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REPORT ON

2010 Annual Geotechnical Inspection Meadowbank Gold Project, Nunavut

Submitted to:
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REPORT

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1.0 INTRODUCTION

Agnico-Eagle Mines Limited (AEM) Meadowbank Division requested Golder Associates Ltd. (Golder) to conduct an annual geotechnical inspection, pursuant to the requirement of Water License Permit No. 2AM-MEA0815, Part I, Item 12 (page 23 and 24) for the Meadowbank Gold Project, Nunavut.

Under Part I, Item 12 of the Type-A Water License for the project, AEM is required to undertake an annual geotechnical inspection between the months of July and September of the following facilities:

- Dewatering Dikes;
- Stormwater Dike;
- Saddle Dams;
- Pit walls;
- Tailings Storage Facility;
- Shoreline protection at the location of the Wally Lake and Portage Lake Outfall Diffusers;
- Geotechnical instrumentation;
- All-Weather Private Access Road (AWPR) and site roads, in particular water course crossing;
- Quarries;
- Landfill;
- Landfarm;
- Bulk fuel storage facilities at the Meadowbank site and in Baker Lake (marshalling area);
- Attenuation Ponds;
- Reclaim Pond; and
- Sumps.

The mine is now in operation, however construction of some facilities is still ongoing and as a result an inspection of all items listed above was not completed.

The inspection was conducted by Fiona Esford, P.Eng., of Golder, between September 13 and September 20, 2010. The inspection was carried out prior to snowfall and at the time of year when the seasonal depth of thaw (active layer) would be expected to be at or near its maximum. Daily minimum temperatures were approximately between 0°C and 5°C and daily maximum temperatures were between 8°C and 15°C. Wind speed was variable with no significant precipitation occurring during this period. At this time of year there is generally low to moderate surface water flow. Peak water flows typically occur during the spring thaw (mid-June through mid-July). Precipitation over the summer of 2010 was below normal, and at the time of the inspection water levels were lower than normal and flows observed at water crossings were extremely low.

An inspection of the following was conducted:

- Dewatering Dikes: East Dike, West Channel Dike, South Channel Dike and Bay-Goose Dike (construction ongoing and not operational);
- Tailings Storage Facility including the Stormwater Dike, Saddle Dam 1 and Saddle Dam 2 (construction ongoing), and the Reclaim Pond;
- Geotechnical instrumentation (East Dike, South Camp Dike, Saddle Dam 1);
- AWPR and site roads, with particular attention paid to water crossings (bridges and culverts);
- Quarries;
- Landfill;
- Bulk fuel storage facilities at Meadowbank and in Baker Lake; and
- Stormwater Management Pond 1 (Teardrop Lake).

Figure 1 shows the mine site area. Construction of Saddle Dam 2 and the southern portion of the Bay-Goose Dike were underway at the time of the inspection. Stage 2 construction (raise) of Saddle Dam 1 and Stormwater Dike were also underway. The Tailings Storage Facility was commissioned in conjunction with start-up of the mill in late February 2010. Construction of subsequent portions of the Tailings Storage Facility will occur on an ongoing basis as additional capacity to store tailings is required. Construction of the Bay-Goose Dike is scheduled to be completed in 2011 with dewatering also scheduled to occur in 2011 following completion of the construction activities. Record of inspection forms were completed during the inspection for those structures that construction is completed and in operation.

Inspection of the Portage Pit was also conducted during this same general period and is reported under separate cover, "Annual Review of Portage Pit Slope Performance (2010)", Golder Doc. No. 1219, dated November 16, 2010. Note there is no current activity in the Vault Pit or Goose Island Pit areas.

Diffusers were not in place at the Wally Lake and Portage Lake outfalls at the time of the inspection. No sumps existed within the Portage Pit or elsewhere on site. The landfarm had also not been constructed. Therefore, inspections of these items were not conducted.

This report describes the geotechnical aspects of the areas inspected and presents general observations and recommendations.

It is noted that an external review board, the Meadowbank Dike Review Board (MDRB), has also been established which periodically meets to review dike designs, construction activities, as built information and other geotechnical aspects for the project.

1.1 Scope Limitations

The scope of the inspection was limited to geotechnical aspects for each of the facilities listed above. The inspection did not include structural, mechanical, environmental, or other assessments.

For additional information related to the limitations, reference should be made to the Study Limitations provided at the beginning of this report.

2.0 DEWATERING DIKES

The dewatering dikes at Meadowbank include: the East Dike, West Channel Dike, South Camp Dike and Bay-Goose Dike. Their locations are shown on Figure 1. Construction of the East Dike and West Channel Dike are both complete and these dikes are in operation, as dewatering of the northwest arm of Second Portage Lake has occurred. Construction of the South Camp Dike is complete while construction of the Bay-Goose Dike is still underway. These dikes are not considered to be "in operation" as dewatering of the portion of Third Portage Lake which they isolate has not commenced.

A preliminary draft East Dike Operation, Maintenance and Surveillance (OMS) Manual (Golder Doc. No. 571), including a preliminary draft Emergency Preparedness Plan (EPP), was available for review at the time of the inspection. Currently, there is no OMS Manual or EPP for the West Channel, South Camp and Bay-Goose dikes. It is understood that AEM is planning on updating and revising the draft East Dike OMS Manual and EPP to cover all dewatering dikes. It is recommended that this documentation be prepared ideally prior to the initiation of dewatering within the Bay-Goose Basin.

An overall Emergency Response Plan (ERP) for the mine (AEM, 2009a) has been prepared, and includes a risk assessment of potential failure mechanisms, consequences, and control measures for the East Dike and Bay-Goose Dike. The ERP does not address directly the procedures to be followed in the event of failure of a dewatering dike, but rather refers to the EPP for these structures. No mention is made of the West Channel and South Camps dikes. It is recommended that the ERP and risk assessment be reviewed and updated to include all dewatering dikes facilities, and to incorporate information gained during operation of the East Dike and construction of the Bay-Goose Dike.

It is understood that AEM is in the process of reviewing, developing and implementing resources and plans to monitor and manage all the dewatering structures as mining proceeds.

Further discussion regarding the instrumentation data obtained at the dewatering dikes to the date of the inspection is presented in Section 4.0.

2.1 East Dike

East Dike is located on the east side of the Portage Pit, and in conjunction with West Channel Dike, isolates the northwest arm of Second Portage Lake. Figure 2 shows the location of the East Dike. Dewatering of the northwest arm of Second Portage Lake has occurred to allow the development of the Portage Pit and the construction of the Tailings Storage Facility (TSF). The East Dike also serves as a haul road to connect the North Portage Pit to the ore stockpiles and to the crushing facility within the plant site.

East Dike was constructed in the summer of 2008 and grouting of the foundation and bedrock occurred in 2008 and during the first quarter of 2009. East Dike is approximately 800 m in length, and was constructed within Second Portage Lake prior to dewatering. It consists of a wide rockfill shell, with downstream filters and a soil-bentonite cutoff wall that extends to bedrock. The cutoff wall extends up to 8 m below lake level. At the time of the inspection, a final as-built report for the East Dike (Golder Doc. No. 900) was available for review.

Instrumentation has been installed within the East Dike and, with the exception of the settlement monuments, is being monitored. At the time of the inspection it was observed that the inclinometer at Sta. 60+195 and several of the settlement monuments have been destroyed. It is recommended that these be replaced and that settlement monuments are surveyed on a regular basis. A protective berm which separates haulage vehicles from the cutoff wall and the geotechnical instrumentation exists approximately between Sta. 60+440 and 60+500. Consideration should be given to re-establishing a berm to protect the instrumentation and cutoff wall over the entire length of the dike.

As discussed in the 2009 annual inspection report, an apparent leak of up to 0.5 m^3/s over several days occurred through the East Dike near Sta. 60+490 during dewatering of the northwest arm of Second Portage Lake. The leak then appeared to self heal following drilling works for the additional grouting carried out in this sector. A sinkhole cavity of about 18 m^3 in the general vicinity of the leak (Sta. 60+472) also appeared in July 2009. The sinkhole was located immediately upstream of the cutoff wall and extended at least partially through the cutoff wall. A Technical Memorandum entitled “Meadowbank East Dike Grouting Response Plan – Completed Works” (Golder Doc. No. 916) provides additional information regarding these occurrences, as does Golder Doc. No. 961 East Dike Sinkhole Summary Report.

Following the appearance of the sinkhole, a cone penetration test (CPT) investigation was conducted, and three diamond drill holes and a surface geophysical survey were advanced in the area in 2009 to obtain additional information. Details regarding these investigations are provided in East Dike CPT Investigation Report (Golder Doc. No. 953) and East Dike Sinkhole Investigation Program October-November 2009 (Golder Doc. No. 986). Based on the CPT results, there appears to be a zone of coarser grained material (area with lower fines content) in the apparent leak area. The drilling investigation indicated that there maybe soil between the base of cutoff wall and bedrock that was not either completely excavated and/or grouted. An additional investigation of the sinkhole and apparent leakage area was conducted in 2010 consisting of the temporary installation of thermistor strings and monitoring of the thermal condition. Based on the thermal results it appears that a pervious zone exists within the cutoff wall and shallow bedrock between approximately Sta. 60+440 and 60+504. It is understood that AEM is currently considering potential mitigation options to remediate this zone.

A temporary rectangular weir was installed in 2009 to monitor downstream seepage observed at approximately Sta. 60+480. Monitoring of the seepage from this location has occurred during the open water season (approximately mid-July through early October) over the past two summers. Flow measurements have been stable between 7 L/s and 11 L/s with no visual signs of turbidity noted. During 2010, a temporary v-notch weir was installed to measure a second zone of seepage exposed near Sta. 60+225 following dewatering. Although there are no instrumentation data to confirm, it is anticipated that this second seepage zone was present in 2009 but it was not noted as this portion of the dike was submerged at the time of the 2009 inspection. Flow measurements at this location have been stable around 4 L/s with no visual signs of turbidity noted. A third small zone of seepage also exists near Sta. 60+550. It is estimated that seepage in this area is around 1 L/s however no monitoring system is in place. Based on vegetation growth (moss) observed at the time of the inspection, other small seepages also exist along the downstream toe of the dike approximately between Sta. 60+700 and 60+750.

A more permanent seepage collection, monitoring and pumping system is also required to manage the seepage downstream of the East Dike. It is understood that AEM plans to install such a system in the coming year, including replacing the two temporary weirs with more permanent structures.

At the time of the site inspection, and based on the instrumentation data collected to that time, the condition of the East Dike generally appears stable, as:

- No visual signs of slope instability or erosion were observed on the upstream and downstream rockfill slopes;
- Seepage rates, while higher than anticipated in design, currently do not appear to have increased and no signs of turbidity have been noted;
- No additional signs of tension cracks were observed along the cutoff wall alignment;
- Freeboard, although slightly less (3.6 m) than the design (4 m), the risk of overtopping is currently seen to be very low; and
- Regular monitoring of blast vibrations, piezometric, thermal, seepage, and inclinometer data occurs.

However:

- The 2010 investigation has delineated an approximately 64 m pervious zone within the cutoff wall and shallow bedrock between approximately Sta. 60+440 and 60+504;
- The drilling investigation conducted in the fall of 2009 indicated that a zone of soil may exist in the sinkhole area between the cutoff wall base and bedrock which, based on hydraulic conductivity test results and other observations, may have only been partially grouted;
- Seepage from other areas of the dike also exist, but little is known about the source of these seepages and/or the condition of the cutoff wall in these areas; and
- Hydrogeologic conditions downstream of the dike will change (*i.e.,* gradient will increase through the dike foundation) over the next year and will continue to change as Portage Pit development progresses.

Appendix A1 contains a photographic log of the East Dike and the record of inspection form.

2.2 West Channel Dike

The West Channel Dike is located on the south side of the Portage Pit, and in conjunction with the East Dike, isolates the northwest arm of Second Portage Lake to allow dewatering and development of the northern portion of the Portage Pit and the Tailings Storage Facility. The location of the West Channel Dike is shown on Figure 2. Once dewatering of the portion of Third Portage Lake isolated by the Bay-Goose and South Camp dikes occurs, the West Channel Dike no longer has a function and will be removed as part of further mining of the Portage Pit.

The West Channel Dike was constructed in the fall of 2008. It covers a narrow channel, approximately 80 m in width, where water depths were about 0.5 m. It has a broad rockfill shell, with a wide till core, and a downstream graded filter between the till core and rockfill platform. Placement of the till core occurred under water and a surcharge load of rockfill was placed above the core.

At the time of the inspection, no evidence of erosion or instability of the upstream or downstream slopes was apparent. Development of the Portage Pit is currently in close proximity to the dike. No instrumentation exists within the West Channel Dike, nor has any surveying of the dike crest occurred. However, blast vibration monitoring is periodically conducted. As-built details regarding the dike are provided in West Channel Dike Construction As-Built Report (Golder Doc. No. 980).

Appendix A2 contains a photographic log of the West Channel Dike and the record of inspection form.

2.3 South Camp Dike

The South Camp Dike is located south of the plant site area and is used to connect the mainland to South Camp Island. The South Camp Dike, in conjunction with the Bay-Goose Dike, isolates a portion of Third Portage Lake which will be dewatered in order to develop the Goose Island Pit and the southern portion of the Portage Pit. Figure 3 shows the location of the South Camp Dike. It covers a narrow channel, approximately 60 m in width, where water depths were between 0.5 and 1 m.

The South Camp Dike was primarily constructed between April and June of 2009, prior to ice breakup. During the winter of 2009-2010 additional thermal capping material and rockfill for the haul road was added to the dike. The South Camp Dike has a broad rockfill shell with a bituminous geomembrane liner installed on the upstream side of the shell. Compacted granular material mixed with bentonite was placed above the toe of the liner. The liner was founded on native frozen (permafrost) till material, in a trench approximately 3 to 5 m below the lakebed surface. The haul road is located on the downstream side of the dike.

At the time of the inspection, the South Camp Dike was used as an access road to connect the southern part of the Bay-Goose Dike, and the contractor's offices and equipment area with the mine facilities. Dewatering downstream of the dike had not commenced and is not planned to occur until 2011. No evidence of erosion or instability of the upstream or downstream slopes was apparent at the time of the inspection. Two thermistor strings exist on the upstream side of the dike. Temperature data obtained from both thermistors to the date of the inspection show that the foundation below elevation 130 m remained frozen throughout the summer of 2009 and summer of 2010.

Evidence of rutting on portions of the South Camp Dike road were reported by Golder field personnel in 2010, which may be indicative of thaw settlement and thermal changes within the foundation of the structure or simply a result of heavy traffic loads operating on roads constructed of Ultramafic rock. No evidence of this settlement was observed at the time of the inspection. Based on the dike cross section (as-built), it appears that the upstream liner location is outside of the active haul road, so any rutting would not have impacted the liner. Thermistor string data indicates that the toe of the liner area remained frozen throughout the year, while the upper portion of the lakebed soils (approximately 2.5 m) upstream of the dike thawed during the summer as part of the active layer, with soils below elevation 130 m remaining frozen year round.

An as-built report for the South Camp Dike had not been prepared at the time of the inspection. It is recommended that this documentation be compiled prior to the initiation of dewatering within the Bay-Goose Basin.

Appendix A3 contains a photographic log of the South Camp Dike.

2.4 Bay-Goose Dike

The Bay-Goose Dike is located within Third Portage Lake on the south side of Portage Pit and encompasses the Goose Island Pit. The Bay-Goose Dike, in conjunction with South Camp Dike, isolates a portion of Third Portage Lake which will be dewatered to permit development of the Goose Island Pit and southern portion of the Portage Pit. Figure 3 shows the location of the Bay-Goose Dike.

Construction of the Bay-Goose Dike commenced in the summer of 2009. The earthworks component for the northern portion of the dike was principally completed by early October 2009. Grouting of the foundation and bedrock occurred between March and July 2010. The upstream portion of the rockfill platform (approximately 25 m in width) for the southern portion of the dike was constructed between February and June 2010 while ice cover existed on Third Portage Lake. This was done in part as a TSS control measure and construction was advanced at a slow rate. Ice was broken and removed in front of the advancing rockfill platform. Turbidity measurements were taken regularly. Once ice melted from the lake in July, the completed portion of the platform was used to help anchor and protect installed turbidity barriers from wind and current movement for the remaining portion of the earthworks construction activities. The remaining earthworks component for the southern portion of the dike was completed between July and early October 2010. Jet grouting is planned to occur in selected portions of the dike during the fourth quarter of 2010. Grouting of the foundation and bedrock is planned to occur during the fourth quarter of 2010 and first quarter of 2011.

Bay-Goose Dike is approximately 2,200 m in length and consists of a wide rockfill shell, with downstream filters and a cutoff wall. Non acid generating rock, primarily Ultramafic rock, obtained from pit development activities (waste rock) have been used for the construction of the dike, including the rockfill component, coarse filter and core backfill. For the majority of the dike, the cutoff wall extends to bedrock and consists of soil-bentonite and/or cement-soil bentonite. For portions of the dike where the cutoff wall was not constructed to bedrock, jet grouting of the soil between the base of the cutoff wall and the bedrock is planned, thereby extending the low permeability element of the dike to the bedrock surface. The dike design also includes grouting of the contact and shallow bedrock. Water depth beneath the dike is up to 9 m, with depths to bedrock below lake elevation estimated to be upwards of 20 m.

It is understood that a downstream seepage collection and monitoring system will be constructed following the completion of dewatering.

No instrumentation had been installed within the dike at the time of the inspection. Based on the design documents, instrumentation to be installed includes piezometers, thermistor strings, settlement monuments, and inclinometers. It is recommended that the installation of the geotechnical instruments be completed with sufficient lead time to achieve stable readings prior to the initiation of dewatering. Periodic blast vibration monitoring has occurred on the north portion of the dike, and it is understood this will continue along the dike.

Unlike the East Dike, the Bay-Goose Dike is not intended to function as a haul road, and therefore limited traffic should be present on the dike. However, consideration should be given to providing protecting for the instruments.

Dewatering of the Bay-Goose Basin is scheduled to begin following completion of the grouting program and instrumentation installation, which is currently estimated to be in April 2011. Based on the experience at East Dike, consideration should be given to the use of flow meters to track discharge volumes relative to draw down rates during dewatering. It is also recommended that access to the cutoff wall alignment and all instrumentation be maintained, particularly during the dewatering phase. Instrumentation data should be collected and thoroughly reviewed on a frequent basis while dewatering is occurring.

It is understood that an as-built report for the Bay-Goose Dike will be prepared following construction.

Appendix A4 contains a photographic log of the Bay-Goose Dike.

3.0 TAILINGS STORAGE FACILITY

The Tailings Storage Facility is being progressively constructed within the dewatered portion of the northwest arm of Second Portage Lake as additional capacity to store tailings is required. The general location of the facility is shown on Figure 1 and further details are shown on Figure 4. Appendix B1 contains photographs of the facility at the time of the inspection.

The Tailings Storage Facility was commissioned in conjunction with mill start-up in late February 2010, with tailings being deposited within the north cell of the facility. The north cell was initially formed through the Stage 1 construction of the Stormwater Dike and Saddle Dam 1 in 2009. At the time of the 2010 inspection, ongoing construction of the Tailings Storage Facility was observed to include the Stage 2 construction of the Stormwater Dike and Saddle Dam 1, and construction of Saddle Dam 2. Construction of water diversion features around portions of the perimeter of the tailings and waste rock storage facilities had also begun. The initial three years of tailings deposition is planned to occur within the north cell of the facility, after which time deposition will begin in the south cell, ultimately resulting in the Stormwater Dike becoming encapsulated within tailings.

At the time of the inspection, a bathymetric survey of the tailings pond had just been conducted by AEM (mid-September) in order to gather data on the tailings beach slopes and tailings pond volume. It is understood that this data will be used to track actual versus assumed storage capacity, and to verify the design assumptions for the facility including tailings density within the pond, and ice entrapment (assumed to be 20%). AEM has indicated that these surveys will be performed annually; however, it is recommended that in the short term, consideration also be given to bi-annually surveys (*i.e.,* mid-July and early October) until a good understanding of the tailings and the degree of ice entrapment is established.

Construction drawings for the Stormwater Dike, Saddle Dam 1 and Saddle Dam 2 provide details for seepage collection trenches and sumps along the downstream toe of the structures in order to collect, monitor, and pump seepage back to the Tailings Storage Facility. It is understood that AEM will construct either collection trenches and/or sumps and install and operate pumps within the sumps to pump collected water into the tailings facility, following completion of the dike construction activities at each facility.

No as-built reports for the 2009 Stormwater Dike Stage 1 and Saddle Dam Stage 1 construction existed at the time of the inspection. It is understood that as-built reports for the Stormwater Dike (Stages 1 and 2), Saddle Dam 1 (Stages 1 and 2), and Saddle Dam 2 will be completed following completion of construction activities for these facilities. Likewise no OMS Manual or EPP for the Tailings Storage Facility or the perimeter structures had been prepared at the time of the inspection; however, it is understood that AEM is planning to prepare these documents. An overall Emergency Response Plan (ERP) for the mine (AEM, 2009a) has been prepared which includes a risk assessment of potential failures for the Central Dike, Saddle Dams, and Stormwater Dike. The risk assessments should be reviewed and updated, as required, to reflect current designs and understandings about the structures and the Tailings Storage Facility. It is noted that the ERP itself does not address the emergency procedures to be followed in the event of failure of any one or a combination of the tailings perimeter structures, but rather refers to the EPP for these structures.

Appendix B1 contains a photographic log for the Tailings Storage Facility.

The following subsections provide further details regarding each of the Tailings Storage Facility dike structures and the Reclaim Pond.

3.1 Saddle Dam 1

Saddle Dam 1 is located at the northwest corner of the Tailings Storage Facility (Figure 4) and forms one of the perimeter structures which are intended to retain tailings and supernatant fluid during the operational and closure/post closure period of the mine. Saddle Dam 1, which crosses a valley or depression between the northwest arm of Second Portage Lake and Third Portage Lake, is a rockfill embankment with an upstream slope of 3 horizontal to 1 vertical (3H:1V) and a downstream slope of 1.5H:1V. The design includes inverted base filters, upstream graded filters, and a linear low density polyethylene geomembrane liner on the dike face. The geomembrane liner is placed between an upper and lower non-woven geotextile layer for protection, and then is covered by approximately 0.3 m or more of granular material. The abutments are founded on bedrock, while the central portion of the dike is founded on ice-poor soil. Till and/or crushed aggregate mixed with dry bentonite powder have been placed above the toe of the liner.

Saddle Dam 1 is being progressively constructed. Stage 1 was constructed in the fall of 2009 with a height of 10 m (crest elevation of 141 m) and length of 250 m. Stage 2 is being constructed in 2010 to an overall height of 20 m (crest elevation of 150 m) and length of about 400 m. Stage 2 construction was in progress at the time of the inspection. A narrow horizontal bench exists between the connection of the 2009 and 2010 portions of the structure.

It is understood that Ultramafic rock, obtained from pit development activities (waste rock), has been used for the construction of the dike; including rockfill and crushed aggregate. Construction activities observed at the time of the inspection included rockfill placement, fine and coarse filter placement and compaction on the upstream face. Compacted till placed and compacted along the abutments in preparation for liner placement was also observed, as was work done to expose the 2009 liner in preparation for connection with the 2010 liner.

In general the 2009 liner is covered by granular material; therefore, the condition and integrity of this liner could not be observed at the time of the inspection. It was observed that a small portion of the 2009 liner located near the tie-in had been damaged during the 2010 construction. It is anticipated that this area will be repaired when the 2010 liner is installed.

Tailings deposition from Saddle Dam 1 had not occurred at the time of the inspection; therefore, no beach was present at the upstream face of the dike and the tailings pond was in contact with the toe berm at the dike toe (approximate elevation 133.3 m). Ponding water was also observed at the downstream toe (approximate elevation 134.7 m). This means that the lower 4.7 m of the footprint was flooded during the summer of 2010. The existence of a small uplift pressure on the geomembrane liner would have been buttressed by the granular toe cover material, and therefore should not be a concern. Thermally however, flooding is not ideal as submergence would likely promote increased thawing of the dike toe foundation than would otherwise occur. Thermistor data from within the structure shows that the dike foundation froze completely during the winter of 2009-2010. As of September 9, 2010 the rockfill temperature had warmed and was near zero at the foundation level beneath the 2009 crest of the dike, while soil beneath the rockfill remained frozen. At the dike toe approximately 1 m of the compacted till base material below the liner was thawed. The compacted till material below elevation 132 m remained frozen.

A soil berm was constructed approximately 100 m upstream from Saddle Dam 1 in 2010. It is understood that the intent of the berm is to promote the deposition of tailings at the toe of Saddle Dam 1, and to provide a point for the discharge. An outlet in the berm is intended to allow water to flow away from the bermed area and into the general Tailings Storage Facility. It is further understood that the area between the berm and the upstream dike toe will be filled with tailings up to an elevation of about 137 m to reduce the potential seepage through the liner toe area, and to provide additional protection for the liner (i.e. against ice damage and bio-intrusions) and thermal protection for the dike toe. It is assumed that the tailings deposited in this area will freeze during the coming winter and will provide a buffer against warmer temperatures next summer. Once this area is filled with tailings, it is understood that the tailings discharge pipeline would be redirected to the upstream side of the berm to further increase the length of beach in front of Saddle Dam 1. At the time of the inspection, the tailings discharge pipeline was being extended to the berm in preparation for beginning this discharge. During the preparation of this report, AEM communicated that tailings deposition between the berm and toe of Saddle Dam 1 occurred between October 12 and 19, 2010 and this area is now filled with tailings. On October 19, 2010 the pipeline outlet was redirected to the upstream face of the berm to continue the tailings deposition.

Three thermistor strings were installed in Stage 1 of Saddle Dam 1. It is understood that additional thermistor strings will be installed in the Stage 2 portion of the dike to monitor the thermal condition within the structure and its foundation. Additional information regarding the existing instrumentation is included in Section 4.0. Currently no displacement measuring monuments have been installed, however it is assumed that these will be installed in general accordance with the design drawings following completion of Stage 2 construction.

Appendix B2 contains a photographic log of Saddle Dam 1 and the record of inspection form.

3.2 Saddle Dam 2

Saddle Dam 2 is located along the western side of the Tailings Storage Facility and connects to the western corner of the Stormwater Dike (Figure 4). Along with Saddle Dam 1, Saddle Dam 2 forms one of the perimeter structures along the north cell of the Tailings Storage Facility which is intended to retain tailings and supernatant fluid during the operational and closure/post closure period of the mine. Saddle Dam 2 crosses a depression between the northwest arm of Second Portage Lake and Third Portage Lake. Its design is similar to Saddle Dam 1. The upstream foundation of the dike and abutments are primarily founded on bedrock; however, some portions of the structure are founded on ice-poor soil. A thin layer of low permeability till was placed and compacted along the liner connection with bedrock for placing the upstream liner tie-in. In select areas where open factures within the bedrock were noted, a thin layer of crushed aggregate mixed with dry bentonite powder was placed prior to the thin layer of low permeability till. A blanket of till was also placed above the installed liner tie-in at the toe of the structure.

Construction of Saddle Dam 2 to a design crest elevation of 150 m was in progress at the time of the inspection and is planned to be completed in 2010. Saddle Dam 2 has a maximum height of about 10 m and a crest length of 460 m.

It is understood that Ultramafic rock, obtained from pit development activities (waste rock), has been used for the construction of the dike, including rockfill and crushed aggregate. Construction activities observed at the time of the inspection included bedrock foundation preparation, placement and compaction of low permeability till at the upstream toe, rockfill placement, fine and coarse filter placement and compaction on the upstream face. Liner installation had not commenced.

Construction drawings for Saddle Dam 2 indicate that thermistor strings are intended to be installed at the upstream toe, through the centreline, and along the upstream face of Saddle Dam 2, similar to instrument locations installed at Saddle Dam 1. Coordinates for locations where displacement monitors are to be installed are provided on the drawings. It is anticipated that the installation and regular monitoring of the thermistors and displacement monitoring locations will occur immediately following construction.

It was noted that no liner protection had been placed at the time of the inspection. It is recommended that the liner be inspected and any necessary repairs made prior to placement of the protective tailings cover layer if the geomembrane liner is left exposed for an extended period of time.

Appendix B3 contains a photographic log of Saddle Dam 2.

3.3 Stormwater Dike

The Stormwater Dike is an internal structure that subdivides the Tailings Storage Facility into two areas (the north cell and south cell) within the dewatered northwest arm of Second Portage Lake (Figure 4). The Stormwater Dike is a temporary structure that is intended to retain tailings and supernatant fluid during the first three years of operation. Within this period, Stage 1 construction of the Central Dike is planned, so that upon completion of tailings deposition within the north cell, deposition within the south cell will commence.

The Stormwater Dike is a rockfill embankment founded on lakebed soils. The upstream slope is approximately 3H:1V and the downstream slope is about 1.5H:1V. A bituminous geomembrane liner has been installed on graded filters placed on the upstream face of the dike. Low permeability till has been placed and compacted along the upstream toe above the liner. The abutments are generally founded on bedrock, however some areas have been built on frozen soil with varying quantities of ice.

The Stormwater Dike is being progressively constructed using waste rock generated from the mining operations as rockfill and crushed aggregate for the fine and coarse filters. Stage 1 was constructed in 2009 to a height of 10 m (crest elevation of 140 m) and length of 860 m. Stage 2 is being constructed in 2010 to an overall height of 18 m (crest elevation of 148 m) and length of about 1060 m. A horizontal bench exists along the upstream face of the structure between the connection of the 2009 and 2010 portions of the structure. While the Stormwater Dike design and current tailings deposition plan is based on a crest elevation of 150 m, it is understood that AEM has elected to construct this structure to an elevation of 148 m at this time.

At the time of the inspection, the following construction activities for the Stage 2 dike had been completed:

- Rockfill placement;
- Upstream filter placement;
- Liner deployment and welding, although some work associated with the installation remained;
- East abutment foundation preparation, till placement for liner tie-in;
- Cover material placement above the liner along the east abutment; and
- Material placement at the dike crest to form a bench for the tailings discharge pipe.

Some foundation preparation work was ongoing at the west abutment to connect the Stormwater Dike to Saddle Dam 2. Following completion of this work it is understood that the following construction activities were to be advanced in this area: placement of till for the liner tie-in at the upstream toe, upstream filter placement and compaction, liner installation, liner quality control testing, and placement of cover material above the liner tie-in.

Defects were observed in the 2009 installed portion of the liner during the inspection. These defects included punctures, improperly welded seams, separated seams, wrinkles of substantial height that the liner could fold over, areas of tension where the liner was not in contact with the slope, and areas where underlying material appears to have collected and formed a ridge beneath the liner. It is understood that an inventory of the defects was being prepared so that repairs could be made by the liner installer.

At the time of the inspection, tailings were being discharged through the end of the pipe near the southwest corner of the facility. The tailings pond elevation was approximately 133.3 m. No seepage was observed along the downstream toe of Stormwater Dike; however softer areas were observed along with areas where moss grew more than in other areas. It is noted that no instrumentation currently exists within the Stormwater Dike to monitor its performance.

Tension cracks have been observed near the downstream crest edge of the dike approximately between Sta. 10+849 and 10+940. Currently there is no concern for the overall stability of the dike, or the integrity of the upstream liner; however, should these tension cracks continue to propagate toward the center of the dike, they could reach the access road and traffic on the dike would have to be suspended. The tension cracks may be associated with an over steepened slope, method of placement and compaction of the rockfill, melting of entrapped ice and snow, and/or loading by haul traffic using the dike to transport material for construction of Saddle Dam 2. Consideration should be given to placement of a downstream toe berm to flatten the overall slope and reduce the risks of instability. AEM should continue to monitor the tension cracks for any change or rate of change and implement corrective measures or controls as necessary.

Appendix B3 contains a photographic log of Stormwater Dike and the record of inspection form.

3.4 Reclaim Pond

The Reclaim Pond within the north cell of the Tailings Storage Facility has been established and operated since the start-up of the mill. The concept for the operation of the reclaim pond is to maintain the pond generally within the middle of the facility and away from the perimeter structures. Reclaim water is pumped from a floating barge structure at the end of the causeway that extends out into the north cell. The causeway is constructed of rockfill and is raised on a continuous basis to provide access to the barge and for the reclaim pipeline.

There are no geotechnical concerns associated with the causeway or the reclaim facility.

Appendix B4 contains a photographic log of the Reclaim Pond within the Tailings Storage Facility.

4.0 GEOTECHNICAL INSTRUMENTATION

4.1 East Dike

Instrumentation within the East Dike was installed in the spring of 2009 to monitor the dike's performance following construction and during dewatering, operation, and into closure. Additional instrumentation was added in 2009 and 2010 to provide better coverage across the dike. Data has been regularly collected and reviewed by AEM since the installation, and has been periodically reviewed by Golder the Design Engineer. The following subsections present a summary of the data for the period between September 2009 and September 2010, with a few general references to previous monitoring data results. The 2009 Annual Geotechnical Inspection Report (Golder, 2009d) contains more information regarding instrumentation data collected prior to September 2009. Data plots for the instrumentation are contained in Appendix C1 along with a plan and cross sections showing the location of the instruments.

4.1.1 Piezometers

Three arrays of multilevel vibrating wire piezometers (VWP) were installed within the East Dike in mid-March 2009 as follows:

- South Channel (Sta. 60+190),
- North Channel (Sta. 60+490), and
- North Shallows (Sta. 60+700).

At each location, multilevel VWP were installed on the:

- Upstream side of the cutoff wall, approximately 2 m from the centerline;
- Immediately downstream of the cutoff wall, approximately 2 m from the centerline; and
- Further downstream of the cutoff wall, approximately 10 m from the centerline.

In addition, a single VWP was installed immediately downstream of the cutoff wall near the contact area (base of cutoff wall and top of bedrock surface) at Sta. 60+150, Sta. 60+200, Sta. 60+240, Sta. 60+400, Sta. 60+450, Sta. 60+460, Sta. 60+470, Sta. 60+472, Sta. 60+480, Sta. 60+500, Sta. 60+510, Sta. 60+550, Sta. 60+600, Sta. 60+650, and Sta. 60+750.

Dewatering of northwest arm of Second Portage Lake (downstream side of the East Dike) began in March 2009 and was halted on July 10, 2009 before turbidity levels within the discharge water exceeded permissible limits. While dewatering was halted, the downstream pond level increased by about 1.5 m prior to the resumption of dewatering. Dewatering resumed in October 2009 when the Actiflow TSS water treatment plant was commissioned and has continued since that time. Downstream water levels have been below the toe of the East Dike since mid-November 2009.

During dewatering, the phreatic level recorded at each piezometer location decreased until May 2009. Between May 17 and 19, 2009, a drop in the phreatic level was observed in particular in the upstream "P3" piezometers (but also to a lesser degree in the P1 and P2 piezometers), which corresponded with the release of an ice blockage at the outlet from Second Portage Lake. Between May 19 and 21, 2009, piezometer data at Sta. 60+490 recorded a significant increase in water level, which coincides with the timing of an apparent leak in the dike, as was discussed in more detail in the 2009 Annual Inspection Report (Golder Doc. No. 969). Smaller changes were also observed at Sta. 60+400 and Sta. 60+450. After the initiation of contingency grouting works in the area of the apparent leakage, piezometer data at Sta. 60+490 and other locations normalized and then continued to decrease. Observed piezometric levels showed an increase while dewatering was halted, and then began to decrease upon resumption of dewatering, and have generally continued to decrease and then stabilize.

As noted in Golder 2009d, the downstream piezometer at Sta. 60+700 P1-C, about 10 m downstream of the cutoff wall and near the bedrock interface, has shown several increases and decreases in piezometric head (July 11 to July 26, 2009; March 2010 to April 2010). Temperature data collected from the same instrument indicate that this region of the dike is frozen. Two additional downstream piezometers near the bedrock interface have also exhibited non-typical behaviour (Sta. 60+650 and Sta.60+750) with periodic piezometric head readings that exceeded the upstream water level. None of these non-typical behaviours are believed to be indicative of seepage at these locations.

The recorded piezometric level at Sta. 60+472 increased by approximately 3 m between August 7 and August 24, 2010, and then levelled off and possibly began to decline. No increase in seepage rates have been detected at the seepage monitoring weirs located downstream of the dike, however this increase in piezometric level should continue to be monitored closely.

For the three piezometric arrays located at Sta. 60+190, Sta. 60+490, and Sta. 60+700 the following observations are made:

- Immediately upstream of the cutoff wall there is a downward hydraulic gradient;
- At Sta. 60+190 the observed levels are consistent with expectations for a functioning cutoff wall. There is a consistent drop in the hydraulic head across the cutoff wall and within the grouted bedrock in the downstream direction. Further downstream the hydraulic head continues to decrease, with a small upward gradient;
- At Sta. 60+490 a small decrease in the hydraulic head is apparent within the lower bedrock, but remains high at the contact. Flow through this portion of the dike is apparent within the bedrock and near the contact as is particularly evident in the thermal instrumentation data. This is discussed in more detail below; and
- At Sta. 60+700 a small drop in the hydraulic head is seen across the cutoff wall and the head continues to drop in the downstream direction.

4.1.2 Thermistors

Approximately 1.5 years of thermal data has been collected from the instrumentation installed within the East Dike.

Sta. 60+092 and Sta. 60+842

The two thermistors installed at Sta. 60+092 and Sta. 60+842 are located on the south and north abutments, respectively. Only the upper 0.8 to 1.8 m of the dike on the abutment thawed during the summers of 2009 and 2010. The remaining portion of the cutoff wall and bedrock remained frozen. The temperature within the cutoff wall at these locations varied near the top of the wall from -13°C to 0.2°C, and at the base from about -8°C to -2°C. Less temperature variation was observed as the depth increases at each location. At approximately 10 m into the bedrock, the temperature variation was about 1.5°C and stable at about -5°C (Sta. 60+092) and -3°C (Sta. 60+842). The thermistor string located at Sta. 60+092 appears to have one node (number 9; elevation 131 m) that has not been functioning correctly since approximately May 2010. The thermal results after this date for this elevation have not been shown on the East Dike instrumentation plots provided in Appendix C1. No signs of seepage are apparent at these locations; nevertheless, ongoing monitoring is required.

Sta. 60+185

The thermistor string installed in the South Channel at Sta. 60+185 (bedrock about 6 m below water, elevation 127 m) recorded the following temperature variations:

- The upper 1 m (El. 135.5 m) of the cap material thawed during the summer of 2010 and was frozen during the winter period;
- The cutoff wall has remained frozen from about El. 135.5 to 132.7 m since the instrument was installed;
- The cutoff wall from El. 132.7 m to 131 m has been subject to freeze and thaw. This elevation roughly corresponds to the water level in Second Portage Lake upstream of the dike (133.1 m). The temperature varied by approximately 1.5°C;
- The remaining portion of the wall (below elevation 131 m to the base of the wall at 127 m) has remained thawed since the instrument was installed, with a temperature variation of about 3°C; and
- Recorded temperatures within the bedrock indicate that it is also thawed. The seasonal variation in the temperature decreased with increasing depth. Near the bedrock surface, the temperature varied by approximately 3°C, and at 6 m into rock, seasonally varied by about 1.5°C, with a stable temperature of about 1.7°C.

Based on the thermistor data at this location, no signs of seepage are evident; nevertheless, ongoing monitoring is required.

Sta. 60+695

The thermistor string installed in the North Shallows at Sta. 60+695 (bedrock about, elevation 128.5 m, 4 m below upstream lake level) recorded the following temperature variations:

- The cap and upper portion of the cutoff wall from about El. 136.5 to 135 m thawed during the summer of 2009 and 2010 and was frozen during the winter;
- The cutoff wall from about El. 135 to 131.4 m remained frozen throughout the monitoring period;
- A portion of the cutoff wall from El. 131.4 to 130.25 m cycled from frozen to thawed. The temperature varied by about 1.5°C;
- The remaining portion of the cutoff wall from El. 130.25 to 128.5 m remained thawed throughout the monitoring period. Temperature varied by about 2.2°C; and
- The bedrock also remained thawed. Annual temperature variation decreased with depth, with a stable temperature of about 1°C. The thermal variation observed in the bedrock is non-typical and likely is a result of variable hydraulic conductivities within the rock, and zones of higher flow in the upper bedrock between El. 128.5 and 126.5 m near the contact with the cutoff wall, and within the deeper bedrock between El.124.5 and 122.5 m.

Sta. 60+485

The thermistor string at Sta. 60+485, within the North Channel (bedrock about El. 125 m, 8 m below lake level), indicated thawing and warming of the cutoff wall between May 15 and May 30, 2009 (El. 131 to 125 m), which may have been influenced by the high seepage event of May 2009. The thermistor string installed at this location recorded the following temperature variations:

- The cap and upper portion of the cutoff wall in this sector was initially frozen and then thawed (El. 136.5 to 131.2 m). Thawing between El. 132.7 and 131.2 m occurred rapidly between mid-April and mid-May 2009 with the remainder thawing by September 2009;
- The entire cutoff wall in this area was thawed between approximately mid-August 2009 and mid-December 2009, and mid-August 2010 and mid-September 2010 (the latest reading);
- The cutoff wall between El. 131 and 135 m has undergone one freeze thaw cycle, and between El. 132.3 and 135 m, has undergone two freeze thaw cycles;
- The remaining portion of the cutoff wall (El. 131 m to 125 m) was thawed throughout the monitoring period; and
- The bedrock was also thawed in this area.

The thermal variation observed between the water upstream level (El. 133 m), through the entire depth of the cutoff wall and shallow bedrock down to an elevation of 122 m is similar and significant at this location, with fluctuations between high temperatures of 12°C to lows around 1°C. There is good correlation between these temperatures upstream lake temperatures, and the delay between changes in the recorded temperatures within the lake and within the thermistor is minimal (less than 4 days). The temperature response recorded in the piezometers at Sta. 60+490 P2-C is also significant, as is the responses recorded within the piezometers at Sta. 60+450-C, Sta. 60+460-C, Sta. 60+480-C, Sta. 60+490 P2-B and P1-C, and Sta. 60+500-C. This data indicates that large advective flows (*i.e.,* recorded temperature changes are primarily a result of temperature changes in water flowing through this area) are occurring through this portion of the dike.

Recorded temperatures from additional temporary thermistor strings installed within existing grout hole casings between Sta. 60+440 and Sta. 60+515 also indicate signs of seepage between approximately Sta. 60+440 and 60+504.

Based on the instrumentation data, it is recommended that AEM continue to closely monitor the dike and that mitigation measures be designed in early 2011, with consultation between AEM and the Design Engineer, to improve cutoff conditions in the area of Sta. 60+470 and implemented when appropriate in 2011.

4.1.3 Inclinometers

Three inclinometers were installed at East Dike Sta. 60+195, Sta. 60+495, and 60+705. The displacements are referenced along Axis A and Axis B. Axis A is aligned with the cutoff wall alignment (positive displacement are towards up chainage) for inclinometers installed at Sta. 60+495 and Sta. 60+705, and at 28 degrees clockwise from the cutoff wall alignment (positive displacement are towards up chainage) for the inclinometer installed at Sta. 60+195. The Axis B is perpendicular to the Axis A.

It is understood that the inclinometer at Sta. 60+195 was destroyed in July 2010.

Recorded displacements to the date of the inspection are small. The maximum cumulative displacements at the crest were observed in the inclinometer installed at Sta. 60+495. The cumulative displacement was about 8 mm parallel to the cutoff wall (Axis A), and about 7 mm perpendicular to the cutoff wall (Axis B). Crest displacements recorded in the inclinometers at Sta. 60+195 and Sta. 60+705 were slightly less.

4.1.4 Weirs

As discussed in Section 2.1, two temporary weirs have been installed downstream of the East Dike to monitor seepage rates.

A box weir (“north weir”) was installed in 2009 near Sta. 60+480. The 2009 rate was stable between 8 and 12 L/s with no observed signs of turbidity within the seepage water. The weir was regularly monitored until it became submerged by the rising downstream water level when dewatering was halted in 2009. In July 2010, the weir was levelled and seepage monitoring resumed throughout the summer of 2010. The rate appeared stable between 7 and 11 L/s and no signs of turbidity were reported.

During 2010, a temporary v-notch weir ("south weir") was installed to measure a second zone of seepage exposed near Sta. 60+225 following dewatering. Flow measurements at this location have been stable around 4 L/s with no visual signs of turbidity noted.

4.1.5 Survey Monuments

Settlement survey monuments have been installed through the East Dike cutoff wall, although it is understood that some of these installations have been destroyed over the last year. Settlement measurements at these locations have not been recorded. It is recommended that destroyed instruments be replaced, and periodic surveying of all monuments be conducted.

4.1.6 Seismograph

Periodic seismograph monitoring of blast vibrations on the crest of the East Dike has occurred at a single location. Estimated tensile and shear strains generated as a result of the blast vibrations to date are not a concern for the integrity of the dike. Ongoing seismograph monitoring should continue.

4.2 South Camp Dike

Two thermistor strings exist on the upstream side of the South Camp Dike. SD-10 is located near the liner toe, and SD-09-A is located approximately 20 m further upstream within Third Portage Lake. The following summarizes the observations regarding the thermal regime at these locations:

- The liner toe has remained frozen over the monitoring period;
- Soils located beneath the dike foundation and liner appear to have remained frozen (permafrost) below elevation 133 m; and
- Soils located immediately upstream of the dike beneath about 1 m of water have remained frozen below elevation 130 m (permafrost).

Plots of the South Camp Dike thermistor data are provided in Appendix C2.

4.3 Saddle Dam 1

Three thermistor strings were installed in Saddle Dam 1 in 2009 and early 2010 as part of the Stage 1 construction.

The SD1-T1 thermistor string was installed in the centre of the upstream face of the dike, immediately beneath the geomembrane liner. A thin layer of protective granular material exists above the geomembrane liner at this location, therefore this thermistor records values similar to the ambient air temperature. It is anticipated that data collected from this location will be useful in monitoring the freeze back of the tailings in the coming years.

The SD1-T2 thermistor string was installed vertically through the upstream Stage 1 crest in the centre of the dike. It shows that the dike foundation froze during the winter of 2009-2010. As of September 9, 2010 the rockfill temperature had warmed and was near zero at the foundation level, and the upper 4 m of rockfill had thawed. Soil beneath the rockfill remained frozen.

The SD1-T4 thermistor string was installed vertically through the upstream toe, near the centre of the dike. During the winter of 2009-2010, the entire profile had temperatures below zero. During the spring and summer of 2010, the lower portion of the dike foundation became flooded which led to a warming of the dike toe area. Approximately 1 m of the compacted till base material below the geomembrane liner thawed. However, the compacted till and insitu soil below elevation 132 m remained frozen, and therefore only minor settlement is anticipated as a result of the 2010 flooding. To protect the foundation from thermal cycles of freezing and thawing, tailings pond management and beach development should continue to be implemented.

Plots of the Saddle Dam 1 thermistor data are provided in Appendix C3.

5.0 ALL WEATHER PRIVATE ROAD (AWPR)

The All Weather Private Road (AWPR) formerly referred to as the All Weather Private Access Road (AWPAR) was built in 2007-2008 to connect the hamlet of Baker Lake to the Meadowbank Mine site (Figure 5). The road is approximately 107 km in length with a total of thirty three culverts and nine bridges. Table 1 lists each structure along the AWPR, the designated name, and approximate location. The road design, as presented in Golder 2006 (06-1413-021 July 2006), is based on a general rockfill subbase and crushed granular rockfill surfacing, with a combined minimum thickness of 1 m over thaw stable soil, and 1.2 m over thaw susceptible soil.

At the time of the inspection, the AWPR visually appeared to be in good condition and functioning well. Areas of washboard were observed; however, this is expected to occur on heavily trafficked gravel roads, and with regular road maintenance (*i.e.,* grading), should not be a concern. In 2010, AEM appointed a dedicated road supervisor who regularly inspects and manages road maintenance activities. AEM reports that this has resulted in improved road conditions and operations.

Significant upgrades to the southern portion of the road (between Baker Lake and approximately km 50) and areas along the northern portion of the road were made in 2010. The road has been widened in places and a substantial amount of road coarse gravel has been added. In some areas the thickness of the rockfill has been increased. AEM has indicated that road upgrades to the northern portion of the AWPR will continue in 2011. Evidence of on-going road maintenance and upgrade activities were observed at the time of the inspection. Fewer locations were observed to have a road fill as-built thickness less than design than in previous annual inspections. No evidence of thermal degradation of the permafrost was observed on the road during the inspection; however it was apparent at the entrance to two quarries. It should be noted that visual evidence may not necessarily be observed due to the regular road maintenance performed by AEM.

In general, the fill material that comprises the majority of the road provides no significant barrier to low gradient water flow due to its coarse nature. The summer of 2010 was unseasonably warm and dry. As a result water levels and flow velocities at the crossings were observed to be low. During previous inspections, water has been observed flowing through the rockfill in the following areas:

- Approach fill to Bridge 1 – R02 approximately at km 8+750;
- Culvert PC-17 at km 8+830;
- Near culvert R-04 at approximately km 11+950;
- Adjacent to culvert R-05A at km 15+645;
- Culvert PC-9 at km 35+690;
- Culvert R-14 at km 67+840;
- Approach fill to Bridge 7 – R16 approximately at km 73+800;
- Culvert R-17 at km 77+440;
- Near Quarry 18 at approximately km 80+400 (no culvert is present); and
- Right abutment approach fills of Bridge 9 – R19 approximately at km 83+150.

During the 2010 inspection, the following observations regarding flow through the road bed were noted:

- PRC-2, km 0+470, consisting of two 600 mm diameter culverts. Flow was observed to be entering both culverts at the inlet, but only exiting one of the culverts. A hole appears to exists in the culvert closest to Baker Lake where the flow exits the culvert and continues to through the road fill material;
- PC-17, km 8+830, consisting of two 1200 mm diameter culverts. No flow was occurring through these culverts at the time of the inspection. However, erosion (scouring) since the 2009 inspection has resulted in the lowering of the stream bed at the inlet such that the invert of both culverts now sits above the stream bed. It is anticipated that flow has occurred below and adjacent to these culverts;
- PC-16, km 55+048, consisting of a single 600 mm diameter culvert. The culvert inlet is installed above the stream base and there is no well defined upstream channel (re: a boulder field). The culvert inlet is partially obstructed by rocks from the road construction works. The outlet of the culvert is entirely blocked. No flow was observed at the time of the inspection; however, if flow were to occur it would likely be through the road fill material due to the blockage;
- R-14, km 67+840, consisting of three 1200 mm diameter culverts. Flow was observed to be occurring within the road fill material, below the base of two of the culverts. There is a hole in the base of the middle culvert where water enters and then continues to flow through the culvert;
- R-21 at km 87+500 where two 1200 mm diameter culverts are installed within a boulder field with their invert above the base flow area. There is evidence that flow would pass through the rockfill below the base of the culverts during higher flow periods; and
- R-23 at km 93+600 where no water was observed flowing through the rockfill adjacent to the culvert during the inspection, but is anticipated to do so during higher flow periods as there is no defined upstream channel which would direct water to the culvert inlet.

During higher flow and runoff periods in spring and early summer it is expected that water may flow through additional portions of the road fill material than those identified above.

AEM has been conducting regular and event based visual inspections of the fish bearing water crossing locations along the access road. A draft copy of the “AWPR Turbidity and Erosion Monitoring: 2010 Summary” document, including results of the AEM visual inspections was provided to Golder for review at the time of the annual inspection. To assist with future annual inspections, it is recommended that photographic logs be collected during AEM visual inspections to document conditions during high flow periods and to record high water marks. This data should continue to be reviewed to confirm the structural integrity and hydraulic function of the crossings, soil and permafrost stability, the adequacy of crossing locations with respect to the watercourses, and minimal impact to fish habitat.

Consideration should be given to expanding AEM’s monitoring program to include all culverts and bridges along the road to assess whether all crossings are providing adequate capacity during the freshet and larger precipitation events. These inspections should include monitoring of sedimentation and erosion rates at the channel crossings.

A photographic log showing typical road conditions during the inspection is provided in Appendix D1.

5.1 Culverts

In general, the culverts inspected were in good condition at the time of the inspection. They were unobstructed and had relatively uniform gradients along their length. A photographic log of the inspected culverts is provided in Appendix D2. Culverts in the following discussion, and in the photographic log, have been identified by name (*e.g.,* R-24) consistent with those indicated on the as-built drawings provided by AEM and as shown on Figure 5. Each culvert is also identified by the approximate kilometre location (*e.g.,* km 98+250) along the road alignment.

AEM reported that the 2010 spring freshet resulted in abnormally high water levels at the road crossings. Two areas of the road were identified as being at risk for washing out during the freshet. The first occurred on June 13, 2010 at PC-6 (km 19+075) where the single 600 mm diameter culvert was identified as not having adequate capacity. The road was closed and a portion of the road excavated to allow water to pass. Once the flow subsided the road was re-built.

The second occurred on June 14, 2010 near Bridge 1, R02 at about km 8+750 and in the vicinity of the two 1200 mm culverts PC-17 at km 8+830. Water levels and flows were observed to be increasing, in part as a result of snow and ice build up downstream and beneath the bridge. An excavator was used to remove the snow and ice from below and in the vicinity of the bridge. As an emergency procedure, part of the road was also excavated and left open for 24 hours to allow additional water to pass, and to prevent erosion of the bridge abutments and/or washout of the road. Once flow levels subsided, a rockfill berm was temporarily constructed upstream of the excavated road and then four new 600 mm diameter culverts were installed at approximately km 8+850 to temporarily provide additional discharge capacity for this crossing.

Although flows were extremely low, and below average for fall conditions at the time of the inspection, significant signs where erosion had occurred were observed; in particular at PC-17. Scouring upstream of the PC-17 culverts has resulted in a lowering of the stream bed. The inverts of the PC-17 culverts now sit above the stream bed which may contribute to additional problems and promote further erosion during future high flow events. No signs of erosion were noted at the outlet of these culverts where larger sized cobbles and boulders protect the streambed.

At the time of the inspection, crushed aggregate was observed around the upstream and downstream sides of the PC-17 culverts (see photographs). Although the intention of placing this material was likely to provide additional protection for the culverts, this material may erode during subsequent high flow periods and enter the water course. It is recommended that this crossing be reconstructed / upgraded and/or closely monitored. AEM should consider:

- Increasing the capacity to discharge water at this location as flow capacity has been identified as a potential concern during both storm events (observed during the 2009 inspection) and the freshet period;
- Either lowering the invert elevation of the PC-17 culverts and adjusting the outlet elevation, or re-establishing the former inlet elevation through the placement of a matt of large cobble and boulders to elevate and protect the streambed. Care in construction would be required to ensure that the protection does not erode and then damage or block the culverts, and that flow does not simply pass through the protection itself; and
- Providing appropriate culvert bedding material with suitable protection against erosion.

The four new culverts (no name provided) at approximately km 8+850 were installed under emergency situations. As such, they do not have proper bedding and are susceptible to damage from the coarse rockfill placed around them. Cobbles and boulders from the road fill material have fallen down in front of both the invert and outlet of some of these culverts and several cobbles exists within one of the culverts. The cobbles and boulders at the inlet and outlet, and within these culverts should be removed if the culverts are not replaced prior to the 2011 freshet.

The four new culverts may provide sufficient capacity relief for flows at the PC-17 crossing; however, this could not be determined at the time of the inspection. AEM should monitor the situation to evaluate whether adequate capacity is provided. AEM has indicated that they are in discussions with the Department of Fisheries and Oceans to replace the four new culverts with other culverts.

In addition to the four new 600 mm culverts installed at km 8+850, potential culvert obstructions were observed at several locations during the inspection. In many cases the obstructions are related to inlets and/or outlets becoming partially or completely obstructed due placed or fallen rockfill and road bed material. The following describes the conditions observed:

- PRC-1, km 0+430, consisting of a single 600 mm diameter culvert. A rock was observed near the culvert invert. Sand from the lake, along with rocks from the road work, was observed at the culvert outlet. The rocks had caused some crushing of the culvert at the outlet. Clean up of the inlet and outlet of the culvert is recommended along with monitoring of the crossing during high flow periods to ensure the culvert provides adequate capacity in its current condition;
- R-04, km 12+050, consisting of a single 1200 mm diameter culvert. Several larger cobbles observed near the inlet and within the culvert should be removed;
- PC-2, km 13+405, consisting of a single 600 mm diameter culvert. Rocks observed near the inlet and outlet should be removed;
- PC-4, km 14+910, consisting of a single 600 mm diameter culvert. Rocks observed near the outlet should be removed;
- PC-10, km 36+865, consisting of a single 600 mm diameter culvert. Rocks observed near the inlet should be removed;
- PC-11, km 39+552, consisting of a single 600 mm diameter culvert. The channel downstream of the culvert is obstructed by a berm of accumulated material either placed or deposited that should be breached or removed to re-establish free flowing conditions;
- PC-16, km 55+048, consisting of a single 600 mm diameter culvert. It was observed that the inlet was substantially blocked by road fill material and that the outlet was entirely buried. The inlet and outlet for the culvert should be cleaned so flow can occur through the culvert; and
- R-26, km 104+710, consisting of three 1200 mm diameter culverts. Although not a significant barrier to flow, a few rocks were observed near the outlet of two of the culverts. Either these rocks should be removed or the condition monitored.

There was an increase in the number of damaged culverts observed during the 2010 inspection compared to 2009. The following culverts were observed to have partial collapses or damage within the culverts during the 2010 inspection:

- PRC-2, km 0+470, consisting of two 600 mm diameter culverts. A joint within one of the culverts was observed to have separated. Water was seen to be entering the culvert at the inlet and then exiting through the joint and flowing in the road fill material below the culvert. Consideration should be given to replacing the culvert, and the condition monitored in the interim;
- R-00A, km 2+550, consisting of a single 600 mm diameter culvert. The outlet of the culvert is collapsed and the inlet is partially collapsed. Road cover over the culvert appears to be inadequate to protect the culvert from damage. No flow was observed at the time of the inspection. This culvert should be replaced if flow has been observed at this location or if no information is available;
- PC-14, km 4+260, consisting of two 600 mm diameter culverts. The upstream end of the culvert closest to Baker Lake is damaged and represents a severe impediment to flow. The adjacent culvert is in good condition, with only minor crushing evident along the haunch evident. There is no apparent channel at this location, and no flow was evident through the culverts at the time of the inspection. The capacity for the single functional culvert to handle flows should continue to be monitored to ensure adequate drainage, especially during the spring freshet. If drainage is not being adequately provided, then the damaged culvert should be replaced;
- PC-17, km 8+830, consisting of two 1200 mm diameter culverts. Some crushing and dents were observed on the sides and haunch of one of the culverts. The condition should continue to be monitored;
- PC-13, km 12+745, consisting of a single 600 mm diameter culvert. Some crushing/damage on haunch and side near upstream end was observed reducing the culvert capacity. The capacity of the culvert should be monitored and consideration given to replacing the culvert;
- R-14, km 67+840, consisting of three 1200 mm diameter culverts. Crushing/dents were observed within the middle culvert, along with a puncture of the culvert wall where a rock is protruding through. Also there is a joint within this culvert that has become separated at its base. Water was observed to be flowing in the road bed below the culvert and then entering at the separated joint. AEM should consider replacing this culvert or initiating a regular monitoring program to observe conditions and detect further deterioration prior to flow becoming impeded. Adjacent culverts are in good condition with only minor dents observed;
- R-18A, km 81+045, consisting of three 1200 mm diameter culverts. Two of the three culverts at this location have dents along the haunch. The central culvert also has dents on the side and base. The capacity of the culverts should be monitored;
- R-21, km 87+500, consisting of two 1200 mm diameter culverts. Crushing /dents were observed in one of the culverts near its base and on the sidewalls. The capacity and condition of this culvert should be monitored during higher flow events;
- R-23, km 93+600, consisting of a single 1200 mm diameter culvert. The outlet is partially crushed near the haunch. The capacity of the culvert should be monitored to determine if adequate drainage is being provided during high flow conditions;

- R-24, km 98+250, consisting of two 1200 mm diameter culverts. Both culverts have dents on the base and sides, and some damage along the haunch. Bedding material around the culverts appears to be larger diameter, angular gravel and cobbles. The capacity and condition of the culverts should be monitored during higher flow events;
- R-25, km 102+050, consisting of two 600 mm diameter culverts. One of the culverts has a non uniform grade, as the outlet is bent upwards. This condition should be monitored during higher flow events to determine if adequate drainage is being provided; and
- R-26, km 104+710, consisting of three 1200 mm diameter culverts. One of the three culverts shows minor damage.

The single 600 mm diameter culvert PC-3, km 13+865 was installed below the stream bed. High velocity flow through the culvert was observed during the 2009 inspection and no evidence of erosion was noted. No evidence of change was observed during the 2010 inspection; however, this should continue to be monitored especially during the freshet.

The 1200 mm diameter culvert at km 15+645, R-05A, was installed above the base of the stream bed and/or erosion has occurred below the base of the culvert. No further erosion was observed at the inlet during the 2010 inspection; however the potential for further erosion exists and should continue to be monitored.

It was noted that the inlet elevations are not equal at the following locations where multiple culverts have been installed:

- 4 new culverts near km 8+850;
- R-14, km 67+840;
- R-24, km 98+250; and
- R-25, km 102+050.

This may be beneficial to allow flow to occur in one culvert if the other is not flowing (*e.g.,* frozen).

5.2 Bridges

Nine bridges are located along the AWPR: 4 Acrow Panel bridges; and 5 Rapid Span bridges. All bridges in general are in good geotechnical condition. All embankments also appeared to be in good geotechnical condition. A structural and/or mechanical assessment of the bridges was not conducted and was beyond the scope of the geotechnical inspection. The photographic log of the bridges is included in Appendix D3.

The bridges have been identified in sequence, increasing in number along the road from Baker Lake to Meadowbank, (*e.g.,* from Bridge 1 to Bridge 9) and name (*e.g.,* R02), consistent with the as-built drawings of the AWPR provided by AEM. Each bridge is also identified by their approximate kilometre location (*e.g.,* km 8+750).

During the 2010 geotechnical inspection, it was observed that one of the welds in the steel plate decking at Bridge 5, R13 (km 62+060) had failed and a hole existed in the bridge deck with a sharp steel protrusion. This was reported to AEM and was repaired within two days of the observation.

Due to the general low lying terrain between Baker Lake and Meadowbank, water flow typically occurs in broad areas and not in well defined channels. The majority of water crossings spanned by bridges have increased channelization of flow as embankment fill has encroached on the crossing. However, no significant visual signs of erosion of the embankments were observed at the time of the inspection. Embankments have generally been constructed with coarse rockfill and therefore little to no sediment load was observed to be occurring to the water course from the embankments during the inspection.

The following observations were made at the bridge locations during the inspection:

- Bridge 1, R02 at about km 8+750; some crushing of the rockfill containment structures on each embankment beneath the bridge structure was observed. Damage appears to have occurred during installation and subsequently during snow removal activities, but is not impacting the geotechnical integrity of the bridge or embankments. Initial road on upstream side of bridge has assisted in concentrating flows beneath the current bridge structure and towards the adjacent culvert PC-17. Very low flows were observed at the time of the inspection; however AEM reported very high flows during the spring freshet, which necessitated the emergency installation of additional culverts to accommodate the flow and prevent a washout of the road or bridge as discussed above. During the inspection it was apparent that several larger blocks had been eroded from the right embankment armouring and were now resting on the base of the channel. At present there is still adequate armouring on the bridge abutments, but this should continue to be monitored and additional large boulders added if necessary. The high water mark appears to be 1 to 1.5 m below the road surface. AEM indicated that snow and ice accumulation in the vicinity of the bridge contributed to the high water levels observed during the freshet. It is understood that AEM plans to remove snow and ice at this location and other bridges in advance of the freshet in the future;

- Bridge 2, R05 at about km 17+600; some damage to the wooden decking was observed, likely from grader operation as part of ongoing road maintenance. Minor damage of the rock containment structures on the embankments was also observed, which appears to have occurred during construction and snow removal activities. Neither observation impacts the geotechnical integrity of the bridge or embankments. Construction of the road and bridge has served to concentrate flows. Higher flows were observed along the left abutment, but no evidence of erosion was observed. The stream bed consists primarily of cobbles, some gravel and a few boulders and grasses towards the perimeter of the channel;

- Bridge 3, R06 at about km 23+100; construction of the bridge has concentrated flow in this area. No signs of erosion or turbidity were observed at the time of the inspection. The high water mark appears to be 2 to 2.5 m below the road;

- Bridge 4, R09 at approximately km 48+500; construction of initial road on upstream side of bridge has assisted in concentrating the flow from two channels into a single channel prior to reaching the bridge. The right abutment appears to have been constructed of a mixture of gravel to boulder size particles. There is some evidence of larger boulders being dislodged, possibly by the erosion of underlying finer particles, likely during the freshet. Armouring of the right embankment should continue to be monitored and upgraded, if necessary. Scouring beneath the bridge has created a small depression in the stream bed. No signs of turbidity were observed at the time of the inspection. The high water mark appears to be about 1.5 m below the road. Monitoring of this crossing is recommended to determine its adequacy in conveying the required flow during freshet and to measure high water marks. A gap and cut holes were observed in the steel plate decking of the bridge. These holes have allowed some road gravel to fall through and enter the water course;

- Bridge 5, R13 at about km 62+060; all flow was observed to be passing beneath the bridge at the time of the inspection. Some deeper depressions (scouring) in the base of the channel were observed beneath the bridge and on the downstream side of the bridge. The stream bed within the depressions consists of cobbles and some boulders along with grasses. No sign of turbidity was apparent at the time of the inspection. The high water mark on the left abutment appears to have approached the bridge deck level/road. Monitoring of this crossing is recommended to determine its adequacy in conveying the required flow during freshet and to measure high water marks;

- Bridge 6, R15 at about km 69+200; no evidence of erosion or turbidity was observed at the time of the inspection. Minor damage to the rock embankment containment structures was observed, likely as a result of snow removal activities. The damage is minor and does not impact the geotechnical integrity of the bridge or embankments;

- Bridge 7, R16 at about km 73+800; woven geotextile was observed to be hanging on each embankment. Construction of the bridge has served to concentrate flow in this area. No flow was observed at the time of the inspection;

- Bridge 8, R18 at about km 79+500; steel decking appears to be of insufficient length. Road base fill was observed to fall below the bridge and onto the abutments as traffic passed over the bridge. Woven geotextile was observed to be hanging on each embankment. The bridge spans a boulder field. No flow was observed passing beneath the bridge at the time of the inspection; and

- Bridge 9, R19 at about km 80+200; steel plates with pipe anchors are installed along both embankments of this bridge. Some damage (bending) of the steel containment plates was observed, which may be associated with snow removal activities. The damage is minor and currently does not impact the geotechnical integrity of the bridge or embankment. No turbidity or erosion was observed at the time of the inspection.

6.0 QUARRIES

Twenty-two quarries were developed along the AWPR to provide material for its construction. An additional quarry was developed near the airstrip at Meadowbank to provide further construction materials. All quarries were inspected and a photographic log is contained in Appendix E. Quarries have been numbered sequentially from 1 to 22 starting near Baker Lake and increasing towards Meadowbank, in accordance with the as-built drawings and signage along the AWPR. The airstrip quarry is also referred to as Quarry 23.

At the time of the inspection, the majority of quarries were dry with some containing small stockpiles of material for future use in maintaining the AWPR. Additional blasting has occurred at Quarry 1 and Quarry 3 since the 2009 inspection to produce more rock and aggregate for road construction upgrades. A temporary crushing facility was set up and operating in Quarry 3 at the time of the inspection. Some quarries are also being used for storage of other materials:

- Quarry 6 – contaminated soil;
- Quarry 22 – scrap tires, scrap metal, construction debris, and contaminated soil; and
- Quarry 23 – drill core on racks, diamond drill contractor drill rigs and equipment, and miscellaneous items including: sea containers, pipes, and culverts.

