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MOUNT POLLEY MINE
TAILINGS STORAGE FACILITY

REPORT ON
1998 CONSTRUCTION AND ANNUAL INSPECTION
(REF. NO. 11162/10-1)

Knight Piésold
CONSULTING ENGINEERS

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CONSULTING ENGINEERS

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SECTION 1.0 - INTRODUCTION

1.1 PROJECT DESCRIPTION

The Mount Polley gold and copper mine is owned and operated by Mount Polley Mining Corporation. It is located in central British Columbia, 56 kilometres north-east of Williams Lake, as shown on Figure 1.1. The Mount Polley mine has been in production since June 13, 1997. Ore is crushed and processed by selective flotation to produce a copper-gold concentrate. The current mill throughput rate is approximately 20,000 tonnes per day (7.3 million tonnes per year). An overall site plan of the Mount Polley Mine is shown on Drawing 10162-9-100.

Mill tailings are discharged as a slurry into the Tailings Storage Facility which has been designed to provide environmentally secure storage of the solid waste. As the solids settle out of the slurry, process fluids are collected and recycled back to the mill for re-use in the milling process. There is no surface discharge of any process solution from the Tailings Storage Facility.

Knight Piésold Ltd. were originally engaged by Imperial Metals Corporation to provide engineering services for the design of the Open Pit, Waste Dumps and Tailings Storage Facility in 1989. In the period since, Knight Piésold Ltd. has provided the following services:

- Detailed design of all stages of the Tailings Storage Facility and Ancillary Works completed to date.

- Prepare contract documents and technical specifications for all stages of the Tailings Storage Facility construction to date.

- Construction supervision and quality assurance/quality control (QA/QC) for all stages of the Tailings Storage Facility completed to date.

- Conduction and evaluation of investigations for engineering design and construction materials suitability.

- Consulting services provided to the mine on all aspects of the operation and monitoring of the Tailings Storage Facility.

In 1998, the tailings embankments were raised to Stages 2A (El. 936 m) and 2B (El. 937 m). Knight Piésold Ltd. provided design, construction supervision and quality assurance/quality control (QA/QC) services for both embankment raises. Knight Piésold Ltd. also conducted on-going reviews of all instrumentation and monitoring records for the year and completed an annual inspection of the facility.

1.2 TAILINGS STORAGE FACILITY

The Tailings Storage Facility is comprised of the following:

- A pipeline system which conveys the tailings slurry via gravity from the Millsite to the Tailings Storage Facility. The system includes a movable discharge section with spigot offtakes to distribute the tailings along the embankment crest.

- A make-up water supply system to provide extra water to the Tailings Storage Facility. The system comprises an intake and pump at Polley Lake and a pipeline to convey the water to the Tailings Storage Facility. The water is discharged into the Tailings Storage Facility near the west abutment of the Perimeter Embankment.

- The Millsite Sump and Southeast Sediment Pond that provide additional make-up water to the system. Millsite runoff is directed from the Millsite Sump into the tailings line near the mill. Flows from the Southeast Sediment Pond enter the system at the reclaim booster pump station or at the T2 Tailings Dropbox.

- Earthfill embankments which retain the tailings solids within the Tailings Storage Facility. The Main Embankment has a vertical chimney drain, with a collector (longitudinal) drain and three outlet drains.

- A low permeability basin liner (natural and constructed) which provides containment of process fluids within the facility and minimises the potential for seepage through the tailings basin soils.

- A foundation drain and pressure relief well system located downstream of the Stage 1B Main Embankment to prevent the build-up of pressure in foundation materials and to collect seepage from the base of the Tailings Storage Facility. An engineered rockfill haul road located downstream of the embankment covers the foundation drains and the trenches that connect to pressure relief wells to the foundation drains.

- Seepage collection ponds located downstream of the Main and Perimeter Embankments. The seepage collection ponds are excavated in low permeability soils and store water collected from embankment drains and local runoff. Water is pumped back into the Tailings Storage Facility.

- Instrumentation in the tailings and embankment foundations, fill and drains (including vibrating wire piezometers, survey monuments and the measurement of drain flows) used to monitor the performance of the Tailings Storage Facility.

- A reclaim water system comprised of a barge mounted pumpstation in an excavated channel, a booster pumpstation and a pipeline that provides process water to the mill.

- A system of monitoring wells installed around the Tailings Storage Facility for groundwater quality monitoring.

This description of the Tailings Storage Facility components has been included for information purposes. Work was not undertaken on all of the components during the 1998 (Stage 2A/2B) construction programs. However, all of the components were evaluated as part of the 1998 Annual Inspection.

1.3 SCOPE OF REPORT

This report presents the following information:

- The scope of the work encompassing 1998 (Stage 2A/2B) construction. This includes a discussion of the construction methods used to complete the work, the results of quality assurance tests carried out during construction and a review of new instrumentation and monitoring results from the construction program.

- Results of the 1998 Annual Inspection, including an evaluation of all pertinent operating data and instrumentation and monitoring results collected over the past year and from start-up to date.

- Summaries and recommendations for all of the above.

Knight Piésold Ltd. issued the "1998 Annual Inspection Report, Ref. No. 10162/9-5" on June 26, 1998. This report covered the mine operations for 1997. The 1998 Annual Inspection addressed in this report covers the 1998 operations. The naming convention for this report will be adopted for all future construction and annual inspection reports.

SECTION 2.0 - 1998 CONSTRUCTION

2.1 GENERAL

Construction in 1998 comprised the Stage 2A and 2B raises of the Mount Polley Mine Tailings Storage Facility embankments. Stage 2A included raising the Main and Perimeter Embankments from El. 934 to El. 936 m. The Stage 2A Main Embankment Plan is Shown on Drawing 10162-9-110 with the corresponding sections shown on Drawing 10162-9-111. The Stage 2A Perimeter Embankment Plan is Shown on Drawing 10162-9-120 with the corresponding sections shown on Drawing 10162-9-121.

Stage 2B construction included raising the Main and Perimeter Embankments from El. 936 to El. 937 m. The Stage 2B Main Embankment Plan is Shown on Drawing 10162-9-130 with the Stage 2B Perimeter Embankment Plan Shown on Drawing 10162-9-131. Main Embankment sections are shown on Drawing 10162-9-132 with Perimeter Embankment sections shown on Drawing 10162-9-133. Stage 2A/2B provides storage capacity for approximately one year of operations, including impounding additional site runoff and make-up water from Polley Lake.

The original design of Stage 2B included a raise to El. 938 m, as detailed in the Knight Piésold Ltd. document "Tailings Storage Facility, Report on On-going Construction Requirements" (Ref. No. 10162/9-3), December 2, 1997. However, operational records indicated that El. 938 m was not required in 1998. Mount Polley Mining Corporation (MPMC) plans to raise the embankments to El. 940 m during Stage 2C construction in 1999 and 2000. The freeboard and wave run-up requirements will be maintained at all times.

Knight Piésold Ltd. designed the Tailings Storage Facility and developed the Technical Specifications for the work. Knight Piésold Ltd. also provided supervision and technical assistance during the construction program and reviewed all laboratory quality assurance testwork. Knight Piésold Ltd. worked under the overall management and administration of Mount Polley Mining Corporation. The earthworks were completed by Peterson Contracting Ltd (PCL), of Williams Lake.

2.2 SCOPE OF WORK

2.2.1 General

The 1998 (Stage 2A/2B) construction program comprised work on the following main areas:

- Access roads.
- Tailings Embankments.
- Tailings Discharge System.
- Investigations of Borrow Area and Basin Liner.

A description of each of the main components of the 1998 (Stage 2A/2B) construction program is presented in the following sub-sections.

2.2.2 Roads

The Zone T Haul Road was constructed at the downstream toe of the Stage 1B embankment during Stage 2A. It extends from the north-west corner of the Perimeter Embankment to the south-west corner of the Main Embankment. The road is underlain by geotextile filter fabric in the topographic lows at the Main and Perimeter Embankments. The Zone T fill material was drilled, blasted and hauled from the Rock Quarry located north-west of the Tailings Storage Facility.

The scope of work for construction of the Zone T Haul Road included the following:

- Location of road alignment and setting out.
- Excavation of organics, topsoil and loose or wet foundation materials.
- Installation of geotextile filter fabric, where required.
- Placement, compaction and grading of Zone T Rockfill.

In addition to the Zone T Haul Road, other temporary haul roads were constructed as required. Details of the Zone T Haul Road are shown in plan on Drawing Nos. 10162-9-110 and 120 and in section on Drawing Nos. 10162-9-111 and 121.

2.2.3 Tailings Embankments

The 1998 (Stage 2A/2B) construction program included raising the Main and Perimeter Embankments to El. 937 m. The Stage 2B Main and Perimeter Embankments are approximately 1,150 and 1,350 metres long, with maximum heights of about 25 and 8 metres, respectively. A low area (approx. El. 936.7 m) is present at the Perimeter Embankment between approximate Ch. 36+00 and 44+00. This low area brings the effective height of the Tailings Storage Facility to El. 936.7 m.

The scope of work for construction of the embankments included the following:

- Survey control of embankment construction.
- Foundation preparation to ensure a tie-in with dense natural ground.
- Placement and compaction of the fill materials in their respective zones in accordance with the Technical Specifications.
- Installation and extension of the embankment drain systems, including the Foundation and Outlet Drains.
- Installation and monitoring of vibrating wire piezometers.
- Evaluation of embankment materials through detailed lab testing. The material testing was completed in the site soils laboratory and at an independent laboratory.

As-built construction details for the embankments are shown on the drawings included with this report.

2.2.4 Tailings Discharge System

The scope of work for the tailings discharge system during 1998 (Stage 2A/2B) construction included relocating the pipeline and discharge locations in order to minimise interference with embankment construction while maintaining controlled tailings deposition in the Tailings Storage Facility.

2.2.5 Investigations

Investigations were completed in 1998 to support construction and design of the Tailings Storage Facility. Two borrow areas were investigated to determine the availability and suitability of core zone material. Borrow Area 2 is located downstream of the Main Embankment left abutment. Borrow Area 4 is located within the tailings basin, near the west abutment of the Perimeter Embankment. The tailings basin was also investigated to evaluate the requirements for basin liner. The basin liner investigation involved the drilling of 19 drillholes (DH98-BL-1 to 19) in February 1998, and 44 drillholes (BH99-1 to 44) in 1999 to investigate the thickness of the surficial glacial till layer near the upstream side of the future South Embankment location. The results of the borrow area and basin liner investigations are presented in Appendix A. The locations of the investigations are presented in Drawing 10162-9-001.

2.3 CONSTRUCTION SCHEDULE

Construction of the 1998 (Stage 2A/2B) embankment raises commenced in January, 1998. Peterson Contracting Ltd. (PCL), of Williams Lake, British Columbia, carried out the earthworks construction. Paramount Drilling Ltd. (PDL), of Calgary Alberta, was subcontracted by PCL to produce Zone T and CBL material by drilling and blasting in the Rock Quarry.

The work began with the mobilisation of equipment, followed by the clearing and stripping of potential borrow areas and the Zone T Haul Road. Fill placement for the road commenced in late January. In early February, Foundation Drain construction was started under the footprint of the Zone T Haul Road at the Main Embankment and stripping of the embankment footprint extensions was initiated. Zone B placement commenced on February 26 at the Perimeter Embankment.

The tailings line was removed from the Stage 1B embankment crest on March 1. Foundation preparation was carried out at the Main Embankment in mid-March and fill placement commenced on April 16. The Zone T Haul Road construction was finished in early April and the entire Stage 2A contract was completed on May 15.

During June, seven (7) pressure relief wells were drilled downstream of the Stage 1B Main Embankment. The Pressure Relief Wells convey water from the foundation soils to the Foundation Drains, which report to the Seepage Collection Pond. The Pressure Relief Wells were installed by Aqua Installation Ltd., of Williams Lake British Columbia.

Stage 2B construction began on September 23 and was halted on October 6 due to rainy conditions. Construction recommenced December 1, when colder and drier conditions prevailed. The Stage 2B contract was essentially completed on December 22.

2.4 CONSTRUCTION SUPERVISION AND QUALITY ASSURANCE

Knight Piésold Ltd. provided day time supervision and quality assurance (QA) services for Stage 2A/2B construction of the Tailings Storage Facility. Mount Polley Mining Corporation (MPMC) provided technicians for night shift supervision and QA services. MTS Testing Services Ltd., of Prince George, British Columbia conducted most of the QA testing. Key QA items addressed by Knight Piésold Ltd. included:

- Foundation inspection and approval prior to fill placement.
- Assessment of borrow material suitability.
- Inspection of fill placement procedures.
- In-situ testing of the placed fill for moisture content and density.
- Collection of control and record samples at the required frequencies.

