19 June 2015

VM00276B.2015.500

Goldcorp Canada Ltd.
Equity Mine
P.O. Box 1450
Houston, British Columbia V0J 1Z0

VIA EMAIL & COURIER

Attention: Mike Aziz
Canadian Closed Sites Manager

Dear Mr. Aziz:

Re: Equity Silver Mine Tailings Facility
Response to February 3, 2015 Ministerial Orders

INTRODUCTION

On February 3, 2015, the Chief Inspectors office of the BC Ministry of Energy and Mines (MEM) issued orders to all mines in BC related to the recent findings of the Expert Panel that was convened to examine the Mount Polley tailings dam breach which occurred on August 4, 2014. The ministerial order required that a letter of assurance be provided from each mine site to determine if the dam(s) associated with the tailings storage facilities may be at risk due to:

1. Undrained shear failure of silt and clay foundations;
2. Water balance adequacy; or
3. Filter adequacy.

For the Equity Mine (Equity), the ministerial order applies to the three dams containing the Tailings Impoundment, namely Dam No. 1, Dam No. 2 and Diversion Dam. Thus, Equity requested that Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler), prepare a letter in response to the ministerial order. This letter is intended to satisfy that request.

The most recent annual Dam Safety Inspection (DSI) was conducted in September 2014. The results of that inspection are described in the report titled "Tailings Impoundment and Water Management Structures – 2014 Dam Safety Inspection", which was issued on October 14, 2014 (AMEC, 2014a). Detailed discussions pertinent to several aspects of this letter are documented in that report and will not be repeated herein. Rather, summary comments will be provided in order to address the ministerial orders with specific references made to the previous studies. The

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commentary presented in this letter is limited to the existing configuration of the TSF with respect to the ministerial orders. For convenience, selected figures from AMEC (2014a) are appended to this letter.

The scope of this letter includes the following:

- A brief review of the project history as it relates to the tailings impoundment
- Section 1.0: a discussion on the dam foundations
- Section 2.0: a discussion on water balance adequacy
- Section 3.0: a discussion on filter adequacy

For clarity, within Sections 1.0 to 3.0, the individual assessment requirements specified in the ministerial orders under each risk category are listed as subsection headings, and corresponding responses discussed therein.

To summarize this letter, the following statements are made regarding the Equity tailings impoundment in the context of the ministerial orders of February 3, 2015:

1. It is noted that these dams have performed well, with no adverse conditions reported during construction or over the last 20 years of care and maintenance.

2. The dams are founded on a variable thickness (< 10 to 20 m) of glacial till over competent bedrock. According to legacy reports and regional geological surveys the till is considered to be a basal till which is consistent with historical lab data. There is no mention of glaciolacustrine deposits at this site and regionally, such soils have been limited to the lower lake valleys about 300 m lower than the Equity site. Limited investigation data is available directly beneath the Diversion Dam and Dam No. 2 however surrounding data suggests reasonable continuity of the till blanket. Previous stability analyses have indicated that the dam designs meet the required factors of safety (i.e., 1.5) for all three dams using effective stress (drained) strength parameters. However, historical triaxial testing indicates that at high consolidation stresses the local till exhibits normally consolidated behaviour. Thus, there is potential for some portion of the Dam No. 1 foundation clay till to be in the normally consolidated range such that, when considering an undrained failure mode, the mobilized strength would be less than the drained strength. Such a stress state could potentially lead to contractant behaviour during shear which by itself could reduce the actual factor of safety for the structure below the design target of 1.5. However this conclusion overlooks two salient issues. Firstly, towards the toe an undrained failure of the dam would mobilize an undrained strength potentially greater than the drained strength. Secondly, the embankment pore pressures assumed in past analyses were conservative and actual pressures may well be substantially lower through the embankment rockfill than that conservatively adopted in the absence of actual data. Therefore, on a judgment basis, at this time it is possible that a more detailed consideration of foundation strength could validate the conclusions made in legacy reports that the factor of safety meets closure requirements.

3. Investigations had been planned for 2016 to increase the coverage of instrumentation and augment the existing dam safety surveillance system. As such these site investigations will also be used to gain additional information on foundation stratigraphy and strengths to confirm the previous stability predictions.

4. The tailings pond level is monitored and recorded on a regular basis. Each year the pond level is brought down below El. 1292.0 m prior to winter to provide over 2.0 m of freeboard for storage of the environmental design flood event (100 year wet year and 1000 year 96-hour duration storm event). The water is decanted to the Diversion Pond or the Main Zone Pit prior to discharge to the environment. Under extreme storm events the hydraulic performance of the tailing impoundment is governed by the characteristics of the closure spillway which was designed and constructed to accommodate the flow associated with the probable maximum flood from the entire catchment upstream of the facility.

5. The tailings dams incorporate specifically designed filter and drainage elements that act to mitigate the risk of internal erosion. However, the lower portion of the Diversion Dam starter till embankment is not filtered against the lower rockfill buttress which presents a potential internal erosion risk when the Diversion pond is fully dewatered. A detailed seepage gradient assessment will be performed in late 2015 to further evaluate the risk of internal erosion on the lower portion of the Diversion Dam and determine if remedial measures are required.

PROJECT DESCRIPTION AND CURRENT STATUS

The Equity Mine is located approximately 40 km south of Houston, British Columbia as shown on Figure 1. Open pit mining commenced in 1980. Open pit mining and underground mining continued until 1994, when the mine was closed. The mine is currently under care and maintenance due to well-documented long-term Acid Rock Drainage (ARD) management.

