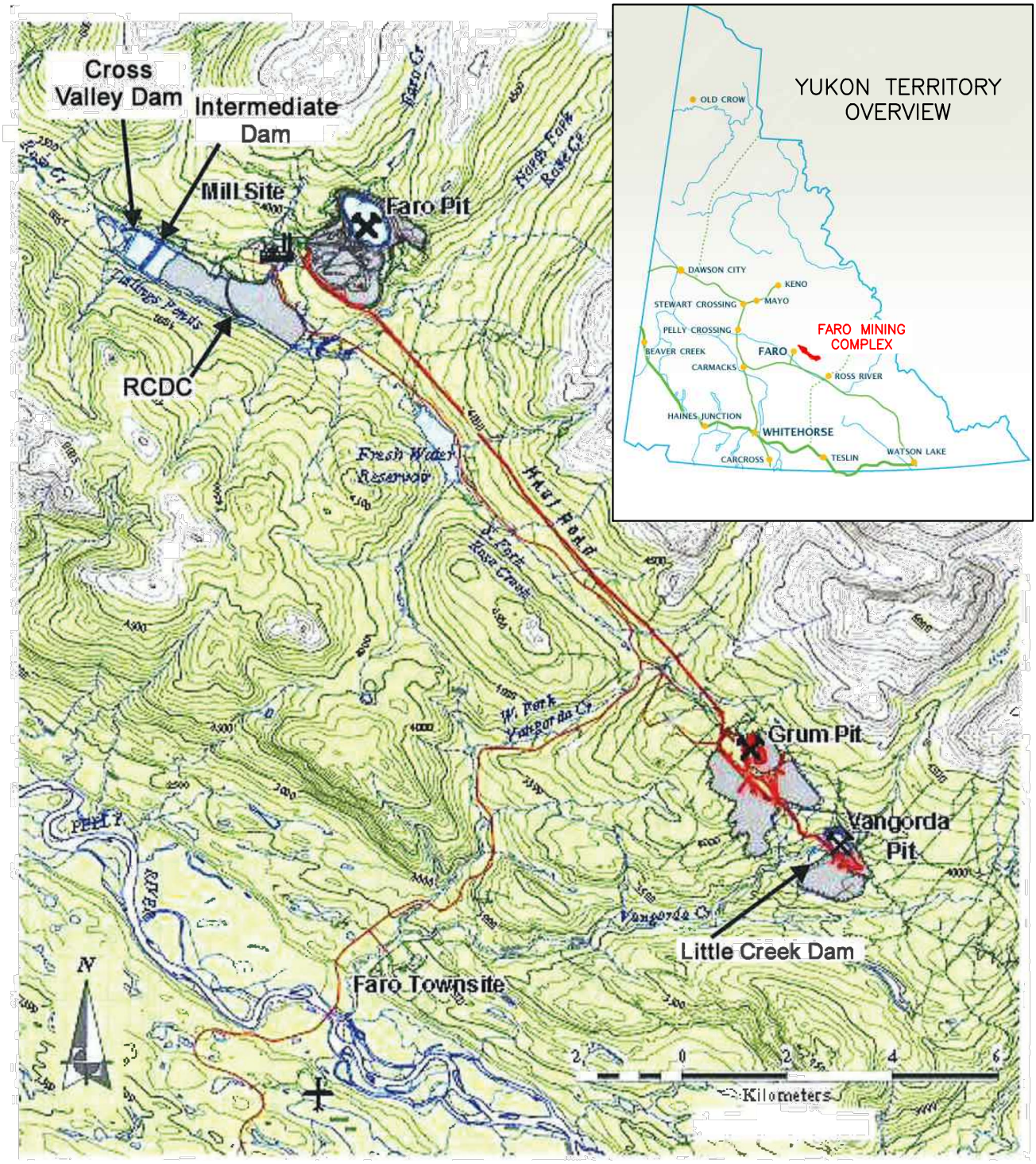
KCB 2014a. Dam Breach and Inundation Study - Faro Mine Remediation Project, February.

KCB 2014b. Operations, Maintenance and Surveillance Manual: Intermediate Dam, Cross Valley Dam and Little Creek Dam - Faro Mine Complex, March.

KCB 2014c. 2013 Annual Geotechnical Review - Faro Mine Complex, March.

TEES 2012. Emergency Management Plan - Faro Mine Complex, Tlicho Engineering and Environmental Services.

FIGURES



NOTE:

1. BASE MAP FIGURE PROVIDED BY GARTNER LEE LIMITED.

CLIENT

Yukon Government

Klohn Crippen Berger

PROJECT

FARO MINE COMPLEX

ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE

SITE LOCATION PLAN

PROJECT No. M09770A03 02 02

FIG. No. A-001

KCB-R-MPA

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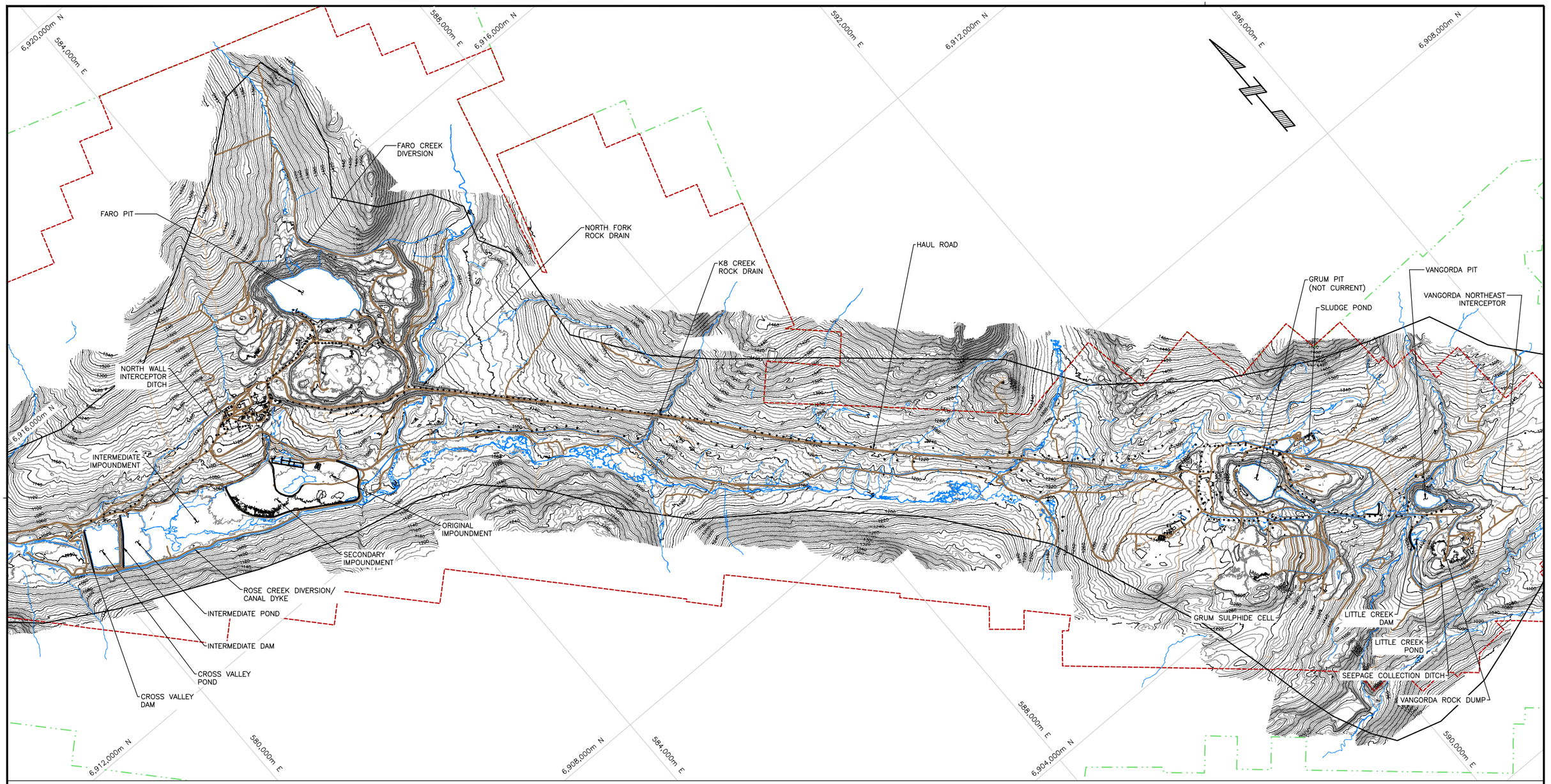

LEGEND

- PROTECTED AREA WITHDRAWN FROM STAKING MINERAL CLAIMS OIC #2007/168
- IMPACTED AREA BOUNDARY
- ACCESS ROADS
- STREAMS
- POWER POLE

SCALE 0 2000m

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: MINE SITE TOPOGRAPHY AND ACCESS ROADS

PROJECT No. M09770A03 02 02

FIG. No. B-002

KCB-R-MLD

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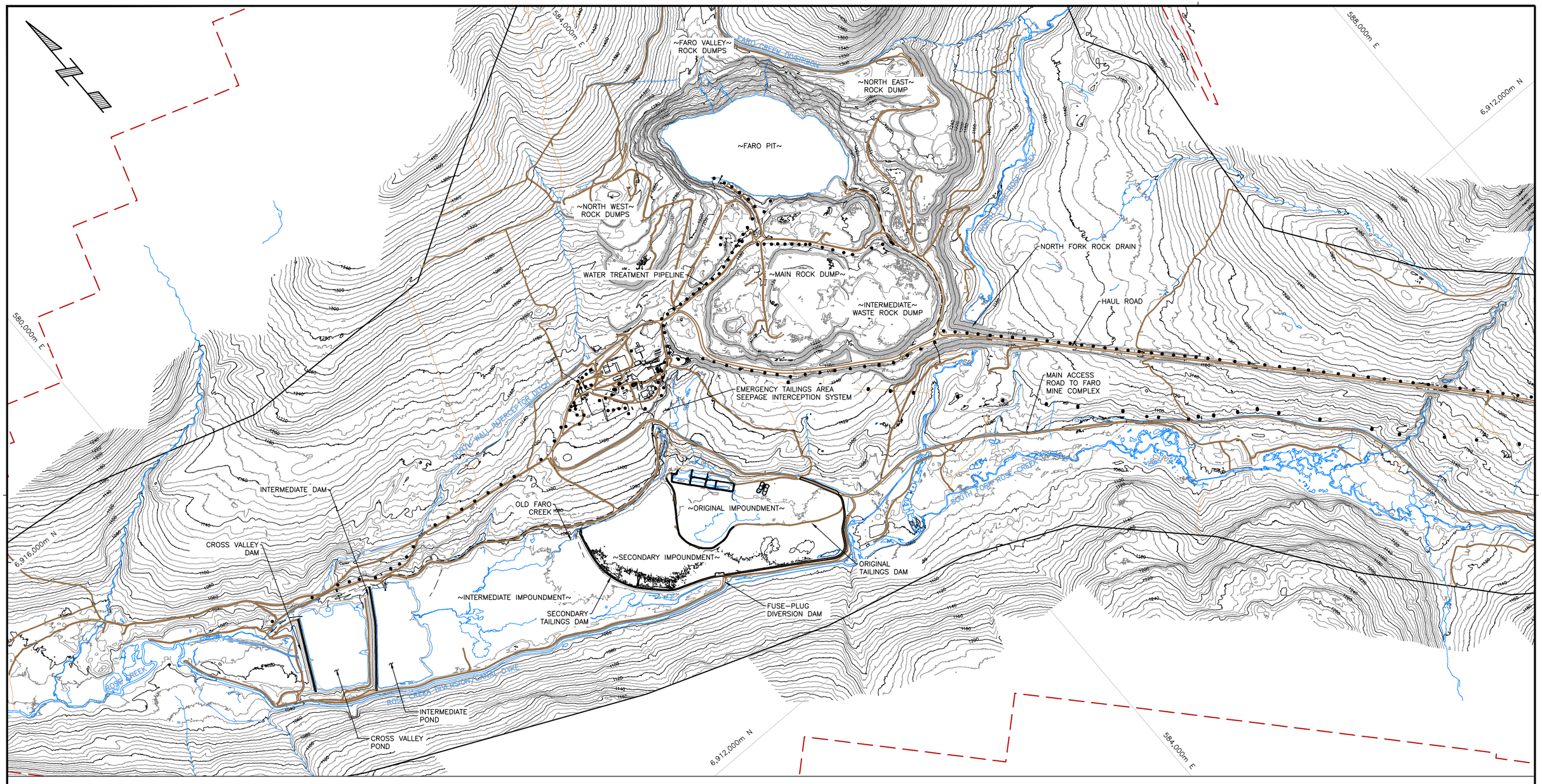
Filename: \\INT.KLOHN.COM\PROJDATA\M\VCR\M09770A03-GOVTYUKON-2013 FARO\400 DRAWINGS\ERP\FIG_B-002_SITE_TOPOGRAPHY.DWG



LEGEND

- IMPACTED AREA BOUNDARY
- ACCESS ROADS
- STREAMS
- POWER POLE

SCALE 0 1000m

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: FARO SITE GENERAL LAYOUT

PROJECT No. M09770A03 02 02

FIG. No. B-003

KCB-A-MLD

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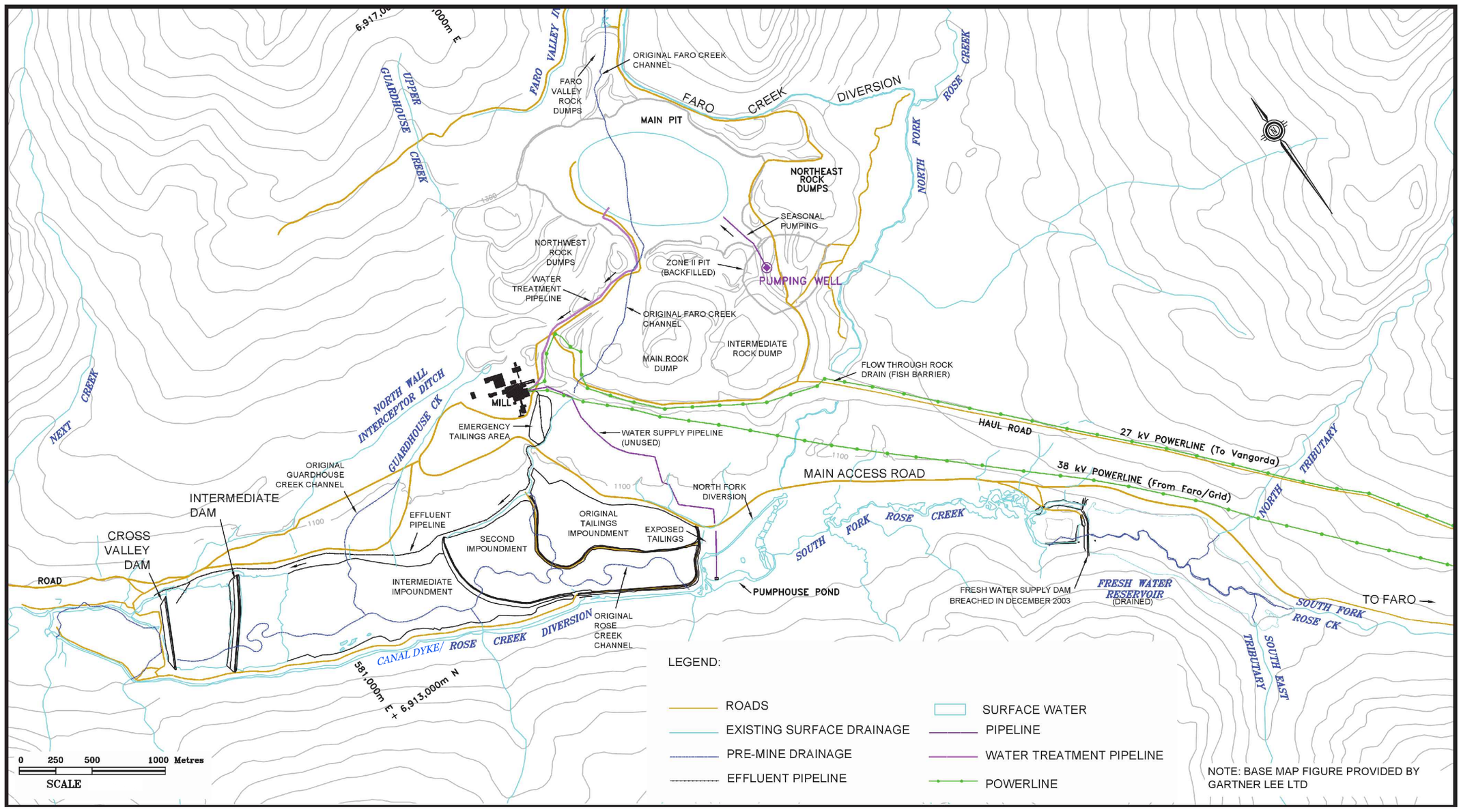
Filename:\\INT.KLOHN.COM\PROJDATA\M\VCR\M09770A03-GOVTYUKON-2013 FARO\400 DRAWINGS\ERP\FIG_B-003&B-005.DWG



NOTE:

1. ORIGINAL FIGURE PROVIDED BY BGC ENGINEERING.

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: FARO SITE DETAIL LAYOUT

PROJECT No. M09770A03 02 02

FIG. No. B-004

KCB-R-MLD

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592,000m E

596,000m E

6,904,000m N

GRUM SETTLING POND

WATER TREATMENT PLANT

SLUDGE POND

OVERLAND WATER TREATMENT PIPELINE

~GRUM OVERBURDEN DUMP~

~GRUM PIT~
(NOT CURRENT)

SHEEP PAD PONDS

VANGORDA CREEK DIVERSION FLUME

VANGORDA NORTHEAST INTERCEPTOR

~VANGORDA PIT~

HAUL ROAD

SLOT CUT

LITTLE CREEK POND

LITTLE CREEK DAM

~VANGORDA~
ROCK DUMP

~GRUM SULPHIDE~
CELL

~GRUM SOUTHWEST~
ROCK DUMP

GRUM CREEK

SEEPAGE COLLECTION DITCH

VANGORDA CREEK

592,000m E

6,904,000m N

LEGEND

- IMPACTED AREA BOUNDARY
- ACCESS ROADS
- STREAMS
- POWER POLE

SCALE 0 750m

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: VANGORDA PLATEAU SITE
GENERAL LAYOUT

PROJECT No. M09770A03 02 02

FIG. No. B-005

KCB-R-MLD

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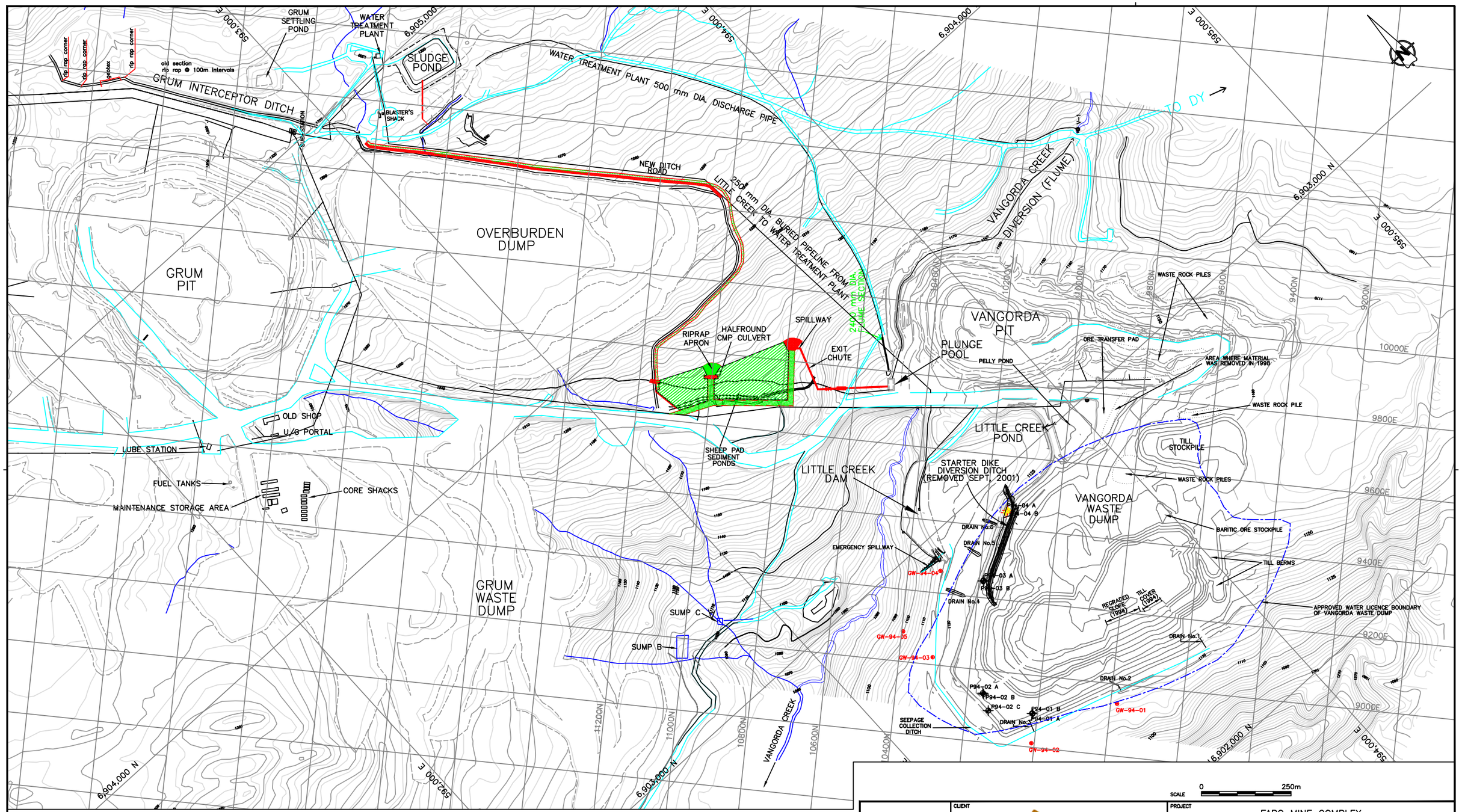