- Installation and monitoring of instrumentation. Monitoring was conducted by MPMC staff.

Construction Quality Assurance (CQA) procedures were similar to previous construction programs. Technical Specifications were developed for the Work and are included in the "Contract Documents for Stage 2A Tailings Facility Construction, Ref. No. 10162/9-4", January 29, 1998. The Technical Specifications developed for Stage 2A were also used for Stage 2B.

Laboratory testing required for the CQA program included the following:

- Moisture Content (ASTM D2216)
- Particle Size Distribution, including hydrometer (ASTM D422)
- Laboratory Compaction (ASTM D698)
- Specific Gravity (ASTM D854)
- Atterberg Limits (ASTM D4318)
- Field Density (ASTM D2167)
- Field Density by Nuclear Methods (ASTM D2922)
- Moisture Content by Nuclear Methods (ASTM D3017)

The required testing frequencies and schedules are summarised on Table 2.1.

The CQA program confirmed that construction was completed in accordance with the Technical Specifications. In addition, the field and laboratory test results indicate that the design objectives were achieved, as discussed in Section 2.5.

2.5 EARTHWORKS

2.5.1 General

Earthworks for the 1998 (Stage 2A/2B) Tailings Storage Facility construction comprised the following zones and materials:

- Zone S - The core zone of the Main and Perimeter Embankments was constructed using locally borrowed fine grained glacial till. Borrow Areas 2 and 4 were utilised for the construction of the core zone.

- Zone B - The upstream and downstream zones of the Main and Perimeter Embankments were also constructed using locally borrowed glacial till. Borrow Areas 2 and 4 were utilised for the construction of the upstream and downstream zones.

- Zone CBL - Zone CBL (Coarse Bearing Layer) was placed as the first lift of the upstream zone at the Main Embankment and portions of the Perimeter Embankment. It was placed directly on spigotted tailings or natural ground to provide a firm bearing layer for fill placement. This material was drilled, blasted and hauled from the Rock Quarry, located north-west of the Tailings Storage Facility.

- Zone T - The Zone T Haul Road around the perimeter of the Tailings Storage Facility was constructed using rockfill that was drilled, blasted and hauled from the Rock Quarry, located north-west of the Tailings Storage Facility.

- Embankment Drain System – One new Foundation Drain was constructed under the Zone T Haul Road at the Main Embankment. Three Outlet Drains were extended up the face of the Perimeter Embankment and under the Zone T Haul Road at the Perimeter Embankment. The drains were constructed using Drain Gravel (Zone G) and Filter Sand (Zone F) that was previously drilled, blasted, crushed and screened at the Rock Quarry, located north-west of the Tailings Storage Facility.

The gradation requirements for the above materials are shown on Drawing 10162-9-104.

The requirements of the Construction Quality Assurance (CQA) program and the Technical Specifications were that each material type be subjected to detailed field and laboratory testing to verify that the design objectives were met. Both Control and Record tests were conducted for the CQA program. Control tests were typically carried out on materials in borrow pits or from source locations to determine their suitability for use in the work. Record tests were typically carried out on materials after placement and compaction to document the level of workmanship achieved and to ensure that the design objectives were met. Both Control and Record tests were used as a basis for modifying the construction procedures as and when necessary. Estimated quantities are also summarised on Table 2.1 with the Control and Record testing requirements and frequencies.

Stripping and preparatory work was completed on all foundations and abutments to ensure a good tie-in with dense, natural ground and with the Stage 1B embankment. Foundation approval by the Engineer was required prior to the placement of any fill material. Organic debris and topsoil were removed and stockpiled according to the Technical Specifications.

All fill materials were hauled to the embankment and placed according to the material and lift thickness specifications for each zone. Compaction was achieved from a 10 tonne smooth drum roller. Additional compaction was obtained by routing the CAT 631E scraper units and 30 tonne MOXY haul trucks along the fill surfaces in Zones S and B. The embankment slopes were dressed to final lines and grades using a combination of bulldozers, excavators and graders.

The moisture content and density of placed and compacted fill materials was continuously monitored using a nuclear densometer. The nuclear densometer provides instantaneous results and was used to evaluate the suitability of materials in the borrow areas before being hauled to the embankments and on the fill, as soon as they were placed in the respective zones. If the results indicated that the materials were likely too wet to enable the compaction objective to be achieved, the construction fleet was moved to a new location in the borrow areas, where drier material was available. If the results indicated that the moisture content of the fill materials was acceptable but that the density was too low, the Contractor was directed to apply additional compaction effort to the placed material. If the results indicated that the fill density and moisture content were acceptable, then the Contractor was given approval to place another lift on the embankment.

Nearly 1,700 density and moisture content results for Zones S and B were recorded using the nuclear densometer during the Stage 2A/2B construction program. Detailed results of the CQA testwork are presented on the Record and Control test summary sheets in Appendices B and C respectively. Details of the QA testwork for each material type are presented below.

2.5.2 Zone S

Zone S forms the low permeability core and abutment seal zones for the Main and Perimeter Embankments. The material used in Zone S was fine grained glacial till. Most of the Zone S material used at the Perimeter Embankment was obtained from Borrow Area 4, situated within the tailings impoundment. Borrow Area 2 was the source of Zone S material for the remainder of the Perimeter Embankment and the entire Main Embankment. Borrow Area 2 is located downstream of the left (East) abutment of the Main Embankment.

The Specifications for Zone S material required placement and compaction in maximum 300 mm thick lifts. During Stage 2A, the design compaction specification was modified from 98 percent of the Standard Proctor maximum dry density to 95 percent. This change was implemented to ensure that suitable embankment fill materials would be available from the local borrow areas. The reduction in the compaction specification will not affect the integrity of the embankment.

Oversize cobbles and boulders were segregated from the advancing fill and were subsequently pushed into the Zone B fill (if acceptable) or to the face of the embankments.

Record tests on the compacted Zone S fill included the following:

- Moisture Content (ASTM D2216)

- Particle Size Distribution (ASTM D422)
- Laboratory Compaction (ASTM D698)
- Specific Gravity (ASTM D854)
- Atterberg Limits (ASTM D4318)
- Field Density by Nuclear Methods (ASTM D2922)
- Moisture Content by Nuclear Methods (ASTM D3017)
- Consolidated Undrained Triaxial Compression Test (ASTM D4767-88, Multi-Stage Test)

In addition to the above, field density and moisture content testing with the nuclear densometer was conducted on each lift of material.

A total of seventeen (17) samples were taken for record testing of Zone S material. Particle size analyses show that Zone S glacial till is a well-graded sandy silt with some clay and gravel. The gradation curves of the Zone S Record samples are shown on Figure 2.1.

The plastic limit of the samples ranged from 12.8 to 16.4 percent, with a median of 14.1 percent. The liquid limit ranged from 24.1 to 30.8 percent, with a median of 25.9 percent. The plasticity index ranged from 7.9 to 17.7 percent, with a median of 12.5 percent. Based on this, the material is classified as CL in the Unified Soil Classification System (inorganic clay of low to medium plasticity).

The median field moisture content, as measured with a nuclear densometer, was 10.1 percent, while the median optimum moisture content was 10.3 percent. The median deviation from the optimum moisture content was 0.2 percent dry of optimum. These moisture contents were achieved with minimal moisture conditioning and by halting construction on wet days. Material too wet for direct placement in the Zone S fill was either used in Zone B or was wasted.

The median field dry density, as measured with a nuclear densometer, was 2046 kg/m^3, while the median maximum dry density was 2069 kg/m^3. The median percent compaction was 98.9 percent, indicating that the compaction objective of 95 percent was achieved.

Histograms were generated to illustrate the results of the Field Density and Moisture Content testing. The field moisture content, Standard Proctor optimum moisture content and deviation from optimum for the Zone S Record samples are shown on Figure 2.2, while Figure 2.3 shows the measured field dry density, the Standard Proctor maximum dry density and the corresponding percent compaction. The compaction specification was revised from 98 to 95 percent of Standard Proctor maximum dry density during Stage 2A construction. Due to the small amount of tests that used the 98% compaction specification, these values are also included in Figure 2.3.

Specific gravity was determined for 4 samples. The results varied from 2.63 to 2.76 with a median value of 2.67.

Consolidated-Undrained (CU) multistage triaxial compression testing was carried out on one sample. The angle of friction for the sample was computed to be 31 degrees with no cohesion. The sample was remoulded prior to testing. Detailed test results are included in Appendix D.

2.5.3 Zone B

Zone B forms the upstream and downstream zones of the Main and Perimeter Embankments. The material used for Zone B was glacial till from Borrow Areas 2 and 4. The specification for Zone B allowed the use of glacial till which was slightly coarser and wetter than that required for Zone S.

The specification for Zone B material required placement and compaction in maximum 1000 mm thick lifts. However, as for Zone S, the material was typically placed and compacted in 300 mm lifts due to the narrow working surface. Field density and moisture content testing with the nuclear densometer was typically carried out following the placement of the full 1000 mm. During Stage 2A, the design compaction specification was revised from 95 percent of the Standard Proctor maximum dry density to 92 percent. This change was implemented to ensure that suitable embankment fill materials would be available from the local borrow areas. The reduction in the compaction specification will not affect the integrity of the embankment.

Oversize cobbles and boulders were segregated from the advancing fill and were pushed to the face of the embankment.

Record tests on the compacted Zone B fill included the following:

- Moisture Content (ASTM D2216)
- Particle Size Distribution (ASTM D422)
- Laboratory Compaction (ASTM D698)
- Atterberg Limits (ASTM D4318)
- Field Density by Nuclear Methods (ASTM D2922)
- Moisture Content by Nuclear Methods (ASTM D3017)

A total of six (6) samples were taken for record testing of Zone B material. Particle size analyses show that Zone B glacial till is a well-graded silt and sand with some gravel and some clay. The gradation envelope and the grain size curves for the Zone B Record samples are shown on Figure 2.4.

All 6 samples were plastic as determined by the Atterberg Limits tests. The plastic limit ranged from 12.5 to 14.6 percent, with a median of 13.5 percent. The liquid limit ranged from 18.6 to 26.8 percent, with a median of 22.8 percent. The plasticity index ranged from 4.0 to 13.1 percent, with a median of 10.0 percent. Based on this, the material is classified as CL in the Unified Soil Classification System (inorganic clay of low to medium plasticity).

The median field moisture content, as measured with a nuclear densometer, was 10.5 percent, while the median optimum moisture content was 9.2 percent. The median deviation from the optimum moisture content was 1.3 percent wet of optimum. As for Zone S, these moisture contents were achieved with minimal moisture conditioning and by halting construction on wet days. Material which was too wet for direct placement in the fill was wasted.

The median field dry density, as measured with a nuclear densometer, was 2055 kg/m^3 and the median maximum dry density was 2107 kg/m^3. The median percent compaction was 97.5 percent, indicating that the compaction objective of 92 percent was achieved.

Histograms for moisture content and density from the Nuclear Densometer were generated. The measured field moisture content, the Standard Proctor optimum moisture content and deviation from optimum for the Zone B Record samples are shown on Figure 2.5, while Figure 2.6 shows the measured field dry density, the Standard Proctor maximum dry density and the corresponding percent compaction.

2.5.4 Zone T

Zone T was placed at the downstream toe of the Stage 1B embankment. The material used for Zone T was rockfill that was drilled, blasted and hauled from the Rock Quarry to the north-west of the Tailings Storage Facility.

The specifications for Zone T material required placement and compaction in maximum 600 mm thick lifts, with a minimum of four (4) passes with a 10 tonne vibratory smooth drum roller. Oversize cobbles and boulders were segregated from the advancing fill by pushing them to the downstream edge of the road. They were then removed from the fill.

Record tests on the compacted Zone T fill consisted of Particle Size Distribution (ASTM D422) only.

A total of ten (10) samples were taken for record testing of Zone T material placed in the Zone T Haul Road. Particle size analyses show that Zone T rockfill is comprised of gravel with some sand and a trace of cobbles and silt. The Zone T material can be described as a poorly graded gravel and is classified as GP in the Unified Soil Classification System. The grain size curves for the Zone T Record samples are shown on Figure 2.7.