The tailings impoundment is enclosed by Dam No. 1 to the north, Dam No. 2 to the south, the Diversion Dam to the west, and high ground to the east (Figure 2). The tailings impoundment is located approximately on the divide between two watersheds: Foxy Creek and Bessemer Creek. The dams were designed with low permeability glacial till zones, transition and filter zones, and structural zones of compacted rockfill (Figure 3). The geometry of the tailings dam includes an initial downstream constructed embankment composed of glacial till and coarse rockfill that transitions to a centerline constructed embankment that is laterally supported on the upstream side by the tailings and compacted rockfill on the downstream side.

The tailings impoundment was decommissioned in 1994. A permanent, open channel spillway was constructed that year on the right (east) abutment of Dam No. 1, reporting to the Berzelius Creek Diversion Canal and then discharging into Foxy Creek. Clean, non-contact water is diverted around the impoundment via the Berzelius Creek Diversion located upstream of the impoundment. A water cover is maintained over the tailings to reduce the potential for oxidation of sulphide material in the tailings and subsequent ARD production (AMEC, 2012). The tailings impoundment provides containment for approximately 30 million m^3 of tailings solids and free water (Equity, 1991). Table 1 shows some of the key elevations and dimensions for the tailings impoundment.

Table 1: Key Elevation and Dimensions for the Tailings Impoundment

Dimension	Dam No. 1	Dam No. 2	Diversion Dam
Embankment length (m)	1430	600	885
Height of embankment (m)	65	20	35
Steepest Downstream Slope Angle[1]	1.3H:1V	1.4H:1V	1.2H:1V
Effective Downstream Slope Angle[2]	2H:1V	2H:1V	2H:1V
Overall Downstream Slope Angle[3]	2.7H:1V	3.0H:1V	2.7H:1V
Embankment crest elevation (m)	1294.0		
Spillway crest elevation (m)	1292.5		
Minimum elevation of the water surface (top of tailings) (m)[4]	1285.5		
Starting elevation of centerline method of construction of compacted till core (m)	1278.0		

1. *Actual measurement of the steepest section of the downstream slope angle.*
2. *Effective slope angle measured as an average slope of the general dam slopes (buttress, if any, is not included in the effective slope angle).*
3. *Overall downstream slope angle is measured from the downstream edge of the top of the dam core to the downstream toe of the dam.*
4. *This is not equivalent to the bottom of the tailings impoundment elevation but rather the bottom of the water cover.*

The tailings impoundment is defined as a major impoundment with major dams under the Health, Safety and Reclamation Code for Mines in British Columbia (HSRC). The three dams were assigned a “very high” consequence classification rating during the 2010 Dam Safety Review (AMEC, 2011a) under the 2007 CDA Guidelines which was again confirmed by the 2014 Dam Breach Inundation (DBI) study (AMEC, 2014b). The classification system remains unchanged following the 2014 CDA Mining Dams Bulletin.

Per the 2014 CDA Mining Dams Bulletin updating the guidelines for mining dams, the minimum limit equilibrium factors of safety (FoS) required for static loading conditions is 1.5. Under seismic (pseudostatic) conditions the required FoS is 1.0. All three of the tailings impoundment dams have been historically stewarded to these targets. Additional discussion is provided in Section 1.0 (c) below on FoS predictions made on the basis of the current understanding of the tailings impoundment foundation conditions.

SECTION 1.0 - UNDRAINED SHEAR FAILURE OF SILT AND CLAY FOUNDATIONS

Of note is that the ministerial orders request an assessment with respect to potential undrained shear failure of silt and clay foundations. It is our understanding that the objective of this request is to ascertain if rapid contractant behaviour during shear (i.e. constant volume during shear leading to excess pore pressures and rapid reduction in effective stress or strength conditions) has been adequately considered in the design. Simply put, whether the potential presence of weak silt and clay foundation layers have been adequately addressed.

a) Including a determination with respect to whether or not similar foundation conditions exist below the dams on your site

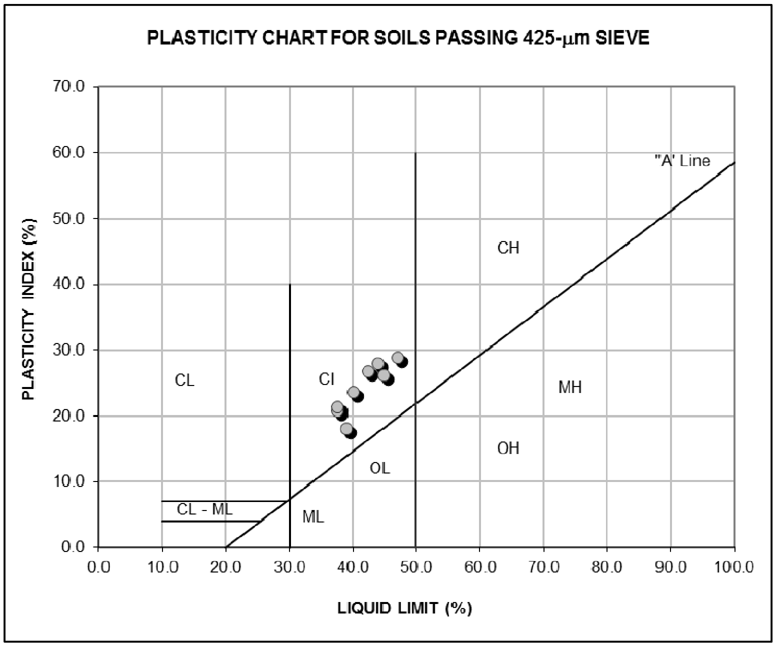
The three dams forming the tailings impoundment are reported to be founded on a glacial till overlying bedrock. The glacial till is described as a well-graded mixture of clay, silt, sand and gravel with approximately 50% passing the #200 sieve (Klohn Leonoff 1979, 1980). The top 1 m of the till was reported to be generally loose to medium dense and below this depth the till was dense. The basis for this determination appears to be based on general site knowledge and index testing, however no insitu testing has been identified. There are numerous bedrock outcrops around the site and generally bedrock is found within 3 m of the ground surface. This was evidenced in the core trench construction of the Dam No. 1 starter dam where dental concrete was required to smooth out irregularities in the exposed shallow bedrock on the right abutment foundation prior to core construction. Additionally, the dam foundations were stripped of all organic material, alluvial deposits and swamp deposits to expose the dense glacial till or bedrock (Klohn Leonoff 1980). Table 2 provides a summary of the historic laboratory testing performed on the clay till. Figure 1.2 presents the corresponding plasticity chart for the data presented in Table 2.