AEM has indicated that a portion of the contaminated soil stored in Quarry 6 and Quarry 22 exceeds the industrial criteria, and therefore will likely be shipped to southern Canada for treatment and disposal. It is also understood that AEM plans to transport the remaining portion of the contaminated soil for disposal in the Portage Rock Storage Facility at Meadowbank where it will be covered by at least 1.5 m of waste rock. It is anticipated that the remaining waste materials in Quarry 22 will also be properly managed or disposed by AEM.

The following additional observations were made at the following:

- Quarry 4 and Quarry 14 are flooded;
- Quarry 13, Quarry 15, and Quarry 23 (Airstrip Quarry) contained some ponded water. Pools were approximately 30 cm deep; and
- The access roads to Quarry 7 and Quarry 18 are showing signs of frost heave and thaw deformation likely as a result of degradation of the foundation conditions (permafrost).

It is understood that the Closure and Reclamation Plan prepared in accordance with water licenses 2AM-MEA0815 and 8BC-TEH0809 requires that all quarries and borrow sources developed during the construction of the AWPR be reclaimed following completion of use. The closure plan requires all quarry slopes to be left at an angle of 45 to 50 degrees. All twenty-three quarries will require some work to re-slope existing walls down to 45 to 50 degrees. As road maintenance is required on an ongoing basis throughout the operational life of the mine, some quarries will remain necessary. It is understood AEM is currently evaluating which quarries will be required and which can be progressively closed.

AEM has collected water samples from the quarries and results are presented in AEM's Annual Report. Quarry 4 and Quarry 14 are flooded and therefore AEM will evaluate if it's possible to eliminate as much as possible the ponding of water within these quarries. Other quarries that contain some ponded water should be monitored to assess if ponding persists and, if necessary, ditches should be developed to facilitate the drainage of this water.

7.0 BULK FUEL STORAGE FACILITIES

7.1 Baker Lake Tank Farm

A photographic log of the Baker Lake Tank Farm is included in Appendix F1. The Baker Lake Tank Farm consists of six large capacity tanks (10 million litres each) that have been constructed within three bermed areas. The first two tanks constructed, Tank 1 and Tank 2, are within the first containment area which is located on the east side of the fuelling area. The second two tanks constructed, Tank 3 and Tank 4, are within a second containment area located adjacent to the first. A central berm is located between the two containment areas. Each containment area has been lined with a 1.5 mm high density polyethylene (HDPE) geomembrane to provide secondary containment. Visual inspection of the liner was not possible during the inspection as it has been covered with granular fill material to provide protection. Access ramps into the bermed areas were observed.

Construction of two additional tanks, Tank 5 and Tank 6, and their respective secondary containment area, was in progress during the inspection. Tank 5 and Tank 6 are located north and upslope of Tank 3 and Tank 4.

A small amount of ponded fluid, likely rainwater, was observed in the southwest corner of the first containment area. It appears that no sump has been constructed within this area; however, as most of the fluid appears to collect in the southern portion of the area, sampling and removal is considered feasible. A sump was observed in the southwest corner of the second containment area. It appeared during the inspection that removal of fluid from within the containment areas had occurred recently. Construction of the third containment area for Tank 5 and Tank 6 was still underway. No sump was visible in this area during the site visit.

The embankments around the south and western sides of the tank farm area (Tanks 1-4) appeared stable. The embankments have been constructed of coarse rockfill and therefore runoff from the area is not expected to contain sediment that could potentially enter Baker Lake. Along the north side of the tank farm there is a rock cut slope, and modification and benching of this slope has occurred as part of the construction works for Tank 5 and Tank 6. A portion of the upper slope in soil has been undercut and tension cracks and evidence of slope movement (slumping) was apparent at the time of the inspection. The slope instability observed appears surficial and does not appear to pose a threat to the lower tanks. The modifications to the slope above the Tank 3 and Tank 4 containment area has channelized runoff that is now draining into this containment area. The channelized flow has eroded the sand and gravel cover in several locations exposing the liner underneath. It is recommended that the slope be stabilized and diversion ditches created to divert runoff away from the containment area. Sub-excavation has occurred along the western side of the tank farm area to complete the impoundment.

The containment area for Tank 5 and Tank 6 has been sub-excavated into the hill slope above the existing tank farm area. Water diversion berms exist around the north and east sides. An access road exists around the perimeter of the upper slopes. The slopes down into the containment area, especially on the north side, are relatively high and steep, but appear stable. Caution should be used in placement of the protective sand and gravel layer over the geomembrane liner to prevent damage. Given the relatively steep slope, the sand and gravel cover may be prone to erosion and should therefore be monitored.

The capacity of the secondary containment areas was not verified as part of this inspection.

On the west side of the tank farm is a fuelling station that consists of two containers and a pumping system. The fuelling area is covered by granular road base material.

There is an above ground pipeline between the barge dock, located to the south of the tanks, and the tank farm. It is understood that the pipeline is used for the transport of fuel from barges to the tanks. The pipeline is located immediately adjacent to the access road that connects the dock and the tank farm. There are small orange flags adjacent to the pipeline, but no physical protection, such as a berm, exists between the road and the pipeline. AEM has stated that the pipeline is only seasonally used to unload fuel from the barges. Each year prior to use, it is understood that AEM tests the pipeline for leaks. They also visually inspect the line throughout the unloading process. Consideration should also be given to constructing a berm or similar structure to provide some physical protection / separation between the pipeline and road.

7.2 Meadowbank Tank Farm

Appendix F2 contains a photographic log of the Meadowbank Tank Farm. The Meadowbank Tank Farm consists of a single large capacity tank (5.6 million litres) constructed within an area that has been sub-excavated to provide a volume for secondary containment. The area has been lined with a 1.5 mm HDPE geomembrane. The liner could not be visually inspected during the site visit as it has been covered with granular fill material for protection. An access ramp into the bermed area was observed.

Ponded fluid, likely rainwater, was observed within the tank farm, covering approximately one third of the area base, primarily in the north and northeast corner. It appears that no sump has been constructed within the bermed area; however, as fluid is accumulating in one general area, this should facilitate sampling and removal. Regular management of this accumulated fluid should be conducted.

A fuelling station is located on the north side of the tank farm. The fuelling area is covered by granular road base material. AEM indicated that a geomembrane liner was installed below the refuelling area, although this could not be observed at the time of the inspection due to the presence of the cover.

As the tank farm area has been sub-excavated, runoff from the tank farm is not anticipated to occur. The side slopes into the tank area are shallow and all appear stable.

The capacity of the secondary containment area was not verified as part of this inspection.

8.0 OTHER MEADOWBANK FACILITIES

8.1 Site Roads

Some additional permanent roads have been established on site since the 2009 annual inspection. Haul roads have been established between the:

- North Portage Pit and the waste dump;
- North Portage Pit and the low grade ore stockpile (located at the north side of the East Dike);
- North Portage Pit and the high grade ore stockpile (located at the south side of the East Dike);
- North Portage Pit and the crushing facility at the plant; and
- South Portage Pit and the crushing facility.

These haul roads appeared to be of adequate width and had appropriate berms. No geotechnical concerns were identified with the site haul roads. The new haul road that runs approximately parallel to the proposed location of the Central Dike should be regularly monitored, as should the crusher ramp.

Appendix G1 contains photographs of select site roads.

Temporary roads developed for construction purposes were not inspected.

8.2 Landfill

The Meadowbank landfill is located on the northeast side of the Tailings Storage Facility and within the Portage Rock Storage Facility area. It is progressively being constructed and filled. Waste material is being dumped within a bermed area on a pad constructed using waste rock from the open pit. The waste is then covered with a thin layer of rockfill to reduce windblown debris. It is understood that waste is segregated and only those items approved for disposal are transported and placed in the landfill. Organics are incinerated and not placed within the landfill. AEM reports that the system of waste segregation is working well. It is understood that no compaction of the landfill waste is occurring. Appendix G2 contains photographs of the landfill.

8.3 Stormwater Management Ponds

8.3.1 Stormwater Pond 1 (Teardrop Lake)

Teardrop Lake, also referred to as Stormwater Pond 1, is located near the main camp and is being used for storage of various site waters and sewage on an interim basis. Appendix G3 contains a photographic log of Stormwater Pond 1. No runoff from the pond was observed at the time of the inspection. If the banks of the pond were to overflow, or there was a breach in the embankments, the water would remain within the mine area and would not be released into either Second Portage Lake or Third Portage Lake. Due to the proximity of the crusher ramp to the pond, it is recommended that regular geotechnical inspections of the crusher ramp be conducted by AEM.

8.3.2 Other Ponds and Sumps

There are several small channels dug adjacent to the airstrip to divert water into small excavations or “ponds”. The channels and ponds are unlined, and the ponds have no designed outlet structure. In general, these ponds would serve to collect water and allow some suspended sediments to settle out before the water would overflow into other vegetated areas and/or infiltrate depending on the thermal state of the soils. These areas were dry at the time of the inspection. An evaluation of the effectiveness of these facilities in removing suspended sediment from the surface water runoff was outside the scope of this geotechnical inspection.

Sumps within the open pit had not been established at the time of the inspection.

9.0 SUMMARY AND RECOMMENDATIONS

The following presents a summary of the key findings and recommendations of the geotechnical inspection:

- The operational phase of the mine has now been entered, even though some construction activities continue. Staffing changes from the “construction phase” to the “operations phase” are occurring, and recognizing the dynamic nature of the workforce at Meadowbank, will continue to change. It is understood that AEM is in the process of establishing an operations team responsible for the overall care, operation, monitoring and maintenance of the dewatering dikes and Tailings Storage Facility.

9.1 Dewatering Dikes

- It is understood that AEM is planning on updating and revising the draft East Dike Operation, Maintenance and Surveillance (OMS) Manual and Emergency Preparedness Plan (EPP) to cover all dewatering dikes. It is recommended that this documentation be prepared ideally prior to the initiation of dewatering within the Bay-Goose Basin.
- It is recommended that the Emergency Response Plan (ERP) and risk assessment for the mine be reviewed and updated to include all dewatering dikes facilities, and to incorporate information gained during operation of the East Dike and construction of the Bay-Goose Dike; and
- It is understood that AEM is in the process of reviewing, developing and implementing resources and plans to monitor and manage all the dewatering structures as mining proceeds.

East Dike

- No visual signs of slope instability or erosion were observed on the upstream or downstream rockfill slopes;
- No signs of tension cracks were observed along the cutoff wall alignment;
- The dike crest elevation is approximately 0.5 m less than required in the design. The elevation should be increased to the design level of 137.1 m as soon as practical;
- Regular monitoring and assessment of the monitoring data [piezometric, thermal, inclinometer, seismograph (associated with blasting) and seepage] occurs and should continue;
- Periodic monitoring for settlement through surveying, should be conducted;
- Survey monuments and other instrumentation that have been destroyed should be replaced;
- Consideration should be given to re-establishing a berm to protect the instrumentation and prevent the cutoff wall from being heavily trafficked upon by haulage vehicles;
- A more permanent seepage collection, monitoring and pumping system is required to manage the seepage downstream of the East Dike. It is understood that AEM plans to install such a system in the coming year, including replacing the two temporary weirs with more permanent structures;

- At the time of the site inspection, and based on the instrumentation data collected to that time, the condition of the East Dike generally appears stable;
- The condition of the East Dike is regularly being monitored and this should continue;
- A mitigation program should be planned and implemented to fix the defective cutoff wall zone as practicable in 2011;
- In the interim, prior to completing the repair, an emergency mitigation plan for the East Dike should be prepared in case conditions rapidly deteriorate. The plan should outline procedures to be implemented; equipment, personnel and supply requirements for the plan; and an identification of, and the location of supply availability on site; and
- Seepage from other areas of the East Dike has been identified, but little information is known about these zones. In addition to the seepage monitoring, consideration should be given to obtaining more information about these areas and implementing a mechanism to detect changes that may occur in these areas.

West Channel Dike and South Camp Dike

- No geotechnical concerns related to the integrity of the West Channel and South Camp dikes were identified;
- Instrumentation and blast vibration monitoring at the dikes should continue on a regular basis; and
- It is recommended that as-built documentation for the South Camp Dike be compiled prior to the initiation of dewatering within the Bay-Goose Basin.

Bay-Goose Dike

- Installation of the geotechnical instrumentation should be completed with sufficient lead time to achieve stable readings prior to the initiation of dewatering;
- Blast vibration monitoring should continue on a regular basis;
- Consideration should be given to the use of flow meters during the dewatering process to track dewatered volumes in comparison with surveyed lake elevations;
- Data from the geotechnical instrumentation should be obtained and thoroughly reviewed on a frequent basis throughout dewatering and regularly thereafter;
- Access to the cutoff wall alignment and all instrument locations should be maintained, in particular during dewatering;
- Consideration should be given to providing protection for instrumentation;
- It is understood that a downstream seepage collection and monitoring system will be constructed following the completion of dewatering; and
- It is understood that an as-built report for the Bay-Goose Dike will be prepared following construction.

9.2 Tailings Storage Facility

- It is understood that AEM is planning to prepare an Operations, Maintenance and Surveillance (OMS) Manual and Emergency Response Plan (EPP) for the Tailings Storage Facility. The OMS Manual and EPP should cover all aspects related to facility operation and management, including, but not limited to:
  - Tailings deposition and reclaim pond management;
  - Saddle Dams;
  - Stormwater Dike;
  - Seepage collection, monitoring, and pump back systems; and
  - Tailings and reclaim pipelines.

  Once the plan is prepared, it should be reviewed and revised as necessary, but at least on an annual basis;
- An overall Emergency Response Plan (ERP) for the mine (AEM, 2009a) has been prepared which includes a risk assessment of potential failures for the Central Dike, Saddle Dams, and Stormwater Dike. The risk assessments should be reviewed and updated, acknowledging existing conditions of each structure, and current information related to the operation of the Tailings Storage Facility;
- It is understood that AEM will construct seepage collection and pump back systems on the downstream side of all dikes or dams around the Tailings Storage Facility following completion of construction activities at each facility. Since the Stormwater Dike and Saddle Dam 1 are currently storing tailings and supernatant water, seepage collection and pump back systems are required at these locations as soon as practicable. Tailings will soon begin to be impounded by Saddle Dam 2 and therefore a seepage collection and pump back system will soon be required for this structure as well;
- It is understood that as-built reports for the Stormwater Dike (Stages 1 and 2), Saddle Dam 1 (Stages 1 and 2), and Saddle Dam 2 will be completed following completion of construction activities for these facilities; and
- The first bathymetric survey of the Tailings Storage Facility was conducted in September 2010. It is understood that this data will be analyzed by AEM and used in updating the tailings deposition plan and to begin establishing a better understanding of the tailings and site wide water balance. Consideration should also be given to bi-annual surveys (i.e. mid-July and early-October) in the short term until confirmation of the amount of ice entrapment, and other design parameters is achieved.

Saddle Dam 1

- No visual signs of slope instability or erosion were observed on the downstream or upstream rockfill slopes;
- No signs of tension cracks were observed;
- Collection and regular review of thermal data obtained from the structure should continue; and
- Displacement monitoring locations should be established and regularly monitored.

Saddle Dam 2

- No geotechnical concerns have been identified;
- Dam monitoring instrumentation, including displacement monitoring locations, should be installed and allowed to stabilize before the dam begins impounding tailings and/or supernatant water;
- Regular monitoring and review of instrumentation data should occur; and
- If the geomembrane liner is left exposed for any period of time prior to placement of the protective tailings cover layer, a thorough inspection of the liner should be conducted and any repairs made prior to their placement.

Stormwater Dike

- AEM should continue to monitor the tension cracks observed near the downstream crest of the dike between Sta. 10+849 and Sta. 10+940; for any change or rate of change and implement corrective measures or controls as necessary. Nevertheless, consideration should be given to placement of a downstream toe berm to flatten the overall slope and reduce the risks of instability.

Reclaim Pond

- No geotechnical concerns were identified with respect to the rockfill causeway or reclaim facility; and
- Reclaim pond water volumes should be regularly surveyed for comparison with the design volume of the facility.

9.3 AWPR

- At the time of the inspection, no geotechnical issues were identified for the AWPR related to thermal degradation of the permafrost, thaw settlement, erosion of the road materials, or sediment migration from the road into adjacent watercourses;
- Regular inspections and maintenance of the road by AEM should continue;
- AEM has been conducting regular and event based inspections of the fish bearing water crossing locations along the road and these should continue in order to confirm the structural integrity and hydraulic function of the crossings, soil and permafrost stability, the adequacy of crossing locations with respect to the watercourses, and minimal impact to fish habitat. Consideration should be given to be expanding the AEM inspections to include cursory monitoring of flow and high water marks at all crossings and that a photographic log be compiled during each inspection to visually aid in documenting peak flows and high water information;

- The capacity to convey flow at Bridge 1 (km 8+750), culverts PC-17 (km 8+830), and the four new culverts (km 8+850) should be upgraded and/or closely monitored. Repairs to the PC-17 culverts should be performed prior to the 2011 freshet to provide proper bedding protected from erosion, to protect the streambed from further erosion and scouring at the culvert inverts, and to reduce potential for additional erosion around the upstream and downstream sides of the culverts;
- Removal of material with the potential to cause obstructions should be done at:
  - PRC-1 (km 0+430) at inlet and outlet;
  - 4 new culverts (km 8+850) at inlet and outlet;
  - R-04 (km 12+050) at inlet and within culvert;
  - PC-2 (km 13+405) at inlet and outlet;
  - PC-4 (km 14+910) at outlet;
  - PC-10 (km 36+865) at inlet;
  - PC-11 (km 39+552) obstruction downstream of culvert should be breached;
  - PC-16 (km 55+048) inlet and outlet; and
  - R-26 (km 104+710) at outlet.
- Since the initial inspection in 2008, culverts are progressively showing more signs of crushing along their haunch, sides and base, primarily associated with the coarse material surrounding the culverts. The condition of the culverts should continue to be monitored, and consideration should be given to replacing: the damaged culvert at PRC-2 (km 0+470); R-00A (km 2+550); the damaged culvert PC-14 (km 4+260) if adequate capacity not provided by the second culvert; PC-13 (km 12+745); the middle of the three culverts at R-14 (km 67+840);
- The capacity of the single 600 mm diameter culverts PC-3 (km 13+865) and PC-6 (km 19+075) should continue to be monitored to ensure they provide adequate capacity for drainage and that erosion is not occurring, especially during the freshet;
- The capacity of Bridge 4 (R09) and Bridge 5 (R13) to adequately convey flow during the freshet should be monitored with particular attention paid to noting high water marks and their relation to the road; and
- No geotechnical issues were identified with any of the 9 bridges inspected or their embankments along the AWPR.

9.4 Quarries

- It is understood that AEM is developing a plan for progressively closing some of the quarries along the AWPR while maintaining others for storage of materials and to provide a supply of materials for ongoing road maintenance;

- Quarry 4 and Quarry 14 are flooded and a plan should be developed to drain the water, if possible;
- It is understood that the contaminated soil temporarily contained in Quarry 6 and Quarry 22 will be removed in part to the Portage Rock Storage Facility and to southern Canada for treatment and disposal; and
- Miscellaneous other items contained in Quarry 22 should be transported and properly disposed of in the Meadowbank landfill or other appropriate location.

9.5 Meadowbank Site Roads

- Haul roads currently in operation appear to be of adequate width, have appropriate berms, and some traffic control signage. No geotechnical concerns were identified with the haul roads observed at the time of the inspection. AEM should conduct regular geotechnical inspections of the new haul road that crosses the northwest arm of Second Portage Lake (parallel to the proposed alignment of Central Dike) and also the crusher ramp.

9.6 Bulk Fuel Storage Facilities

- Ongoing removal of fluids that accumulate within the secondary containment facilities should continue to be managed appropriately. AEM should consider establishing sumps to aid in the removal of the fluids within the first containment area in Baker Lake (Tanks 1/2), the new containment area (Tanks 5/6) also in Baker Lake, and at the Meadowbank fuel storage area;
- It is recommended that runoff from the slope on the north side of Tank 3 and Tank 4 be diverted away from the containment area;
- A portion of the upper soil slope between Tanks 5/6 and Tanks 3/4 was observed to be surficially unstable. This slope should be stabilized and runoff from the slope and benches appropriately managed;
- Placement of liner protection material within the new portion of the tank farm in Baker Lake (Tanks 5/6) will need to be done cautiously to protect the liner, and will should be monitored due to the length and steepness of the slope; and
- AEM's implemented controls to protect the pipeline between the Baker Lake tank farm and barge unloading area should continue, and if necessary, consideration should be given to constructing a berm to physically separate the road and the pipeline.

9.7 Other Meadowbank Facilities

Landfill

- Expansion of the landfill is an ongoing process to ensure capacity. Consideration should be given to compacting waste as it is disposed to help reduce the area required for waste disposal; and
- No geotechnical concerns related to the landfill were identified at the time of the inspection.

Stormwater Management Ponds

- No geotechnical issues regarding Stormwater Pond 1, or other ponds near the airstrip were identified at the time of the inspection; and
- The crusher ramp is in close proximity to Stormwater Pond 1 and therefore the geotechnical stability of the crusher ramp should be inspected regularly by AEM.

10.0 CLOSURE

This report was prepared to summarize the findings from the 2010 geotechnical inspection conducted between September 13 and September 20, 2010 on the existing Dewatering Dikes, Tailings Storage Facility, geotechnical instrumentation (East Dike, South Camp Dike, and Saddle Dam 1), All Weather Private Road (AWPR), Quarries, Bulk Fuel Storage Facilities in Baker Lake and Meadowbank, Meadowbank site roads, Landfill, and Stormwater Management Structures at Meadowbank, to comply with the requirements of AEM's Type A Water License Permit No. 2AM-MEA0815, Part I, Item 12. An inspection of the pit walls is reported under separate cover (Golder, 2010d).

We trust the above information is sufficient for your current needs. Should you require additional information or further clarification, please do not hesitate to contact us.

GOLDER ASSOCIATES LTD.

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\\bur1-s-filesrv2\final\2010\1428\10-1428-0033 meadowbank 2010 geotechnical inspection\doc 1216 ver. 0 rep 1129_10\doc 1216 ver. 0 rep 1203_10 2010 annual geotechnical inspection - meadowbank.docx

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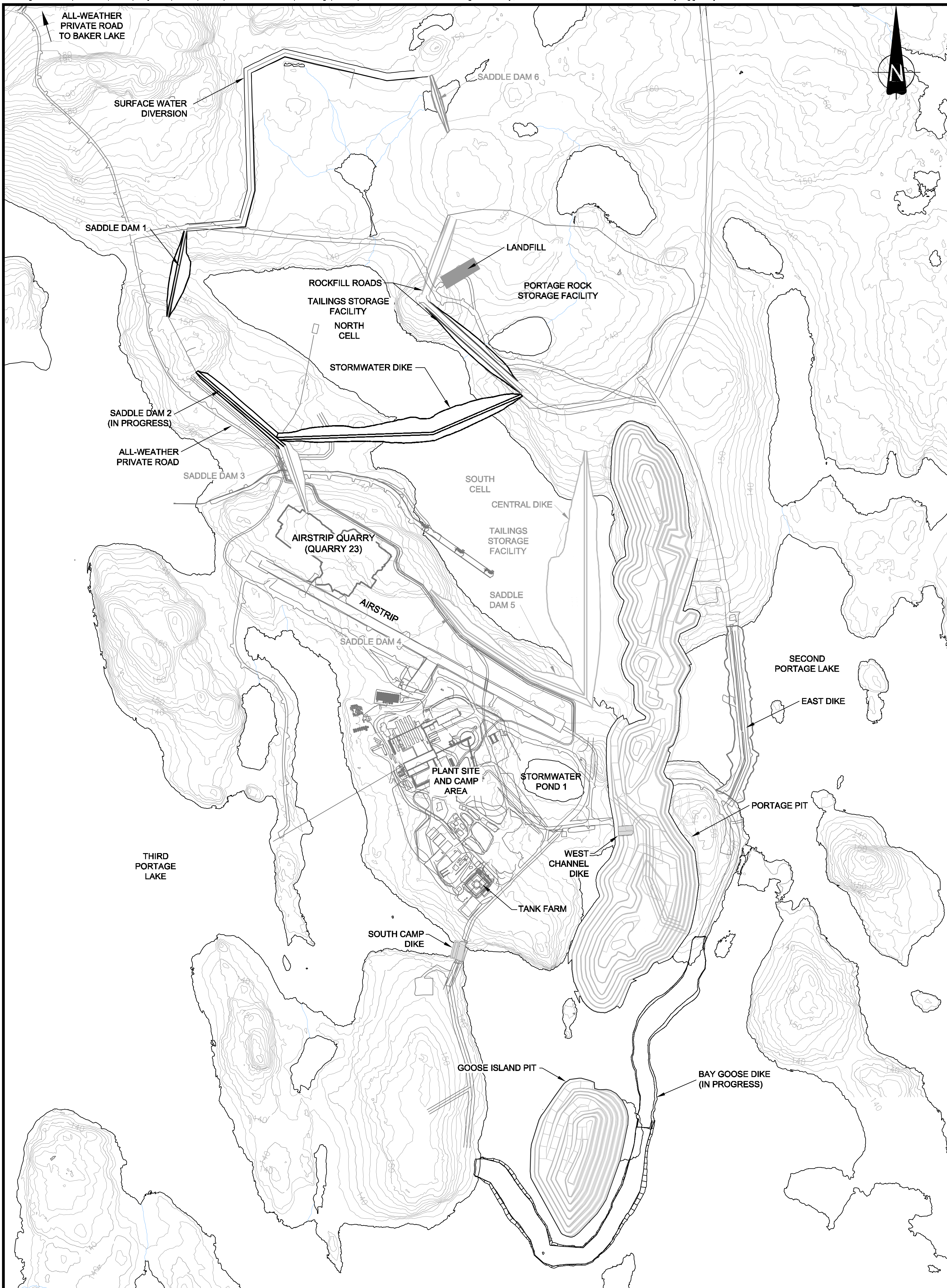
TABLE 1
Facilities Along the All-Weather Private Road

STATION	NAME	STRUCTURE DESCRIPTION	COMMENTS
0+430	PRC1	1x600 mm CSP	cleanup inlet and outlet
0+470	PRC2	2x600 mm CSP	joint in one culvert has separated
1+380	PRC3	1x600 mm CSP	
2+550	R-00A	1x600 mm CSP	inlet partially collapsed, outlet entirely collapsed, hole in culvert haunch thin road cover
4+260	PC-14	2x600 mm CSP	inlet of one culvert is collapsed, other culvet in good condition
5+200	Quarry 1		
8+750	R02 Center Bridge	30m Acrow Panel Bridge	
8+830	PC-17	2x1200 mm CSP	scouring at inlet, remove/protect granular material around inlet and outlet
approx. 8+850	unnamed	4x600 mm CSP	installed in June 2010, cleanup inlet and outlet
9+952	PC-1	1x600 mm CSP	
10+580	R-03	1x600 mm CSP	
12+050	R-04	1x1200 mm CSP	cleanup inlet area and within culvert
12+745	PC-13	1x600 mm CSP	
13+250	Quarry 2		
13+405	PC-2	1x600 mm CSP	cleanup of inlet and outlet
13+685	PC-3	1x600 mm CSP	
14+910	PC-4	1x600 mm CSP	cleanup of outlet
15+645	R-05A	1x1200 mm CSP	
17+600	R05 Center Bridge	30m Acrow Panel Bridge	
18+280	PC-5	1x600 mm CSP	
19+075	PC-6	1x600 mm CSP	
20+505	PC-7	1x600 mm CSP	
23+100	R06 Center Bridge	30 m Acrow Panel Bridge	
23+700	Quarry 3		
25+900	R-07	1x1200 mm CSP	
29+785	PC-8	1x600 mm CSP	
31+300	Quarry 4		
34+650	Quarry 5		
?35+690	PC-9	1x600 mm CSP	
36+470	Quarry 6		
36+865	PC-10	1x600 mm CSP	cleanup of inlet
39+552	PC-11	1x600 mm CSP	downstream of culvert, breach obstruction to permit flow
39+800	Quarry 7		
41+410	PC-12	1x600 mm CSP	
42+950	Quarry 8		
44+600	Quarry 9		
48+500	R09 Center Bridge	12m Rapid Span Bridge	
48+900	Quarry 10		
53+500	Quarry 11		
55+048	PC-16	1x600 mm CSP	inlet partially obstructed, outlet entirely obstructed
58+300	Quarry 12		
62+060	R13 Center Bridge	12 m Rapid Span Bridge	
62+350	Quarry 13		
65+700	Quarry 14		
67+600	Quarry 15		
67+840	R-14	3x1200 mm CSP	one culvert punctured sidewall and separated joint in base
69+200	R15 Center Bridge	30 m Acrow Panel Bridge	
70+400	Quarry 16		
72+800	Quarry 17		
73+800	R16 Center Bridge	12m Rapid Span Bridge	
77+440	R-17	1x1200 mm CSP	
79+500	R18 Center Bridge	12 m Rapid Span Bridge	
80+200	Quarry 18		
81+045	R-18A	3x1200 mm CSP	
83+150	R19 Center	12m Rapid Span Bridge	
84+300	Quarry 19		
85+490	R-20	1x1200 mm CSP	
87+500	R-21	2x1200 mm CSP	
89+550	Quarry 20		
93+400	Quarry 21		
93+600	R-23	1x1200 mm CSP	outlet partially crushed
98+250	R-24	2x1200 mm CSP	
99+200	Quarry 22		
102+050	R-25	2x600 mm CSP	one culvert has non-uniform grade
104+710	R-26	3x1200 mm CSP	few rocks at outlet



NOTES

1) TOPOGRAPHIC CONTOUR INTERVAL 2M.
2) GRID REFERENCE: NAD 83, UTM ZONE 14

0 150 300 450 600 750

SCALE IN METRES

REFERENCES

1) DRAWING BASE PROVIDED BY AEM LTD., MEADOWBANK DIVISION IN "MEADOWBANK AUGUST 2010.DWG".

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

MEADOWBANK MINE SITE
2010 ANNUAL
GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No.	10-1428-0033		PHASE No.	2000
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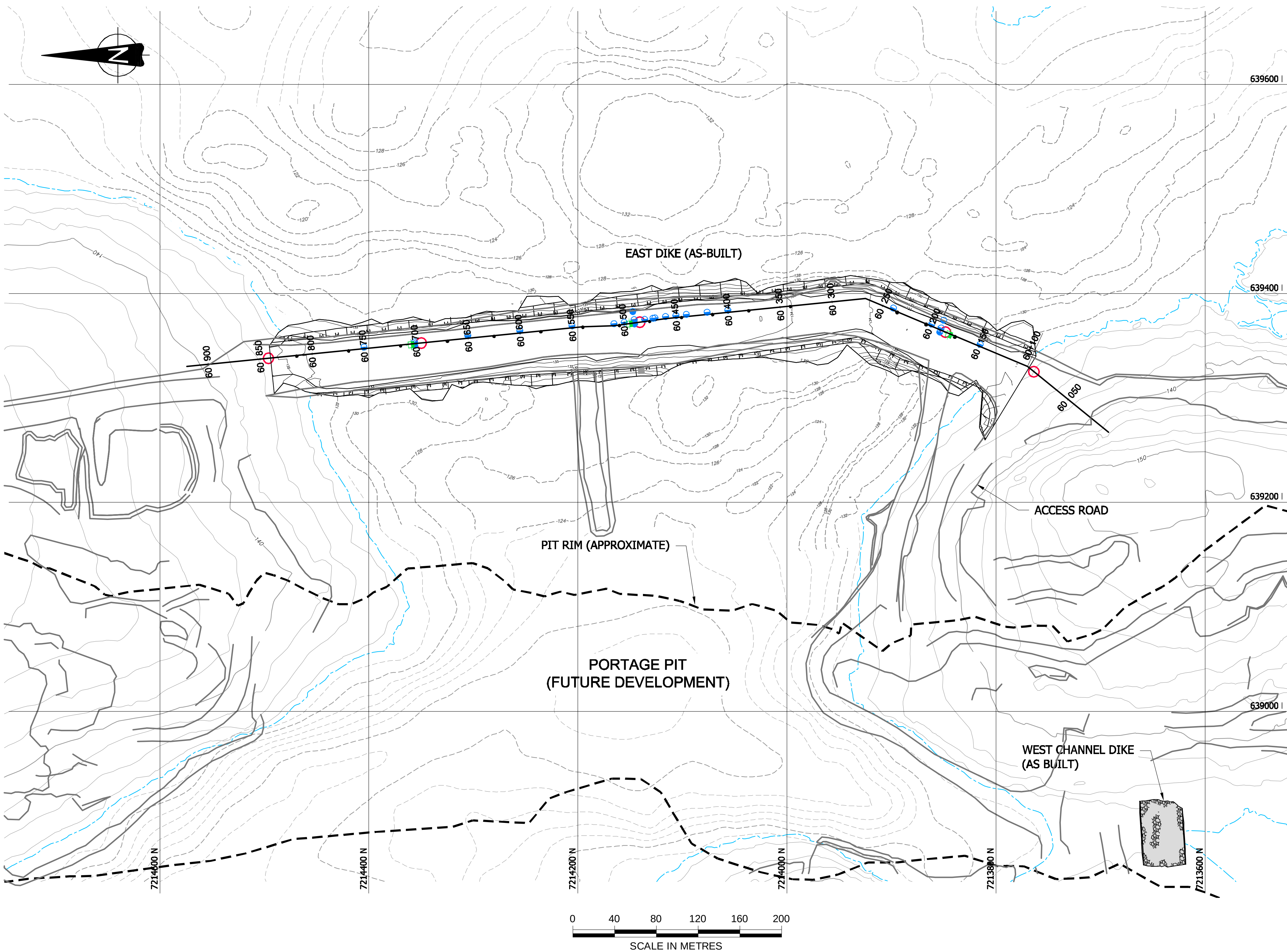
REVIEW				



LEGEND

- LAND-BASED TOPOGRAPHIC MAJOR CONTOURS INTERVAL 10m
- LAND-BASED TOPOGRAPHIC MINOR CONTOURS INTERVAL 2m
- BATHYMETRIC MAJOR CONTOURS INTERVAL 2m
- SHORE LINE
- CUTOFF WALL CENTRELINE
- EXISTING THERMISTOR
- SURVEY MONUMENT LOCATION
- PIEZOMETER
- INCLINOMETER

NOTES

1) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2) ALL ELEVATIONS ARE IN METRES ABOVE SEA LEVEL (MASL) UNLESS OTHERWISE NOTED.
3) GRID REFERENCE: NAD 83, UTM ZONE 14.
4) CONTOUR INFORMATION ON LAND SUPPLIED BY AGNICO-EAGLE MINES LIMITED (AEM), MEADOWBANK DIVISION.
5) LAKEBED SURFACE INTERPOLATED FROM 2006 BATHYMETRY DATA. DETAILED BATHYMETRY (0.5m INTERVAL) BASED ON 2008 SURVEY.
6) LAKE CONTOURS ARE BASED ON SURVEYED LAKE SURFACE ELEVATION: SECOND PORTAGE LAKE = 133.1m.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE AND WEST CHANNEL DIKE LOCATION 2010 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No. 10-1428-0033			PHASE No.	2000
DESIGN	FE	18NOV10	SCALE AS SHOWN	REV.
CADD	GG	18NOV10	FIGURE 2	
CHECK				
REVIEW				

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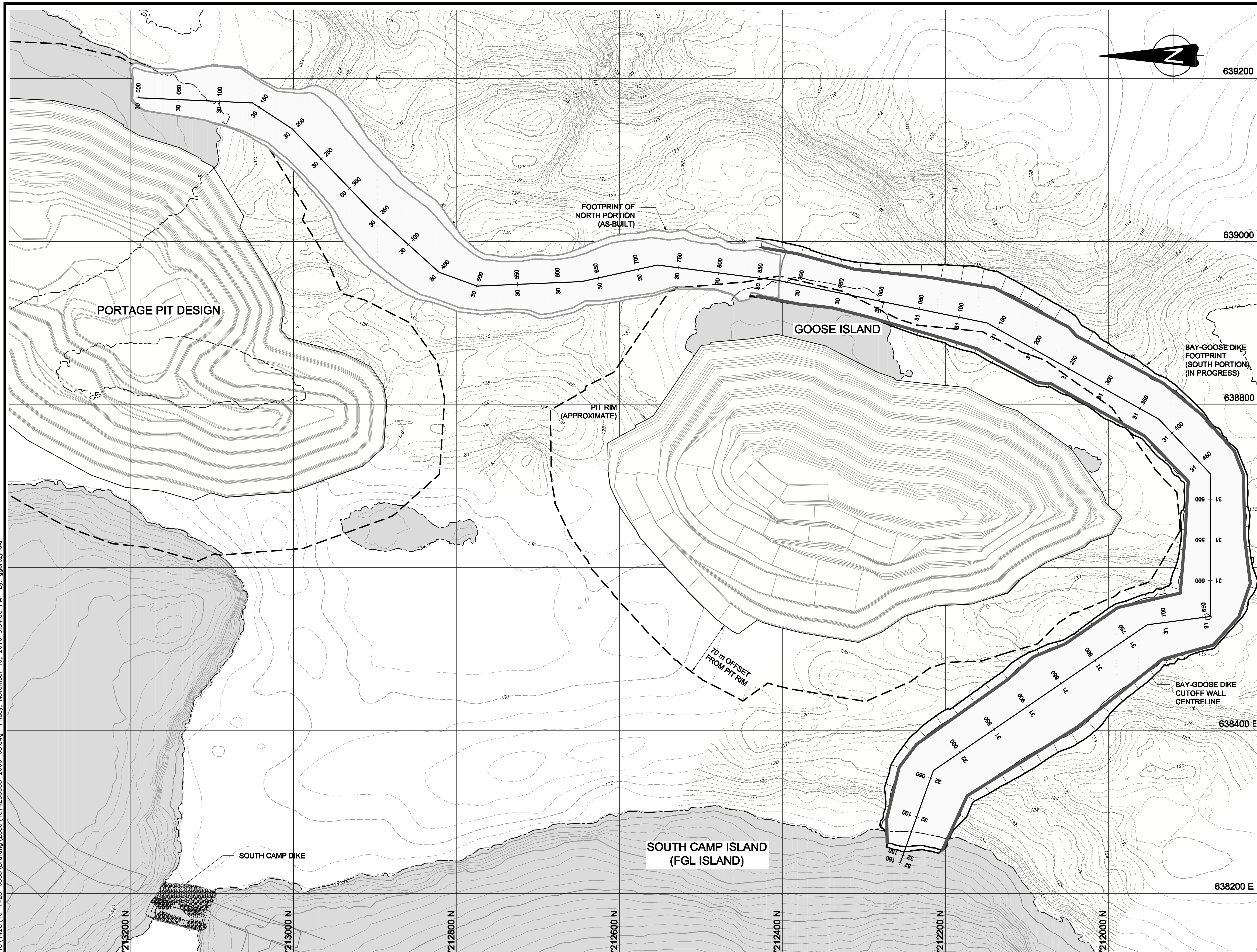

NOTES

1) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2) ALL ELEVATIONS ARE IN METRES ABOVE SEA LEVEL (MASL), UNLESS OTHERWISE NOTED.
3) GRID REFERENCE: NAD 83, UTM ZONE 14.
4) CONTOUR INFORMATION ON LAND SUPPLIED BY AEM.
5) LAKEBED SURFACE BASED ON BATHYMETRIC SURVEYS BY GOLDER ASSOCIATES LTD., 2006 AND DETAILED (0.5m CONTOUR INTERVAL) 2008.
6) SURVEY LAKE SURFACE ELEVATION: THIRD PORTAGE LAKE = 134.1m (2008).

LEGEND

- PIT RIM
- MINOR BATHYMETRY CONTOUR
- MAJOR BATHYMETRY CONTOUR
- MINOR TOPOGRAPHIC CONTOUR
- MAJOR TOPOGRAPHIC CONTOUR
- SHORELINE
- 70m OFFSET FROM PIT RIM
- ROCKFILL PLATFORM CREST

REFERENCE

1) PORTAGE PIT DESIGN BY AEM, MARCH, 2009.
2) GOOSE ISLAND PIT DESIGN BY AEM, MARCH, 2009.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

BAY-GOOSE DIKE AND SOUTH CAMP DIKE LOCATION 2010 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No. 10-1428-0033			PHASE No. 2000
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CADD	GG	18NOV10	
CHECK			FIGURE 3
REVIEW			

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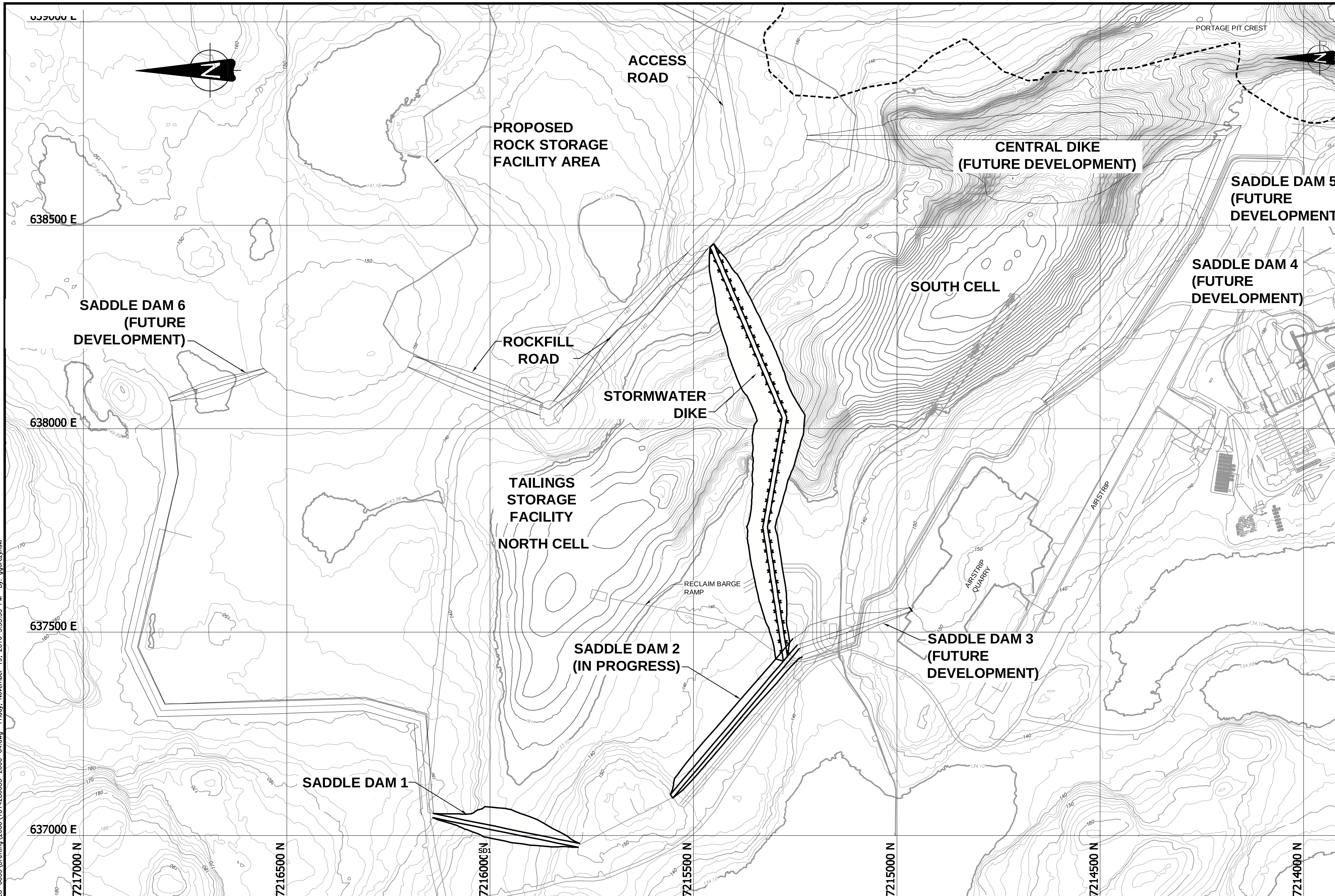

LEGEND

- LAND-BASED TOPOGRAPHIC MAJOR CONTOURS INTERVAL 10m
- LAND-BASED TOPOGRAPHIC MINOR CONTOURS INTERVAL 2m
- FORMER SHORELINE
- PIT CREST
- DIKE FOOTPRINT

0 100 200 300 400 500

SCALE

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PROJECT

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MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

TAILINGS STORAGE FACILITY 2010 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No. 10-1428-0033			PHASE No. 2000
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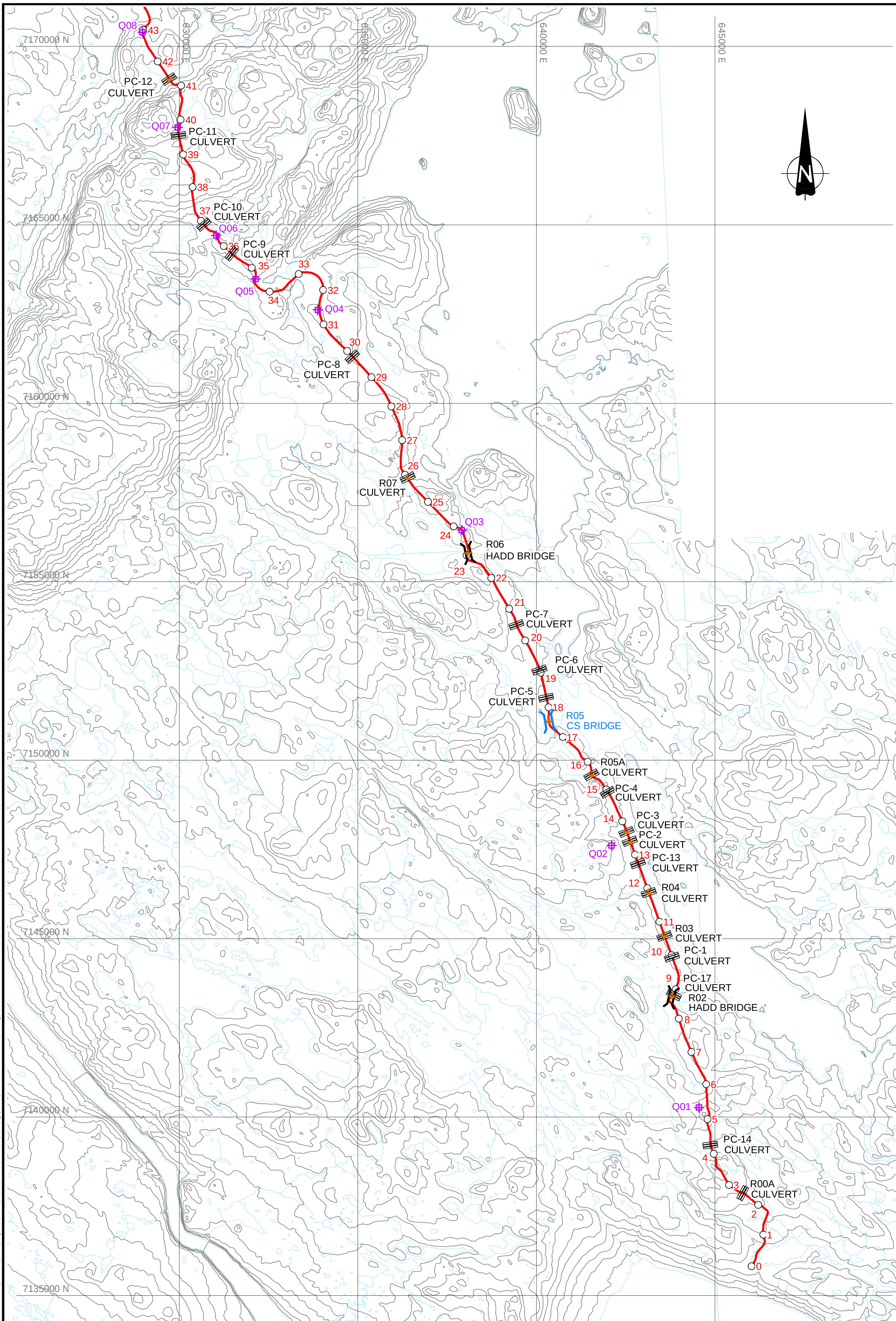
REVIEW			



LEGEND

CULVERT

HADD BRIDGE

CLEAR-SPAN BRIDGE

EXISTING QUARRY

10 KILOMETER MARKER

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES LTD.
2) BASE DRAWING FROM GOLDER ASSOCIATES LTD.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

ALL-WEATHER PRIVATE ROAD
2010 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No.		10-1428-0033	PHASE No.	2000
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REVIEW				

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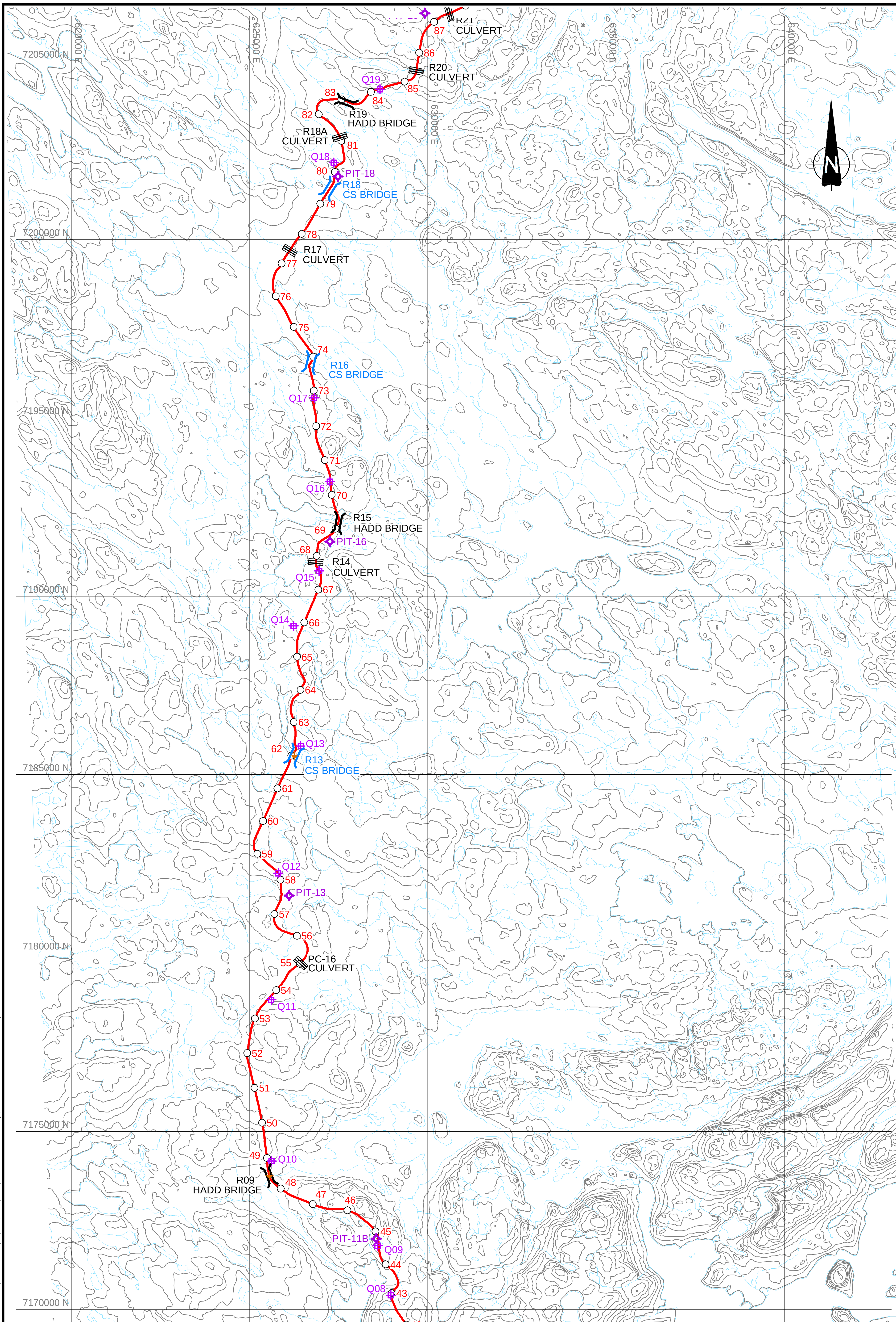

LEGEND

- CULVERT
- HADD BRIDGE
- CLEAR-SPAN BRIDGE
- EXISTING QUARRY
- C10 KILOMETER MARKER
- PIT INVESTIGATED

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES LTD.
2) BASE DRAWING FROM GOLDER ASSOCIATES LTD.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

ALL-WEATHER PRIVATE ROAD
2010 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No.		10-1428-0033	PHASE No.	2000
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CHECK			**FIGURE 5B**	
REVIEW				

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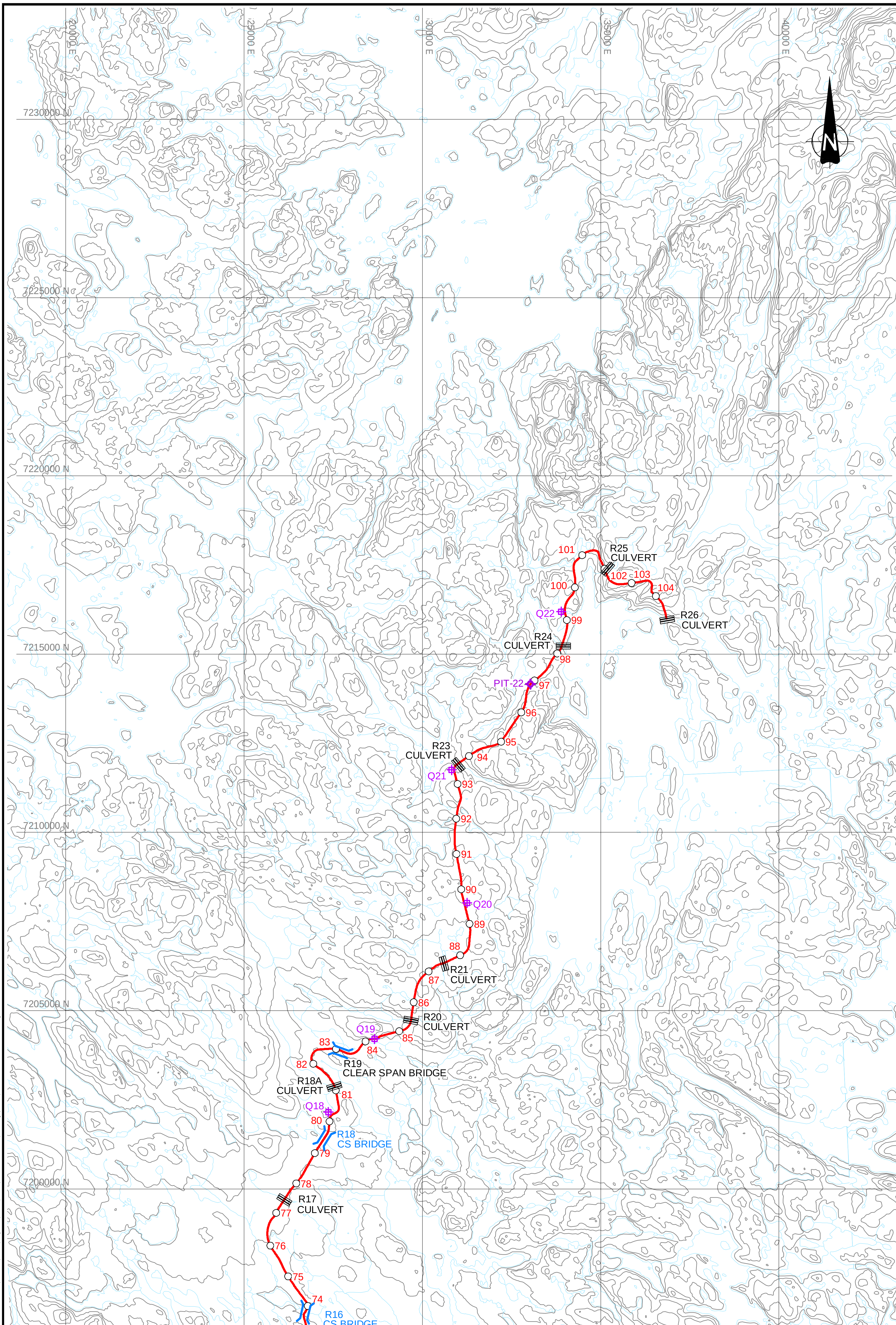

LEGEND

CULVERT
HADD BRIDGE
CLEAR-SPAN BRIDGE
EXISTING QUARRY
10 KILOMETER MARKER

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES LTD.
2) BASE DRAWING FROM GOLDER ASSOCIATES LTD.

PROJECT
AEM
AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE
ALL-WEATHER PRIVATE ROAD
2010 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No.	10-1428-0033	PHASE No.	2000
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CHECK			
REVIEW			

FIGURE 5C

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APPENDIX A – DEWATERING DIKES

Appendix A1 - East Dike: Photographic Log and Record of Inspection
Appendix A2 - West Channel Dike: Photographic Log and Record of Inspection
Appendix A3 - South Camp Dike: Photographic Log
Appendix A4 - Bay Goose Dike: Photographic Log

Appendix A1 – East Dike:

Photographic Log and Record of Inspection

PHOTOGRAPH A1-1 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4129 and IMG_4130

Description: Panoramic view of downstream side from south abutment looking north.

PHOTOGRAPH A1-2 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4131

Description: Pond feeding south weir, looking west.

PHOTOGRAPH A1-3 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4132

Description: Staff gauge and upstream side of south weir.

PHOTOGRAPH A1-4 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4133 and IMG_4134

Description: Discharge from south weir approximately downstream of Sta. 60+225, flow about 4 L/s.

PHOTOGRAPH A1-5 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4135

Description: Looking south along downstream toe approximately Sta. 60+300.

PHOTOGRAPH A1-6 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4136

Description: Looking north along downstream toe approx. Sta. 60+400 and pool which feeds north weir.

PHOTOGRAPH A1-7 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4137

Description: Looking west at north weir.

PHOTOGRAPH A1-8 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4138 and IMG_4139

Description: Looking east at north weir, approximately downstream of Sta. 60+450, flow about 8 L/s.

PHOTOGRAPH A1-9 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4140

Description: Looking north towards seepage zone #3 from approximately Sta. 60+480.

PHOTOGRAPH A1-10 – East Dike

Date: September 18, 2009. **Photo Number:** IMG_4141

Description: Ponded water at downstream toe feeding seepage zone #3 approximately Sta. 60+530.

PHOTOGRAPH A1-11 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4142

Description: Looking west at seepage zone #3 approximately Sta. 60+550.

PHOTOGRAPH A1-12 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4143

Description: Looking south at seepage zone #3 downstream toe Sta. 60+550.

PHOTOGRAPH A1-13 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4144

Description: Looking south downstream toe.

PHOTOGRAPH A1-14 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4145

Description: Looking south at seepage zone #3 approximately Sta. 60+600.

PHOTOGRAPH A1-15 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4146

Description: Looking north downstream toe approximately Sta. 60+600.

PHOTOGRAPH A1-16 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4147 and IMG_4148

Description: Looking north downstream toe approximately Sta. 60+700.

PHOTOGRAPH A1-17 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4149

Description: Downstream toe at north abutment looking south. Note rock on right side of photo is new road.

PHOTOGRAPH A1-18 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4150

Description: Looking south along downstream side from north abutment.

PHOTOGRAPH A1-19 – East Dike

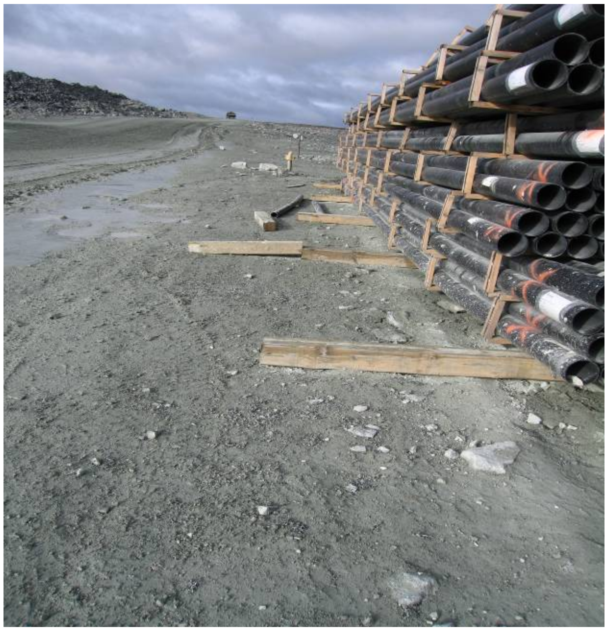
Date: September 18, 2010. **Photo Number:** IMG_4151

Description: Looking south along upstream side from north abutment.

PHOTOGRAPH A1-20 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4152 and IMG_4153

Description: From north abutment looking south along upstream of dike across crest.



PHOTOGRAPH A1-21 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4154

Description: Piping stored on and near centreline of cutoff, on north abutment.

PHOTOGRAPH A1-22 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4155

Description: Instrumentation and hut on north abutment.

PHOTOGRAPH A1-23 – East Dike

Date: September 18, 2009. **Photo Number:** IMG_4156

Description: Settlement monitors destroyed foreground and in far ground too with orange cap on top.

PHOTOGRAPH A1-24 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4157

Description: Looking north along dike crest from approximately Sta. 60+650.

PHOTOGRAPH A1-25 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4158

Description: Looking south across dike crest from approximately Sta. 60+550.

PHOTOGRAPH A1-26 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4159

Description: Settlement near Sta. 60+540.

PHOTOGRAPH A1-27 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4160

Description: Instruments looking south approximately from Sta. 60+480.

PHOTOGRAPH A1-28 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4161

Description: Temporary thermistor installations, 2010 to delineate seepage zone in general sinkhole area.

PHOTOGRAPH A1-29 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4162

Description: Sta. 60+400 from centreline of cutoff looking north at instrument installations being used to delineate seepage zone, downstream piezometers, centreline temporary thermistors, upstream emergency grout casings evident in photo.

PHOTOGRAPH A1-30 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4163

Description: Sta. 60+350 from crest looking north along upstream rockfill slope.

PHOTOGRAPH A1-31 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4164

Description: Sta. 60+350 from crest looking south along upstream rockfill slope.

PHOTOGRAPH A1-32 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4165

Description: Sta. 60+300 from crest looking north along downstream rockfill slope.

PHOTOGRAPH A1-33 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4166

Description: South abutment looking north along dike crest. Containers stored on/adjacent to cutoff wall alignment.

PHOTOGRAPH A1-34 – East Dike

Date: September 18, 2010. **Photo Number:** IMG_4167

Description: East dike intersection with road to South Portage. Note no protection for dike monitoring instrumentation.

RECORD OF DAM INSPECTION

Client:	AEM	**By:**	Fiona Esford
Project:	Meadowbank	**Date:**	September 18, 2010
Location:	East Dike	**Reviewed:**	Michel Julien

GENERAL INFORMATION			
Dam Type:	Rockfill embankment with a soil bentonite cutoff wall and downstream filters		
Weather Conditions:	Mostly overcast	**Temp:**	12°C approximately

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST			
1.1 Crest elevation	+/-136.5, cutoff 136.1m		Design 137.1m
1.2 Reservoir Level	132.88 upstream 110.33 downstream		
Current Freeboard	3.62 m		Design 4 m.
1.3 Distance To Tailings Pond (if applicable)	Not applicable		
1.4 Surface Cracking	None at time of inspection		At time of inspection, no new surface cracking was observed. Previously cracking observed in sinkhole area near Sta. 60+472 upstream of the cutoff wall, parallel and perpendicular.
1.5 Unexpected Settlement	Not at time of inspection.	Photo A1-A1-26, Appendix A1	No measurements (survey) of settlement monuments has occurred and some have been destroyed. Settlement of dike near Sta. 60+540 observed see Photograph 26, Appendix A1. Sinkhole did exist in July 2009 (Sta. 60+472) and has been filled in.
1.6 Lateral Movement	Not apparent.		

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
1.7 Other Unusual Conditions	None		
2. UPSTREAM SLOPE 2.1 Slope angle 2.2 Signs of Erosion 2.3 Signs of Movement (Deformation) 2.4 Cracks 2.5 Face liner condition (if applicable) 2.6 Other Unusual Conditions	Approx. 1.6H:1V Stable None observed None observed Not applicable None		Rockfill
3. DOWNSTREAM SLOPE 3.1 Slope angle 3.2 Signs of Erosion 3.3 Signs of Movement (Deformation) 3.4 Cracks 3.5 Seepage or Wet Areas 3.6 Vegetation Growth 3.7 Other Unusual Conditions	Approx.1.6H:1V None observed. None observed. None observed. Not apparent. None observed. None		Rockfill. On surface of rockfill at periodic locations, fine grained material from cleaning of the road has been pushed over the embankment slope. Fill has been placed on downstream side of the south abutment.
4. DOWNSTREAM TOE AREA 4.1 Seepage from Dam	Yes	Appendix A1: North Weir Photos A1- 6 to 8 South Weir Photos A1-1 to 4	Seepage downstream of Sta. 60+450, where weir was installed in 2009, stable (about 8 l/s), clear flow “north weir”. Seepage near 60+225 now measured by “south weir” installed in 2010, stable (about 4 l/s) clear flow. Additional small seepage zone #3 noted near 60+550, no weir

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
		Seepage Zone #3 Photos A1-9 to 11 Moisture Photos A1-16 to 18.	flow measurement, estimated 1 l/s, clear flow. Between 60+700 and 60+750 although no defined seepage noted, surface of lakebed soils is moist and has moss growing on it. Given dry weather this year, water source likely from seepage through the dike.
4.2 Signs of Erosion	Not observed.		
4.3 Signs of Turbidity in Seepage Water	No. Clear flow.		
4.4 Discoloration/staining	Some.	Appendix A1: Photo A1-11	Near seepage Zone 3 (Sta. 60+550) some orange colouration was observed.
4.5 Outlet operating problem (if applicable)	Not applicable.		No outlet, dewatering pump.
4.6 Other Unusual Conditions	None.		
5. ABUTMENTS			
5.1 Seepage at contact zone (abutment/embankment)	Not observed.		
5.2 Signs of Erosion	Not observed.		
5.3 Excessive Vegetation	No.		
5.4 Presence of Rodent Burrows	Not observed.		
5.5 Other Unusual Conditions	None.		
6. RESERVOIR			
6.1 Stability of Slopes	Stable.		Low relief region, stable upstream and downstream of dike. Portage Pit will be developed on the downstream side of the dike, but development on downstream side has not begun yet.

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
6.2 Distance to Nearest Slide (if applicable)	None observed.		
6.3 Estimate of Slide Volume (if applicable)	Not applicable.		
6.4 Floating debris	None observed.		
6.5 Other Unusual Conditions	None		
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition	No spillway or outlet structure exists, only dewatering pump.		
7.2 Signs of Erosion			
7.3 Signs of Movement (Deformation)			
7.4 Cracks			
7.5 Settlement			
7.6 Presence of Debris or Blockage			
7.7 Closure mechanism operational			
7.8 Slope Protection			
7.9 Instability of Side Slopes			
7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	Yes		See section 4.0
8.2 Settlement Cells	No		
8.3 Thermistors	Yes		See section 4.0
8.4 Settlement Monuments	Survey monuments		No data. Not surveyed.
8.5 Seismograph	Periodic		Periodic monitoring of blasting from open pit operations is conducted.
8.6 Inclinometer	Yes		
8.7 Weirs and Flow Monitors	Yes. Flow is stable (about 13 l/s) and clear.		