NOTES

1. ORIGINAL SOURCE BY DELOITTE & TOUCHE.
2. TOPOGRAPHIC MAP PROVIDED BY ANVIL RANGE MINING CORPORATION.

SCALE 0 250m

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: VANGORDA PLATEAU SITE DETAIL LAYOUT

PROJECT No. M09770A03 02 02

FIG. No. B-006

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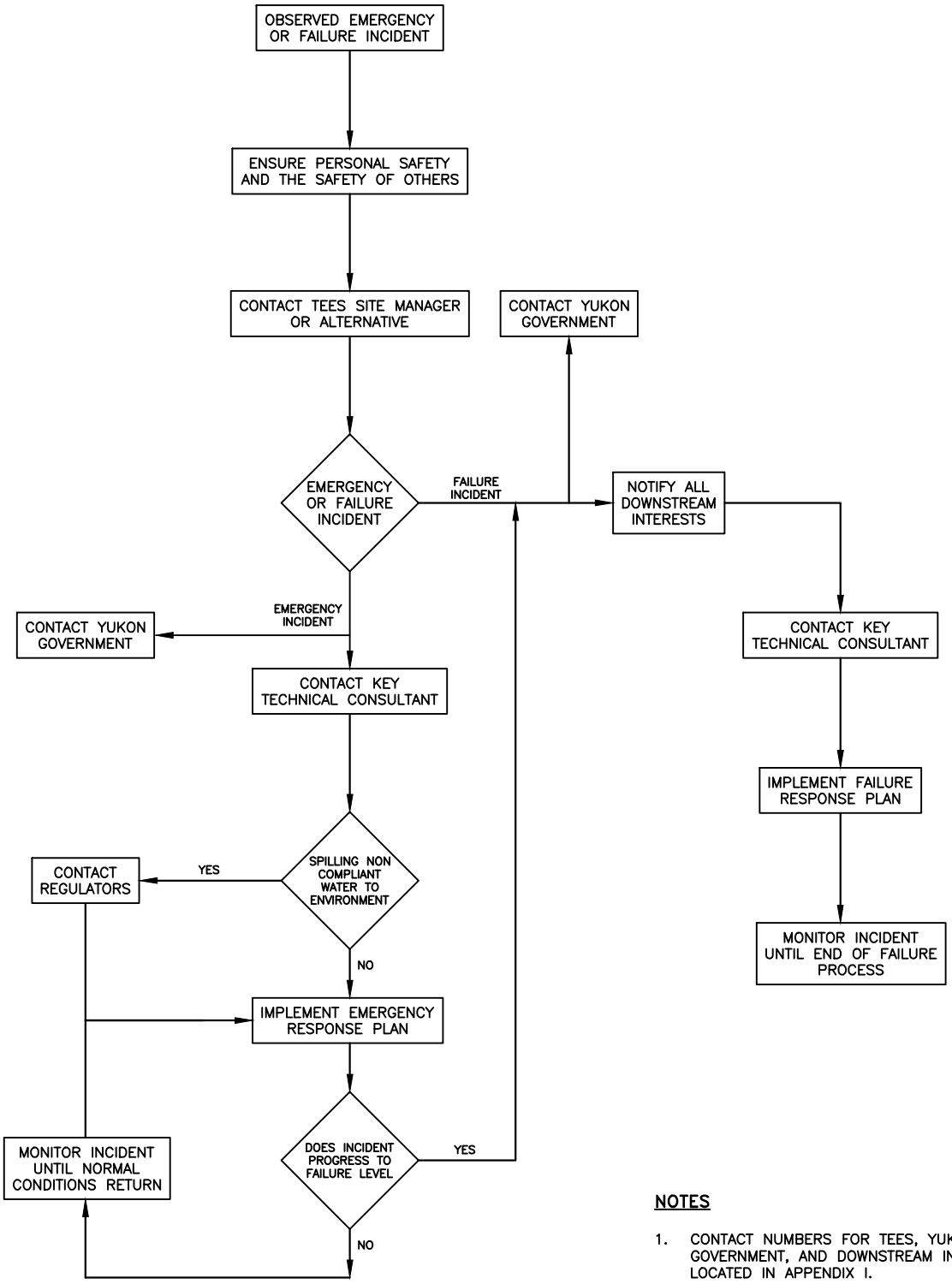
Filename:\\INT.KLOHN.COM\PROJDATA\M_VCR\M09770A03-GOVTYUKON-2013 FARO\400 DRAWINGS\ERP\FIG_B-006_VANGORDA_PLATEAU_DETAIL.DWG

KCB-R-MLD



NOTES

1. CONTACT NUMBERS FOR TEES, YUKON GOVERNMENT, AND DOWNSTREAM INTERESTS ARE LOCATED IN APPENDIX I.
2. ALL CONTACT NUMBERS FOR THE PARTIES ON THIS SHEET ARE LOCATED IN SECTION 7.2 OF THE MAIN REPORT.

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: DECISION PATH FOR SITE PERSONNEL

PROJECT No. M09770A03 02 02

FIG. No. A-007

KCB-R-MPA

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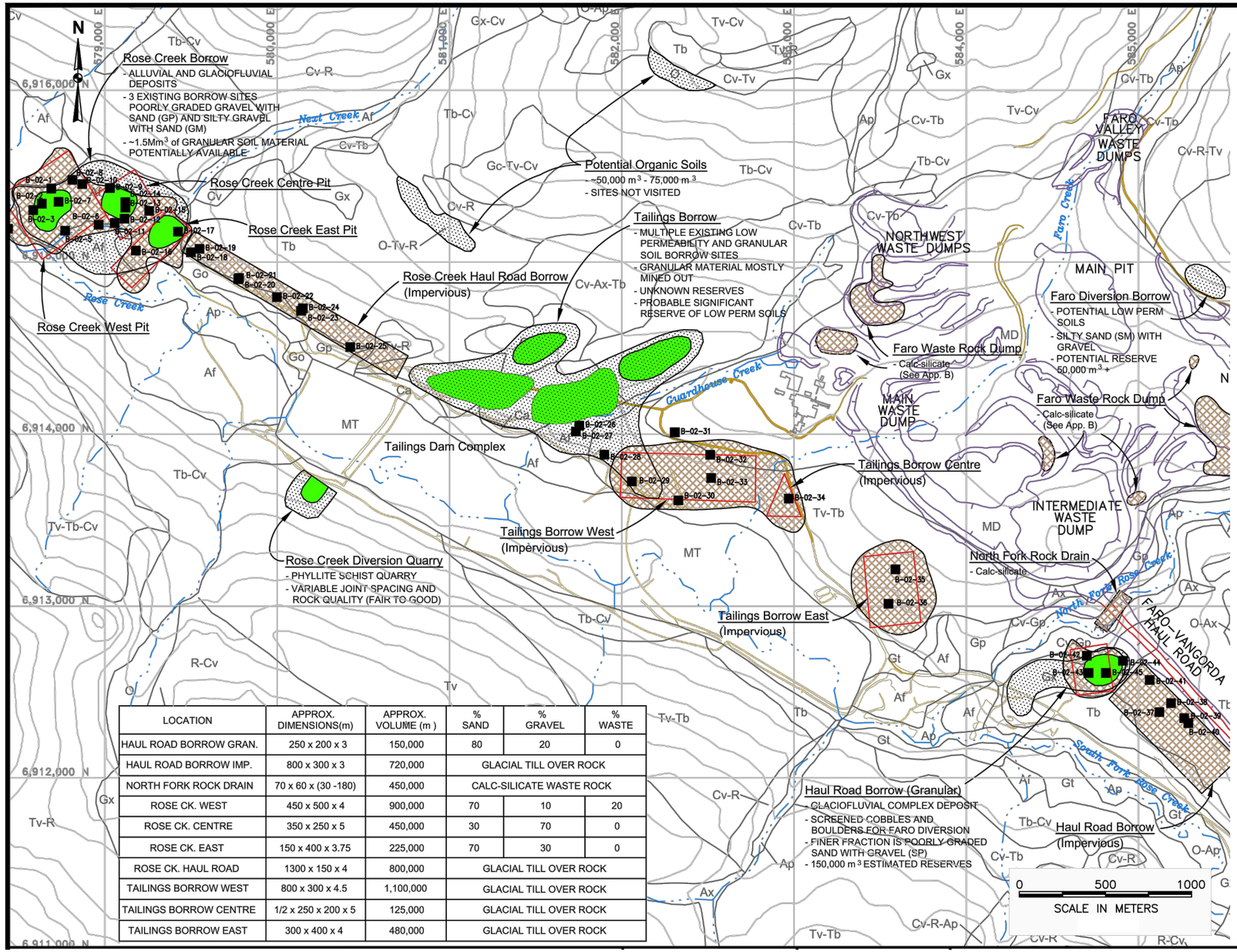

LOCATION	APPROX. DIMENSIONS(m)	APPROX. VOLUME (m)	% SAND	% GRAVEL	% WASTE
HAUL ROAD BORROW GRAN.	250 x 200 x 3	150,000	80	20	0
HAUL ROAD BORROW IMP.	800 x 300 x 3	720,000	GLACIAL TILL OVER ROCK		
NORTH FORK ROCK DRAIN	70 x 60 x (30 -180)	450,000	CALC-SILICATE WASTE ROCK		
ROSE CK. WEST	450 x 500 x 4	900,000	70	10	20
ROSE CK. CENTRE	350 x 250 x 5	450,000	30	70	0
ROSE CK. EAST	150 x 400 x 3.75	225,000	70	30	0
ROSE CK. HAUL ROAD	1300 x 150 x 4	800,000	GLACIAL TILL OVER ROCK		
TAILINGS BORROW WEST	800 x 300 x 4.5	1,100,000	GLACIAL TILL OVER ROCK		
TAILINGS BORROW CENTRE	1/2 x 250 x 200 x 5	125,000	GLACIAL TILL OVER ROCK		
TAILINGS BORROW EAST	300 x 400 x 4	480,000	GLACIAL TILL OVER ROCK		

LEGEND (from Bond, 1999)

QUATERNARY

HOLOCENE

MINE DISTURBANCE

MD- mine disturbance; consisting of an open-pit and stripped till and bedrock accumulations. Bedrock and surficial sediments exposed in open-pit.

MINE TAILINGS

MT - mine tailings; consisting of sand, silt and some clay.

ORGANIC DEPOSITS

O - organics; consisting of woody sedge peat, variable thickness. White River ash accumulations are commonly associated with poorly drained peaty areas.

ALLUVIAL DEPOSITS

Ap - alluvial plain; silt, sand and pebbles with reworked cobbles and boulders occurring as bars, overbank floodplain deposits, 0 - 10 m thick; floodplain subject to periodic floods. Small valley alluvial plains may not be mapped at this scale.

Ap (active) - alluvial plain; area of Pelly River floodplain that has been recently active.

At - alluvial terrace; silt, sand, and pebbles with reworked cobbles and boulders occurring as low terrace deposits, 0 - 10 m thick.

Af - alluvial fan; coarse sand, pebbles, cobbles and mudflow deposits, up to or >10 m thick. Appear as vegetated, often peat covered, landforms developed during post-glacial sedimentation.

Ax - complexes of Ap and Af undivided. Common when a stream is unconfined and also in narrow valleys where side-entry alluvial fans cannot be differentiated from an alluvial plain.

PLEISTOCENE AND HOLOCENE (UNDIVIDED)

COLLUVIAL DEPOSITS

Cv - colluvium veneer; conforms to bedrock topography, <1 m thick.

Ca - colluvium apron; coalescing colluvial fans at the base of a slope, >1 m thick.

Cz - mass wasting; includes slumping, debris slides and rockfalls. Slumping and rockfalls are Common on Mt.Mye.

LATE PLEISTOCENE (WISCONSINAN) - McCONNELL GLACIATION

GLACIOLACUSTRINE DEPOSITS

Lb - glaciolacustrine blanket; 1- 40 m thick.

GLACIOFLUVIAL DEPOSITS

Gp - glaciofluvial plain; 3 - 10 m thick.

Gt - glaciofluvial terrace; <10 m thick.

Gx - glaciofluvial complex; 1 - 30 m thick, composed of deposits of outwash, glaciolacustrine and minor till deposited in an ice contact environment. Hummocky topography is associated with this depositional setting. Crevasse fillings were mapped in the upper part of Vangorda Creek valley.

GLACIAL DEPOSITS

Tv - till veneer; conforms to underlying topography, <1 m thick.

Tb - till blanket; gently to moderately sloping plain controlled by bedrock or underlying surficial deposits, >1 m thick.

Tx - till complex; till blanket or veneer composed of meltout till and minor ice contact glaciofluvial deposits.

LOWER CAMBRIAN TO CRETACEOUS

BEDROCK

R - bedrock; common on plateau summits and ridges on Mt. Mye and Sheep Mountain.

- EXISTING QUARRY OR BORROW
- POTENTIAL QUARRY OR BORROW
- AREA IDENTIFIED IN PHASE 1 (REJECTED IN PHASE 2)
- MINE INFRASTRUCTURE
- EXISTING ACCESS ROAD
- PHASE 2 BORROW TEST PIT B–02–40

REFERENCE

ORIGINAL MAP: SRK (2003) FIGURE 4

BOND, J.D. (OPEN FILE 1999-8)
SURFICIAL GEOLOGY MAP OF MOUNT MYE AND FARO (105K/3&6 W), CENTRAL YUKON TERRITORY

NOTE:

1. ORIGINAL FIGURE PROVIDED BY BGC ENGINEERING.

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: FARO MINE SITE SURFICIAL GEOLOGY SOIL AND ROCK BORROW LOCATIONS

PROJECT No. M09770A03 02 02

FIG. No. B–008

KCB–R–MLD

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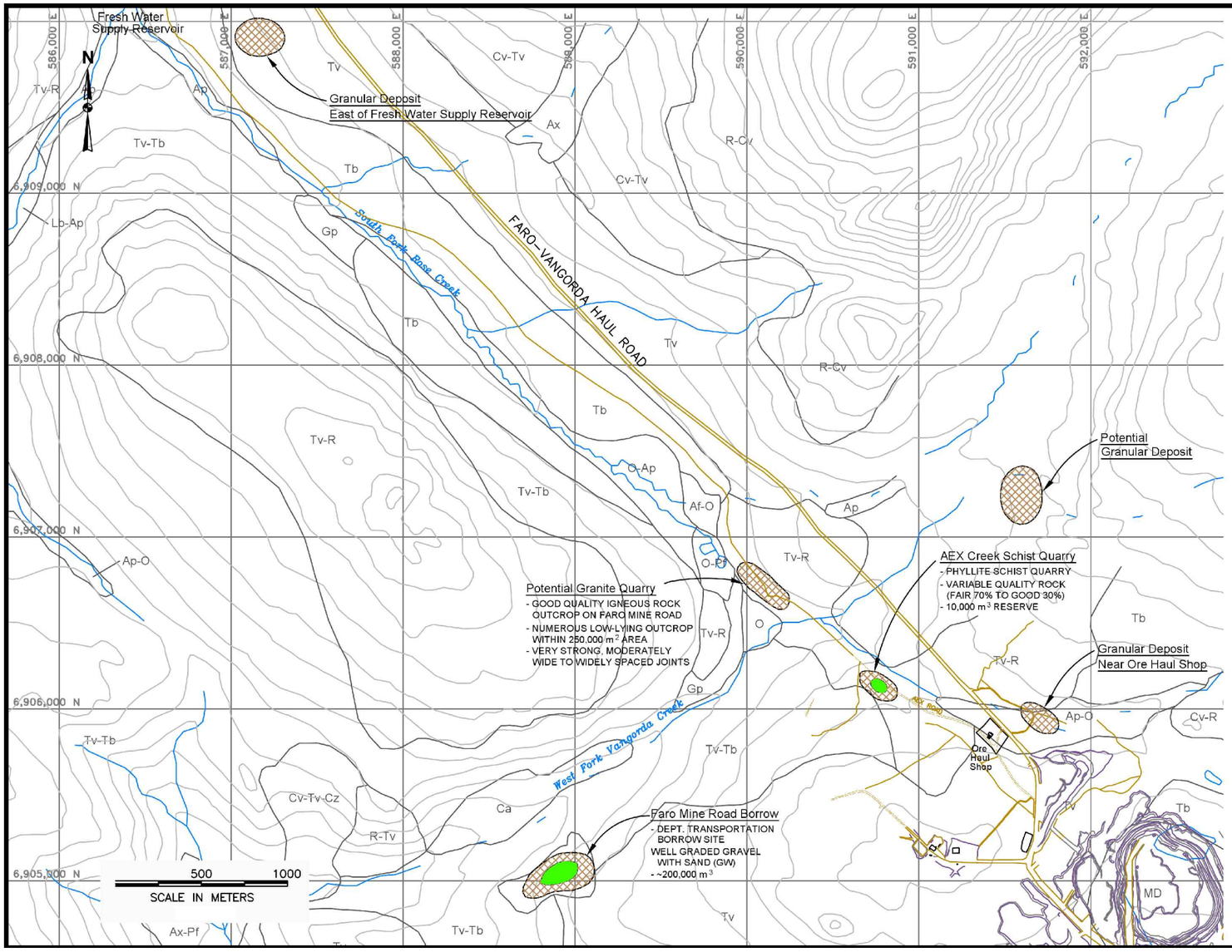
Filename:\\NT.KLOHN.COM\PROJDATA\M\VCR\M09770A03-GOVTYUKON-2013 FARO\400 DRAWINGS\ERP\FIG_B-008_FARO MINE SITESUFICIAL GEOLOGY.DWG



LEGEND (from Bond, 1999)

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PLEISTOCENE AND HOLOCENE (UNDIVIDED)

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BEDROCK

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- POTENTIAL QUARRY OR BORROW
- AREA IDENTIFIED IN PHASE 1 (REJECTED IN PHASE 2)
- MINE INFRASTRUCTURE
- EXISTING ACCESS ROAD
- PHASE 2 BORROW TEST PIT B–02–40

REFERENCE

ORIGINAL MAP: SRK (2003) FIGURE 4

BOND, J.D. (OPEN FILE 1999-8)
SURFICIAL GEOLOGY MAP OF MOUNT MYE AND FARO
(105K/3&6 W), CENTRAL YUKON TERRITORY

NOTE:

1. ORIGINAL FIGURE PROVIDED BY BGC ENGINEERING

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: FARO–VANGORDA HAUL ROAD
SURFICIAL GEOLOGY
SOIL AND ROCK BORROW LOCATIONS