2.5.5 Zone CBL

Zone CBL (Coarse Bearing Layer) was placed directly on spigotted tailings and natural ground on the upstream side of the embankment to provide a firm bearing layer for fill placement. Zone CBL material assisted in the consolidation of the tailings mass and provided a working surface to place Zones S and B. The material used for Zone CBL was rockfill that was drilled, blasted and hauled from the Rock Quarry, located north-west of the Tailings Storage Facility.

The specification for Zone CBL material required end dumping and spreading with a bulldozer until the Zone CBL was approximately 1000 mm thick.

No record testing was carried out on Zone CBL material. Frequent on site inspections were carried out by QA personnel to ensure that no fine grained material was placed in this zone.

2.6 EMBANKMENT DRAIN SYSTEMS

A foundation drain and pressure relief system is located below the Main Embankment to prevent the build-up of pressure in foundation materials and to collect seepage and groundwater from the base of the Tailings Storage Facility. Three Pressure Relief Trenches (PRT98-1 to 3) and seven Pressure Relief Wells (PRW98-1 to 7) were installed at the main embankment and tied into Foundation Drain (FD-5) which was installed under the Main Embankment during Stage 2A construction. The locations of the Pressure Relief Trenches and Wells are shown on Drawing 10162-9-155.

The foundation drain consists of a 4 inch (100 mm) perforated CPT pipe which is surrounded by Zone G Drain Gravel that is surrounded by geotextile filter fabric. Each drain is connected to the Drain Monitoring Sump by individual 6 inch (150 mm) solid HDPE pipes that enable the monitoring of flows and clarity and the collection of samples for water quality testing. Details of the Foundation Drain Systems are shown on Drawing 10162-9-105.

Three Outlet Drains (OD-4, 5 and 6) were installed under the Zone T Haul Road and up the face of the Perimeter Embankment during Stage 2A construction. The Outlet Drains are a component of the Chimney Drain System, which has not yet been installed at the Perimeter Embankment. The Outlet Drains consist of 6 inch (150 mm) perforated CPT pipe surrounded by Zone G Drain Gravel surrounded by geotextile filter fabric and Zone F Filter Sand. They were installed and connected to the Drain Monitoring Sump so that there would be no additional foundation disturbance in future embankment expansions.

The drains were constructed using processed rock that was previously crushed and screened at the Rock Quarry. There were no compaction specifications for the drain materials and the only record testing that was required was the determination of the Particle Size Distribution (ASTM D422).

A total of six (6) samples were taken for record testing of Zone G drain gravel. Zone G consisted of approximately 58 percent coarse gravel, 38 percent fine gravel and 4 percent sand, which was within the specified envelope. The Drain Gravel can be described as poorly graded gravel and is classified as GP in the Unified Soil Classification System. The grain size curves for the Zone G Record samples are shown on Figure 2.8.

Zone F Filter Sand was placed in the Outlet Drains as backfill for the Pressure Relief Wells. There was no compaction specification and the only record test required was the determination of the Particle Size Distribution (ASTM D422).

A total of five (5) samples were taken for record testing of the Filter Sand. Zone F consisted of approximately 48 percent fine gravel, 45 percent sand and 7 percent fines (passing the No. 200 sieve), which was within the specified envelope. The Filter Sand can be described as well-graded sand and is classified as SW in the Unified Soil Classification System. The grain size curves for the Zone F Record samples are shown on Figure 2.9.

2.7 PIPEWORKS

2.7.1 General

The tailings and reclaim pipelines are the main components of the pipeworks for the Tailings Storage Facility. The tailings pipeline system conveys the tailings slurry via gravity from the Millsite to the Tailings Storage Facility. The reclaim pipeline system pumps process water from the Tailings Storage Facility to the mill for re-use in processing the ore.

2.7.2 Tailings Pipeline System

The tailings pipeline system includes a single HDPE pipeline approximately 7,000 metres in length. The pipeline runs from the Millsite to the west end of the Perimeter Embankment, along the inside crest of the Perimeter Embankment to the Main Embankment where it ends at the right (west) abutment. It was constructed with a concrete tailings dropbox (T2) that controls the maximum line pressure and allows additional surface runoff and overflow from the reclaim booster pump station to be added to the tailings pipeline. Tailings are discharged by end spilling or through a movable discharge section that includes twelve lengths of pipe (199.2 m) with 150 mm offtakes near the end of every second pipe (6 offtakes total). The tailings discharge pipe has several flanged connections where the movable discharge section can be located in order to distribute the total flow along the embankment crest.

Construction activities for the tailings pipeline system included the following:

- Dismantling of the pipeline downstream of the M1A dump valve in order to minimise obstructions during Stage 2A construction. Tailings were discharged primarily from the Mark 1A (M1A) dump valve during and following Stage 2A construction. Water was present against some portions of the Main Embankment at the beginning of Stage 2A construction. However, MPMC accelerated tailings deposition in this area and a continuous tailings beach was re-established for placement of the coarse bearing layer (CBL).

- Re-connection of the pipeline following the completion of Stage 2A construction. For Stage 2B construction, the pipeline was left in place along a small bench on the Stage 2A embankment crest. Following Stage 2B construction, tailings were discharged from the M1A and M1B dump valves, by end spilling at flanged connections and from the movable discharge section.

2.7.3 Reclaim Pipeline System

The reclaim pipeline system is comprised of a single 5,400 m long HDPE pipe that extends from the Reclaim Pump Barge to the Millsite. Nominal 24 inch (610 mm) HDPE pipe with varying pressure ratings was installed to provide the required water transfer capacity. A section of steel pipe originally located between the HDPE pipe and the barge was removed during barge moves. Only one length of steel pipe is now used.

No construction activities were required for the reclaim pipeline system as part of Stage 2A/2B construction. The reclaim barge is moved by MPMC staff on an as-needed basis. MPMC have indicated that the barge will be moved to a new location in the next year of operations. Details of the move will be provided in future reports.

2.8 INSTRUMENTATION AND MONITORING

2.8.1 General

Additions to the instrumentation and monitoring systems that were provided during 1998 (Stage 2A/2B) construction included the following:

- Vibrating wire piezometers.
- Survey monuments.
- Foundation Drains.

Details of these items are presented in the following sub-sections.

2.8.2 Vibrating Wire Piezometers

A total of twenty one (21) vibrating wire piezometers were installed during the 1998 (Stage 2A/2B) construction program, as summarised below and on Table 2.2.

- Ten piezometers were installed in boreholes (three in Plane A, one in plane B, three in Plane C, one in Plane D and two in Plane E) to monitor pore pressures in the foundation soils at the Main Embankment.

- Four piezometers were installed in the Zone T Haul Road (one each at Planes A, B, C and D) to monitor the performance of the Zone T transition zone material.

- Six piezometers were installed in tailings below Zone CBL (two each at Planes A, B and C), upstream of the Main Embankment to monitor pore pressures during and after placement of the Zone CBL material.

- One piezometer was installed in outlet drain OD-4 (Plane D) at the Perimeter Embankment.

No unexpected or anomalous pore pressures were observed while monitoring the vibrating wire piezometers during construction. The pore pressures in the tailings increased by about 1.0 to 1.5 m during the placement of the CBL material. These pressures dissipated within 8 hours and did not result in any delays in construction. Some of the previously installed piezometers in the glacial till fill responded to the increased load from the additional material placed on the embankments. The increases were approximately 2.0 m and did not result in any delays in construction. To date a total of 45 vibrating wire piezometers have been installed at the Tailings Storage Facility. Of these, 31 remain in operation. The results of all piezometer monitoring are discussed in Section 3.4.1. Details of the as-built piezometer locations are shown on Drawing Nos. 10162-9-150 to 153 with instrumentation details shown on Drawing 10162-9-154.

2.8.3 Survey Monuments

Eight (8) survey monuments were installed on the crest of the Main Embankment following Stage 2A construction. Five (5) survey monuments were installed along the upstream edge of the Main Embankment Coarse Bearing Layer (CBL) to monitor settlement in the tailings during Stage 2A fill placement on the tailings beach. The survey points were monitored at various times during 1998. No unexpected movements occurred and the recorded measurements were within the accuracy of the survey. The results of all survey monument monitoring are discussed in Section 3.4.3. Details of the as-built survey monument locations are shown on Drawing Nos. 10162-9-150 to 153.

2.8.4 Foundation Drains

One new Foundation Drain (FD-5) was installed under the Main Embankment and was connected to the Seepage Collection Pond during Stage 2A construction (April 1998), as discussed in Section 2.6. FD-5 was regularly monitored along with the other Foundation Drains. Flows from FD-5 are similar to FD-4, the other drain that extends up the west abutment of the Main Embankment. The results are discussed in Section 3.4.2.

Selected photographs from the 1998 (Stage 2A/2B) construction program are included in Appendix E.

SECTION 3.0 – 1998 ANNUAL INSPECTION

3.1 GENERAL

An annual inspection of the Tailings Storage Facility and Ancillary Works was conducted to meet the guidelines of the Ministry of Energy and Mines. The inspection was conducted by Mr. Ken Embree, P. Eng., from April 26 to 28, 1999. Comments on each component that was inspected are included in the following sub-sections. Selected photographs from the 1998 Annual Inspection are included in Appendix F.

A report titled "1998 Annual Inspection Report, Ref. No. 10162/9-5" was issued on June 26, 1998. This report covered the mine operations for 1997. The 1998 Annual Inspection addressed in this report covers the 1998 operations. The naming convention for this report will be adopted for all future construction and annual inspection reports.

3.2 EMBANKMENT CONSTRUCTION

Stage 2B construction was complete at the time of the inspection. The design crest was El. 937m. However, a low area at the Perimeter Embankment brings the effective embankment crest to El. 936.7m, as previously discussed. The details of the 1998 (Stage 2A/2B) construction program are included in Section 2 of this report.

3.3 INSPECTION OF FACILITY

The tailings pond was at El. 934.0 m at the time of inspection. The tailings pipeline had been disconnected in various locations and tailings were being discharged by end spilling at Ch. 37+00 at the Perimeter Embankment. Cyclones were being assembled to facilitate cycloning of tailings on the inside of the impoundment.

Tailings beaches were exposed at the west abutment of the Perimeter Embankment (Ch. 42+00 to 43+75), at the centre of the Perimeter Embankment where end spilling was occurring (Ch. 33+50 to 39+00), and near the centre of the Main Embankment (Ch. 22+00 to 25+00). MPMC reported that tailings beaches were established over the full length of the Main Embankment and much of the Perimeter Embankment, but that the beaches were recently inundated.

Other observations made at the Tailings Storage Facility:

- The fill slopes for the Main and Perimeter Embankments look very good and do not exhibit any signs of instability. No cracks were observed on the crest at the time of inspection. x Note June/ crest cracking upstream

- Some erosion of the embankment occurred at Ch. 38+75 on the Perimeter Embankment. The erosion was caused when the recycle pipeline from the Seepage Collection Pond moved and temporarily discharged on the embankment. There is also minor erosion on the upstream embankment crest due to tailings deposition. The erosion is minor and can be repaired during the next phase of construction.

- Localised areas at the west abutment of the Perimeter Embankment and the east abutment of the Main Embankment were covered with Zone T material for access while setting up the cyclones. This material will have to be removed during the next phase of construction.

- Ruts along the embankment crests will have to be repaired during the next phase of construction.

- A minor amount of wood debris was accumulating along the face of the Main Embankment where the tailings pond is in contact with the embankment. This can be prevented by ensuring that tailings beaches are developed along the full length of the embankment. Cycloning of tailings is planned to start soon. This will keep the pond away from the embankments and will prevent the accumulation of wood debris.

- The downstream areas of the Main and Perimeter Embankments are unchanged since the last inspection. Topsoil and sub-excavated materials from the Stage 2A foundations at the Main Embankment have been pushed past the Stage 2A toe and must be removed before future downstream embankment expansions.

- No unexpected or uncontrolled seepage was on the downstream areas of the embankments, including the fill slopes and foundations.

- The Seepage Collection Ponds for the Main and Perimeter Embankments are in good condition. No significant erosion or other damage was observed. The ponds were at slightly high operating levels and MPMC has modified the pumpback systems by increasing the pumping capacity. The Seepage Recycle Pipelines were in place and water was being discharged into the facility from the Main Embankment at the time of the inspection. A ditch that drains the downstream area on the west abutment of the Perimeter Embankment was added by MPMC. It was reported that the maximum pond levels did not encroach on the overflow culverts and there were no uncontrolled discharges from the Seepage Collection Ponds.