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
8.8 Data logger(s) 8.9 Other			
9. DOCUMENTATION 9.1 Operation, Maintenance and Surveillance (OMS) Plan 9.1.1 OMS Plan exists 9.1.2 OMS Plan reflects current dam conditions 9.1.3 Date of last revision 9.2 Emergency Preparedness Plan (EPP) 9.2.1 EPP exists 9.2.2 EPP reflects current conditions 9.2.3 Date of last revision	Draft No Feb. 2009 Draft Draft No Feb. 2009 Draft		Not implemented. AEM plans to revise/update plan. AEM plans to revise /update the EPP. Contingency Grouting Plan exists, but does not reflect current understanding of dike condition (extent of impacted zone), based on information obtained from 2010 thermistor installations near Sta. 60+440 to 60+515

10. NOTES			
Inspector's Signature		**Date:**	

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Appendix A2 – West Channel Dike:

Photographic Log and Record of Inspection

PHOTOGRAPH A2-1 – West Channel Dike

Date: September 18, 2010. **Photo Number:** IMG_4122 and IMG_4123

Description: Upstream side from east abutment looking west.

PHOTOGRAPH A2-2 – West Channel Dike

Date: September 18, 2010. **Photo Number:** IMG_4126

Description: Downstream side from east abutment looking west.

RECORD OF DAM INSPECTION

Client:	AEM	**By:**	Fiona Esford
Project:	Meadowbank	**Date:**	September 18, 2010
Location:	West Channel Dike	**Reviewed:**	Michel Julien

GENERAL INFORMATION			
Dam Type:	Rockfill embankment with till core and downstream filter		
Weather Conditions:	Mostly overcast	**Temp:**	12°C approximately

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST			
1.1 Crest elevation	Approx. 137.6 surcharge, and 135.6 m till core		
1.2 Reservoir Level	133.6 upstream 110.33 downstream		
Current Freeboard	4 m		
1.3 Distance To Tailings Pond (if applicable)	Not applicable		
1.4 Surface Cracking	None at time of inspection		
1.5 Unexpected Settlement	None observed at time of inspection.		
1.6 Lateral Movement	Not apparent.		
1.7 Other Unusual Conditions	None		
2. UPSTREAM SLOPE			
2.1 Slope angle	Approx. 1.6H:1V		Rockfill
2.2 Signs of Erosion	Stable		
2.3 Signs of Movement (Deformation)	None observed		

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	Not applicable		
2.6 Other Unusual Conditions	None		
3. DOWNSTREAM SLOPE			
3.1 Slope angle	Approx.1.6H:1V		Rockfill.
3.2 Signs of Erosion	None observed.		
3.3 Signs of Movement (Deformation)	None observed.		
3.4 Cracks	None observed.		
3.5 Seepage or Wet Areas	Not apparent.		
3.6 Vegetation Growth	None observed.		
3.7 Other Unusual Conditions	None		
4. DOWNSTREAM TOE AREA			
4.1 Seepage from Dam	None observed.		
4.2 Signs of Erosion	None observed.		
4.3 Signs of Turbidity in Seepage Water	Not applicable		
4.4 Discoloration/staining	None observed.		
4.5 Outlet operating problem (if applicable)	Not applicable.		No outlet, dewatering pump.
4.6 Other Unusual Conditions	None		
5. ABUTMENTS			
5.1 Seepage at contact zone (abutment/embankment)	Not observed.		
5.2 Signs of Erosion	Not observed.		
5.3 Excessive Vegetation	No.		
5.4 Presence of Rodent	Not observed.		

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
Burrows 5.5 Other Unusual Conditions	None.		
6. RESERVOIR 6.1 Stability of Slopes 6.2 Distance to Nearest Slide (if applicable) 6.3 Estimate of Slide Volume (if applicable) 6.4 Floating debris 6.5 Other Unusual Conditions	Stable. None observed. Not applicable. None observed. None		Low relief region, natural slopes are stable upstream and downstream of dike. Portage Pit development has begun and is in close proximity to the dike. Note once dewatering of the portion of Third Portage Lake which is isolated by the Bay-Goose Dike and South Camp is complete, then West Channel Dike is no longer required. For further information on pit slope stability refer to Golder Doc No. 1219.
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE 7.1 Surface Condition 7.2 Signs of Erosion 7.3 Signs of Movement (Deformation) 7.4 Cracks 7.5 Settlement 7.6 Presence of Debris or Blockage 7.7 Closure mechanism operational 7.8 Slope Protection 7.9 Instability of Side Slopes 7.10 Other Unusual Conditions	No spillway or outlet structure exists, only dewatering pump.		

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
8. INSTRUMENTATION			
8.1 Piezometers	No		
8.2 Settlement Cells	No		
8.3 Thermistors	No		
8.4 Settlement Monuments	No		
8.5 Seismograph	Periodic blast monitoring.		
8.6 Inclinometer	No		
8.7 Weirs and Flow Monitors	No		
8.8 Data logger(s)	No		
8.9 Other			
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	No		AEM plans to prepare one.
9.1.2 OMS Plan reflects current dam conditions	No		
9.1.3 Date of last revision	Not applicable.		
9.2 Emergency Preparedness Plan (EPP)			
9.2.1 EPP exists	No		
9.2.2 EPP reflects current conditions	No		
9.2.3 Date of last revision	Not applicable.		
10. NOTES			

Inspector's Signature		**Date:**	

Appendix A3 – South Camp Dike:

Photographic Log

PHOTOGRAPH A3-1 – South Camp Dike

Date: September 19, 2010. **Photo Number:** IMG_4224

Description: Looking south at downstream side of dike and across crest.

PHOTOGRAPH A3-2 – South Camp Dike

Date: September 19, 2010. **Photo Number:** IMG_4226

Description: Looking south at upstream side of dike and across the dike crest. Thermistor installation locations are evident on upstream side.

PHOTOGRAPH A3-3 – South Camp Dike

Date: September 19, 2010. **Photo Number:** IMG_4227

Description: Looking south at upstream slope and thermistor installation locations.

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Appendix A4 – Bay-Goose Dike:

Photographic Log

PHOTOGRAPH A4-1 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_3674_3675_3676

Description: From south abutment looking east at ongoing construction activities: initial trench excavation, trench backfilling, dynamic compaction and vibro densification. Note turbidity barriers within Third Portage Lake.

PHOTOGRAPH A4-2 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** ING_3678

Description: Initial trench excavation near south abutment, view looking east.

PHOTOGRAPH A4-3 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_4225

Description: View of Bay Goose Dike construction activities from plant site looking south.

PHOTOGRAPH A4-4 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_4285

Description: Vibro densification and dynamic compaction work being conducted near south abutment. View looking east.

PHOTOGRAPH A4-5 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_4287

Description: Vibro densification near south abutment.

PHOTOGRAPH A4-6 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_4290

Description: Dynamic compaction and construction of densification platform.

PHOTOGRAPH A4-7 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_4292

Description: Construction activities.

PHOTOGRAPH A4-8 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_4295

Description: Cutoff trench excavation.

PHOTOGRAPH A4-9 – Bay Goose Dike

Date: September 13, 2010. **Photo Number:** IMG_4297

Description: Cement soil bentonite (CSB) backfill material for cutoff trench.

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APPENDIX B – TAILINGS STORAGE FACILITY

Appendix B1 - Tailings Storage Facility: Photographic Log
Appendix B2 - Saddle Dam 1: Photographic Log and Record of Inspection
Appendix B3 - Saddle Dam 2: Photographic Log
Appendix B4 - Stormwater Dike: Photographic Log and Record of Inspection
Appendix B5 – Reclaim Pond: Photographic Log

Appendix B1 – Tailings Storage Facility:

Photographic Log

PHOTOGRAPH B1-1 – Tailings Storage Facility

Date: September 13, 2010. **Photo Number:** IMG_3695

Description: Beach upstream of Stormwater Dike, looking north at Reclaim Pond and Reclaim Barge.

PHOTOGRAPH B1-2 – Tailings Storage Facility

Date: September 13, 2010. **Photo Number:** IMG_3696

Description: Looking west parallel to the upstream side of Stormwater Dike at the tailings beach.

PHOTOGRAPH B1-3 – Tailings Storage Facility

Date: September 13, 2010. **Photo Number:** IMG_3700_3701_3702

Description: Looking southeast from hill between Saddle Dam 1 and Saddle Dam 2 at the north cell of the Tailings Storage Facility and in the far ground Stormwater Dike.

PHOTOGRAPH B1-4 – Tailings Storage Facility

Date: September 18, 2010. **Photo Number:** IMG_4211

Description: Looking south across Reclaim Pond towards the Reclaim Barge and Causeway, west abutment of Stormwater Dike evident on left side of the photo.

PHOTOGRAPH B1-5 – Tailings Storage Facility

Date: September 18, 2010. **Photo Number:** IMG_4182

Description: End of pipe discharge of tailings near the west abutment of Stormwater Dike.

PHOTOGRAPH B1-6 – Tailings Storage Facility

Date: September 18, 2010. **Photo Number:** IMG_4184

Description: End of pipe discharge of tailings into the north cell of the Tailings Storage Facility.

Appendix B2 – Saddle Dam 1:

Photographic Log and Record of Inspection

PHOTOGRAPH B2-1 – Saddle Dam 1

Date: September 13, 2010. **Photo Number:** IMG_3704

Description: Upstream view of Saddle Dam 1, looking north. Note soil berm upstream of dike.

PHOTOGRAPH B2-2 – Saddle Dam 1

Date: September 13, 2010. **Photo Number:** IMG_3706_3707

Description: Upstream view of Saddle Dam 1, looking north, Stage 1 and Stage 2 evident.

PHOTOGRAPH B2-3 – Saddle Dam 1

Date: September 18, 2010. **Photo Number:** IMG_4212

Description: Till placed at upstream toe of Stage 2 north abutment, looking west.

PHOTOGRAPH B2-4 – Saddle Dam 1

Date: September 18, 2010. **Photo Number:** IMG_4213

Description: Stage 2, upstream filter on north abutment, looking south.

PHOTOGRAPH B2-5 – Saddle Dam 1

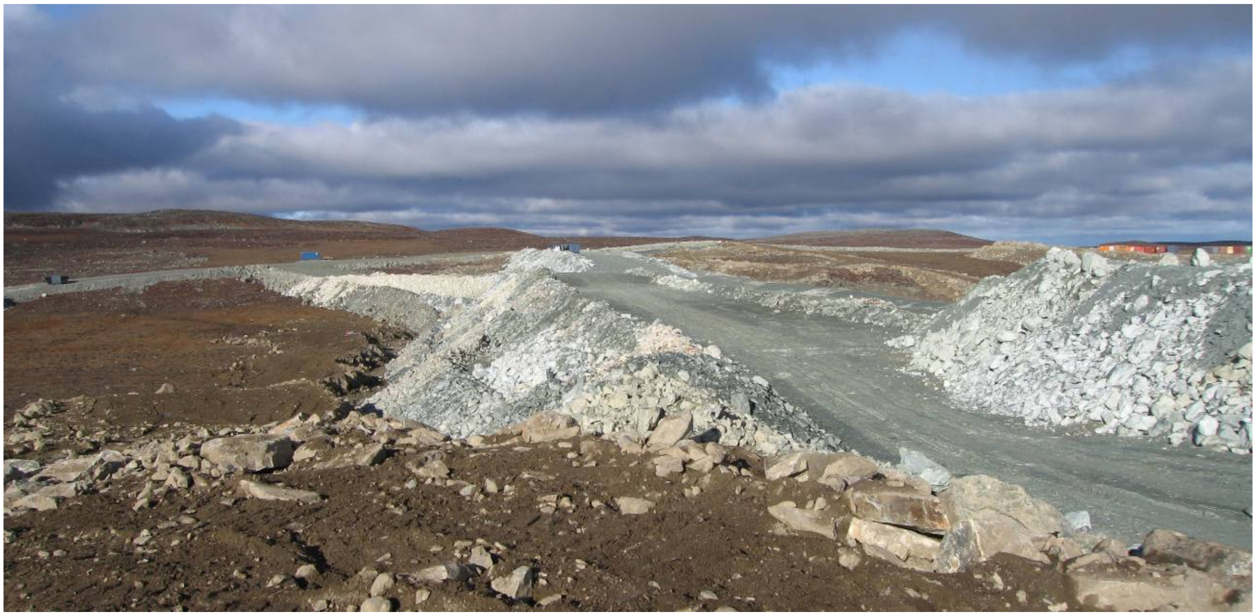
Date: September 19, 2010. **Photo Number:** IMG_4230

Description: Looking east at downstream rockfill slope of Saddle Dam 1.

PHOTOGRAPH B2-6 – Saddle Dam 1

Date: September 19, 2010. **Photo Number:** IMG_4231

Description: Looking south from north abutment at downstream rockfill slope of Saddle Dam 1.



PHOTOGRAPH B2-7 – Saddle Dam 1

Date: September 19, 2010. **Photo Number:** IMG_4231

Description: Looking north from south abutment at downstream rockfill slope of Saddle Dam 1, Stage 2 rockfill placement in progress.

PHOTOGRAPH B2-8 – Saddle Dam 1

Date: September 19, 2010. **Photo Number:** IMG_4234

Description: Looking north from south abutment at upstream slope with fine and coarse filters evident.

PHOTOGRAPH B2-9 – Saddle Dam 1

Date: September 19, 2010. **Photo Number:** IMG_4234

Description: Looking north from south abutment at upstream slope with fine and coarse filters evident.

PHOTOGRAPH B2-10 – Saddle Dam 1

Date: September 19, 2010. **Photo Number:** IMG_4238

Description: Looking east from down at area for liner connection between Stage 1 and Stage 2 on south abutment.

PHOTOGRAPH B2-11 – Saddle Dam 1

Date: September 19, 2010. **Photo Number:** IMG_4242_4243

Description: Upstream side of dike, filter placement, compaction and trimming in preparation for liner installation on Stage 2 raise.

PHOTOGRAPH B2-12 – Saddle Dam 1

Date: September 19, 2010. **Photo Number:** IMG_4246_4247

Description: Looking north from south abutment at upstream slope, Stage 1 and Stage 2 phases of dike construction evident. Note berm upstream of dike and reclaim pond water in contact with toe of dike.

PHOTOGRAPH B2-13 – Saddle Dam 1

Date: October 12, 2010.**Photo Number:** SD1124

Description: View looking north at upstream side of dike, with tailings being discharged between the berm and dike toe.

PHOTOGRAPH B2-14 – Saddle Dam 1

Date: October 16, 2010.**Photo Number:** SD1128

Description: Looking south at tailings discharge between dike toe and berm.

PHOTOGRAPH B2-15 – Saddle Dam 1

Date: October 19, 2010.**Photo Number:** SD1128

Description: Looking south at tailings discharge which has been completed between the berm and dike toe. Note tailings being discharged into north cell of tailings basin from upstream side of berm.

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RECORD OF DAM INSPECTION

Client:	AEM	**By:**	Fiona Esford
Project:	Meadowbank	**Date:**	September 19, 2010
Location:	Saddle Dam 1	**Reviewed:**	Michel Julien

GENERAL INFORMATION

Dam Type: Rockfill embankment with inverted filter on base, upstream filters, a geomembrane liner, and protective cover.

Weather Conditions:	Mixture of sun and cloud	**Temp:**	12°C approximately

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST			
1.1 Crest elevation	+/-141 m Stage 1, +/- 150 m Stage 2 (in progress)		
1.2 Reservoir Level	About 133.33 m upstream		
Current Freeboard	About 14 m		
1.3 Distance To Tailings Pond (if applicable)	0 m		At time of inspection, the Reclaim Pond was in contact with the toe of the dike, about 3 to 4 m of the dike toe were flooded.
1.4 Surface Cracking	None observed at time of inspection.		
1.5 Unexpected Settlement	None observed at time of inspection.		No survey monuments have been installed to measure settlement. Stage 2 construction still in progress. No measurements of settlement of Stage 1 construction were taken.

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
1.6 Lateral Movement 1.7 Other Unusual Conditions	Not apparent. None		
2. UPSTREAM SLOPE 2.1 Slope angle 2.2 Signs of Erosion 2.3 Signs of Movement (Deformation) 2.4 Cracks 2.5 Face liner condition (if applicable) 2.6 Other Unusual Conditions	Approx. 3H:1V Stable None observed None observed LLDPE with geotextile above and below None		LLDPE geomembrane liner, with at least 0.3 m of fine filter as a protective layer. At toe, fine filter mixed with dry bentonite, then additional coarse filter and rockfill.
3. DOWNSTREAM SLOPE 3.1 Slope angle 3.2 Signs of Erosion 3.3 Signs of Movement (Deformation) 3.4 Cracks 3.5 Seepage or Wet Areas 3.6 Vegetation Growth 3.7 Other Unusual Conditions	Approx.1.3H:1V None observed. None observed. None observed. None observed on slope. None observed. None		Rockfill. Water at downstream toe. Surface water pool.
4. DOWNSTREAM TOE AREA 4.1 Seepage from Dam 4.2 Signs of Erosion 4.3 Signs of Turbidity in Seepage Water	No Not observed. No.		Water pool at downstream toe is at an elevation higher than that of the Reclaim Pond, by about 1 m. Pool is not believed to be from seepage.

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
4.4 Discoloration/staining	No.		
4.5 Outlet operating problem (if applicable)	Not applicable.		
4.6 Other Unusual Conditions	None.		
5. ABUTMENTS			
5.1 Seepage at contact zone (abutment/embankment)	Not observed.		
5.2 Signs of Erosion	Not observed.		
5.3 Excessive Vegetation	No.		
5.4 Presence of Rodent Burrows	Not observed.		
5.5 Other Unusual Conditions	None.		
6. RESERVOIR			
6.1 Stability of Slopes	Stable.		Low relief region, stable upstream and downstream of dike. Portage Rock Storage Facility is being developed on east side of the Tailings Storage Facility. At present, height of slopes are not significant.
6.2 Distance to Nearest Slide (if applicable)	None observed.		
6.3 Estimate of Slide Volume (if applicable)	Not applicable.		
6.4 Floating debris	None observed.		
6.5 Other Unusual Conditions	None		
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition 7.2 Signs of Erosion 7.3 Signs of Movement (Deformation)	No spillway or outlet structure exists, only Reclaim Pond pumping system.		

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
7.4 Cracks 7.5 Settlement 7.6 Presence of Debris or Blockage 7.7 Closure mechanism operational 7.8 Slope Protection 7.9 Instability of Side Slopes 7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	No		
8.2 Settlement Cells	No		
8.3 Thermistors	Yes		See Section 4.0
8.4 Settlement Monuments	No		Drawings show settlement monuments to be installed on Stage 2 crest.
8.5 Seismograph	No		
8.6 Inclinometer	No		
8.7 Weirs and Flow Monitors	No		Drawings indicated a seepage collection system is to be constructed. AEM has indicated they plan to construct a seepage collection and pumpback system. It is anticipated that a weir or other device should be installed to measure flow.
8.8 Data logger(s)	No		
8.9 Other	No		

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	No		AEM plans to prepare one.
9.1.2 OMS Plan reflects current dam conditions	No – as no plan exists		
9.1.3 Date of last revision	NA		
9.2 Emergency Preparedness Plan (EPP)			
9.2.1 EPP exists	No		AEM plans to prepare one.
9.2.2 EPP reflects current conditions	No – as no plan exists		
9.2.3 Date of last revision	NA		
10. NOTES			
Inspector's Signature		**Date:**	

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Appendix B3 – Saddle Dam 2:

Photographic Log

PHOTOGRAPH B3-1 – Saddle Dam 2

Date: September 13, 2010. **Photo Number:** IMG_3697

Description: Rockfill dam with till placement occurring at toe of dike. Photograph was taken near central portion of the dike crest looking northwest.

PHOTOGRAPH B3-2 – Saddle Dam 2

Date: September 13, 2010. **Photo Number:** IMG_3699

Description: Till placement at toe of dike for liner connection.

PHOTOGRAPH B3-3 – Saddle Dam 2

Date: September 13, 2010. **Photo Number:** IMG_3699

Description: Foundation preparation work of bedrock at toe of dike for liner connection. Note till placement above bedrock evident in far ground of photograph.

PHOTOGRAPH B3-4 – Saddle Dam 2

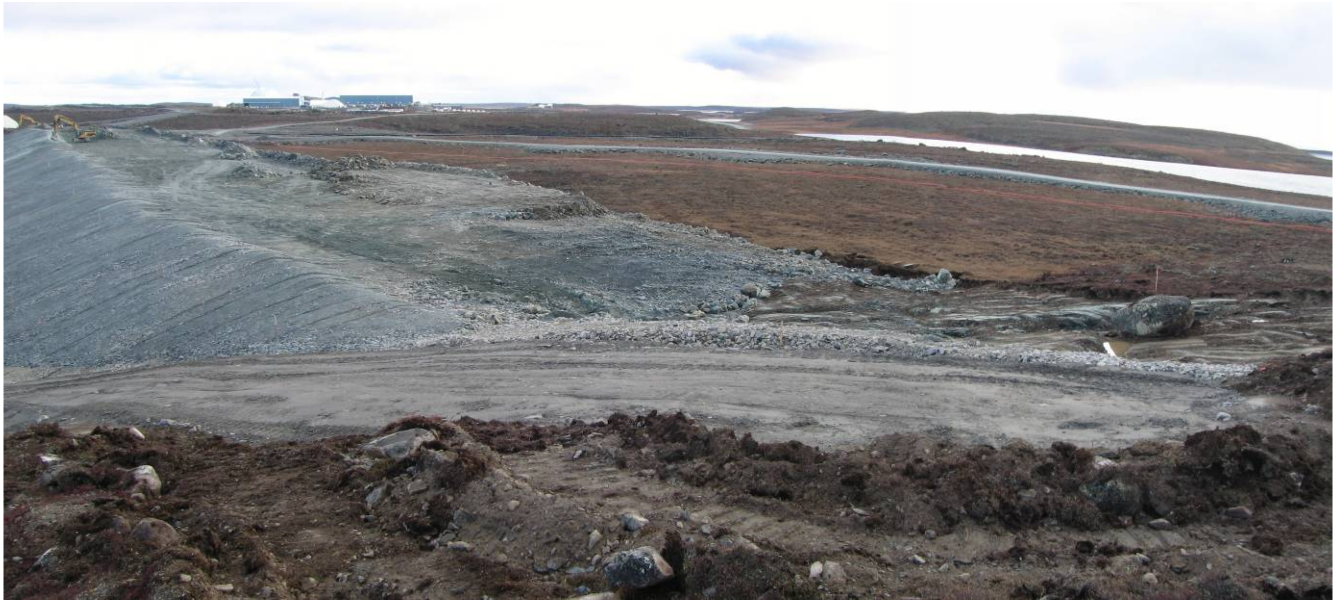
Date: September 14, 2010. **Photo Number:** IMG_3709

Description: Foundation preparation work of bedrock at toe of dike for liner connection.

PHOTOGRAPH B3-5 – Saddle Dam 2

Date: September 19, 2010. **Photo Number:** IMG_4248

Description: From north abutment looking southeast along toe of dike and liner connection. Note construction was still in progress and crest height had not reached 150 m.



PHOTOGRAPH B3-6 – Saddle Dam 2

Date: September 19, 2010. **Photo Number:** IMG_4251_4252

Description: From north abutment looking southeast along crest and towards downstream side of the dike. Note construction was still in progress and crest height had not reached 150 m.

PHOTOGRAPH B3-7 – Saddle Dam 2

Date: September 19, 2010. **Photo Number:** IMG_4259

Description: Fine filter placement above coarse filter on upstream face of dike. Note coarse filter has been compacted and stakes in place to guide fine filter placement.

PHOTOGRAPH B3-8 – Saddle Dam 2

Date: September 19, 2010. **Photo Number:** IMG_4260

Description: Compacted till at upstream toe for liner connection and fine filter placed on upstream slope of dike. Photo was taken near centre of dike at the toe looking southeast.

PHOTOGRAPH B3-9 – Saddle Dam 2

Date: September 19, 2010. **Photo Number:** IMG_4262

Description: Foundation preparation work for upstream liner toe connection on south abutment, view looking northwest.

PHOTOGRAPH B3-10 – Saddle Dam 2

Date: September 20, 2010. **Photo Number:** IMG_4304

Description: Looking southeast, along upstream side of dike at south abutment. Note foundation preparation of bedrock surface at dike toe.

PHOTOGRAPH B3-11 – Saddle Dam 2

Date: September 20, 2010. **Photo Number:** IMG_4306

Description: Rock outcrop near south abutment, protruding through filter on upstream slope, looking southwest.

PHOTOGRAPH B3-12 – Saddle Dam 2

Date: September 20, 2010. **Photo Number:** IMG_4309

Description: View looking north, near centre of dike along upstream toe. Note compacted till at toe and fine filter on upstream slope of the dike.

Appendix B4 – Stormwater Dike:

Photographic Log and Record of Inspection

PHOTOGRAPH B4-1 – Stormwater Dike

Date: September 13, 2010. **Photo Number:** IMG_3690

Description: Downstream rockfill slope of Stormwater Dike. View from east abutment looking northeast.

PHOTOGRAPH B4-2 – Stormwater Dike

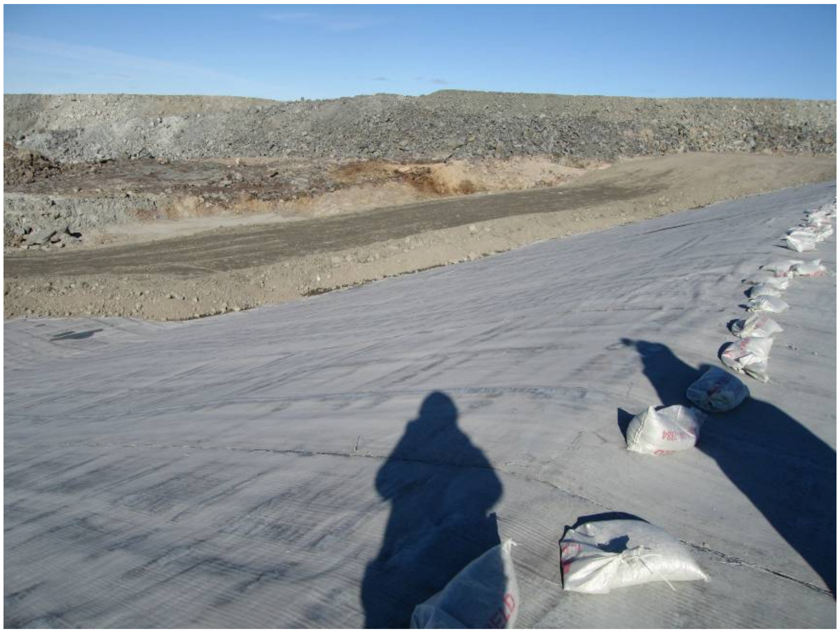
Date: September 13, 2010. **Photo Number:** STA_3692

Description: Stage 2 bituminous liner and connection at bench (El. 140 m) with Stage 1 liner. Dike crest at 148 m.

PHOTOGRAPH B4-3 – Stormwater Dike

Date: September 13, 2010. **Photo Number:** STB_3693

Description: Upstream slope of Stage 2 construction. Bituminous liner installed. View looking north.



PHOTOGRAPH B4-4 – Stormwater Dike

Date: September 13, 2010. **Photo Number:** IMG_3694

Description: East abutment of Stage 2 construction. Compacted till placed above bedrock surface.

PHOTOGRAPH B4-5 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4168

Description: Downstream rockfill slope looking towards eastern abutment. Vegetation indicates limit of former lake elevation.

PHOTOGRAPH B4-6 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4169

Description: Downstream rockfill slope looking southeast from dike crest (El. 148 m).

PHOTOGRAPH B4-7 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4174

Description: Downstream rockfill slope looking at former lake bed from dike crest near Sta. 10+650.

PHOTOGRAPH B4-8 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4175

Description: Downstream rockfill slope looking towards water treatment plant on west abutment from dike crest.

PHOTOGRAPH B4-9 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4170

Description: View looking west from about Sta. 10+300 of upstream lined slope, crest 148 m with pipe bench constructed on crest.

PHOTOGRAPH B4-10 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4183

Description: Some wrinkles observed in installed liner.

PHOTOGRAPH B4-11 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4187

Description: View looking west at liner crew deploying liner on west abutment of Stage 2 approaching Saddle Dam 2 connection. Note bench between Stage 1 and Stage 2 raises.

PHOTOGRAPH B4-12 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4188

Description: Repairs in 2010 liner remain to be made. Repairs in damaged 2009 liner also remain, example near 10+400.

PHOTOGRAPH B4-13 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4190

Description: Damaged liner, still to be repaired, example near 10+650.

PHOTOGRAPH B4-14 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4192

Description: View from upstream looking at upstream face of Stormwater Dike's east abutment, looking south.

PHOTOGRAPH B4-15 – Stormwater Dike

Date: September 18, 2010. **Photo Number:** IMG_4193

Description: View from upstream looking at upstream face of Stormwater Dike's between the east abutment and about Sta. 10+600, looking south.

PHOTOGRAPH B4-16 – Stormwater Dike

Date: September 19, 2010. **Photo Number:** IMG_4271_4274

Description: View from upstream looking at Stormwater Dike and tailings beach.

PHOTOGRAPH B4-17 – Stormwater Dike

Date: September 29, 2010. **Photo Number:** Downstream Rockfill Slope

Description: View near downstream crest between Sta. 10+849 and 10+940 showing tension cracks on the far right side of the photo and downstream rockfill slope, looking west.

PHOTOGRAPH B4-18 – Stormwater Dike

Date: September 29, 2010. **Photo Number:** View East 2

Description: View near downstream crest between Sta. 10+849 and 10+940 showing tension cracks, looking east.

PHOTOGRAPH B4-19 – Stormwater Dike

Date: September 29, 2010. **Photo Number:** View West

Description: View near downstream crest between Sta. 10+849 and 10+940 showing tension cracks, looking west.

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RECORD OF DAM INSPECTION

Client:	AEM	**By:**	Fiona Esford
Project:	Meadowbank	**Date:**	September 18, 2010
Location:	Stormwater Dike	**Reviewed:**	Michel Julien

GENERAL INFORMATION			
Dam Type: Rockfill embankment with upstream filters, and a bituminous geomembrane liner. Compacted till placed above liner at toe, prior to tailings depositon.			
Weather Conditions:	Mostly cloudy	**Temp:**	12°C approximately

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST			
1.1 Crest elevation	+/-140 m Stage 1, +/- 148 m Stage 2 (in progress)		Stage 2 design 150 m
1.2 Reservoir Level	About 133.33 m upstream		
Current Freeboard	About 14 m		
1.3 Distance To Tailings Pond (if applicable)	50 m (variable)		At time of inspection, the Reclaim Pond was about 50 m away from dike, variable. Tailings being desposited near west abutment.
1.4 Surface Cracking	Tension cracks between Sta. 10+849 and 10+940.		Cracks observed near downstream crest. It is understood that AEM will monitor the cracks.
1.5 Unexpected Settlement	None observed at time of inspection.		No survey monuments have been installed to measure settlement. Stage 2 construction still in progress. No measurements of settlement of Stage 1 construction were

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
1.6 Lateral Movement 1.7 Other Unusual Conditions	Not apparent. None		taken.
2. UPSTREAM SLOPE			
2.1 Slope angle	Approx. 3H:1V		
2.2 Signs of Erosion	Stable		
2.3 Signs of Movement (Deformation)	None observed		
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	Bituminous geomembrane		Damage of 2009 and 2010 liner observed. It is understood these will be fixed as part of the 2010 works.
2.6 Other Unusual Conditions	None		
3. DOWNSTREAM SLOPE			
3.1 Slope angle	Approx.1.2 or 1.3H:1V variable		Rockfill.
3.2 Signs of Erosion	None observed.		
3.3 Signs of Movement (Deformation)	Tension cracks at crest between Sta. 10+849 and 10+940 near downstream.		AEM is monitoring.
3.4 Cracks	As mentioned above.		
3.5 Seepage or Wet Areas	Moss evident beyond downstream toe area and also softer areas of the foundation. None on downstream slope.		Softer areas downstream may be attributed to the origin of the material "lakebed sediments".

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
3.6 Vegetation Growth 3.7 Other Unusual Conditions	None observed. None		
4. DOWNSTREAM TOE AREA 4.1 Seepage from Dam 4.2 Signs of Erosion 4.3 Signs of Turbidity in Seepage Water 4.4 Discoloration/staining 4.5 Outlet operating problem (if applicable) 4.6 Other Unusual Conditions	 No Not observed. No. No. Not applicable. None.		
5. ABUTMENTS 5.1 Seepage at contact zone (abutment/embankment) 5.2 Signs of Erosion 5.3 Excessive Vegetation 5.4 Presence of Rodent Burrows 5.5 Other Unusual Conditions	 Not observed. Not observed. No. Not observed. None.		
6. RESERVOIR 6.1 Stability of Slopes 6.2 Distance to Nearest Slide (if applicable) 6.3 Estimate of Slide Volume (if applicable)	 Stable. None observed. Not applicable.		Low relief region, stable upstream and downstream of dike. Portage Rock Storage Facility is being developed on east side of the Tailings Storage Facility. At present, height of slopes are not significant.

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
6.4 Floating debris 6.5 Other Unusual Conditions	None observed. None		
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE 7.1 Surface Condition 7.2 Signs of Erosion 7.3 Signs of Movement (Deformation) 7.4 Cracks 7.5 Settlement 7.6 Presence of Debris or Blockage 7.7 Closure mechanism operational 7.8 Slope Protection 7.9 Instability of Side Slopes 7.10 Other Unusual Conditions	No spillway or outlet structure exists, only Reclaim Pond pumping system.		
8. INSTRUMENTATION 8.1 Piezometers 8.2 Settlement Cells 8.3 Thermistors 8.4 Settlement Monuments 8.5 Seismograph 8.6 Inclinometer 8.7 Weirs and Flow Monitors	No No No No No No No No		Drawings indicated a seepage collection system is to be constructed. AEM has indicated they plan to construct a seepage collection and pumpback system. It is anticipated that a weir or other device would be installed to measure flow as part of the system.

INSPECTION ITEM	OBSERVATIONS/ DATA	PHOTO	COMMENTS & OTHER DATA
8.8 Data logger(s) 8.9 Other	No		
9. DOCUMENTATION 9.1 Operation, Maintenance and Surveillance (OMS) Plan 9.1.1 OMS Plan exists 9.1.2 OMS Plan reflects current dam conditions 9.1.3 Date of last revision 9.2 Emergency Preparedness Plan (EPP) 9.2.1 EPP exists 9.2.2 EPP reflects current conditions 9.2.3 Date of last revision	No No – as no plan exists NA No No – as no plan exists NA		AEM plans to prepare one. AEM plans to prepare one.
10. NOTES			
Inspector's Signature		**Date:**	

\\bur1-s-filesrv2\final\2010\1428\10-1428-0033 meadowbank 2010 geotechnical inspection\doc 1216 ver. 0 rep 1129_10\app b\components\appendix b4 - record of dam inspection - swd rev 0-1203_10.doc

Appendix B5 – Reclaim Pond:

Photographic Log

PHOTOGRAPH B5-1 – Reclaim Pond

Date: September 18, 2010. **Photo Number:** IMG_4211

Description: Looking south across Reclaim Pond towards the Reclaim Barge and Causeway, west abutment of Stormwater Dike evident on left side of the photo.

PHOTOGRAPH B5-2 – Reclaim Pond

Date: October 23, 2010. **Photo Number:** PA230026

Description: Floating Reclaim Barge in Reclaim Pond.

PHOTOGRAPH B5-3 – Reclaim Pond

Date: October 23, 2010.**Photo Number:** PA230028

Description: Access ramp to barge from causeway.

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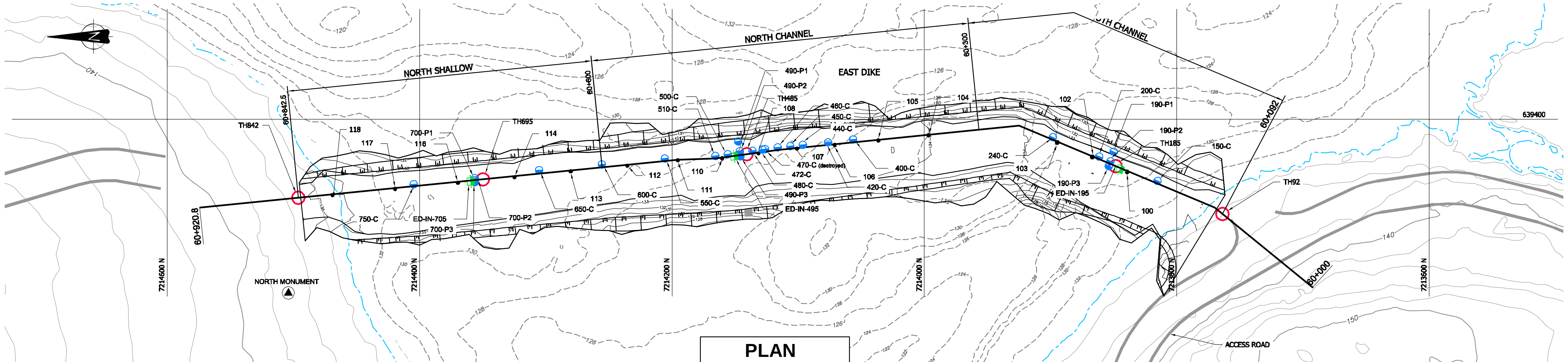
APPENDIX C – GEOTECHNICAL INSTRUMENTATION

Appendix C1 - East Dike: Piezometric, Thermistor, Inclinometer, and Weir Seepage Data
Appendix C2 - South Camp Dike: Thermistor Data
Appendix C3 - Saddle Dam 1: Thermistor Data

Appendix C1 – East Dike:

Piezometric Data
Thermistor Data
Inclinometer Data
Weir Seepage Data



PLAN

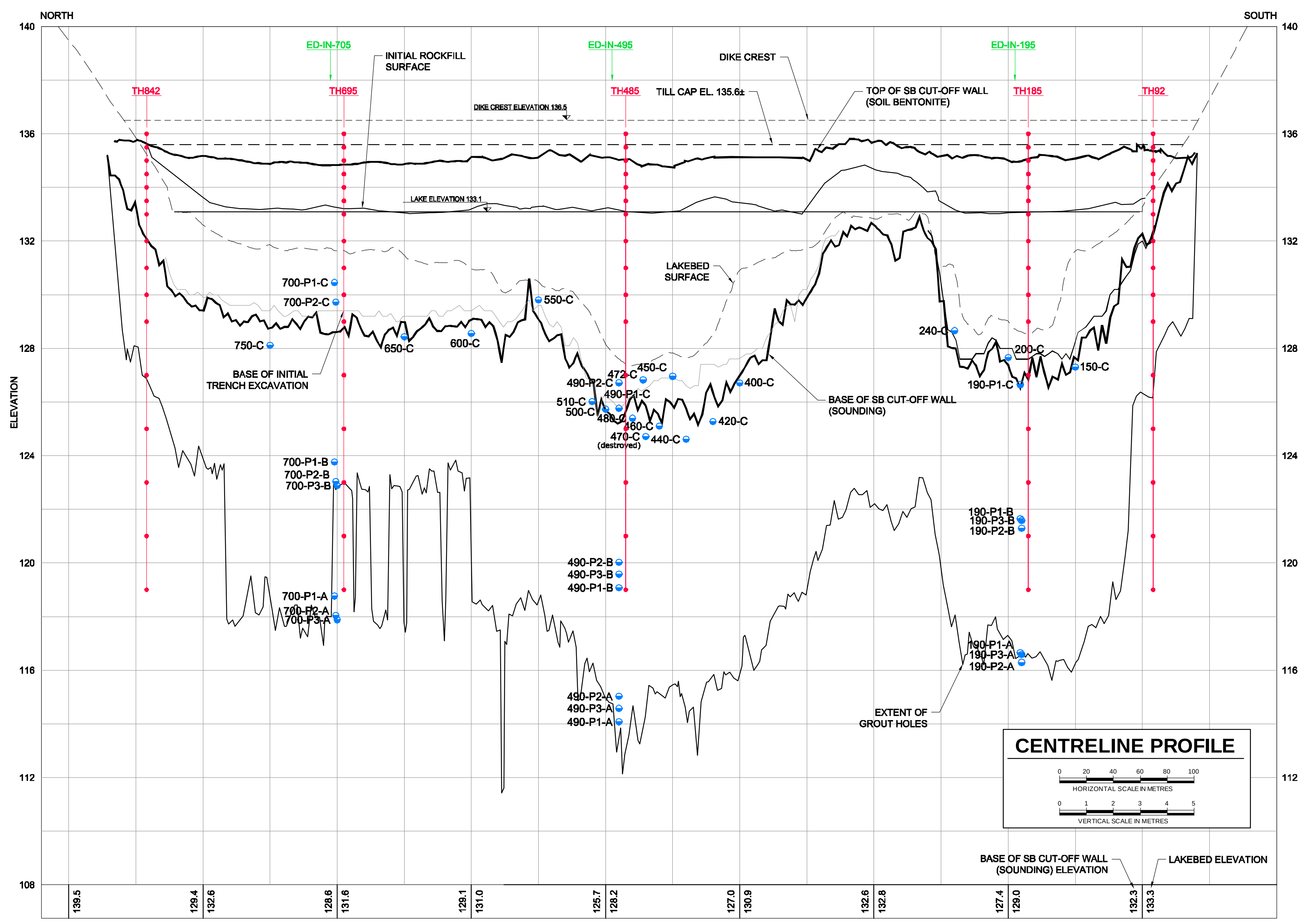
0 20 40 60 80 100
SCALE IN METRES

LEGEND:

- LAND-BASED TOPOGRAPHIC MAJOR CONTOURS INTERVAL 10m
- LAND-BASED TOPOGRAPHIC MINOR CONTOURS INTERVAL 2m
- BATHYMETRIC MAJOR CONTOURS INTERVAL 2m
- SHORE LINE
- CUTOFF WALL CENTRELINE
- EXISTING THERMISTOR
- SURVEY MONUMENT LOCATION
- PIEZOMETER
- INCLINOMETER
- SURVEY CONTROL MONUMENT

NOTES:

1) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2) ALL ELEVATIONS ARE IN METRES ABOVE SEA LEVEL (MASL) UNLESS OTHERWISE NOTED.
3) GRID REFERENCE: NAD 83, UTM ZONE 14.
4) CONTOUR INFORMATION ON LAND SUPPLIED BY AGNICO-EAGLE MINES LIMITED (AEM), MEADOWBANK DIVISION.
5) LAKEBED SURFACE INTERPOLATED FROM 2006 BATHYMETRY DATA. DETAILED BATHYMETRY (0.5m INTERVAL) BASED ON 2008 SURVEY.
6) LAKE CONTOURS ARE BASED ON SURVEYED LAKE SURFACE ELEVATION: SECOND PORTAGE LAKE = 133.1m.



CENTRELINE PROFILE

0 20 40 60 80 100
HORIZONTAL SCALE IN METRES

0 1 2 3 4 5
VERTICAL SCALE IN METRES

PIEZOMETER LOCATION TABLE			
NAME	STATION	EASTING	NORTHING
150-C	60+149.94	639347.4	7213816.4
190-P1	60+190.54	639355.8	7213857.4
190-P2	60+190.15	639363.0	7213853.9
190-P3	60+189.86	639366.6	7213852.1
200-C	60+200.00	639370.5	7213861.5
240-C	60+239.86	639382.3	7213899.7
400-C	60+400.00	639379.7	7214056.0
420-C	60+420.00	639381.9	7214076.4
440-C	60+440.00	639379.9	7214096.3
450-C	60+450.14	639375.0	7214106.0
460-C	60+460.00	639377.8	7214116.2
470-C	60+470.00	639376.5	7214126.2
472-C	60+472.00	639376.2*	7214128.2*
480-C	60+480.00	639375.1	7214136.2
490-P1	60+489.91	639361.9	7214144.6
490-P2	60+490.21	639369.8	7214145.7
490-P3	60+490.40	639373.8	7214146.3
500-C	60+500.00	639372.3	7214155.8
510-C	60+510.00	639370.9	7214165.6
550-C	60+550.24	639365.0	7214205.60
600-C	60+600.06	639360.0	7214255.1
650-C	60+650.13	639355.0	7214304.9
700-P1	60+701.54	639342.0	7214355.3
700-P2	60+700.53	639350.0	7214355.1
700-P3	60+700.14	639353.9	7214355.1
750-C	60+750.06	639345.5	7214404.4

THERMISTOR LOCATION TABLE			
NAME	STATION	EASTING	NORTHING
TH92	60+092	639325.0	7213763.8
TH185	60+185	639362.9	7213848.4
TH485	60+485	639372.4	7214140.7
TH695	60+695	639352.5	7214349.8
TH842	60+842	639337.9	7214496.1

INCLINOMETER LOCATION TABLE			
NAME	STATION	EASTING	NORTHING
ED-IN-705	60+704.80	639351.5	7214359.6
ED-IN-495	60+495	639371 *	7214151 *
ED-IN-195	60+194.69	639366.6	7213857.3

* COORDINATE ASSUMED, TO BE CONFIRMED BY SURVEY

PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE INSTRUMENTATION PLAN AND PROFILE

Golder Associates

PROJECT	No. 09-1428-5007		PHASE No.	3000
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CADD	GG	10NOV10		
CHECK			FIGURE C1-1	
REVIEW				

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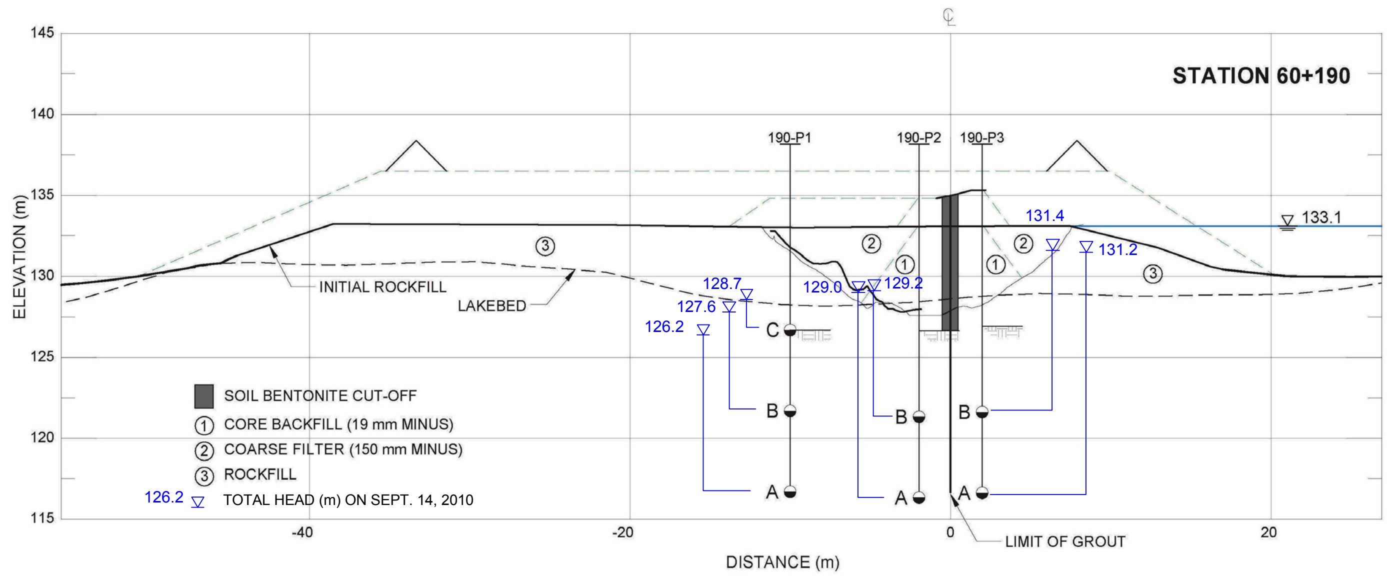

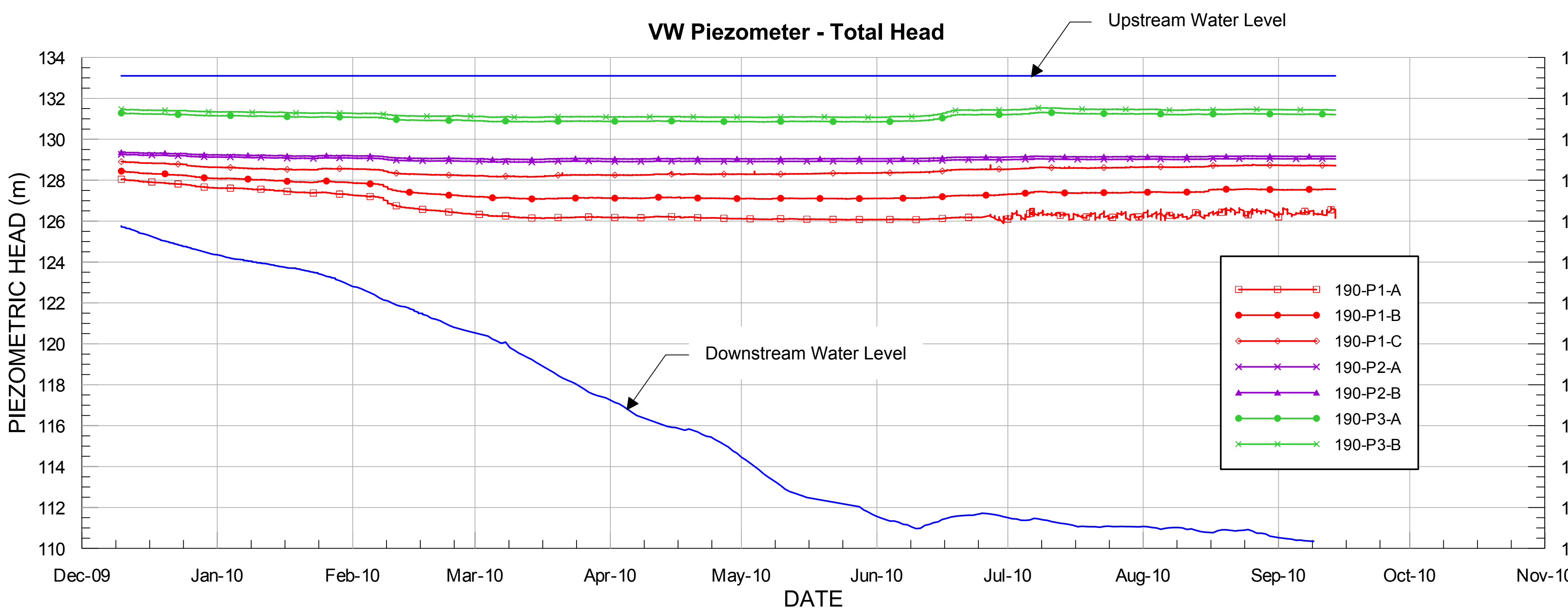

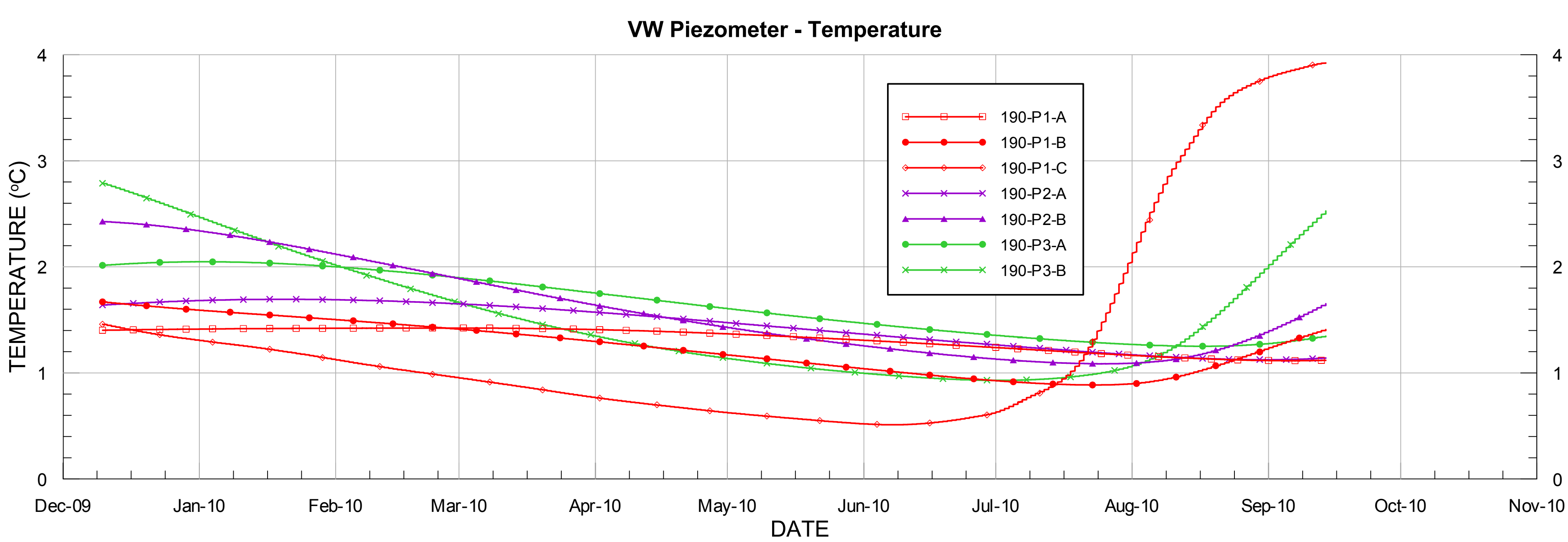

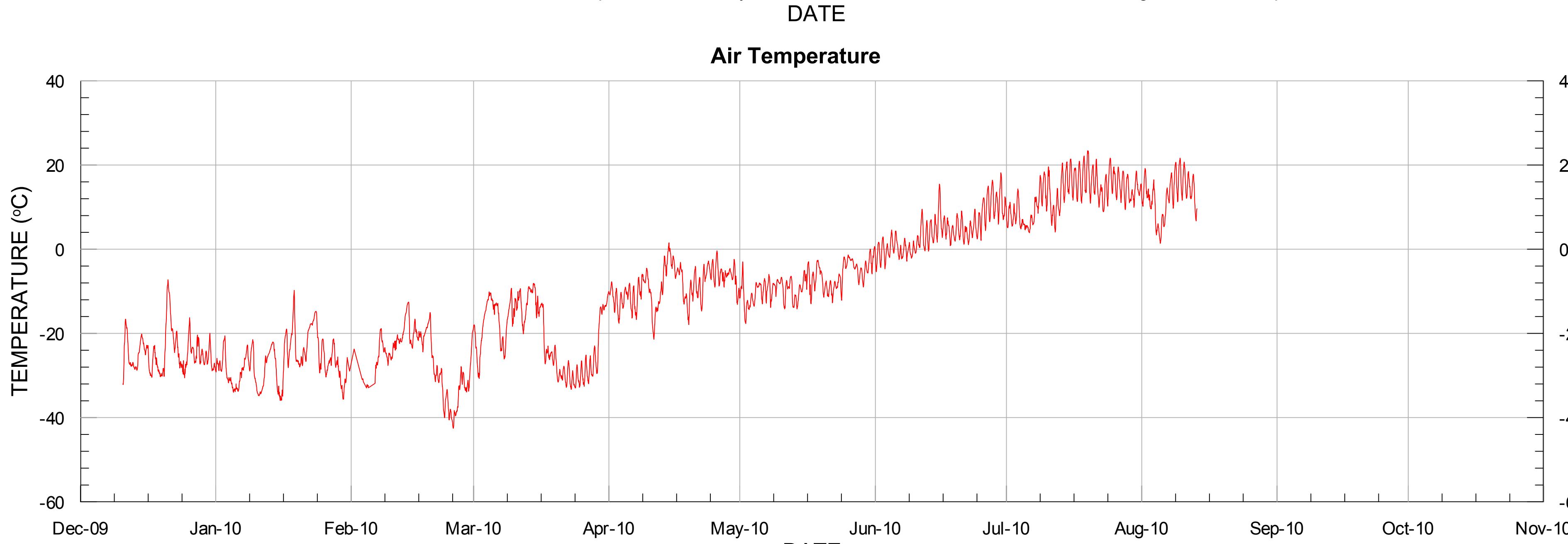

PROJECT	AGNICO-EAGLE MINES LIMITED MEADOWBANK GOLD PROJECT NUNAVUT
TITLE	EAST DIKE - SECTION 60+190 PIEZOMETRIC DATA (DEC. 2009 TO SEP. 2010)

Golder Associates

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CHECK				
REVIEW				

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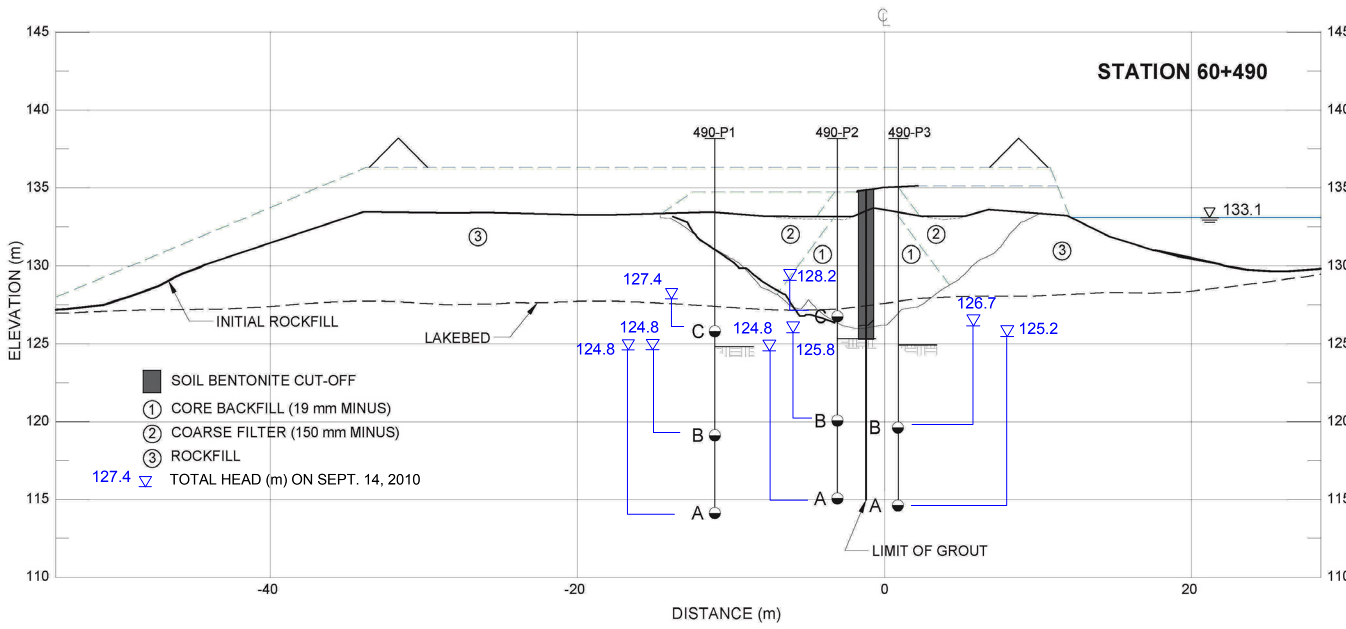

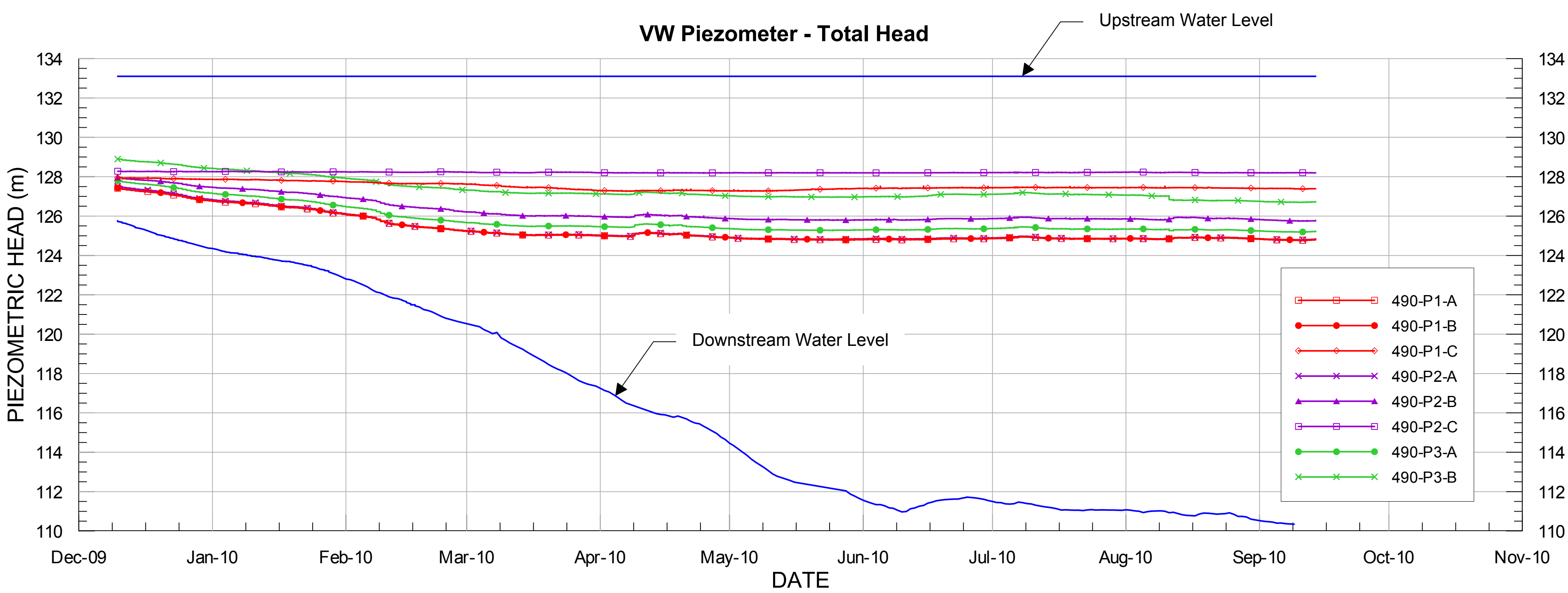

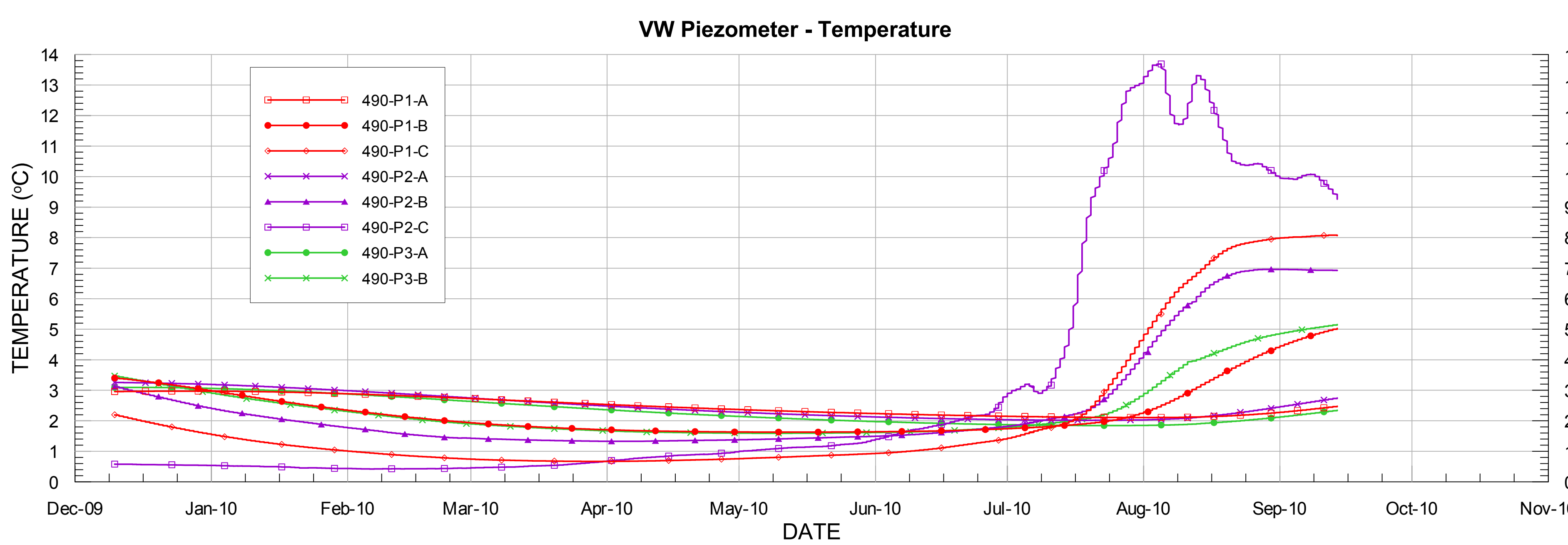

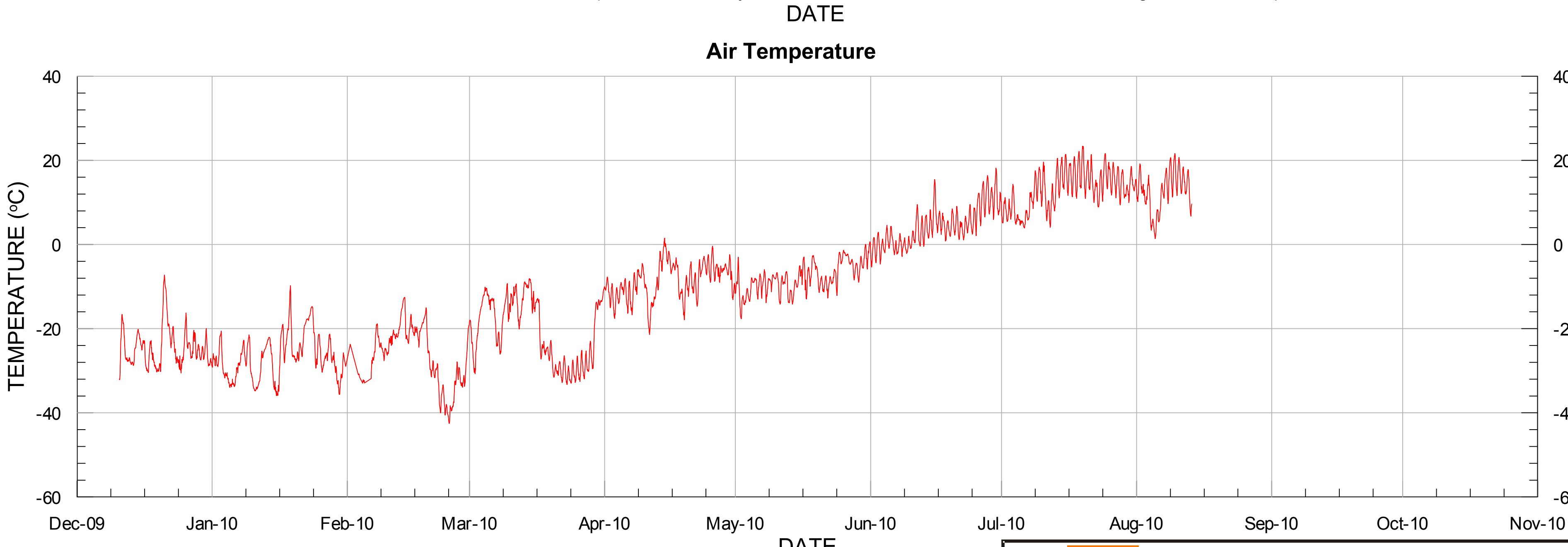

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE - SECTION 60+490
PIEZOMETRIC DATA
(DEC. 2009 TO SEP. 2010)