PROJECT No. M09770A03 02 02

FIG. No. B–009

KCB–R–MLD

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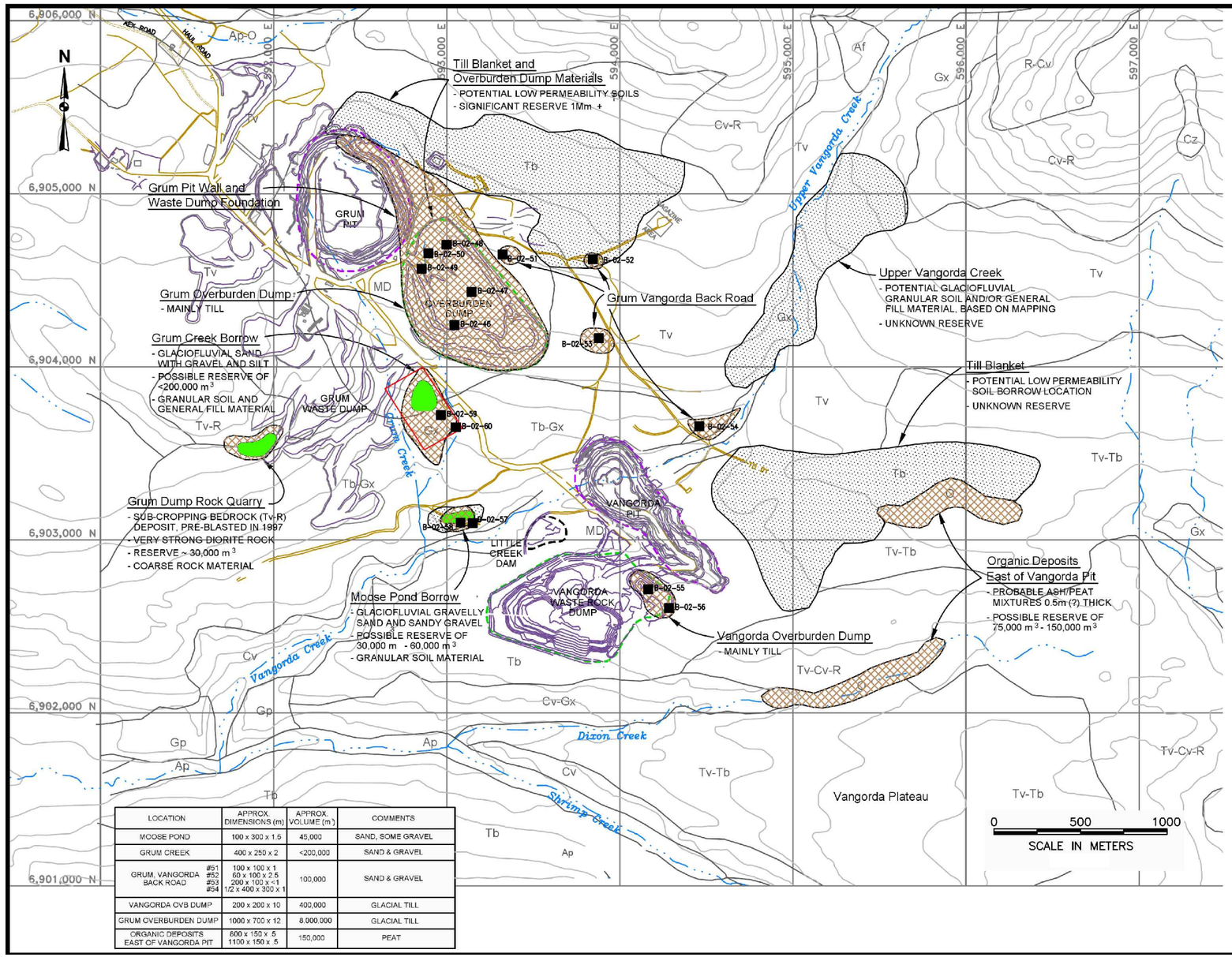
Filename: \\INT.KLOHN.COM\PROJDATA\M\VCR\M09770A03-GOVTYUKON-2013 FARO\400 DRAWINGS\ERP\FIG_B-009_FARO-VANGORDA_HAULROADSURFICIALGEOLOGY.DWG



LOCATION		APPROX. DIMENSIONS (m)	APPROX. VOLUME (m³)	COMMENTS
MOOSE POND		100 x 300 x 1.5	45,000	SAND, SOME GRAVEL
GRUM CREEK		400 x 250 x 2	<200,000	SAND & GRAVEL
GRUM, VANGORDA BACK ROAD	#51 #52 #53 #54	100 x 100 x 1 60 x 100 x 2.5 200 x 100 x <1 1/2 x 400 x 300 x 1	100,000	SAND & GRAVEL
VANGORDA OVB DUMP		200 x 200 x 10	400,000	GLACIAL TILL
GRUM OVERBURDEN DUMP		1000 x 700 x 12	8,000,000	GLACIAL TILL
ORGANIC DEPOSITS EAST OF VANGORDA PIT		600 x 150 x .5 1100 x 150 x .5	150,000	PEAT

LEGEND (from Bond, 1999)

QUATERNARY

HOLOCENE

MINE DISTURBANCE

MD- mine disturbance; consisting of an open-pit and stripped till and bedrock accumulations. Bedrock and surficial sediments exposed in open-pit.

MINE TAILINGS

MT - mine tailings; consisting of sand, silt and some clay.

ORGANIC DEPOSITS

O - organics; consisting of woody sedge peat, variable thickness. White River ash accumulations are commonly associated with poorly drained peaty areas.

ALLUVIAL DEPOSITS

Ap - alluvial plain; silt, sand and pebbles with reworked cobbles and boulders occurring as bars, overbank floodplain deposits, 0 - 10 m thick; floodplain subject to periodic floods. Small valley alluvial plains may not be mapped at this scale.

Ap (active) - alluvial plain; area of Pelly River floodplain that has been recently active.

At - alluvial terrace; silt, sand, and pebbles with reworked cobbles and boulders occurring as low terrace deposits, 0 - 10 m thick.

Af - alluvial fan; coarse sand, pebbles, cobbles and mudflow deposits, up to or >10 m thick. Appear as vegetated, often peat covered, landforms developed during post-glacial sedimentation.

Ax - complexes of Ap and Af undivided. Common when a stream is unconfined and also in narrow valleys where side-entry alluvial fans cannot be differentiated from an alluvial plain.

PLEISTOCENE AND HOLOCENE (UNDIVIDED)

COLLUVIAL DEPOSITS

Cv - colluvium veneer; conforms to bedrock topography, <1 m thick.

Ca - colluvium apron; coalescing colluvial fans at the base of a slope, >1 m thick.

Cz - mass wasting; includes slumping, debris slides and rockfalls. Slumping and rockfalls are Common on Mt.Mye.

LATE PLEISTOCENE (WISCONSINAN) - McCONNELL GLACIATION

GLACIOLACUSTRINE DEPOSITS

Lb - glaciolacustrine blanket; 1- 40 m thick.

GLACIOFLUVIAL DEPOSITS

Gp - glaciofluvial plain; 3 - 10 m thick.

Gt - glaciofluvial terrace; <10 m thick.

Gx - glaciofluvial complex; 1 - 30 m thick, composed of deposits of outwash, glaciolacustrine and minor till deposited in an ice contact environment. Hummocky topography is associated with this depositional setting. Crevasse fillings were mapped in the upper part of Vangorda Creek valley.

GLACIAL DEPOSITS

Tv - till veneer; conforms to underlying topography, <1 m thick.

Tb - till blanket; gently to moderately sloping plain controlled by bedrock or underlying surficial deposits, >1 m thick.

Tx - till complex; till blanket or veneer composed of meltout till and minor ice contact glaciofluvial deposits.

LOWER CAMBRIAN TO CRETACEOUS

BEDROCK

R - bedrock; common on plateau summits and ridges on Mt. Mye and Sheep Mountain.

- EXISTING QUARRY OR BORROW
- POTENTIAL QUARRY OR BORROW
- AREA IDENTIFIED IN PHASE 1 (REJECTED IN PHASE 2)
- MINE INFRASTRUCTURE
- EXISTING ACCESS ROAD
- PHASE 2 BORROW TEST PIT B-02-40

REFERENCE

ORIGINAL MAP: SRK (2003) FIGURE 4

BOND, J.D. (OPEN FILE 1999-8)
SURFICIAL GEOLOGY MAP OF MOUNT MYE AND FARO
(105K/3&6 W), CENTRAL YUKON TERRITORY

NOTE:

1. ORIGINAL FIGURE PROVIDED BY BGC ENGINEERING.

CLIENT: Yukon Government

Klohn Crippen Berger

PROJECT: FARO MINE COMPLEX
ERP FOR DAMS AND WATER DIVERSION STRUCTURES

TITLE: VANGORDA–GRUM AREA
SURFICIAL GEOLOGY
SOIL AND ROCK BORROW LOCATIONS

PROJECT No. M09770A03 02 02

FIG. No. B-010

KCB-R-MLD

Date:1/29/2013 Time:13:25:10 Scale:1:25,585
Filename:\\NT.KLOHN.COM\PROJDATA\M\VCR\M09770A03-GOVTYUKON-2013 FARO\400 DRAWINGS\ERP\FIG_B-010_VANGORDA-GRUM_SURFICIALGEOLOGY.DWG

APPENDIX I

Site Emergency Contact Lists

I.1 Emergency Contact List

I.2 Technical Support Contact List – Geotechnical, Hydrotechnical and Environmental

I.3 Earthquake Information

Appendix I
Site Emergency Contact Lists

I.1 EMERGENCY CONTACT LIST

For the purposes of emergency response on site, all external notification/requests for assistance will be coordinated through Faro Security.

Emergency Contact	Contact Information
On Site Security (FARO)	TEES Radio Call
Faro Office Complex/Security	1-867-994-2600 (w) ext. 0000
Ambulance/Nursing Station	1-867-994-4444
Fire Department	1-867-994-2222
RCMP (emergency)	1-867-994-5555
RCMP (non-emergency)	1-867-994-2677
Conservation Officer (TJ Grantham)	1-867-994-2862
Yukon Wildfire Management	1-888-798-3473 (Report Wildfires) 1-800-826-4750 (Wildfire Update) 1-867-393-7415 (Fire Information)
Dept. of Highways (Drury Creek)	1-867-994-3046
Whitehorse General Hospital	1-867-393-8700
Poison Control Centre	1-800-267-1373

Tlicho Engineering and Environmental Services Emergency Contact List

TEES Emergency Contact List	Position	Faro Residence	Mobile	Off Site Residence
Barry Wilson	Acting Site Manager	1-867-994-2354	1-867-334-4765	
Robert Wren	Site Superintendent	1-867-994-2058	1-867-334-3343	
Jodi Boyd	Office Administrator	1-867-994-3483	1-867-335-3240	
Tracy Parkin	Environmental Coordinator	1-867-969-2856	1-867-335-6595	1-867-969-2856
Dan Duivenvoorden	Water Treatment Supervisor	1-867-994-2849		
Chris Wilkinson	Site Services Supervisor	1-867-994-3289	1-867-332-1662	
Satellite Phone 011 881 631 655 459				

Tlicho Engineering (TEES)

FARO MINE REMEDIATION PROJECT CONTACT NUMBERS

Site Phone Number 867-994-2600

Emergency Contact Numbers		Employee Home Phone Numbers		Town of Faro	
Ambulance/Nursing Station	994-4444	Allen, Glenis	994-2082	Town Office	994-2728
Whitehorse General Hospital	867-393-8700	Anderson, Ralph	994-2022	Town Maintenance	994-2758
Poison Control Centre	800-267-1373	Benoit, Amos	994-2672	Faro Post Office	994-2759
Fire Department	994-2222	Benoit, Genda	1-867-332-2230	Faro Territorial Agent	994-2724
RCMP	994-5555	Boyd, Jodi	994-3483	Faro Rec Centre	994-2375
RCMP (non emergency)	994-2677	*Cell*	1-867-335-3240	Yukon College	994-8800 or 994-2832
Conservation Officer (T.J. Grantham)	994-2862	Boyd, Mike	994-3483	**Yukon Energy Corporation (YEC)**	
Drury Creek, Dept. Of Highway	994-3046	Branner, Karie	994-2341	Faro	994-3013
Yukon Wild Fire Management	867-393-7415	Ceasar, Bill	994-3222	After Hours	1-800-676-2843
AEL/TEES Yellowknife		Domingue, Eric	994-2354	Guy Morgan	1-867-393-5366
Office Number	867-669-9481	Cell	1-819-243-7555	SCC Whitehorse	1-867-393-5355
Finance - Margo Thorne	867-669-9481	Duivenvoorden, Dan	994-2520	**Accommodation**	
Executive Assistant - Tanya Lafferty	867-669-9481	Hackett, Leo	994-2337	Faro Studio Restaurant	994-3003
HR/PR - Amy Zoe	867-669-9481	Heigl, Michael	994-2612	Faro Studio Hotel/Lounge	994-3133
Manager -	867-669-9481	Henderson, Ray	994-2103	*Fax*	994-3023
Fax	867-669-9482	Johb, Lloyd	994-2804	Far-O-Way B&B	994-2210
AEL - Faro Townhouses		Johb, Marlin	994-2804	*Cell*	1-867-332-9011
Fax	994-2378	Jones, Ray	994-2415	Valley B&B	994-2122
Student House (Yates)	994-2058	Kelly, Paul	994-3485	Bear's Den B&B	994-2103
Guest House (YG)	994-2003	McGivern, Rory	994-2424	**Services**	
Guest House (Dawson Drive)	994-2354	McKinnon, Craig	994-2500	Dept of Highways (Lyle)	994-3046
AEL - Faro Guardhouse		Meers, Ron	994-2130	Faro Hardware Store	994-2470
Security	0000	Miller, Adam	994-3310	Studio Restaurant	994-3133
Site Manager	0001	Mitchel - L Wendy	994-3020	TD Bank	994-2629
Site Superintendent	0002	Moore , Kristan	994-2241	Trans North Helicopters	994-3330
Site Administrator - Jodi Boyd	0003	Murphy, Betty	994-3288	Ellie Marcotte	1-867-537-3331 x286
Environmental Technician - Ronnie M.	0004	O'Connor, Byron	994-2354		1-867-537-2144
Heavy Equipment Super. - Ray H.	0005	Parkin, Tracey	1-867-969-2856	*Fax*	1-867-537-3902
Water Treatment Super. - Dan D.	0006	*Cell*	1-867-335-6595	Ross River Dena Council	1-867-969-2832
Maintenance Supervisor - Chris W.	0007	Pickett, Krista	994-3295	**Contractors**	
Electrician - Ray Jones	0008	Power, Bill	994-2168	Canol Mobile Welding	1-867-969-2827
Health & Safety Coordinator - Glenis A.	0009	Raymond, Bob	994-2204	Clifford McLeod Contracting	1-867-969-2364
AYFN - Patrica Winfield	0010	Rogers, Bob	994-2735	Clifford McLeod *Cell*	1-867-332-7216
Admin Assistant/Warehouse - Shelley S.	0011	Ryall, Jim	994-2024	Gomm Enviro. Eng. Consult.	1-867-334-7237
Administration Office	0012	Salo, Aaron	1-867-335-6162	Laberge Enviro. Services	1-867-668-6838
Admin Assistant/Payroll- Krista Pickett	0013	Salo, Jon	994-2021	Manitoulin	1-867-633-4989
Warehouse	0014	Shaw, Robert	994-2055	Magundy Transport (Wolfe)	994-2428
Environment Office	0015	Shaw, Shelley	994-2055	*Cell*	1-867-336-1116
Environment Coordinator - Tracey Parkin	0016	Sidhu, Sukie	1-867-336-3825	*E-mail*	weberlein@me.com
Environmental Technician - Craig M.	0018	Wesche, Bill	994-3282	Small's Delivery	1-867-668-4291
Chemist - Sukie Sidhu	0019	Wesche, B.J.	994-2129	Canadian Lynden Transport	1-867-633-5400
Lab	0020	Wilkinson, Chris	994-3289	Lloyd Bjork	1-867-335-0149
First Aid Room	0021	*Cell*	332-1362	Territorial Freightlines	1-867-456-7656
Communication Room	0022	Wilson, Barry	1-867-334-4765	*Cell*	1-867-336-2327
Meeting Room #1	0023	Winfield , Patrica	994-2050	*Bill Wood* *Cell*	1-867-332-1337
N/A	0024	Wood, Shannan	994-2425	**External Labs**	
Conference Room/Meeting Room	0025	Wren , Rob	994-2058	Maxxam	1-604-734-7276
Lunch Room	0026	*Cell*	1-867-334-3343		

TEES Site Phone List

Mine Manager	**0001**
Site Superintentant	**0002**
Site Administrator - *Jodi Boyd*	**0003**
Operations	
Heavy Equipment Supervisor - *Ray Henderson*	**0005**
Water Treatment Supervisor - *Dan Duivenvoorden*	**0006**
Maintenance Supervisor - *Chris Wilkinson*	**0007**
Electrician - *Ray Jones*	**0008**
Safety	
Health & Safety Coordinator - *Glenis Allen*	**0009**
Administration	
Wearhouse/Administrative Assistant -*Shelley Shaw*	**0011**
Administrative Assistant/Payroll/AP - *Krista Pickett*	**0013**
Environment	
Lab Technician - *Ronnie Meers*	**0004**
Environmental Coordinator - *Tracey Parkin*	**0016**
Lab Technician - *Craig McKinnon*	**0018**
Chemist - *Sukie Sidhu*	**0019**
Security	
Security	**0000**
AYFN - Patrica Winfield	**0010**
Other Site numbers	
Wearhouse	**0014**
First Aid Room	**0021**
Communication Room	**0022**
Meeting Room #1	**0023**
Meeting Room/Conference Phone	**0025**
Lunch Room	**0026**

I.2 TECHNICAL SUPPORT CONTACT LIST – GEOTECHNICAL, HYDROTECHNICAL AND ENVIRONMENTAL

Geotechnical	Robert Lo	Klohn Crippen Berger	(604) 251-8455 (w) (604) 278-7126 (h)
Geotechnical – Alternate	Jaco Esterhuizen	CH2MHILL	(541) 602-0309
Hydrotechnical	Arvind Dalpatram	Klohn Crippen Berger	(604) 251-8511 (w) (604) 434-3907 (h)
Environmental (YG)	Adrienne Turcotte	Assessment and Abandoned Mines	(867) 667-3153 (w) (867) 334-9799 (c)
Environmental - Alternate	Steve Momeyer	CH2MHILL	(867) 668-2201 ext. 2012
Environmental Engineering	Leslie Gomm	Gomm Environmental	(867) 334-7237

I.3 EARTHQUAKE INFORMATION

Earthquake information can be obtained from:

Geological Survey of Canada/NRCanada website:
http://www.earthquakescanada.nrcan.gc.ca/index-eng.php

Person monitoring for seismic activity may choose to subscribe to their RSS feed

US Geological Survey website: http://earthquake.usgs.gov/earthquakes/map/

Person monitoring for seismic activity may choose to subscribe to the following automated earthquake notification service: https://sslearthquake.usgs.gov/ens/

APPENDIX II

Spills Regulations

ENVIRONMENT ACT

Pursuant to section 147 of the *Environment Act*, the Commissioner in Executive Council orders as follows:

1. The annexed Spills Regulations are established.

2. The annexed Regulations shall come into force with effect from the 1st day of January, 1997.

Dated at Whitehorse, in the Yukon Territory, this 16th day of December, 1996.

_____
Commissioner of the Yukon

LOI SUR L'ENVIRONNEMENT

Le Commissaire en conseil exécutif, conformément à l'article 147 de la *Loi sur l'environnement*, décrète ce qui suit :

1. Le Règlement sur les déversements ci-joint est établi.

2. Ce même règlement entre en vigueur le 1er janvier 1997.

Fait à Whitehorse, dans le territoire du Yukon, ce 16 décembre 1996.

_____
Commissaire du Yukon

SPILLS REGULATIONS

Definitions

1. In these regulations,

"Act" means the *Environment Act*; *«loi»*

"Federal Regulations" means the Transportation of Dangerous Goods Regulations (Canada) SOR/85/77 of January 18, 1985, as amended from time to time; *«règlement fédéral»*

"government officials" means federal, territorial or municipal government representatives responsible for responding to spill reports to the Yukon Spills Report Centre. *«fonctionnaires du gouvernement»*

Application

2.(1) These regulations do not apply to a release of gas without flaring where authorized by a licence issued under the *Yukon Oil and Gas Act.*

(2) These Regulations do not apply to ozone depleting substances listed in Schedule A of the Ozone Depleting Substances Regulations.

Spill thresholds

3. A spill in excess of the amounts specified in Schedule A is a spill under the Act.

Spill reporting

4. For the purposes of section 133 of the Act, a report to the Yukon Spills Report Centre will be considered a report to an environmental protection officer.