- The outlets for the Main Embankment Foundation Drains (FD-1 to FD-5) were submerged at the time of inspection because of the higher water levels in the Seepage Collection Pond. As a result, the drain flows could not be measured. The pond should be lowered and flow monitoring must be resumed.

- The Main Embankment Outlet Drains continue to seep. Flows were measured during the inspection and were about 1 litre/min in OD-1 (the most westerly outlet drain) and about 0.5 litre/min in OD-2 and OD-3. The flows must be regularly measured by MPMC. The Perimeter Embankment Outlet Drains have been installed but do not yet require monitoring.

- The Zone T Haul Road was in very good condition. The surface has been coated with some fines and will have to be scarified before it is covered by other materials in future construction programs.

- The exposed basin liner was inspected and was found to be in good condition, with no significant damage from erosion observed. Two springs were identified, approximately 50 metres inside of the Main Embankment.

These areas will be inspected and appropriate repairs will be conducted during 1999 prior to inundation with tailings. The basin liner will be expanded in 1999. The areas that require basin liner are currently being evaluated.

- All ditches were unobstructed and were flowing with clear runoff.

All 1998 (Stage 2A/2B) work items for the Tailings Storage Facility were complete and the Tailings Storage Facility is in good condition. Selected photos of the Tailings Storage Facility are included in Appendix F.

3.4 EMBANKMENT PERFORMANCE

3.4.1 Piezometer Data

To date a total of 45 vibrating wire piezometers have been installed at the Tailings Storage Facility, including replacement piezometers. There were 31 piezometers functioning at the time of the inspection have provided sufficient information for assessing the performance of the Tailings Storage Facility. The piezometers are grouped into tailings piezometers, embankment foundation piezometers, embankment fill piezometers and drain piezometers for monitoring the embankment performance. Results are discussed below.

Tailings Piezometers:

A total of 6 piezometers have been installed in the tailings to date. Of this, only 2 remain in operation (both at Plane B). The pore pressures in the tailings adjacent to the Main Embankment increased 1.0 to 1.5m during the placement of the Coarse Bearing Layer in Stage 2A construction. The pressures dissipated within 8 hours, as expected. The current pressures reflect the level of the water in the impoundment. A summary of the tailings piezometer monitoring data is presented on Table 3.1. Individual plots of the tailings piezometers are included in Appendix G1.

Embankment Foundation Piezometers:

A total of 16 piezometers have been installed in the embankment foundations to date. Of this, 11 remain in operation. No unexpected high pore pressure increases have been observed for this monitoring period. The highest water level indicated to date by the foundation piezometers was recorded in C2-PE2-01, at an artesian level of 4.6m, when it stopped functioning. Other water levels of note include 3.6m in A2-PE2-01, 2.7m in B2-PE2-02 and 1.2m in C2-PE2-02. Although these levels are high, none have reached the foundation piezometer trigger levels of 6.0m artesian pressure (relative to original ground). The trigger levels are based on embankment stability analyses. These values, if exceeded, will require investigations and contingency or remedial actions to be taken.

It has been noted that artesian pressures have typically developed in the deeper piezometers, at elevations below El. 910m. This corresponds roughly to the top of the glaciolacustrine/glaciofluvial material and these artesian pressures are therefore not unexpected (Planes A, B and C). It should also be noted that no artesian conditions have been encountered at Plane E, where coarser glaciofluvial material is present.

A summary of the embankment foundation piezometer monitoring data is presented on Table 3.2. Individual plots of the embankment foundation piezometers are included in Appendix G2.

Embankment Fill Piezometers:

A total of 13 piezometers have been installed in the embankment fill materials to date. This includes 9 in Zone S or B glacial till and 4 in Zone T. Of the 13 piezometers installed, 10 remain in operation (7 in Zone S or B and 3 in Zone T). No unexpected high pore pressure increases have been observed for this monitoring period. During Stage 2A/2B construction, the following embankment fill (Zone S or B) piezometers showed pore pressure increases of about 2.0m due to the placement of additional material on the crest and a subsequent increase in the load:

- A2-PE2-03 – The pore pressure has dissipated to pre-Stage 2A levels since construction was completed.

- B2-PE2-03 - The pore pressure has remained at the elevated level since construction was completed.

- B2-PE2-04 - The pore pressure dissipated to approximately 0.5 m above pre-Stage 2A level upon completion of the Stage 2A expansion. Since then, the pore pressure has steadily increased back to the level recorded during Stage 2A construction.

- C2-PE2-05 - The pore pressure has steadily increased an additional 1.5m since completion of Stage 2A.

All four piezometers are located upstream of the chimney drain. No pore pressure increases were observed in fill piezometers located downstream of the chimney drain. The Zone T embankment fill piezometers that are functioning are showing slightly negative pore pressures, indicating that the zone are not saturated.

A summary of the embankment fill piezometer monitoring data is presented on Table 3.3. Individual plots for the embankment fill piezometers are included in Appendix G3.

Drain Piezometers:

A total of 10 piezometers have been installed in components of the embankment drains to date including foundation drains, chimney drain and outlet drains. Of the 10 originally installed, 8 remain in operation. No unexpected pore pressure increases were observed for this monitoring period. All functioning drain piezometers are showing slightly negative pore pressures, indicating that the zones they in which they are installed are not saturated. A summary of the drain piezometer monitoring data is presented on Table 3.4. Individual plots for each drain piezometer are included in Appendix G4.

It should be noted that some of the piezometers that are not functioning might be recoverable. MPMC should check all leads for ruptures, disconnection from panel boxes, etc. Recommendations for replacements will be made after all non-functioning piezometers have been confirmed as non-recoverable.

3.4.2 Drain Flow Data

Flows from the 5 Foundation Drains at the Main Embankment are monitored on a weekly basis (as long as the Seepage Collection Pond is maintained at a level that is lower than the Foundation Drain outlet pipes in the Drain Monitoring Sump). The latest readings are from late December 1998. The Foundation Drain flows are tabulated on Table 3.5 and plotted on Figure 3.1. The results indicate that the flows have remained relatively constant since June 1997. The only exception is flows in the recently installed FD-5, which have fluctuated since it was installed. However, this can be attributed to the fact that FD-5 is covered by rockfill and is therefore affected by rainfall. Even with the rainfall that enters FD-5, the plot shows that the Foundation Drain flows have remained relatively low. The maximum total flow is less than 0.7 litres/second (42 litres/minute) even though the tailings pond level has risen to El. 934m. This indicates that the impounded water has not greatly influenced the underlying soils and that the glacial till liner (natural and constructed basin liner) is performing as intended. The Seepage Collection Pond must be lowered so that flow monitoring can be resumed.

Samples are collected from the Foundation Drains by MPMC for water quality testing. The results are available from MPMC.

Seepage flows from the three Outlet Drains for the Main Embankment Chimney Drain are exiting from the Stage 1B embankment. MPMC has sealed off the area below the drains and installed some plastic sheeting that enables the seepage flows to be monitored. Flows were measured during the inspection and were about l litre/min in OD-1 and about 0.5 litre/min in OD-2 and OD-3. The flows must be regularly measured by MPMC. The Perimeter Embankment Outlet Drains have been installed but do not yet require monitoring because the Chimney Drain has not been installed

3.4.3 Survey Monument Data

Eight (8) survey monuments were installed on the Stage 2A embankment crest on June 11, 1998. The monuments were re-surveyed June 25 and September 17, 1998. The results are presented in Table 3.6. In summary, total movements ranged from 5 to 25 mm. Settlements typically ranged from 0 to 5 mm. One larger settlement value of 25 mm was recorded at Plane A. These settlement values are significantly lower than the predicted maximum settlements of 200 to 400 mm, even after an allowance is made for 75 to 141 mm of predicted consolidation settlement in the Stage 1A/1B embankment fill. Survey monuments have not been installed since the completion of Stage 2B construction. A discussion of the survey results from Stage 2A is presented below.

Initial Survey (June 11, 1998) - Intermediate Survey (June 25, 1998)

Horizontal movements from June 11 to June 25, 1998 range from 0.024 m (B2-SM-03) to 0.046 m (C2-SM-02). Survey monument C2-SM-01 was bumped while re-installing the tailings line between June 11 and June 25, 1998, and the resulting movement of 0.400 m during this period does not reflect actual movement of the embankment. The movements were typically to the south and west (except C2-SM-02), parallel to the embankment axis. This confirms that no unexpected movements occurred and the recorded measurements were within the accuracy of the survey. The vertical movements range from -0.010 m (C2-SM-02) to 0.013 m (A2-SM-01). A negative reading indicates settlement. Survey monument C2-SM-01 experienced a vertical movement of -0.150 m during this time period as a result of being bumped while re-installing the tailings line.

Intermediate Survey (June 25, 1998) - Final Survey (September 17, 1998)

Horizontal movements from June 25 to September 17, 1998, range from 0.026 m (B2-SM-03) to 0.051 m (A2-SM-01). The movements were typically to the north and east, again parallel to the embankment axis but in the opposite direction from the first set of results. This data further confirms that no unexpected movements occurred and the recorded measurements were within the accuracy of the survey. The movement in the vertical direction ranges from -0.029 m (A2-SM-02) to 0.011 m (C2-SM-02). A negative reading indicates settlement.

Initial Survey (June 11, 1998) - Final Survey (September 17, 1998)

Horizontal movements from June 11 to September 17, 1998 range from 0.003 m (C2-SM-02) to 0.033 m (B2-SM-04). Survey monument C2-SM-01 was bumped while re-installing the tailings line between June 11 and June 25, 1998, and the resulting movement of 0.400 m during this period does not reflect actual movement of the embankment. The final survey of this monument indicates that its movement is consistent with the remaining 7 survey monuments. As above, movements were initially to the south and west and then to the north and east, parallel to the embankment axis both times. This confirms that no unexpected movements occurred and the recorded measurements were within the accuracy of the survey. Movements in the vertical direction (settlement) are from -0.025 m (A2-SM-02) to 0.003 m (B2-SM-03 and B2-SM-04). A negative reading indicates settlement. Survey monument C2-SM-01 experienced a vertical movement of -0.144 m during this time period as a result of being bumped while re-installing the tailings line, as mentioned above. As described above, these settlement values are significantly lower than the predicted maximum settlements of 200 to 400 mm, even after an allowance is made for 75 to 141 mm of predicted consolidation settlement in the Stage 1A and 1B embankment fill.

Stage 2A Coarse Bearing Layer Survey Monuments

Results of the 5 survey monuments installed along the upstream edge of the Main Embankment Coarse Bearing Layer (CBL) were presented in the previous Annual Inspection Report (Ref. No. 10162/9-5). These monuments were installed to monitor tailings settlement during Stage 2A. The 5 survey points were installed on April 29, 1998, and were re-surveyed on June 5, 1998. The survey results are presented in Table 3.7. The movement in the horizontal plane from April 29 to June 5, 1998, ranges from 0.083 m (TH 52) to 0.189 m (TH 54). The horizontal movements of all five survey points were in the south and west directions, away from the embankment and perpendicular to the embankment axis. The settlement (movement in the vertical direction) ranges from 0 (TH 54) to -0.174 mm (TH 50).

3.4.4 Stability

The stability of the permitted Stage 2C (El. 940m) embankment was evaluated. All parameters used in the analyses were reviewed and updated incorporating additional information obtained during Stage 2A/2B construction (such as foundation soil strengths, amount of soft material sub-excavated, artesian pore pressures in foundation soils, revised embankment geometry, etc.). The stability analyses showed that the Factors of Safety for the short-term cases (during operations) were greater than the minimum requirement of 1.3.

3.4.5 Seepage

No unexpected seepage was observed during the inspection carried out April 26 to 28, 1999. The foundation drains collect foundation seepage and groundwater at the Main Embankment. The flow rates are discussed above.

No uncontrolled seepage through the embankments was observed. A trace amount of seepage (total estimated at less than 2 litre/min for three outlet drains) was observed from Main Embankment Outlet Drains. The Longitudinal Drain is set in foundation soils above El. 919 m along the left abutment and therefore acts as a foundation drain in this area. The flow rates from the Outlet Drains are expected to increase slightly as the water level rises and as the steady state phreatic surface develops in the embankment.