Golder Associates

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REVIEW				

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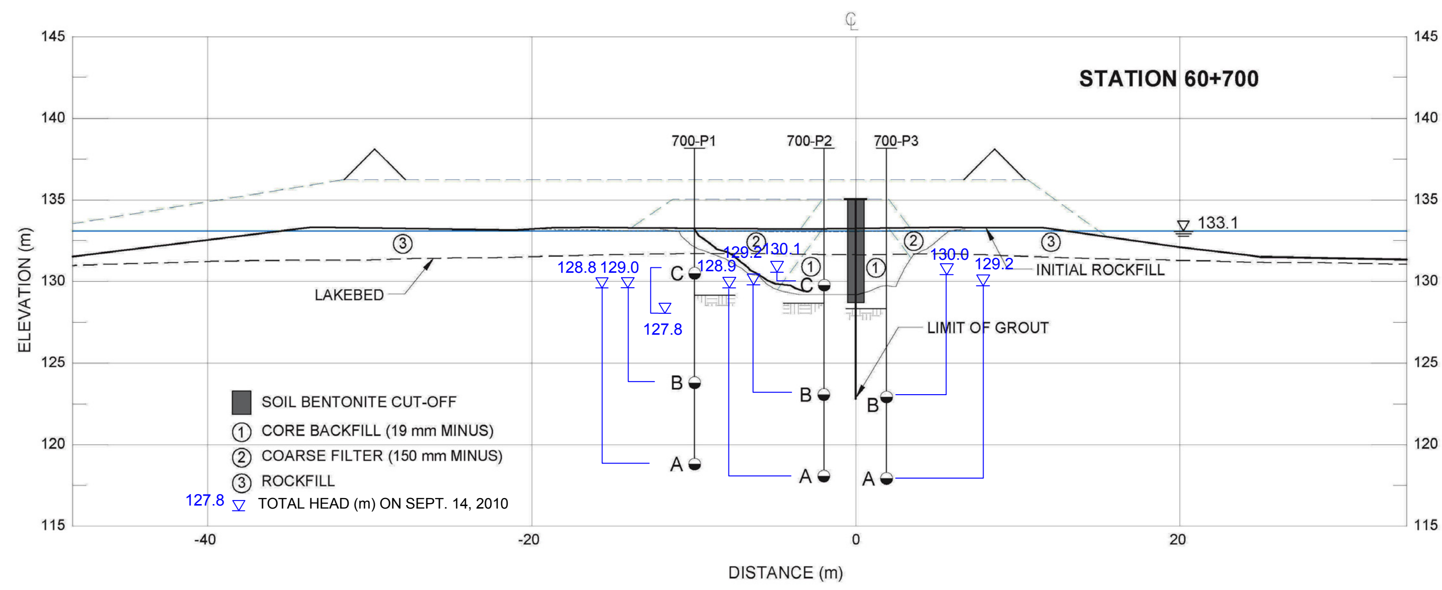

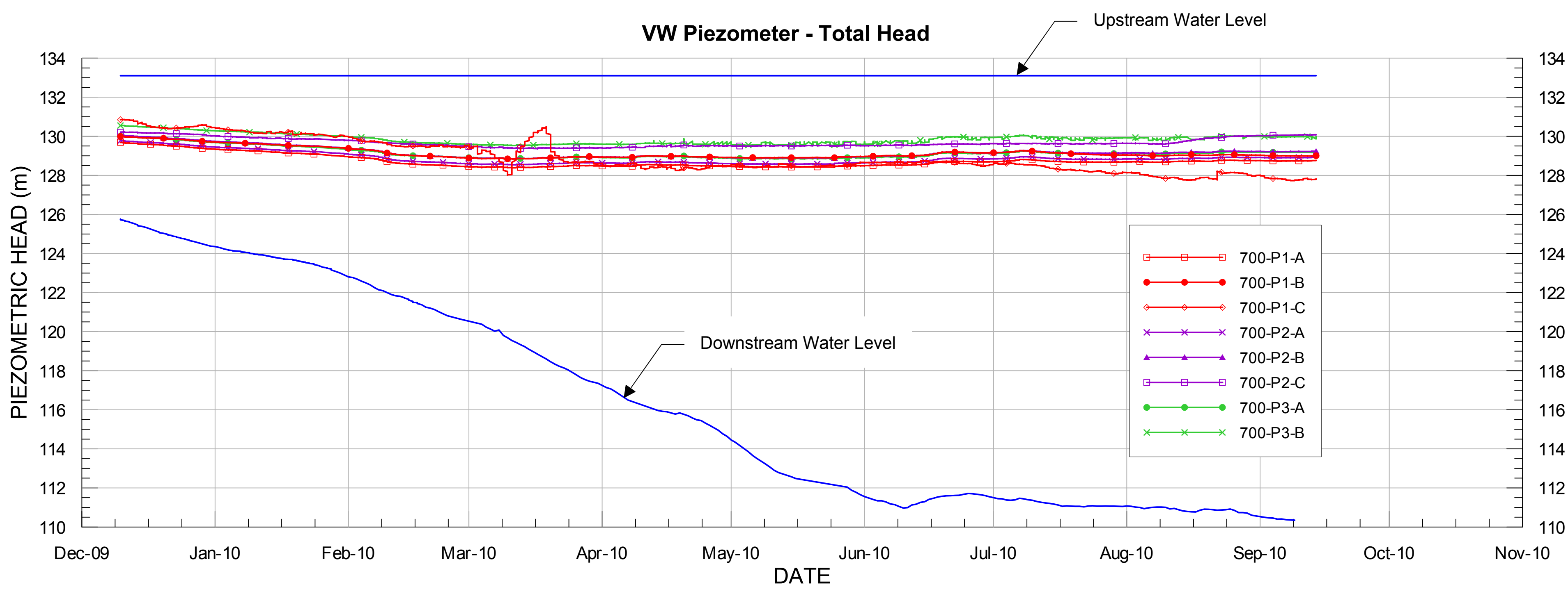

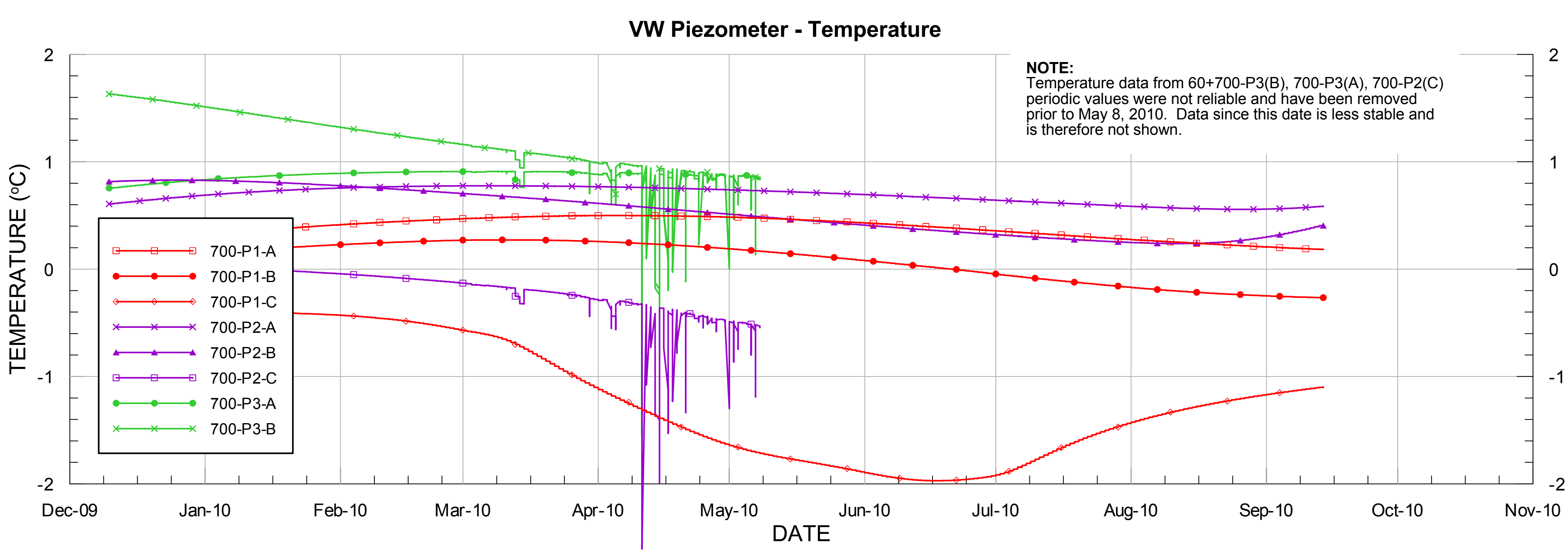

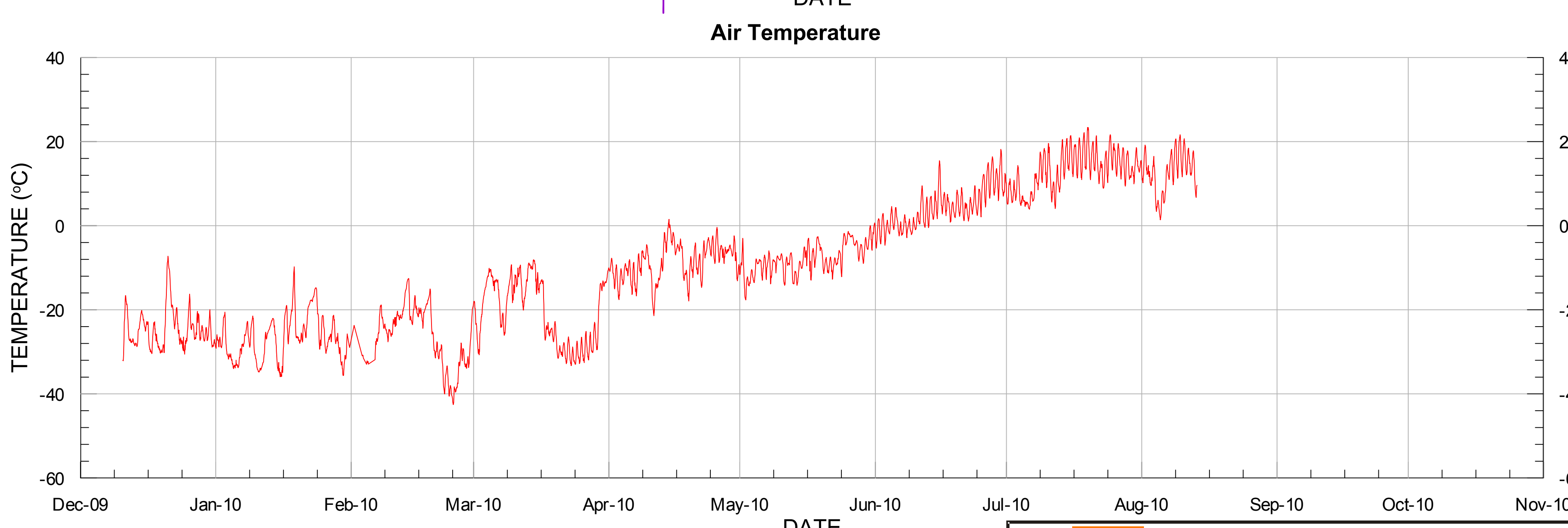

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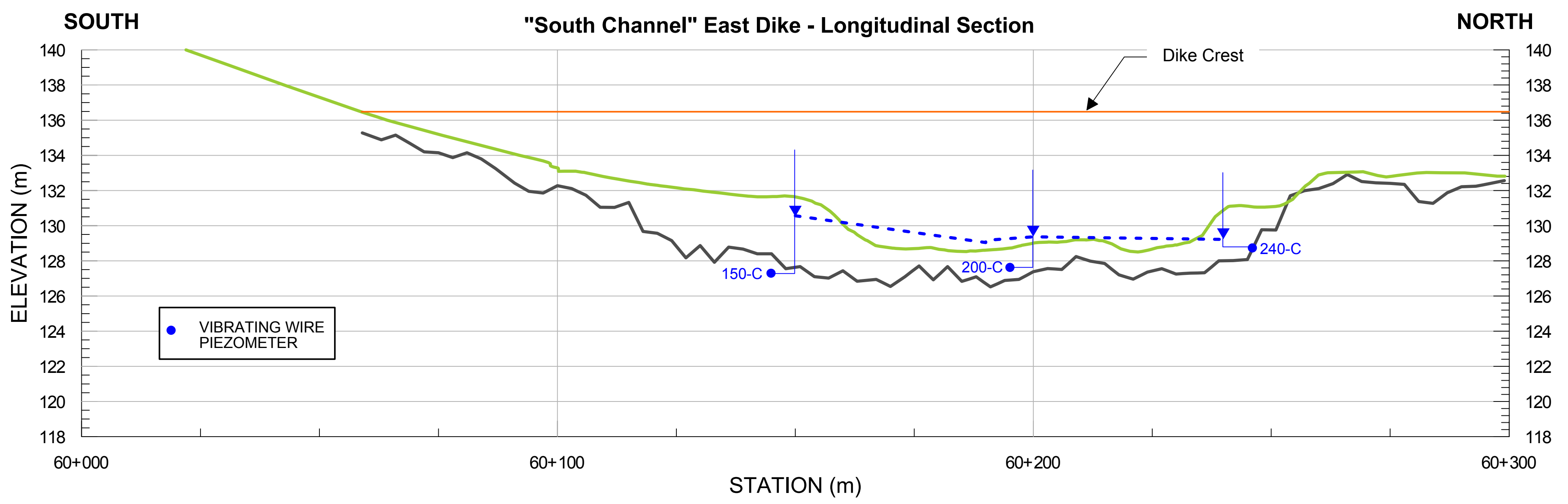

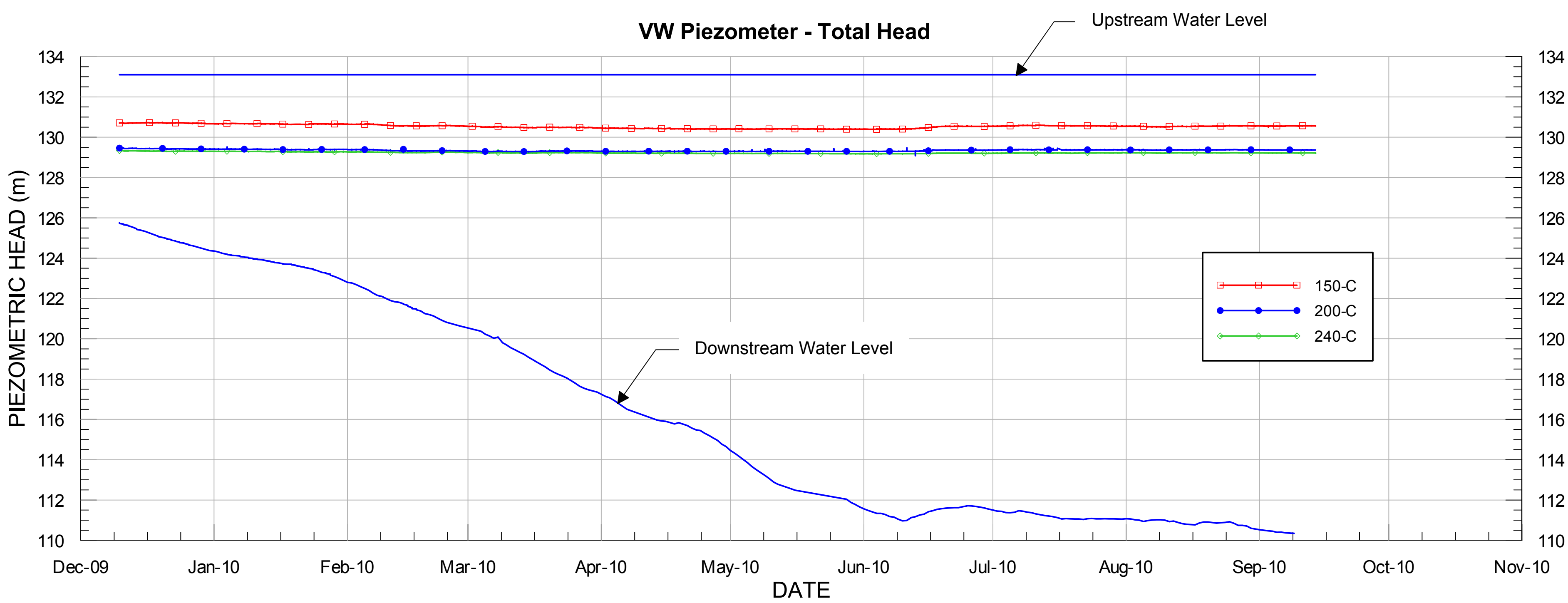

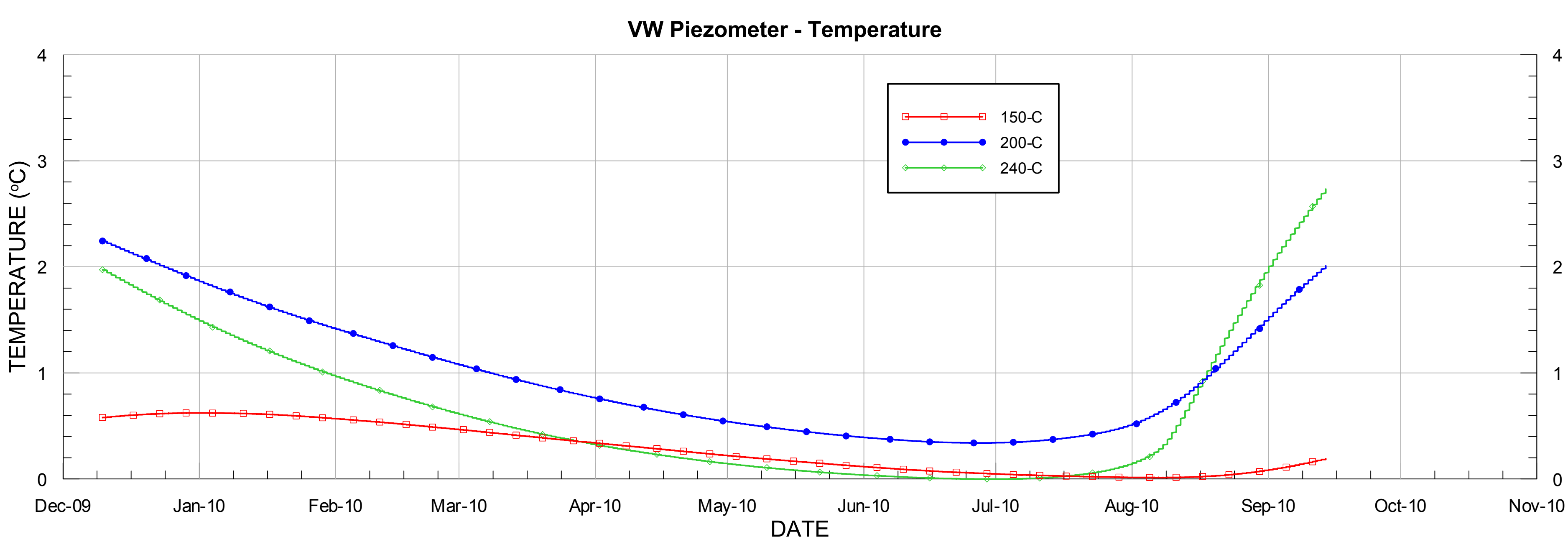

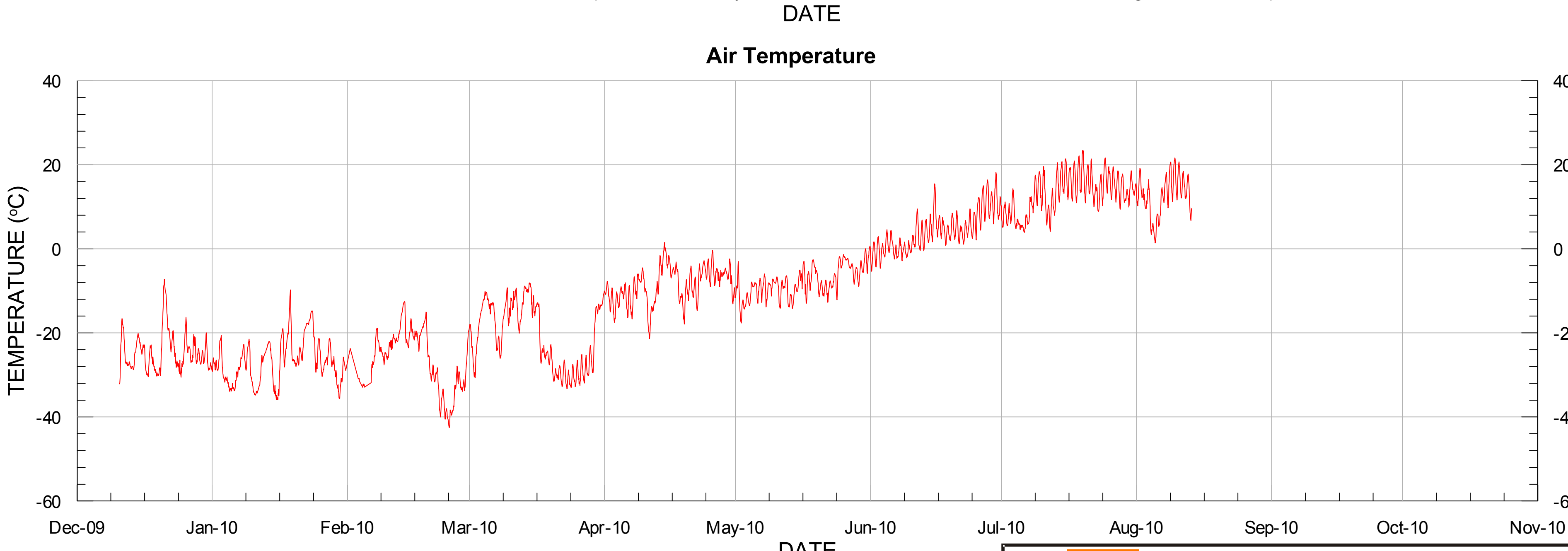

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE - "SOUTH CHANNEL"
PIEZOMETRIC DATA
(DEC. 2009 TO SEP. 2010)

Golder Associates

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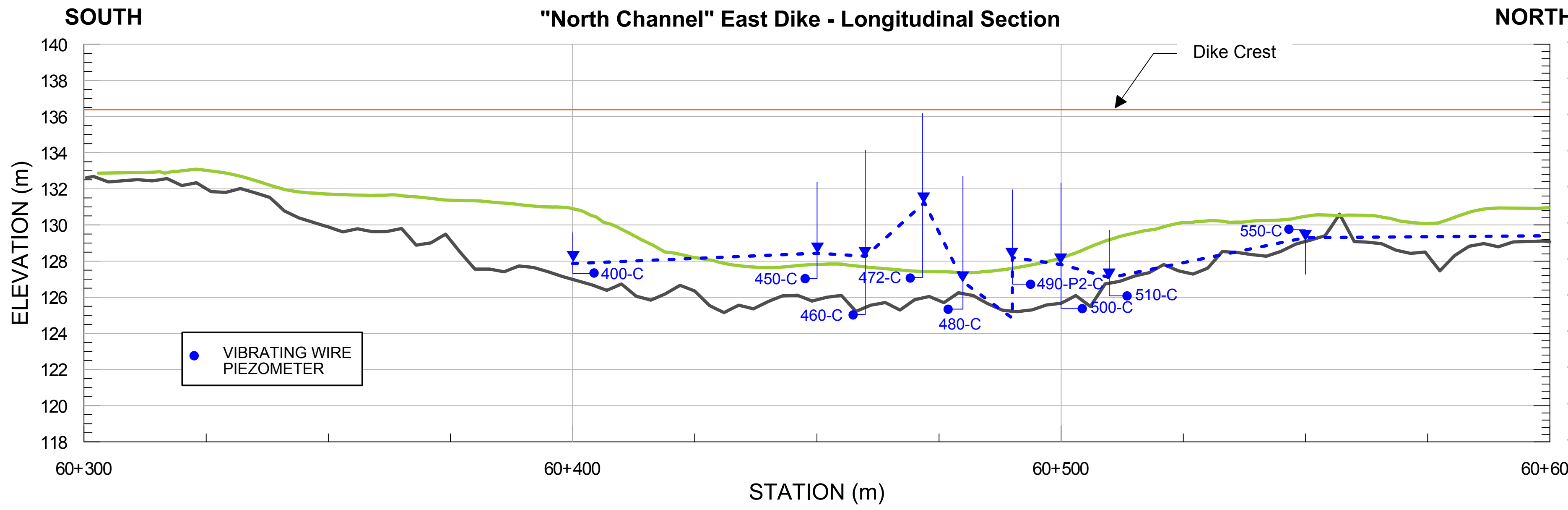
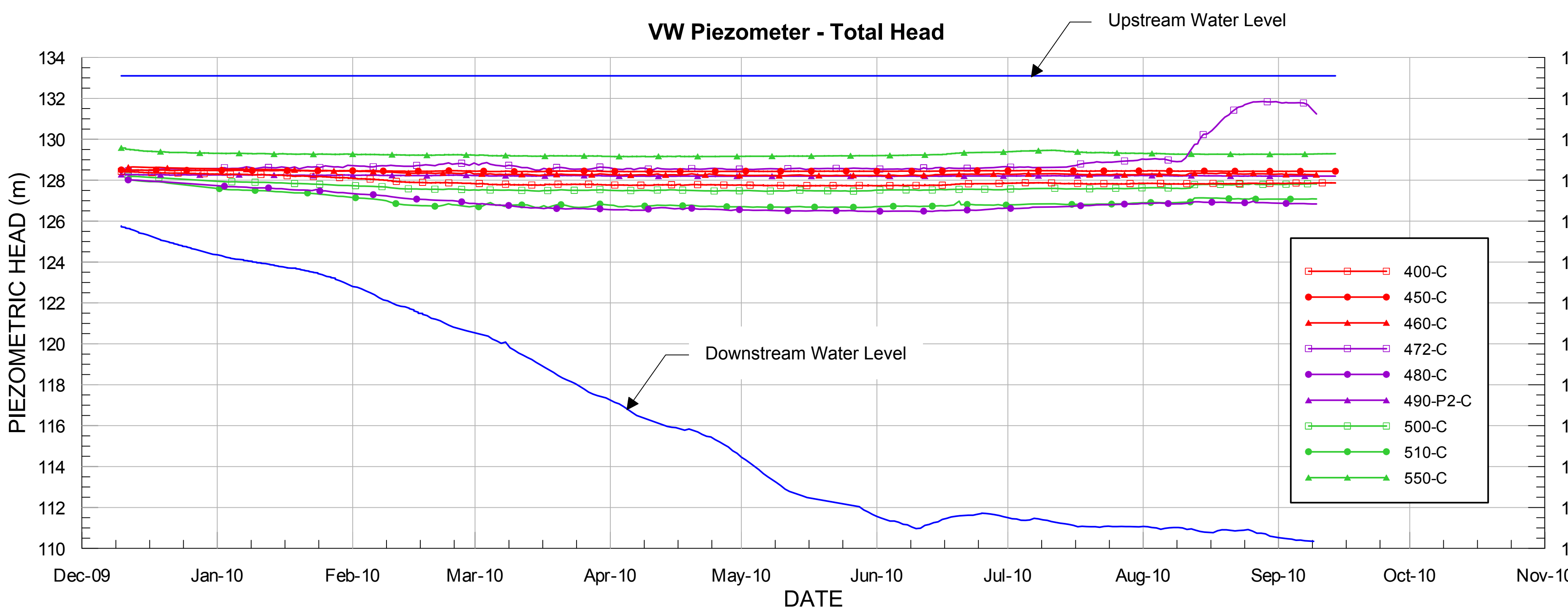
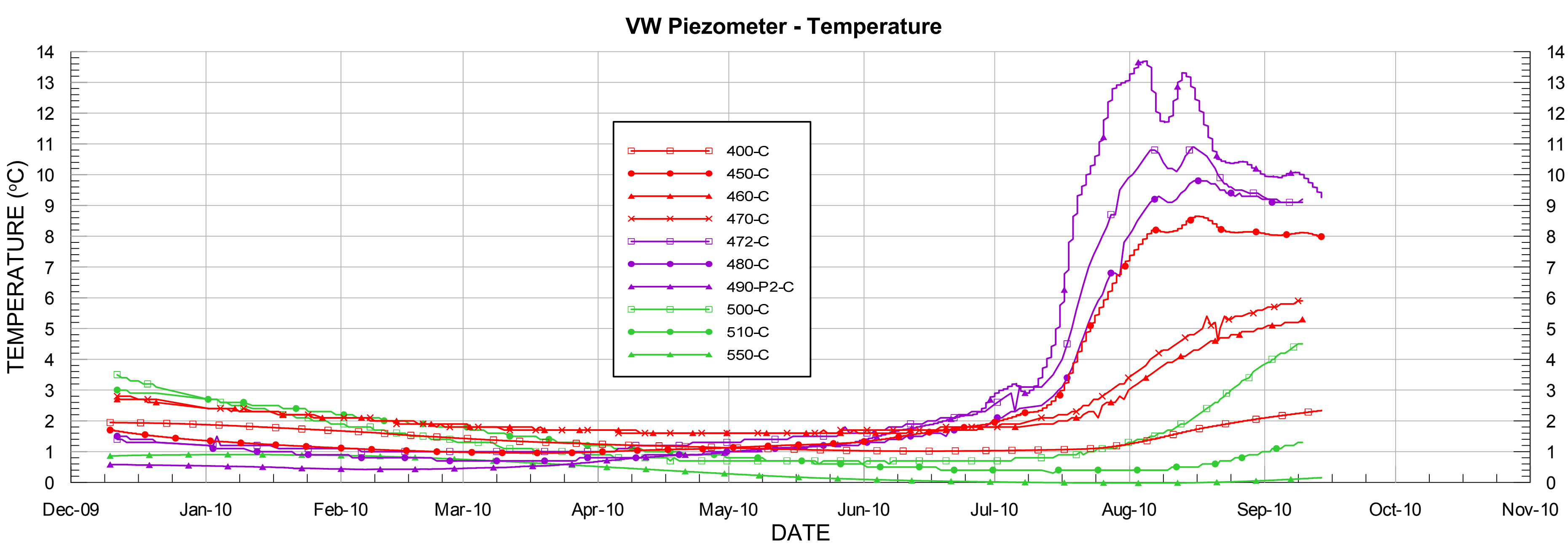
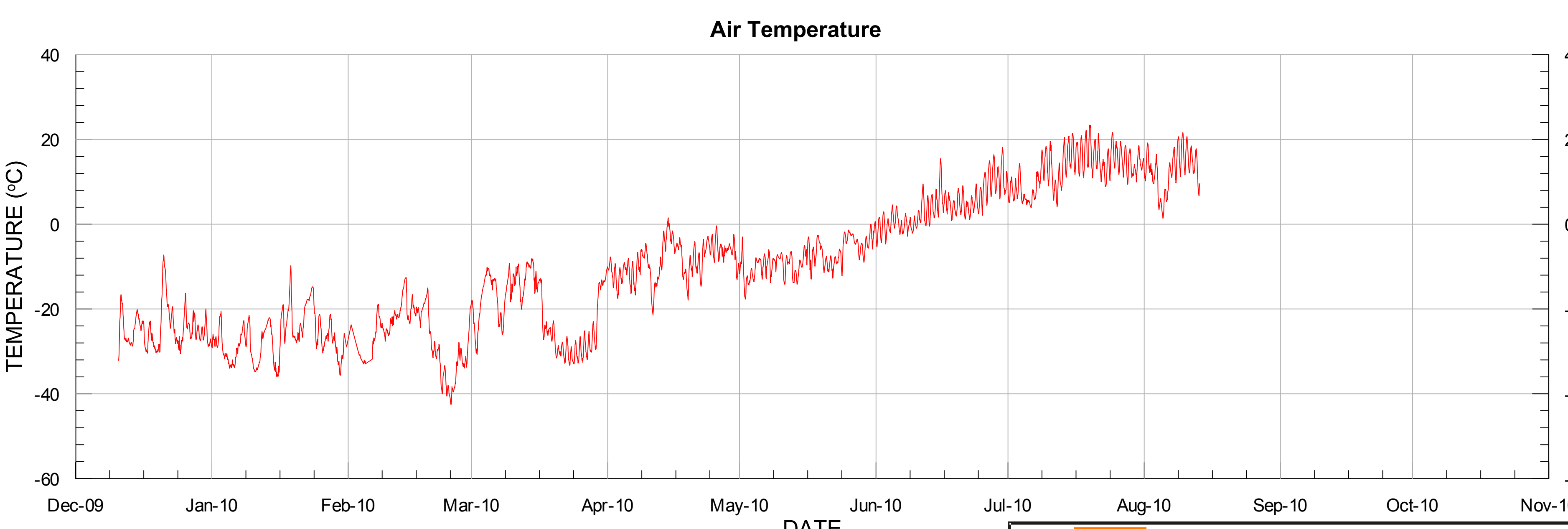








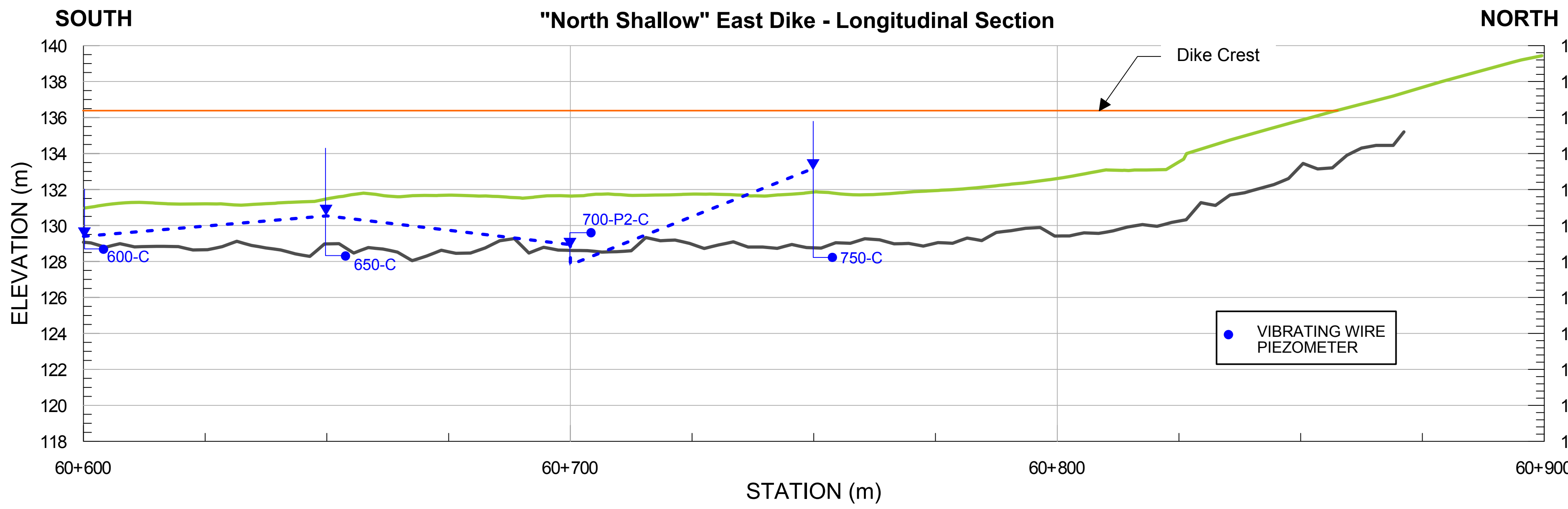
PROJECT
AEM
AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

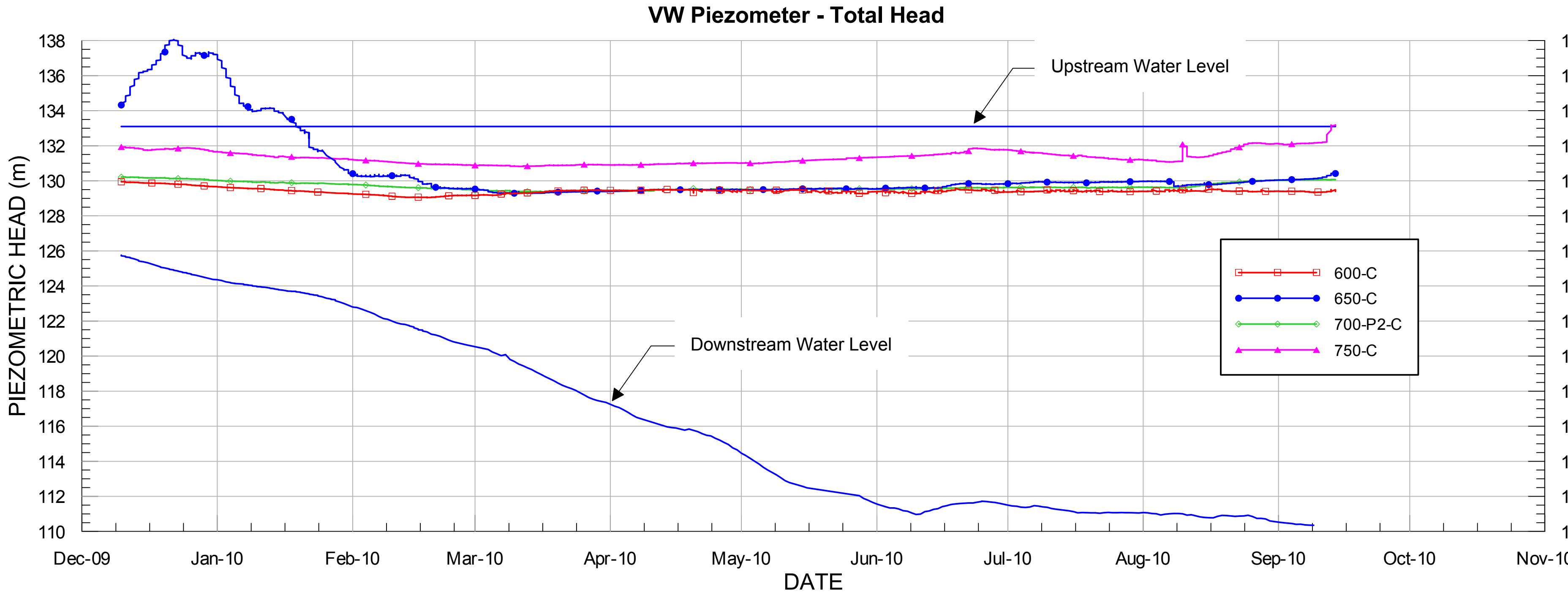
TITLE
EAST DIKE - "NORTH CHANNEL"
PIEZOMETRIC DATA
(DEC. 2009 TO SEP. 2010)

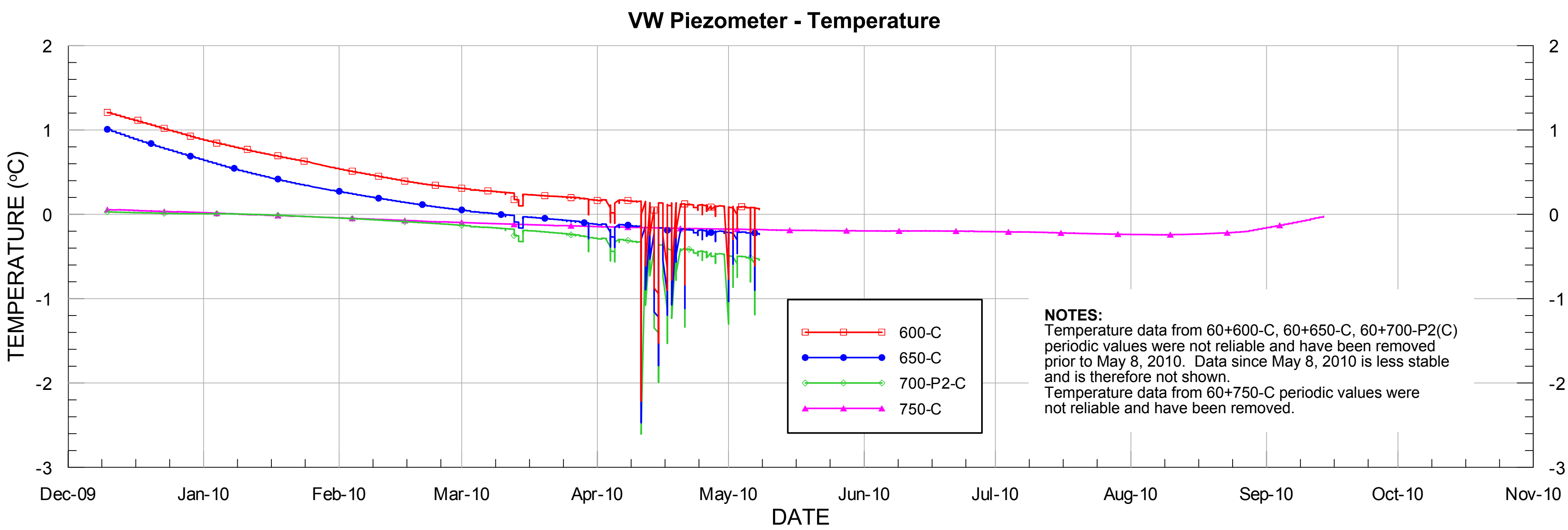
Golder Associates

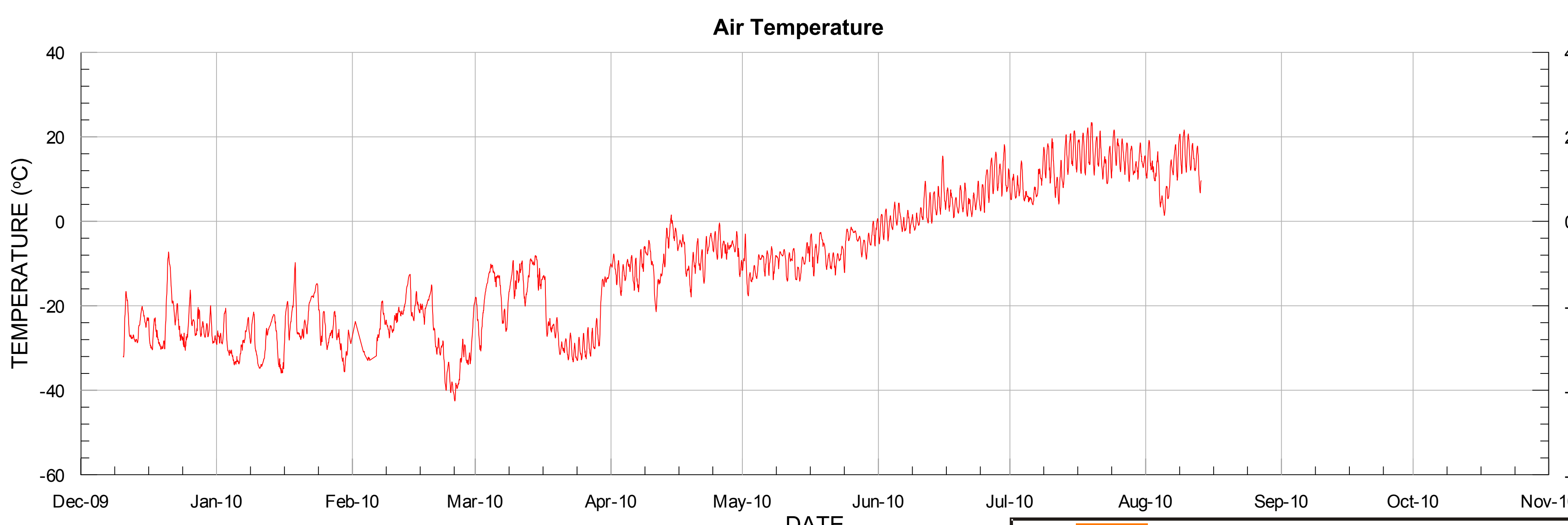
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	DW	14OCT10	SCALE AS SHOWN	REV.
CADD	GG	14OCT10	FIGURE C1-6	
CHECK				
REVIEW				

REVISION DATE: 09NOV10 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/north shallow 600-900.grf

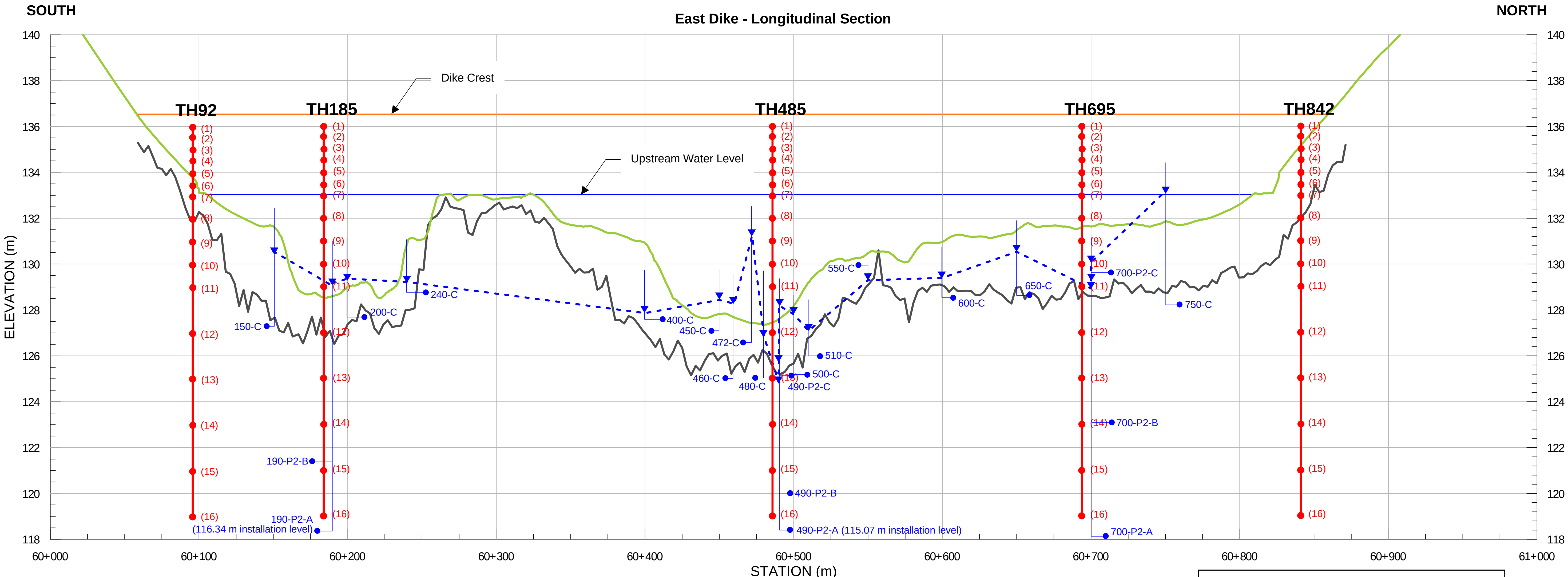


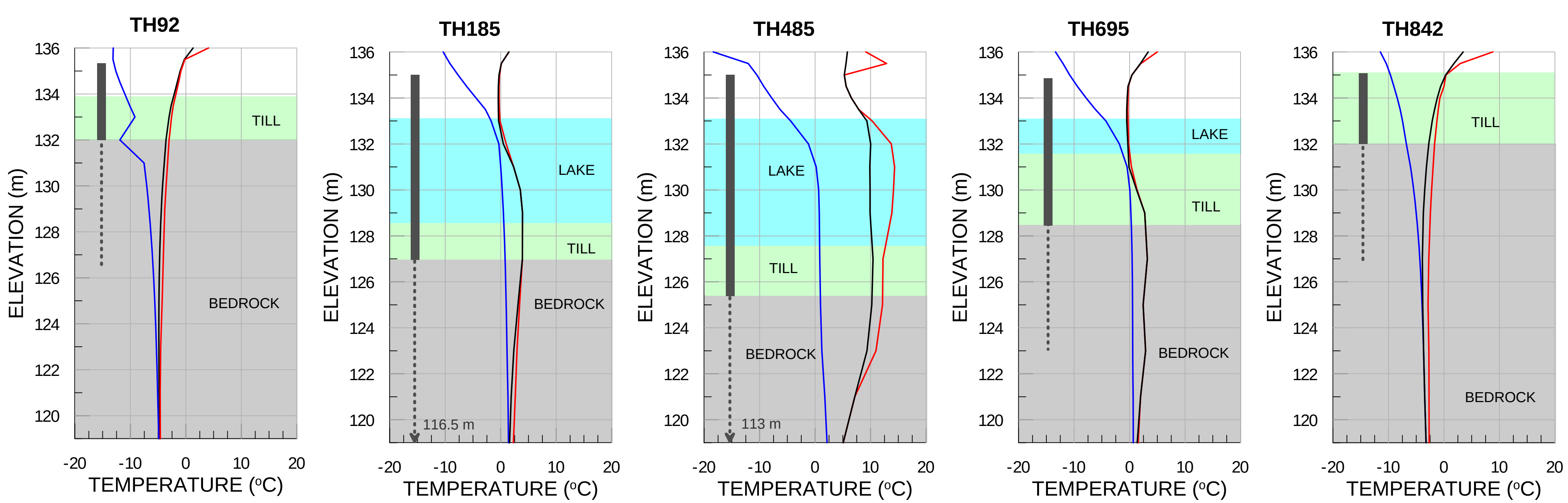






PROJECT	AEM	AGNICO-EAGLE MINES LIMITED MEADOWBANK GOLD PROJECT NUNAVUT		
TITLE	EAST DIKE - "NORTH SHALLOW" PIEZOMETRIC DATA (DEC. 2009 TO SEP. 2010)			
Golder Associates	PROJECT No. 09-1428-5007			PHASE No. 3000
	DESIGN	DW	14OCT10	SCALE AS SHOWN REV.
	CADD	GG	14OCT10	FIGURE C1-7
	CHECK			
	REVIEW			





NOTE: TH92 node(9) at elevation 131, data not reported since May 1, 2010 as it appears not to be functioning.

T min (17 May, 2009 to 14 Sept., 2010)
T max (17 May, 2009 to 14 Sept., 2010)
T current (14 Sept., 2010)

LEGEND

- BEDROCK
- LAKE BED
- PIEZOMETRIC HEAD IN DOWNSTREAM PIEZOMETERS ON 14 Sept., 2010
- LAKE
- TILL
- BEDROCK
- SOIL-BENTONITE CUTOFF WALL
- GROUT CURTAIN
- THERMISTOR WITH BEAD LOCATIONS (6) (7) (8) (9)
- VIBRATING WIRE PIEZOMETER

PROJECT AEM
AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

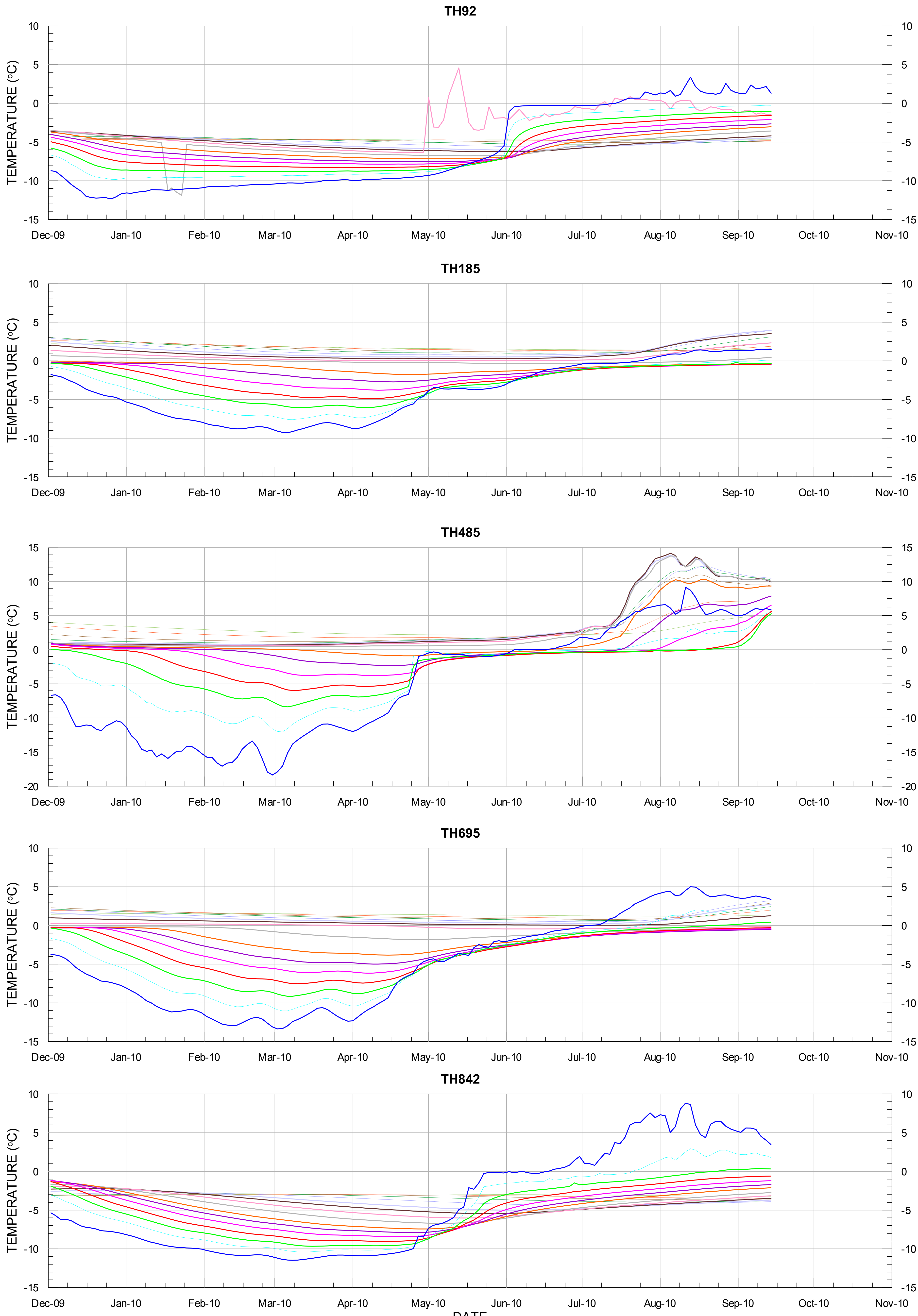
TITLE
EAST DIKE - LONGITUDINAL SECTION AND TEMPERATURE PROFILES (DEC. 2009 TO SEP. 2010)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	DW	14OCT10	SCALE AS SHOWN	REV. A
CADD	GG	14OCT10		
CHECK			**FIGURE C1-8**	
REVIEW				

REVISION DATE: 09NOV10 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/profile-RevA.grf

REVISION DATE: 09NOV10 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/nodal thermal timelines.grf



(Node) Elevation (m)

(1) 136.0	(9) 131.0
(2) 135.5	(10) 130.0
(3) 135.0	(11) 129.0
(4) 134.5	(12) 127.0
(5) 134.0	(13) 125.0
(6) 133.5	(14) 123.0
(7) 133.0	(15) 121.0
(8) 132.0	(16) 119.0

PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

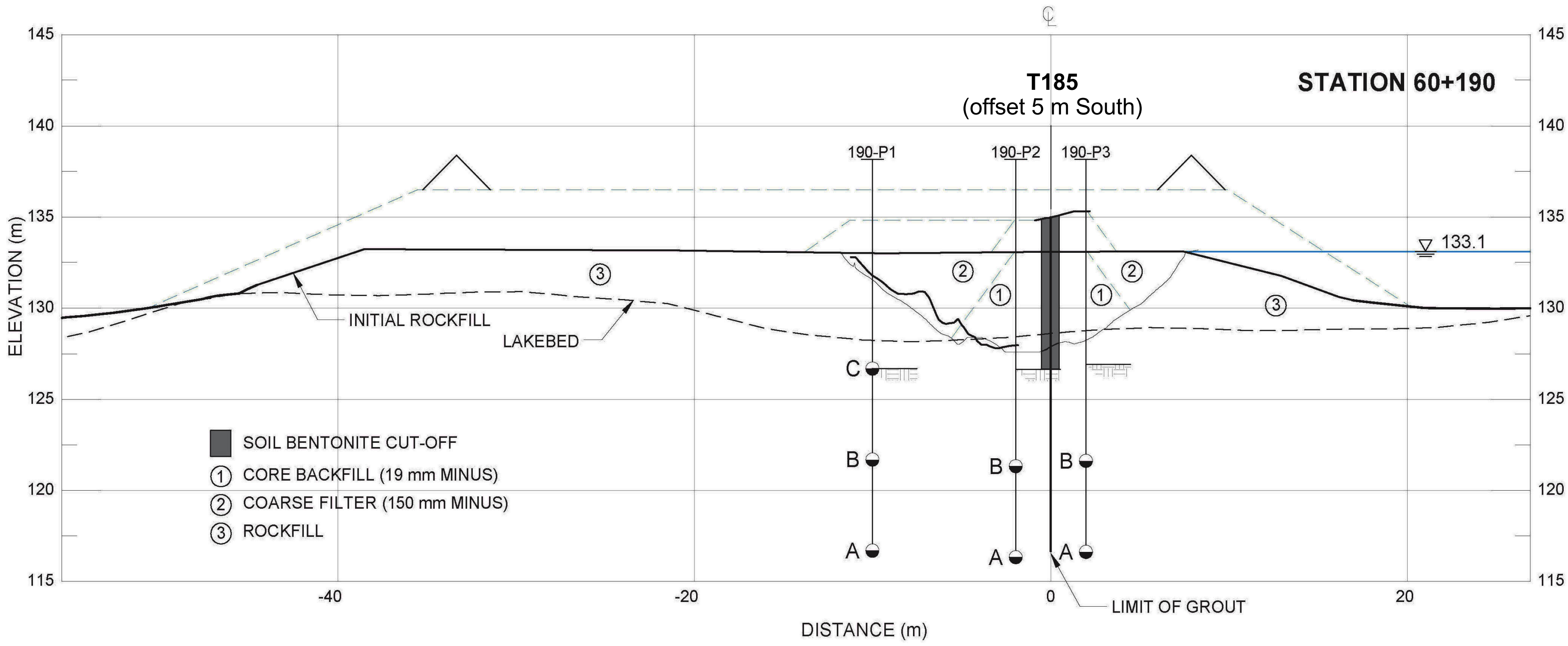
TITLE

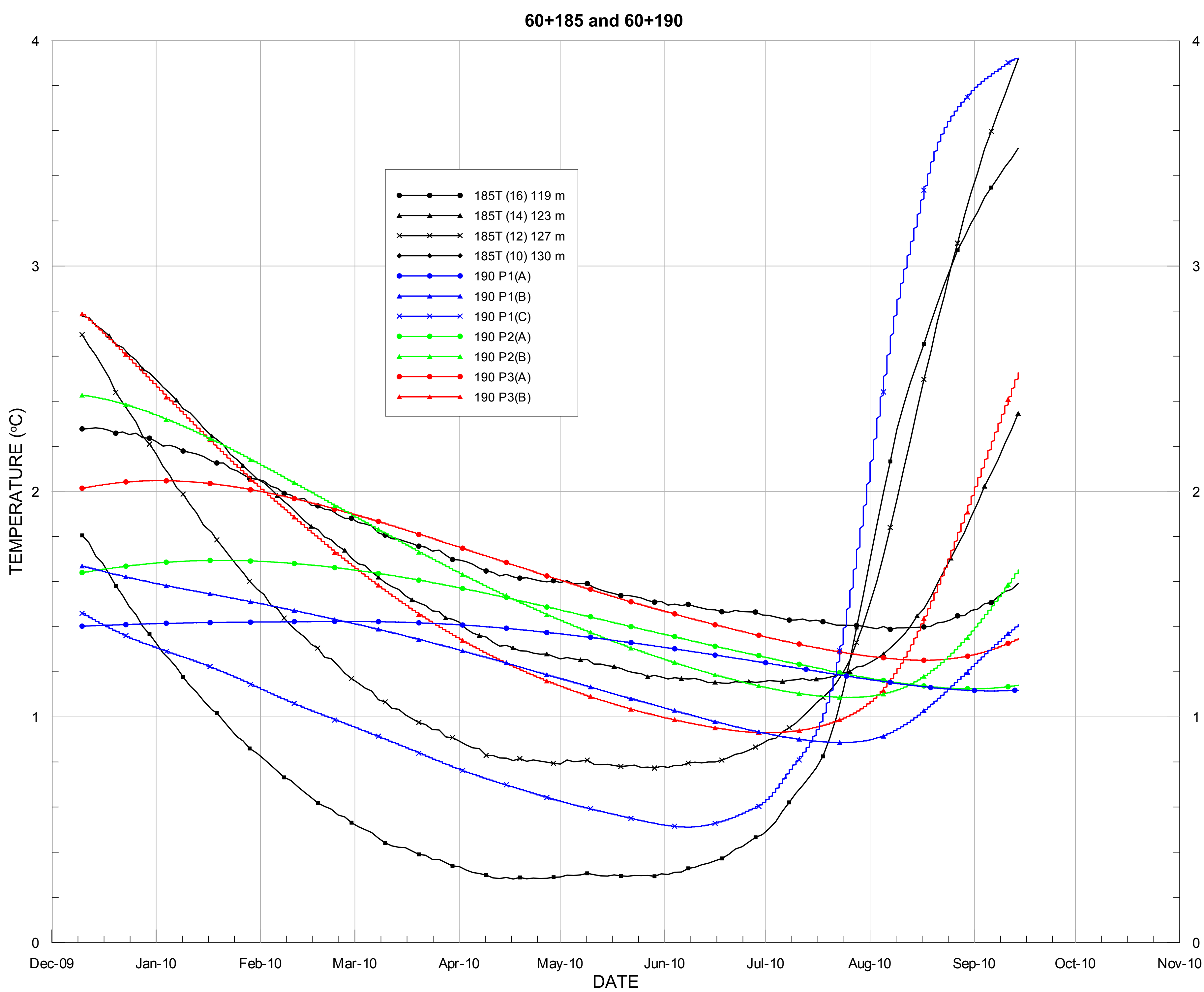
EAST DIKE - NODAL THERMAL TIMELINES
(DEC. 2009 TO SEP. 2010)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	DW	14OCT10	SCALE AS SHOWN	REV.
CADD	GG	14OCT10	FIGURE C1-9	
CHECK				
REVIEW				

REVISION DATE: 09NOV10 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/185-190-thermal data.grf



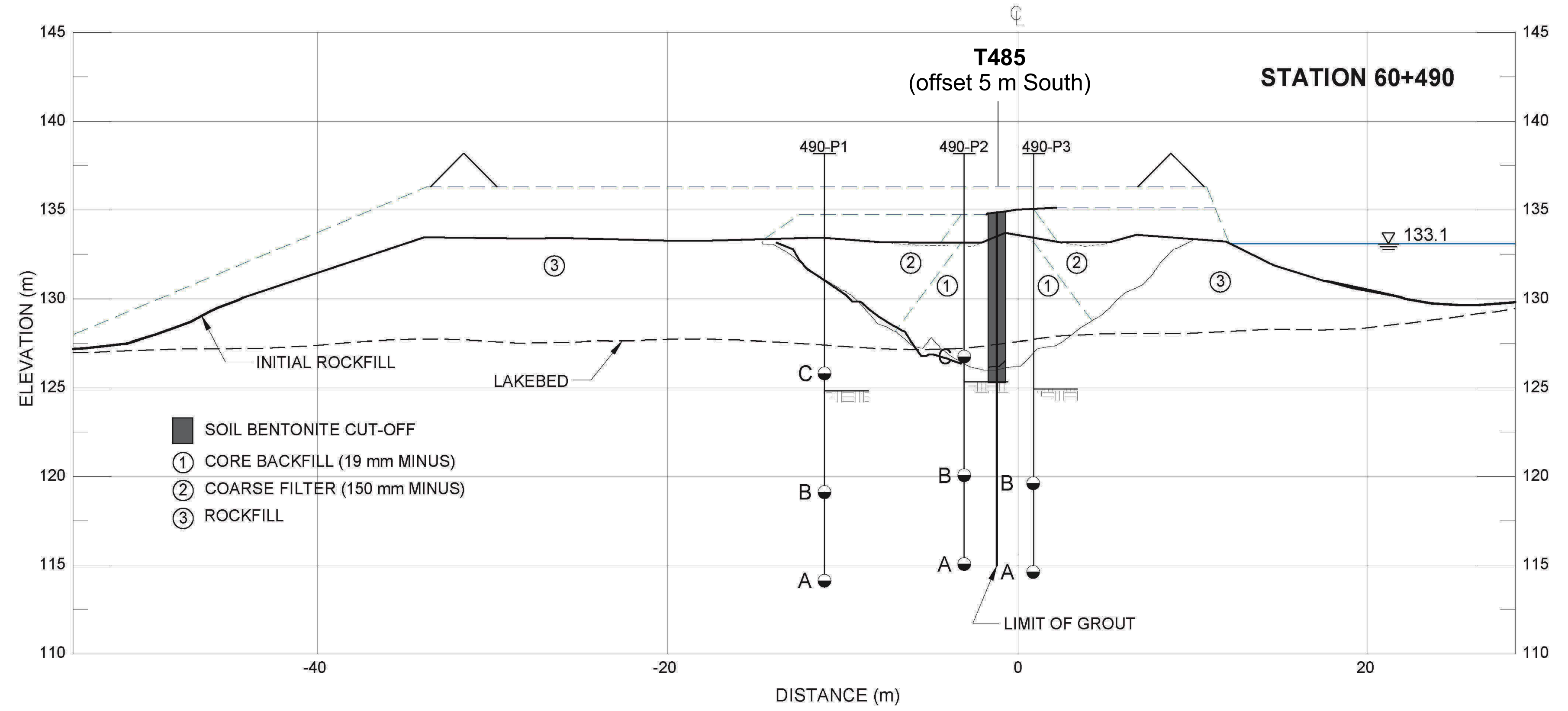


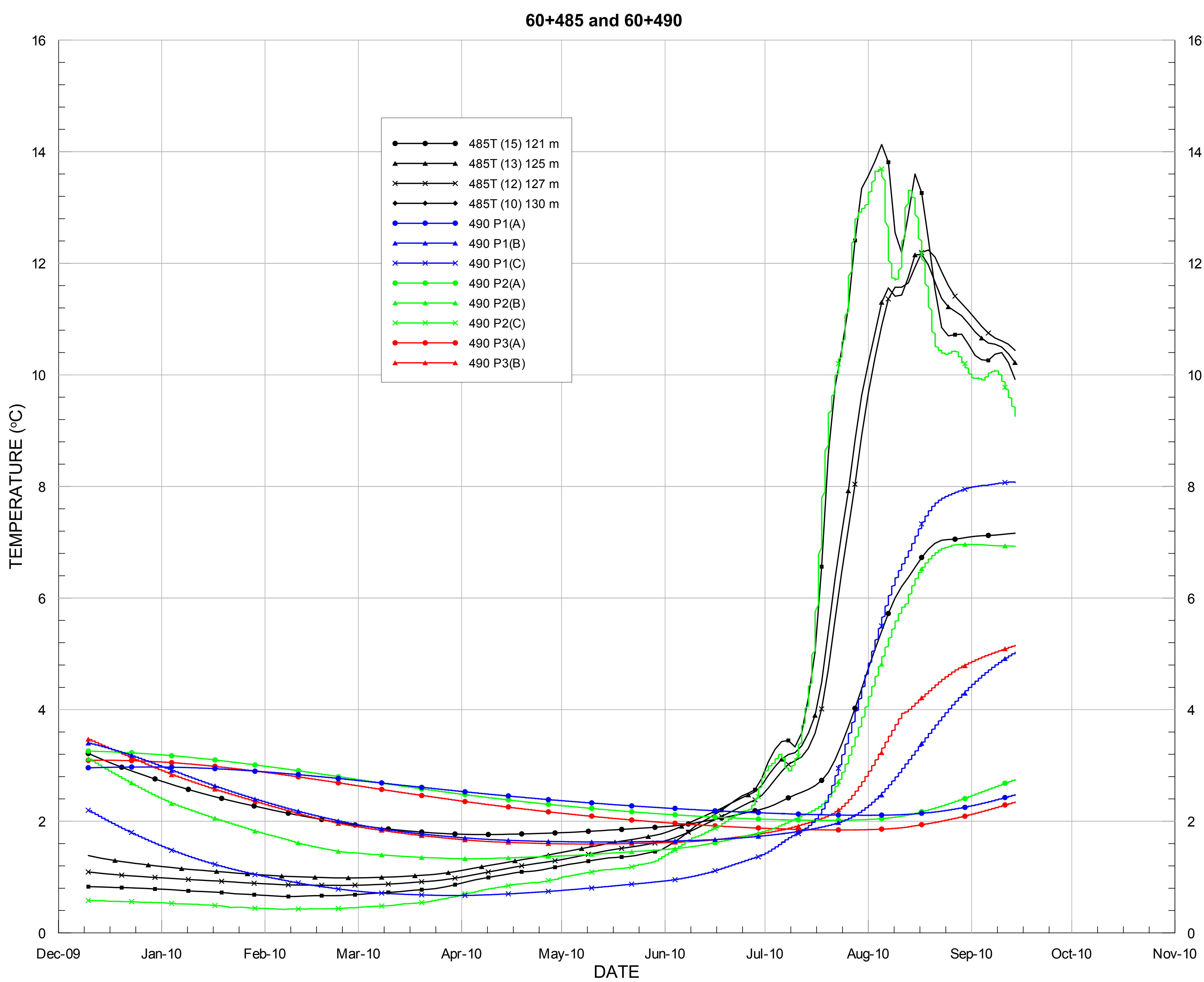
PROJECT AEM AGNICO-EAGLE MINES LIMITED MEADOWBANK GOLD PROJECT NUNAVUT

TITLE EAST DIKE - THERMAL CROSS SECTION 60+185 AND 60+190 (DEC. 2009 TO SEP. 2010)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000
DESIGN	DW	14OCT10	SCALE AS SHOWN REV.
CADD	GG	14OCT10	FIGURE C1-10
CHECK			
REVIEW			