RÈGLEMENT SUR LES DÉVERSEMENTS

Définitions

1. Les définitions suivantes s'appliquent au présent règlement :

«fonctionnaires du gouvernement» Les représentants des gouvernements fédéral, provinciaux ou municipaux, responsables d'intervenir suite à un avis de déversement auprès du «Yukon Spills Report Centre»; *"government officials"*

«loi» S'entend de la *Loi sur l'environnement*; *"Act"*

«règlement fédéral» S'entend du Règlement sur le transport des marchandises dangereuses (Canada), DORS/85-77, du 18 janvier 1985, ainsi que ses modifications. *"Federal Regulations"*

Application

2.(1) Le présent règlement ne s'applique pas à un rejet de gaz sans torchage lorsqu'il est autorisé en vertu d'un permis émis conformément à la *Loi du Yukon sur le pétrole et le gaz*.

(2) Le présent règlement ne s'applique pas aux substances appauvrissant la couche d'ozone apparaissant à l'annexe A du Règlement sur les substances appauvrissant la couche d'ozone.

Seuils limites

3. Un déversement qui excède les quantitées indiquées à l'annexe A est assimilé à un déversement en vertu de la Loi.

Rapport de déversement

4. Aux fins de l'article 133 de la Loi, un rapport de déversement au «Yukon Spills Report Centre» est assimilé à un rapport fait à un agent de protection de l'environnement.

SCHEDULE A

ITEM	COLUMN 1 - SUBSTANCE SPILLED	COLUMN 2 - SPECIFIED AMOUNT
1.	Explosives of Class 1 as defined in section 3.9 of the Federal Regulations	any amount
2.	Flammable gases, of Division 1 of Class 2 as defined in section 3.11(a) of the Federal Regulations	Any amount of gas from a container larger than 100L, or where the spill results from equipment failure, error or deliberate action or inaction
3.	Non-flammable gases of Division 2 of Class 2 as defined in section 3.11(d) of the Federal Regulations	Any amount of gas from a container larger than 100L, or where the spill results from equipment failure, error or deliberate action or inaction
4.	Poisonous gases of Division 3 of Class 2 as defined in section 3.11(b) of the Federal Regulations	any amount
5.	Corrosive gases of Division 4 of Class 2 as defined in section 3.11(c) of the Federal Regulations	any amount
6.	Flammable liquids of Class 3 as defined in section 3.12 of the Federal Regulations	200 L
7.	Flammable solids of Class 4 as defined in section 3.15 of the Federal Regulations	25 kg
8.	Products or substances that are oxidizing substances of Division 1 of Class 5 as defined in sections 3.17(a) and 3.18(a) of the Federal Regulations	50 kg or 50 L
9.	Products or substances that are organic compounds that contain the bivalent "-0-0-" structure of Division 2 of Class 5 as defined in sections 3.17(b) and 3.18(b) of the Federal Regulations	1 kg or 1 L
10.	Products or substances that are poisons of Division 1 of Class 6 as defined in sections 3.19(a) to (e) and 3.20(a) of the Federal Regulations	5 kg or 5 L
11.	Organisms that are infectious or that are reasonably believed to be infectious and the toxins of these organisms as defined in sections 3.19(f) and 3.20(b) of the Federal Regulations	any amount
12.	Radioactive materials of Class 7 as defined by section 3.24 of the Federal Regulations	any discharge or a radiation level exceeding 10 mSv/h at the package surface and 200 mSv/h at 1 m from the package surface
13.	Products or substances of Class 8 as defined by section 3.24 of the Federal Regulations	5 kg or 5 L

ITEM	COLUMN 1 - SUBSTANCE SPILLED	COLUMN 2 - SPECIFIED AMOUNT
14.	Miscellaneous products or substances of Division 1 of Class 9 as defined by sections 3.27(1) and 2(a) of the Federal Regulations	50 kg or 50 L
15.	Miscellaneous products or substances of Division 2 of Class 9 as defined in section 3.27(1) and 2(b) of the Federal Regulations	1 kg or 1 L
16.	Miscellaneous products or substances of Division 3 of Class 9 as defined in section 3.27(1) and 2(c) of the Federal Regulations	5 kg or 5 L
17.	Special waste as defined in section 1 of the Special Waste Regulations	amounts specified in s. 3(1)(b) of Special Waste Regulations
18.	A pesticide as defined in section 2 of the *Environment Act*, but not including those pesticides and fertilizers listed in Schedule 4 of the Pesticide Regulations	5 kg or 5L
19.	Pesticides and fertilizers listed in Schedule 4 of the Pesticide Regulations	any amount

ANNEXE A

ITEM	1ière COLONNE - SUBSTANCE DÉVERSÉE	2ième COLONNE - QUANTITÉ DÉTERMINÉE
1.	Explosifs de classe 1, tels que décrits à l'article 3.9 du règlement fédéral	Toute quantité
2.	Gaz inflammables de la division 1, classe 2, tels que décrits à l'alinéa 3.11 a) du règlement fédéral	Toute quantité de gaz à l'intérieur d'un récipient pouvant contenir plus de 100 litres, ou lorsque le déversement est le résultat d'une défectuosité de l'équipement, d'une erreur ou d'un acte ou d'une omission délibéré
3.	Gaz ininflammables de la division 2, classe 2, tels que décrits au règlement fédéral	Toute quantité de gaz à l'intérieur d'un récipient pouvant contenir plus de 100 litres, ou lorsque le déversement est le résultat d'une défectuosité de l'équipement, d'une erreur ou d'un acte ou d'une omission délibéré
4.	Gaz toxiques de la division 3, classe 2, tels que décrits à l'alinéa 3.11 b) du règlement fédéral.	Toute quantité
5.	Gaz corrosifs de la division 4, classe 2, tels que décrits au règlement fédéral	Toute quantité
6.	Liquides inflammables de la classe 3, tels que décrits à l'article 3.12 du règlement fédéral.	200 L
7.	Solides inflammables de la classe 4, tels que décrits à l'article 3.15 du règlement fédéral	25 kg
8.	Produits ou substances qui sont des matières comburantes de la division 1, classe 5, tels que décrits aux alinéas 3.17 a) et 3.18 a) du règlement fédéral	50 kg ou 50 L
9.	Des produits ou des substances qui sont des composés organiques qui contiennent la structure bivalente «-0-0-», de la division 2, classe 5, tels que décrits aux alinéas 3.17 b) et 3.18 b) du règlement fédéral	1 kg ou 1 L
10.	Produits ou substances toxiques de la division 1, classe 6, tels que décrits aux alinéas 3.19 a) à e) et 3.20 a) du règlement fédéral	5 kg ou 5 L
11.	Organismes infectieux ou dont il est raisonnable de croire qu'ils sont infectieux ainsi que leurs toxines, tels que décrits aux alinéas 3.19 f) et 3.20 b) du règlement fédéral	Toute quantité

ITEM	1ière COLONNE - SUBSTANCE DÉVERSÉE	2ième COLONNE - QUANTITÉ DÉTERMINÉE
12.	Matières radioactives, de la classe 7, telles que décrites à l'article 3.24 du règlement fédéral	Toute quantité d'un rejet ou de l'intensité de rayonnement radioactif supérieur à 10 millisievert par heure à la surface du colis et de 200 miilisievert par heure à 1 m de la surface du colis
13.	Produits ou substances de la classe 8, tels que décrits à l'article 3.24 du règlement fédéral	5 kg ou 5 L
14.	Matières ou produits divers de la division 1, classe 9, tels que décrits au paragraphe 3.27(1) et à l'alinéa 2 a) du règlement fédéral	50 kg ou 50 L
15.	Matières ou produits divers de la division 2, classe 9, tels que décrits au paragraphe 3.27(1) et à l'alinéa 2 b) du règlement fédéral	5 kg ou 5 L
16.	Matières ou produits divers de la division 3, classe 9, tels que décrits au paragraphe 3.27(1) et à l'alinéa 2 c) du règlement fédéral	5 kg ou 5 L
17.	Déchets spéciaux, tels que décrits à l'article 1 du Règlement sur les déchets spéciaux.	Quantité déterminée à l'alinéa 3(1) b) du Règlement sur les déchets spéciaux
18.	Un pesticide tel que décrit à l'article 2 de la *Loi sur l'environnement*, à l'exception des pesticides et des engrais chimiques énumérés à l'annexe 4 du Règlement sur les pesticides.	5 kg ou 5L
19.	Les pesticides et les engrais chimiques énumérés à l'annexe 4 du Règlement sur les pesticides.	Toute quantité

APPENDIX III

Emergency Equipment Lists

III.1 Emergency Equipment Available at Town of Faro

III.2 Emergency Equipment Available at Drury Creek and Ross River Grader Station

III.3 Emergency Equipment Available at Faro RCMP

III.4 Emergency Equipment Available at Faro Search and Rescue

III.5 Emergency Equipment Available at Faro Volunteer Fire Department

III.6 Emergency Equipment Available at Faro Ranger Patrol ICPRG

III.7 Emergency Equipment Available at Faro Conservation Office

Appendix III
Emergency Equipment Lists

III.1 EMERGENCY EQUIPMENT AVAILABLE AT TOWN OF FARO

Town of Faro

Number	Description	Model Year	Size
1	KX080-3 Kubota Excavator	2008	0.5 yd bucket
1	John Deere TC 54H F.E. Loader (c/w 5 ft lifting forks)	2000	2.5 yd bucket
1	John Deere 410E Loader/ Backhoe	1997	1.25 yd/ 7.5 cu ft
1	John Deere 450E Tracked Dozer	1985	8 ft blade
1	John Deere 455G Tracked Loader	1990	1 yd bucket
1	John Deere 670B Road Grader	1989	12 ft blade
1	GMC Tandem Axle Dump Truck	1985	12 cu yd box
1	GMC Single Axle Dump Truck	1985	4 cu yd box
1	GMC Flat Deck Truck	1989	16 ft deck
1	Model 8000 Ford Diesel Tank Truck	1989	Vac tr (4000g)
1	Ford Cube Van Steamer Truck	1983	
6	Pickup trucks (1 slip in diesel tank)		250 gallons
1	GM Rally Van		10 passenger
2	Cargo Vans (mtce. vehicles)		
2	110 volt generators (gas fired)		
1	19 KW emergency generator/ 208-3 phase		
3	Flyght Pumps (110 Volt)		
1	4 “ Diesel Pump		
2	Satellite Phones		

III.2 EMERGENCY EQUIPMENT AVAILABLE AT DRURY CREEK AND ROSS RIVER GRADER STATION

Drury Creek Grader Station

Number	Description
1	740 Champion Grader
2	10 Ton Dump Trucks
1	5 Ton Dump Trucks
2	1 Ton Pickup Trucks
1	624 John Deere Loader (at airport)
1	936 Cat Loader (at Drury Camp)

Ross River Grader Station

Number	Description
3	5 Ton Dump Trucks
2	740 Champion Graders
1	14G Cat Grader
1	Mobile Culvert Steamer
1	D-6 Dozer
1	Vohl Snow Blower
1	Low Boy Trailer
1	Water Tanker
1	Tracker

III.3 EMERGENCY EQUIPMENT AVAILABLE AT FARO RCMP

Vehicles

Number	Description
1	Chevrolet Silverado 4X4 (emergency equipment, radio communication and loud speaker)
1	Ford Expedition (SUV) 4X4 (emergency equipment, radio communication and loud speaker)
1	Yamaha Quad 4X4
1	Yamaha Rhino 4X4
1	Jet Boat
1	Polaris Wide Track Snowmobile
1	Bombardier Snowmobile
1	Flat Deck Trailer

Equipment

Number	Description
2	Search and Rescue packs
2	GPS Units
1	SPOT Device
1	Satellite Phone (Phone # 011881651422091)
1	Generator

Facilities

Number	Description
1	Administration Office: (radio equipment, three prisoner cells, kitchen and no emergency power)
1	Small Garage (no emergency power)
1	Storage Facility (soft shell Garage)
3	Staff Houses (no emergency Power)
1	Temporary Quarters (no emergency power)

III.4 EMERGENCY EQUIPMENT AVAILABLE AT FARO SEARCH AND RESCUE

Faro Search and Rescue

Number	Description
1	Suburban
1	Jet Boat
1	Small Generator
1	Small Chainsaw
10	Summer Weight Sleeping Bags
10	Blue Foam Mats
4	Small Tents
1	Megaphone
6	ICOM radios
6	Radio Chest Packs
2	Wall Tents
1	Orange Basket Stretcher
1	Aluminum Basket Stretcher
1	SKED Stretcher
1	Backboard and Spider Straps
2	White Gas Stoves
2	White Gas Lanterns
6	Floater Suits
3	Life Jackets
1	First Aid Kit
4	Packs
1	Rope Rescue Kit (z Drag)
	SAR Hardhats
1	Spotlight
	Misc. Rope

III.5 EMERGENCY EQUIPMENT AVAILABLE AT FARO VOLUNTEER FIRE DEPARTMENT

Faro Volunteer Fire Department

Number	Description
1	2007 Fort Garry Fire Truck (Pumper #1) fully equipped with 1040 G.P.M. pumping capacity with 900 Gallon Tank and Class A Foam Capabilities
1	1988 Ford Hub Fire Truck (Pumper #2) fully equipped with 840 G.P.M. pumping capacity and 800 Gallon Tank & 5000 Watt Gas powered Portable Generator
1	1971 Ford Theilbeu Fire Truck fully equipped with 640 G.P.M. pumping capacity and approx. 800 Gallon Tank
10	Scott Self Contained Breathing Apparatus with ½ hour bottles. (2 New fully equipped with radios)
22	Self-Contained Breathing Apparatus spare ½ hour bottles
1	JMAR Air Compressor and five bottles cascade refilling system
1	Base Radio with duplex and repeater functions
4	Portable Radios with keypads
6	Portable Radios
3	Mobile Radios (Pumper #1, Pumper #2 and Rescue #3)
22	One Way Pagers
260 Litres	AFFF Class B Foam
250 Litres	Class A Foam
22	Complete Sets of Firefighter Personal Protective Gear
10 Pairs	Wildland Coveralls
1	Encapsulating Suit
20	ABC Fire Extinguishers
3	CO_2 Fire Extinguishers
6	50 lbs boxes of ABC Dry Chemical Powder
2	Forestry Water Back Packs
1	Chainsaw for ventilation
1	Metal Cutting Saw
6	Canvas Tarps for salvage and overhaul
4	One hour HAZMAT Self Contained Breathing Apparatus with spare bottles
1	1997 Ford F450 1.5 Ton Crew Cab First Responder Rescue Truck (#3 Rescue)equipped with the following vehicle extraction equipment:
2	Phoenix Jaws of Life Sets with Shears and Ram
1	Honda 5.5 HP Gas powered portable air compressor
1	Honda 5000 Watt Gas powered portable generator
1	Honda ventilation fan
1	Honda 3” Water Pump
1	Air Chisel kit
1	Set 4 Ton Porta Power Hydraulic Kit
	Miscellaneous blocking, chains, rope and other equipment
2	Heavy Duty Come-Alongs
1	Heavy Duty Reciprocating Saw
	First Aid and Oxygen Administration Kits

III.6 EMERGENCY EQUIPMENT AVAILABLE AT FARO RANGER PATROL ICPRG

Faro Ranger Patrol ICPRG

Number	Description
5	Garmin GPS
2	Satellite Phones
1	Digital Camera
1	First Aid Kit
1	Rifle Cleaning Kit
1	PCX-250 HF Transceiver (wireless communications device)
5	Binoculars
4	Coleman Stoves
4	Lanterns
11	Gas Cans
2	Canadian Flags
1	Ranger Flag
1	File Cabinet
1	Office Supplies
16	Breakfast/Lunch/Supper Rations
1	Fax Machine
4	Hand Held Radios
1	Wall Tent
1	Wall Tent Stove and Pipe

Faro Ranger Personal Equipment List

Number	Description
2	Patrol Wall Tents With Stoves and Pipe
1	Personal Wall Tents
9	Snowmobiles
6	Quads
2	Argos
6	Chainsaws
6	Boats
12	Vehicles (Pickups or SUV's)
6	Trailers
3	Skimmers
4	Coleman Stoves
4	Coleman Lanterns
2	Satellite Phones
5	GPS- Global Positioning System

III.7 EMERGENCY EQUIPMENT AVAILABLE AT FARO CONSERVATION OFFICE

Faro Conservation Office

Number	Description
1	Satellite Phone
1	SPOT
2	Four Wheelers
2	Snowmobiles
1	19’ Aluminum Boat with 175 HP Jet
1	4X4 ¾ Ton Pick up
	Personal Survival Equipment
1	21’ Tandem Axle Flat Deck Trailer
2	Base Station MRS radios
1	Portable MRS radio
2	Family Wave Radios
1	LAD Radio

Personal Equipment

Number	Description
1	17.5’ fibreglass boat with 90 HP outboard
1	19’ Freighter Canoe with 30 HP outboard
1	4X4 ¾ Ton Pick up
1	4X4 ¾ Ton Suburban
1	14’ Horse Trailer
2	Snowmobiles
	Personal Survival Equipment

APPENDIX IV

Site Personnel ERP Pull-Out Sheet

Appendix IV
Site Personnel ERP Pull Out Sheet

Dam Overtopping

Alert:	Dam is at normal operating level and starts to rise to maximum operating level.
Emergency:	Reservoir level starts to rise above maximum operating level but not over the water retaining element. Overtopping may occur if pond levels are not reduced.
FAILURE:	Reservoir levels have reached and exceeded the water retaining level of the dam. Depending on the design the dam could be overtopping at this point or there could be sufficient freeboard available Overtopping is imminent if water levels continue to rise and erosion of the crest occurs.

Dam Embankment Instability

Alert:	Appearance of new cracks or opening of existing cracks in crest or faces of the dam. Warming trend in thermistors, increasing pore pressures in piezometers or high one time reading of a piezometer.
Emergency:	New cracks continue to grow in length and width and the displacement increases. Thermistor data continues to show warming trend, piezometric levels continue to rise, other instruments start to show these effects. Head scarp is located on downstream face of the dam and/or toe bulges are noted.
FAILURE:	Continued and accelerated displacements of new cracks. Head scarp reaches dam crest or breaches upstream side of dam. All instabilities on the upstream side of the dam are considered potential failure level conditions.

Piping – Internal Erosion of Dam

Alert:	Changes in the location of seepage water or rate of flow. Seepage flow may be affected by precipitation, snow melt or thawing of ground ice. May be associated to a warming trend in thermistors
Emergency:	Any change from clear seepage to seepage containing suspended sediment or turbidity. Development of surface depressions or sinkholes on upstream face of dam or base of reservoir upstream of dam. Development of "boils" or cavities on downstream side of dam or in foundation downstream of dam. Significant changes in pore pressure of adjacent piezometers may be noted.
FAILURE:	Progressive or rapid development or enlargement of boils or soil cavities, leading to uncontrolled seepage flows increasing in flow rate and amount of transported sediment. May be associated with slope instabilities due to erosion of materials by high gradient seepage flow. Formation of settlement troughs between reservoir and seepage points. Entire reservoir may be discharged through pipe cavity, without breaching of dam, or pipe may progress upgradient with increasing erosion leading to dam breach and release of remaining reservoir due to dam failure.

Seismic Instability and Large Earthquake Events

Alert:	Site staff should inspect all dams after a seismic event has been felt at the site, regardless of the size of the event. Pore pressure readings should be taken on all piezometers.
Emergency:	Following a seismic event, visual inspection reveals the presence of new cracks, settlement of the dam crest, increased seepage flow from existing seepage points or development of new zones of seepage or both. Any deformation of the dam or adjacent abutments and foundation areas.
FAILURE:	The crest may settle below reservoir operating level, resulting in overtopping. Cracking of the impervious core or liner may lead to uncontrolled release of water from the reservoir. Liquefaction of the foundation may affect the stability of the entire dam and abutments. Liquefaction of tailings stored behind a dam may impose an increased load on the dam, leading to embankment instability. Signs of embankment instability in the form of head scarps, increasing deformations on cracks, ongoing settlement, and development of a toe bulge and increased seepage (typically muddy) may be observed.

Channel Overtopping

Alert:	High channel flow conditions: • RCDC – water level within 0.5 m of Canal Dyke crest. • FCD – water level within 0.8 m of adjacent road surface. • Vangorda Flume – flume is more than 1/3 full. No active erosion of channel bed or sides.
Emergency:	As flow levels rise and velocities increase, there is greater potential for erosion of the channel bed and sides as the design hydraulic capacity of the channel is reached. Although overtopping has not yet occurred, continued erosion at low points may result in breaching of the channel. If water levels continue to rise, overtopping will occur.
FAILURE:	The banks containing the diversion flow are breached or overtopped. The amount of flow out of the channel may range from relatively minor overbank spillage to complete loss of the channel and the downhill retention. Minor overbank spillage may cause erosion into the bank and increase in volume, even if channel water levels remain constant, potentially leading to a complete breach situation.