Initial seepage modelling conducted during design and permitting identified that up to 1.8 litres/second of seepage may escape from the tailings basin during operations. In order to check this, an evaluation of potential seepage from the tailings basin is being conducted by MPMC. Seepage from the tailings basin can also be checked by monitoring water quality from the groundwater wells and the foundation drains

3.5 MANAGEMENT OF FACILITY

3.5.1 Tailings Deposition

As described above, tailings have been discharged from the M1 dump valves, by end spilling at flanged connections and from the movable discharge section over the past year. Tailings now reach the Main and Perimeter Embankments and sequential rotation of tailings discharge is now required over the full length of both embankments. This will be accomplished by a combination of the discharge methods described above. Discharge from one area will allow inactive areas of the tailings beach to partially dry and consolidate.

3.5.2 Filling Schedule and Tailings Density

The updated filling schedule and staged construction sequence are shown on Figure 3.2. Mount Polley has reported that the average throughput has increased from 17,808 to 20,000 tonnes per day. This increase is included on Figure 3.2. Reclaim water volumes have also been updated, based on information provided by MPMC who continually track and update the project water balance, as described below.

The tailings surfaces (above and below the pond at El. 934.0 m) were surveyed by Mount Polley April 27 and 28, 1999. At the time of the survey, a total of 3, 736, 000 dry tonnes of tailings had been deposited into the facility.

The tailings volume was estimated to be 2, 529, 000 cubic metres, indicating that the in-situ tailings dry density was 1.48 tonnes/cubic metre. However, some of the looser tailings may not have been identified by the survey and a tailings dry density of 1.35 tonnes/cubic metre has therefore been used in the 1999 water balance. This value is higher than the conservative values used in the design of the facility (1.1 tonnes/cubic metre for Year 1 and 1.2 tonnes/cubic metre for year 2), indicating that the tailings are settling at a higher density than originally predicted. The amount of free water in the facility (above the tailings) was estimated to be 2,000,000 cubic metres at the time of inspection. The average throughput for 1998 is reported to be about 16,000 tonnes/day. The projected throughput for 1999 is estimated at 20,000 tonnes/day.

The updated filling schedule for the Tailings Storage Facility shows that the water level will be approximately El. 934.2 m on June 1, 1999. This level includes 2.2 million cubic metres of reclaim water from local runoff, flows from the Southeast Sediment Pond and pumping from Polley Lake during spring runoff. The effective elevation of the embankments is 936.7 m, as previously stated. Approximately 1.5 m is required to store the 24-hour Probable Maximum Precipitation event (679,000 cubic metres) and as freeboard for wave run-up. Therefore, the maximum level that the pond can reach before encroaching on the freeboard requirement is approximately 935.2 m. The embankments will have to be raised at this time.

3.5.3 Water Balance

The original water balance developed for the site has been modified by Mount Polley Mining Corporation to include additional site specific information. The water balance is continually updated with temperature, precipitation, evaporation, snowpack, ice cover and other relevant data, as it becomes available. MPMC conduct soundings of the tailings surface (above and below the supernatant pond) to confirm the tailings dry density. All of this information is used to predict the amount of water that will be available for recycle and the amount of water required from the Polley Lake Pumping System. Knight Piésold Ltd. provides input and review of the water balance on an annual basis, or as required by MPMC. A copy of the water balance is not included in this report. Details are presented in annual Water Management Plan reports submitted to the appropriate agencies (Ministry of Environment, Lands and Parks and Ministry of Energy and Mines).

The updated water balance is in close agreement with the original. The data has been incorporated in the revised the filling schedule and staged construction curve shown on Figures 3.2. In general, the Tailings Storage Facility has been operated in accordance with the objectives of the water balance to date. This includes providing approximately 2.1 million cubic metres of water in the impoundment prior to start-up and maintaining a maximum of 2 to 2.5 million cubic metres of water in the impoundment for reclaim, including any water from the Polley Lake Pumping System.

3.5.4 Freeboard

The design of the Tailings Storage Facility includes a provision for live storage of the 24-hour PMP (probable maximum precipitation) volume of 679,000 cubic metres. The 24-hour PMP freeboard allowance is in addition to regular inflows due to precipitation runoff, including the spring freshet. The Tailings Storage Facility design also incorporates an allowance of 1 m of freeboard as an extra contingency for wave run-up.

The Tailings Storage Facility has thus far been operated in accordance with the requirements for freeboard as described above. The projected tailings and supernatant pond levels shown on Figures 3.2 are based on the design throughput rate of 20,000 tonnes/day. The Tailings Storage Facility will be closely monitored and the next embankment raise will be scheduled so that adequate freeboard is always maintained. Adjustments to the embankment construction schedule will be made as required (if MPMC produces tailings at a rate which is significantly different than 20,000 tonnes/day or if the climatological data varies significantly from that used in the water balance).

3.5.5 Process Water Recovery and Quality

Process water is recovered from the tailings as the solids settle out and the supernatant pond is developed. Water is pumped back to the mill from the reclaim barge. Water recovery has been monitored by MPMC and the data is included in the project water management plans. To date, water recovery volumes have been able to meet the process demands. This has been accomplished by careful management of the water balance.

Reclaim water quality remains similar to what has previously been reported. The pH is slightly basic, in the range of 8.0 to 8.5. The water is turbid, with greater than 100 ppm total suspended solids (TSS). To date, process water quality has met the requirements of the milling operations.

3.5.6 Water Quality Monitoring

Water quality monitoring is regularly conducted by MPMC staff. Monitoring includes surface water quality from ditches, streams, creeks and lakes, as well as groundwater quality from monitoring wells. In addition, the water quality of the supernatant water in the Tailings Storage Facility is regularly checked. The results of the monitoring have been reported by Mount Polley in the report "1998 Annual Environmental Report, Effluent Permit 11678". This report has been submitted to the appropriate agencies (Ministry of Environment, Lands and Parks and Ministry of Energy and Mines). Conclusions from this report are summarised below.

Surface Water Quality (including tailings water)

Water quality monitoring has indicated that most surface water samples have levels of Total Aluminum, Total Copper and Total Iron that exceed the criteria set out by the B.C. 1995 Approval and Working Criteria for Water Quality (AWCWQ) and the 1995 Canadian Council of Ministers of the Environment (CCME).

Testing of the tailings water from the supernatant pond indicated that this water has Total Aluminium and Total Iron values which exceed the Provincial Discharge Objectives (PDO) criteria. These results do not affect current operations because there is no discharge of water from the Tailings Storage Facility.

Groundwater Quality

Water quality monitoring has indicated that most groundwater samples from the Tailings Storage Facility area have relatively high alkalinity. However, the alkalinity has not changed significantly from the levels recorded in the December, 1996 baseline samples. The slight increases seen in Total Copper concentration in some samples last year have decreased to baseline levels.

3.6 ANCILLARY WORKS

3.6.1 General

Other items which were inspected and are termed "Ancillary Works" include the tailings and reclaim pipeline systems, Southeast Sediment Pond, Polley Lake Pumping System, Millsite Sump and South Bootjack Dam. These items are discussed separately in the following sections.

3.6.2 Tailings and Reclaim Pipeline Systems

The tailings and reclaim pipelines are the main components of the Tailings Storage Facility pipeworks. The tailings pipeline system conveys tailings slurry via gravity from the Millsite to the Tailings Storage Facility. The reclaim pipeline system pumps water from the Tailings Storage Facility to the mill for re-use in processing the ore.

The tailings and reclaim pipelines are located in a pipe containment channel adjacent to the tailings access road. This channel provides extra spill containment by directing flows into the T2 Dropbox or into the Tailings Storage Facility.

The pipe containment channel is generally intact, without significant blockages, and seems to function well. The first pipeline crossing near the Millsite Sump is blocked and is ponding water. This area should be drained and runoff should be diverted into the channel downstream of the crossing.

The tailings and reclaim pipelines were previously moved into the runoff ditch from the Millsite to the sharp curve above the T2 Dropbox. The inlets for the cross drain culverts were plugged with -3/4 inch crushed rock and the ditch was bedded with filter sand to that all flows are directed down the ditch and not out the cross drain culverts. Because of these revisions, both runoff from the ditch and any potential tailings spill flows will enter the T2 Dropbox through the annulus between the pipe and the CSP culvert on the uphill side of the dropbox.

The channel section from the T2 Dropbox to the Tailings Storage Facility is in good condition. Groundwater flows are entering the channel along this section. The flows are conveyed to the Tailings Storage Facility.

The pipelines are sleeved in 900-mm corrugated steel pipe (CSP) culverts within the pipeline containment channel at the Bootjack Creek Crossing. The sleeves provide backup spill containment over this area. An inspection of the pipelines and sleeves at the Bootjack Creek Crossing indicated that tailings have previously reached the sleeves, as a small amount of tailings is present in the upstream side of the culverts. This was caused by tailings backing up at the T2 Dropbox, flowing into the T2 Overflow Pond and then travelling down the pipeline containment channel. No solids escaped from the pipe containment channel. As reported in the previous annual site inspection report, no backups have occurred since the modifications to the T2 Dropbox were made in October, 1997. In the event that tailings do reach the Bootjack Creek Crossing in the future, the CSP sleeves must be flushed to ensure that there is a clear pathway for tailings to get past the crossing, without spilling into Bootjack Creek.

As indicated in the previous annual site inspection report, it is recommended that glacial till berms be constructed on the edges of the road fill over Bootjack

Creek as an additional contingency measure to ensure that tailings from an overflow at the T2 Dropbox or from a pipeline rupture do not flow into Bootjack Creek. The berms will need to span a length greater than the CSP culverts. If tailings block off the CSP sleeves, the berms will direct tailings down the road to the Tailings Storage Facility and away from Bootjack Creek.

The fill slopes at the Bootjack Creek Crossing appear stable, with no signs of cracking or slumping. The water flowing in Bootjack Creek was clear at the time of viewing. The ditch on the north side of the road approaching Bootjack Creek was lined with rock to minimise erosion. A silt fence installed on the downstream side of the crossing during construction is still in place and may be removed. The pipe arch culvert appears to be in good condition, with no significant deflections observed on the upstream side. The downstream end of the culvert could not be inspected because of snow cover.

Selected photos of the pipeline containment channel at the Bootjack Creek Crossing are included in Appendix F.

Tailings Pipeline System

The tailings pipeline system is comprised of a single 7,000 m long HDPE pipe that extends from the Millsite to the Main Embankment. A concrete dropbox (T2) allows water from the Southeast Sediment Pond and overflow from the reclaim booster pump station to be added to the system.

In 1997, the T2 Dropbox was modified by MPMC to resolve problems with tailings backing up into the dropbox, as mentioned above. The tailings pipeline now bypasses the dropbox, but the dropbox provides pressure relief and surge protection for the pipeline through a bifurcation located further downslope. T2 still provides overflow control and inlets for surface runoff from the Southeast Sediment Pond. The vent on the tailings line was replaced by a larger pipe and was extended higher to minimise the potential for surging out of the vent.

At the time of inspection, the water level in the T2 Dropbox was low and tailings were not backing up in the pipeline. Water from the Southeast

Sediment Pond was splashing on the tailings pipeline in the dropbox and was causing some water to spill out the hole made for the pipeline modifications and into the pipe containment channel. There were no signs of recent tailings spillage around the T2 Dropbox.

All pipe connections around the T2 Dropbox appeared to be in good condition. The T2 Dropbox was designed so that if it fills up, tailings will flow to the T2 Overflow Pond. At the time of inspection, the pond was full of water and it was apparent that no tailings had entered the pond for a long time. The spillway was in good condition, but some rock piles at the base of the spillway (at the entrance to the pipeline containment channel) should be removed. The T2 Overflow Pond should be kept free of tailings at all times and must be cleaned out immediately after any tailings overflow events.

At the Tailings Storage Facility, tailings are discharged from the M1 dump valves, by end spilling at flanged connections, or from up to six valved offtakes, or spigots, on a movable discharge section. The movable discharge section was periodically relocated to establish the tailings beach over the length of the Main Embankment. Tailings now reach the Main and Perimeter Embankments and sequential rotation of tailings discharge is required over the full length of both embankments. This will be accomplished by a combination of the discharge methods described above. Discharge from one area will allow inactive areas of the tailings beach to partially dry and consolidate.

Mount Polley is planning to cyclone tailings on the inside of the impoundment, at the Main Embankment in 1999. At the time of the inspection, the cycloning system was being constructed and the tailings pipeline was disassembled in several locations to facilitate construction of the system. The tailings pipeline system will be reviewed after the cycloning system is operational.

Other comments on the tailings pipeline system are summarised below.

- MPMC staff conduct daily inspections of the tailings pipeline system. Observations are recorded on a daily inspection sheet.