PROJECT AEM

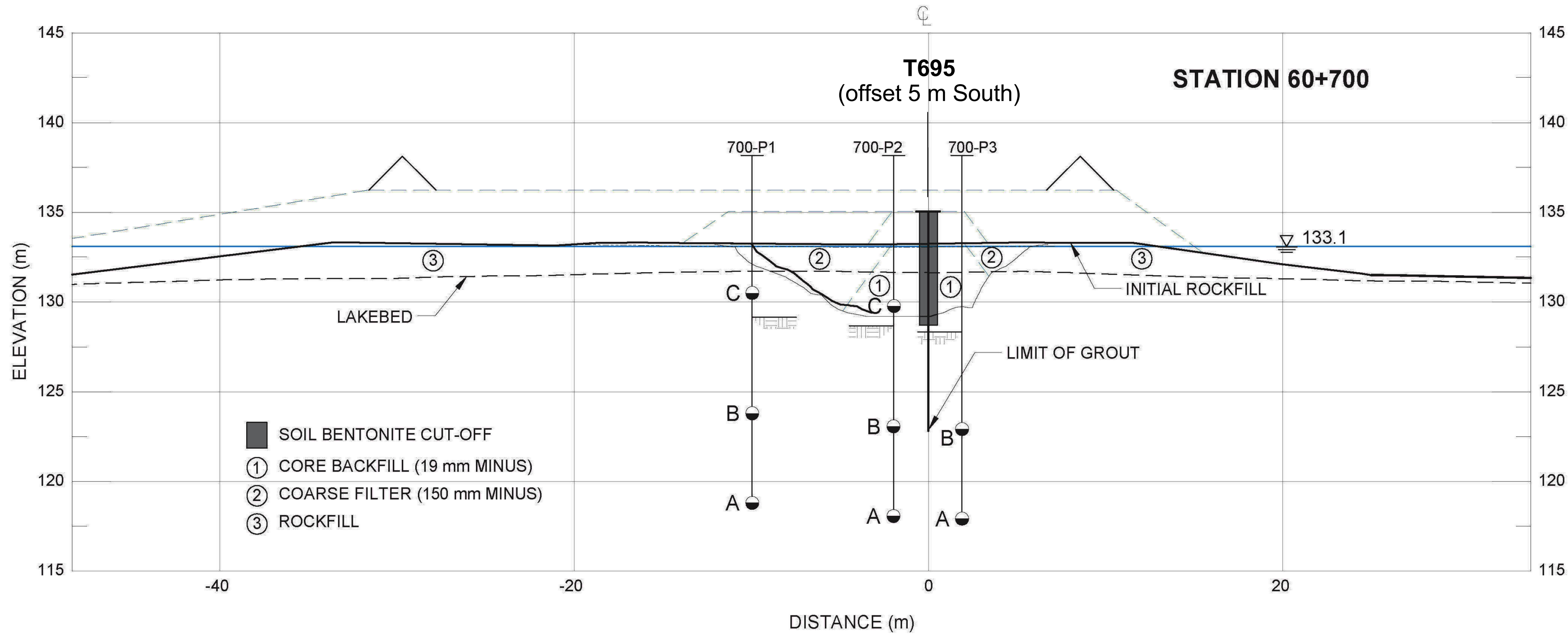
AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

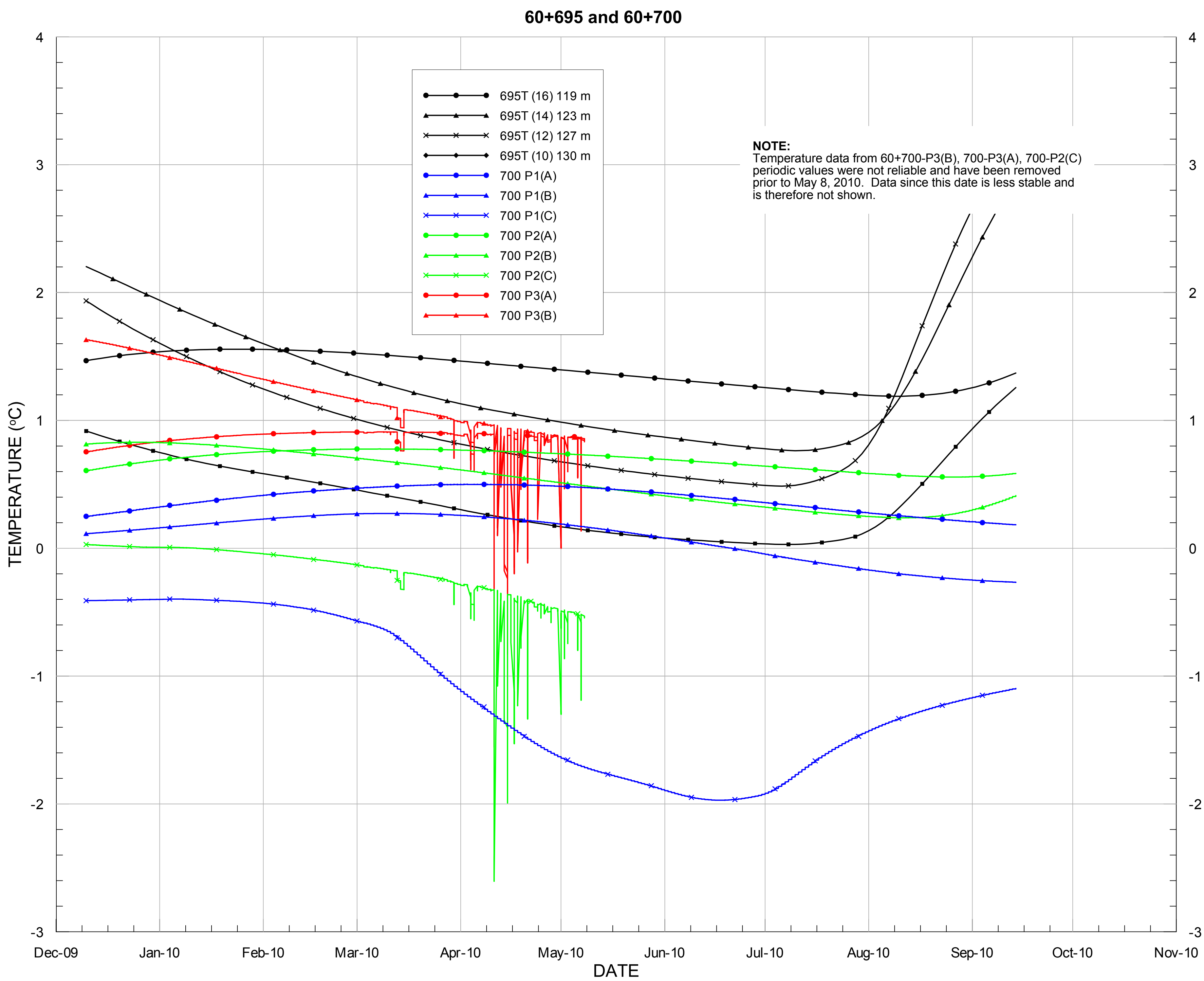
TITLE
EAST DIKE - THERMAL CROSS SECTION 60+485 AND 60+490 (DEC. 2009 TO SEP. 2010)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000
DESIGN	DW	14OCT10	SCALE AS SHOWN REV.
CADD	GG	14OCT10	
CHECK			**FIGURE C1-11**
REVIEW			

REVISION DATE: 09NOV10 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/695-700-thermal data.grf





PROJECT AEM

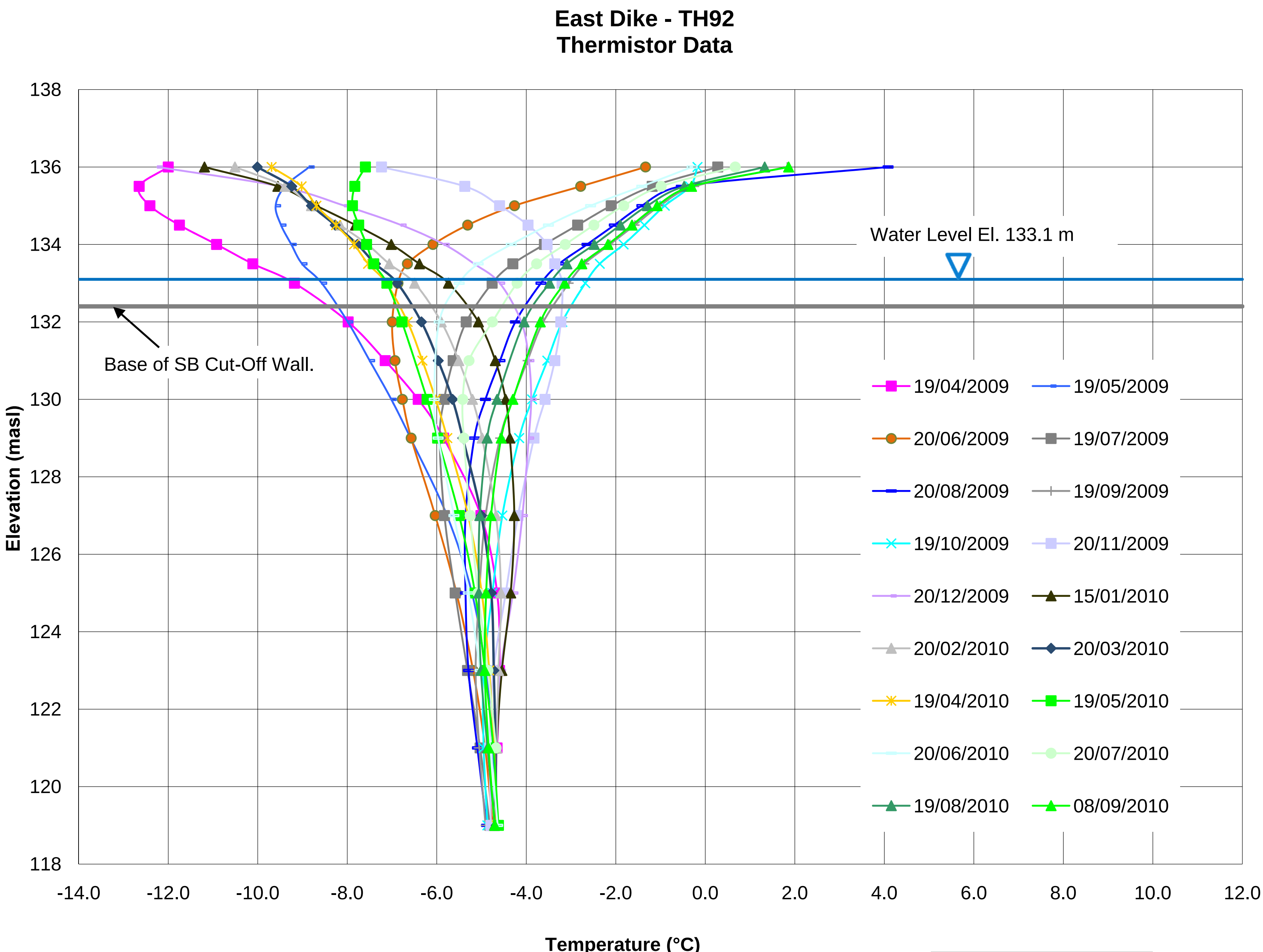
AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE - THERMAL CROSS SECTION 60+695 AND 60+700 (DEC. 2009 TO SEP. 2010)

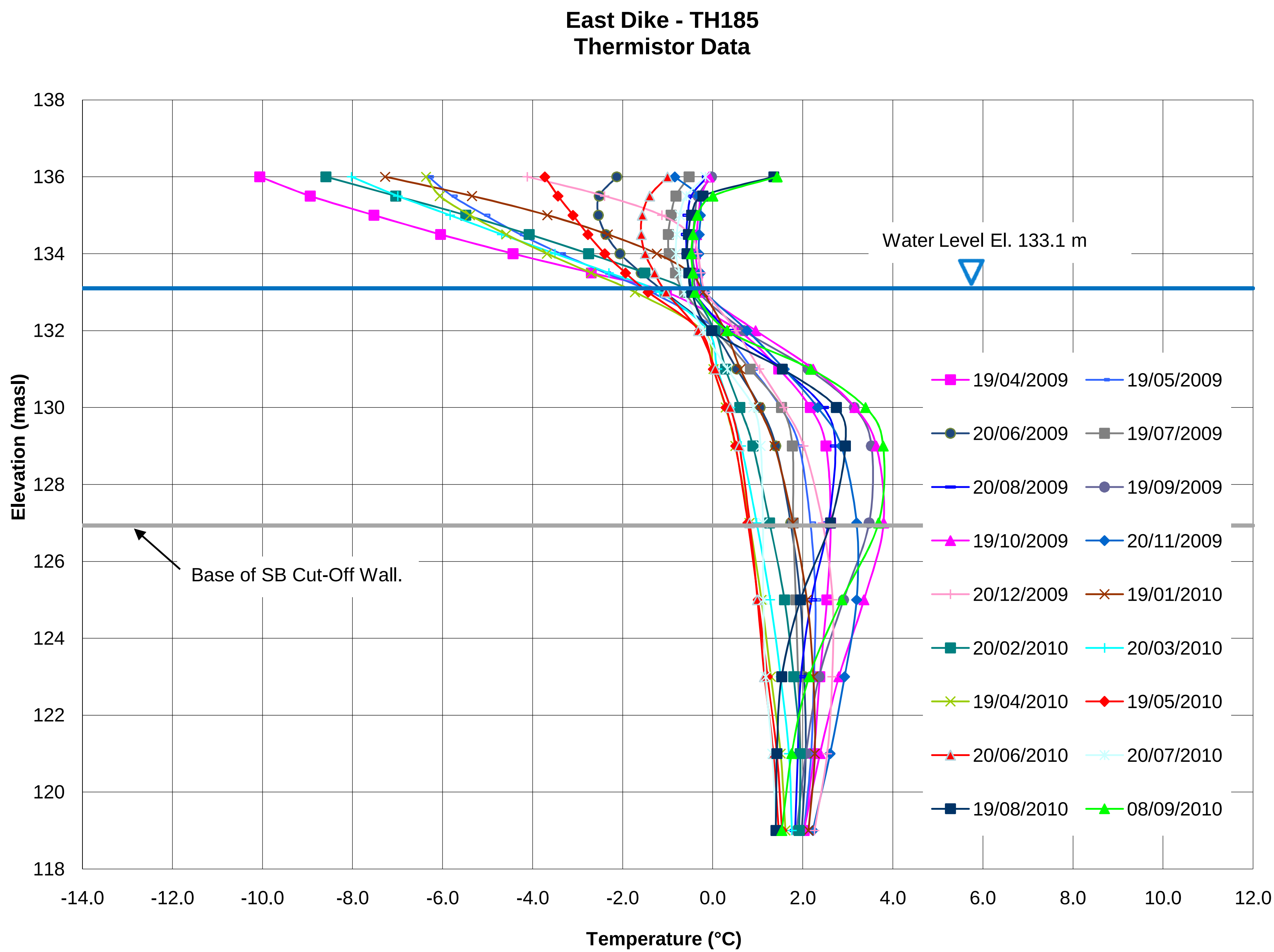
Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	DW	14OCT10	SCALE AS SHOWN	REV.
CADD	GG	14OCT10	FIGURE C1-12	
CHECK				
REVIEW				



Note: Node 9 (El. 131 m) values since May 2010 are unstable and therefore not shown.

Figure C1-13



East Dike - TH185
Thermistor Data
Elevation (masl)
Temperature (°C)
138
136
134
132
130
128
126
124
122
120
118
-14.0
-12.0
-10.0
-8.0
-6.0
-4.0
-2.0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Water Level El. 133.1 m
Base of SB Cut-Off Wall.
19/04/2009
19/05/2009
20/06/2009
19/07/2009
20/08/2009
19/09/2009
19/10/2009
20/11/2009
20/12/2009
19/01/2010
20/02/2010
20/03/2010
19/04/2010
19/05/2010
20/06/2010
20/07/2010
19/08/2010
08/09/2010

Figure C1-14

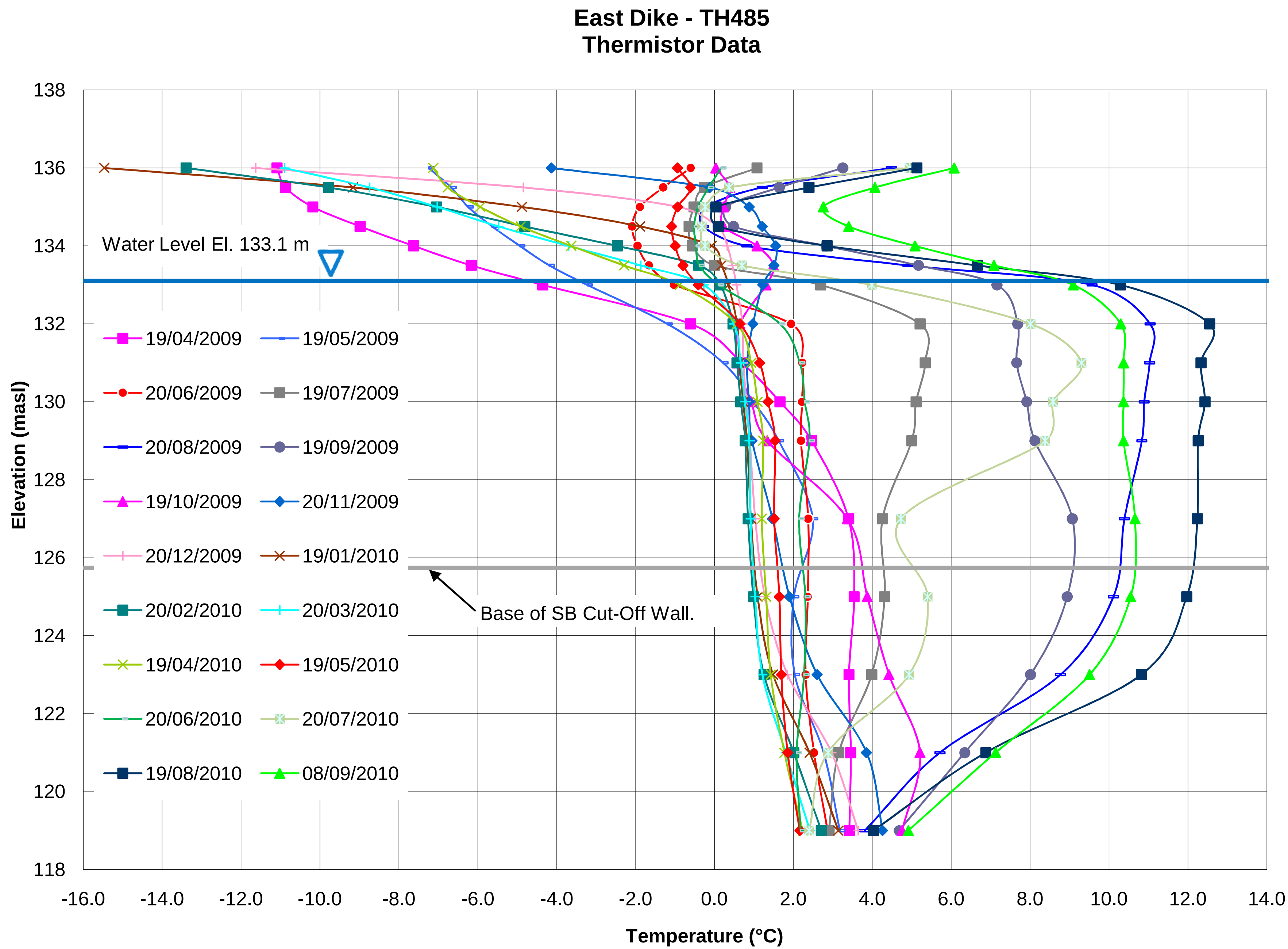
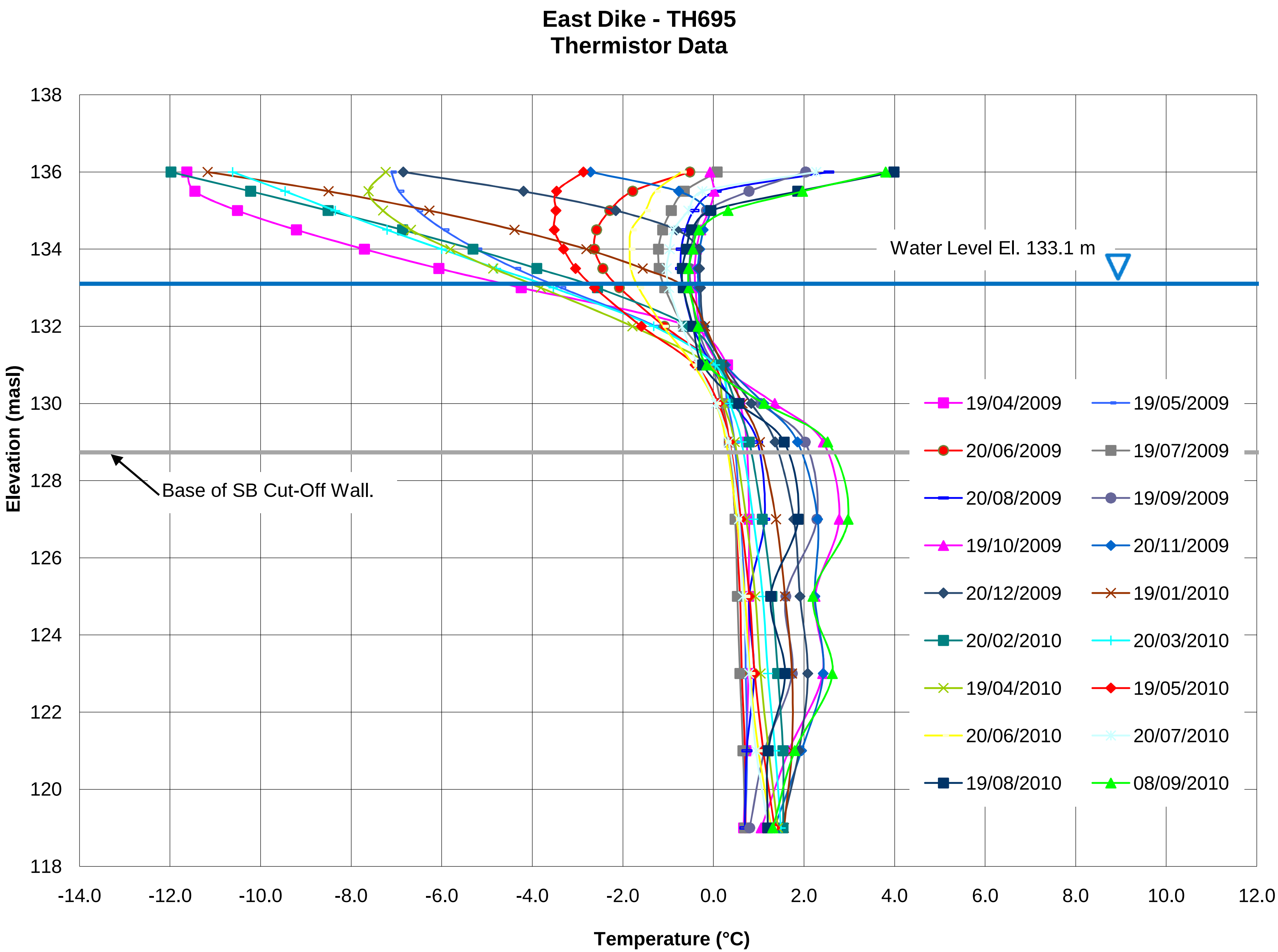

East Dike - TH485
Thermistor Data
Water Level El. 133.1 m
Base of SB Cut-Off Wall.
19/04/2009
19/05/2009
20/06/2009
19/07/2009
20/08/2009
19/09/2009
19/10/2009
20/11/2009
20/12/2009
19/01/2010
20/02/2010
20/03/2010
19/04/2010
19/05/2010
20/06/2010
20/07/2010
19/08/2010
08/09/2010
Elevation (masl)
Temperature (°C)
138
136
134
132
130
128
126
124
122
120
118
-16.0
-14.0
-12.0
-10.0
-8.0
-6.0
-4.0
-2.0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

Figure C1-15



East Dike - TH695
Thermistor Data
Elevation (masl)
Temperature (°C)
Water Level El. 133.1 m
Base of SB Cut-Off Wall.
138
136
134
132
130
128
126
124
122
120
118
-14.0
-12.0
-10.0
-8.0
-6.0
-4.0
-2.0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
19/04/2009
19/05/2009
20/06/2009
19/07/2009
20/08/2009
19/09/2009
19/10/2009
20/11/2009
20/12/2009
19/01/2010
20/02/2010
20/03/2010
19/04/2010
19/05/2010
20/06/2010
20/07/2010
19/08/2010
08/09/2010

Figure C1-16

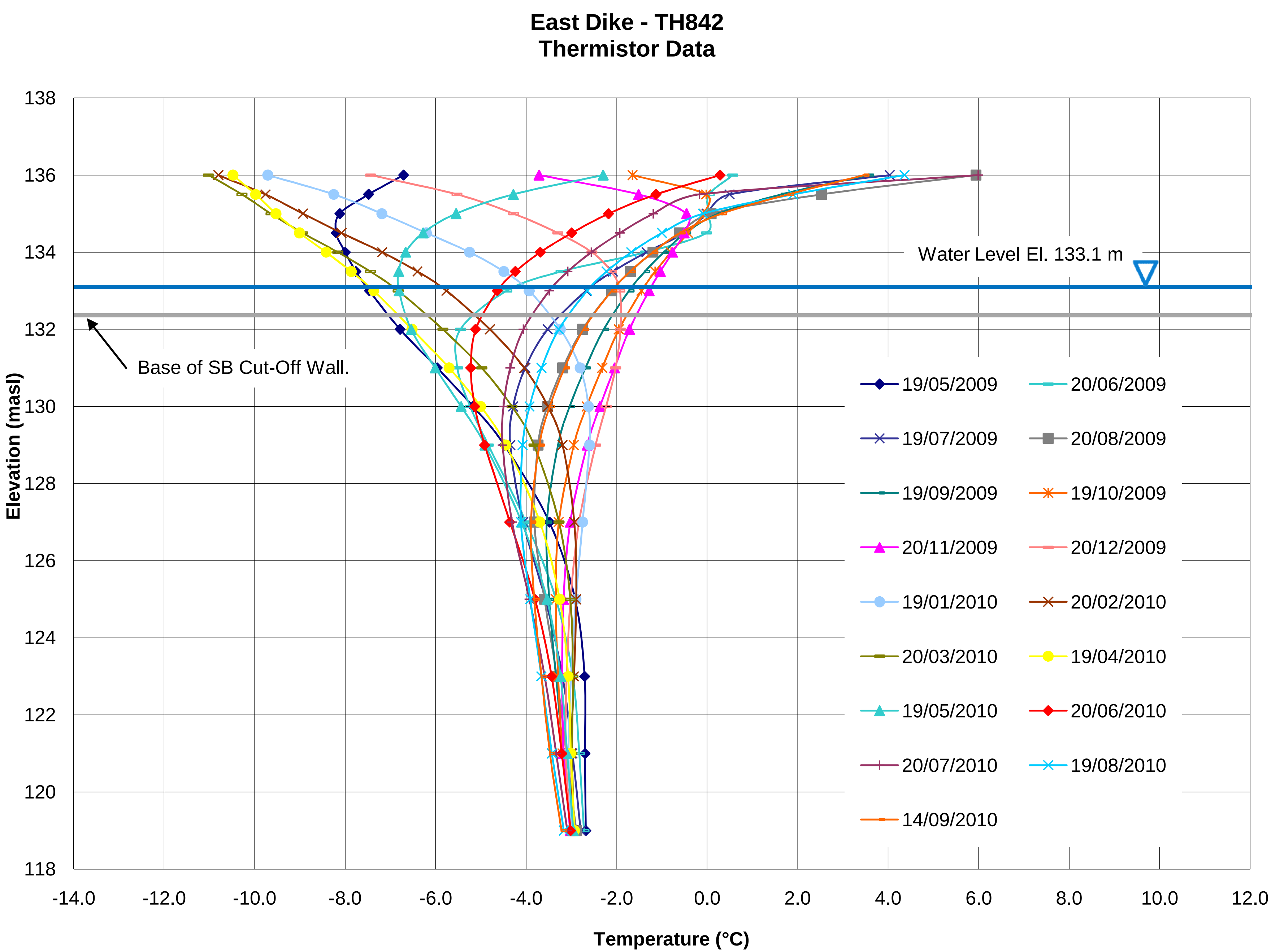
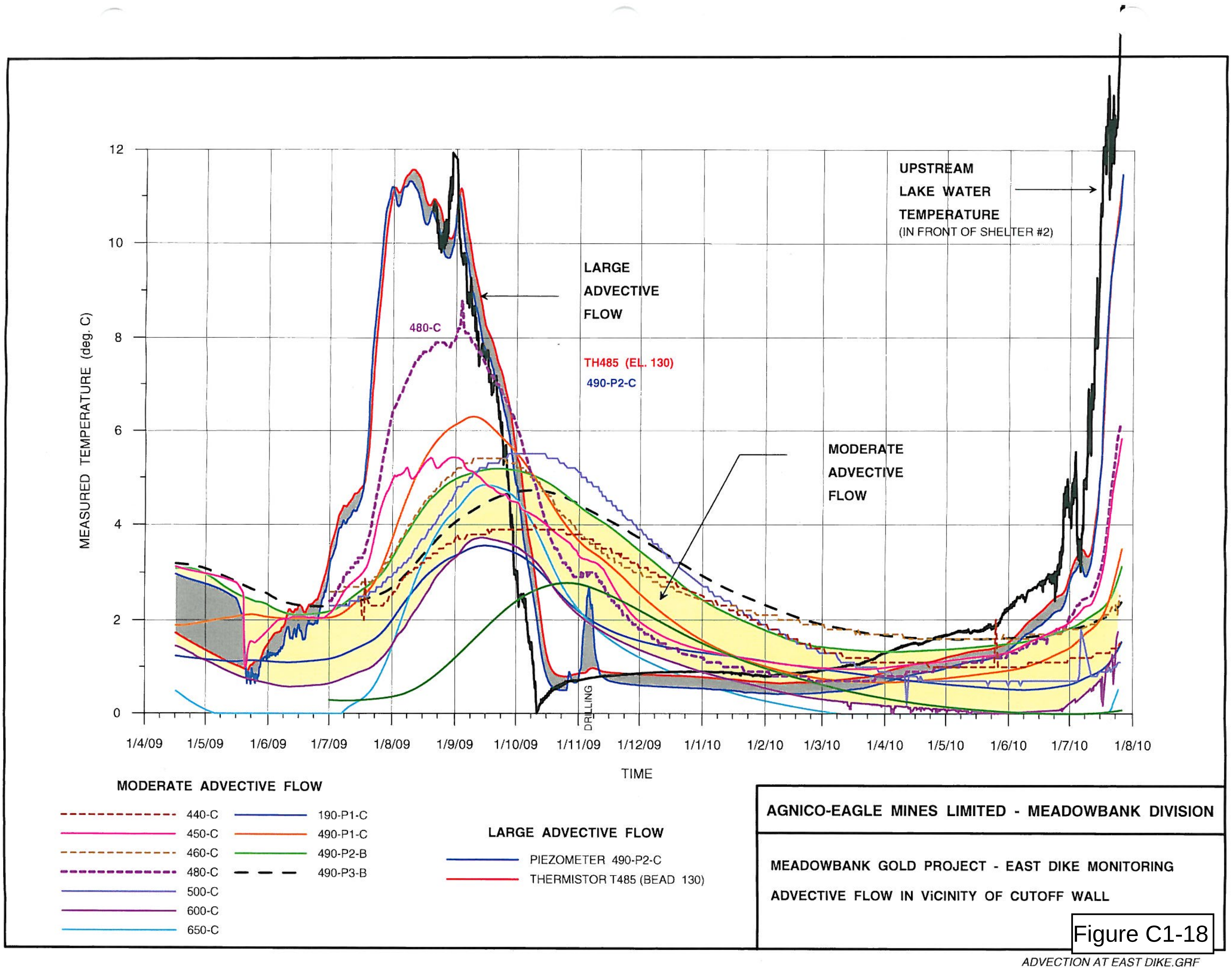
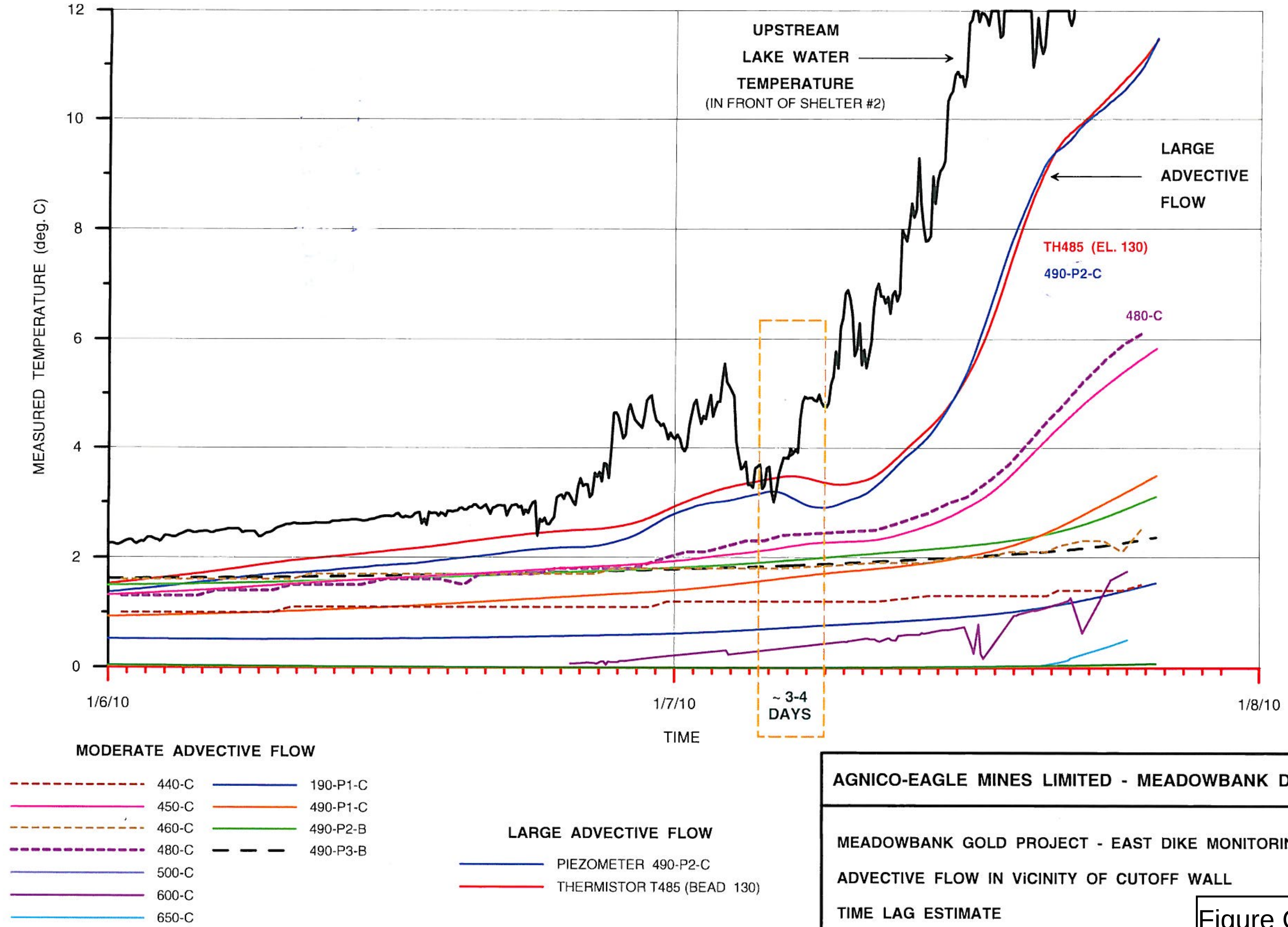

East Dike - TH842
Thermistor Data
Elevation (masl)
Temperature (°C)
138
136
134
132
130
128
126
124
122
120
118
-14.0
-12.0
-10.0
-8.0
-6.0
-4.0
-2.0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Water Level El. 133.1 m
Base of SB Cut-Off Wall.
19/05/2009
20/06/2009
19/07/2009
20/08/2009
19/09/2009
19/10/2009
20/11/2009
20/12/2009
19/01/2010
20/02/2010
20/03/2010
19/04/2010
19/05/2010
20/06/2010
20/07/2010
19/08/2010
14/09/2010

Figure C1-17



UPSTREAM
LAKE WATER
TEMPERATURE
(IN FRONT OF SHELTER #2)
LARGE
ADVECTIVE
FLOW
480-C
TH485 (EL. 130)
490-P2-C
MODERATE
ADVECTIVE
FLOW
DRILLING
MEASURED TEMPERATURE (deg. C)
0
2
4
6
8
10
12
1/4/09
1/5/09
1/6/09
1/7/09
1/8/09
1/9/09
1/10/09
1/11/09
1/12/09
1/1/10
1/2/10
1/3/10
1/4/10
1/5/10
1/6/10
1/7/10
1/8/10
TIME
MODERATE ADVECTIVE FLOW
440-C
450-C
460-C
480-C
500-C
600-C
650-C
190-P1-C
490-P1-C
490-P2-B
490-P3-B
LARGE ADVECTIVE FLOW
PIEZOMETER 490-P2-C
THERMISTOR T485 (BEAD 130)
AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION
MEADOWBANK GOLD PROJECT - EAST DIKE MONITORING
ADVECTIVE FLOW IN ViCINITY OF CUTOFF WALL
Figure C1-18
ADVECTION AT EAST DIKE.GRF



AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

MEADOWBANK GOLD PROJECT - EAST DIKE MONITORING

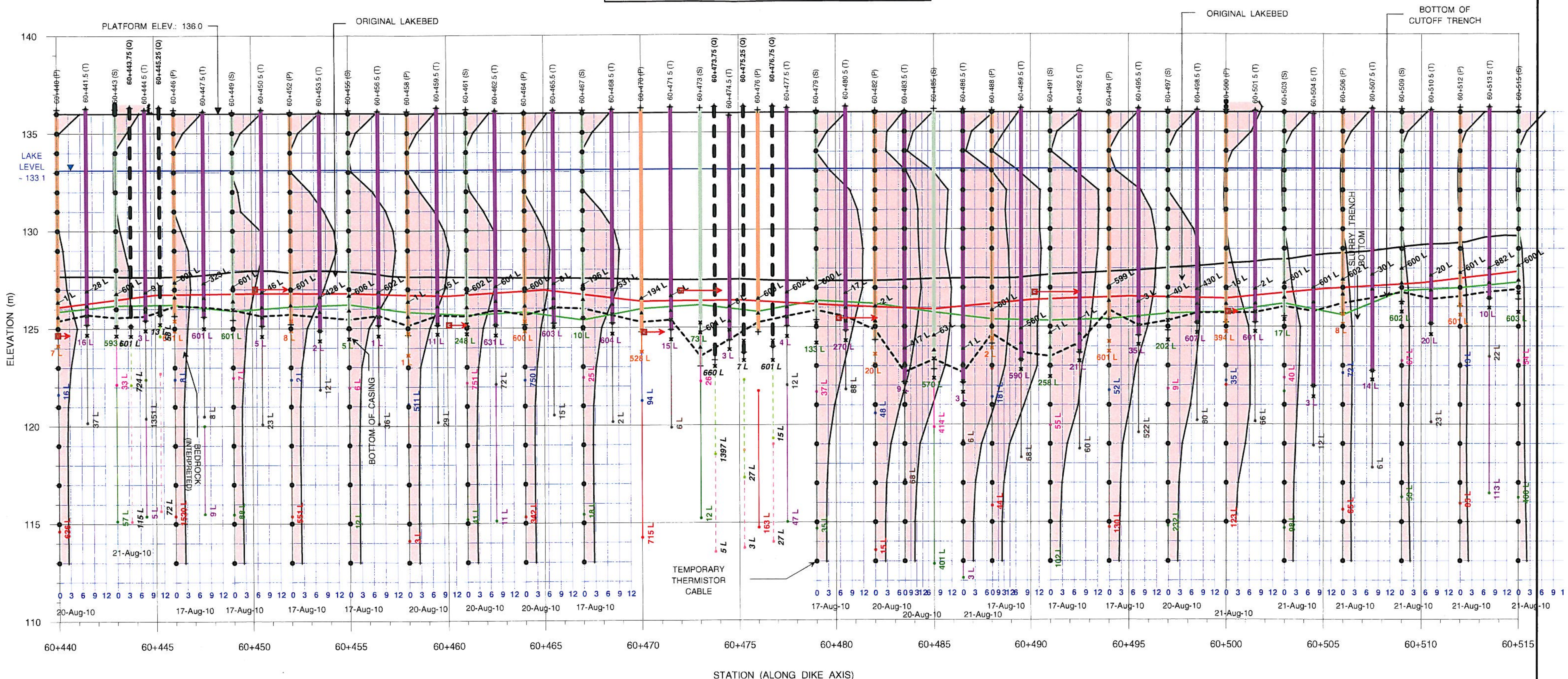
ADVECTIVE FLOW IN ViCINITY OF CUTOFF WALL

TIME LAG ESTIMATE

Figure C1-19

ADVECTION AT EAST DIKE.GRF

THERMAL PROFILE (FROM STA. 60+440 TO STA. 60+515)



SCALES

PROFILE 1 = 200

TEMPERATURE 1cm = 10 deg. C

PRIMARY GROUT HOLES	SECONDARY GROUT HOLES	TERTIARY GROUT HOLES
Primary Casings	Secondary Casings	Tertiary Casings
Stages 4, 5 & Take	Stages 4, 5 & Take	Stages 4, 5 & Take
Stage 3 & Take	Stage 3 & Take	Stage 3 & Take
Stage 2 & Take	Stage 2 & Take	Stage 2 & Take
Stage 1 & Take	Stage 1 & Take	Stage 1 & Take

AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

MEADOWBANK GOLD PROJECT - EAST DIKE MONITORING

TEMPERATURE PROFILES IN SINKHOLE AREA

FROM STA. 60+440 TO STA. 60+515

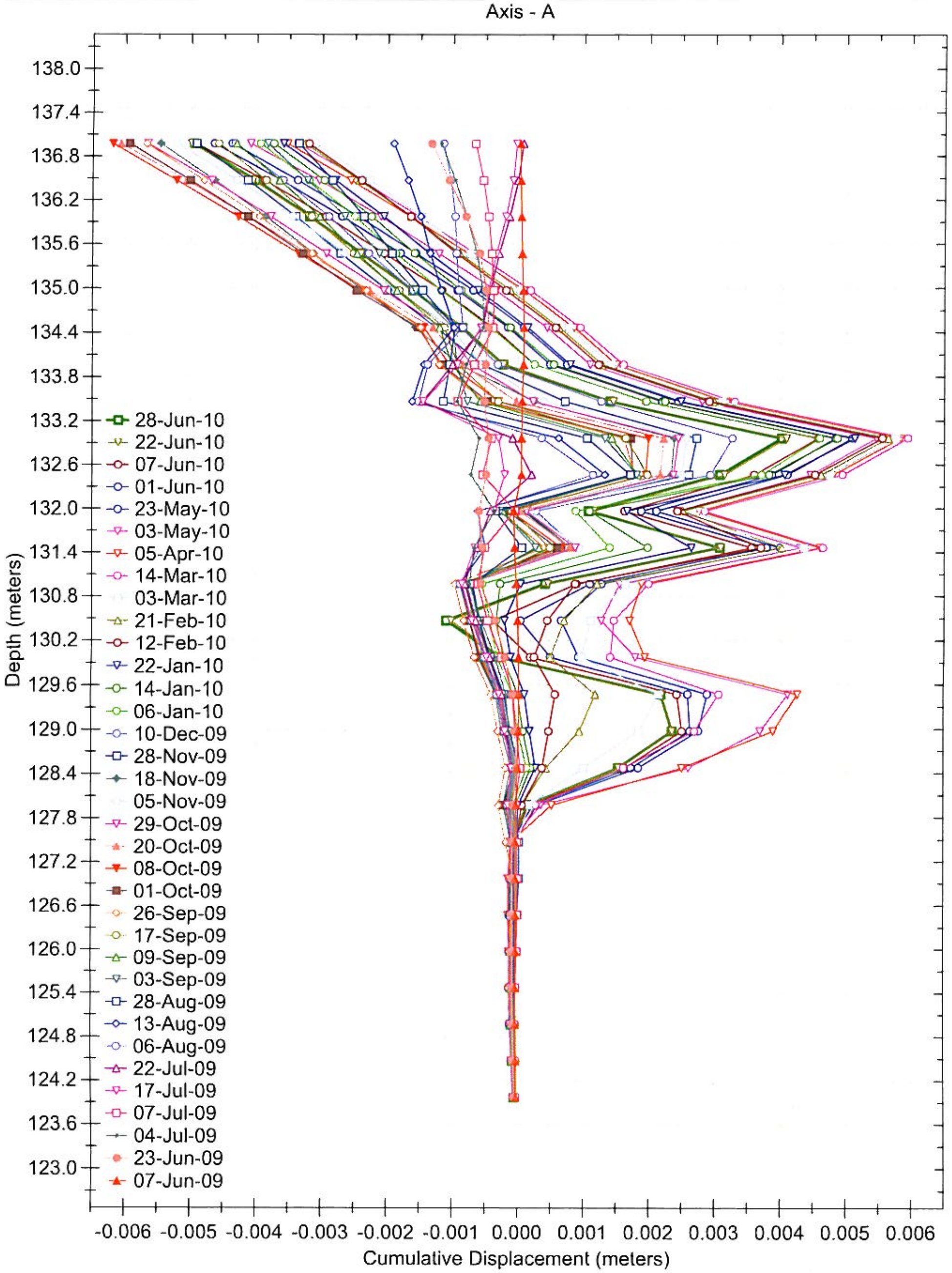
Figure C1-20

TEMPERATURE PROFILES IN SINKHOLE AREA.GRF

RST Instruments Ltd. CUMULATIVE DISPLACEMENT Inclinalysis v.2.30

Borehole : ED-IN-195
Project : Meadowbank, Nunavut
Location : East Dike, ST. 60+194.69m O/S 0.05m
Northing : 7213857.341 mN
Easting : 639366.570 mE
Collar : 0.7m

Spiral Correction : N/A
Collar Elevation : 137.5 meters
Borehole Total Depth : 13.5 meters
North Groove Azimuth : 321.2
Base Reading : 2009 Jun 07 12:11
Axis A Azimuth : 28.4 degrees



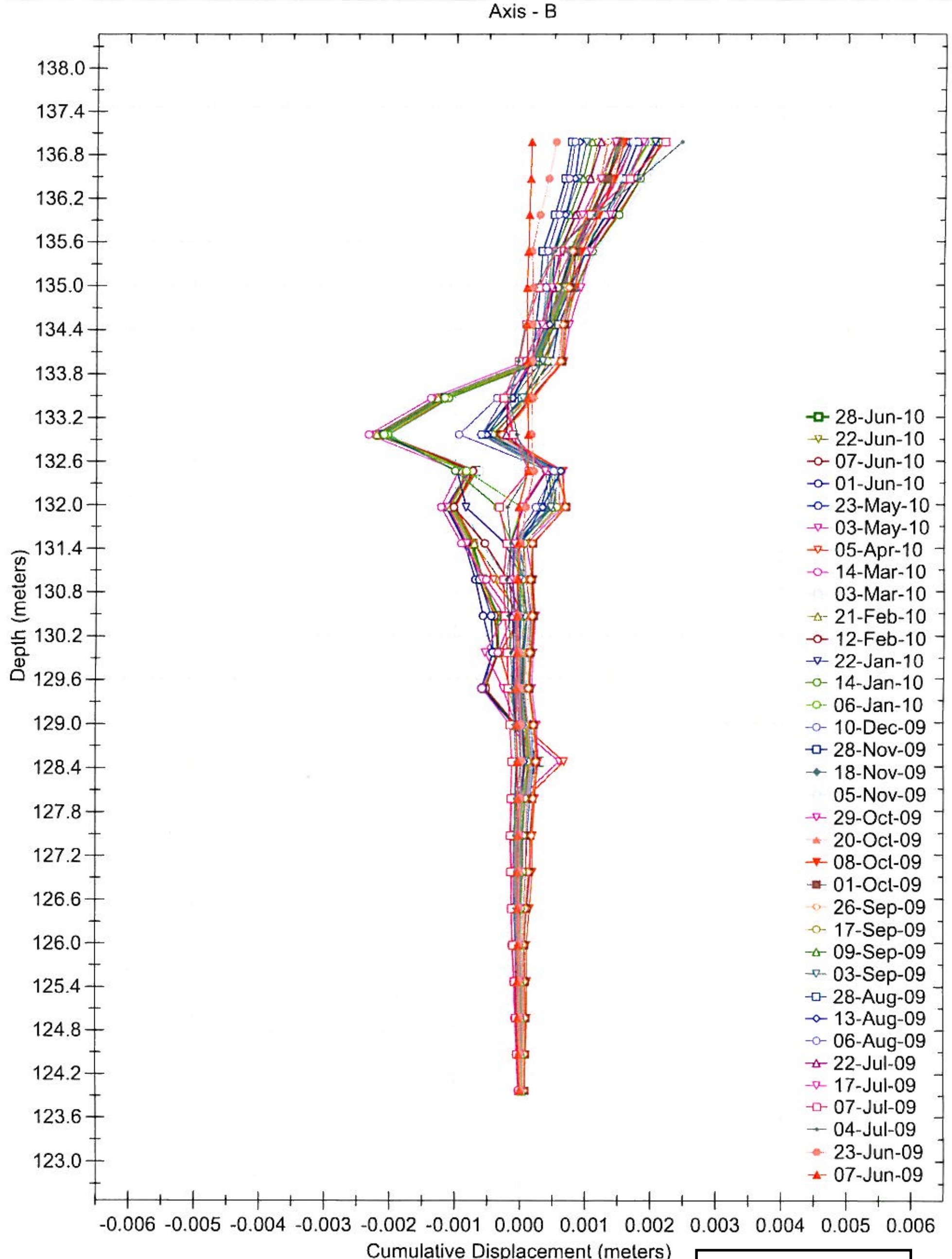
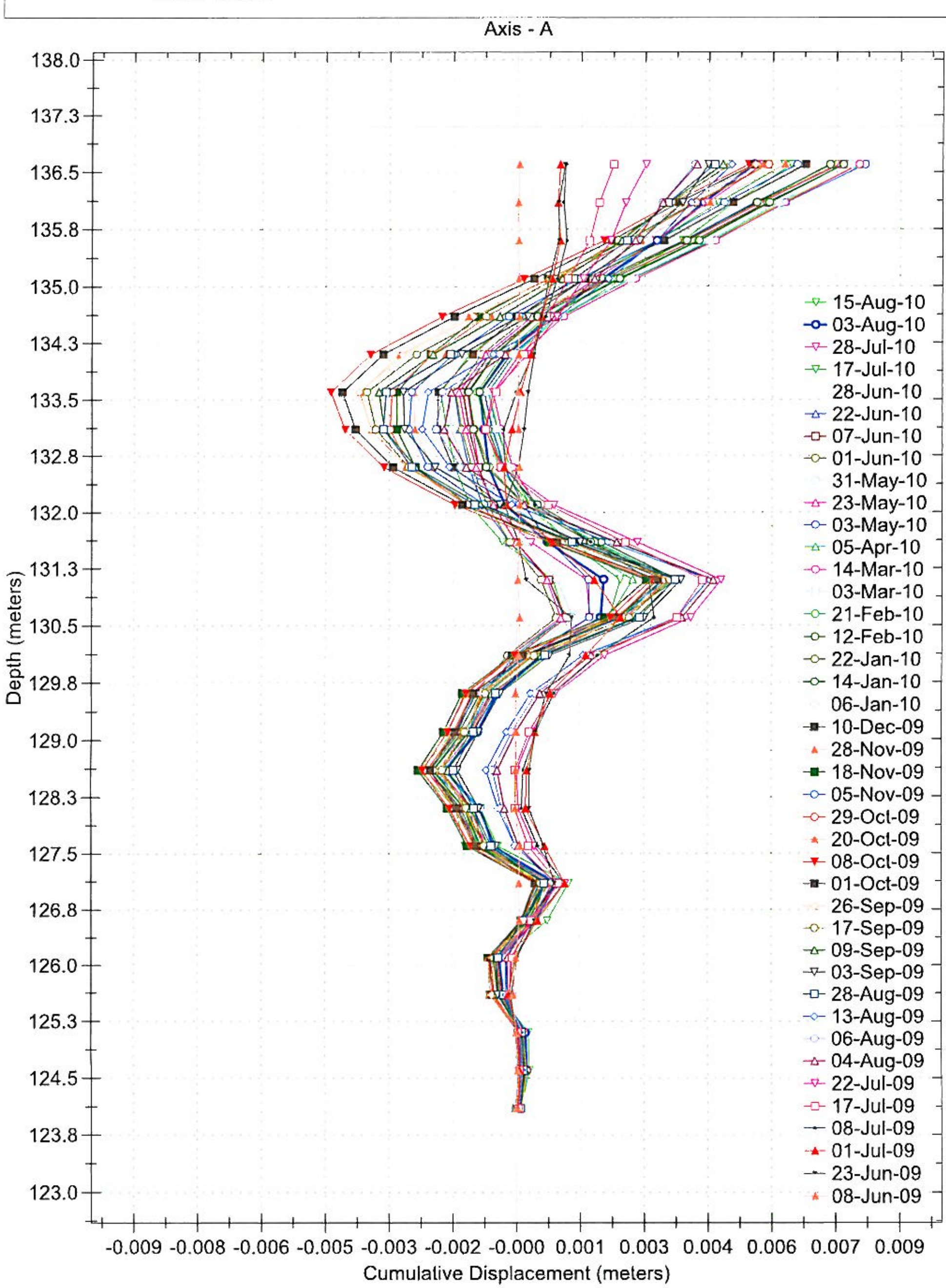


Figure C1-21

RST Instruments Ltd. CUMULATIVE DISPLACEMENT Inclinalysis v.2.30

Borehole : ED-IN-495
Project : Meadowbank, Nunavut
Location : East Dike, ST. 60+704.83m O/S 0.09m
Northing : 7214359.571 mN
Easting : 639351.450 mE
Collar : 0.8m

Spiral Correction : N/A
Collar Elevation : 137.1 meters
Borehole Total Depth : 13.0 meters
North Groove Azimuth : 257.9
Base Reading : 2009 Jun 08 11:21
Axis A Azimuth : -6.4 degrees



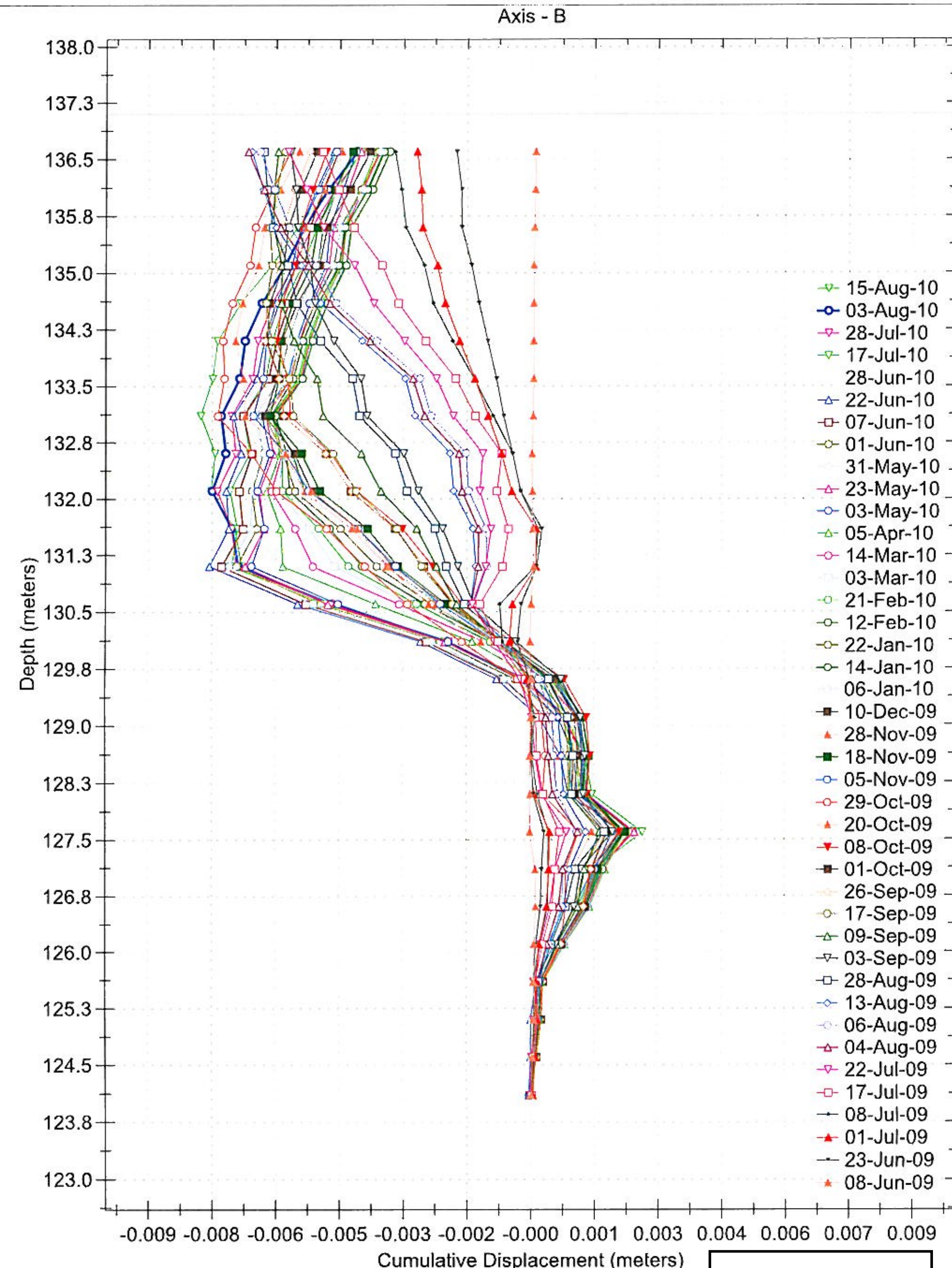


Figure C1-22

RST Instruments Ltd. | CUMULATIVE DISPLACEMENT | Inclinalysis v.2.30

Borehole : ED-IN-705
Project : Meadowbank, Nunavut
Location : East Dike, ST. 60+704.83m O/S 0.09m
Northing : 7214359.571 mN
Easting : 639351.450 mE
Collar : 0.8m

Spiral Correction : N/A
Collar Elevation : 137.6 meters
Borehole Total Depth : 11.5 meters
North Groove Azimuth : 290.4
Base Reading : 2009 Jun 23 11:13
Axis A Azimuth : 26.1 degrees

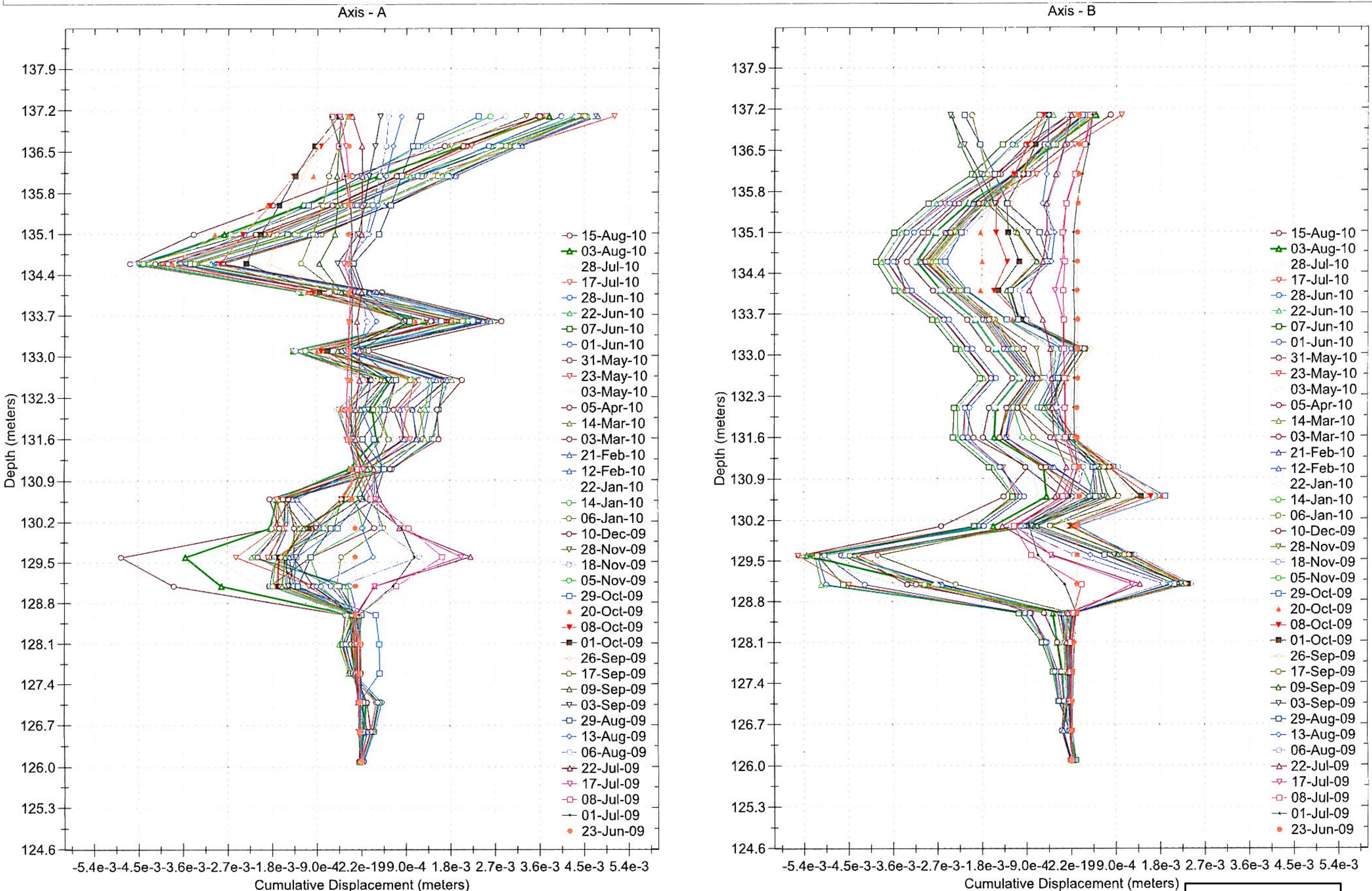
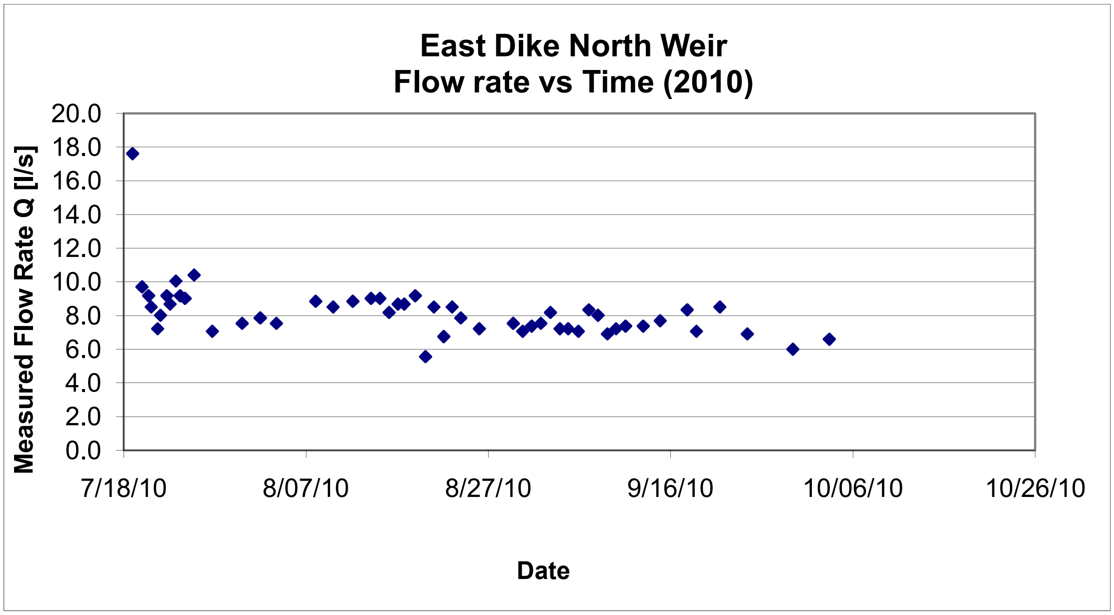
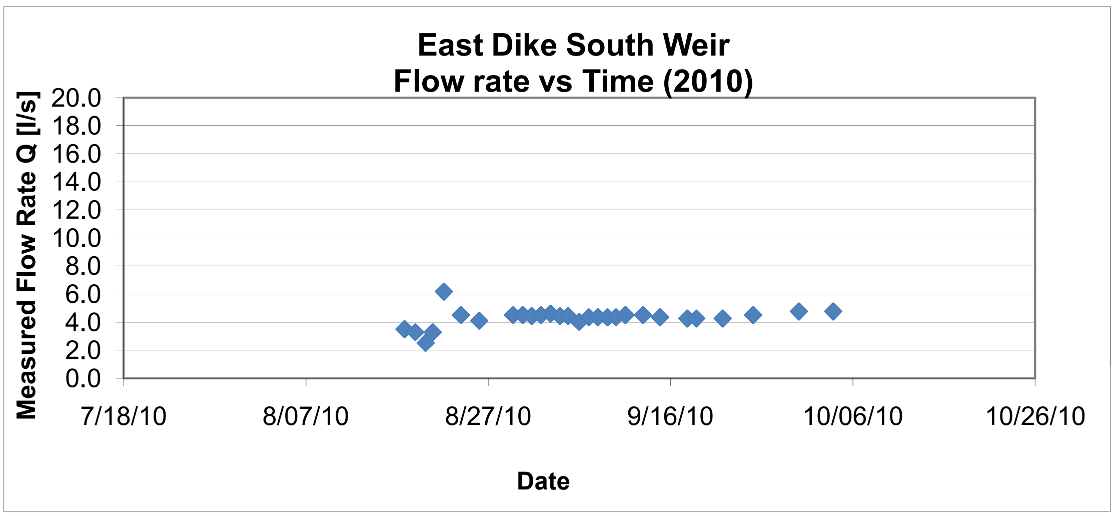