Table 2: Foundation Clay Till Properties

Site Investigation Reference	Sample Number	Sample Type	Sample Description	Natural Moisture Content (%)	Atterberg Limits (%)				Retained on #200 Sieve (%)	Soil Type	Additional Lab Testing	Initial Vertical Effective Stress (kPa)	Undrained Shear Stress Ratio (TC)
					LL	PL	PI	LI					
Klohn Leonoff (1979). Tailings Storage Facilities.	TP 122	Grab	Clay Till	18.3	44.0	16.0	28.0	0.1	57	CI	-	-	-
Klohn Leonoff (1981). Tailings Storage Facility Long-Term Stability at Dam #1.	1	Block	Clay Till	16.1	42.4	15.7	26.7	0.0	N/A	CI	UU	350	0.33
	2	Tube	Clay Till	14.2	47.1	18.3	28.8	-0.1	N/A	CI	UU	898	0.47
	3	Block	Clay Till	18.6	44.8	18.6	26.2	0.0	N/A	CI	CU	1034	0.29
	4	Tube	Clayey Silt	22.8	38.9	20.8	18.1	0.1	N/A	CI	CU	1034	0.56
Klohn Leonoff (1983). Letter Summarizing Triaxial Test Results of Foundation Till.	1	Tube	Clay Till	15.0	40.0	16.4	23.6	-0.1	37	CI	CU	246	0.73
	3A	Tube	Clay Till	15.4	37.5	16.7	20.8	-0.1	53	CI	CU	480	0.44
	3B	Tube	Clay Till	13.2	37.5	16.2	21.3	-0.1	33	CI	CU	999	0.36
Average				**16.7**	**41.5**	**17.3**	**24.2**	**0.0**	**45.0**	**CI**			

Note: Soil type (Clays of Intermediate Plasticity) classification is in accordance with Modified Unified Soil Classification System.

Figure 1.2: Plasticity Chart for Foundation Clay Till Data



The local dam foundation conditions are consistent with regional surficial geology mapping that indicates basal till blanket (Tb) as the predominant glacial deposit overlying the Equity Mine site (Ferbey 2014). The blanket basal till is described as “clay - to - silt - rich diamicton greater than 2 m of thickness; overconsolidated, typically massive and matrix supported”, which fits well with the investigation data previously discussed. Silt and clay soils of glaciolacustrine origin (GLb) have only been mapped in the lower Buck Creek valley and around Goosly Lake at around elevation 900 m which are about 300 m lower than the mountain saddle area that the Equity Mine site occupies.

b) Whether or not sufficient site investigation (drill holes, etc.) has been completed to have confidence in this determination

A reasonable amount of site investigation was performed for the original design of the tailings impoundment in 1976 and 1979 (Klohn Leonoff 1979). Much of the investigation effort was focused along the centerline of Dam No. 1 using 18 shallow test pits (typically terminating in bedrock) in 1976 followed by 12 rotary borings in 1979 to various depths within the bedrock. The only known site investigations for the Diversion Dam are two drainage wells located in the upstream toe of the dam in 1979. No site investigation data is known to exist for the foundation of Dam No. 2. Unfortunately, no penetration resistance (SPT or CPT) or other insitu strength testing data was collected during past site investigation efforts. Although very little is known about the foundations directly below the Diversion Dam and Dam No.2, later hydrogeological investigations further to the west indicate continuity in the blanket till and shallow depths to bedrock toward the former Plantsite and waste stockpile areas consistent with the regional geological mapping (URS 2000).

c) If present, whether or not the dam design properly accounts for these materials

Based on review of historical investigation, design and construction records, there is no evidence to suggest that weak glaciolacustrine soils exist within the tailings dam footprints. That being said, the characterization of the clay till requires further discussion.