- The partial sanding that was causing occasional difficulties with tailings discharge is no longer problematic. This can be attributed mostly to the modifications made at the T2 Dropbox. The tailings pipeline continues to sand up (50 to 125 mm thick observed at disconnected flanges), but tailings discharge has not been severely affected by this.

- There are no signs of wear on the pipe (no leaks). MPMC are planning to conduct an inspection of the tailings pipeline for wear. Results will determine whether any remedial work is required.

- Holes previously drilled in the tailings pipeline between the Main and Perimeter Embankments (to check for sanding and for pipeline cleaning) have been sealed by capping and banding. The seals should occasionally be inspected.

- Several modifications have and are being completed on the tailings pipeline and discharge system. Most modifications are part of the planned conversion to cyclone discharge on the inside of the impoundment. Some of the modifications include adding air actuators to the knife gate valves and adding a 10-inch bypass line with a rupture disk at the M1A dump valve. As above, the tailings pipeline system will be reviewed after the cycloning system is operational.

Selected photos of the tailings pipeline system are included in Appendix F.

Reclaim Pipeline System

The reclaim pipeline system is comprised of a single 5,400 m long HDPE pipe that extends from the Reclaim Pump Barge to the Millsite. The pipeline has two sections with varying pressure ratings. The first section extends from the Pump Barge to the Booster Pumpstation and included steel pipe connected to the barge. The remainder consists of HDPE pipe which decreases in thickness (pressure rating) as the Booster Pumpstation is approached. The second section extends from the Booster Pumpstation to the Millsite. It is similar to the first section, but does not have any steel pipe sections. Nominal 24 inch (610 mm) HDPE pipe with varying pressure ratings was installed to provide the required water transfer capacity.

MPMC staff conduct daily inspections of the reclaim pipeline system and observations are recorded on a daily inspection sheet. The reclaim pipeline system is working well and there have been no problems with the system to date. The overall configuration was modified in 1997 by MPMC and now includes a 35-degree bend at the barge. Only one length of steel pipe is used. The remainder has been removed as the barge is moved. Barge moves are completed by MPMC on an as-needed basis. MPMC have indicated that the barge will be moved to a new location in the next year of operations. Details of the move will be provided in future reports.

Other comments on the reclaim pipeline system are summarised below.

- Pipeline connections at the barge and the Reclaim Booster Pumpstation appeared to be in good condition.

- The reclaim barge access road was in good condition, with no signs of instability. Remedial work to stabilise the road crest was previously completed by Mount Polley.

Selected photos of the reclaim pipeline system are included in Appendix F.

3.6.3 Southeast Sediment Pond

The Southeast Sediment Pond collects runoff from Southeast Waste Dump. Runoff flows in a ditch along the base of the dump to the pond, where it is decanted through a manhole with five valved inlet pipes that are used to control the water level in the pond. The normal maximum operating level is El. 1054.5 m. The water level must be maintained below this so that storage capacity for the design storm event is available in the pond. A 10-inch (250-mm) DR21 HDPE discharge pipeline runs from the manhole to the Reclaim Booster Sump or into the T2 Dropbox.

At the time of inspection, the water was higher than the normal operating level (top of second highest pipe) because the spring melt was underway. Runoff was being directed to the T2 Dropbox. Maximum flows were reported to be about 7,000 gpm. Reports from MPMC indicate that the pond filled up during the height of the spring melt, but that the pond level did not reach the overflow culvert. Total flow directed through the Southeast Sediment Pond for spring 1999 is estimated to be approximately 335,500 cubic metres.

The seeps observed in 1997 at the north-west corner of the pond fill were again present. Additional seeps were observed further east and in an area where the waste material and topsoil pile has failed. All seepage was clear, indicating that no erosion of fill materials from above was occurring. The seeps are likely attributed to the water level in the pond rising above the partial till liner. In addition, seepage may be from the groundwater table, which is temporarily higher during the melt. It should be noted that the failure of the waste material and topsoil pile has not affected the embankment fill slopes.

Other observations made at the Southeast Sediment Pond and Southeast Waste Dump runoff ditch:

- Water flowing in the ditch is clear. The ditch is mostly unobstructed, except for some brush near the end of the clearing for the waste dump. This brush should be removed when equipment is in the area.

- The overflow culvert for the pond is clear of obstructions.

- Pipeline connections to the Reclaim Booster Sump and T2 Dropbox appeared to be in good condition.

- The embankment fill slopes (inside and outside) look very good, with no signs of instability. No cracks were observed on the crest. No seepage or slumping of the slopes was observed.

- Re-vegetated areas are growing well.

- The area beyond the toe of the embankment fill is unchanged since the last inspection. A section of the waste material and topsoil pile has failed, as described above.

- The patch of filter fabric placed at the north-west corner of the fill has not been removed. It should be removed so that vegetation can be re-established.

- MPMC staff conduct daily inspections of the Southeast Sediment Pond. Observations are recorded on a daily inspection sheet. The pond is inspected more frequently during the spring freshet or after heavy rainfall.

Selected photos of the Southeast Waste Dump Ditch and Southeast Sediment Pond are included in Appendix F.

3.6.4 Polley Lake Pumping System

The mine is permitted extract water from Polley Lake during high runoff periods (the spring freshet and in late fall) using the Polley Lake Pumping System. The system includes a submerged intake connected to an on-shore diesel pump. Water is pumped to the Tailings Storage Facility in an HDPE pipeline, which has varying pressure (DR) ratings. The maximum pumping capacity of the system is approximately 5,500 US gpm. The pipeline is laid on grade on the access road. Water exits the pipeline through an open-end discharge onto natural ground in the Tailings Storage Facility. A riprap lined outlet channel to reduce erosion has not been required.

At the time of inspection, the pumping system was not in operation. All pipe connections at the intake and pump area at the shoreline appeared to be in good condition, as there were no signs of leaks and subsequent erosion. No oil or fuel leaks were observed from the pump, fuel tanks or the lined oil/fuel containment area.

No signs of leakage were observed along the pipeline route. All culvert crossings were flowing with clear runoff, including the pipe arch culvert over Bootjack Creek. The pipe arch culvert appeared to be in good shape, with no significant deflections observed.

In 1998, a total of 344,000 cubic metres of water were pumped over a 2-week period in March and April. In November, an additional 375,000 cubic metres were pumped. Pumping requirements for 1999 are estimated to be 1,000,000 cubic metres. At the time of the inspection, approximately 400,000 cubic metres had been pumped in 1999. MPMC staff conduct daily inspections of the Polley Lake Pumping System while the system is operating. Observations are recorded on a daily inspection sheet

Selected photos of the Polley Lake Pumping System are included in Appendix F.

3.6.5 Millsite Sump

The Millsite area is graded so that all runoff is directed to the Millsite Sump. The normal maximum operating level of the Millsite Sump is the invert of the bottom inlet at the manhole, El. 1102.7 m. The pond is kept at this low level so that storage capacity for the design storm event is available in the sump. A manhole with a series of inlet pipes was installed to allow water to be conveyed to the tailings line by gravity in an 8 inch (200 mm) HDPE pipeline. This pipeline has not been installed and water is currently being pumped into the 30-inch tailings line adjacent to the Millsite Sump. MPMC may install the 8 inch (200 mm) HDPE pipeline in the future.

At the time of inspection, the water was at the normal operating level and no water was being pumped to the tailings pipeline. Total flow directed through the Millsite Sump for the spring 1998 runoff was estimated to be approximately 7,000 cubic metres.

Other observations made at the Millsite Sump are:

- A ditch and culvert were added at the south-west corner of the sump. Flows from the west side of the Millsite enter the sump through this area. The ditch is partially blocked and should be cleaned out. The fence has been damaged, but is still functional.

- No cracks were observed on the crest of the fills.

- No seepage or slumping of the embankment fill slopes was observed. The ground to the immediate south of the sump is damp from runoff, but there is no evidence of recharge (seepage) through the foundation.

- The overflow culvert for the pond is clear of obstructions. If power was lost, the Millsite Sump could fill up. The sump would first drain into the tailings pipeline by gravity through the high level HDPE pipe which conveys the pumped water. It would then drain through the overflow culvert.

- Re-vegetated areas appear to be growing well.

- Flows into the sump appear to be unobstructed (local runoff from a series of small pipes).

- Some of the downspouts (elbows) on the manhole inlet pipes are loose and should be reattached.

Selected photos of the Millsite Sump are included in Appendix F.

3.6.6 South Bootjack Dam

The South Bootjack Dam was constructed downstream of the original Bootjack Lake earthfill dam in late 1996. The South Bootjack Dam was in good condition at the time of inspection, although there was some snow cover. Water from local runoff was ponded between the new dam and the original dam and was flowing back into Bootjack Lake, through the notch in the original dam. A steady state level (Bootjack Lake level) will eventually be reached as the notch continues to slowly erode. A minor amount of water was ponding on the downstream side of the dam, This is also most likely from local runoff. Other observations made at the South Bootjack Dam are:

- The embankment fill slopes are partly covered by snow, but looked good, with no signs of instability.

- No cracks were observed on the dam crest and no seepage or slumping of the fill slopes was observed.

- The spillway appears unobstructed, but is covered by snow.

Selected photos of the South Bootjack Dam are included in Appendix F.

SECTION 4.0 - CONCLUSIONS AND RECOMMENDATIONS

4.1 1998 CONSTRUCTION

Stage 2A/2B of the Mount Polley Mine Tailings Storage Facility was constructed from January to December 1998. The construction program included the completion of the Main and Perimeter Embankments to El. 937m. This will enable the impoundment of runoff water, additional make-up water from Polley Lake and tailings from approximately one year of mining. The Stage 2A/2B Tailings Storage Facility was designed by Knight Piésold Ltd., who provided supervision and technical assistance during the construction program.

Data obtained during the Construction Quality Assurance (CQA) program, results from instrumentation and observations during Stage 2A/2B confirm that the embankments were completed in compliance with the design, Technical Specifications and construction drawings for the work. A low spot is present in the Perimeter Embankment, which reduces the effective elevation of the Tailings Storage Facility to approximately 936.7 metres.

Based on the results of the construction program and observations from impounding water and tailings at the Tailings Storage Facility, Knight Piésold Ltd. has the following recommendations:

1) Geotechnical instrumentation and other monitoring results have shown that the Tailings Storage Facility is operating within design tolerances. However, several piezometers have stopped functioning. Attempts to repair these piezometers should be made. Replacements will be required, where necessary.

2) MPMC has constructed small weirs at the Main Embankment Outlet Drains to monitor Chimney Drain flows. These flows should regularly be monitored for flow volume and water quality.

3) The pond level in the Tailings Storage Facility must be closely monitored to ensure that the water level does not encroach on the required freeboard. The next expansion must be designed and scheduled to meet these requirements.

4.2 1998 ANNUAL INSPECTION

4.2.1 General

The annual inspection was completed to meet the guidelines of the Ministry of Energy and Mines. Observations were made during a April 26 to 28, 1999, site visit by Mr. Ken Embree, P. Eng.

4.2.2 Tailings Storage Facility

Significant conclusions are summarised below:

- Construction of the Stage 2A and 2B tailings embankments was successfully completed in 1998. The embankments were raised from El. 934m to El. 937m. A low spot on the Perimeter Embankment reduces the effective crest height to El. 936.7m.

- The Tailings Storage Facility embankments were generally in good condition. No unexpected seepage or slumping was observed.

- The Seepage Collection Ponds are operating normally, but are slightly high. The Main Embankment Seepage Collection should be lowered so that Foundation Drain flow monitoring can be resumed. Last reports indicate that the Foundation Drain flows are clear. The Foundation Drain flows have remained relatively low, indicating that the impounded water has not greatly influenced the underlying soils and that the glacial till liner (natural and constructed basin liner) is performing as intended.

- The Main Embankment Outlet Drains continue to seep slightly. The flows should be regularly monitored.

- Piezometer data indicate that the embankments are performing as designed with the Foundation and Chimney Drains operating, resulting in a stable downstream zone (Zone B).

- Embankment settlements are within predicted design tolerances.

- The embankment stability has been confirmed using updated geometry and material parameters.

- The site water balance has been updated by MPMC and is capable of accurately predicting the tailings and reclaim water volumes using an in-situ tailings dry density of 1.35 tonnes/cubic metre.

- The facility is operating in accordance with the design requirements and the specified freeboard for the design storm and wave run-up has been maintained.

- Two springs were identified at the exposed basin liner, approximately 50 metres inside of the Main Embankment. These areas will be inspected and appropriate repairs will be conducted during 1999 prior to inundation with tailings.