Channel Slope Instability

Alert:	Routine maintenance of the slopes above the channel should be carried out to scale and remove loose rock and overburden that may slide or fall into the channel. The channel should be upgraded to alert level anytime removal of material from the channel is needed.
Emergency:	Periodic visual inspection has revealed the presence of cracks or other evidence of deformation in the slopes above the channel, or in the bank between the channel and an adjacent slope or excavation. A minor slide has partially blocked the channel, but no overtopping is expected to occur.
FAILURE:	Relatively rapid development of surface instability, which threatens to completely block the channel or result in a breach in the channel sides.

APPENDIX V

TEES Emergency Management Plan – Faro Mine Complex

Emergency Management Plan

FARO MINE COMPLEX

Revision History			
Revision	**Revision Description**	**Date of Revision**	**Author**
0	Original Issue	31-March-2012	J. Buchko

Authorized By:		
Area Superintendent:	Robert Wren	**Date:** April 2, 12
Area Manager:	Boyd Barstad	**Date:** April 2/12

This Emergency Management Plan will be reviewed annually to ensure it remains up to date. The review will be based on an analysis of the types of incidents that are likely to occur, any changes in the risk profile and the appropriate emergency response required.

TABLE OF CONTENTS

1 INTRODUCTION

This document, the Faro Mine Complex (FMC) Disaster Management Response Plan is written to clearly define what action is required in the event specific high risks actually eventuate.

1.1 PURPOSE

The aim of this document is to provide the Faro Mine Management with detailed guidance on how to respond to various emergency situations that could occur during normal operations. That is:

- What type of incident could occur;
- What general type of emergency response is required; and
- Any special response requirements.

The information contained in this document has been prepared to act as a guide only and may require some additional responses, depending on the circumstances of the individual emergency situation.

1.2 SCOPE

The FMC Disaster Management Response Plan applies to all aspects.

All TEES team members, sub-contractor team members and all other visitors are required to comply with the requirements of the FMC emergency system requirements.

1.3 IMPLEMENTATION

1.3.1 Who Has Responsibilities - Training Required

The ***Mine Site Manager*** is responsible for the effectiveness of emergency response within the area of responsibility. This includes responsibility for ensuring Emergency Plans and Procedures are periodically tested and reviews conducted to ensure they remain effective.

Supervisors are responsible for ensuring the development and implementation of a local Area Emergency Plans as appropriate that will utilize response information contained in this document

The ***Mine Site Manager*** is also likely to act as the *Incident Controller* (i.e. leader of the Incident Control Team) should a local emergency occur within their area of responsibility. This person will be required to have an understanding of the various responses that may be used to help manage an emergency situation.

The ***Manager Health & Safety*** is responsible to ensure the Emergency & Disaster Management System is maintained, including this Plan and associated Procedures. This includes communicating any changes to relevant Managers as soon as practicable and ensuring the training of any team members in effective emergency response.

Team Members assigned particular roles or tasks under the FMC Disaster Management Response Plan (e.g. emergency procedures) are responsible for carrying out those roles or tasks to the best of their ability.

1.3.2 Who Else Should Know - Awareness Required

This information is important to the safety of everyone associated with the FMC and is to be used by all team leaders. This information must be communicated to any new team leaders through formal induction or instruction so the various requirements are understood and acknowledged.

2 DEFINITIONS

DM&R – Disaster Management & Recovery; This is a process whereby a disaster is managed at a level appropriate for the disaster. This process generally involves the senior management team of the organisation who manage the organisation throughout the period while the organisation is directly and immediately affected by the disaster and then follows through the recovery process to restore normal operations.

Emergency Response; This is the processes applied by a team of people to treat an emergency on a local scale. This generally involves the ERT, or emergency response team.

3 DETAILS

3.1 APPLICABLE LEGISLATION & STANDARDS

This document has been developed to help ensure compliance with the Occupational Health and Safety Regulations, November 1, 2006 as shown on the Yukon Workers' Health and Safety Board website (www.wcb.yk.ca). This plan has been developed with consideration of:

- identified hazards that might cause an emergency;
- assessment of the risk of an emergency occurring; and
- the means for dealing with such emergencies.

This plan also considers the means for managing and controlling an emergency situation including the provision of training, equipment, facilities, team members and procedures.

3.2 POTENTIAL EMERGENCY INCIDENTS

3.2.1 Emergency Risk Analysis

A high level analysis to determine the types of probable incidents that could occur at FMC has been undertaken. This included:

- A review of FMC risk assessments to identify potential emergency response requirements; and
- A review of similar operations risk assessments and emergency response plans.

This analysis identified incidents with high risk. Each of these were then reviewed to determine the type of response required. The specific responses to these incidents form the basis of the FMC Management Response Plan.

This Chart shows the following information:

a. Potential incidents identified from the above analysis;
b. Types of impacts that could be detrimental to the FMC and TEES, including:
    - assets (A)
    - profit (P)
    - team member safety and health (SH)
    - environment (En)
    - other people e.g. community, family/ friends of team members (OP)
    - company image, reputation, public perception etc (CI)

The risk assessment considered the types of impact however the risk rating is based on health and safety risk only at this time.

3.2.1.1 Risk Rating Tables

POTENTIAL CONSEQUENCE OF THE INCIDENT	PROBABILITY OF THIS OCCURRING AGAIN	RISK ASSESSMENT SCORE	
4 | 3 | 2 | 1	A | B | C | D | E		
1 – Could kill, permanently disable or cause very serious damage **2 –** Could cause serious injury (major LTI) or major damage **3 –** Could cause typical MTC / LTI or moderate damage **4 –** Could cause First Aid injury or minor damage **5 –** Couldn't cause injury or damage	**A** = ALMOST CERTAIN TO HAPPEN **B** = LIKELY to happen at some point **C** = MODERATE, possible, it might happen **D** = UNLIKELY, not likely to happen **E** = RARE, practically impossible	Low 16-25	Work your plan
		Moderate 11-15	Re-evaluate the control measures in order to reduce the overall risk.
		High 4-10	Re-evaluate the control measures with the Supervisor. Determine lower risk options.
		Critical 1-3	Job shut down for re-evaluation with Superintendent and the job team.

Consequence	Probability A	B	C	D	E	Risk Assessment Category
1	1	2	4	7	11	Critical
2	3	5	8	12	16	High
3	6	9	13	17	20	Moderate
4	10	14	18	21	23	Low
5	15	19	22	24	25	

FMC Probable Emergency Incidents Chart

Figure 1 – Potential Incident, Impacts & Risk (Page 1 of 3)

POTENTIAL INCIDENT	Main Impacts	Likelihood*	Consequence*	Level Of Risk	Risk Rank	COMMENTS
Section 3.4 Natural Disasters						
3.4.1 Major Earthquake/Seismic Event	A, SH, En, OP	E	1	M	11	
3.4.2 Animal Attack	SH, OP	D	1	D	7	Bear, Wolverine
3.4.3 Whiteout	SH, En	C	3	M	13	
3.4.4 Severe Electrical Storm	A, P, SH, En	E	2	L	16	Persons or equipment struck by lightning
3.4.5 Severe Rain Storm	SH, En	E	3	L	20	General flood
3.4.6 Infectious Disease Outbreak	CI, SH, OP, P	D	1	H	7	E.g. legionnaires, salmonella, TB, Hepatitis
3.5 Access Road / Frozen Pond Travel						
3.5.1 Vehicle Accident	A, P, SH, En	D	1	H	7	Spill (fuel etc.)
3.5.2 Heavy Equipment Break Through Ice	A, SH ,En	D	1	H	7	Spill/ Entrapment/ Drowning
Section 3.6 On-site Incidents						
3.6.1 Dangerous Goods Truck Accident	A, P, SH, En	D	1	H	7	Spill/ release/explosion
3.6.2 Light Vehicle Accident	SH	Unlikely (D)	Catastrophic (5)	Extreme	7	Liquid spill (fuel etc.)
3.6.3 Heavy Vehicle Accident	CI, SH, En	Unlikely (D)	Catastrophic (5)	Extreme	7	Liquid spill (fuel, hydraulic oil)

Figure 1 – Potential Incident, Impacts & Risk (Page 2 of 3)

Section 3.6 On-site Surface continued						
3.6.4 Hazardous Substance Release	P, SH, En, Cl	D	1	H	7	E.g. chemical, diesel fuel
3.6.5 Water Treatment Plant Failure	P, Cl, SH, OP	D	1	H	7	E.g. pumping systems, clarifier
3.6.6 Building Explosion	A, P, SH, En, OP, Cl	E	1	M	11	
3.6.7 Fire/Explosion	A, SH, En, OP, Cl	D	1	H	7	Site wide damage
3.6.8 Building Collapse	A, P, SH, En	E	1	M	11	WTP, Shop
3.6.9 Working At Height Incident	SH, OP	D	2	M	12	
3.6.10 Building/ Plant Fire	A, P, SH, En	D	2	M	12	
3.6.11 Malicious Damage (Arson etc)	A, P, SH, En	D	2	M	12	
3.6.12 Inrush Into Open Pit	A, En, SH, OP, Cl	E	1	M	11	
3.6.13 Pit Wall/ Ramp Failure	SH, En	D	2	M	12	
3.6.14 Bomb Threat	SH	D	H	L	21	Threat only (no explosion)
3.6.15 Armed hold up/ Hostage situation	SH, Cl	E	1	M	11	

3.3 DISASTER MANAGEMENT RESPONSE PLAN

This Disaster Management Response Plan describes the detailed Emergency Management response to the potential critical incidents identified in Section 3.0. Each of these detailed responses includes the following information:

- The main "threats" associated with the incident
- How the incident may be notified (aside from emergency telephone/ radio call)
- Alarms or methods to alert persons of an emergency
- The management response required (i.e. who should be notified, what action should be taken)
- Any special instructions
- Possible contacts for specialist advice

The detailed response to each potential incident is described in Sections 3.4, 3.5 and 3.6 below.

These should be used as a guide only and are not "all inclusive". That is, there may be additional response steps or the steps may be in a different order of execution, depending on the circumstances of the individual emergency situation.

3.4 NATURAL DISASTERS

3.4.1 Major Seismic Event/Earthquake

A major earthquake or seismic event is one that causes damage to mine infrastructure and results in a significant disruption to operations.

Main Threats:
- Collapse of mine infrastructure (e.g. Dike Failure, underground workings, pit walls, mine access ways, surface buildings or structures), rock dump slide.
- Loss of access to open pit (loss of ramps, portal etc)
- Induces major fire/explosion (e.g. fuel storage)
- Disruption to security/communications

Likely Alarms:
- Earthquake likely to trigger security/ other site alarms

Response:
- Initiate affected area(s) Evacuation Alarms Code 1
- Initiate Emergency Duty Card system (where appropriate)
- Assess likely impact
- Call-out Emergency Response Team
- Secure access to all areas using Emergency Response Team and other persons as required
- Initiate appropriate emergency response (e.g. first-aid, fire, persons trapped, explosion etc)
- Notify Mine Site Manager who in turn would notify YG
- Mine Site Manager to initiate Disaster Management Team, if required
- Advise other areas on site as required
- Advise adjacent operations, if required
- Conduct damage assessment of affected area or entire site using competent team members.
- Report to Government Authorities as required
- Notify site employees and contractors of proposed actions as required

External Help:
- Medivac
- YG - AAM
- RCMP
- Town of Faro Volunteer Fire Department/Ambulance Service

3.4.2 Animal Attack

An attack by wildlife (bear, wolverine, etc).

Main Threats:
- Team member being attacked by bear or wolverine

Likely Alarms:
- Code 1 call
- ERT & Medic

Response:
- Assess likely impact of incident
- Notify Local Doctor or Whitehorse Hospital, if required assistance
- Request assistance from medivac
- Notify Mine Site Manager who in turn would notify YG
- Report to Government Authorities:

External Help:
- RCMP
- Medivac
- Faro Community Health Center

3.4.3 White Out

A white out may occur which stops all operations, travel and significantly hampers emergency response capability. Persons could be trapped in various areas on the mine site.

Main Threats:
- Severe cold, very low visibility, possible high winds
- Loss of essential supplies (fuel, food etc)
- Loss of power, heat, communications
- Medical emergency (inability to evacuate ill or injured team members)

Notification:
- As per extreme weather procedure

Likely Alarms:
- Watch or warning issued by Environment Canada

Response:
- Obtain up-to-date information from Environment Canada
- Assess likely impact
- Check status of site essential supplies (fuel, food etc) with Materials Team members
- Notify Mine Site Manager who intern would notify YG
- If appropriate shutdown of all operations
- Notify contractors & team members of proposed action
- As per extreme weather procedure

External Help:
- Town of Faro Volunteer Fire Department (if not affected by same condition)
- RCMP

3.4.4 Severe Electrical Storm

Electrical storms are common events during summer and early autumn. All critical equipment should be properly grounded or protected by lightning arrestors. Activities in the open should be stopped. If struck by lightning, cardiac arrest is likely, so quick response is essential.

Some hazardous activities (e.g. working near open water) should also be checked.

Main Threats:
- Team members struck by lightning
- Lightning initiating fire or explosion
- Disruption to power/ security systems/ communications

Notification:
- May get some advance warning from weather service
- Observations of severe lightning strikes/ almost instantaneous thunder
- Could be some major power disturbances

Alarms:
- Code 1 call (if fire/ explosion)
- Site wide radio call (to stop work & evacuate area)

Response:
- Notify all team members of approaching storm/s
- Initiate evacuation alarms, if fire or explosion
- Call-out ERT, if support required
- Initiate appropriate emergency response (first-aid/ medical/ fire)
- Isolate any energy sources or hazardous substances (e.g. power, gas, diesel, chemicals, etc)
- Consider shut-down of operations, if storm/s severe
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate DM&R, if required
- Inspect affected areas to assess damage (once safe)
- Report any injuries/ major damage authorities
- If rubber-tired equipment struck by lightning, park up in secured/ isolated area for 24 hours
- Maintain security of affected areas until Incident Controller gives "All Clear"

3.4.5 Severe Rain Storm

A flood could possibly result from a severe rain storm.

Main Threats:
- Open pit in-rush, damage to dike
- Flood damage to site facilities
- Medical emergency
- Wet/slippery roads increase potential for heavy equipment & light vehicle accidents

Notification: Likely to be notified through Environment Canada.

Likely Alarms: Storm/weather alert issued by Environment Canada

Response:
- Obtain up-to-date information from Environment Canada
- Notify all team members of approaching rains/flood
- Assess likely impact
- Monitor drainage/access roads/haul roads and pit/ramp road conditions
- Consider closing/ barricading access roads, haul roads or pit/ ramp roads, if affected
- Call-out Emergency Services, if support required (Code 1)
- Check status of site essential supplies (fuel, chemicals, etc)
- If flooding likely to be severe or road conditions hazardous, consider closure of all operations
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify contractors, team members and suppliers of proposed action
- If medical emergency occurs and cannot evacuate by usual means, contact medivac for assistance
- If flooding of inspection areas and pits likely, withdraw workforce and stop operations
- If inrush occurs, refer to incidents as required

External Help: Pump/ hire contractors

Town of Faro Volunteer Fire Department

3.4.6 Communicable Disease Outbreak

Infectious diseases can be introduced through poor hygiene, contaminated water or food, or contact with other infected persons. They include Legionnaires disease, Influenza, various types of food poisoning, Hepatitis, etc.

As this could involve diseases of a "sensitive" nature, it is important to maintain confidentiality and avoid undue panic. The Faro Community Health Center must be notified of any "reportable" diseases.

Main Threats: Team member illness
Adverse reaction/ panic by other team members

Notification: Team members reporting sick/ severely ill

Alarms: None

Response:

- Notify Faro Community Health Center
- Initiate appropriate medical response using infectious disease protocol
- Isolate infected persons from other team members
- If medical emergency occurs, contact MEDIVAC via Whitehorse General Hospital
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Consider independent advice from external medical source (e.g. Whitehorse General Hospital)
- Notify Yukon Communicable Disease Control, if it could be reportable (can also provide advice)
- Advise Whitehorse General Hospital if major outbreak and need to evacuate team members to hospital
- Assess situation and consider Team member briefing (using accurate medical information)

External Help: Mutual Aid Providers
Whitehorse General Hospital
Faro Community Health Center

Refer to "Emergency Telephone Directory" for Contact Numbers

3.5 ACCESS ROAD / FROZEN POND TRAVEL

3.5.1 Vehicle Accident

An accident involving a light and/or heavy vehicle on the YG maintained access road may require some response from site. This type of incident has potential to result in multiple casualties; e.g. if heavy equipment collides with light vehicle/s. An accident involving TEES operated heavy equipment is also likely to have an impact on Company image, particularly if fatalities occur.

Main Threats:
- Injury to truck driver/ other people involved
- Environmental impact (if spillage results)
- Impact to Company image/ reputation

Alarms: None

Response:
- Call-out Emergency Response team (code 1)
- Initiate appropriate emergency response (first-aid/ medical/ fire/ triage/vehicle extrication)
- Notify Faro Community Health Center
- Notify RCMP
- Advise Faro Volunteer Fire Department in extreme conditions
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Determine what cargo was being carried (e.g. if any chemicals, Dangerous Goods, waste, etc)
- Secure area using Security Department or Emergency Response Team members
- Notify Mine Site Manager who intern would notify YG
- Notify Environmental Coordinator (if any likely environmental impact)
- Mine Site Manager to initiate Disaster Management, if required
- Notify Mutual Aid providers, if require additional assistance with transporting injured persons or clean-up
- Report to Government Authorities
- Maintain security of affected area until RCMP give "All Clear"

External Help: Mutual Aid Providers

Chemical Supplier/Transport Company (for information)

3.5.2 Heavy Equipment Break Through Ice

An accident involving a heavy vehicle in the FMC area (open pits, IMP, CVP) may require some response from site. This type of incident has potential to result in multiple casualties depending on how many may be involved.

Main Threats:
- Injury to truck or equipment driver/ other people involved
- Environmental impact (if spillage results)

Alarms: None

Response:
- Call-out Emergency Response Team members (Code 1)
- Initiate appropriate emergency response (ice rescue/first-aid/ medical/ fire/ triage/vehicle extrication)
- Notify Faro Community Health Center
- Notify RCMP
- Advise Faro Volunteer Fire Department in extreme conditions
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Secure area using Security Department or Emergency Response Team members
- Notify Mine Site Manager who inter would notify YG
- Notify Environmental Coordinator (if any likely environmental impact)
- Mine Site Manager to initiate Disaster Management, if required
- Notify Mutual Aid providers, if require additional assistance with transporting injured persons or clean-up
- Report to Government Authorities
- Maintain security of affected area until RCMP give "All Clear"

External Help: Mutual Aid Providers

3.6 ON-SITE INCIDENTS

3.6.1 Dangerous Goods Truck Accident

An accident involving a truck carrying significant quantities of hazardous substances or Dangerous Goods (e.g. lime, diesel fuel, compressed gases, etc) in the FMC will require response from the site.

The presence of leaking hazardous material and possibility of fire / explosion and having to cut persons out using hydraulic cutting equipment may require an Emergency Response Team. Accurate identification of the type/s and quantities of hazardous materials involved is essential.

Main Threats:
- Injury to truck driver/ and other members involved
- Injury to team members responding to accident
- Environmental impact
- Impact to Company image/ reputation

Alarms: None

Response:
- Call-out Emergency Response team members (Code 1)
- Initiate appropriate emergency response (first aid/medical/fire/triage/Hazmat/vehicle extrication)
- Notify Faro Community Health Center
- Notify RCMP
- Advise Faro Volunteer Fire Department in extreme condition
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Determine quantities/ types of hazardous materials & status (e.g. if on fire, leaking, intact, etc.)
- Contact Chemical Supplier/ Transport Company for advice on how to treat spill & refer to MSDS
- Secure area using Emergency Services or Emergency Response Team members
- Notify Mine Site Manager who intern would notify YG
- Notify Environmental Coordinator
- Mine Site Manager to initiate Disaster Management, if required
- Notify Mutual Aid providers, if require additional assistance with transporting injured persons, controlling situation or clean-up
- Report to Government Authorities
- Dept of Environmental Protection (if environmental impact results)
- Maintain security of affected area until RCMP give "All Clear"

External Help: Mutual Aid Providers

Chemical Supplier/Transport Company (for information)

Faro Volunteer Fire Department (Hazardous Materials)

Refer to "Emergency Telephone Directory" for Contact Numbers

3.6.2 Light Vehicle Incident

Accidents involving light vehicles on site will require response from site team members. The presence of leaking fuel and possibility of having to cut persons out using hydraulic cutting equipment may require an Emergency Response Team call-out or Faro Volunteer Fire Department.