Figure C1-23

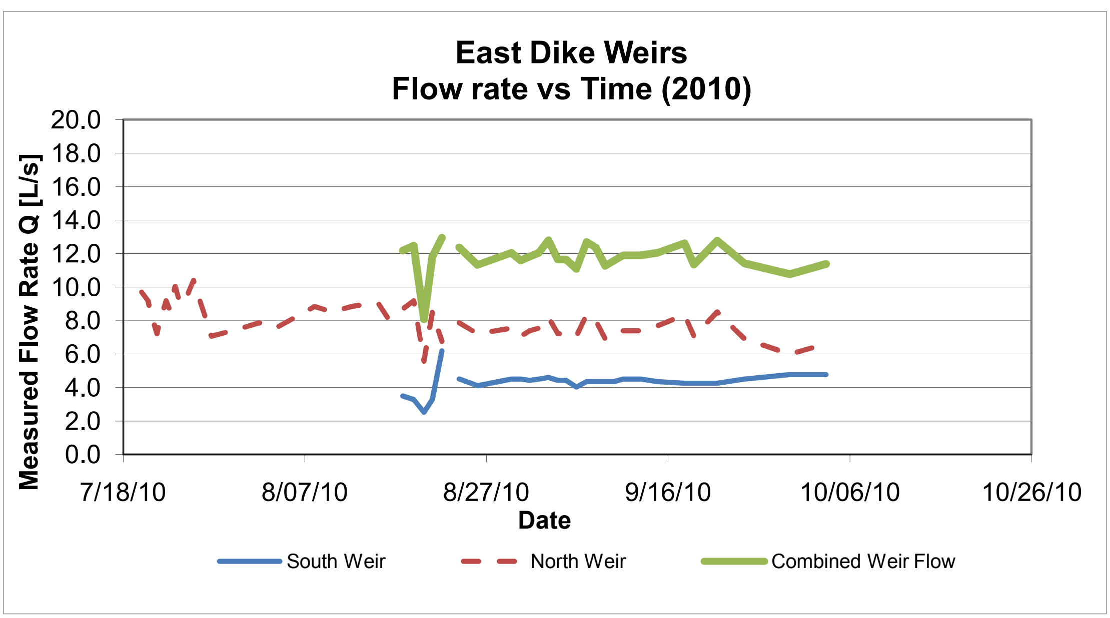
Figure C1-24



East Dike North Weir
Flow rate vs Time (2010)
Measured Flow Rate Q [l/s]
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
7/18/10
8/07/10
8/27/10
9/16/10
10/06/10
10/26/10
Date



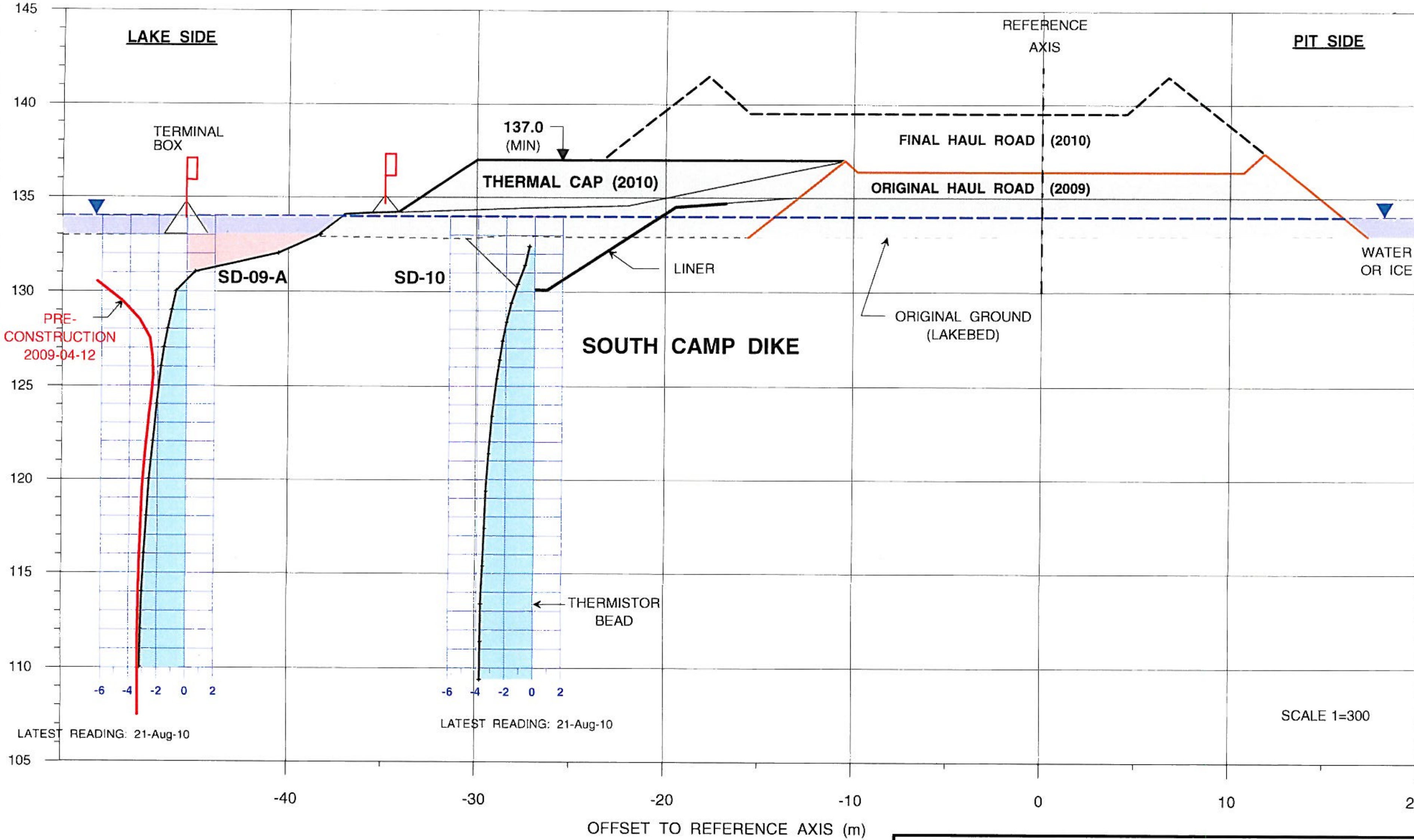
East Dike South Weir
Flow rate vs Time (2010)
Measured Flow Rate Q [l/s]
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
7/18/10
8/07/10
8/27/10
9/16/10
10/06/10
10/26/10
Date



East Dike Weirs
Flow rate vs Time (2010)
Measured Flow Rate Q [L/s]
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
7/18/10
8/07/10
8/27/10
9/16/10
10/06/10
10/26/10
Date
South Weir
North Weir
Combined Weir Flow

Appendix C2 – South Camp Dike:

Thermistor Data



NOTE: COORDINATES FOR REFERENCE AXIS:
638,211 E 7,213,186 N
638,174 E 7,213,075 N

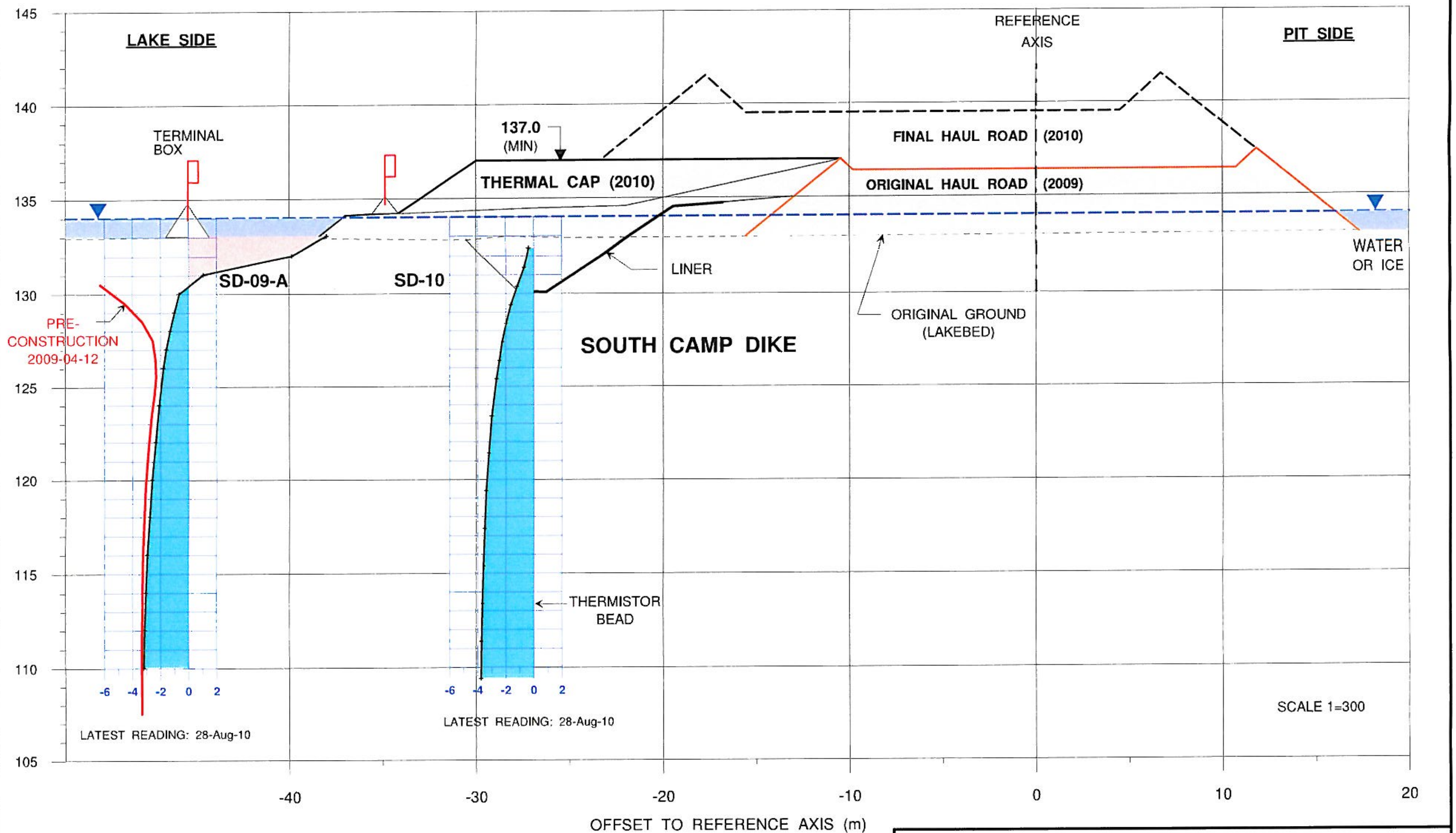
AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

SOUTH CAMP DIKE CONSTRUCTION

TEMPERATURE MONITORING IN DIKE FOUNDATION

Figure C2-1

TEMPERATURE PROFILES AT SD1.GRF



AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

SOUTH CAMP DIKE CONSTRUCTION

TEMPERATURE MONITORING IN DIKE FOUNDATION

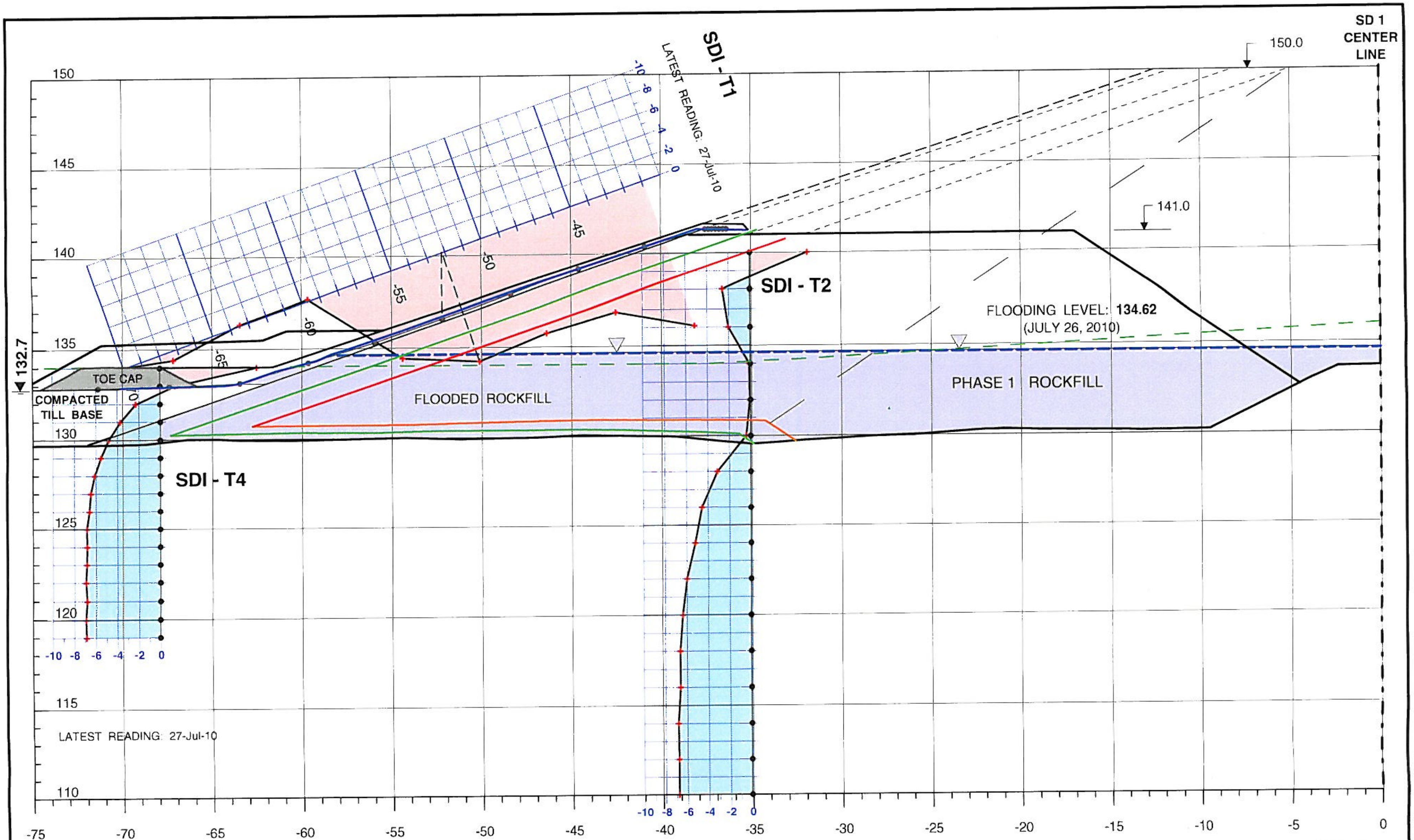
Figure C2-2

NOTE: COORDINATES FOR REFERENCE AXIS:
638,211 E 7,213,186 N
638,174 E 7,213,075 N

TEMPERATURE PROFILES AT SD1.GRF

Appendix C3 – Saddle Dam 1:

Thermistor Data



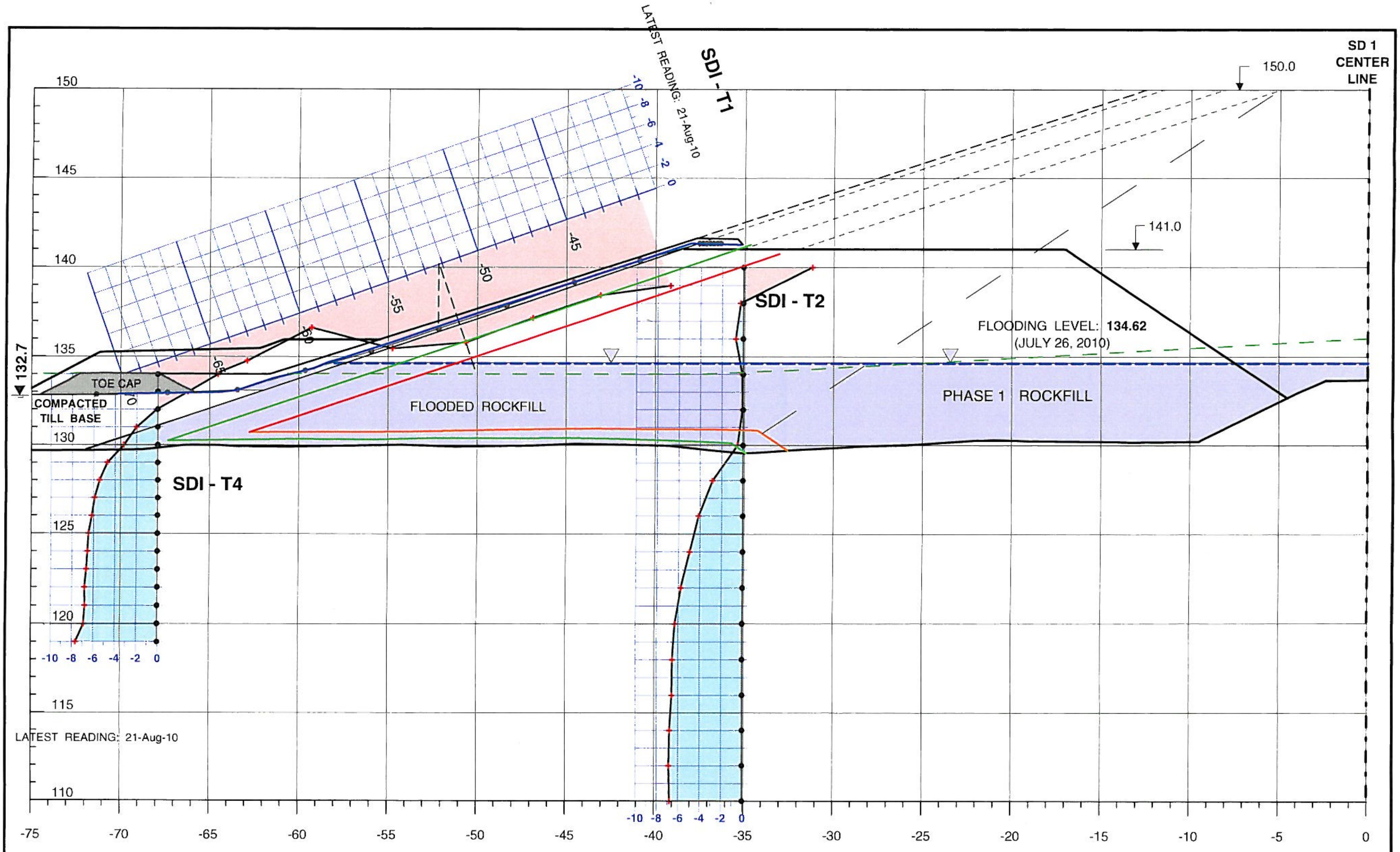
AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

MEADOWBANK GOLD PROJECT - SADDLE DAM 1

GROUND TEMPERATURE MONITORING

Figure C3-1

SD1 TEMPERATURE MONITORING.GRF



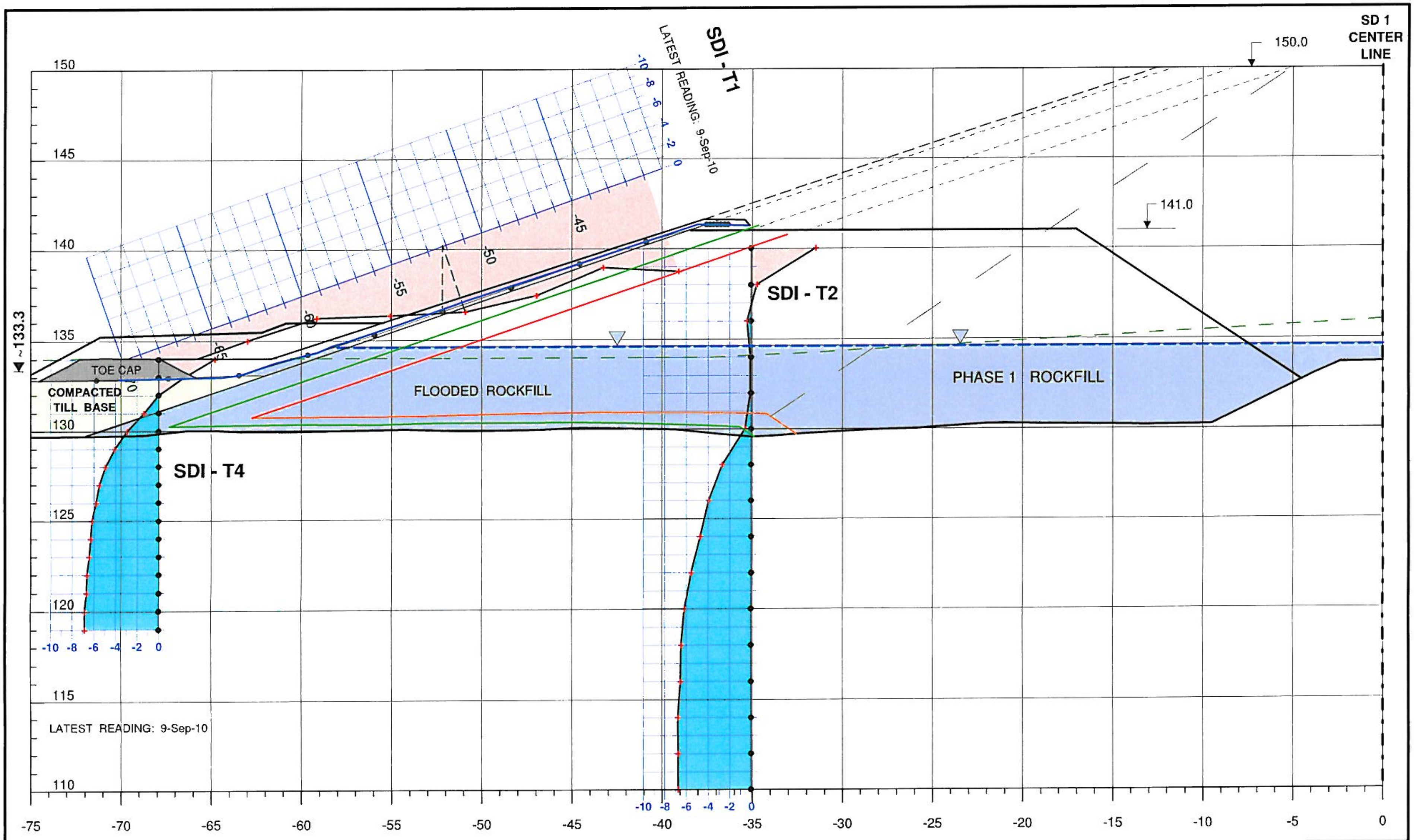
AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

MEADOWBANK GOLD PROJECT - SADDLE DAM 1

GROUND TEMPERATURE MONITORING

Figure C3-2

SD1 TEMPERATURE MONITORING.GRF



AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

MEADOWBANK GOLD PROJECT - SADDLE DAM 1

GROUND TEMPERATURE MONITORING

Figure C3-3

SD1 TEMPERATURE MONITORING.GRF

APPENDIX D - AWPR

Appendix D1 - AWPR: Photographic Log
Appendix D2 - Culverts: Photographic Log
Appendix D3 - Bridges: Photographic Log

Appendix D1 – All Weather Private Road (AWPR):

Photographic Log

PHOTOGRAPH D1-1 – AWPR

Date: September 16, 2010. **Photo Number:** IMG_3851

Description: General view of road PC-7 (km 20+505) looking southeast towards Baker Lake.

PHOTOGRAPH D1-2 – AWPR

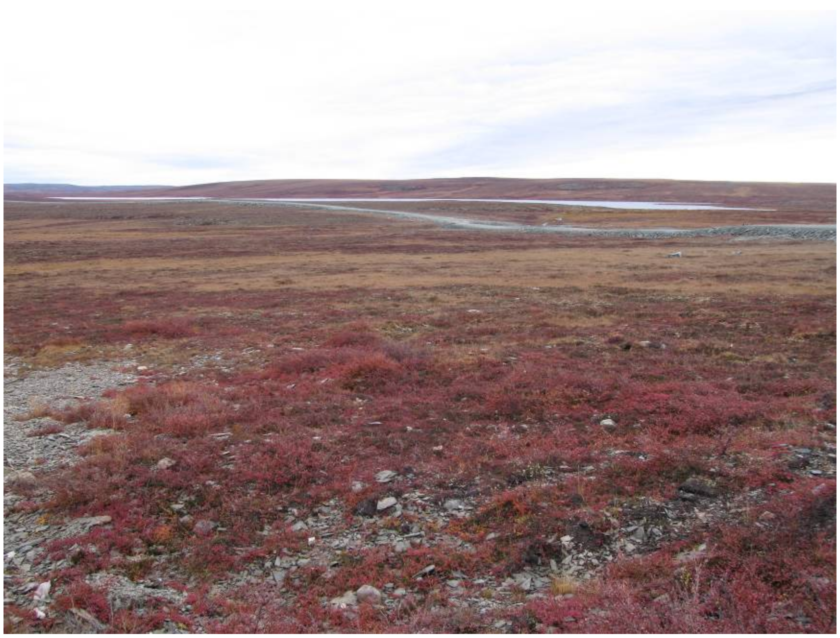
Date: September 15, 2010. **Photo Number:** IMG_3876

Description: From Quarry 8 looking (km 43) north towards Meadowbank.

PHOTOGRAPH D1-3 – AWPR

Date: September 15, 2010. **Photo Number:** STA_3849_3850

Description: Panoramic view of road from Quarry 10 looking south towards RO9 bridge (Bridge 4) km 48.



PHOTOGRAPH D1-4 – AWPR

Date: September 15, 2010. **Photo Number:** IMG_3851

Description: General view of road from Quarry 10 looking south, near km 49.

PHOTOGRAPH D1-5 – AWPR

Date: September 15, 2010. **Photo Number:** IMG_3845

Description: General view of road heading south from Meadowbank towards Baker Lake.

\\bur1-s-filesrv2\final\2010\1428\10-1428-0033 meadowbank 2010 geotechnical inspection\doc 1216 ver. 0 rep 1129_10\app d\components\appendix d1- awpr 2010-1203_10.doc

Appendix D2 – Culverts:

Photographic Log

PHOTOGRAPH D2-1: PRC-1, km 0+430

Date: September 16, 2010. **Photo Number:** IMG_3938

Description: Upstream view of culvert. Large rock from road work has fallen in front of culvert. Rock is not blocking culvert. Uniform grade through culvert observed. Inlet should be cleaned.

PHOTOGRAPH D2-2 – PRC-1, km 0+430

Date: September 16, 2010. **Photo Number:** IMG_3940

Description: From downstream looking at culvert. Rock from road work is sitting on top of culvert. Rocks and sand from lake are blocking outlet. Outlet should be cleaned.

PHOTOGRAPH D2-3 – PRC-2, Km 0+470

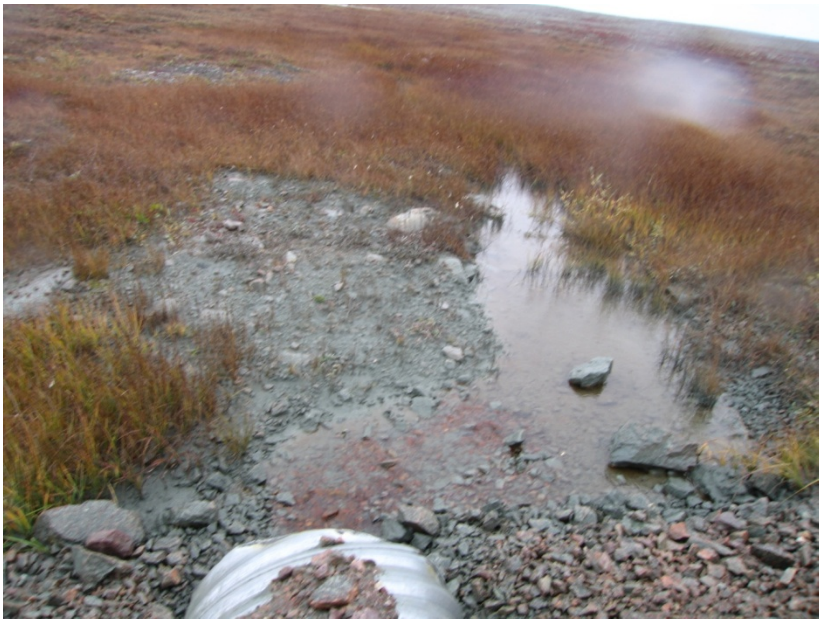
Date: September 16, 2010. **Photo Number:** IMG_3934

Description: From upstream looking at culverts. Note both culverts have inflow.

PHOTOGRAPH D2-4 – PRC-2, km 0+470

Date: September 16, 2010. **Photo Number:** IMG_3937

Description: Downstream view of culverts. Culvert on left (closest to Baker Lake) is dry at outlet, not at inlet. Water likely exits through a joint in the culvert and then continues to pass through rockfill road.



PHOTOGRAPH D2-5: PRC-3, km 1+380

Date: September 16, 2010. **Photo Number:** IMG_3941

Description: Upstream view of culvert and valley.

PHOTOGRAPH D2-6: PRC-3, km 1+380

Date: September 16, 2010. **Photo Number:** IMG_3943

Description: Downstream view of culvert. Good condition, uniform grade, no obstruction.

PHOTOGRAPH D2-7: R-00A, km 2+550

Date: September 16, 2010. **Photo Number:** IMG_3945

Description: Upstream view of culvert and valley. No defined channel.

PHOTOGRAPH D2-8: R-00A, km 2+550

Date: September 16, 2010. **Photo Number:** IMG_3947

Description: Downstream view of culvert. Outlet is crushed and culvert has a hole on haunch, road bed cover is inadequate to protect the culvert.

PHOTOGRAPH D2-9: R-00A, km 2+550

Date: September 16, 2010. **Photo Number:** IMG_3948

Description: Collapsed outlet. Road bed cover over culvert is too thin to provide protection. Uniform grade through culvert observed.

PHOTOGRAPH D2-10: PC-14, km 4+260

Date: September 16, 2010. **Photo Number:** IMG_3950

Description: From upstream looking at culverts. No defined channel, grass with cobbles on base of ground. Uniform grade, good condition other than damage at inlet observed.

PHOTOGRAPHS D2-11: PC-14, km 4+260

Date: September 16, 2010. **Photo Number:** IMG_3952

Description: Upstream view of culverts and valley. Culvert on left in photo is filled with gravel, crushed / damaged. Culvert on right outlet partially crushed at inlet haunch, but still functions, uniform grade.

PHOTOGRAPHS D2-12: PC-14, km 4+260

Date: September 16, 2010. **Photo Number:** IMG_3951

Description: Downstream view of culverts and valley.

PHOTOGRAPH D2-13: PC-17, km 8+830

Date: September 16, 2010. **Photo Number:** IMG_3977

Description: Upstream view of culverts and valley. Note 3/4” to 1” diameter gravel placed around and on culverts. Scouring in front of culverts has occurred (note vegetation) streambed about 0.3 to 0.5 m lower.

PHOTOGRAPH D2-14: PC-17, km 8+830

Date: September 16, 2010. **Photo Number:** IMG_3978

Description: From upstream looking at culvert inlets. Gravel placed around and on culverts. Flow beneath culvert has occurred; bedding material may have washed away. Note void on culvert closet to Baker Lake (right in photo). Uniform grade through both culverts, no obstructions observed. Streambed lower than culvert invert as a result of scouring.

PHOTOGRAPH D2-15: PC-17, km 8+830

Date: September 16, 2010. **Photo Number:** IMG_3981

Description: Upstream view of stream bed. Note erosion / scouring.

PHOTOGRAPH D2-16: PC-17, km 8+830

Date: September 16, 2010. **Photo Number:** IMG_3983

Description: From downstream looking at culvert outlets. Note gravel surrounding culverts and boulders in streambed beyond culverts.

PHOTOGRAPH D2-17: 4 new culverts, approximately km 8+850

Date: September 16, 2010. **Photo Number:** IMG_3989

Description: From upstream looking at culverts. New culverts installed during 2010 freshet. Inverts not well bedded. Rocks 20 – 40 cm in mouth and several within culvert closest to Baker Lake (right on photo).

PHOTOGRAPH D2-18: 4 new culverts, approximately km 8+850

Date: September 16, 2010. **Photo Number:** IMG_3987

Description: Upstream view of culverts.

PHOTOGRAPH D2-19: 4 new culverts, approximately km 8+850

Date: September 16, 2010. **Photo Number:** IMG_3994

Description: From downstream looking at culverts. New culverts installed as an emergency action during 2010 freshet. Note rocks near outlet on right in photo.

PHOTOGRAPH D2-20: 4 new culverts, approximately km 8+850

Date: September 16, 2010. **Photo Number:** IMG_3993

Description: Downstream view of culvert sand valley. Not all culverts evident in photo, obscured by rocks from bank of road.

PHOTOGRAPH D2-21: PC-1, km 9+952

Date: September 16, 2010. **Photo Number:** IMG_3995

Description: Upstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.

PHOTOGRAPH D2-22: PC-1, km 9+952

Date: September 16, 2010. **Photo Number:** IMG_3996

Description: Downstream view of culvert and valley.

PHOTOGRAPH D2-23: R-03, km 10+580

Date: September 16, 2010. **Photo Number:** IMG_3997

Description: Upstream view of culvert and valley. Good condition, no obstruction, uniform grade, no sign of erosion.

PHOTOGRAPH D2-24: R-03, km 10+580

Date: September 16, 2010. **Photo Number:** IMG_3998

Description: Downstream view of culvert and valley.

PHOTOGRAPH D2-25: R-04, km 12+050

Date: September 16, 2010. **Photo Number:** IMG_3999

Description: Upstream view of culvert.

PHOTOGRAPH D2-26: R-04, km 12+050

Date: September 16, 2010. **Photo Number:** IMG_4000

Description: Upstream to downstream view through culvert. Note two large 30-40 cm cobbles at inlet and within culvert.

PHOTOGRAPH D2-27: R-04, km 12+050

Date: September 16, 2010. **Photo Number:** IMG_4001

Description: Downstream view of culvert and valley. Good condition, uniform grade, no sign of erosion.

PHOTOGRAPH D2-28: PC-13, km 12+745

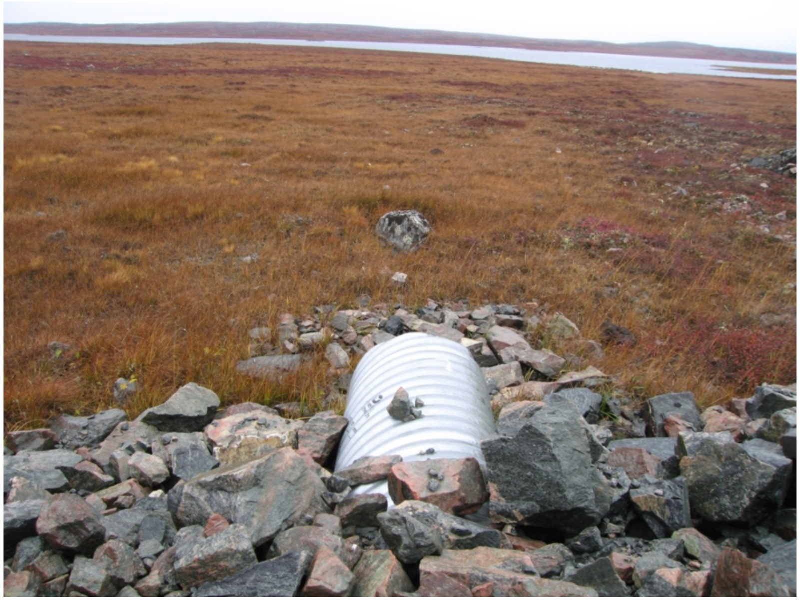
Date: September 16, 2010. **Photo Number:** IMG_4003

Description: From upstream looking at culvert. Culvert partially crushed at inlet.

PHOTOGRAPH D2-29: PC-13, km 12+745

Date: September 16, 2010. **Photo Number:** IMG_4007

Description: From upstream to downstream view through culvert. Crushing on side of culvert. Capacity of culvert decreased.



PHOTOGRAPH D2-30: PC-13, km 12+745

Date: September 16, 2010. **Photo Number:** IMG_4008

Description: Downstream view of culvert and valley. Uniform grade, crushing on side, no defined channel evident.

PHOTOGRAPH D2-31: PC-2, km 13+405

Date: September 16, 2010. **Photo Number:** IMG_4015

Description: From upstream looking at culvert.

PHOTOGRAPH D2-32: PC-2, km 13+405

Date: September 16, 2010. **Photo Number:** IMG_4018

Description: From downstream looking at culvert. Uniform grade, good condition, and no sign of erosion evident. Cleanup at culvert inlet and outlet of culvert to remove cobbles from road construction is recommended.

PHOTOGRAPH D2-33: PC-3, km 13+685

Date: September 16, 2010. **Photo Number:** IMG_4013

Description: Upstream view of inlet. Streambed slightly above culvert inlet, water flows down into culvert.

PHOTOGRAPH D2-34: PC-3, km 13+685

Date: September 16, 2010. **Photo Number:** IMG_4014

Description: Downstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.

PHOTOGRAPH D2-35: PC-4, km 14+910

Date: September 16, 2010. **Photo Number:** IMG_4020

Description: From upstream looking at culvert inlet. Culvert set slightly above stream bed, water pools around base before flowing through. Good condition, uniform grade, no sign of erosion.

PHOTOGRAPH D2-36: PC-4, km 14+910

Date: September 16, 2010. **Photo Number:** IMG_4021

Description: Downstream view of culvert and valley. Large rocks from road piled around outlet.

PHOTOGRAPH D2-37: R-05A, km 15+645

Date: September 16, 2010. **Photo Number:** IMG_4024

Description: From upstream looking at culvert inlet. Note culvert set above base. Pool 30-50cm deeper.

PHOTOGRAPH D2-38: R-05A, km 15+645

Date: September 16, 2010. **Photo Number:** IMG_4026

Description: Downstream view of culvert and valley. Outlet at base discharges to a pool with sediment on streambed and grass surrounding.

PHOTOGRAPH D2-39: PC-5, km 18+280

Date: September 16, 2010. **Photo Number:** IMG_4036

Description: Upstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.

PHOTOGRAPH D2-40: PC-5, km 18+280

Date: September 16, 2010. **Photo Number:** IMG_4037

Description: Downstream view of culvert and valley.

PHOTOGRAPH D2-41: PC-6, km 19+075

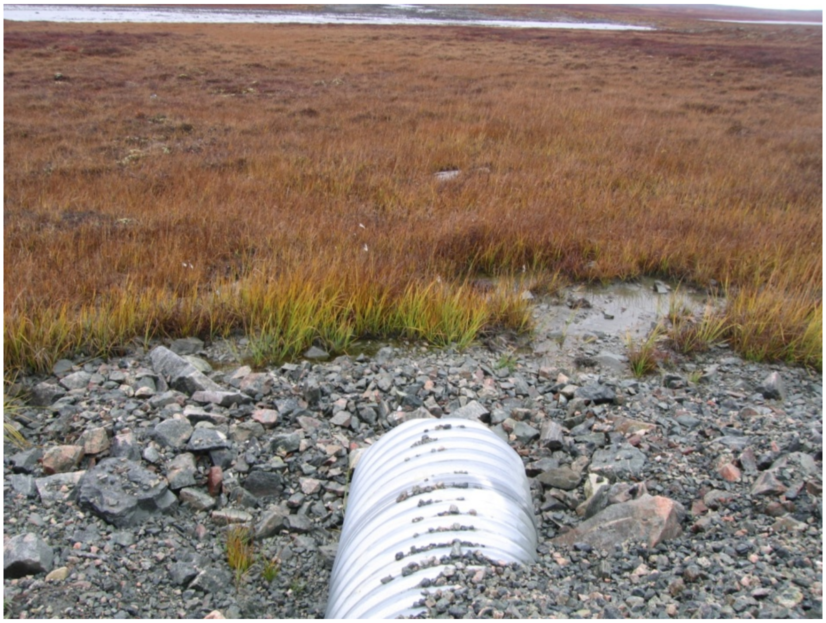
Date: September 16, 2010. **Photo Number:** IMG_4038

Description: Upstream view of culvert and valley. Good condition, uniform grade, no sign of erosion.

PHOTOGRAPH D2-42: PC-6, km 19+075

Date: September 16, 2010. **Photo Number:** IMG_4040

Description: Rocks in culvert. Not considered an obstruction.



PHOTOGRAPH D2-43: PC-6, km 19+075

Date: September 16, 2010. **Photo Number:** IMG_4041

Description: Downstream view of culvert and valley.

PHOTOGRAPH D2-44: PC-7, km 20+505

Date: September 16, 2010. **Photo Number:** IMG_4043

Description: Upstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.

PHOTOGRAPH D2-45: PC-7, km 20+505

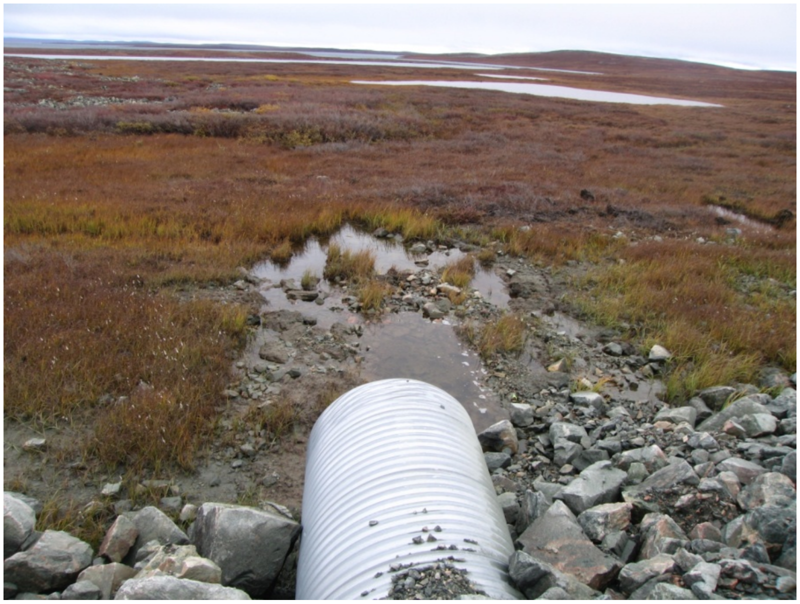
Date: September 16, 2010. **Photo Number:** IMG_4045

Description: Downstream view of culvert and valley.

PHOTOGRAPH D2-46: R-07, km 25+900

Date: September 16, 2010. **Photo Number:** IMG_4059

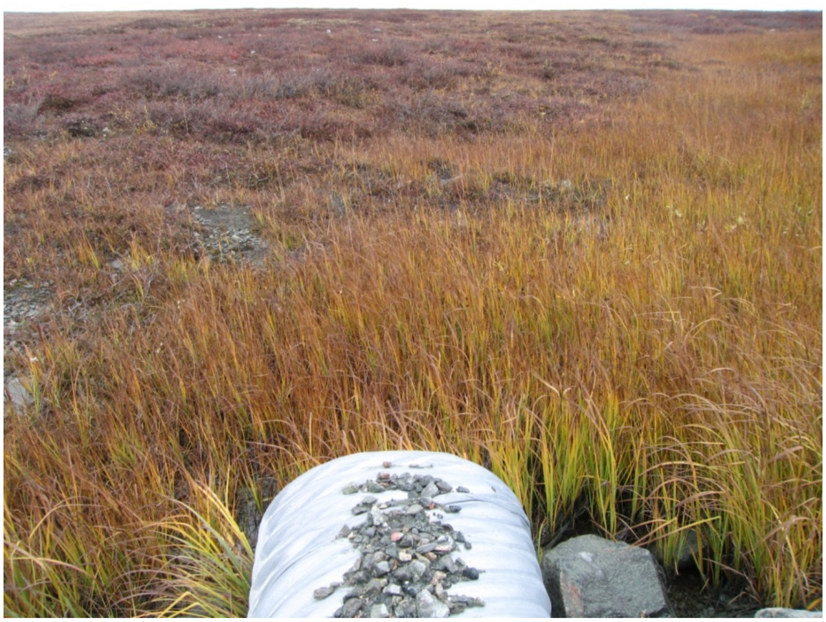
Description: Upstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.



PHOTOGRAPH D2-47: R-07, km 25+900

Date: September 16, 2010. **Photo Number:** IMG_4061

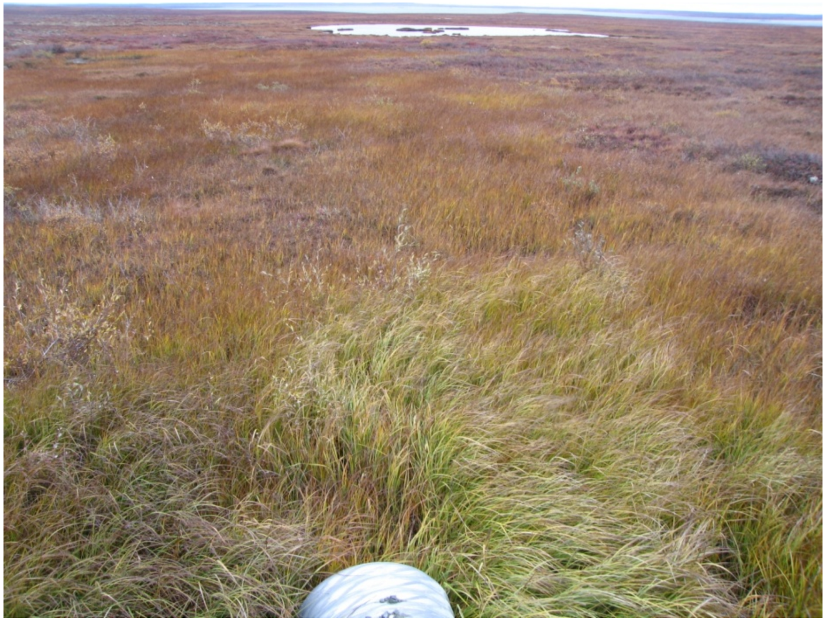
Description: Downstream view of culvert and valley.



PHOTOGRAPH D2-48: PC-8, km 29+785

Date: September 16, 2010. **Photo Number:** IMG_4062

Description: Upstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.



PHOTOGRAPHS D2-49: PC-8, km 29+785

Date: September 16, 2010. **Photo Number:** IMG_4065

Description: Downstream view of culvert and valley.

PHOTOGRAPHS D2-50: PC-9, km 35+690

Date: September 16, 2010. **Photo Number:** IMG_4074

Description: Upstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.

PHOTOGRAPH D2-51: PC-9, km 35+690

Date: September 16, 2010. **Photo Number:** IMG_4076

Description: From downstream looking at culvert.

PHOTOGRAPH D2-52: PC-10, km 36+865

Date: September 16, 2010. **Photo Number:** IMG_4083

Description: Upstream view of culvert invert. Rocks from road work near mouth. Good condition, uniform grade, no obstruction, no sign of erosion.

PHOTOGRAPH D2-53: PC-10, km 36+865

Date: September 16, 2010. **Photo Number:** IMG_4083

Description: Downstream view of culvert and valley.

PHOTOGRAPH D2-54: PC-11, km 39+552

Date: September 16, 2010. **Photo Number:** IMG_4084

Description: Upstream view of culvert and valley. Gravel around culvert inlet.

PHOTOGRAPH D2-55: PC-11, km 39+552

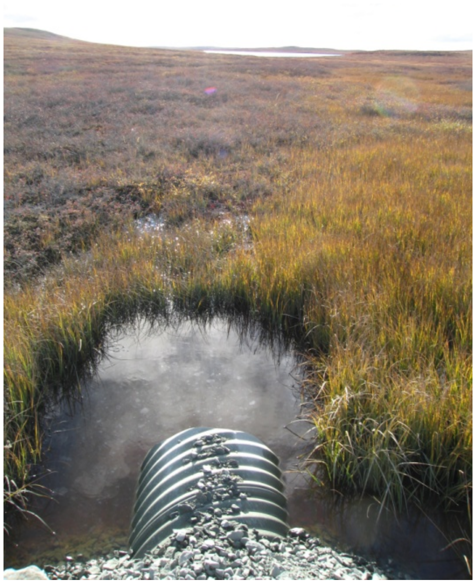
Date: September 16, 2010. **Photo Number:** IMG_4085

Description: From upstream to downstream view through culvert. Some gravel from road within culvert.

PHOTOGRAPH D2-56: PC-11, km 39+552

Date: September 16, 2010. **Photo Number:** IMG_4088

Description: Downstream view of culvert and valley. Note no channel, berm of material near outlet, water would pond and until it reaches a level close to that of the road, then it could overflow to the tundra. Recommend creating an outlet in the berm to prevent ponding.



PHOTOGRAPH D2-57: PC-12, km 41+410

Date: September 16, 2010. **Photo Number:** IMG_3877

Description: Upstream view of culvert. Note ponded water.

PHOTOGRAPH D2-58: PC-12, km 41+410

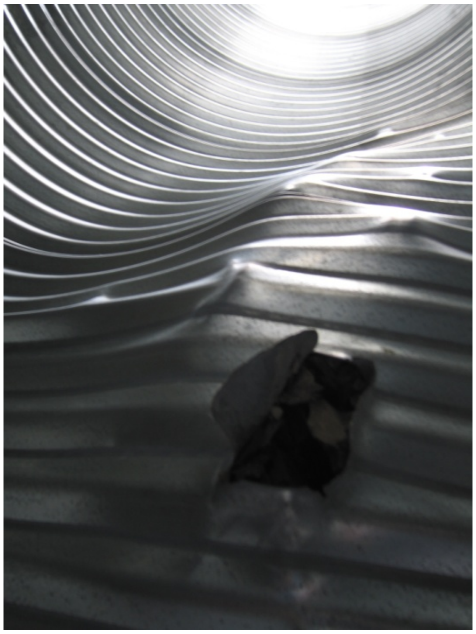
Date: September 15, 2010. **Photo Number:** IMG_3878

Description: Downstream view of culvert. Note ponded water and culvert is about 3/4 full. Good condition, uniform grade, no obstruction.

PHOTOGRAPH D2-59: R-14, km 67+840

Date: September 15, 2010. **Photo Number:** IMG_3799

Description: Upstream view of culverts. No visible flow entering culverts or in channel, however on downstream visible flow from middle culvert and flow appearing beyond and small flow beneath road rockfill between middle and side culvert. Good conditions with minor dents, uniform grade.



PHOTOGRAPH D2-60: R-14, km 67+840

Date: September 15, 2010. **Photo Number:** IMG_3803

Description: View through middle culvert. Hole in culvert base near inlet. Crushing on side about 1/3 from inlet

PHOTOGRAPH D2-61: R-14, km 67+840

Date: September 15, 2010. **Photo Number:** IMG_3801

Description: View through middle culvert. Note water in middle where water is entering through joint or hole and then flowing through the culvert. Initially flows through rockfill.

PHOTOGRAPH D2-62: R-14, km 67+840

Date: September 15, 2010. **Photo Number:** IMG_3804

Description: Downstream view of middle culvert. Flow is visible.

PHOTOGRAPH D2-63: R-14, km 67+840

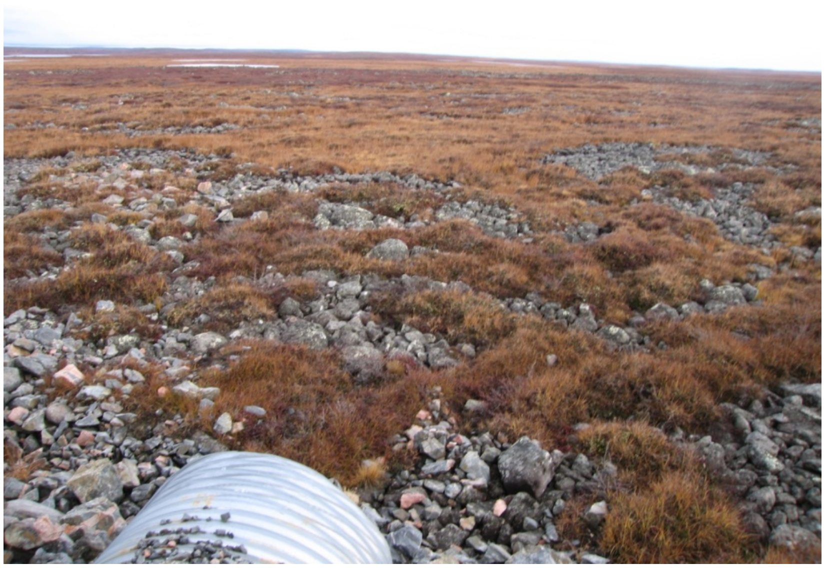
Date: September 15, 2010. **Photo Number:** IMG_3805

Description: Downstream view of middle and left culverts.

PHOTOGRAPH D2-64: R-17, km 77+440

Date: September 16, 2010. **Photo Number:** IMG_4094

Description: From upstream looking through culvert.



PHOTOGRAPH D2-65: R-17, km 77+440

Date: September 16, 2010.   **Photo Number:** IMG_4095

Description: Downstream view of culvert and valley. Good condition, uniform grade, no obstruction, no sign of erosion.

PHOTOGRAPH D2-66: R-18A, km 81+045

Date: September 15, 2010.   **Photo Number:** IMG_3760

Description: Upstream view of culverts and valley. Near center at haunch some dents. Uniform grade, no obstructions evident.

PHOTOGRAPH D2-67: R-18A, km 81+045

Date: September 15, 2010. **Photo Number:** IMG_3765

Description: View from upstream to downstream through middle culvert. Note dents in haunch near middle of the culvert.

PHOTOGRAPH D2-68: R-18A, km 81+045

Date: September 15, 2010. **Photo Number:** IMG_3763

Description: Downstream view of culverts and valley.

PHOTOGRAPH D2-69: R-20, km 85+490

Date: September 15, 2010. **Photo Number:** IMG_3750

Description: Upstream view of culvert and valley. Good condition, uniform grade, no obstruction.

PHOTOGRAPH D2-70: R-20, km 85+490

Date: September 15, 2010. **Photo Number:** IMG_3749

Description: Downstream view of culvert and valley.

PHOTOGRAPH D2-71: R-21, km 87+500

Date: September 15, 2010. **Photo Number:** IMG_3745

Description: Upstream view of culverts and valley. Good conditions, uniform grade, no obstructions.

PHOTOGRAPH D2-72: R-21, km 87+500

Date: September 15, 2010. **Photo Number:** IMG_3744

Description: View from upstream to downstream through culvert, closest to Meadowbank. Dents on base and side observed.

PHOTOGRAPH D2-73: R-21, km 87+500

Date: September 15, 2010. **Photo Number:** IMG_3746

Description: Downstream view of culverts and valley. Note large rock above culvert closest to Meadowbank (left side of photo).

PHOTOGRAPH D2-74: R-23, km 93+600

Date: September 15, 2010. **Photo Number:** IMG_3733

Description: Upstream view of culvert and valley. Small dents in base and side of culvert, uniform grade, and no obstructions observed.

PHOTOGRAPH D2-75: R-23, km 93+600

Date: September 15, 2010. **Photo Number:** IMG_3736

Description: Upstream view of culvert and valley. Flow has occurred through road bed either side of culvert with some migration of fines. No narrow defined channel.

PHOTOGRAPH D2-76: R-23, km 93+600

Date: September 15, 2010. **Photo Number:** IMG_3735

Description: From downstream looking through culvert. Note crushing from rocks on outlet. Invert of culvert above base where flows occurs.

PHOTOGRAPH D2-77: R-24, km 98+250

Date: September 15, 2010. **Photo Number:** IMG_3731

Description: Upstream view of culverts and valley.

PHOTOGRAPH D2-78: R-24, km 98+250

Date: September 15, 2010. **Photo Number:** IMG_3729

Description: Downstream view of culverts. Some dents in base and haunch due to coarse road bed, observed in both culverts.

PHOTOGRAPH D2-79: R-24, km 98+250

Date: September 15, 2010. **Photo Number:** IMG_3730

Description: Downstream to upstream view of culverts. Culvert closest to Meadowbank (left culvert in photo) slightly lower outlet elevation compared to the culvert on the right. Left culvert may pool a little water near center.

PHOTOGRAPH D2-80: R-24, km 98+250

Date: September 15, 2010. **Photo Number:** IMG_3732

Description: Downstream view of culverts. Some dents on base and haunch observed.

PHOTOGRAPH D2-81: R-25, km 102+050

Date: September 15, 2010. **Photo Number:** IMG_3719

Description: From upstream looking at culverts.

PHOTOGRAPH D2-82: R-25, km 102+050

Date: September 15, 2010. **Photo Number:** IMG_3722

Description: Downstream to upstream view through culvert. Note water ponded in upstream not flowing through downstream.

PHOTOGRAPH D2-83: R-25, km 102+050

Date: September 15, 2010. **Photo Number:** IMG_3720

Description: From downstream looking south. Culvert bent upwards.

PHOTOGRAPH D2-84: R-26, km 104+710

Date: September 15, 2010. **Photo Number:** IMG_3714

Description: Upstream view of culverts. Some rocks from road have fallen down. Uniform grade, very minor dents, no obstructions. Very small flow observed in one culvert.

PHOTOGRAPH D2-85: R-26, km 104+710

Date: September 15, 2010. **Photo Number:** IMG_3715

Description: Downstream view of culverts.

PHOTOGRAPH D2-86: R-26, km 104+710

Date: September 15, 2010. **Photo Number:** IMG_3716

Description: From downstream looking upstream at culverts.

Appendix D3 – Bridges:

Photographic Log

PHOTOGRAPH D3-1 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3963

Description: View from road looking at downstream side of bridge and valley. 30m Acrow Panel Bridge.

PHOTOGRAPH D3-2 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3964

Description: Upstream view from bridge deck. View of valley.

PHOTOGRAPH D3-3 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3965

Description: Downstream view from bridge deck. View of valley.

PHOTOGRAPH D3-4 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3966

Description: Upstream to downstream view of right abutment. Note main flow closer to this abutment then to the left.

PHOTOGRAPH D3-5 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3967

Description: Upstream to downstream view of left abutment.

PHOTOGRAPH D3-6 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3968

Description: View from upstream to downstream beneath bridge.

PHOTOGRAPH D3-7 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3969

Description: Right abutment near base in streambed, some of the rocks from the abutment have eroded / fallen down into the channel. Note rock glove is on is "fresher" looking than others.

PHOTOGRAPH D3-8 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3970

Description: View from downstream to upstream. Note colour of rocks normally in streambed in comparison to that in the previous photo.

PHOTOGRAPH D3-9 – Bridge 1 - R02, km 8+750

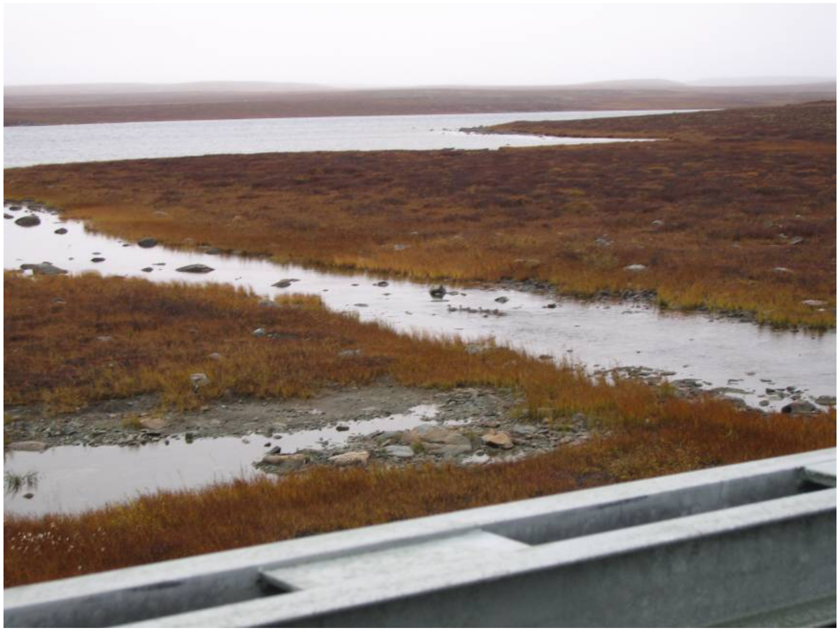
Date: September 16, 2010. **Photo Number:** IMG_3985

Description: Downstream to upstream view, left abutment containment. Bent assumed during construction.

PHOTOGRAPH D3-10 – Bridge 1 - R02, km 8+750

Date: September 16, 2010. **Photo Number:** IMG_3986

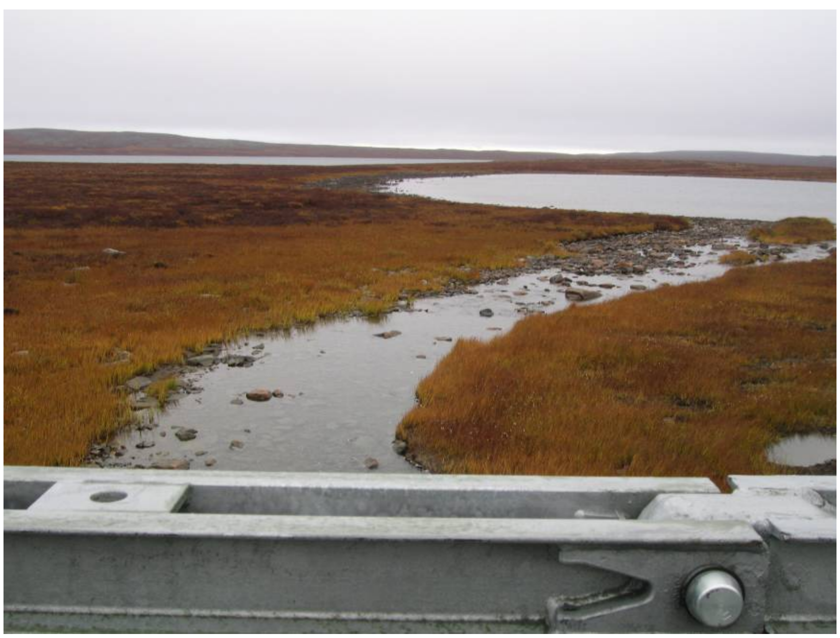
Description: Downstream left abutment containment damaged likely occurred during snow removal activities.



PHOTOGRAPH D3-11 – Bridge 2 - R05, km 17+600

Date: September 16, 2010. **Photo Number:** IMG_4027

Description: Upstream view from bridge deck, 30 m Acrow Panel Bridge. View of valley.



PHOTOGRAPH D3-12 – Bridge 2 - R05, km 17+600

Date: September 16, 2010. **Photo Number:** IMG_4028

Description: Downstream view from bridge deck. View of valley.

PHOTOGRAPH D3-13 – Bridge 2 - R05, km 17+600

Date: September 16, 2010. **Photo Number:** IMG_4029

Description: Standing on upstream side of left abutment looking at right abutment.

PHOTOGRAPH D3-14 – Bridge 2 - R05, km 17+600

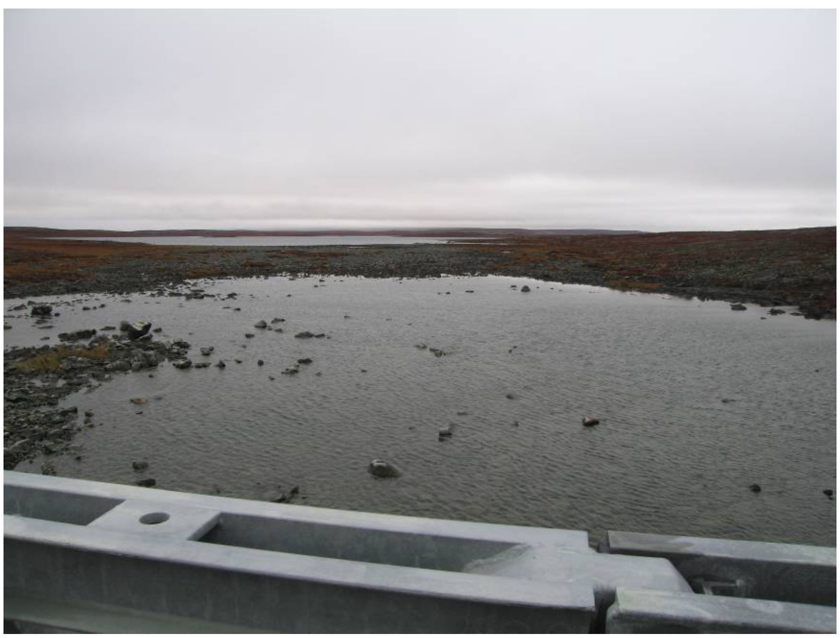
Date: September 16, 2010. **Photo Number:** IMG_4030

Description: View from upstream to downstream of left abutment, note damage to containment but not a significant concern.

PHOTOGRAPH D3-15 – Bridge 2 - R05, km 17+600

Date: September 16, 2010. **Photo Number:** IMG_4035

Description: On right abutment under bridge. Note more soil and debris evident in comparison to left abutment. Appears that finer grained material used during construction of this abutment, continue to observe.



PHOTOGRAPH D3-16 – Bridge 3 - R06, km 23+100

Date: September 16, 2010. **Photo Number:** IMG_4046

Description: Upstream view from bridge deck, 30 m Acrow Panel Bridge.

PHOTOGRAPH D3-17 – Bridge 3 - R06, km 23+100

Date: September 16, 2010. **Photo Number:** IMG_4047

Description: Downstream view from bridge deck.

PHOTOGRAPH D3-18 – Bridge 3 - R06, km 23+100

Date: September 16, 2010. **Photo Number:** IMG_4048

Description: View from upstream to downstream of left abutment.