Recommendations for on-going operations of the Tailings Storage Facility are summarised below:

- Continue to closely monitor the filling rate and water balance.

- Continue regular weekly monitoring of the vibrating wire piezometers and drain flows (Foundation Drains and Outlet Drains).

- Continue regular monitoring of water quality and levels for groundwater wells. Include water quality monitoring for the Foundation Drains.

- The springs identified at the existing basin liner will have to be sealed off or connected to the upstream toe drains planned for future construction programs.

The above recommendations are currently being implemented by MPMC staff.

4.2.3 Ancillary Works

Significant conclusions and recommendations for the Ancillary Works presented in this annual report are summarised below:

Pipe Containment Channel

- The pipe containment channel is in good condition and is clear of major obstructions.

- Tailings from the T2 Overflow Pond have previously reached the Bootjack Creek Crossing where they settled out in the culvert sleeves. The area of the Bootjack Creek Crossing must be closely monitored.

- Berms should be constructed along the edges of the road at the Bootjack Creek Crossing to direct flows past Bootjack Creek and to the Tailings Storage Facility.

Tailings Pipeline System

- After initial problems with the tailings pipeline system, the T2 Dropbox was revised and now acts as a pressure relief point for the pipeline. The system is now functioning satisfactorily.

- A tailings beach was present over isolated sections of the Main and Perimeter Embankments. All efforts should be made to establish an exposed tailings beach over the entire length of both the Main and Perimeter Embankments.

- The partial sanding in the tailings pipeline is no longer problematic, due to modifications at the T2 Dropbox. The tailings pipeline continues to sand up (50 to 125 mm thick observed at disconnected flanges), but tailings discharge has not been severely affected. End spilling at flanged connections has helped to flush out the pipeline.

- Mount Polley is planning to cyclone tailings on the inside of the impoundment, at the Main Embankment, in 1999. The tailings pipeline system should be reviewed after the cycloning system is operational.

Reclaim Pipeline System

- The reclaim pipeline system has functioned satisfactorily.

- The steel section of the reclaim pipeline has been removed and only one section is used at the barge.

- MPMC have indicated that the barge will be moved to a new location in the next year of operations. Details of the move will be provided in future reports.

Southeast Sediment Pond

- The pond level was higher than the normal operating level because the spring melt was underway. Runoff was being directed to the T2 Dropbox. Reports from MPMC indicate that the pond filled up during the height of the spring melt, but that the pond level did not reach the overflow culvert.

- The seeps observed in 1997 at the north-west corner of the pond fill were again present. Additional seeps were observed further east and in an area where the waste material and topsoil pile has failed. All seepage was clear, indicating that no erosion of fill materials from above was occurring.

- The pond fill slopes were in good condition, with no signs of instability.

- A section of the waste material and topsoil pile in the area beyond the toe of the embankment fill has failed. This failure has not endangered the embankment fill slopes.

- Some brush that has been pushed into the runoff collection ditch near the end of the clearing for the waste dump should be removed when equipment is in the area.

- The patch of filter fabric placed at the north-west corner of the fill has not been removed. It should be removed so that vegetation can be re-established.

Polley Lake Pumping System

- The system performed well in 1998, when 719,000 cubic metres of water were pumped.

- The system has performed thus far in 1999. MPMC plan to pump 1,000,000 cubic metres in 1999.

- Scrap construction material at the intake area that should be removed.

Millsite Sump

- The pond level was low, at the normal operating level.
- The pond is still being lowered by pumping. A higher level gravity discharge to the tailings pipeline control the pond level in the event of a power failure.
- Fill slopes were in good condition, including the south slope.

South Bootjack Dam

- The dam is in good condition and the spillway is clear of any obstructions.
- Ponded water is now seeping back into Bootjack Lake.

The above recommendations are currently being implemented by MPMC staff.

SECTION 5.0 - REFERENCES

A complete listing of all Knight Piésold Ltd. reports prepared for the Mount Polley Mine Project is shown below. These reports are available for review.

1) Imperial Metals Corp. Mt. Polley Project, Report on Geotechnical Investigations and Design of Open Pit, Waste Dumps and Tailings Storage Facility, Ref. No. 1621/1, February 19, 1990.

2) Imperial Metals Corp. Mt. Polley Project, Report on Project Water Management, Ref. No. 1624/1, February 6, 1995.

3) Imperial Metals Corp. Mt. Polley Project, Report on 1995 Geotechnical Investigations for Mill Site and Tailings Storage Facility, Ref. No. 1623/1, March 14, 1995.

4) Imperial Metals Corp. Mt. Polley Project, Tailings Storage Facility and Ancillary Works, Part 10 - Technical Specifications, Ref. No. 1625/3, March 25, 1995.

5) Imperial Metals Corp. Mt. Polley Project, Tailings Access Road and Tailings/ Reclaim Pipelines, Part 6 - Technical Specifications, Ref. No. 1625/4, May 17, 1995.

6) Imperial Metals Corp. Mt. Polley Project, Manual on Sampling and Handling Guidelines for Determination of Groundwater Quality, Ref. No. 1625/5, May 19, 1995.

7) Imperial Metals Corp. Mt. Polley Project, Tailings Storage Facility, Design Report, Ref. No. 1625/1, May 26, 1995.

8) Imperial Metals Corp. Mt. Polley Project, Tailings Storage Facility, Site Inspection Manual, Ref. No. 1625/2, May 26, 1995.

9) Imperial Metals Corp. Mt. Polley Project, Response to Review Comments on Tailings Embankment Design, Ref. No. 1625/6, January 25, 1996.

10) Imperial Metals Corp. Mt. Polley Project, Groundwater Monitoring Program, Ref. No. 1624/2, June 3, 1996.

11) Imperial Metals Corp. Mt. Polley Project, Report on Geotechnical Investigations and Design of Open Pits and Waste Dumps, Ref. No. 1628/1, July 5, 1996.

12) Imperial Metals Corp. Mt. Polley Project, Response to Review Comments on Groundwater Monitoring Program, Ref. No. 1625/7, September 12, 1996.

13) Imperial Metals Corp. Mt. Polley Project, Requirements and Specifications for the 1996 Groundwater Monitoring Program, Ref. No. 1625/8, September 12, 1996.

14) Imperial Metals Corp. Mt. Polley Project, Specification for Drilling, Monitoring Well Installations and Related Services, Ref. No. 1628/3, September 18, 1996.

15) Mount Polley Mining Corporation, Mount Polley Project, 1996 Groundwater Monitoring Well Installation Program, Ref. No. 1628/4, February 17, 1997.

16) Mount Polley Mining Corporation, Mount Polley Project, Polley Lake Pumping System, Ref. No. 1628/5, February 19, 1997.

17) Mount Polley Mining Corporation, Mount Polley Project, Tailings Storage Facility, Operation, Maintenance and Surveillance Manual for Stage Ia Embankment (El. 927 m), Ref. No. 1627/1, March 11, 1997.

18) Mount Polley Mining Corporation, Mount Polley Project, Tailings Storage Facility and Ancillary Features, May 1, 1997 Site Inspection, Ref. No. 1627/4, June 3, 1997.

19) Mount Polley Mining Corporation, Mount Polley Project, Tailings Storage Facility, Updated Design Report, Ref. No. 1627/2, June 4, 1997.

20) Mount Polley Mining Corporation, Mount Polley Project, Tailings Storage Facility, Operation, Maintenance and Surveillance Manual for Stage Ib Embankment (El. 934 m), Ref. No. 10162/7-3, June 18, 1997.

21) Mount Polley Mining Corporation, Mount Polley Mine, Tailings Storage Facility and Ancillary Features, May 1, 1997 Site Inspection, Ref. No. 10162/7-4, June 3, 1997.

22) Mount Polley Mining Corporation, Mount Polley Mine, Report on Stage Ia/Ib Construction, Ref. No. 10162/7-5, August 14, 1997.

23) Mount Polley Mining Corporation, Mount Polley Mine, Tender Documents for Stage 2A Tailings Facility Construction, Ref. No. 10162/9-1, October 9, 1997.

24) Mount Polley Mining Corporation, Mount Polley Mine, Stage 2A Tailings Facility Construction, Selected Excerpts from Reference Information, Ref. No. 10162/9-2, November 11, 1997.

25) Mount Polley Mining Corporation, Mount Polley Mine, Report on On-going Construction Requirements, Ref. No. 10162/9-3, January 29, 1998.

26) Mount Polley Mining Corporation, Mount Polley Mine, Contract Documents for Stage 2A Tailings Facility Construction, Ref. No. 10162/9-4, June 26, 1998.

27) Mount Polley Mining Corporation, Mount Polley Mine, 1998 Annual Inspection Report, Ref. No. 10162/9-5, June 26, 1998.

SECTION 6.0 - CERTIFICATION

This report was prepared and approved by the undersigned.

PROFESSIONAL
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Prepared by: ______________________

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Knight Piésold Ltd.
CONSULTING ENGINEERS

TABLE 2.1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
TAILINGS STORAGE FACILITY

STAGE 2A CONSTRUCTION - QUALITY ASSURANCE TESTING SCHEDULE

EMBANKMENT ZONE (Material)	FILL QUANTITY[1] (m³)			CONTROL TESTS								RECORD TESTS									
				C2		C3		C4		C6		R1		R2		R3		R4		R7	
	Main	Perimeter	Total	1 per	No.	1 per	No.	1 per	No.	1 per	No.	1 per	No.	1 per	No.	1 per	No.	1 per	No.	1 per	No.
ZONE CBL[2] - Coarse Bearing Layer (Processed Rock)	9,000	-	9,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ZONE B[3] (Glacial Till, Glaciolacustrine or Granular Material)	35,700	22,200	57,900	20,000	3	20,000	3	20,000	3	20,000	3	10,000	6	10,000	6	10,000	6	10,000	6	10,000	6
ZONE S[3] (Glacial Till)	32,700	14,400	47,100	3,000	16	3,000	16	3,000	16	3,000	16	4,000	12	4,000	12	4,000	12	4,000	12	4,000	12
ZONE F[4] - Outlet Drains/Pressure Relief Wells (Filter Sand)	-	800	800	--	--	150	5	--	--	--	--	--	--	--	--	150	5	--	--	--	--
ZONE G - Foundation and Outlet Drains (Drain Gravel)	200	200	400	--	--	80	5	--	--	--	--	--	--	--	--	70	6	--	--	--	--
ZONE T - Main and Perimeter Embankment (Transition Zone Rockfill)	23,400	28,600	52,000	--	--	9,000	6	--	--	--	--	--	--	--	--	4,500	12	--	--	--	--
Totals	101,000	66,200	167,200		19		35		19		19		18		18		41		18		18
											92										113

Control Tests:
C2 Moisture Content (ASTM D2216)
C3 Particle Size Distribution (ASTM D422)
C4 Laboratory Compaction (ASTM D698)
C6 Specific Gravity (ASTM D854)

Record Tests:
R1 Atterberg Limits (ASTM D4318)
R2 Moisture Content (ASTM D2216)
R3 Particle Size Distribution (ASTM D422)
R4 Laboratory Compaction (ASTM D698)
R7 Density by Nuclear Methods (ASTM D2922)

Notes:

1) Quantities are based neat line measurements from revised embankment design drawings.
2) No testing required for Coarse Bearing Layer.
3) Control tests for Zones S and B combined because glacial till used for both zones.
4) Abundant Zone F control tests completed during production of the material in Stage 1A/1B construction.