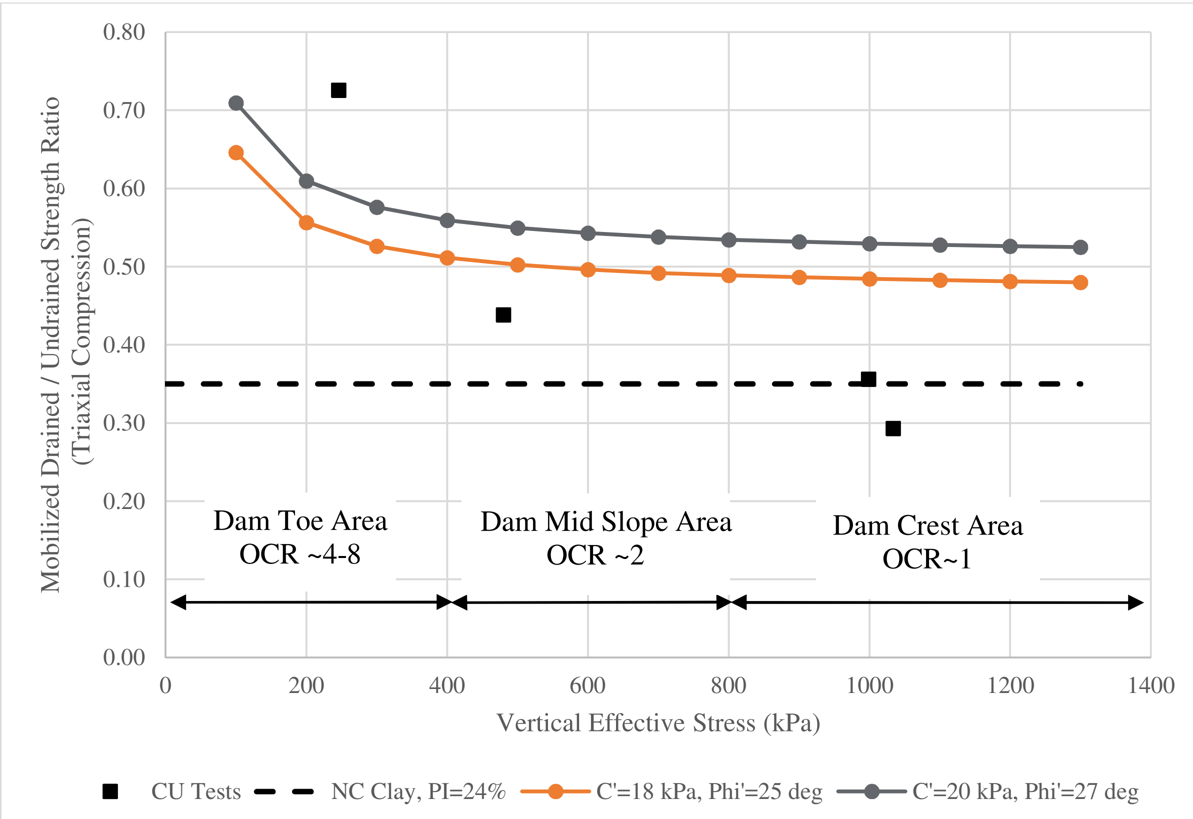
The original design of the tailings impoundment characterized the foundation basal till using an effective friction angle of 25° based on two unconsolidated undrained (UU) triaxial compression (TC) tests. Soil samples for the UU TC tests were collected in 1979 from within the Dam No.1 footprint (Klohn Leonoff 1981). An additional undisturbed block sample of “clay till” from a shallow testpit and a Shelby tube sample of deeper “clayey silt” were also collected from the Dam No. 1 foundation in 1980. These two samples were tested in consolidated undrained (CU) TC by Klohn (1981) which were used to validate the previous strength parameters.

In 1983, three additional CU tests were performed on tube samples of glacial till from the waste dump area to the west. Test results for these samples also indicated an effective friction angle of 25.5° and an effective cohesion of 18 kPa for the foundation clay till (Klohn Leonoff 1983). Klohn Leonoff was not present for the sampling and expressed some concern over the quality of the samples, stating that the samples were shipped in rusty thin-walled tubes with no identifying marks regarding sample location or depth which introduces more uncertainty into the accuracy of the data produced. The 1983 CU test data further suggested that the clay till was originally overconsolidated with a potential preconsolidation pressure of at least 1500 - 2000 kPa based on Liquidity Index data (refer to Table 2). Two of the CU tests (246 kPa and 480 kPa consolidation stresses) exhibited dilatant behaviour during shearing. However, the test performed at a consolidation stress of 999 kPa exhibited behaviour similar to a normally consolidated (NC) material, although the test was not strongly contractant. There is no independent consolidation tests available to appropriately determine the pre-consolidation pressure for this till. However, the Liquidity Index data does suggest that it should be greater than 1,000 kPa. Therefore, there is a possibility that the undrained strength ratios reported in Table 2, may reflect some degree of sample disturbance.

In 1990, a stability assessment update was performed (Klohn Leonoff 1990) in which the previous laboratory testing data from 1981 was reassessed and the strength parameters revised to an effective friction angle of 27° and an effective cohesion of 20 kPa. The rationale for this strength increase is not clear (no data or detailed discussion found within the available historical documents). The then as-built configuration of the dams was again reviewed as part of the 1993 annual review (Klohn 1994) using the 1990 revised strength parameters, which indicated acceptable levels of safety for the final dam configurations (Figure 3).

Figure 1.2 presents a summary of the undrained strength ratios (undrained shear stress / initial vertical effective stress) based on the CU TC data discussed above. For comparison, a line denoting the typical triaxial strength of NC clay with PI=24% (Ladd 1991) is also plotted on Figure 1.2 which validates the NC test behavior of the clay till around 1000 kPa. Rough effective stress ranges are also indicated for areas of Dam No.1 which suggests that the upper portion of the dam foundation may in fact now be normally consolidated.

Figure 1.2: Equity Silver CU Triaxial Test Data



As shown on Figure 1.2 the use of an effective friction angle and cohesion based on the CU triaxial testing is expressed as the mobilized drained strength divided by the effective stress to permit a direct comparison with the undrained strength ratios interpreted from the triaxial test data. A comparison of these ratios suggests that using effective stress parameters would be appropriate up to about 500 kPa but then tends to over predict the strength behavior of the till as compared to the CU testing. Thus above about 500 kPa it is more appropriate to consider an undrained strength ratio decreasing to the NC Clay line when performing stability analyses.

When dealing with undrained strengths it is necessary to also consider stress paths. As the typical section used for Dam No. 1 has about 20 m of till under the crest and much less at the toe, using TC strength ratios is only appropriate under the crest of the dam, whereas using direct simple shear (DSS) ratios should be determined under the dam and triaxial extension (TE) values near the toe. More importantly, it is not reasonable, or logical, to use undrained strengths representative of higher consolidation stresses under the entire dam. Rather, higher undrained strength ratios should be considered as effective stresses reduce, and may in fact exceed drained strength near the toe. To this end, a screening level stability analysis was performed as part of this assessment, where the Dam No. 1 stability section originally developed by Klohn in 1994

(Figure 3) was reproduced using Slope/W (Version 2012). The foundation clay till was zoned based on effective stress level to allow for application of consolidation level dependant shear strength ratios. As shown on Figure 3 the shape of the critical slip surface is forced to be nearly horizontal through the clay till by the shallow bedrock which is more characteristic of DSS than TC. Thus the TC CU strength ratios were multiplied by a linear scaling factor of 0.71 (DSS strength ratio of 0.25 for normally consolidated clay with PI=24%, Ladd 1991) to account for the more dominant DSS behaviour in the dam foundation.