PHOTOGRAPH D3-19 – Bridge 3 - R06, km 23+100

Date: September 16, 2010. **Photo Number:** IMG_4049

Description: Standing on upstream side looking at right abutment.

PHOTOGRAPH D3-20 – Bridge 3 - R06, km 23+100

Date: September 16, 2010. **Photo Number:** IMG_4053

Description: Apparent high water mark near persons feet. No sign of erosion.

PHOTOGRAPH D3-21 – Bridge 4 - R09, km 48+500

Date: September 15, 2010. **Photo Number:** IMG_3856

Description: Upstream view from bridge deck, 12m Rapid Span Bridge. Upstream of bridge two streams join. Note gravel “access road” on right side of photo.

PHOTOGRAPH D3-22 – Bridge 4 - R09, km 48+500

Date: September 15, 2010. **Photo Number:** IMG_3857

Description: Downstream view from bridge deck.

PHOTOGRAPH D3-23 – Bridge 4 - R09, km 48+500

Date: September 15, 2010.   **Photo Number:** IMG_3854

Description: View of bridge from upstream.

PHOTOGRAPH D3-24 – Bridge 4 - R09, km 48+500

Date: September 15, 2010.   **Photo Number:** IMG_3861

Description: From beneath bridge looking up at gap in bridge decking.

PHOTOGRAPH D3-25 – Bridge 4 - R09, km 48+500

Date: September 15, 2010. **Photo Number:** IMG_3860

Description: Deeper depression in streambed beneath bridge and gravel from road appears to have fallen through gap bridge deck into the stream.

PHOTOGRAPH D3-26 – Bridge 4 - R09, km 48+500

Date: September 15, 2010. **Photo Number:** IMG_3858

Description: From bridge deck looking down. Bridge concentrates flow. Higher velocity and potential for erosion on downstream.

PHOTOGRAPH D3-27 – Bridge 4 - R09, km 48+060

Date: September 15, 2010. **Photo Number:** IMG_3863

Description: Right abutment. Some erosion of bank, larger boulder has fallen down.

PHOTOGRAPH D3-28 – Bridge 4 - R09, km 48+060

Date: September 15, 2010. **Photo Number:** IMG_3864

Description: Apparent high water mark, indicated by feet of person in photo, on upstream side of left abutment.

PHOTOGRAPH D3-29– Bridge 4 - R09, km 48+060

Date: September 15, 2010. **Photo Number:** IMG_3865

Description: From Meadowbank side of bridge looking upstream at turnaround loop near stream and tributary joining.

PHOTOGRAPH D3-30 – Bridge 4 - R09, km 48+060

Date: September 15, 2010. **Photo Number:** IMG_3866

Description: From Baker Lake side of bridge looking upstream at turnaround loop.

PHOTOGRAPH D3-31 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3815

Description: View of bridge from Baker Lake side looking towards Meadowbank at downstream side of bridge. 12m Rapid Span Bridge.

PHOTOGRAPH D3-32 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3816

Description: Upstream view from bridge deck.

PHOTOGRAPH D3-33 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3817

Description: Downstream view from bridge deck. Bridge is channelizing flow increasing velocity.

PHOTOGRAPH D3-34 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3818

Description: Looking at middle of bridge deck. Hole in steel decking, failed weld. Repairs have been made.

PHOTOGRAPH D3-35 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3819

Description: Beneath bridge. Road gravel has fallen down into water course through hole in deck.

PHOTOGRAPH D3-36 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3821

Description: Right abutment. View from downstream to upstream.

PHOTOGRAPH D3-37 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3822

Description: View of left abutment looking from downstream on right abutment.

PHOTOGRAPH D3-38 – Bridge 5 - R13, km 62+060

Date: September 15, 2010. **Photo Number:** IMG_3823

Description: Downstream depression (hole) in streambed beyond bridge.

PHOTOGRAPH D3-39 – Bridge 6 - R15, km 69+200

Date: September 15, 2010. **Photo Number:** IMG_3792

Description: View of bridge from upstream looking downstream, 30m Acrow Panel Bridge.

PHOTOGRAPH D3-40 – Bridge 6 - R15, km 69+200

Date: September 15, 2010. **Photo Number:** IMG_3794

Description: Right abutment. View from upstream to downstream.

PHOTOGRAPH D3-41 – Bridge 6 - R15, km 69+200

Date: September 15, 2010. **Photo Number:** IMG_3795

Description: Leftt abutment. View from upstream to downstream.

PHOTOGRAPH D3-42 – Bridge 6 - R15, km 69+200

Date: September 15, 2010. **Photo Number:** IMG_3797

Description: Upstream view from bridge deck.

PHOTOGRAPH D3-43 – Bridge 6 - R15, km 69+200

Date: September 15, 2010. **Photo Number:** IMG_3798

Description: Downstream view from bridge deck.

PHOTOGRAPH D3-44 – Bridge 7 - R16, km 73+800

Date: September 15, 2010. **Photo Number:** IMG_3779

Description: Upstream view from bridge deck, 12m Rapid Span Bridge.

PHOTOGRAPH D3-45 – Bridge 7 - R16, km 73+800

Date: September 15, 2010. **Photo Number:** IMG_3780

Description: Downstream view from bridge deck. View of valley.

PHOTOGRAPH D3-46 – Bridge 7 - R16, km 73+800

Date: September 15, 2010. **Photo Number:** IMG_3781

Description: Left abutment. Downstream to upstream view.

PHOTOGRAPH D3-47 – Bridge 7 - R16, km 73+800

Date: September 15, 2010. **Photo Number:** IMG_3782

Description: Right abutment. Downstream to upstream view.

PHOTOGRAPH D3-48 – Bridge 7 - R16, km 73+800

Date: September 15, 2010. **Photo Number:** IMG_3783

Description: View of bridge from downstream to upstream.

PHOTOGRAPH D3-49 – Bridge 8 - R18, km 79+500

Date: September 15, 2010. **Photo Number:** IMG_3773

Description: Upstream view from bridge deck, 12m Rapid Span Bridge. View of valley.

PHOTOGRAPH D3-50 – Bridge 8 - R18, km 79+500

Date: September 15, 2010. **Photo Number:** IMG_3774

Description: Downstream view from bridge deck. View of valley.

PHOTOGRAPH D3-51 – Bridge 8 - R18, km 79+500

Date: September 15, 2010. **Photo Number:** IMG_3775

Description: Left abutment. View from upstream to downstream. Note gravel from road bed that has fallen down onto geotextile.

PHOTOGRAPH D3-52 – Bridge 8 - R18, km 79+500

Date: September 15, 2010. **Photo Number:** IMG_3776

Description: Right abutment. View from upstream to downstream.

PHOTOGRAPH D3-53 – Bridge 9 - R19, km 83+100

Date: September 15, 2010. **Photo Number:** IMG_3755

Description: Upstream view from bridge deck, 12m Rapid Span Bridge.

PHOTOGRAPH D3-54 – Bridge 9 - R19, km 83+100

Date: September 15, 2010. **Photo Number:** IMG_3759

Description: Downstream view from bridge deck. No sign of erosion, no sign of turbidity, good condition. Some bending of steel sheet walls on abutments.

PHOTOGRAPH D3-55 – Bridge 9 - R19, km 83+100

Date: September 15, 2010. **Photo Number:** IMG_3756

Description: View from upstream side of left abutment looking towards right abutment.

PHOTOGRAPH D3-56 – Bridge 9 - R19, km 83+100

Date: September 15, 2010. **Photo Number:** IMG_3758

Description: Downstream to upstream view from left abutment.

PHOTOGRAPH D3-57 – Bridge 9 - R19, km 83+100

Date: September 15, 2010. **Photo Number:** IMG_3754

Description: Upstream side of bridge. View from right abutment (Baker Lake side towards Meadowbank) looking towards left abutment.

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APPENDIX E - QUARRIES

PHOTOGRAPHIC LOG

PHOTOGRAPH E-1 – Quarry 1

Date: September 16, 2010. **Photo Number:** IMG_3957

Description: View of south wall of quarry, looking south.

PHOTOGRAPH E-2 – Quarry 1

Date: September 16, 2010. **Photo Number:** IMG_3958

Description: View of west wall, looking west.

PHOTOGRAPH E-3 – Quarry 1

Date: September 16, 2010. **Photo Number:** IMG_3959

Description: View of north wall, looking northwest.

PHOTOGRAPH E-4 – Quarry 1 (2010 expansion)

Date: September 16, 2010. **Photo Number:** IMG_3960

Description: View of south wall in 2010 expansion of Quarry 1, looking southeast.

PHOTOGRAPH E-5 – Quarry 1

Date: September 16, 2010. **Photo Number:** IMG_3961

Description: View of south wall of 2010 expansion, looking south.

PHOTOGRAPH E-6 – Quarry 1

Date: September 16, 2010. **Photo Number:** IMG_3962

Description: View of north wall of 2010 expansion, looking northwest.

PHOTOGRAPH E-7 – Quarry 2

Date: September 16, 2010. **Photo Number:** IMG_4009

Description: View of south wall, looking southeast.

PHOTOGRAPH E-8 – Quarry 2

Date: September 16, 2010. **Photo Number:** IMG_4010

Description: View of west wall, looking west.

PHOTOGRAPH E-9 – Quarry 2

Date: September 16, 2010. **Photo Number:** IMG_4011

Description: View of north wall, looking north.

PHOTOGRAPH E-10 – Quarry 3

Date: September 16, 2010. **Photo Number:** STA_4054_4055_4056

Description: Panoramic view of quarry, looking southeast.

PHOTOGRAPH E-11 – Quarry 3

Date: September 16, 2010. **Photo Number:** STA_4057_4058

Description: Panoramic view of quarry, looking southwest.

PHOTOGRAPH E-12 – Quarry 4

Date: September 16, 2010. **Photo Number:** IMG_4068

Description: View of south and east walls of quarry. Quarry is flooded.

PHOTOGRAPH E-13 – Quarry 4

Date: September 16, 2010. **Photo Number:** IMG_4069

Description: View of south and west wall, looking southwest.

PHOTOGRAPH E-14 – Quarry 5

Date: September 16, 2010. **Photo Number:** IMG_4070

Description: View of northwest wall, looking north.

PHOTOGRAPH E-15 – Quarry 5

Date: September 16, 2010. **Photo Number:** IMG_4071

Description: View of north wall, looking northwest.

PHOTOGRAPH E-16 – Quarry 5

Date: September 16, 2010. **Photo Number:** IMG_4072

Description: View of northeast wall, looking north.

PHOTOGRAPH E-17 – Quarry 5

Date: September 16, 2010. **Photo Number:** IMG_4073

Description: View of east wall, looking east.

PHOTOGRAPH E-18 – Quarry 6

Date: September 16, 2010. **Photo Number:** IMG_4077

Description: View of west wall, looking west.

PHOTOGRAPH E-19 – Quarry 6

Date: September 16, 2010. **Photo Number:** IMG_4078

Description: View of west wall, looking west.

PHOTOGRAPH E-20 – Quarry 6

Date: September 16, 2010. **Photo Number:** IMG_4079

Description: View of northwest wall of the quarry, looking west.

PHOTOGRAPH E-21 – Quarry 6

Date: September 16, 2010. **Photo Number:** IMG_4080

Description: View of east wall, looking east.

PHOTOGRAPH E-22 – Quarry 7

Date: September 16, 2010. **Photo Number:** IMG_4090

Description: View of west wall, looking west.

PHOTOGRAPH E-23 – Quarry 7

Date: September 16, 2010. **Photo Number:** IMG_4091

Description: View of west wall, looking northwest.

PHOTOGRAPH E-24 – Quarry 7

Date: September 16, 2010. **Photo Number:** IMG_4092

Description: View of north wall, looking north.

PHOTOGRAPH E-25 – Quarry 8

Date: September 15, 2010. **Photo Number:** IMG_3872

Description: View of west wall, looking west.

PHOTOGRAPH E-26 – Quarry 8

Date: September 15, 2010. **Photo Number:** IMG_3873

Description: View of southwest wall of quarry, looking south.

PHOTOGRAPH E-27 – Quarry 8

Date: September 15, 2010. **Photo Number:** IMG_3874

Description: View of southeast wall, looking south.

PHOTOGRAPH E-28 – Quarry 8

Date: September 15, 2010. **Photo Number:** IMG_3875

Description: View of east wall, looking east.

PHOTOGRAPH E-29 – Quarry 9

Date: September 15, 2010. **Photo Number:** IMG_3868

Description: View of southwest wall, looking southwest.

PHOTOGRAPH E-30 – Quarry 9

Date: September 15, 2010. **Photo Number:** IMG_3869

Description: View of west wall, looking west.

PHOTOGRAPH E-31 – Quarry 9

Date: September 15, 2010. **Photo Number:** IMG_3870

Description: View of north wall, looking north.

PHOTOGRAPH E-32 – Quarry 9

Date: September 15, 2010. **Photo Number:** IMG_3871

Description: View of northeast wall, looking north.

PHOTOGRAPH E-33 – Quarry 10

Date: September 15, 2010. **Photo Number:** IMG_3845

Description: View of east wall, looking northeast.

PHOTOGRAPH E-34 – Quarry 10

Date: September 15, 2010. **Photo Number:** IMG_3846

Description: View of north wall, looking north.

PHOTOGRAPH E-35 – Quarry 10

Date: September 15, 2010. **Photo Number:** IMG_3847

Description: View of west wall, looking northwest.

PHOTOGRAPH E-36 – Quarry 10

Date: September 15, 2010. **Photo Number:** IMG_3848

Description: View of west wall, looking west.

PHOTOGRAPH E-37 – Quarry 11

Date: September 15, 2010. **Photo Number:** IMG_3839

Description: View of the southeastern portion of the quarry, looking south.

PHOTOGRAPH E-38 – Quarry 11

Date: September 15, 2010. **Photo Number:** IMG_3840

Description: View of east wall, looking east.

PHOTOGRAPH E-39 – Quarry 11

Date: September 15, 2010. **Photo Number:** IMG_3841

Description: View of north wall, looking north.

PHOTOGRAPH E-40 – Quarry 11

Date: September 15, 2010. **Photo Number:** IMG_3842

Description: View of west portion of the quarry, looking west.

PHOTOGRAPH E-41 – Quarry 11

Date: September 15, 2010. **Photo Number:** IMG_3843

Description: View of west wall, looking west.

PHOTOGRAPH E-42 – Quarry 11

Date: September 15, 2010. **Photo Number:** IMG_3844

Description: View of south quarry entrance, looking south.

PHOTOGRAPH E-43 – Quarry 12

Date: September 15, 2010. **Photo Number:** IMG_3824

Description: General view looking south.

PHOTOGRAPH E-44 – Quarry 12

Date: September 15, 2010. **Photo Number:** IMG_3825

Description: View of northwest wall, looking northwest.

PHOTOGRAPH E-45 – Quarry 12

Date: September 15, 2010. **Photo Number:** IMG_3827

Description: View looking southwest.

PHOTOGRAPH E-46 – Quarry 12

Date: September 15, 2010. **Photo Number:** IMG_3828

Description: View of southeast wall, looking south.

PHOTOGRAPH E-47 – Quarry 12

Date: September 15, 2010. **Photo Number:** IMG_3829

Description: Looking southeast.

PHOTOGRAPH E-48 – Quarry 12

Date: September 15, 2010. **Photo Number:** IMG_3830

Description: View of southwest wall, looking southwest.

PHOTOGRAPH E-49 – Quarry 12

Date: September 15, 2010. **Photo Number:** IMG_3831

Description: View of northwest wall.

PHOTOGRAPH E-50 – Quarry 13

Date: September 15, 2010. **Photo Number:** IMG_3812

Description: Looking north.

PHOTOGRAPH E-51 – Quarry 13

Date: September 15, 2010. **Photo Number:** IMG_3813

Description: View of northeast wall, looking north.

PHOTOGRAPH E-52 – Quarry 13

Date: September 15, 2010. **Photo Number:** IMG_3814

Description: Looking east.

PHOTOGRAPH E-53 – Quarry 14

Date: September 15, 2010. **Photo Number:** IMG_3809

Description: Looking west.

PHOTOGRAPH E-54 – Quarry 14

Date: September 15, 2010. **Photo Number:** IMG_3810

Description: Looking northwest.

PHOTOGRAPH E-55 – Quarry 14

Date: September 15, 2010. **Photo Number:** IMG_3811

Description: Looking north.

PHOTOGRAPH E-56 – Quarry 15

Date: September 15, 2010. **Photo Number:** IMG_3806

Description: Looking northwest.

PHOTOGRAPH E-57 – Quarry 15

Date: September 15, 2010. **Photo Number:** IMG_3807

Description: Looking southwest.

PHOTOGRAPH E-58 – Quarry 15

Date: September 15, 2010. **Photo Number:** IMG_3808

Description: View of south wall, looking southwest.

PHOTOGRAPH E-59 – Quarry 16

Date: September 15, 2010. **Photo Number:** IMG_3787

Description: View of east wall, looking south.

PHOTOGRAPH E-60 – Quarry 16

Date: September 15, 2010. **Photo Number:** IMG_3788

Description: View of southeast wall, looking south.

PHOTOGRAPH E-61 – Quarry 16

Date: September 15, 2010. **Photo Number:** IMG_3789

Description: View of southwest wall, looking southwest.

PHOTOGRAPH E-62 – Quarry 16

Date: September 15, 2010. **Photo Number:** IMG_3790

Description: View of northwest wall, looking north.

PHOTOGRAPH E-63 – Quarry 16

Date: September 15, 2010. **Photo Number:** IMG_3791

Description: View of west wall, looking north.

PHOTOGRAPH E-64 – Quarry 17

Date: September 15, 2010. **Photo Number:** IMG_3784

Description: Looking east. Ravelling of small blocks.

PHOTOGRAPH E-65 – Quarry 17

Date: September 15, 2010. **Photo Number:** IMG_3785

Description: Looking west.

PHOTOGRAPH E-66 – Quarry 17

Date: September 15, 2010. **Photo Number:** IMG_3786

Description: View of north wall, looking north.

PHOTOGRAPH E-67 – Quarry 18

Date: September 15, 2010. **Photo Number:** IMG_3766

Description: Thermal degradation on access road at entrance to quarry.

PHOTOGRAPH E-68 – Quarry 18

Date: September 15, 2010. **Photo Number:** IMG_3768

Description: View of west wall, looking northwest.

PHOTOGRAPH E-69 – Quarry 18

Date: September 15, 2010. **Photo Number:** IMG_3770 and IMG_3771

Description: View of north wall, looking northwest.

PHOTOGRAPH E-70 – Quarry 19

Date: September 15, 2010. **Photo Number:** IMG_3751

Description: View of west wall.

PHOTOGRAPH E-71 – Quarry 19

Date: September 15, 2010. **Photo Number:** IMG_3752

Description: View of north wall.

PHOTOGRAPH E-72 – Quarry 19

Date: September 15, 2010. **Photo Number:** IMG_3753

Description: Looking north.

PHOTOGRAPH E-73 – Quarry 20

Date: September 15, 2010. **Photo Number:** IMG_3740

Description: View of northwest wall, looking north.

PHOTOGRAPH E-74 – Quarry 20

Date: September 15, 2010. **Photo Number:** IMG_3741

Description: View of northeast wall.

PHOTOGRAPH E-75 – Quarry 20

Date: September 15, 2010. **Photo Number:** IMG_3742

Description: Looking east.

PHOTOGRAPH E-76 – Quarry 21

Date: September 15, 2010. **Photo Number:** IMG_3737

Description: View of east and south walls, looking southeast.

PHOTOGRAPH E-77 – Quarry 21

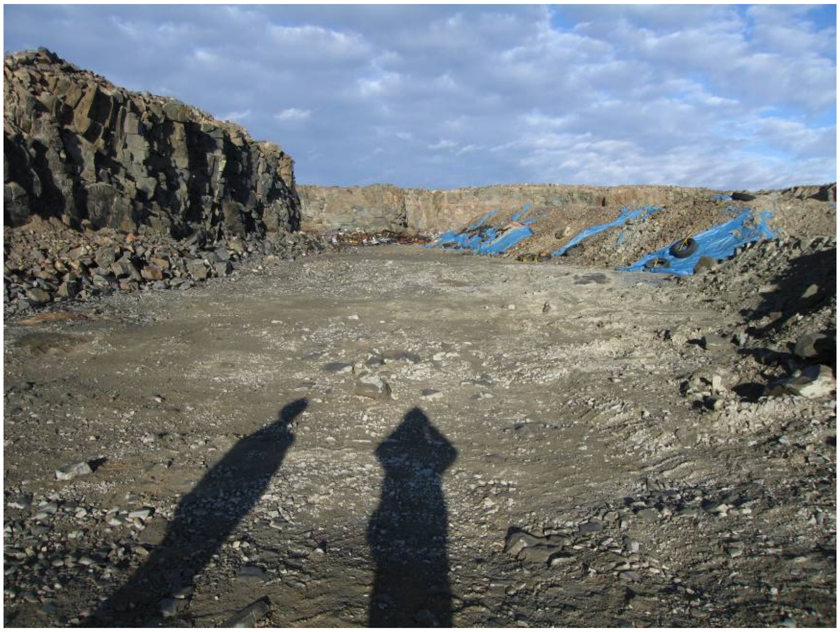
Date: September 15, 2010. **Photo Number:** IMG_3738

Description: Looking southwest.

PHOTOGRAPH E-78 – Quarry 21

Date: September 15, 2010. **Photo Number:** IMG_3739

Description: View of west wall, looking northwest.



PHOTOGRAPH E-79 – Quarry 22

Date: September 15, 2010. **Photo Number:** IMG_3723

Description: Looking northwest.

PHOTOGRAPH E-80 – Quarry 22

Date: September 15, 2010. **Photo Number:** IMG_3724

Description: View of northwest wall.

PHOTOGRAPH E-81 – Quarry 22

Date: September 15, 2010. **Photo Number:** IMG_3725_3726

Description: Panoramic view of northeast wall.

PHOTOGRAPH E-82 – Quarry 22

Date: September 15, 2010. **Photo Number:** IMG_3727

Description: View of northwest and northeast walls.

PHOTOGRAPH E-83 – Quarry 22

Date: September 15, 2010. **Photo Number:** IMG_3728

Description: Looking west.

PHOTOGRAPH E-84 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4106

Description: View of north wall of quarry.

PHOTOGRAPH E-85 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4107

Description: General view of quarry, looking east.

PHOTOGRAPH E-86 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4108

Description: View of southwest wall of quarry.

PHOTOGRAPH E-87 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4109

Description: View of southwest wall, looking southeast.

PHOTOGRAPH E-88 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4110

Description: Looking south.

PHOTOGRAPH E-89 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4111

Description: View of northwest wall.

PHOTOGRAPH E-90 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4112

Description: View towards airstrip, looking south.

PHOTOGRAPH E-91 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4113

Description: View of southeast wall.

PHOTOGRAPH E-92 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4114

Description: View northeast wall.

PHOTOGRAPH E-93 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4115

Description: Looking east.

PHOTOGRAPH E-94 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4116

Description: View of northeast wall.

PHOTOGRAPH E-95 – Quarry 23 (Air strip quarry)

Date: September 17, 2010. **Photo Number:** IMG_4117

Description: View of northwest wall of quarry.

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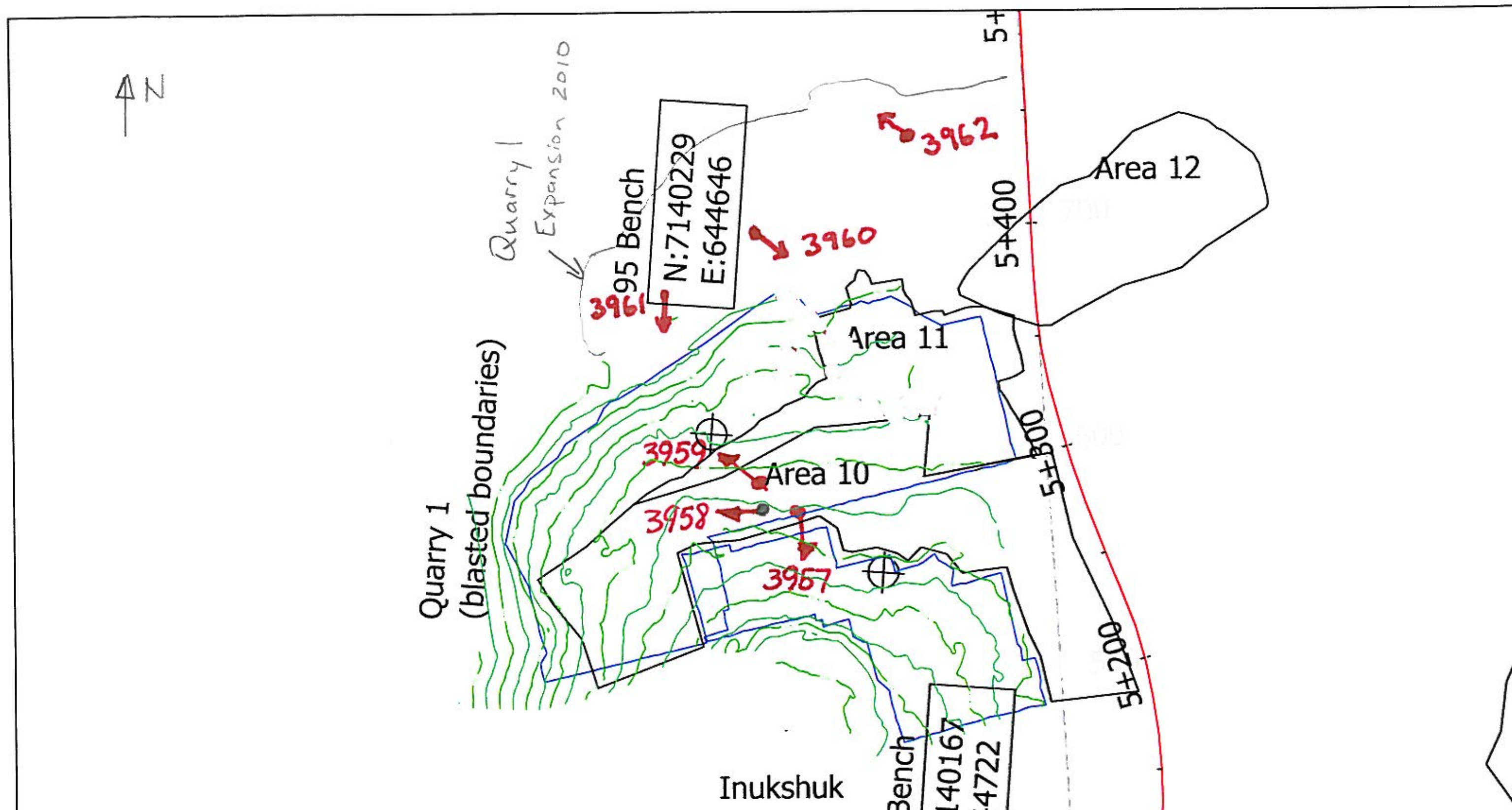
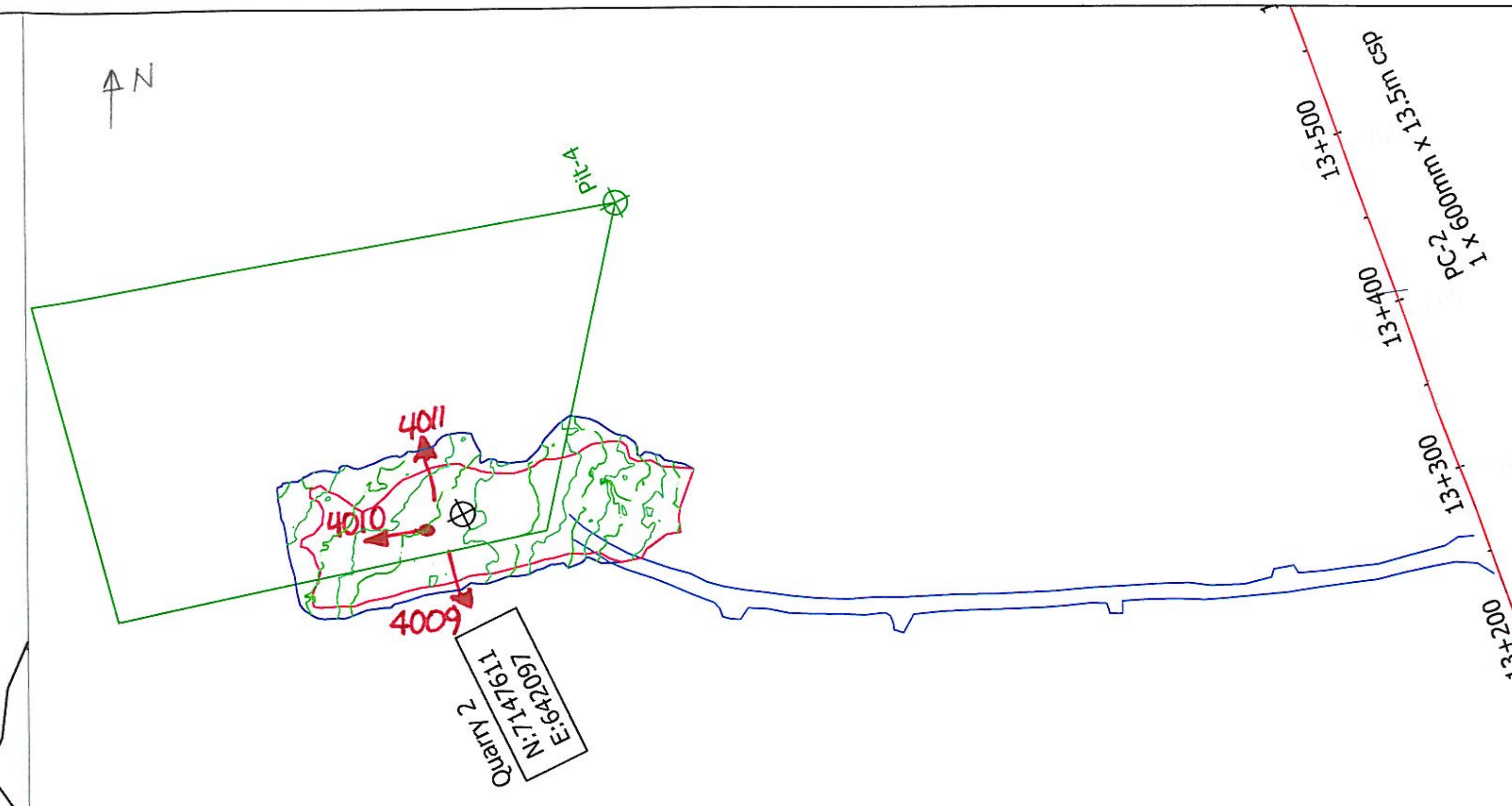
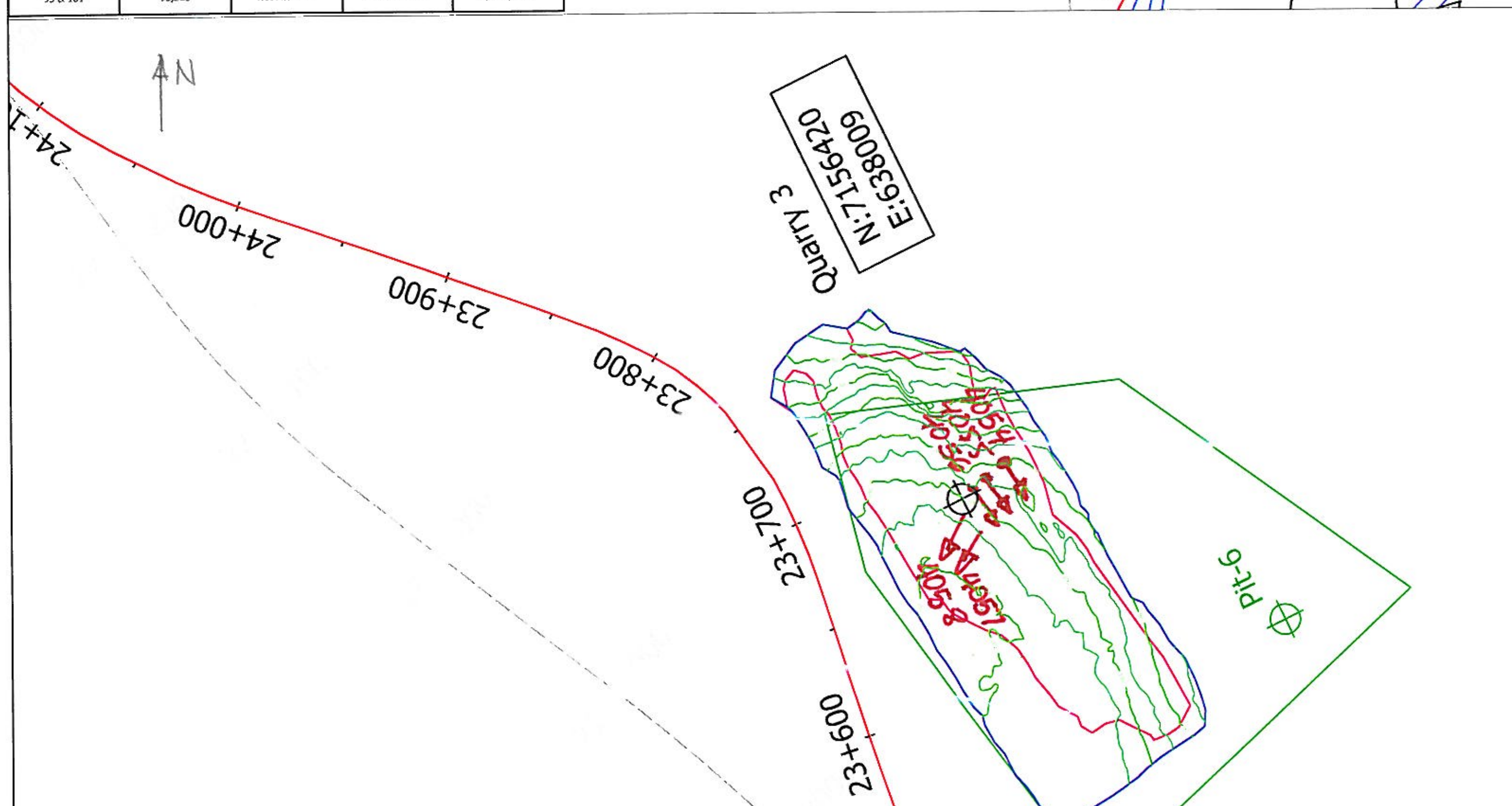


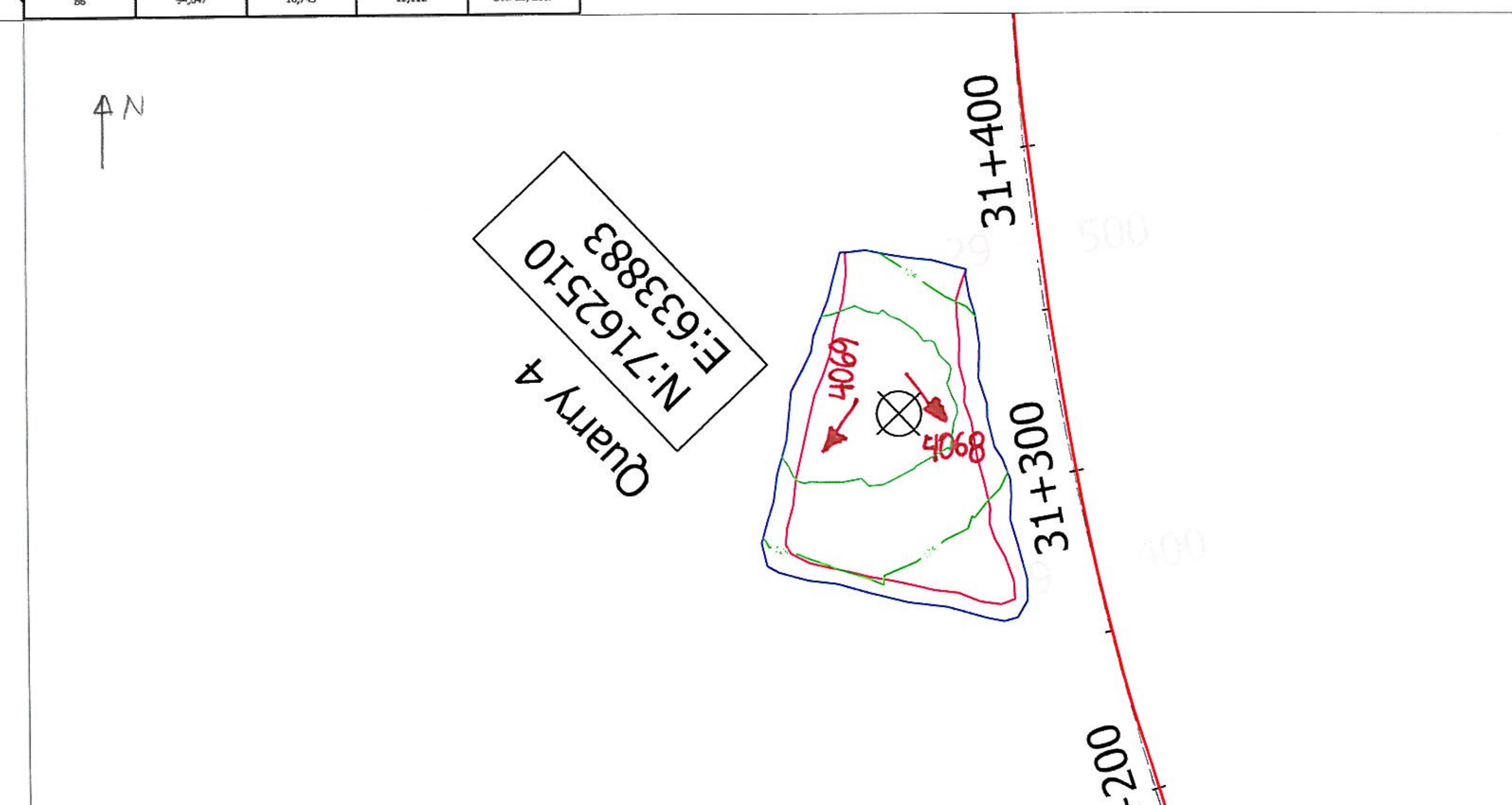
Quarry 1 - 1m contour intervals				
Bench Elevation	Design Volume Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
95 & 101	93,260	Not Available	Not Available	April 3, 2007



Quarry 2 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
86	94,047	16,743	12,112	Oct. 22, 2007



Quarry 3 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
90	126,791	20,507	13,127	Oct. 21, 2007



Quarry 4 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
119	25,315	6,437	4,935	Jun. 3, 2007

GOLDER DATA

LfLa-3 Existing Archeological site

Pit-13 Proposed Quarry Site

Existing Lake/Stream

R02 River crossing (crossing structure and dimension)

120 Existing major contour (10m Topo)

Existing minor contour (interpreted)

1+000 Proposed centerline of road

AS CONSTRUCTED DATA

172 Quarry original ground 2m major contour

Quarry original ground 1m minor contour

Crest boundary of quarry limit at original ground

Toe boundary of quarry excavation at bench grade

1+200 Centerline of road with 100m stations

R20 PC-1 River crossing-culvert 600mm/1200mm dia

R02 River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd

NUNAVUT

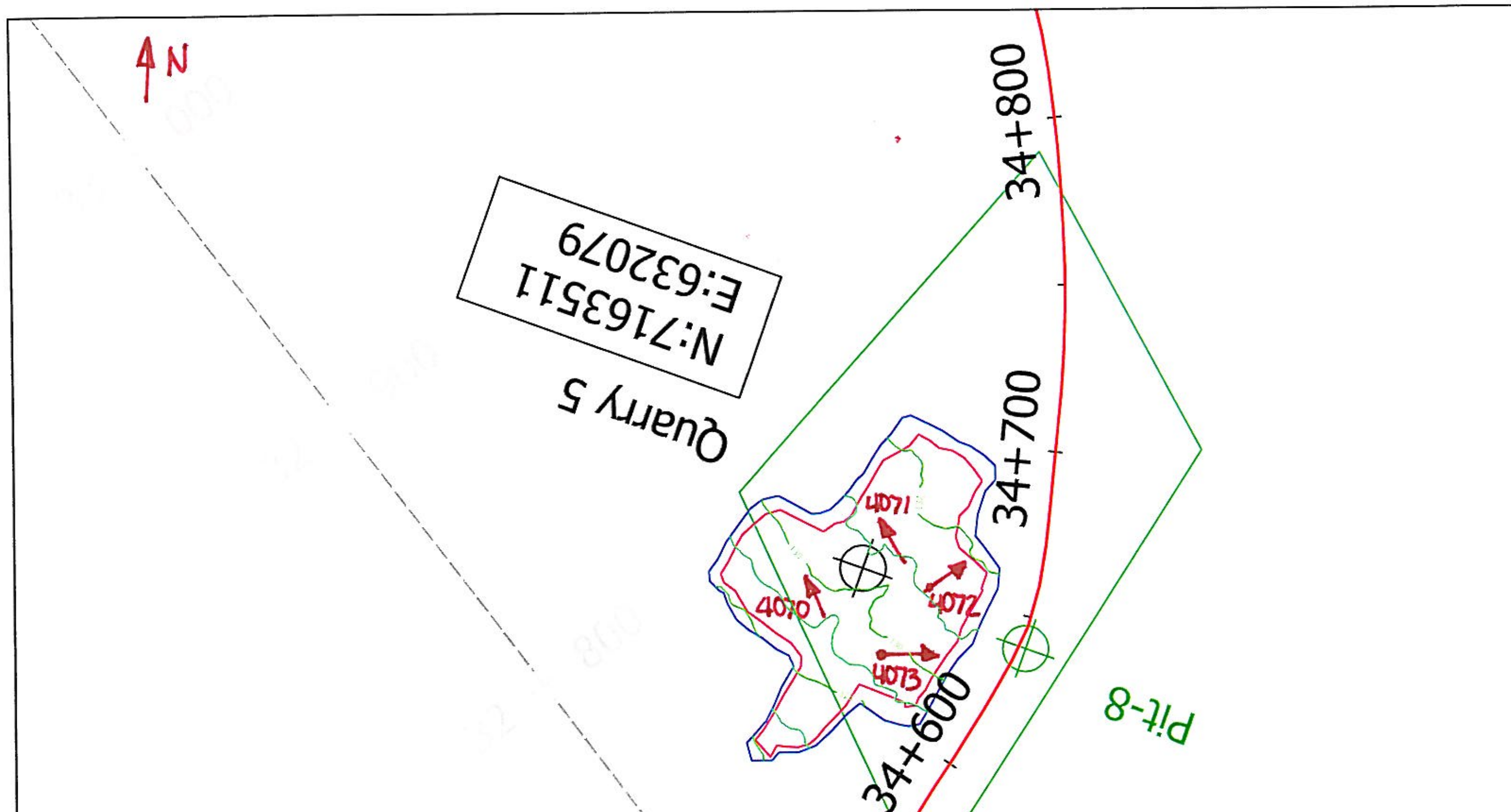
Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 1

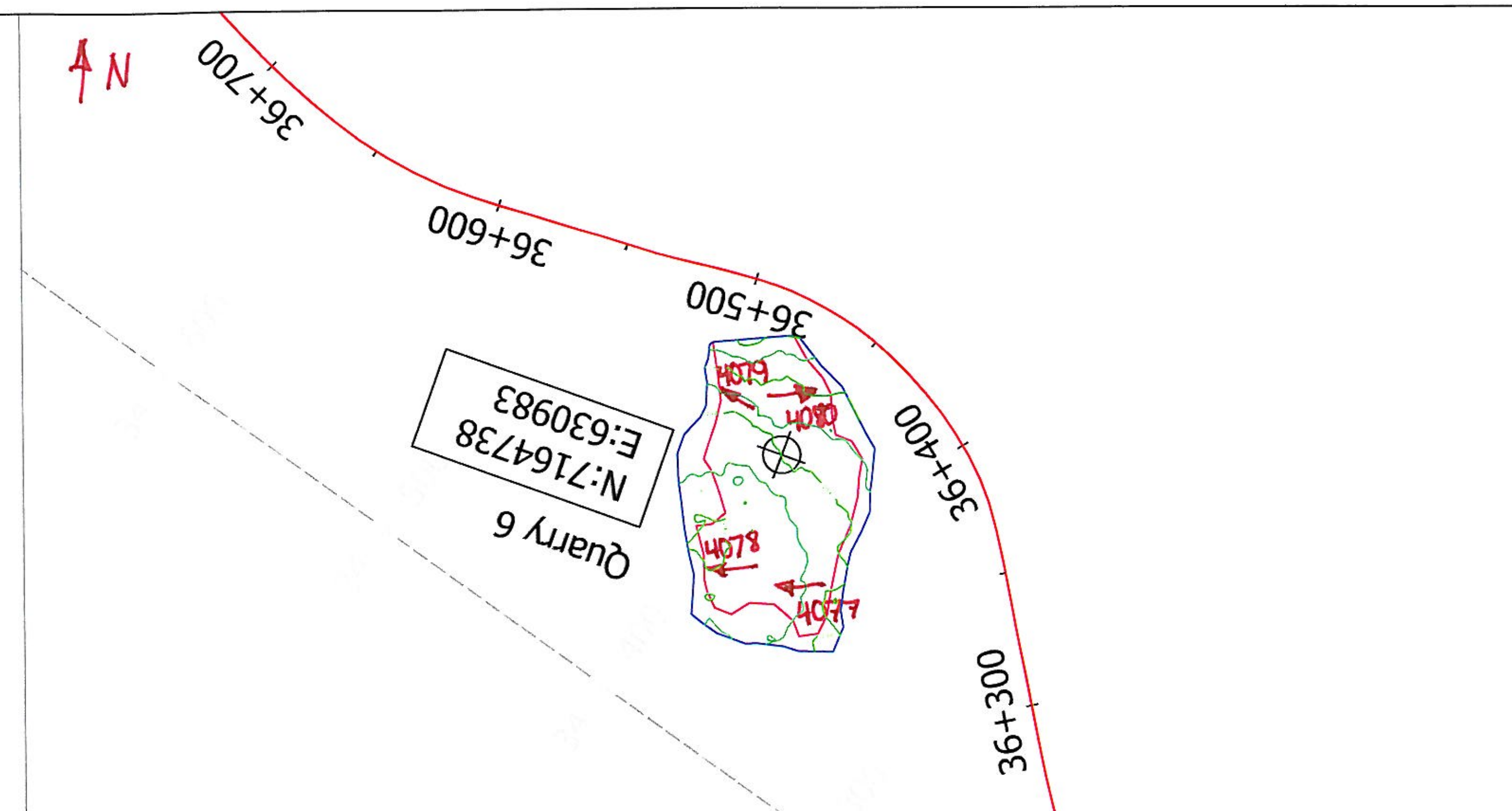
NUNA M & T SERVICES LTD.

Drawing Title: Quarry 1 to Quarry 4

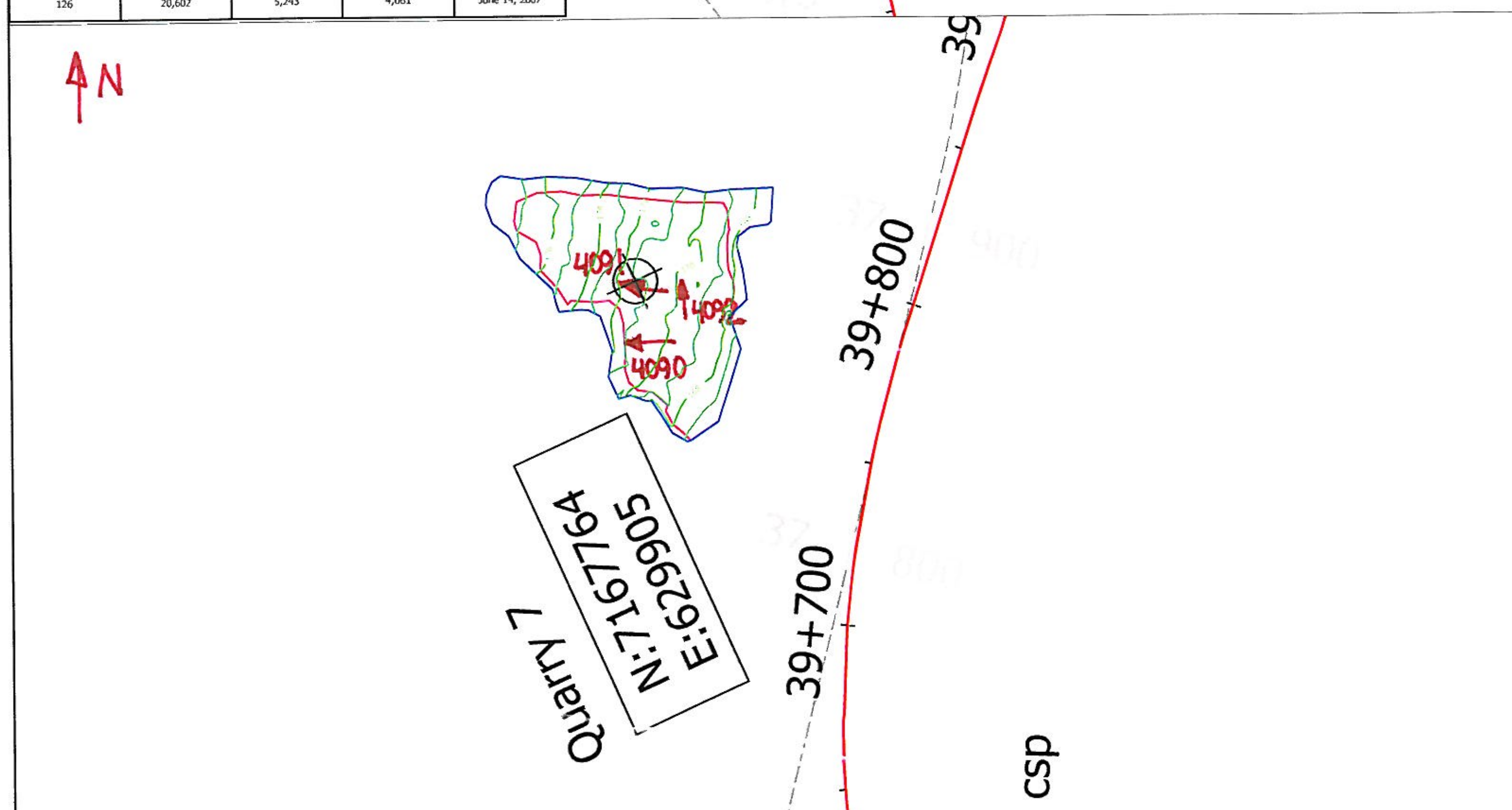
NTS	MC	CG/HB	March 31, 2008



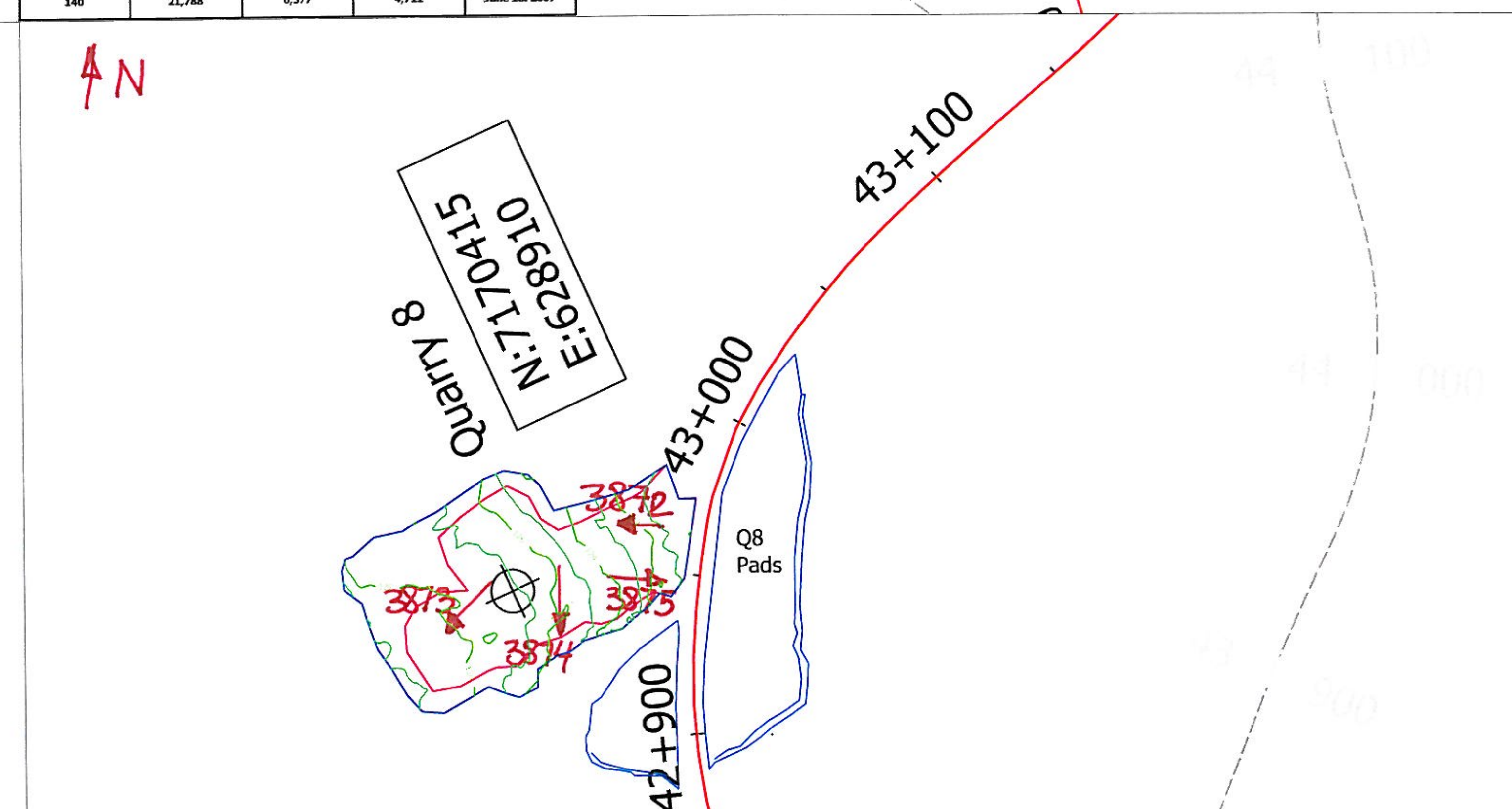
Quarry 5 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
126	20,602	5,243	4,061	June 14, 2007



Quarry 6 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
140	21,788	6,577	4,722	June 18. 2007



Quarry 7 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
165	20,298	4,046	3,045	July 9, 2007



Quarry 8 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
120	22,765	5,368	3,503	July 19, 2007

GOLDER DATA

- LfLa-3 — Existing Archeological site
- Pit-13 — Proposed Quarry Site
- Existing Lake/Stream
- R02 — River crossing (crossing structure and dimension)
- 120 — Existing major contour (10m Topo)
- Existing minor contour (interpreted)
- 1+000 — Proposed centerline of road

AS CONSTRUCTED DATA

- 172 — Quarry original ground 2m major contour
- Quarry original ground 1m minor contour
- Crest boundary of quarry limit at original ground
- Toe boundary of quarry excavation at bench grade
- 1+200 — Centerline of road with 100m stations
- R20 PC-1 — River crossing-culvert 600mm/1200mm dia
- R02 — River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd

NUNAVUT

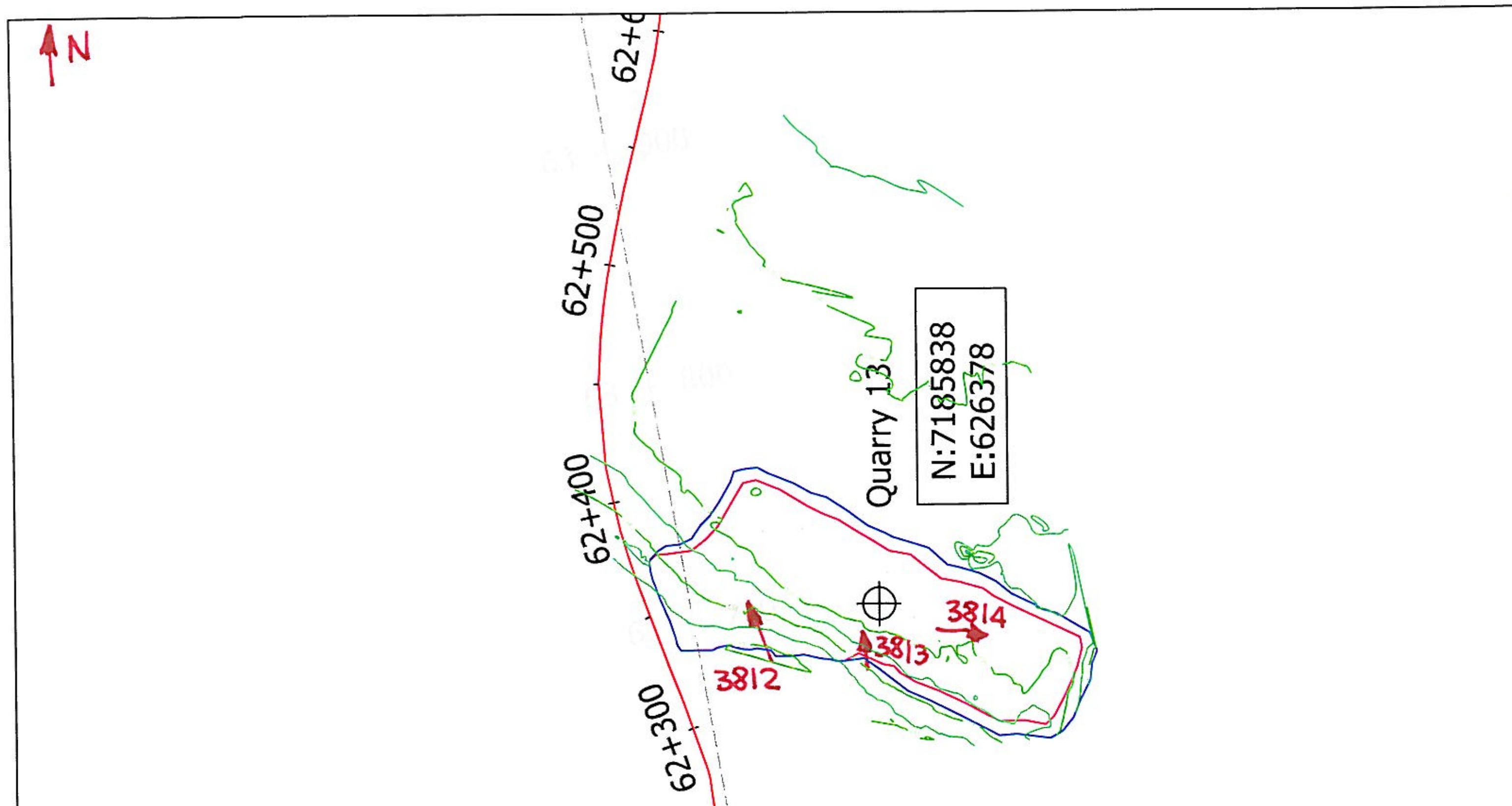
Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 2

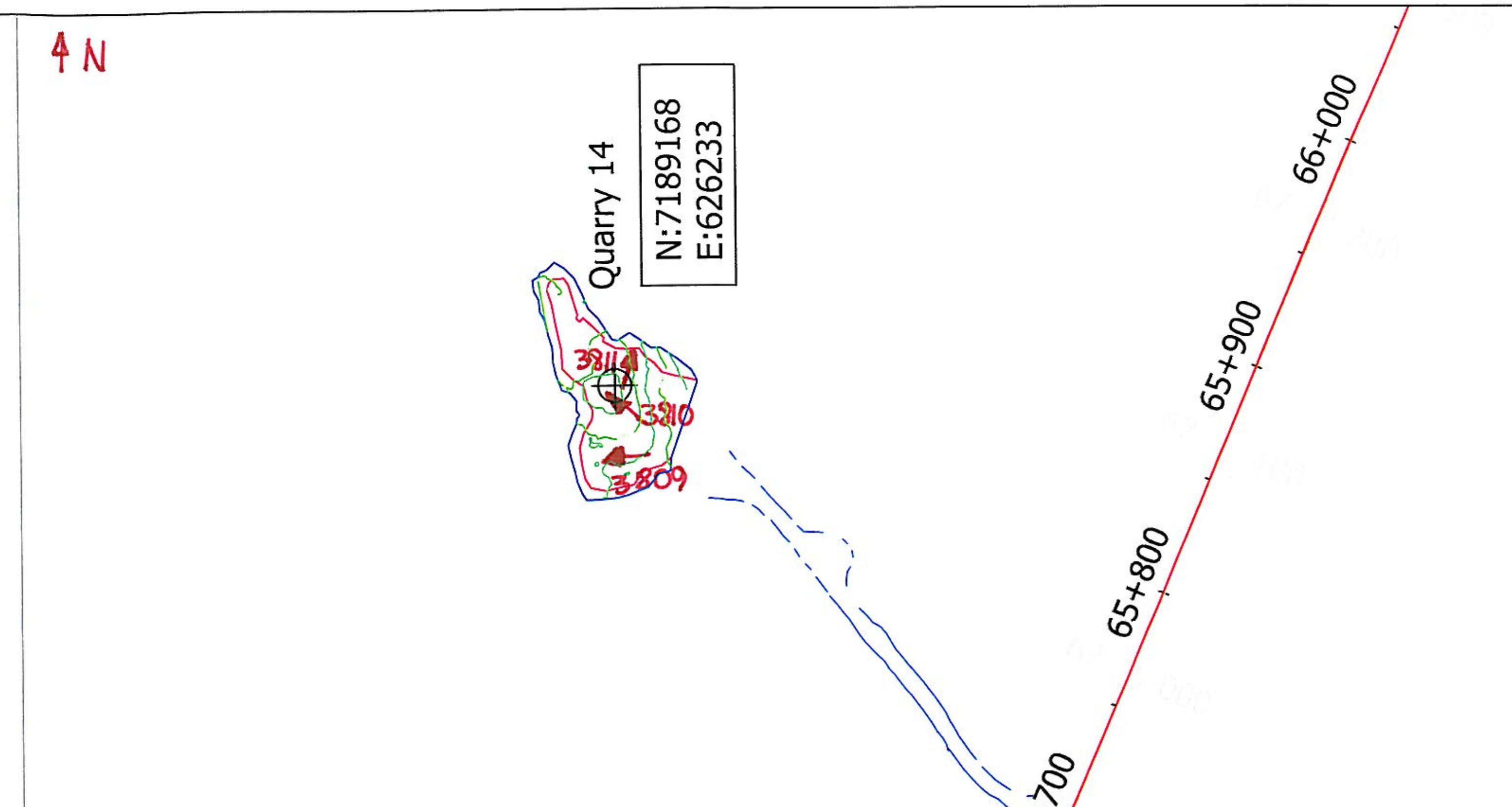
Drawing Title: Quarry 5 to Quarry 8

NUNA M & T SERVICES LTD.