Main Threats: Injury to Team Member/s

Alarms: None

Response:

- Call-out Emergency Response team members (Code 1)
- Initiate appropriate emergency response (first-aid/ medical/ fire/ vehicle extrication)
- Initiate Emergency Response Team call-out, if required
- Notify Faro Community Health Center
- Notify RCMP
- Advise Faro Volunteer Fire Department, if require assistance
- Secure area using Emergency Services or Emergency Response Team members
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Report to Mines Inspector
- Maintain security of affected area until "All Clear" is given
- Initiate appropriate investigation (may need to maintain security of area until completed)

External Help: Medivac Service (Medical Evacuation)

Refer to "Emergency Telephone Directory" for Contact Numbers

3.6.3 Heavy Vehicle Accident

Accidents involving heavy vehicles (e.g. trucks, cranes, loaders, dump trucks, graders etc) on site will require response from site emergency team members.

An accident involving a heavy vehicle-light vehicle collision has the potential for multiple injuries. If heavy equipment is carrying hazardous substances, environmental impacts may also occur. The presence of leaking fuel and possibility of having to cut persons out using hydraulic cutting equipment may require Emergency Response Team call-out or Faro Volunteer Fire Department.

Main Threats:

- Injury to vehicle driver/ other team members involved
- Environmental impact (e.g. if carrying hazardous substances)
- Impact to Company image/reputation

Alarms: None

Response:

- Call-out Emergency Services team members
- Consider Emergency Response Team call-out, if required (Code 1)
- Initiate appropriate emergency response (first aid/medical/fire/triage/Hazchem/vehicle extrication)
- Isolate any energy sources or contain hazardous substances (e.g. power if hit power line, gas, diesel, chemicals, etc.)
- Notify RCMP/Mine Inspector
- Advise Faro Volunteer Fire Department (if required)
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Secure area using Security Department or Emergency Response Team members
- Notify Mine Site Manager who intern would notify YG
- Notify Environmental Coordinator (if any likely environmental impact)
- Mine Site Manager to initiate Disaster Management, if required
- Notify Emergency Support if require additional assistance with transporting injured persons
- Report to Government Authorities (Mine Inspector)
- YT Dept of Environmental Protection (if environmental impact results)
- If rubber-tired equipment strikes power line or tires subject to heating or fire, park up in secured/isolated area for 24 hours (Tire Fire/Explosion)
- Maintain security of affected area until Mine Inspector or RCMP give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)
- Arrange clean-up using crane, excavator, loader etc.

External Help: Mutual Aid Providers
Chemical Supplier/ Transport Company (for information)
Faro Volunteer Fire Department (Hazardous Materials)

Refer to "Emergency Telephone Directory" for Contact Numbers

3.6.4 Hazardous Substance Release

A release of a hazardous substance can impact people over a wide area, particularly those working down-wind of the release. Common hazardous substances that could be released are lime, compressed gas, etc. If a major release, an area evacuation should be the initial response.

Main Threats:
- Injury to team members

Alarms: Code 1 Emergence response

Response:
- Call-out Emergency Services team members with full BA gear (Code 1)
- Initiate Area Evacuation Alarm
- Initiate appropriate emergency response (first aid/medical/fire/Hazmat/assisted evacuation)
- Determine likely location and source of release, if safe
- Determine likely quantity of hazardous substance
- Check MSDS for treatment & control advice
- Isolate any energy sources or hazardous substances release (if safe)
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center
- Notify RCMP (if potential fatality)
- Advise Faro Volunteer Fire Department, if require assistance
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Secure area using Emergency Services or Emergency Response Team members
- Notify Environmental Coordinator (if any likely environmental impact)
- Report to Government Authorities (Mine Inspector)
- Maintain security of affected area until Incident Controller give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)
- Arrange clean-up or neutralization based on MSDS or supplier's instructions

External Help: Mutual Aid Providers

Chemical Suppliers

Faro Volunteer Fire Department

Refer to "Emergency Telephone Directory" for Contact Numbers

3.6.5 Water Treatment Plant Failure

System failure at the Faro Mill WTP or Vangorda/Grum WTP may occur during the water treatment season. Examples of a failure are pumping systems, containment tanks, lime delivery systems, electrical components, etc.

Main Threats:
- Injury to team members
- Environmental Impact

Alarms: None

Response:
- Consider Emergency Response Team call-out, if required
- Isolate any energy sources or hazardous substances (e.g. turn off power/ pumping systems, chemical addition, etc)
- Initiate appropriate emergency response (first-aid/ medical/ fire/ entrapment rescue/ HAZMAT procedure etc)
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Environmental Coordinator (if any likely environmental impact)
- Secure area using Security Department or Emergency Response Team members
- Maintain security of affected area until Emergency Response Team or Safety give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)
- Initiate appropriate containment of contaminated water released

External Help: Mutual Aid Providers

3.6.6 Building Explosion

An explosion at the FMC could occur as a result of leaking acetylene gas, over-pressured pressure vessels or exploding flammable materials. It may also be the result of a fire or itself trigger a fire. In any case, the initial response is to evacuate the area and await the arrival of the Emergency Response Team.

Main Threats:
- Injury to team members
- Loss of assets
- Disruption to site care & maintenance
- Adverse impact on Company image

Alarms: Area Evacuation Alarms

Response
- Call out Emergency Response Team with full BA gear (Code 1)
- Initiate Area Evacuation Alarm (Code 1)
- Initiate appropriate emergency response (first-aid/medical/fire/Hazchem/ assisted evacuation)
- Determine likely location and source of explosion, if safe

- Secure affected area/s at safe distance using Emergency Response Team members
- Isolate any energy sources or hazardous substances release (if safe)
- Determine quantities/types of other hazardous substances in area
- Check MSDS for treatment & control advice
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center
- Notify RCMP (if potential fatality)
- Advise Faro Volunteer Fire Department, if require assistance
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Advise Mutual Aid partners, if require assistance
- Notify Environmental Coordinator (if any likely environmental impact)
- Report to YT Mine Inspectors
- Maintain security of affected area until Mine Inspector/Safety give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)
- Arrange clean-up of affected area

External Help: Mutual Aid Providers

Chemical Suppliers

Faro Volunteer Fire Department

3.6.7 Fire/Explosion

A fire in a structure has the potential to result in a major explosion and loss of a key component for the care & maintenance of the site. The initial response should be to evacuate the area to a safe distance and wait for expert assistance.

Main Threats:
- Injury to team members, injury to all personnel in all work areas
- Damage to mine infrastructure (depends on location)
- Adverse impact on Company image

Alarms: Code 1 Alarm at Treatment Plant

Response:
- Call-out Emergency Services team members (Code 1)
- Call out Emergency Response Team, if required
- Secure area at safe distance (at least 1 km) using Security Department and Response Team members
- Maintain *exclusion zone* of at least 1 kilometre radius (do not attempt to extinguish fire)
- Initiate appropriate emergency response (first-aid/medical/assisted evacuation)
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center if injuries occur
- Notify RCMP (if potential fatality)
- Advise Faro Volunteer Fire Department, if require assistance
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Report to NWT Mine Inspector
- Maintain security of affected area until Mine Inspector give "All Clear" (and fire extinguishes itself)

External Help: Mutual Aid Providers

Chemical Suppliers

Faro Volunteer Fire Department

3.6.8 Building Collapse

Building collapse can be the result of a seismic event, explosion or major structural failure. The area that poses the most risk is the Faro Mill WTP. The initial response should be to evacuate the area to a safe distance and wait for expert assistance.

Main Threats:
- Injury to occupants and team members
- Damage to infrastructure/assets
- Adverse impact on Company image

Alarms: Code 1

Response:
- Call-out Emergency Services team members
- Initiate area evacuation alarms & evacuate to safe locations (e.g. designated Muster points may be too close)
- Call out Emergency Response Team (Code 1)
- Secure area at safe distance using Emergency Services or Response Team members
- Initiate appropriate emergency response (first-aid/medical/assisted evacuation/ fire fighting/rescue)
- Notify Mine Site Manager who would intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center if injuries occur
- Notify RCMP if potential fatalities
- Advise Faro Volunteer Fire Department, if require assistance
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Report to YT Mine Inspector
- Arrange for expert assistance (e.g. collapse building search) through RCMP
- Maintain security of affected area until Mine Inspector/RCMP/Safety give "All Clear"

External Help: Mutual Aid Providers

MEDIVAC (Medical Evacuation)

Faro Community Health Center

Whitehorse General Hospital

RCMP

3.6.9 Working At Height Incident

Team members work at heights on a daily basis, particularly around processing plants. Should a person fall, it may be necessary to undertake "height rescue" using site team members.

This type of event could involve a person being suspended from fall arrest equipment and being seriously injured or otherwise incapacitated. The possibility of having to extract injured persons (possibly using rope rescue) will require Emergency Response Team call-out.

Main Threats:
- Injury to team members/emergency response team members
- Adverse impact on Company image (if serious injury)

Alarms: None

Response:
- Call-out Emergency Services team members
- Call out Emergency Response Team – Code 1
- Assess situation to identify appropriate rescue method (e.g. rope rescue, use of crane with man-basket/ cherry picker etc)
- Isolate any energy sources (e.g. power) or hazardous substances, if required
- Initiate appropriate emergency response (first-aid/medical/rope rescue/call for back-up equipment etc)
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center if injuries occur
- Notify RCMP (if potential fatality)
- Advise Faro Volunteer Fire Department, if require assistance
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Report to YT Mine Inspector
- Maintain security of affected area until Mine Inspector/RCMP/Safety give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)

External Help: Mutual Aid Providers

Medivac Service (Medical Evacuation)

3.6.10 Building/ Plant Fire

A surface building fire can occur at any location where fuel and ignition sources exist. Locations for significant fire potential are electrical control rooms, workshops and chemical/fuel storage areas.

Main Threats:
- Injury to team members
- Loss of assets
- Adverse impact on Company image
- Disruption to production

Alarms: Area Evacuation Alarms - Code 1

Response:
- Call-out Emergency Response Team call-out with full BA
- Initiate appropriate emergency response (first-aid/medical/assist evacuation/BA rescue etc)
- Isolate any energy sources or hazardous substances (e.g. power, gas, diesel, chemicals, etc)
- Secure area using Security Department or Emergency Response Team
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center if injuries occur
- Advise Faro Volunteer Fire Department, if require assistance
- Notify RCMP (if potential fatality)
- Advise Mutual Aid partners, if require assistance (e.g. additional fire fighting equipment etc)
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if multiple casualties)
- YT Mine Inspector
- Dept of Environmental Protection (if environmental impact results)
- Maintain security of affected area/s until Mine Inspector/RCMP/Safety give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)

External Help: Mutual Aid Providers

Faro Volunteer Fire Department

Chemical/ Reagent Suppliers (for specific fire fighting advice)

Refer to "Emergency Telephone Directory" for Contact Numbers

3.6.11 Malicious Damage

Malicious damage can involve any intentional act by a Team member or contractor that is intended to disrupt operations or damage equipment or property.

Examples are setting fires (arson), sabotaging equipment, opening valves to chemicals or other hazardous materials, etc. Malicious intent is often difficult to identify as the deliberate act may be well concealed. Any suspicion that acts may be deliberate should be notified to the RCMP for formal investigation.

Main Threats:
- Injury to team members
- Loss of assets (if fire/ explosion occurs)
- Disruption to production

Alarms: None

Response:
- Consider Emergency Response Team call-out, if required
- If fire or explosion, evacuate affected area/s
- Initiate appropriate emergency response (first-aid/medical/ fire Hazchem response/assisted evacuation, etc)
- Isolate any energy sources or hazardous substances (e.g. power, gas, diesel, chemicals, etc)
- Secure area using Emergency Services or Emergency Response Team
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify RCMP
- Await RCMP instructions/arrival to investigate
- Assist RCMP with investigation
- Report any injuries to YT Mine Inspector
- Maintain security of affected area/s until RCMP give "All Clear"

External Help: Mutual Aid Providers

Refer to "Emergency Telephone Directory" for Contact Numbers

3.6.12 Inrush Into Open Pit

An inrush of water, mud or tailings into an open pit is only likely to occur following a major flood event or dike failure. Establishment of an evacuation process in case of major rainfall may alleviate the need for an emergency response.

If a sudden inrush does occur, evacuation from the pit or moving to a safe place within the pit itself is the best course of action. This will depend on the location of the inrush and volume of material involved. Egress from the pit can then be made once the inrush has stabilized. The possibility of having to evacuate injured persons quickly over the pit wall (if no vehicle access) may require Emergency Response Team call-out.

Main Threats:
- Injury to team members
- Adverse impact on Company image

Alarms: None

Response:
- Consider Emergency Response Team call-out, if required
- Initiate appropriate emergency response (first-aid/ medical/ search/ pit evacuation/ rope rescue, etc)
- Secure area using Emergency Services or Emergency Response Team
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center if injuries occur
- Advise Faro Volunteer Fire Department, if require assistance
- Notify RCMP (if potential fatality)
- Advise Mutual Aid partners, if require assistance (e.g. additional pumps, etc)
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Report to YT Mine Inspector
- Maintain security of affected area/s until Mine Inspector/RCMP/Safety give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)

External Help: Mutual Aid Providers

Equipment Hire Companies (pumps to de-water pit)

Refer to "Emergency Telephone Directory" for Contact Numbers

3.6.13 Open Pit Wall / Ramp Failure

Open Pit wall or access ramp failures are often preceded by cracking and ground movements, which may be visible. Regular monitoring of pit walls, crests and berms may help identify any potential failures.

If a sudden failure occurs, evacuation to a safe place within the pit itself is usually the best course of action. Egress from the pit can then be made once an access way is cleared. The possibility of having to evacuate injured persons quickly over the pit wall (if no vehicle access) may require Emergency Response Team call-out.

Main Threats:
- Injury to team members
- Adverse impact on Company image

Alarms: None

Response:
- Consider Emergency Response Team call-out, if required
- Initiate appropriate emergency response (first-aid/medical/search/pit evacuation/rope rescue, etc)
- Secure area using Security Department or Emergency Response Team
- Notify Mine Site Manager who intern would notify YG
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center if injuries occur
- Notify RCMP (if potential fatality)
- Advise Mutual Aid partners, if require assistance (e.g. additional rescue equipment etc)
- Advise Whitehorse General Hospital and MEDIVAC of possible need for assistance (if several casualties)
- Report to YT Mine Inspector
- Maintain security of affected area/s until Mine Inspector/Safety give "All Clear"
- Initiate appropriate investigation (may need to maintain security of area until completed)

External Help: Mutual Aid Providers

Medivac Service (Medical Evacuation)

Geotechnical Expert (independent advice/ assist with recovery plan)

3.6.14 Bomb Threat

Bomb threats are usually made to administration staff by telephone and must be taken seriously. The key aspect here is to remain calm and try to record as much detail as possible about the threat itself.

Main Threats:
- Potential for injury to team members
- Impact on person receiving the call/ threat
- Disruption to mine site care & maintenance

Alarms: Radio Communication only

Response:
- Person receiving call to remain calm and record information regarding the threat using the "Bomb Threat Check-list"
- Call-out Emergency Services
- Initiate area evacuation, if required (but keep people calm)
- Notify Mine Site Manager who intern would notify YG
- Notify RCMP
- Initiate appropriate emergency response (first-aid/medical/search/assisted evacuation, etc)
- Secure affected area at safe distance using Emergency Services Team members
- Mine Site Manager to initiate Disaster Management, if required
- Await RCMP arrival/ instructions
- Notify Faro Community Health Center if injuries occur
- Advise Faro Volunteer Fire Department that potential for assistance exists
- If bomb detonates, treat as "Explosion"
- Report to YT Mine Inspector
- Arrange counselling for affected persons, including person who received Bomb Threat
- Maintain security of affected area/s until Mine Inspector and RCMP give "All Clear"
- Assist RCMP with investigation

External Help: RCMP Bomb Squad

3.6.15 Armed Hold-Up/ Hostage Situation

An armed hold-up at the mine may result in a hostage situation. In all cases, site team members should cooperate with demands made and not attempt to aggravate or apprehend armed robbers. The key aspect here is to remain calm and try to record as much detail as possible about the offenders.

Main Threats:
- Injury/ harm to team members
- Impact on company image/ reputation

Notification: Possible triggering of recovery security/ duress alarm

Alarms: None (should not be used)

Response:
- Instruct team members to remain calm and not resist demands
- Notify RCMP
- Notify Mine Site Manager who intern would notify YG
- Initiate appropriate emergency response (e.g. first-aid, evacuate), depending on location of armed offenders
- Do not announce an emergency call (may distress armed offenders)
- Secure area at safe distance using Emergency Services Team members
- Allow armed offenders to depart site (i.e. do not attempt to apprehend or hinder)
- Await RCMP arrival/ instructions
- Isolate and treat/ comfort those involved (while awaiting RCMP arrival)
- Mine Site Manager to initiate Disaster Management, if required
- Notify Faro Community Health Center if persons injured
- Arrange through site Medic, the request of vehicle to transport people, if required
- Arrange counselling for affected person/s
- Maintain security of area until cleared by RCMP

External Help: Occupational Services Counselling Service

RCMP

Refer to "Emergency Telephone Directory" for Contact Numbers

APPENDIX VI

Dam Breach Flood Inundation Maps

(Note: Figure numbers are those used in the Dam Breach and Inundation Study (KCB 2014a)

Figure 3.11A Intermediate and Cross Valley Dam Rainy-day Cascading Failure Inundation Extents (Sheet 1 of 3)

Figure 3.11B Intermediate and Cross Valley Dam Rainy-day Cascading Failure Inundation Extents (Sheet 2 of 3)

Figure 3.11C Intermediate and Cross Valley Dam Rainy-day Cascading Failure Inundation Extents (Sheet 3 of 3)

Figure 3.12A Cross Valley Dam Sunny-day Failure Inundation Extents (Sheet 1 of 3)

Figure 3.12B Cross Valley Dam Sunny-day Failure Inundation Extents (Sheet 2 of 3)

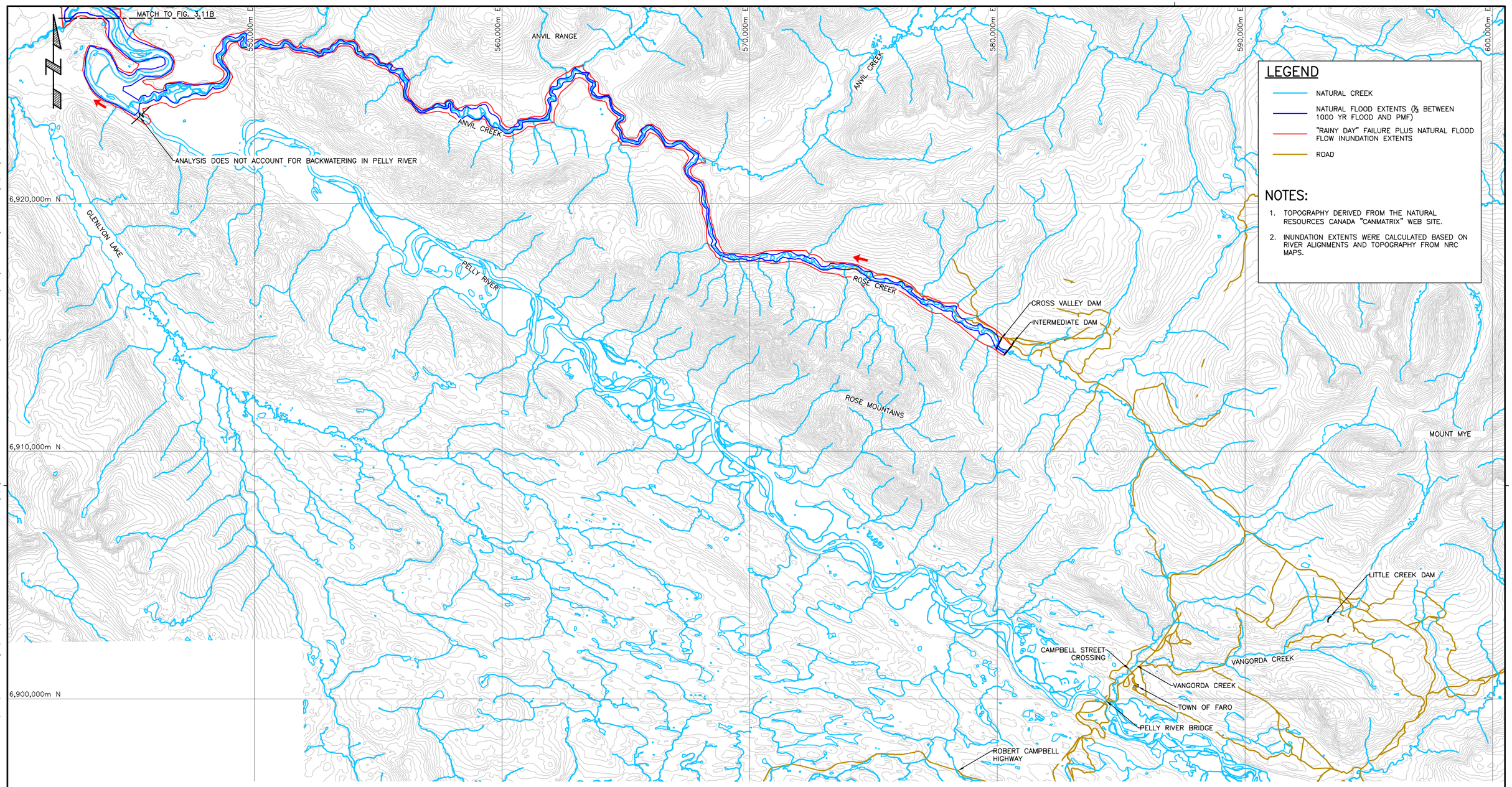
Figure 3.12C Cross Valley Dam Sunny-day Failure Inundation Extents (Sheet 3 of 3)

Figure 3.13A Cross Valley Dam Rainy-day Failure Inundation Extents (Sheet 1 of 3)

Figure 3.13B Cross Valley Dam Rainy-day Failure Inundation Extents (Sheet 2 of 3)

Figure 3.13C Cross Valley Dam Rainy-day Failure Inundation Extents (Sheet 3 of 3)

Figure 3.14 Little Creek Dam Sunny-day Failure Inundation Extents



LEGEND

- NATURAL CREEK
- NATURAL FLOOD EXTENTS (⅓ BETWEEN 1000 YR FLOOD AND PMF)
- "RAINY DAY" FAILURE PLUS NATURAL FLOOD FLOW INUNDATION EXTENTS
- ROAD

NOTES:

1. TOPOGRAPHY DERIVED FROM THE NATURAL RESOURCES CANADA "CANMATRIX" WEB SITE.
2. INUNDATION EXTENTS WERE CALCULATED BASED ON RIVER ALIGNMENTS AND TOPOGRAPHY FROM NRC MAPS.

NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

TITLE: INTERMEDIATE & CROSS VALLEY DAM
RAINY DAY CASCADING FAILURE
INUNDATION EXTENTS SHEET 1 OF 3

PROJECT No. M09770A02

FIG. No. 3.11A

KCB-R-MLD

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Date: 2/27/2014
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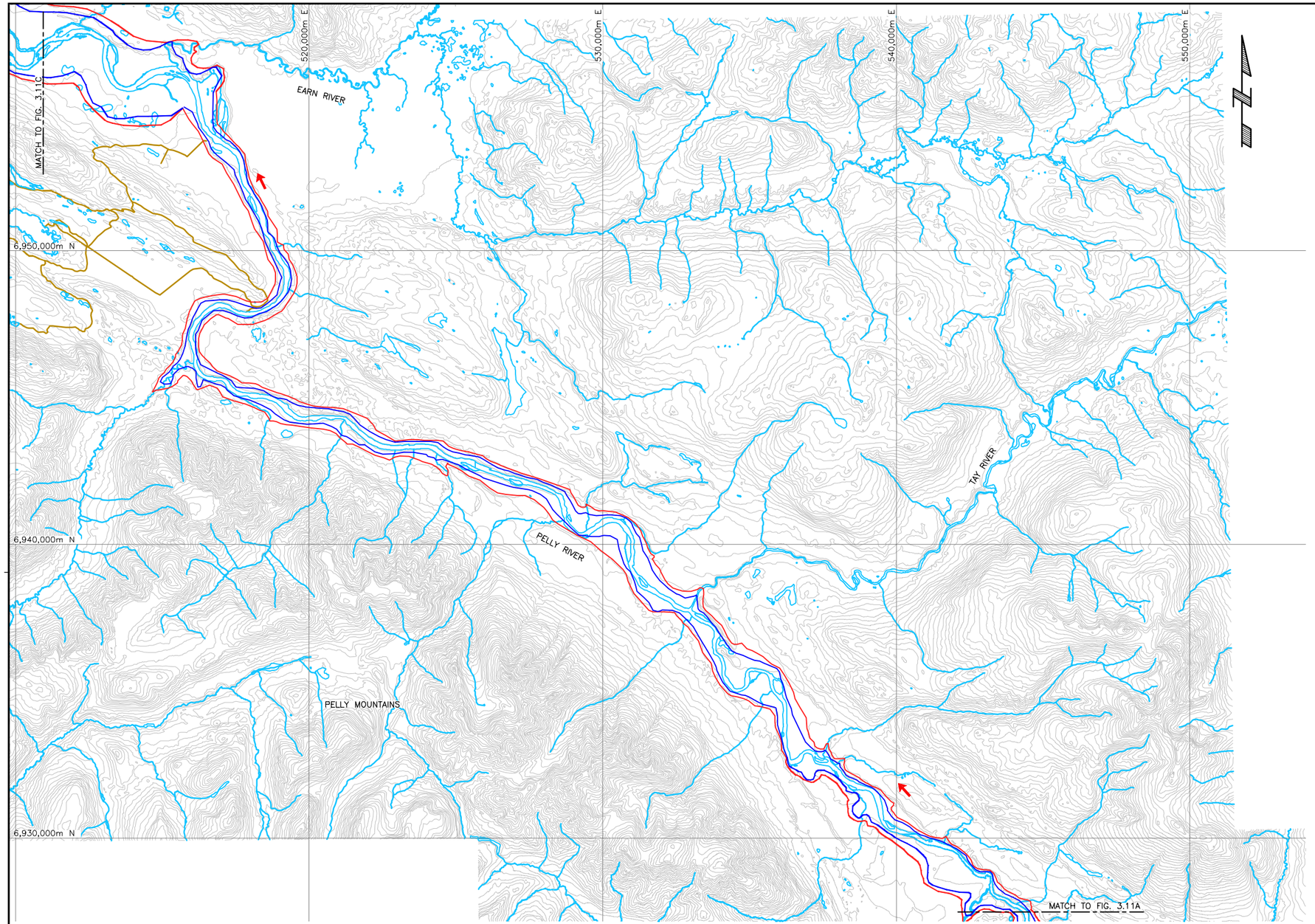
Drawing File: Z:\M\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.11 - Intermediate and Cross Valley Dam -Rainy Day Cascading Failure.dwg (persyem)



LEGEND

- NATURAL CREEK
- NATURAL FLOOD EXTENTS (⅓ BETWEEN 1000 YR FLOOD AND PMF)
- "RAINY DAY" FAILURE PLUS NATURAL FLOOD FLOW INUNDATION EXTENTS
- ROAD

NOTES:

1. TOPOGRAPHY DERIVED FROM THE NATURAL RESOURCES CANADA "CANMATRIX" WEB SITE.
2. INUNDATION EXTENTS WERE CALCULATED BASED ON RIVER ALIGNMENTS AND TOPOGRAPHY FROM NRC MAPS.

NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

TITLE: INTERMEDIATE & CROSS VALLEY DAM
RAINY DAY CASCADING FAILURE
INUNDATION EXTENTS SHEET 2 OF 3

PROJECT No. M09770A02

FIG. No. 3.11B

KCB-R-MLD

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Date: 2/27/2014
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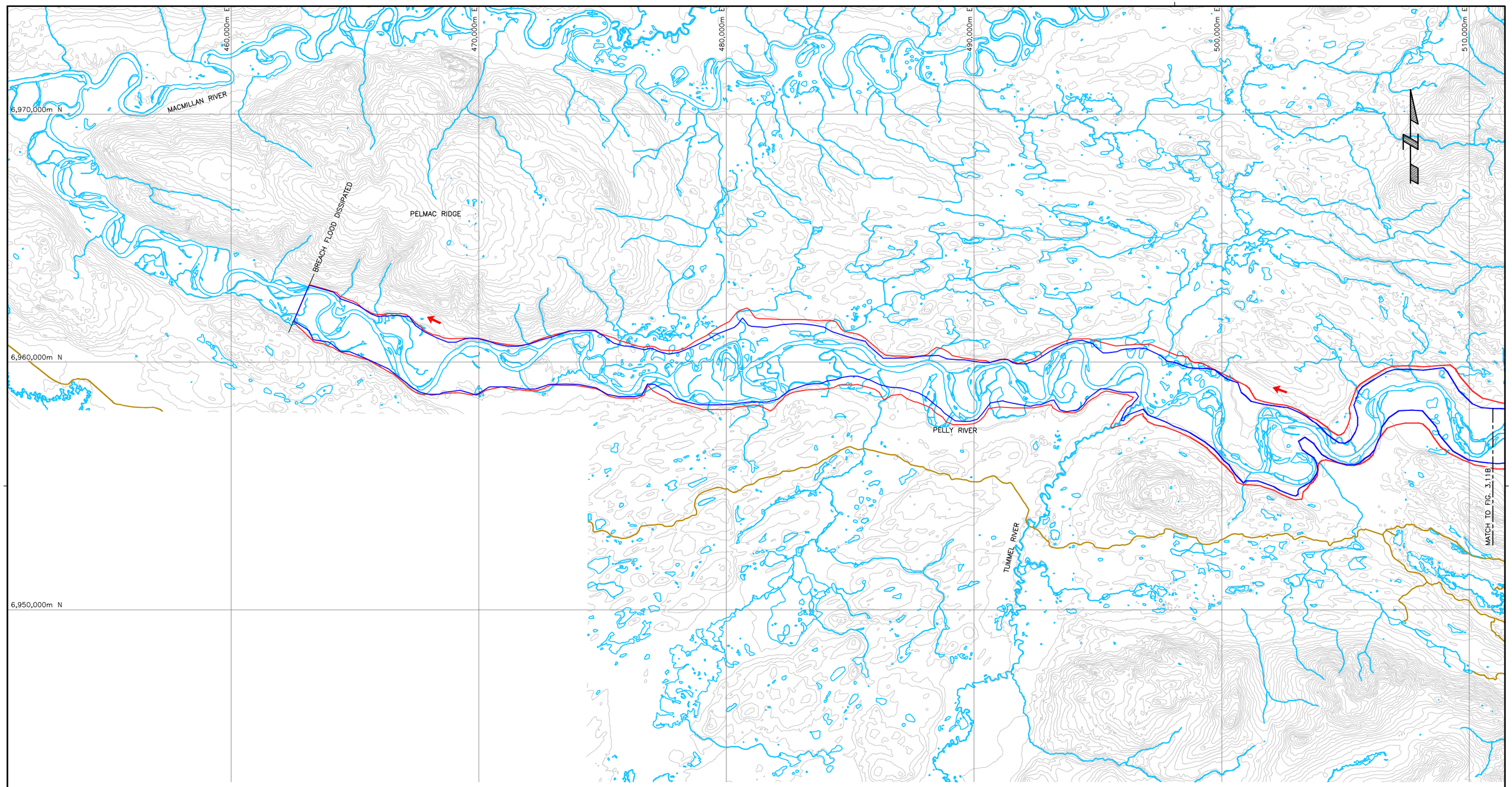
Drawing File: Z:\M\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.11 - Intermediate and Cross Valley Dam -Rainy Day Cascading Failure.dwg (persyem)



LEGEND

- NATURAL CREEK
- NATURAL FLOOD EXTENTS (⅓ BETWEEN 1000 YR FLOOD AND PMF)
- "RAINY DAY" FAILURE PLUS NATURAL FLOOD FLOW INUNDATION EXTENTS
- ROAD

NOTES:

1. TOPOGRAPHY DERIVED FROM THE NATURAL RESOURCES CANADA "CANMATRIX" WEB SITE.
2. INUNDATION EXTENTS WERE CALCULATED BASED ON RIVER ALIGNMENTS AND TOPOGRAPHY FROM NRC MAPS.

NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

TITLE: INTERMEDIATE & CROSS VALLEY DAM
RAINY DAY CASCADING FAILURE
INUNDATION EXTENTS SHEET 3 OF 3

PROJECT No. M09770A02

FIG. No. 3.11C

KCB-R-MLD

Time: 09:31:21
Date: 2/27/2014
Scale: 1:2.5849(PS)
Drawing File: Z:\W\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.11 - Intermediate and Cross Valley Dam -Rainy Day Cascading Failure.dwg (persyam)

MATCH TO FIG. 3.12B

550,000m E
560,000m E
570,000m E
580,000m E
590,000m E
600,000m E

6,920,000m N
6,910,000m N
6,900,000m N

ANVIL RANGE
ANVIL CREEK
ANVIL CREEK
ANALYSIS DOES NOT ACCOUNT FOR BACKWATERING IN PELLY RIVER
GLENLYON LAKE
PELLY RIVER
ROSE CREEK
CROSS VALLEY DAM
INTERMEDIATE DAM
ROSE MOUNTAINS
MOUNT MYE
LITTLE CREEK DAM
CAMPBELL STREET CROSSING
VANGORDA CREEK
VANGORDA CREEK
TOWN OF FARO
PELLY RIVER BRIDGE
ROBERT CAMPBELL HIGHWAY

LEGEND

- NATURAL CREEK
- "SUNNY DAY" FAILURE INUNDATION EXTENTS
- ROAD

NOTES:

1. TOPOGRAPHY DERIVED FROM THE NATURAL RESOURCES CANADA "CANMATRIX" WEB SITE.
2. INUNDATION EXTENTS WERE CALCULATED BASED ON RIVER ALIGNMENTS AND TOPOGRAPHY FROM NRC MAPS.

NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

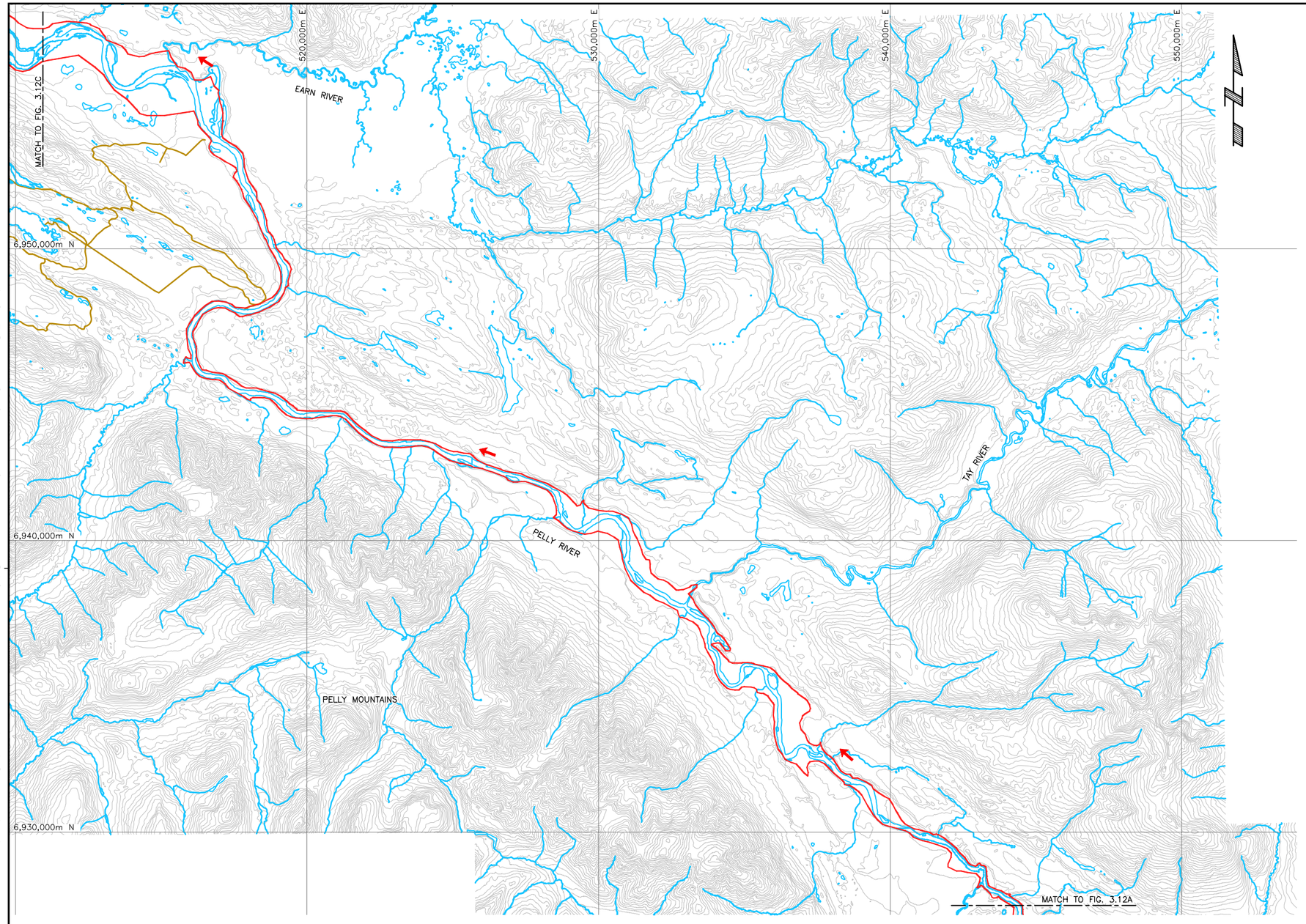
TITLE: CROSS VALLEY DAM
SUNNY DAY FAILURE
INUNDATION EXTENTS SHEET 1 OF 3

PROJECT No. M09770A02

FIG. No. 3.12A

KCB-R-MLD

Time: 09:34:11
Date: 2/27/2014
Scale: 1:2.5849(PS)
Drawing File: Z:\M\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.12 - Cross Valley Dam - Sunny Day Failure.dwg (persyem)



LEGEND

- NATURAL CREEK
- "SUNNY DAY" FAILURE INUNDATION EXTENTS
- ROAD

NOTES:

1. TOPOGRAPHY DERIVED FROM THE NATURAL RESOURCES CANADA "CANMATRIX" WEB SITE.
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Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

TITLE: CROSS VALLEY DAM
SUNNY DAY FAILURE
INUNDATION EXTENTS SHEET 2 OF 3

PROJECT No. M09770A02

FIG. No. 3.12B

KCB-R-MLD

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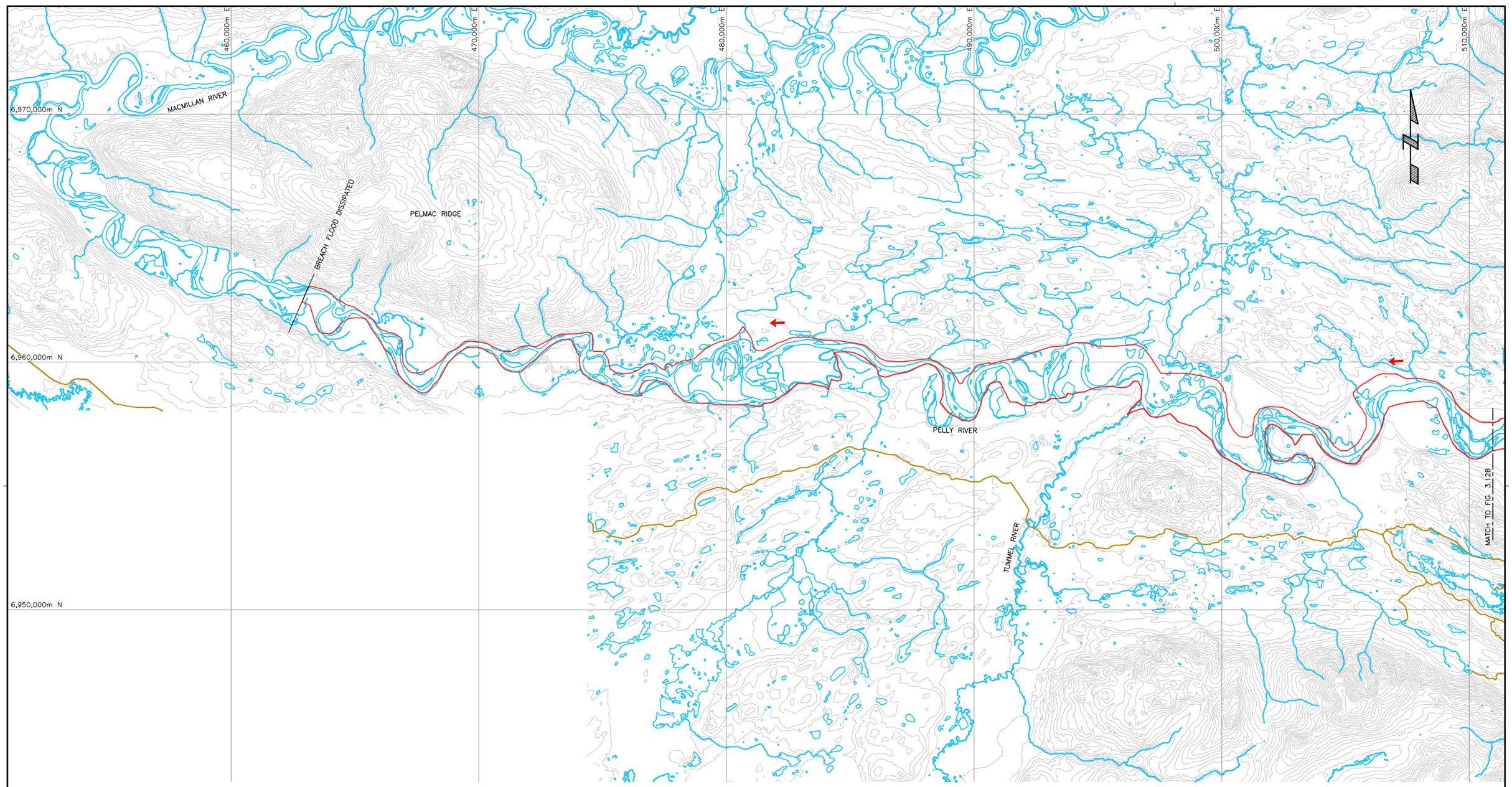
Date: 2/27/2014
Scale: 1:2.5649(PS)
Drawing File: Z:\M\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.12 - Cross Valley Dam - Sunny Day Failure.dwg (persyem)