The resulting stability model suggests that the static FoS for Dam No. 1 could be lower than 1.5 depending on the level of overconsolidation remaining in the foundation till and the pore pressure regime within the embankment, both of which are currently uncertain. This would also have a corresponding effect on the seismic stability of the dams.

It is important to note that the maximum Dam No. 1 section shown on Figure 3 is applicable to roughly a 150 m wide area in the middle of the dam such that three dimensional effects may not be overly significant. Similar behaviour could be occurring at the other two dams but likely to a lesser extent as Dam No. 2 and the Diversion Dam are roughly half the height of Dam No. 1. The previous stability analyses results for these dams are likely valid although there is not enough information on the foundation conditions for those dams to be conclusive.

d) If any gaps have been identified, a plan and schedule for additional sub-surface investigation

Two gaps have been identified regarding the dam foundation conditions as follows:

1. There is very limited investigation data available on the actual foundation conditions for Dam No. 2 and the Diversion Dam.
2. Based on historical lab testing and a screening level stability assessment of Dam No. 1, it is possible that a portion of the dam foundation could actually be at or near a normally consolidated state and potentially subject to contractant behaviour during shear which was not accounted for in the original designs from the 1980s.

Equity has already planned to perform an instrumentation installation campaign for the dams in 2016 to supplement their existing dam safety surveillance program with piezometers and inclinometers in Dam No. 1. This would be a good opportunity to gain additional information on the foundation conditions of all three dams to close the knowledge gaps identified herein. It is recommended that such drilling into the foundation be used to validate the previous geological models and a revised stability assessment be performed for all three dams.

SECTION 2.0 - WATER BALANCE ADEQUACY

Since Equity Silver ceased operations in 1994, the water balance has consisted of simple inputs and losses. Inputs consist of precipitation and catchment area runoff and losses consist of evaporation, seepage, and decanted water; no additional mine water has been directed to the tailings impoundment. The tailings facility also includes an open channel spillway founded on bedrock through the right abutment of Dam No. 1 which is capable of accommodating the probable maximum flood (AMEC 2011b).

The tailings pond level is monitored and recorded on a regular basis. Each year the pond level is brought down below El. 1292.0 m prior to winter to provide over 2.0 m of freeboard for storage of the environmental design flood event (100 year wet year and 1000 year 96-hour duration storm event). The water is decanted to the Diversion Pond or the Main Zone Pit.

a) Including the total volume of surplus mine site water (if any) stored in the tailings storage facility

This is not applicable as surplus mine water is not stored in the tailings impoundment. Rather, a shallow water cover containing about 5 million m^3 of water is maintained over the tailings to reduce ARD production.

b) The volume of surplus mine water that has been added to the facility over each of the past five years

This is not applicable as surplus mine water is not added to the facility but rather any direct precipitation that accumulates through the year is removed and pumped to the Main Zone Pit or the Diversion Pond prior to winter each year to draw the water level down to below 1292.00 m.

c) Any plans that are in place or that are under development to release surplus mine water to the environment

As noted above, Equity actively decants any additional impoundment water from direct precipitation to the Main Zone Pit or Diversion Pond as required prior to discharge to the environment in accordance with their environmental permit.

d) Recommended beach width(s), and the ability of the mine to maintain these widths

This is not applicable as the dams forming the tailings impoundment were designed as water retaining dams. As such there is no requirement to maintain an above water beach. Rather the thin water cover is in contact with the upstream slope of the dam crest which is protected with riprap erosion protection.

e) The ability of the TSF embankments to undergo deformation without the release of water (i.e. the adequacy of the recommended beach width)

The tailings dams were designed as water retaining dams and include a downstream constructed rockfill embankment with upstream low permeability core to elevation 1278 m. At elevation 1278 m the dam cross section transitions to a centerline constructed section (to the crest at elevation 1294 m) supported on the downstream by compacted rockfill and tailings on the upstream. The compacted rockfill embankment is considered robust and has been effective at limiting deformation to tolerable levels (less than 8 cm horizontal or vertical movement measured since 1997).

f) Provisions and contingencies that are in place to account for wet years

As previously noted, the pond level is brought down below El. 1292.0 m prior to winter each year to provide storage of the environmental design flood event (100 year wet year and 1000 year 96-hour duration storm event). Under inflow design flood (IDF) conditions, the hydraulic performance of the tailings impoundment is governed by the characteristics of the closure spillway which was designed to accommodate the flow associated with the PMF from the entire catchment upstream of the impoundment.

g) If any gaps have been identified, a plan and schedule for addressing these issues

No gaps have been identified with respect to water balance adequacy.

SECTION 3.0 - FILTER ADEQUACY

a) Including the beach width and filter specifications necessary to prevent potential piping

The tailings dams consist of zoned earthfill embankments, with upstream, low permeability till cores to limit seepage and downstream rockfill shells. The design section includes filter and transition zones between the core and shell to protect against seepage-induced loss of fines from the till core or foundation, and to provide drainage to any seepage. Review of the dam designs presented by Klohn Leonoff (1979) indicates that the filters were designed in accordance with modern filter criteria as outlined in Section 6.3.3 of the CDA (2007) document "*Technical Bulletin: Geotechnical Considerations for Dam Safety*", an appendix to the CDA (2007) dam safety guidelines.

b) Whether or not the filter has been constructed in accordance with the design

These elements were constructed in the late 1970's and early 1980's and there is little construction information available. The available as-constructed records of the Dam No. 1 starter dam filter materials indicate that the filter was constructed in accordance with the design (Klohn Leonoff 1980). There are no construction records available for the filters above the starter dams.