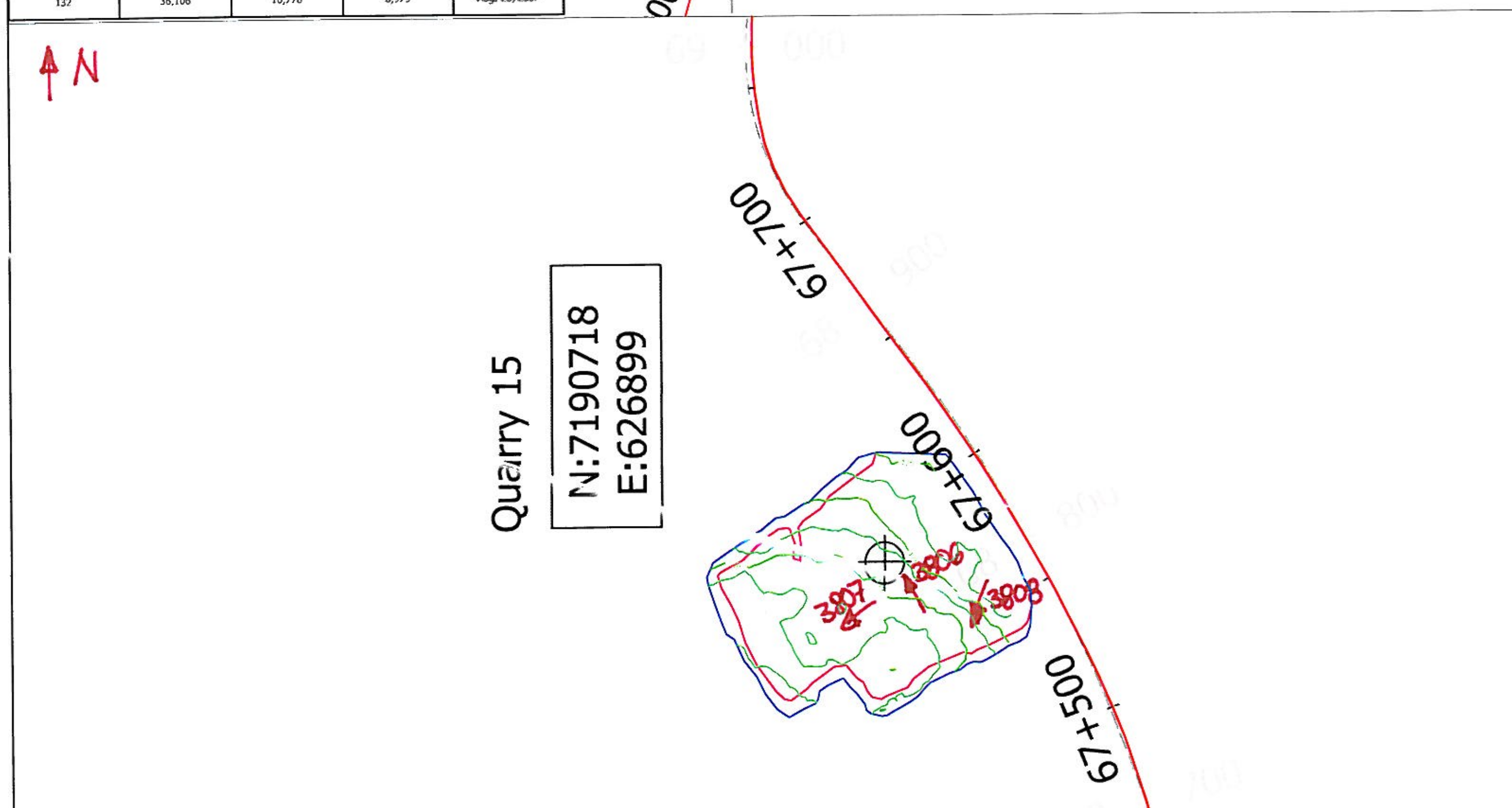
Scale	Drawn by	Checked by	Date
NTS	MC	CG/HB	March 31, 2008



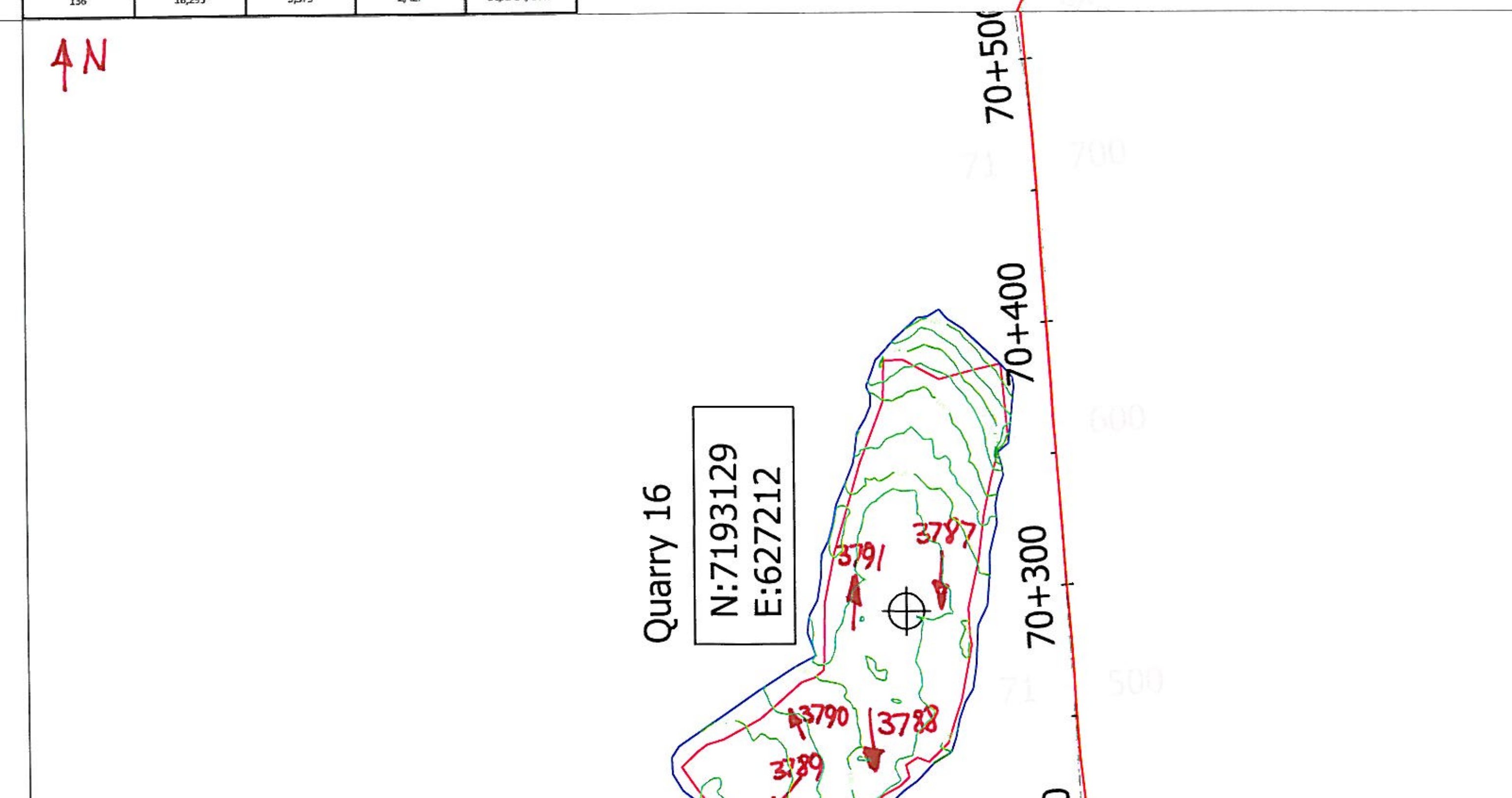
Quarry 13 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
132	36,106	10,778	8,979	Aug. 26, 2007



Quarry 14 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
136	16,295	3,375	2,427	Sept. 14, 2007



Quarry 15 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
125	30,201	6,940	5,958	Sept. 13, 2007



Quarry 16 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
121	88,714	13,634	10,958	May 3, 2008

GOLDER DATA

LfLa-3 Existing Archeological site

Pit-13 Proposed Quarry Site

Existing Lake/Stream

R02 River crossing (crossing structure and dimension)

120 Existing major contour (10m Topo)

Existing minor contour (interpreted)

1+000 Proposed centerline of road

AS CONSTRUCTED DATA

172 Quarry original ground 2m major contour

Quarry original ground 1m minor contour

Crest boundary of quarry limit at original ground

Toe boundary of quarry excavation at bench grade

1+200 Centerline of road with 100m stations

R20 PC-1 River crossing-culvert 600mm/1200mm dia

R02 River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd

NUNAVUT

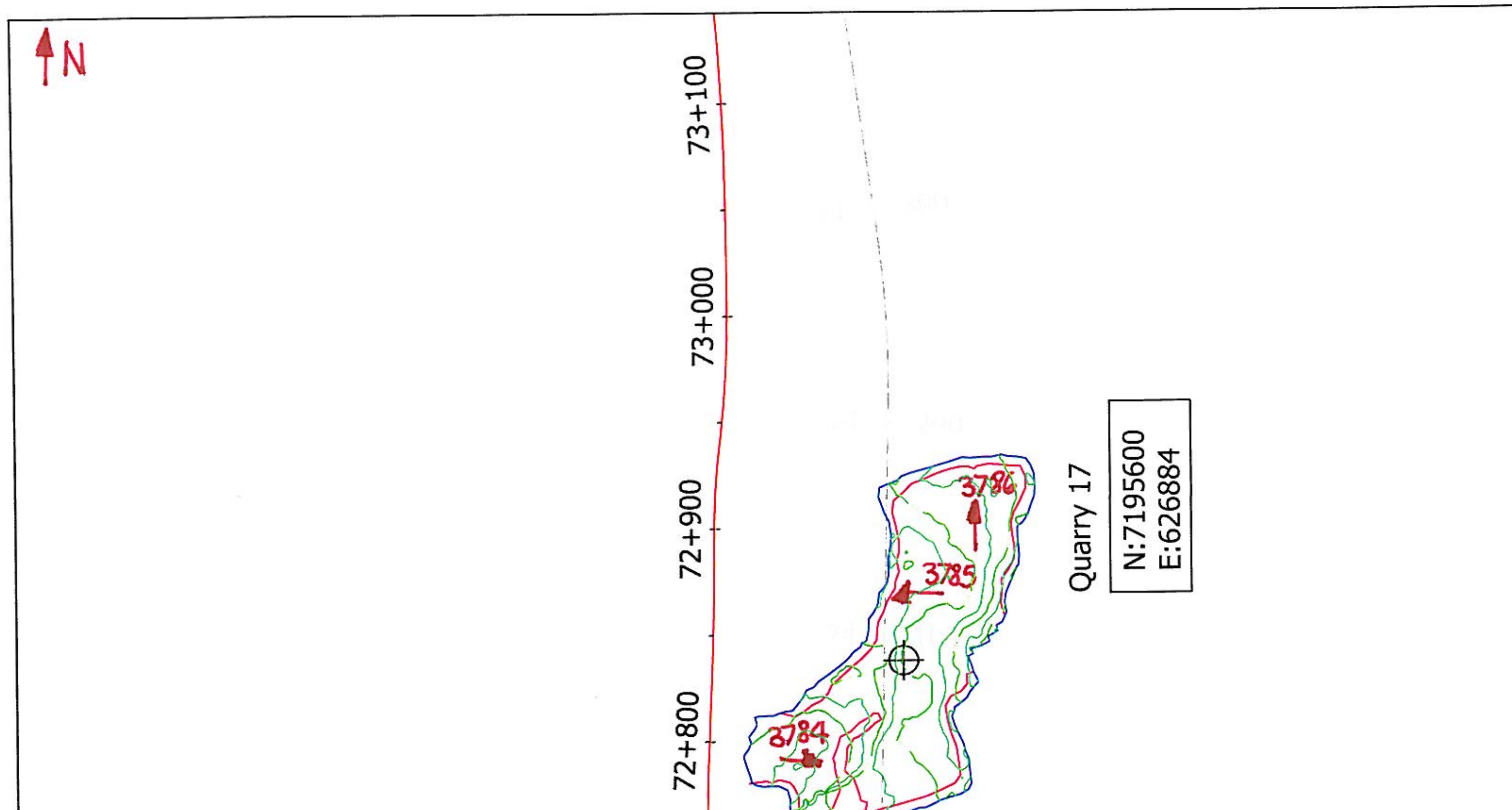
Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 4

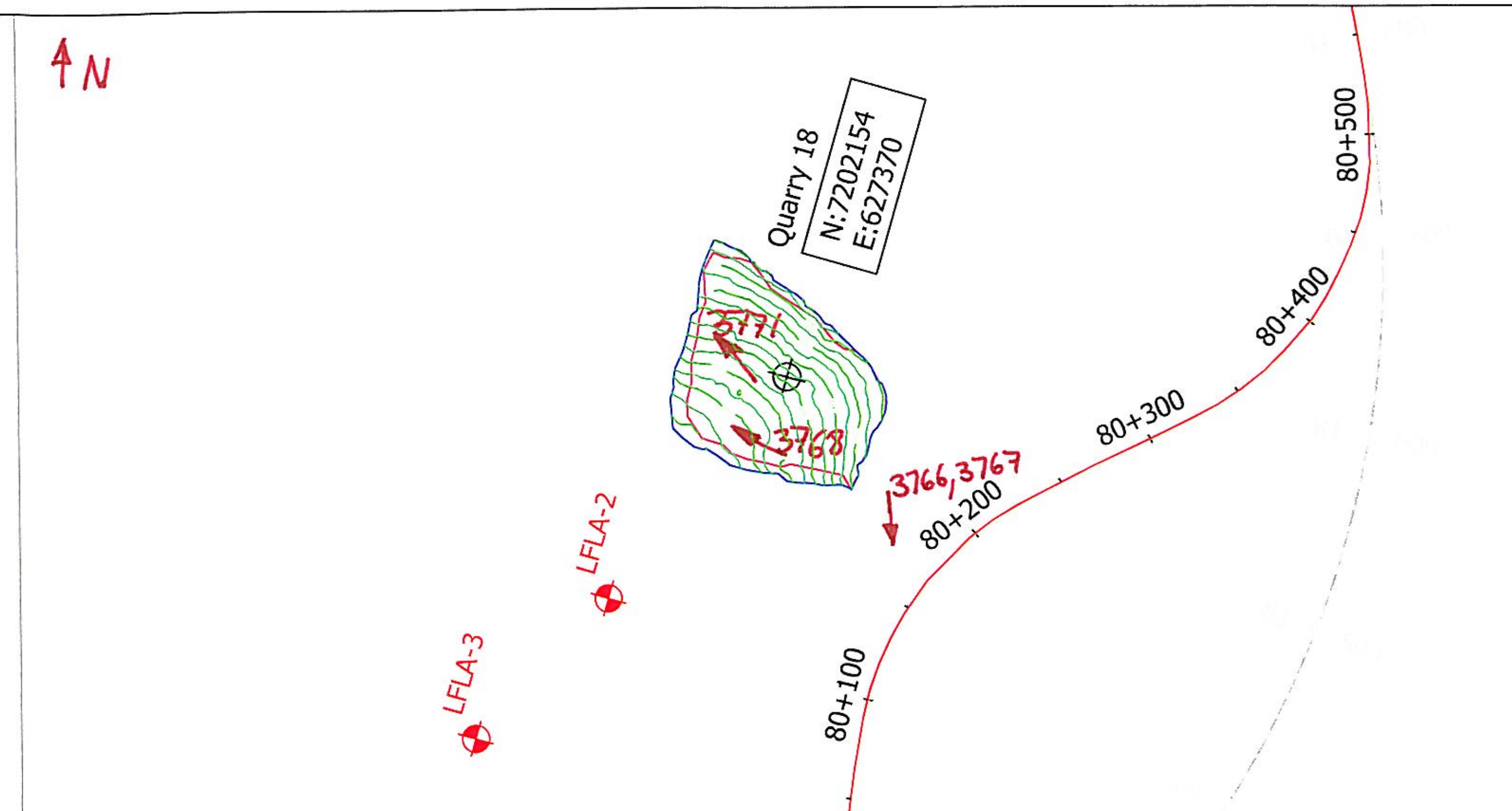
Quarry 13 to Quarry 16

NUNA M & T SERVICES LTD.

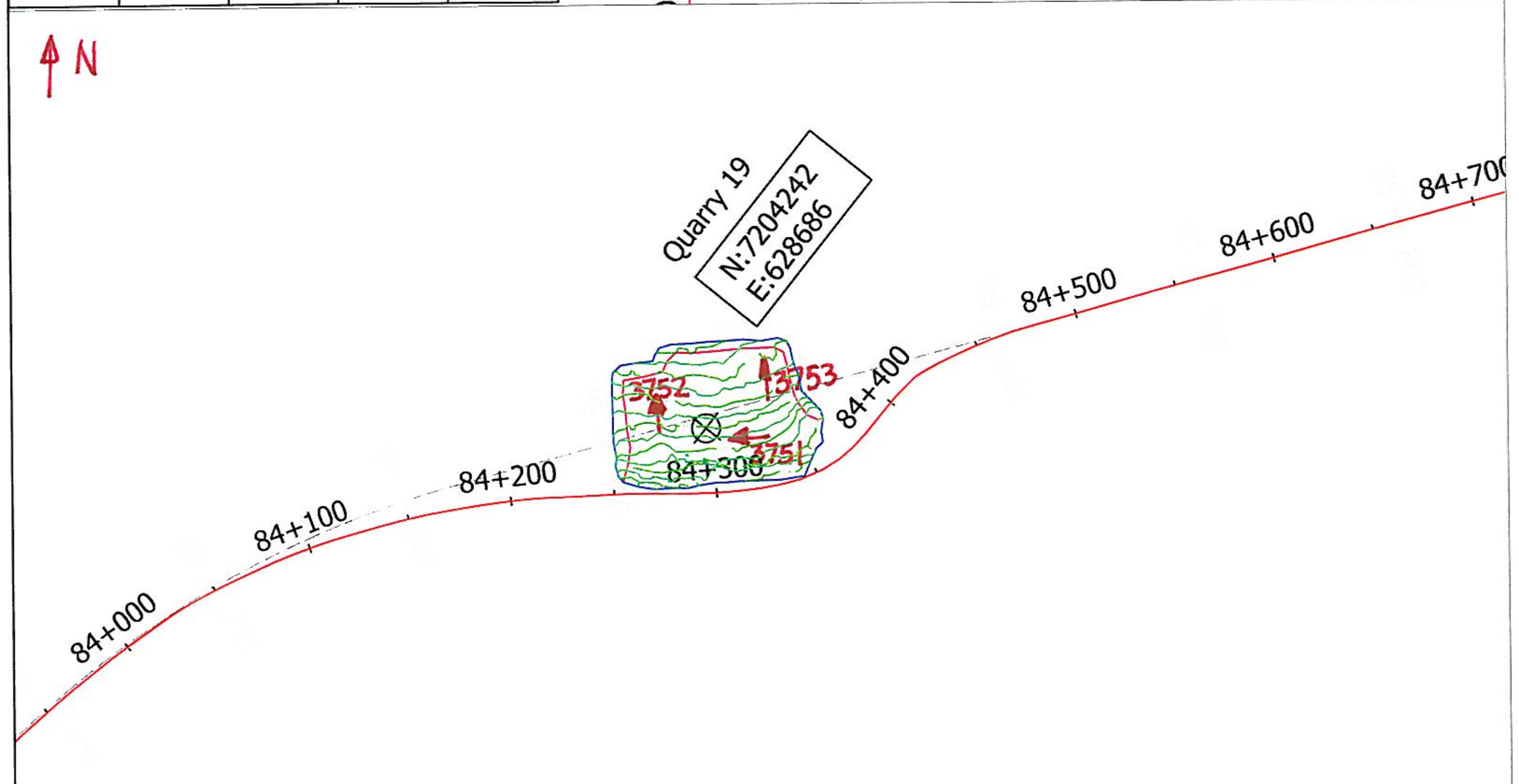
NTS	MC	CG/HB	May 3, 2008



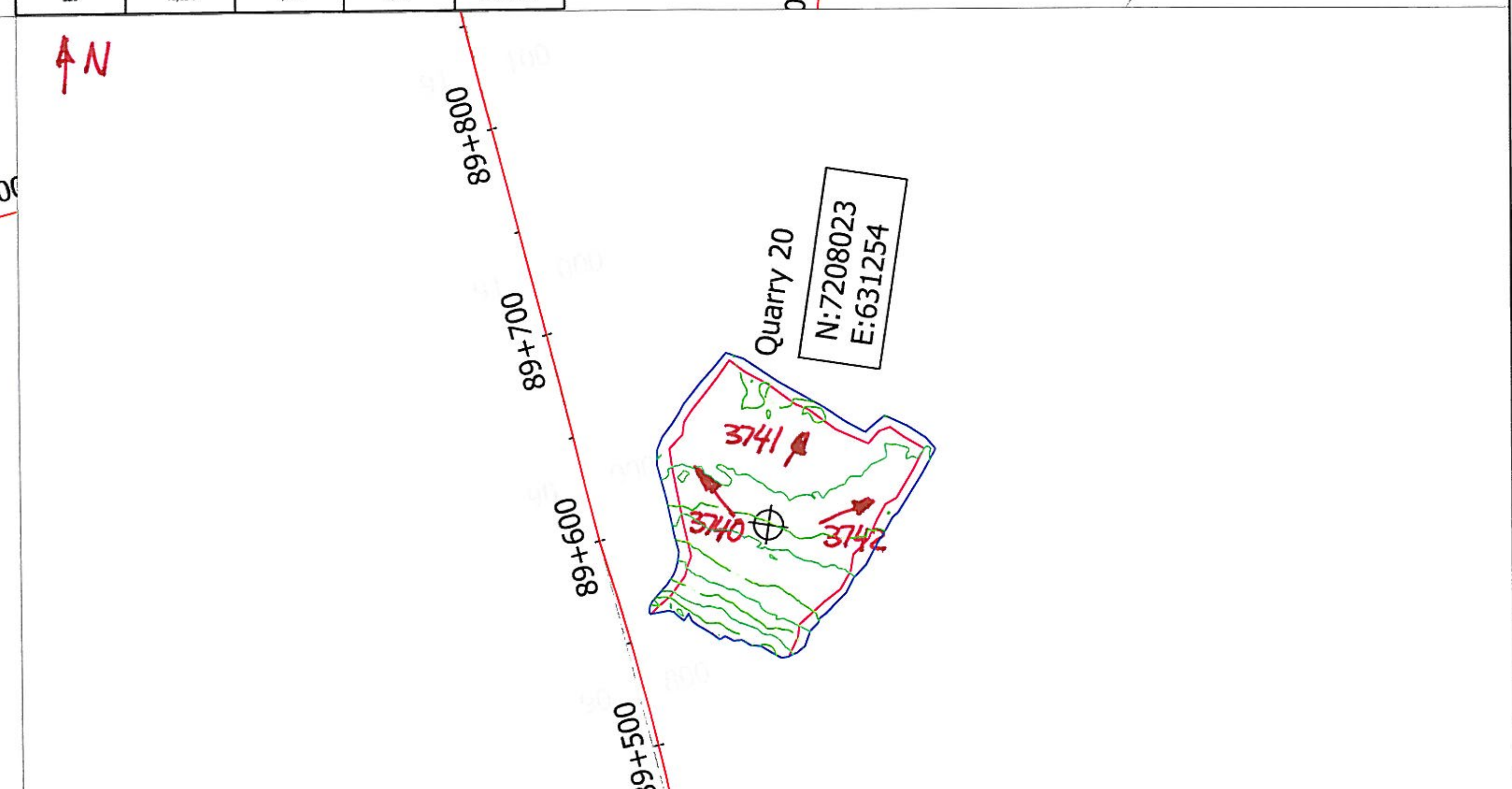
Quarry 17 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
124	48,539	12,363	10,958	Oct. 17, 2007



Quarry 18 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
129	46,094	8,419	7,099	Nov. 7, 2007



Quarry 19 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
133	34,480	6,230	5,286	Dec. 1, 2007



Quarry 20 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
191	53,388	11,660	9,874	Dec. 20, 2007

GOLDER DATA

LfLa-3 Existing Archeological site
Pit-13 Proposed Quarry Site
Existing Lake/Stream

R02 River crossing (crossing structure and dimension)
120 Existing major contour (10m Topo)
Existing minor contour (interpreted)
1+000 Proposed centerline of road

AS CONSTRUCTED DATA

172 Quarry original ground 2m major contour
Quarry original ground 1m minor contour
Crest boundary of quarry limit at original ground
Toe boundary of quarry excavation at bench grade

1+200 Centerline of road with 100m stations
R20 PC-1 River crossing-culvert 600mm/1200mm dia
R02 River Crossing-12m30m bridges

NOTES:

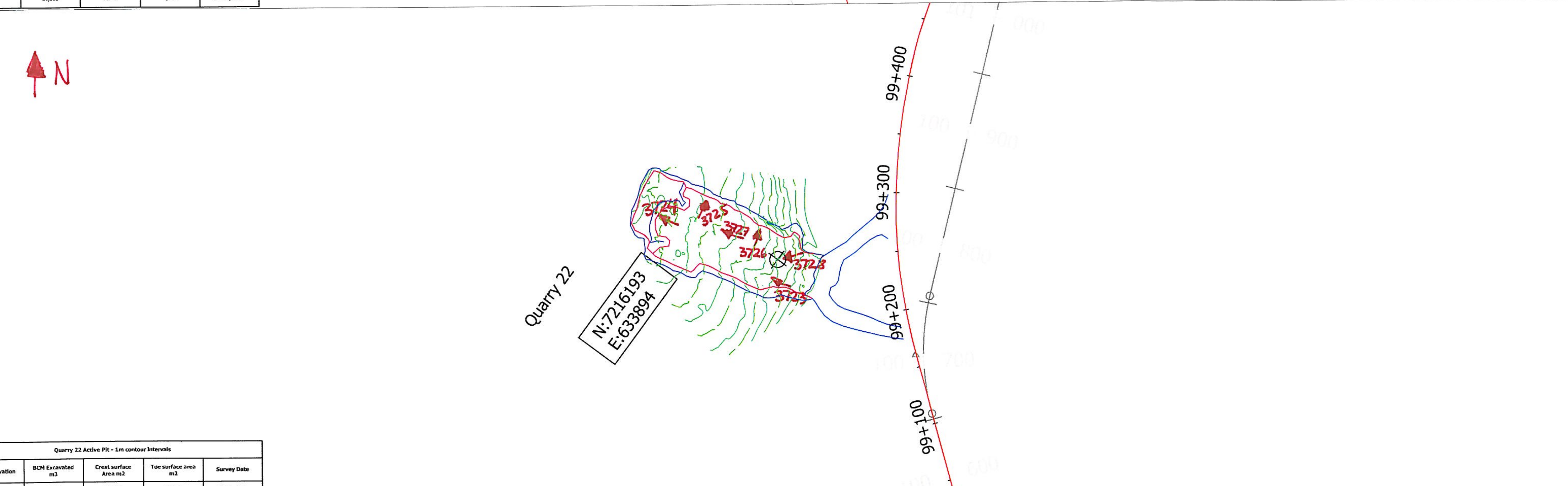
Quarry Data Summarized in Table 1
100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd
NUNAVUT
Meadowbank Gold Project
Tehek Access Road Construction
As constructed Quarry Drawing Figure 5
Quarry 17 to Quarry 20

NUNA M & T SERVICES LTD.

NTS	MC	CG/HB	March 31, 2008

Quarry ~~20~~ 21 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
167	55,360	9,096	7,732	Feb. 5, 2008



Quarry 22 Active Pit - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
147	65,049	10,440	8,634	May 4, 2008

GOLDER DATA

LfLa-3 Existing Archeological site

Pit-13 Proposed Quarry Site

Existing Lake/Stream

R02 River crossing (crossing structure and dimension)

120 Existing major contour (10m Topo)

Existing minor contour (interpreted)

1+000 Proposed centerline of road

AS CONSTRUCTED DATA

172 Quarry original ground 2m major contour

Quarry original ground 1m minor contour

Crest boundary of quarry limit at original ground

Toe boundary of quarry excavation at bench grade

1+200 Centerline of road with 100m stations

R20 PC-1 River crossing-culvert 600mm/1200mm dia

R02 River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd

NUNAVUT

Meadowbank Gold Project
Tehek Access Road Construction

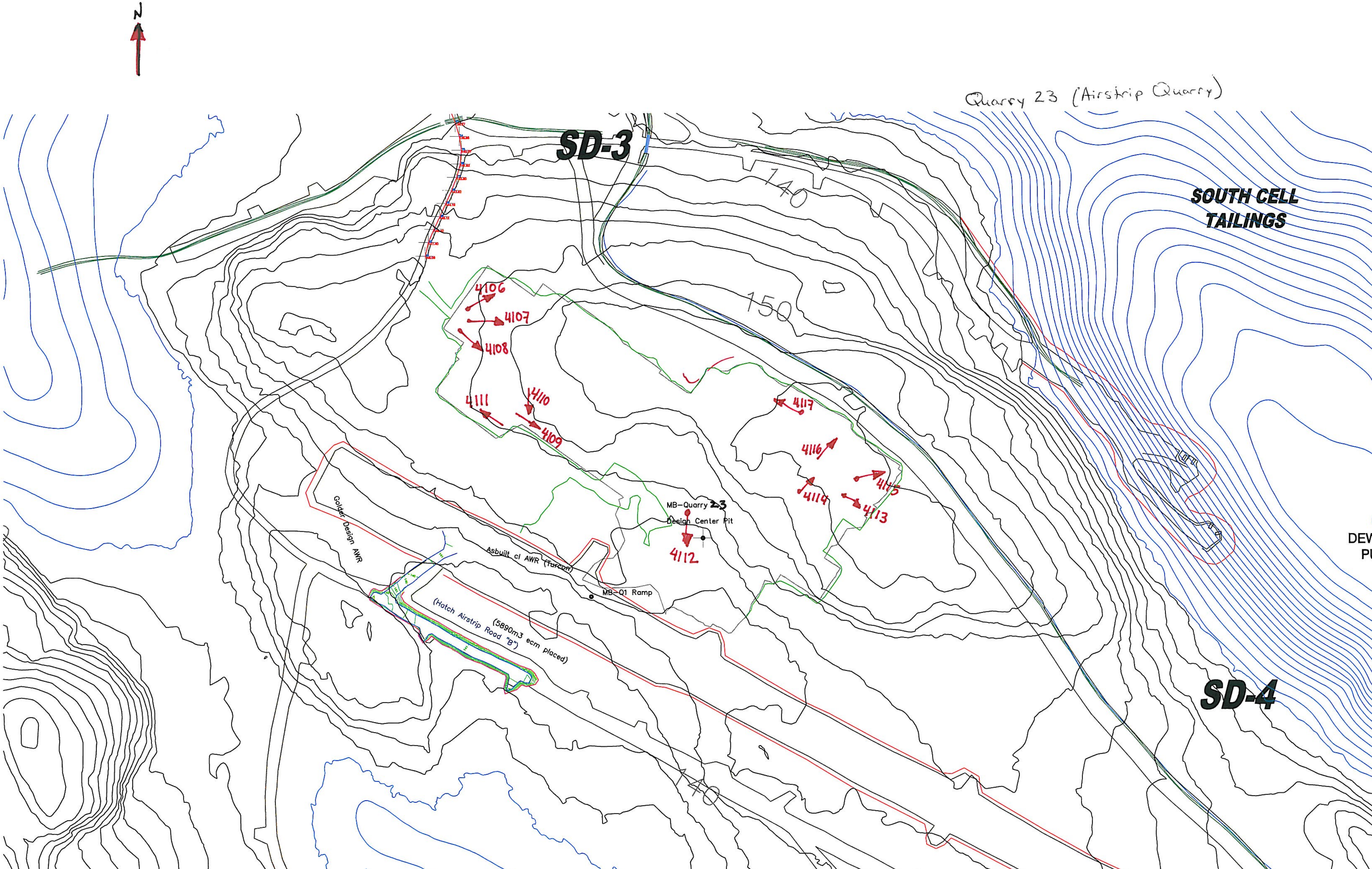
As constructed Quarry Drawing Figure 6

NUNA M & T SERVICES LTD.

Drawing Title: Quarry 21 to Quarry 22

Scale	Drawn by	Checked by	Date
NTS	MC	CG/HB	May 4, 2008

Quarry 23 (Airstrip Quarry)



APPENDIX F – BULK FUEL STORAGE FACILITIES

Appendix F1 - Baker Lake Tank Farm: Photographic Log
Appendix F2 - Meadowbank Tank Farm: Photographic Log

Appendix F1 – Baker Lake Tank Farm:

Photographic Log

PHOTOGRAPH F1-1 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3879

Description: Looking southeast. View of Tank 1 in foreground then to Tanks 2, 3 and 4. Note access ramp on right of photo and small pond of fluid.

PHOTOGRAPH F1-2 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3880

Description: Looking northeast. View of Tank1, refuelling containers on left of photo, and construction trailers for tank farm expansion on slope above Tank 1.

PHOTOGRAPH F1-3 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3881

Description: Barge unloading dock, looking southwest from tank farm containment berm.

PHOTOGRAPH F1-4 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3882

Description: View of Tanks 1 and 2, looking west from dividing berm between Tanks 1/2 and Tanks 3/4.

PHOTOGRAPH F1-5 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3883

Description: View of Tanks 2, 3 and 5, looking northeast along containment berm separating Tanks 1/2 and Tanks 3/4. Note benched slope on north side between lower Tanks (1-4) and new Tanks 5/6.

PHOTOGRAPH F1-6 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3884

Description: View of Tanks 3 and 4, looking east.

PHOTOGRAPH F1-7 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3885

Description: View of Tanks 3, 4 and 6, looking northeast.

PHOTOGRAPH F1-8 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3886

Description: View of Tanks 1, 2, 3 and 4, looking west.

PHOTOGRAPH F1-9 – Baker Lake Tank Farm

Date: September 16, 2009. **Photo Number:** IMG_3887

Description: View looking north at Tank 4 in foreground and Tanks 5 and 6 upslope. Note benched slope between lower tank and upper tanks.

PHOTOGRAPH F1-10 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3888 and IMG_3889

Description: View looking northwest at Tank 3 in the foreground and Tanks 2 and 1 beyond. On right of photo is benched slope. Piping work underway to connect piping from lower tanks to upper tanks (Tanks 5/6).

PHOTOGRAPH F1-11 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3890

Description: View looking south of northeast berm near Tank 4. Swale partially exists around perimeter, but is discontinuous.

PHOTOGRAPH F1-12 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3891

Description: View along northeast benched slope adjacent to Tanks 3/4, looking northwest.

PHOTOGRAPH F1-13 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3892

Description: View of Tank 4 and northeast benched slope adjacent to Tanks 3/4, looking southeast.

PHOTOGRAPH F1-14 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3893

Description: View of northeast benched slope adjacent to Tanks 3/4, looking southeast. Due to construction of upper tanks, additional work on slope has occurred. More runoff is travelling in channels down the slope causing erosion of protective liner covering (sand/gravel) within tank farm secondary containment enclosure.

PHOTOGRAPH F1-15 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3894, 3895, 3896, 3897

Description: Panoramic view of rock/soil benched slope on the northeast side of Tanks 3 and 4. Note eroded and deposited soil in channels on slope with additional channels entering secondary containment area of tank farm.

PHOTOGRAPH F1-16 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3898

Description: View of northeast berm of secondary containment for Tanks 3/4, looking northeast. Note erosion of protective surface layer and exposure of geomembrane liner.

PHOTOGRAPH F1-17 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3899

Description: View of Tanks 1 and 2, looking northwest along benched slope on northeast side of the tank farm.

PHOTOGRAPH F1-18 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3900

Description: View looking southwest of Tanks 2 and 3 and dividing berm within secondary containment area.

PHOTOGRAPH F1-19 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3901

Description: View of Tank 2, looking southwest and dividing berm within secondary containment area.

PHOTOGRAPH F1-20 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3902

Description: View looking northwest at Tanks 1 and 2 along benched slope on northeast side of secondary containment.

PHOTOGRAPH F1-21 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3913, 3914, 3915

Description: Looking east at tension cracks in upper soil slope between Tanks 3/4 and Tanks 5/6. Lower portion of slope appears to have been undercut.

PHOTOGRAPH F1-22 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3916

Description: View looking northwest at upper soil slope instability, with tension cracks and under cutting of bench toe. Tanks 5/6 shown in photo.

PHOTOGRAPH F1-23 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3911

Description: View of upper bench and slope, looking east. Lower Tanks 3/4 on right of photo and Tank 6 on left of photo.

PHOTOGRAPH F1-24 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3912

Description: View looking east at Tanks 5 and 6 and their secondary containment under construction.

PHOTOGRAPH F1-25 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3917

Description: View looking northwest at Tank 5, installation of geomembrane liner in progress. Note access road around perimeter of secondary containment area.

PHOTOGRAPH F1-26 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3918

Description: View of Tank 6, looking east from berm above containment area.

PHOTOGRAPH F1-27 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3921

Description: Southeast side of Tank 6, looking along slope of secondary containment. Installation of geotextile and geomembrane liner was observed.

PHOTOGRAPH F1-28 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3923

Description: View of top of berm along east side of the secondary containment area for Tanks 5/6.

PHOTOGRAPH F1-29 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3924

Description: View of south slope of secondary containment for Tank 6 (foreground) and Tank 5 beyond. Lining of the secondary containment in progress at the time of the in Tanks 1 and 2 appear at the far left side of the photo.

PHOTOGRAPH F1-30 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3926

Description: View of northeast side of secondary containment area for Tanks 5/6, looking northwest. Note height and angle of containment slope.

PHOTOGRAPH F1-31 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3927

Description: Looking northwest along road above slope for secondary containment area for Tanks 5/6.

PHOTOGRAPH F1-32 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3928

Description: View of ditch around northeast perimeter of secondary containment area to divert water away from tank farm.

PHOTOGRAPH F1-33 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3929

Description: View of Tank 5 and 6, looking southwest down slope of secondary containment.

PHOTOGRAPH F1-34 – Baker Lake Tank Farm

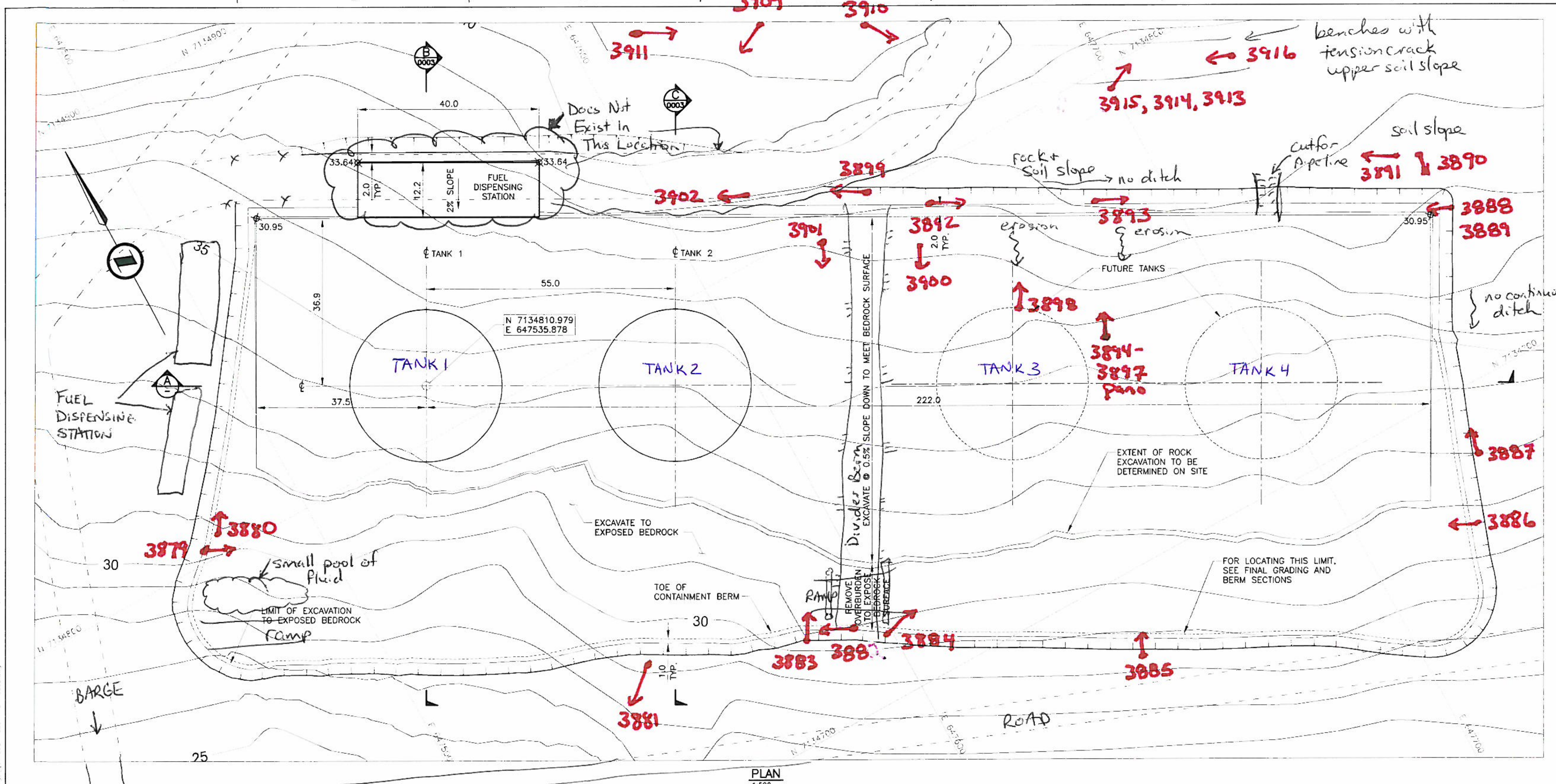
Date: September 16, 2010. **Photo Number:** IMG_3931

Description: View of Tank 5, looking west, construction still in progress.

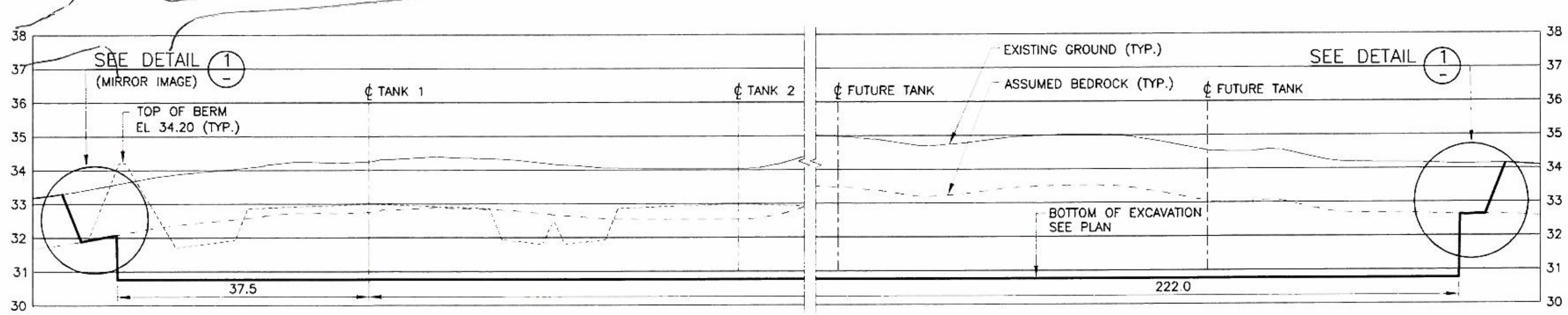
PHOTOGRAPH F1-35 – Baker Lake Tank Farm

Date: September 16, 2010. **Photo Number:** IMG_3932

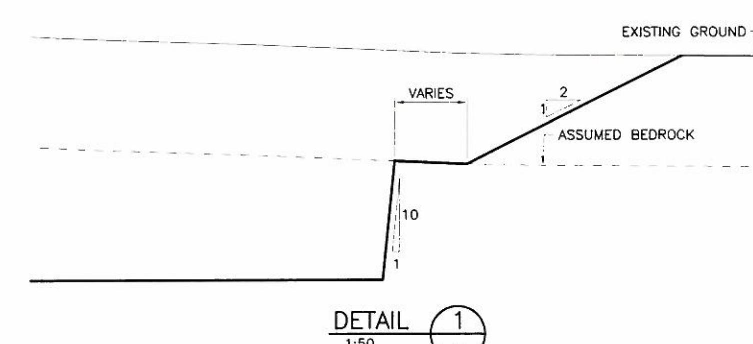
Description: View of northeast slope down into the secondary containment. Note approximately a 10 cm thick layer of granular bedding material placed above rockfill prior to installation of the geotextile and geomembrane liner.



PLAN
1:500



SECTION A
1:500H 1:100V



DETAIL 1
1:50

NOTES

1) Northings and Eastings are in metres referenced to UTM Zone 14 NAD83.
2) Base Plan information including site topography, access roads and storage areas provided by Cumberland dated February 03, 2006.
3) Elevations are in metres referenced to geodetic datum.

LEGEND:

TOP OF CUT

33.64 SPOT ELEVATION

0 1:50 2

0 1:500 25

PERMIT TO PRACTICE
NISHI-KHON/SNC-LAVALIN LIMITED
Signature A.R. WACHMANN
Date
PERMIT NUMBER: P 272

NISHI-KHON/SNC ◆ LAVALIN

MEADOWBANK GOLD PROJECT
BAKER LAKE
DIESEL FUEL TANK FARM
TANK PAD EXCAVATION
PLAN, SECTION AND DETAIL

PROJECT NUMBER	DRAWING NUMBER	REV.
017202	1000-41D1-0002	PB

CUMBERLAND RESOURCES

SECTION	CIVIL	
SCALE	AS SHOWN	DATE
DESIGNED	R. UMENO	JUNE 2006
DRAWN	E. S. LAY	JUNE 2006
CHECKED		
APPROVED		

ENGINEERS STAMP

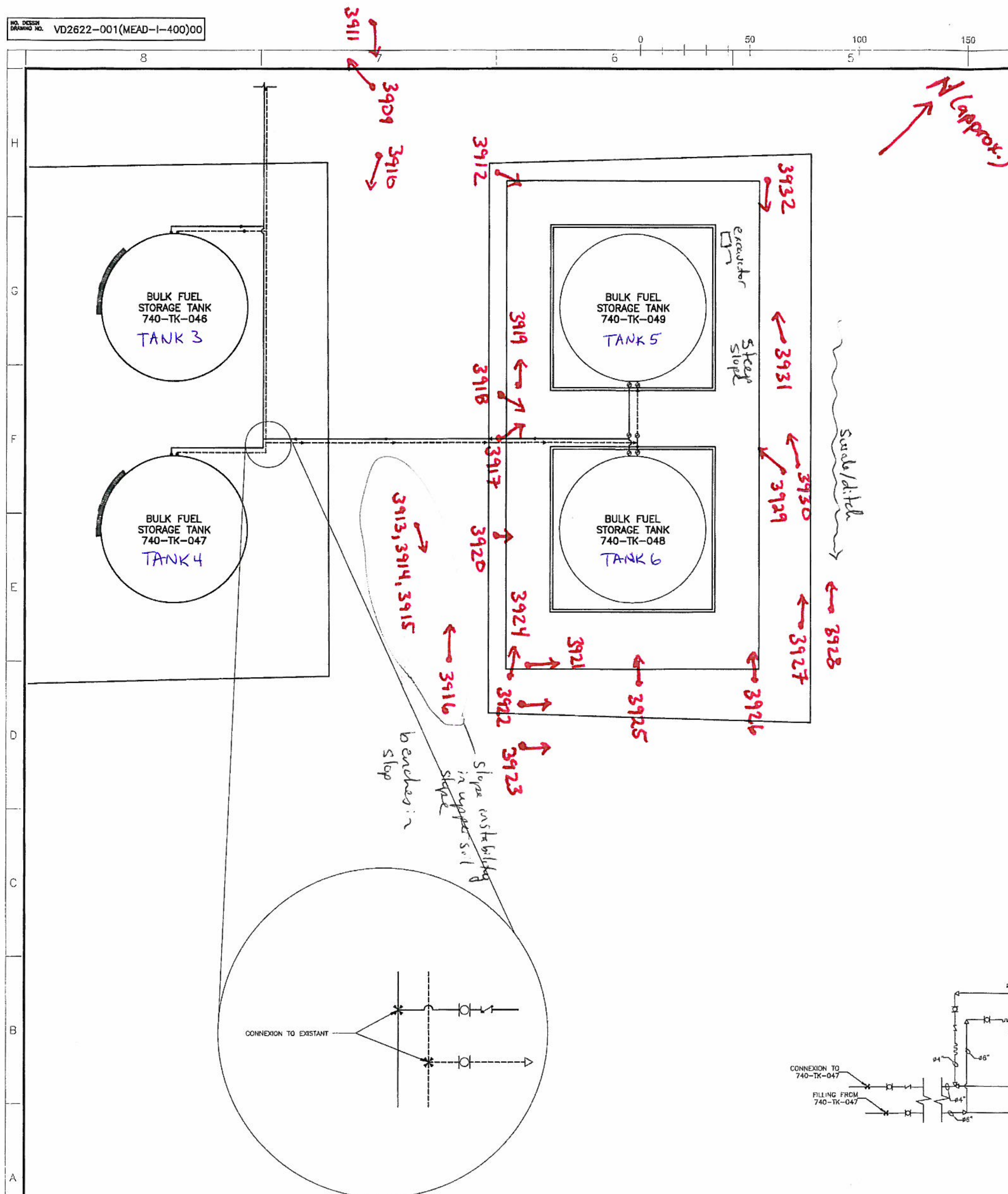
NO.	DESCRIPTION	DATE	BY
PB	ISSUED FOR TENDER	07-04-03	RU
PA	ISSUED FOR COMMENTS	06-06-22	RU

REVISIONS

DWG. NO.	DESCRIPTION

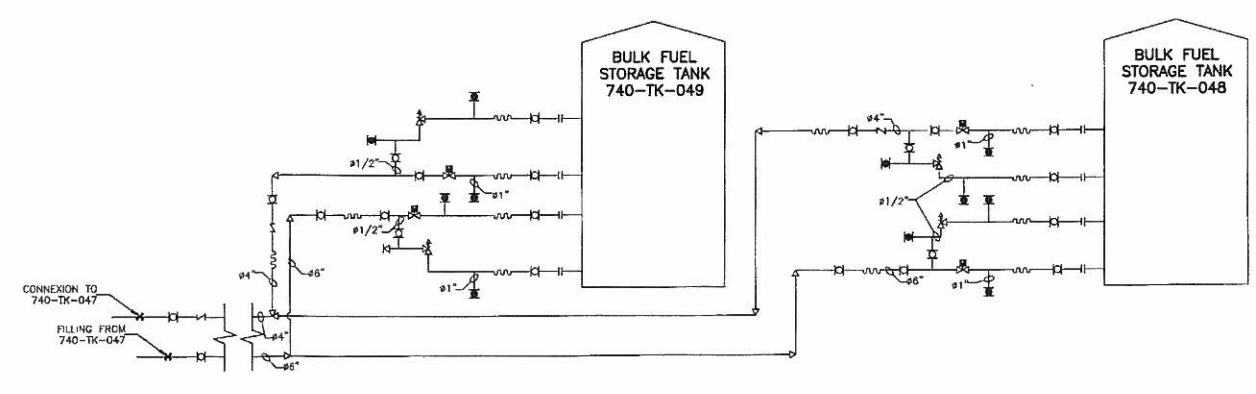
REFERENCE DRAWINGS

NO. DESSIN / DRAWING NO. VD2622-001(MEAD-I-400)00



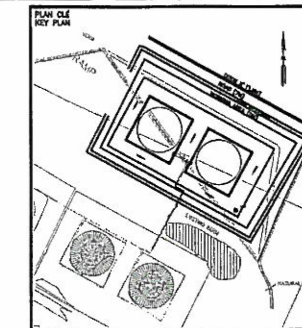
Piping	Symbol	Equipment	Details	Type	Models	Diameter	Quantity
Filling of Tank 740-TK-048 Tank 740-TK-049		Gate Valve	Integrally reinforced extended body gate, female socket weld outboard end; API STD 602; forged carbon steel; ASTM A 105/A 105M; OS&Y; welded bonnet or bolted bonnet with flexible graphite-filled spiral wound gasket; trim #8; flexible graphite packing; metal tagged V903; Class 800	NA	Velan W-DD-2-17-4W-02-TY (1") or equivalent	1"	2
		Gate Valve	Class 150; flanged, raised-face; API STD 600; carbon steel body, ASTM A 105/A 105M or ASTM A 216/A 216M Grade WCB; OS&Y; solid or flexible wedge; bolted bonnet with stainless steel reinforced flexible graphite bonnet gasket; trim #8; flexible graphite packing; metal tagged VGA01; full port.	NA	Velan F-DD-0-06-4C-02-TY (6") or equivalent	6"	7
		Flanged Mettalic flexible tube	- Flanges. Class 150, raised face and ANSI B16.5; - Metallic flexible tube: 18" length in Stainless Steel	NA	CONNECTALL AA1-096-0180 or equivalent	6"	4
		Motorized Valve	- 6" direct mount split body ball valve; - Body materieal: Carbon Steel Body; - SS 316 Trim, Seat Reinforced TFE Seats ; - Flanges: Class 150 raised face and ANSI B16.5; C/W: Actuator Electric Serie XE (XE-6900) ATEX certified for Flame Proof Eexd IIB T4 + Heater	NA	Matheson valves D9C-F1-600-XHE1-XX 6.00	6"	2
		Gasket	Composition: Aramid fibers with a nitril binder Tickness: 1/8"	NA	Garlock Blue guard Style 3000	1" 6"	as required
		Piping	Carbon steel piping sch. 40 ASTM A53 gr.B seamless	NA	NA	1" 6"	as required
Distribution from Tank 740-TK-048 Tank 740-TK-049		Gate Valve	Class 150; flanged, raised-face; API STD 600; carbon steel body, ASTM A 105/A 105M or ASTM A 216/A 216M Grade WCB; OS&Y; solid or flexible wedge; bolted bonnet with stainless steel reinforced flexible graphite bonnet gasket; trim #8; flexible graphite packing; metal tagged VGA01; full port.	NA	Velan F-DD-0-06-4C-02-TY (4") or equivalent	4"	7
		Gate Valve	Integrally reinforced extended body gate, female socket weld outboard end; API STD 602; forged carbon steel; ASTM A 105/A 105M; OS&Y; welded bonnet or bolted bonnet with flexible graphite-filled spiral wound gasket; trim #8; flexible graphite packing; metal tagged V903; Class 800	NA	Velan W-DD-2-17-4W-02-TY (1") or equivalent	1"	2
		Flanged Mettalic flexible tube	- Flanges: Class 150, raised face and ANSI B16.5; - Metallic flexible tube: 18" length in Stainless Steel	NA	CONNECTALL AA1-064-0150 or equivalent	4"	4
		Check valve	- Cast steel flanged check valve ; - Body material: Low temperature cast carbon steel to ASTM A352, grade LCB; - Trim material: Disc - Stainless steel, 13% Cr Seat - Stainless steel, 13% Cr; - Valve: Face to face dimensions to ANSI B16.10; - Flanges: Class 150, raised face and ANSI B16.5.	CKF1[1]	Kitz 150 SCOBL or equivalent	4"	3
		Motorized Valve	- 4" direct mount split body ball valve; - Body materieal: Carbon Steel Body; - SS 316 Trim, Seat Reinforced TFE Seats ; - Flanges: Class 150 raised face and ANSI B16.5; C/W: Actuator Electric Serie XE (XE-2640) ATEX certified for Flame Proof Eexd IIB T4 + Heater	NA	Matheson valves D9C-F1-400-XEE-1-XX 4.00	4"	2
		Gasket	Composition: Aramid fibers with a nitril binder Tickness: 1/8"	NA	Garlock Blue guard Style 3000	1" 4"	as required
		Piping	Carbon steel piping sch. 40 ASTM A53 gr.B seamless	NA	NA	1" 4"	as required
Overpressure line filling tank 740-TK-048 filling tank 740-TK-049		Gate Valve	Integrally reinforced extended body gate, female socket weld outboard end; API STD 602; forged carbon steel; ASTM A 105/A 105M; OS&Y; welded bonnet or bolted bonnet with flexible graphite-filled spiral wound gasket; trim #8; flexible graphite packing; metal tagged V903; Class 800	NA	Velan W-DD-2-17-4W-02-TY (½") or equivalent	½"	8
		Flanged Mettalic flexible tube	- Flanges: Class 150, raised face and ANSI B16.5; - Metallic flexible tube: 18" length in Stainless Steel	NA	CONNECTALL AA-B1B1-HHH-0180-0150 or equivalent	½"	4
		Pressure safety valve	- Stainless steel; - Set pressure at 75 PSI	NA	Swagelok SS-RL4M8F8-BU	½"	2
		Gasket	Composition: Aramid fibers with a nitril binder Tickness: 1/8"	NA	Garlock Blue guard Style 3000	½"	as required
		Piping	Carbon steel piping sch. 40 ASTM A53 gr.B seamless	NA	NA	½"	as required

[1] Reference to "PIPE AND VALVE SPECIFICATION" #0 17202-0000-46ES-1001 by SNC Lavalin 15th august 2007



PIPING DETAILS

PLAN CLÉ / KEY PLAN



NOTES GÉNÉRAL / GENERAL NOTES

1-ALL THE PIPING CONNECTION MUST BE AT THE BOTTOM OF THE TANK

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 12/08/2010

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO-EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2010-08-12	FOR CONSTRUCTION	MA.BÉD	JMC	
B	2010-07-20	FOR APPROVAL	V.Cre.	JMC	
A	2010-07-16	FOR APPROVAL	V.Cre.	JMC	

REVISIONS

P. Eng
L-2198
2010-08-12

TITRE / TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
BAKER LAKE AREA 740
TANK #5 AND #6
FUEL DISTRIBUTION PIPING
LAYOUT AND DETAILS

DESSINÉ PAR / DRAWN BY	VICKY CRÊTE, TECH.	DATE 2010-07-16
VERIFIÉ PAR / CHECKED BY	J-M CHARRON, Ing.	
APPROUVÉ PAR / APPROVED BY	J-M CHARRON, Ing.	
ÉCHELLE / SCALE	N/A	DATE
NO. DESSIN / DRAWING NO.	740-M-0100	
NO. PROJET / PROJECT NO.	MEAD-I-400	REVISION 0 · FEUILLE / SHT 1/1

FORMAT ARCHD

AE-CART-ARCH D

FILE NO. VD2622-001(MEAD-I-400)00.dwg

Appendix F2 – Meadowbank Tank Farm:

Photographic Log

PHOTOGRAPH F2-1 – Meadowbank Tank Farm

Date: September 17, 2010. **Photo Number:** IMG_4097

Description: View of 4 diesel tanks (green), 1 gasoline tank (white), secondary containment area and fuel storage tank, looking north.

PHOTOGRAPH F2-2 – Meadowbank Tank Farm

Date: September 17, 2010. **Photo Number:** IMG_4098

Description: View of access ramp into secondary containment area and tank, looking northwest.

PHOTOGRAPH F2-3 – Meadowbank Tank Farm

Date: September 17, 2010. **Photo Number:** IMG_4099

Description: View of secondary containment area and tank, looking northeast. Ponded fluid within the tank farm area is visible.

PHOTOGRAPH F2-4 – Meadowbank Tank Farm

Date: September 17, 2010. **Photo Number:** IMG_4100

Description: View of 2 diesel tanks adjacent to the tank farm in the refuelling area, looking southeast. Note large area of ponded fluid within the secondary containment area.

PHOTOGRAPH F2-5 – Meadowbank Tank Farm

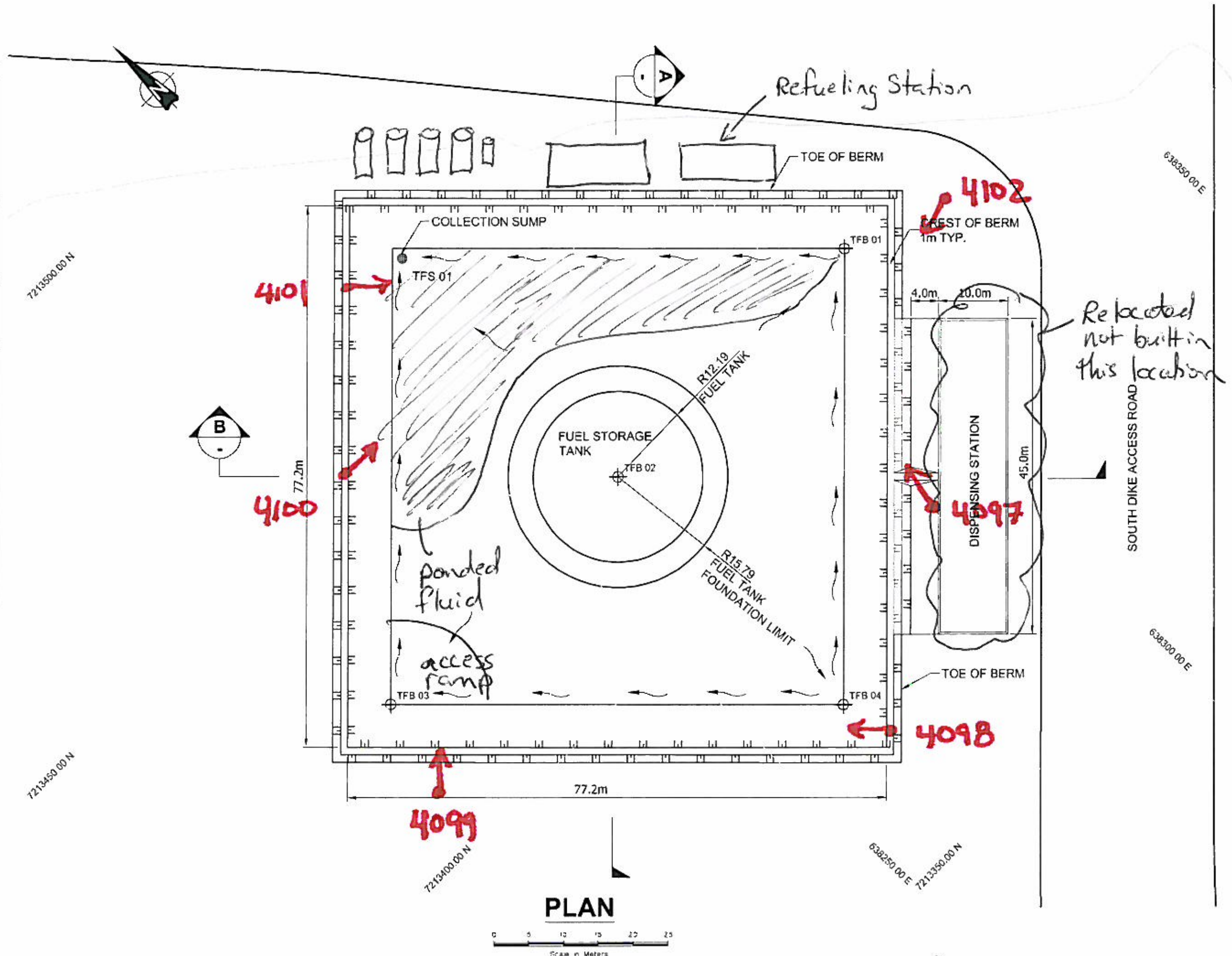
Date: September 17, 2010. **Photo Number:** IMG_4101

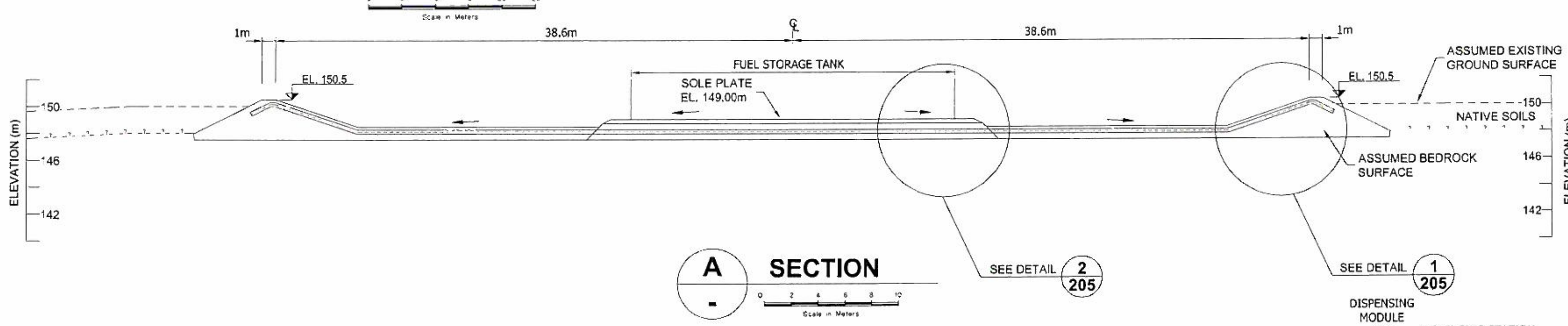
Description: View of ponded fluid within the secondary containment area, looking southeast.

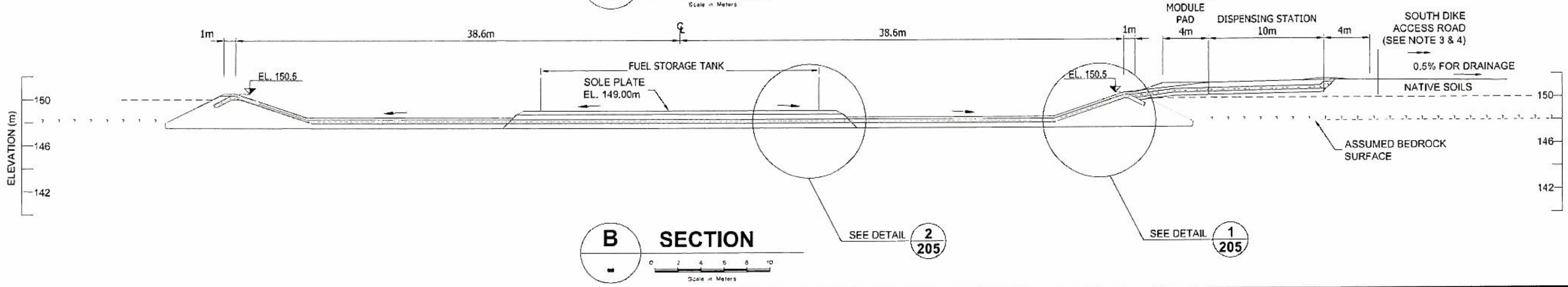
PHOTOGRAPH F2-6 – Meadowbank Tank Farm

Date: September 17, 2010. **Photo Number:** IMG_4102

Description: View of refuelling station berm, looking west.







TANK FARM BACKFILL LAYOUT CONTROL POINTS			
ID	EASTING	NORTHING	ELEVATION
TFB 01	638,308.75	7,213,422.19	148.17
TFB 02	638,262.79	7,213,422.63	149.00
TFB 03	638,216.83	7,213,423.06	148.17
TFB 04	638,262.35	7,213,376.67	148.45
TFS 01	638,263.21	7,213,466.61	147.88

LEGEND

- TFS 01 — TANK FARM SUMP LAYOUT CONTROL POINT.
- TFB 03 — TANK FARM BACKFILL LAYOUT CONTROL POINT.
- PROPOSED BACKFILL LIMITS.

NOTES

1) NORTHING AND EASTING ARE IN METRES REFERENCED TO UTM ZONE 14, NAD83.
2) ALL DIMENSIONS AND ELEVATIONS ARE IN METRES REFERENCED TO GEODETIC DATUM, UNLESS OTHERWISE NOTED.
3) ACCESS ROAD TO DISPENSING STATION BY OTHERS. DETAILS NOT SHOWN FOR CLARITY.
4) SOUTH DIKE ACCESS ROAD BY OTHERS. BARRIER BETWEEN SOUTH DIKE ACCESS ROAD AND DISPENSING STATION BY OTHERS.
5) SURFACE WATER TO DRAIN AWAY FROM DISPENSING STATION AND PERIMETER DIKES TO PERIMETER DRAINAGE DITCHES, NOT SHOWN FOR CLARITY.

REFERENCE

1) BASE PLAN INFORMATION IS PROVIDED BY CUMBERLAND DATED FEBRUARY 03, 2006.

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ISS	D/M/Y	APP	ISSUED FOR
0	28APR06	–	CONSTRUCTION
B	20APR06	–	FIRE MARSHALL INITIAL REVIEW
A	10APR06	–	CLIENT REVIEW

REV	D/M/Y	REVISION	DR	CHK	CHK	APP	APP	APP	APP

REF	NUMBER	TITLE
		REFERENCES

STAMP/SEAL

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APPROVED FOR CONSTRUCTION

CLIENT PROJECT MGR — ENGINEERING MGR — PROJECT MGR

PROJECT NO. – | ACTIVITY NO. | PACKAGE CODE

PROJECT PHASE

SCALE: AS SHOWN

	BY	DD/MMM/YY
DSN	WJP	28 APR 06
DRN	JK	28 APR 06

PROJECT: CUMBERLAND RESOURCES LTD.

TITLE: TANK FARM BACKFILL PLAN AND SECTIONS
MEADOWBANK FUEL TANK FARM

Golder Associates

PROJECT No. 06-1413-009 | FILE No. 061413009_SK-204

DRAWING NO. 3000-C-204 | REV 0

APPENDIX G – OTHER SITE FACILITIES

Appendix G1 - Site Roads: Photographic Log
Appendix G2 - Landfill: Photographic Log
Appendix G3 - Stormwater Management Pond 1: Photographic Log

Appendix G1 – Site Roads:

Photographic Log

PHOTOGRAPH G1-1 – Site Roads

Date: September 13, 2010. **Photo Number:** IMG_3691

Description: Haul road crossing northwest arm of Second Portage Lake which has been dewatered. Haul road is approximately parallel to the proposed alignment of Central Dike and connects the north end of Portage Pit to the plant site.

PHOTOGRAPH G1-2 – Site Roads

Date: September 13, 2010. **Photo Number:** STA_3688

Description: New haul road crossing Second Portage Lake between the north end of Portage Pit and the plant site.

PHOTOGRAPH G1-3 – Site Roads

Date: September 19, 2010. **Photo Number:** IMG_4254

Description: Site road between Quarry 23 (Airstrip Quarry) and the Plant / Camp area of the mine.

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Appendix G2 – Landfill:

Photographic Log

PHOTOGRAPH G2-1 – Landfill

Date: September 18, 2010. **Photo Number:** IMG_4195

Description: Looking north at waste in top of current cell.

PHOTOGRAPH G2-2 – Landfill

Date: September 18, 2010. **Photo Number:** IMG_4196

Description: Looking northeast at waste in landfill.

PHOTOGRAPH G2-3 – Landfill

Date: September 18, 2010. **Photo Number:** IMG_4197

Description: Looking north at waste in top of current cell.

PHOTOGRAPH G2-4 – Landfill

Date: September 18, 2010. **Photo Number:** IMG_4204

Description: Looking northeast at waste in landfill.

PHOTOGRAPH G2-5 – Landfill

Date: September 18, 2010. **Photo Number:** IMG_4205

Description: Looking east waste in top of current cell.

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Appendix G3 – Stormwater Management Pond 1 (Teardrop Lake):

Photographic Log

PHOTOGRAPH G3-1 – Stormwater Pond 1, Teardrop Lake

Date: September 18, 2010. **Photo Number:** STA_4118_4119_4120

Description: View of Stormwater Pond 1, also referred to as Teardrop Lake, looking southeast.

PHOTOGRAPH G3-2 – Stormwater Pond 1, Teardrop Lake

Date: September 18, 2010. **Photo Number:** IMG_4121

Description: View of Stormwater Pond 1, looking northeast.

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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