LEGEND

- NATURAL CREEK
- "SUNNY DAY" FAILURE INUNDATION EXTENTS
- ROAD

NOTES:

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To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

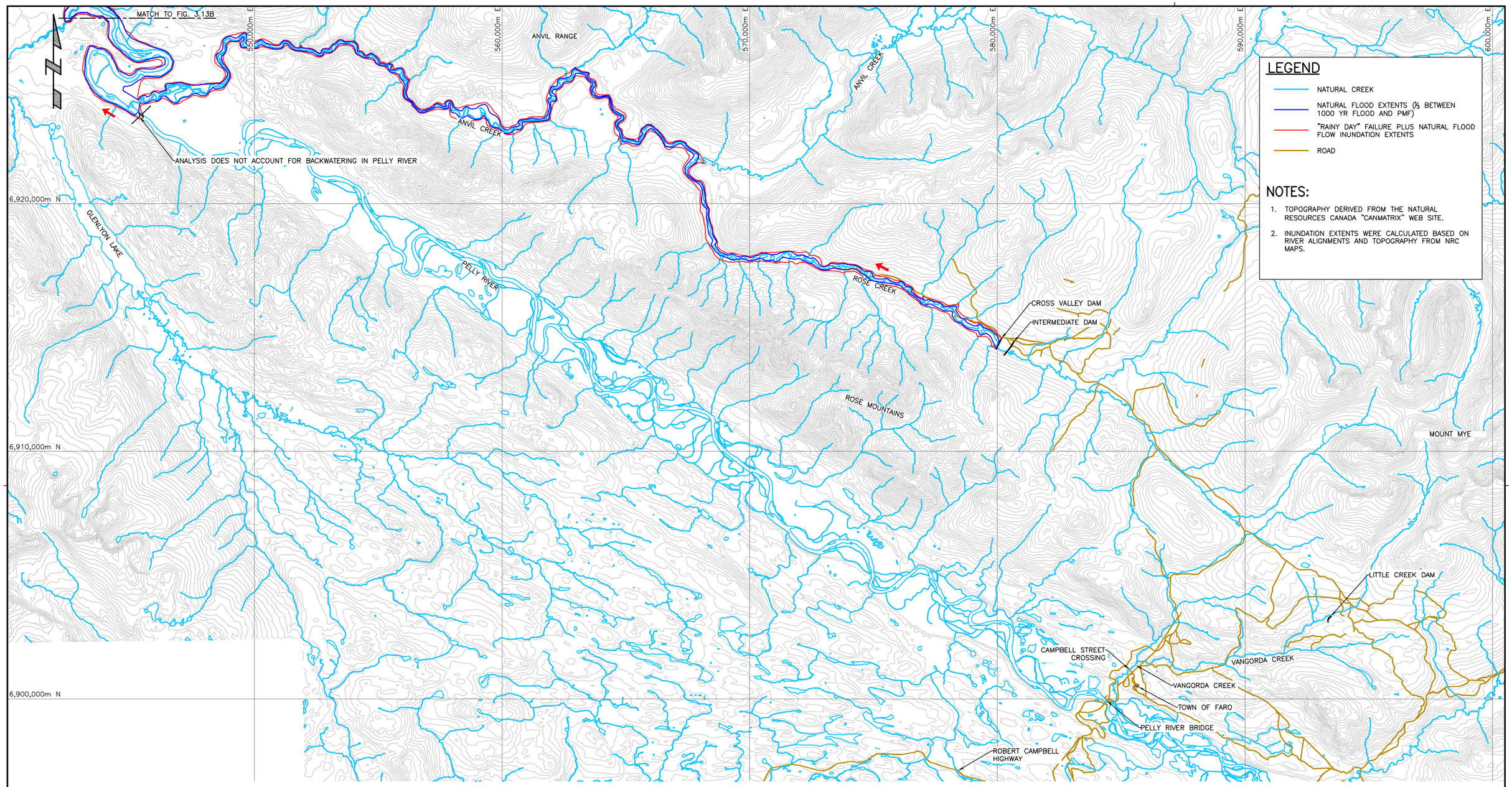
TITLE: CROSS VALLEY DAM
SUNNY DAY FAILURE
INUNDATION EXTENTS SHEET 3 OF 3

PROJECT No. M09770A02

FIG. No. 3.12C

KCB-R-MLD

Time: 09:34:11
Date: 2/27/2014
Scale: 1:2.5849(PS)
Drawing File: Z:\M\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.12 - Cross Valley Dam - Sunny Day Failure.dwg (persyem)



LEGEND

- NATURAL CREEK
- NATURAL FLOOD EXTENTS (½ BETWEEN 1000 YR FLOOD AND PMF)
- "RAINY DAY" FAILURE PLUS NATURAL FLOOD FLOW INUNDATION EXTENTS
- ROAD

NOTES:

1. TOPOGRAPHY DERIVED FROM THE NATURAL RESOURCES CANADA "CANMATRIX" WEB SITE.
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NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

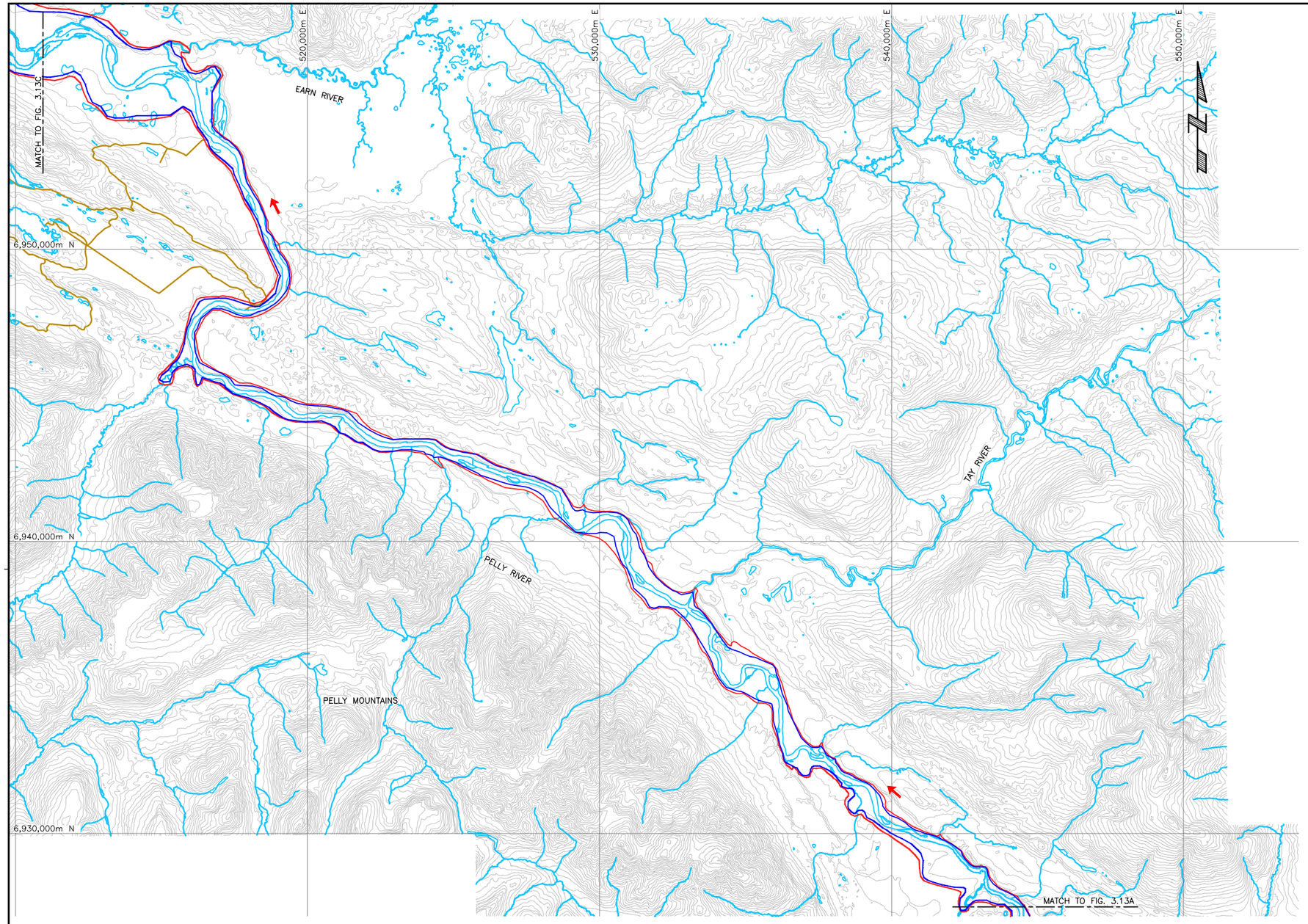
TITLE: CROSS VALLEY DAM
RAINY DAY FAILURE
INUNDATION EXTENTS SHEET 1 OF 3

PROJECT No. M09770A02

FIG. No. 3.13A

KCB-R-MLD

Time: 09:36:54
Date: 2/27/2014
Scale: 1:2.5849(PS)
Drawing File: Z:\W\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.13 - Cross Valley Dam -Rainy Day Failure.dwg (persyem)



LEGEND

- NATURAL CREEK
- NATURAL FLOOD EXTENTS (½ BETWEEN 1000 YR FLOOD AND PMF)
- "RAINY DAY" FAILURE PLUS NATURAL FLOOD FLOW INUNDATION EXTENTS
- ROAD

NOTES:

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NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

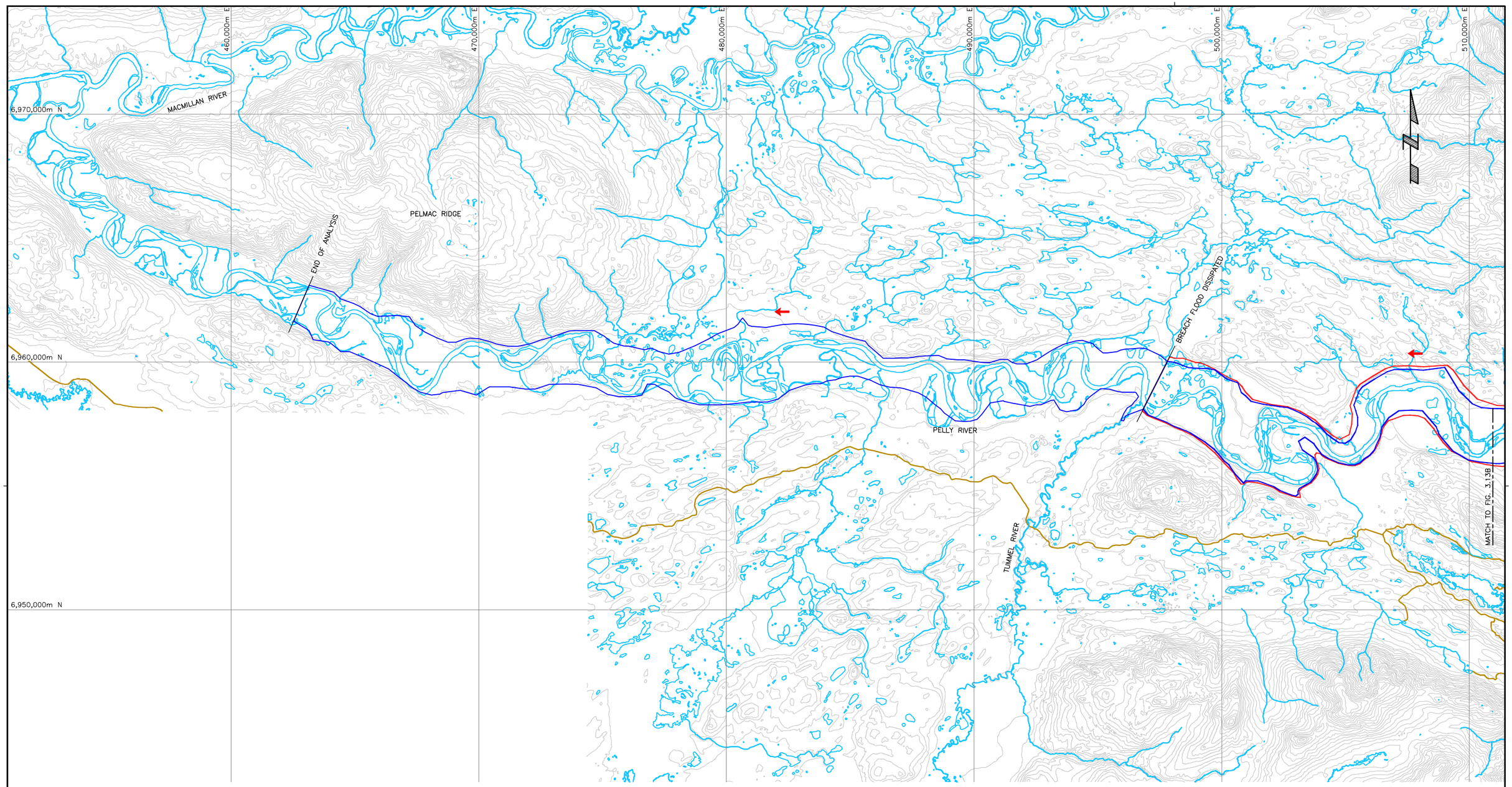
TITLE: CROSS VALLEY DAM
RAINY DAY FAILURE
INUNDATION EXTENTS SHEET 2 OF 3

PROJECT No. M09770A02

FIG. No. 3.13B

KCB-R-MLD

Time: 09:36:54
Date: 2/27/2014
Scale: 1:2.5849(PS)
Drawing File: Z:\M\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.13 - Cross Valley Dam -Rainy Day Failure.dwg (persyem)



LEGEND

- NATURAL CREEK
- NATURAL FLOOD EXTENTS (⅓ BETWEEN 1000 YR FLOOD AND PMF)
- "RAINY DAY" FAILURE PLUS NATURAL FLOOD FLOW INUNDATION EXTENTS
- ROAD

NOTES:

1. TOPOGRAPHY DERIVED FROM THE NATURAL RESOURCES CANADA "CANMATRIX" WEB SITE.
2. INUNDATION EXTENTS WERE CALCULATED BASED ON RIVER ALIGNMENTS AND TOPOGRAPHY FROM NRC MAPS.

NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

TITLE: CROSS VALLEY DAM
RAINY DAY FAILURE
INUNDATION EXTENTS SHEET 3 OF 3

PROJECT No. M09770A02

FIG. No. 3.13C

KCB-R-MLD

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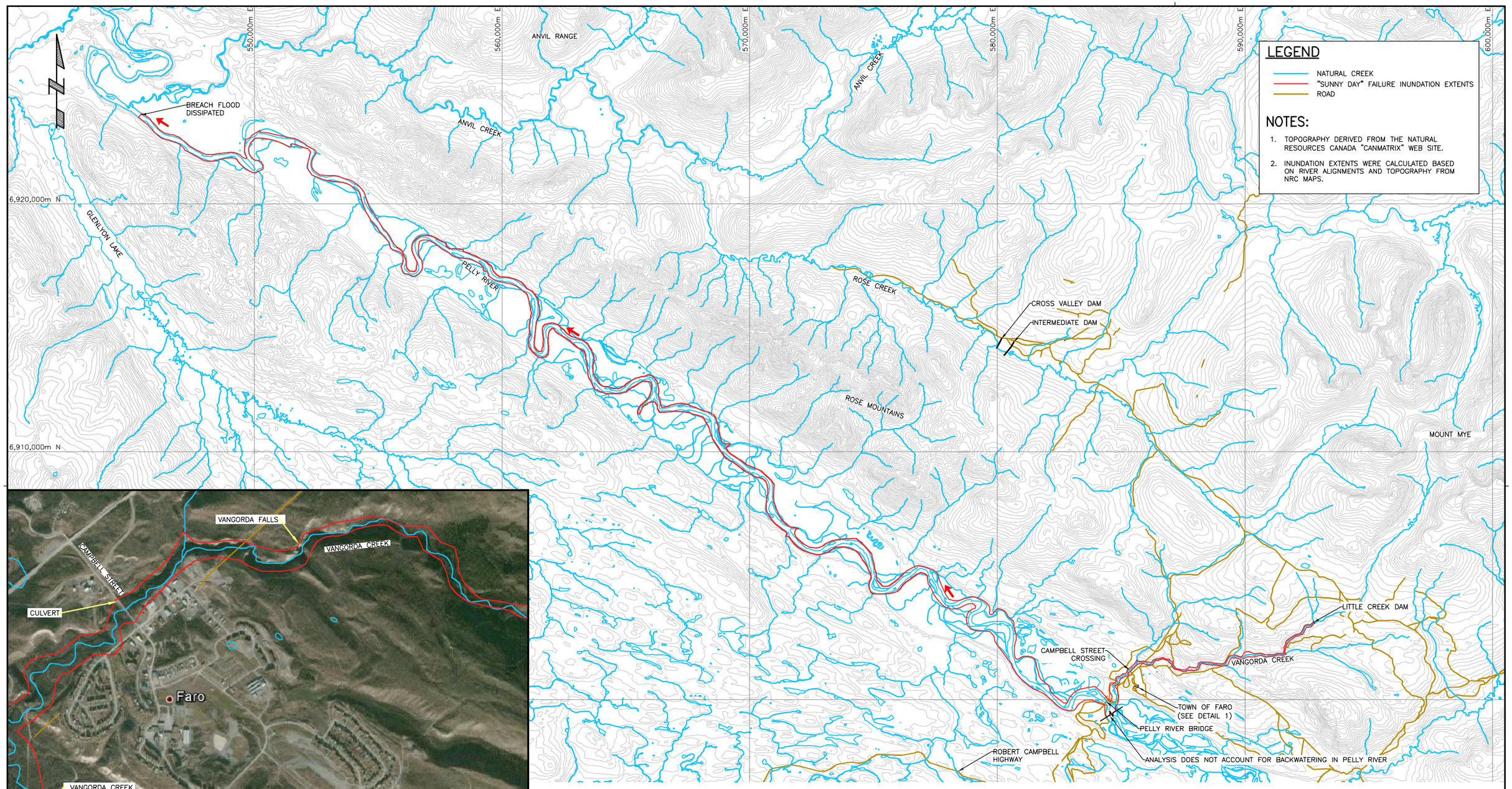
Date: 2/27/2014
Scale: 1:2.5849(PS)
Drawing File: Z:\M\VCR\M09770A02 - Gov't Yukon-Faro Complex\400 Drawings\CAD\Dam Breach and Inundation Study\Fig 3.13 - Cross Valley Dam -Rainy Day Failure.dwg (persyem)



DETAIL 1 TOWN OF FARO
SCALE B

NOT FOR CONSTRUCTION

To be read with Klohn Crippen Berger report dated FEB. 2014

SCALE A=1:150,000 0 2 km
SCALE B=1:20,000 0 300m

CLIENT: YUKON GOVERNMENT

Klohn Crippen Berger

PROJECT: FARO MINE REMEDIATION PROJECT
DAM BREACH AND INUNDATION STUDY

TITLE: LITTLE CREEK DAM
SUNNY DAY FAILURE
INUNDATION EXTENTS

PROJECT No. M09770A02

FIG. No. 3.14

KCB-R-MLD

Time: 14:29.35
Date: 2/27/2014
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