It is important to note that the Diversion Dam dos not include a filter on the original portion of the diversion dam below elevation 1274 m. This is due to the fact that the Diversion Dam was originally intended as a temporary structure to reduce the volume of runoff water in the first seven years of operations (Klohn Leonoff 1979). The plan was to overtop the original Diversion Dam with the rising tailings. With the identification of ARD generation on the site the design of the tailings facility was revised to maintain the Diversion Dam as a permanent structure (Klohn

Leonoff 1985). Prior to 1985, the area downstream (west) of the Diversion Dam was used for storage of runoff water. However, to maintain the diversion pond for storage of treated water, the Diversion Dam was raised rather than allowing it to be submerged.

In order to accomplish this, the dam crest was widened by end dumping rockfill into the diversion pond and the core was raised using the centerline method. A filter zone was reported to have been placed between the till and rockfill in the upper portion of the structure. Previous analyses included the Diversion Pond with a minimum operating level of elevation 1270 m such that the gradients through the starter dam would be quite low. However, the current operating procedures for the Diversion Pond include drawing it down to as low as elevation 1263 m which is roughly the bottom of the pond. These conditions could generate higher gradients on the lower till/rockfill contact that could lead to periodic migration of fines during times of low water levels.

Although not conclusive evidence, it is also important to note that there has been no indication of internal erosion through the foundation or abutments of any of the dams in the past 20+ years since the mine ceased operation.

c) If any gaps have been identified, a plan and schedule for addressing these issues

The lack of filter continuity in the Diversion Dam below elevation 1274 m represents a potential gap and should be assessed further. It is recommended that an updated seepage analysis be performed to evaluate the gradients at the till/rockfill interface of the original starter dam in the context of potential for internal erosion and operating water levels.

Although construction documentation is limited, no gaps have been identified with respect to filter compatibility in Dam No. 1 or Dam No. 2.

CLOSING REMARKS AND LIMITATIONS

This letter was prepared by Andrew Witte, P.Eng. and reviewed by Steve Rice, P.Eng. We trust that this meets your current needs regarding the February 3, 2015 ministerial orders.

The conclusions presented herein are based on a technical evaluation of the findings of the work noted based on available historical data reviewed. If additional information becomes available or if conditions other than those reported are noted during subsequent phases of the project, Amec Foster Wheeler should be notified and be given the opportunity to review and revise the current conclusions, if necessary.

This letter has been prepared for the exclusive use of Goldcorp Canada Ltd. – Equity Silver Mine for specific application to the area within this letter. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. Amec Foster Wheeler accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this letter. It has been prepared in accordance with generally accepted soil and tailings dam engineering practices. No other warranty, expressed or implied, is made.

Please contact the undersigned at (604) 295-3264 should you have any questions or wish to discuss any aspects of this letter.

Respectfully submitted,

Amec Foster Wheeler Environment & Infrastructure,
a Division of Amec Foster Wheeler Americas Limited

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Steve Rice, P.Eng.
Principal Engineer

AW/SR/jvp

Attachments:

- List of References
- 2014 DSI Figures 1 - 3

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EQUITY SILVER MINE
2014 DAM SAFETY INSPECTION
DRAWING INDEX

FIGURE NUMBER	DESCRIPTION	REVISION NUMBER	DATE ISSUED
1	KEY MAP AND PROJECT LOCATION PLAN	A	03 OCT 2014
2	SITE PLAN	A	03 OCT 2014
3	TAILINGS IMPOUNDMENT REPRESENTATIVE DAM SECTIONS	A	03 OCT 2014
4	MAIN ARD POND SLOPE PLAN	A	03 OCT 2014

BRITISH COLUMBIA
KEY MAP

NOTE:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No. VM00276A.4.400 DATED OCTOBER 2014.

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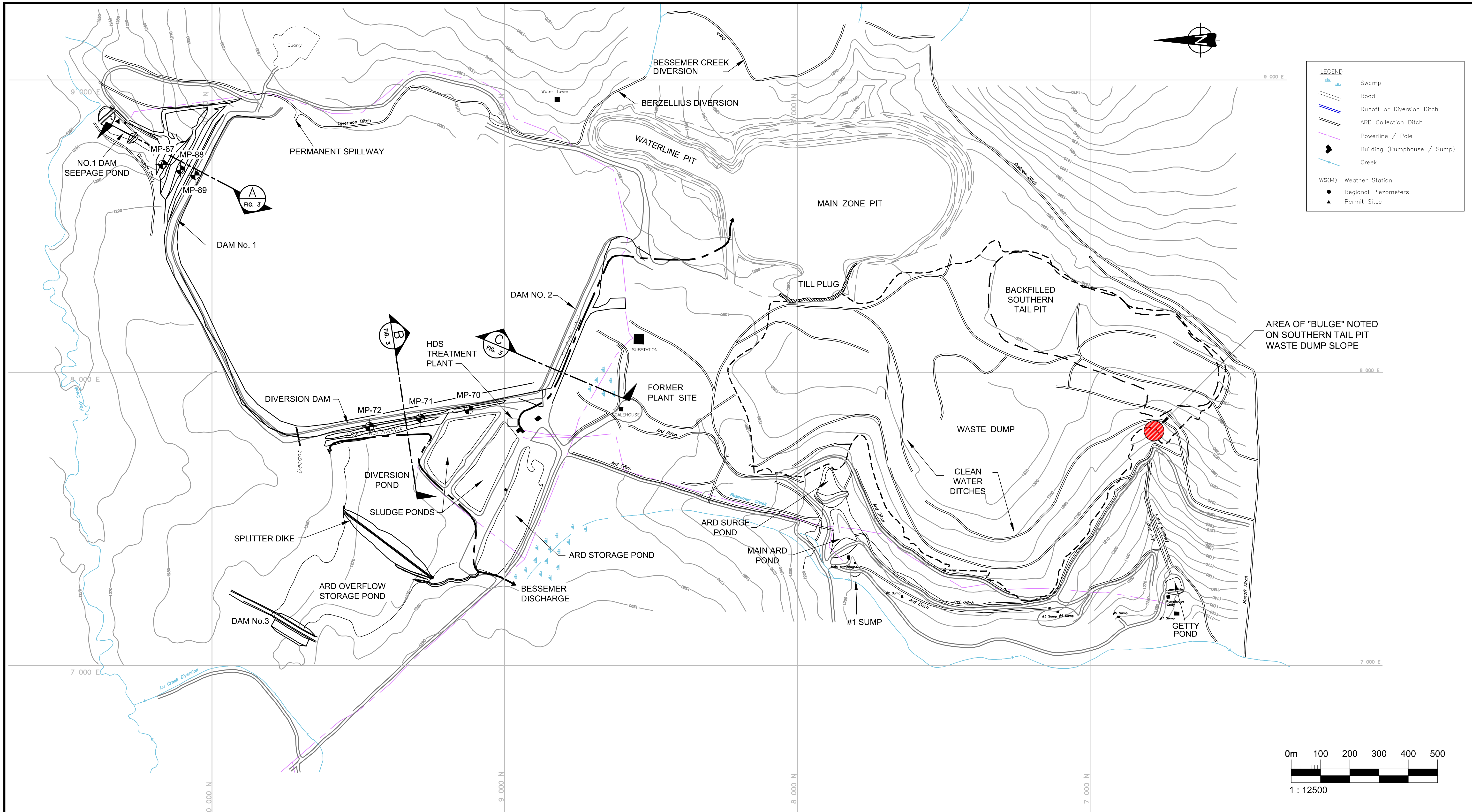
DATUM:	--
PROJECTION:	--
SCALE:	AS SHOWN

PROJECT: EQUITY SILVER MINE
2014 DAM SAFETY INSPECTION

TITLE: KEY MAP AND PROJECT LOCATION PLAN

DATE:	OCTOBER 2014
PROJECT NO:	VM00276A.4.400
REV. NO:	A
FIGURE NO:	1

*PLOT 1:1=A1 S:\PROJECTS\VM00276.03 – Equity Silver Mine\DRAWINGS\2010 Annual Review and Update\Phase 800 – Task 3 – 2010 Annual Review Figures\VM27603–2011–002.dwg – Fri. Feb. 25 8:21am 2011 (002) Tim.Hawker



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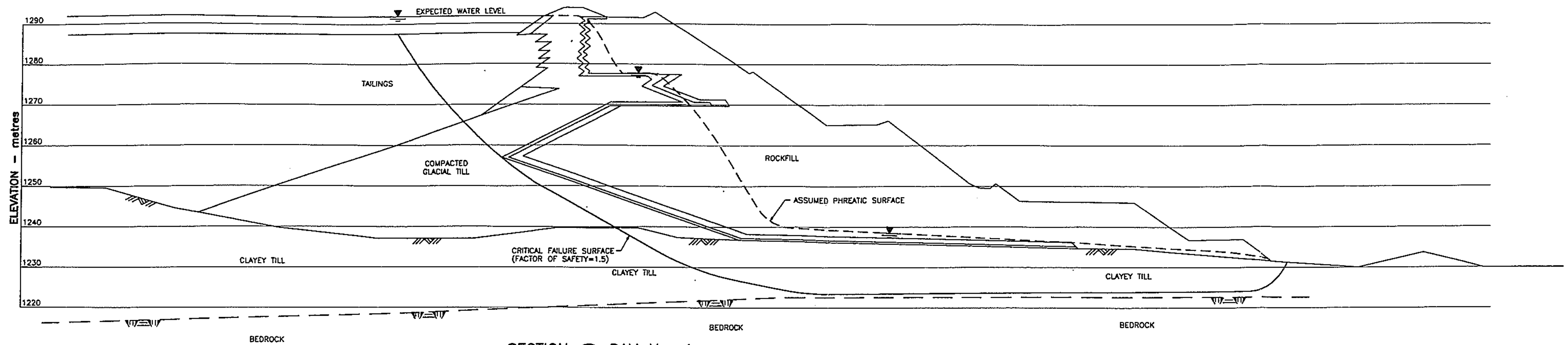
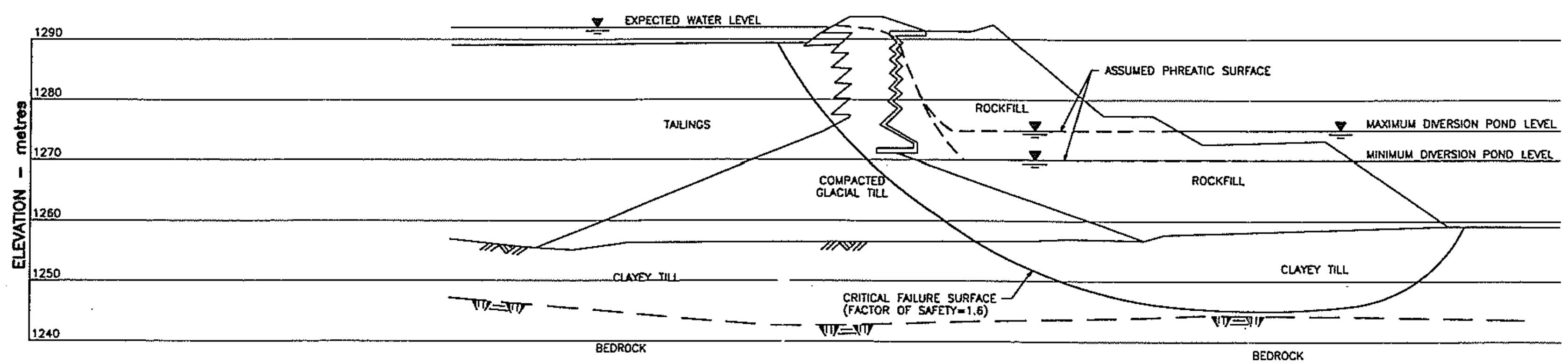
AMEC Environment & Infrastructure Suite 600, 4445 Lougheed Highway Burnaby, BC, V5C 0E4 Tel. 604-294-3811 Fax 604-294-4664	amec	DATUM: MINE	TITLE: SITE PLAN	REV. NO: A
		PROJECTION: MINE		FIGURE NO: 2
		SCALE: AS SHOWN		

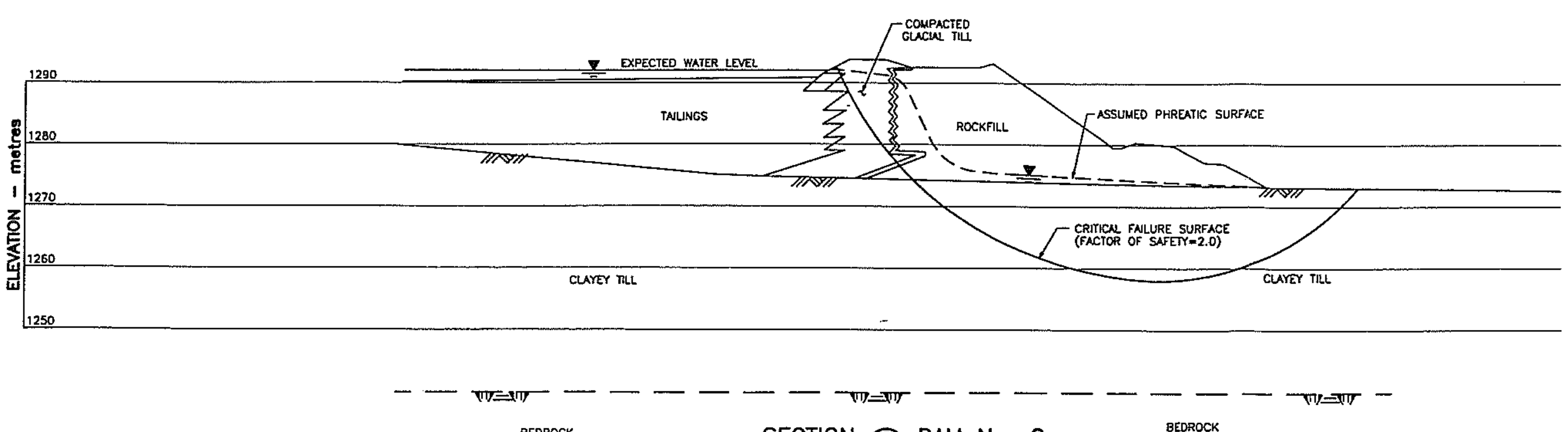
*PLOT 1:1=A1 S:\PROJECTS\VM00276.03 – Equity Silver Mine\DRAWINGS\2010 Annual Review and Update\Phase 800 – Task 3 – 2010 Annual Review Figures\VM27603-2011-002.dwg – Fri. Feb. 25 8:21am 2011 (002) Tim.Hawker



SECTION A/001 DAM No. 1



SECTION B/001 DIVERSION DAM



SECTION C/001 DAM No. 2

PARAMETER FOR STABILITY ANALYSIS

MATERIAL	UNIT WEIGHT (kN/m^3)	EFFECTIVE COHESION C' (kPa)	EFFECTIVE FRICTION ANGLE ø' (degrees)
TAILINGS	17.0	0	20
COMPACTED GLACIAL TILL	20.4	20	27
CLAYEY TILL	20.4	20	27
ROCKFILL	19.6	0	37.5

STABILITY ANALYSIS RESULTS FOR CRITICAL FAILURE SURFACES

MATERIAL	FACTOR OF SAFETY (BISHOP'S SIMPLIFIED)	
	STATIC	PSEUDOSTATIC (a=0.147g)
DAM No.1	1.5	1.07
DIVERSION DAM	1.6	1.14
DAM No.2	2.0	1.42

NOTES

1. AS-BUILT DAM SECTIONS PROVIDED BY EQUITY SILVER MINE.
2. STABILITY ANALYSES ASSUME STEADY STATE SEEPAGE.
3. STABILITY ANALYSES CARRIED OUT USING LIMIT EQUILIBRIUM COMPUTER PROGRAM SLOPE/W, USING BISHOP'S METHOD OF SOLUTION.
4. REVISION 1 FOR 1995 AUNUAL REVIEW.

NOTE:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC ENVIRONMENT & INFRASTRUCTURE REPORT No. VM00276A.4.400 DATED OCTOBER 2014.

DAM SECTIONS REFERENCE: *KLOHN-CRIPPEN, PROJECT PB2147 23, TAILINGS DISPOSAL: 'STABILITY ANALYSIS AS-BUILT DAM SECTIONS', DRAWING NO: D-23003 R1, DATED MARCH 25, 1996.*

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DATUM:	--
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SCALE:	AS SHOWN
PROJECT	EQUITY SILVER MINE 2014 DAM SAFETY INSPECTION
TITLE	TAILINGS IMPOUNDMENT REPRESENTATIVE DAM SECTIONS
DATE:	OCTOBER 2014
PROJECT NO:	VM00276A.4.400
REV. NO:	A
FIGURE NO:	3