TABLE 2.2

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
1998 PIEZOMETER INSTALLATION DATA

Piezometer Identification Number	Serial Number	Tip El. (m)	Ground El. (m)	Zone Monitored	Reading Taken on 28-Jan-99		Trigger Level	
					Artesian Pressure (m H_2O)	El. (m)	Artesian Pressure (m H_2O)	Elevation (m)
(A0-PE2-01)	43675	928.0	-	Tailings	0.00	931.99	-	-
(A0-PE2-02)	43657	927.9	-	Tailings	0.00	931.66	-	-
A2-PE1-01	67191	912.9	-	Zone T	0.00	912.78	-	-
(A2-PE2-06)	43650	898.0	912.9	Foundation	-	-	6.0	918.91
(A2-PE2-07)	43654	902.8	912.9	Foundation	-	-	6.0	918.91
A2-PE2-08	67195	913.4	913.4	Foundation	0.28	913.64	6.0	919.36
B0-PE2-01	43674	927.3	-	Tailings	0.00	932.20	-	-
B0-PE2-02	43676	927.2	-	Tailings	0.00	931.97	-	-
(B2-PE1-01)	67194	916.3	-	Zone T	0.00	-	-	-
B2-PE2-06	43652	914.6	916.9	Foundation	-0.91	915.98	6.0	922.89
(C0-PE2-01)	43673	927.8	-	Tailings	0.00	931.85	-	-
(C0-PE2-02)	43658	927.5	-	Tailings	0.00	931.91	-	-
C1-PE1-04	43653	914.3	914.1	Foundation	-0.46	913.84	6.0	920.13
C2-PE1-01	67196	915.0	-	Zone T	0.00	914.27	-	-
C2-PE2-06	43647	906.8	916.0	Foundation	0.46	916.45	6.0	921.99
C2-PE2-07	43655	912.3	916.0	Foundation	-1.13	914.86	6.0	921.99
C2-PE2-08	43656	914.0	916.0	Foundation	-1.62	914.37	6.0	921.99
(D1-PE1-02)	66520	928.8	-	Outlet Drain	-	-	6.0	934.80
(D2-PE1-01)	67193	930.4	930.4	Zone T	-	-	6.0	936.40
E2-PE2-01	43651	914.2	918.8	Foundation	-1.66	917.15	6.0	924.81
E2-PE2-02	43648	909.7	918.8	Foundation	-1.51	917.30	6.0	924.81

Notes:
1. Piezometers in parantheses have stopped functioning (to be replaced or repaired during future construction programs).
2. The trigger level for foundation piezometers is approx. 6 metres above ground and is based on the level where the factor of safety is approaching 1.1.
3. The trigger level for drain piezometers is approx. 2 metres of head.
4. Fill piezometers have no set trigger level, but must be closely monitored for pressure increases.
5. Tailings piezometers (denoted as A0, B0 or C0) have no set trigger level.

TABLE 3.1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
TAILINGS PIEZOMETERS - MONITORING DATA

PIEZOMETER NO.	LOCATION	TIP EL. (m)	PRESSURE (m H_2O)					COMMENTS
			Initial Reading		Current Reading		Change (m)	
			El. (m)	Head (m)	El. (m)	Head (m)		
A0-PE2-01	Plane A	928.03	928.87	0.84	-	-	-	No longer functioning
A0-PE2-02	Plane A	927.87	928.80	0.93	-	-	-	No longer functioning
B0-PE2-01	Plane B	927.30	928.08	0.78	933.10	5.80	5.02	Readings reflect rising pond level.
B0-PE2-02	Plane B	927.18	928.29	1.11	933.00	5.82	4.71	Readings reflect rising pond level.
C0-PE2-01	Plane C	927.80	928.44	0.64	-	-	-	No longer functioning
C0-PE2-02	Plane C	927.48	928.64	1.16	-	-	-	No longer functioning

TABLE 3.2

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
EMBANKMENT FOUNDATION PIEZOMETERS - MONITORING DATA

PIEZOMETER NO.	LOCATION	TIP EL. (m)	GROUND EL. (m)	PRESSURE (m H_20)						COMMENTS
				Initial Reading		Current Reading		Change (m)	Artesian (m)	
				El. (m)	Head (m)	El. (m)	Head (m)			
A2-PE2-01	Plane A	903.68	912.67	913.19	9.51	916.24	12.56	3.05	3.57	Artesian since installation, gradually increasing.
A2-PE2-02	Plane A	909.77	912.67	911.72	1.95	-	-	-	-	No longer functioning
A2-PE2-06	Plane A	898.01	912.91	915.22	17.21	-	-	-	-	No longer functioning
A2-PE2-07	Plane A	902.81	912.91	915.14	12.33	-	-	-	-	No longer functioning
A2-PE2-08	Plane A	907.56	913.36	913.27	5.71	913.67	6.11	0.40	0.31	Near Artesian since installation, minor fluctuations.
B2-PE2-01	Plane B	901.98	916.98	913.47	11.49	917.75	15.77	4.28	0.77	Artesian, not artesian at start, gradually increasing.
B2-PE2-02	Plane B	909.51	916.98	914.48	4.97	919.72	10.21	5.24	2.74	Artesian, not artesian at start, gradually increasing.
B2-PE2-06	Plane B	914.59	916.89	915.99	1.40	915.78	1.19	-0.21	-	Not artesian, minor fluctuations.
C2-PE2-01	Plane C	907.48	915.71	918.07	10.59	-	-	-	-	No longer functioning
C2-PE2-02	Plane C	910.53	915.71	916.09	5.56	916.93	6.40	0.84	1.22	Artesian since installation, fluctuating slightly.
C2-PE2-06	Plane C	906.84	915.99	916.66	9.82	916.55	9.71	-0.11	0.56	Artesian since start, slight fluctuations.
C2-PE2-07	Plane C	912.29	915.99	915.14	2.85	914.93	2.64	-0.21	-	Not artesian, slight fluctuations.
C2-PE2-08	Plane C	914.03	915.99	913.45	-0.58	914.41	0.38	0.96	-	Not artesian, slight fluctuations.
D2-PE2-02	Plane D	*927.32*	*930.92*	*928.68*	1.36	-	-	-	-	No longer functioning
E2-PE2-01	Plane E	914.21	918.81	917.50	3.29	917.27	3.24	-0.23	-	Not artesian, minor fluctuations.
E2-PE2-02	Plane E	909.66	918.81	917.57	7.91	917.46	7.90	-0.11	-	Not artesian, minor fluctuations.

TABLE 3.3

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
EMBANKMENT FILL PIEZOMETERS - MONITORING DATA

PIEZOMETER NO.	LOCATION	TIP EL. (m)	PRESSURE (m H_20)					COMMENTS
			Initial Reading		Current Reading		Change (m)	
			El. (m)	Head (m)	El. (m)	Head (m)		
A2-PE1-01	Plane A, Zone T	912.90	911.96	-0.94	912.01	-0.89	0.05	Negative (no pressure).
A2-PE2-03	Plane A, Glacial Till	919.43	919.66	0.23	926.45	7.02	6.79	Currently dissipating after response to Stage 2A fill.
A2-PE2-04	Plane A, Glacial Till	926.07	925.67	-0.40	-	-	-	No longer functioning
A2-PE2-05	Plane A, Glacial Till	921.87	921.17	-0.70	921.58	-0.29	0.41	Increase during initial fill placement, finished dissipating.
B2-PE1-01	Plane B, Zone T	916.27	915.28	-0.99	-	-	-	No longer functioning
B2-PE2-03	Plane B, Glacial Till	921.00	920.41	-0.59	940.14	19.14	19.73	Dissipating after initial fill placement. Response to Stage 2A fill.
B2-PE2-04	Plane B, Glacial Till	921.00	920.45	-0.55	927.36	6.36	6.91	Dissipating after initial fill placement, then dissipating after response to Stage 2A fill.
B2-PE2-05	Plane B, Glacial Till	921.66	922.78	1.12	921.36	-0.30	-1.42	Increase during initial fill placement, finished dissipating.
C2-PE1-01	Plane C, Zone T	915.02	914.08	-0.94	914.27	-0.75	0.19	Negative (no pressure).
C2-PE2-03	Plane C, Glacial Till	921.00	925.50	4.50	921.54	0.54	-3.96	Increase during initial fill placement, finished dissipating.
C2-PE2-05	Plane C, Glacial Till	924.80	921.69	-3.11	929.94	5.14	8.25	No data for elevation of piezo tip
D2-PE1-01	Plane D, Zone T	930.42	929.46	-0.96	-	-	-	No longer functioning (Cable destroyed)
D2-PE2-01	Plane D, Glacial Till	931.00	931.00	0.00	932.03	1.03	1.03	No excess pore pressures, minor fluctuations.

TABLE 3.4

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
DRAIN PIEZOMETERS - MONITORING DATA

PIEZOMETER NO.	LOCATION	TIP EL. (m)	PRESSURE (m H_20)					COMMENTS
			Initial Reading		Current Reading		Change (m)	
			El. (m)	Head (m)	El. (m)	Head (m)		
A1-PE1-01	Foundation Drain FD-3.	913.00	912.22	-0.78	912.54	-0.46	0.32	Negative (no pressure), minor fluctuations.
A1-PE1-02	Foundation Drain FD-4.	912.10	911.42	-0.68	911.56	-0.54	0.14	Negative (no pressure), minor fluctuations.
A1-PE1-03	Chimney Drain.	917.20	916.65	-0.55	-	-	-	No longer functioning
B1-PE1-01	Foundation Drain FD-1.	917.30	917.00	-0.30	916.75	-0.55	-0.25	Negative (no pressure), minor fluctuations.
B1-PE1-02	Foundation Drain FD-2.	915.95	915.14	-0.81	915.26	-0.69	0.12	Negative (no pressure), minor fluctuations.
B1-PE1-03	Chimney Drain.	918.70	918.09	-0.61	918.08	-0.62	-0.01	Negative (no pressure), minor fluctuations.
C1-PE1-01	Foundation Drain FD-1.	914.70	914.45	-0.25	914.28	-0.42	-0.17	Negative (no pressure), minor fluctuations.
C1-PE1-02	Chimney Drain.	916.60	916.02	-0.58	916.04	-0.56	0.02	Negative (no pressure), minor fluctuations.
C1-PE1-04	Foundation Drain FD-5.	914.30	914.13	-0.17	913.87	-0.43	-0.26	Negative (no pressure).
D1-PE1-02	Outlet Drain OD-4.	928.76	928.24	-0.52	928.13	-	-	No longer functioning

Knight Piésold Ltd.
CONSULTING ENGINEERS

TABLE 3.5

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
SUMMARY OF FOUNDATION DRAIN FLOWS

SAMPLING DATE	FD-1			FD-2			FD-3			FD-4			FD-5			Total Flow Rate			Pond El (m)	GW96-9 (GW Well)
	Flow Rate			Flow Rate			Flow Rate			Flow Rate			Flow Rate							Elev. Above Top of Casing of well 9 (m)
Date	FD1(l/min)	(l/sec)	Comments	FD2(l/min)	(l/sec)	Comments	FD3(l/min)	(l/sec)	Comments	FD4(l/min)	(l/sec)	Comments	FD5(l/min)	(l/sec)	Comments	Tot(l/min)	(l/sec)	Comments	Pond Elev.	
28-Aug-96	4.62	0.08	Clear	0.49	0.01	Clear	5.37	0.09	Clear	1.77	0.03	Tr. cloudy	-	-	-	12.25	0.20	FD-3, FD-4 incomplete		
01-Sep-96	3.55	0.06	Clear	0.82	0.01	Clear	6.56	0.11	Cloudy	1.25	0.02	V. Cloudy	-	-	-	12.18	0.20	FD-3, FD-4 incomplete		
05-Sep-96	2.60	0.04	Clear	0.62	0.01	Clear	2.71	0.05	Clear	0.93	0.02	Cloudy	-	-	-	6.86	0.11	FD-3, FD-4 incomplete		
10-Sep-96	2.04	0.03	Clear	0.66	0.01	Clear	2.17	0.04	Clear	0.81	0.01	Clear	-	-	-	5.68	0.09	FD-3, FD-4 incomplete		
27-Sep-96	3.10	0.05	Clear	0.70	0.01	Clear	3.10	0.05	Clear	1.00	0.02	Clear	-	-	-	7.90	0.13	FD-3, FD-4 incomplete		
05-Oct-96	4.94	0.08	Clear	0.77	0.01	Clear	4.33	0.07	Tr. cloudy	6.16	0.10	Tr. cloudy	-	-	-	16.20	0.27	FD-3, FD-4 incomplete		
12-Oct-96	3.90	0.07	Clear	1.00	0.02	Clear	3.50	0.06	Clear	1.80	0.03	Clear	-	-	-	10.20	0.17	FD-3, FD-4 incomplete	915.20	
13-Oct-96	4.20	0.07	Clear	0.90	0.02	Clear	13.50	0.23	Clear	1.70	0.03	Clear	-	-	-	20.30	0.34	FD-3 complete, FD-4 incomplete	915.50	
14-Oct-96	3.80	0.06	Clear	1.00	0.02	Clear	15.00	0.25	Clear	5.40	0.09	Clear	-	-	-	25.20	0.42	FD-3 complete, FD-4 complete	915.23	
17-Oct-96	5.90	0.10	Clear	0.80	0.01	Clear	16.60	0.28	Clear	5.40	0.09	Clear	-	-	-	28.70	0.48		915.44	
18-Oct-96	9.80	0.16	Clear	1.00	0.02	Clear	26.10	0.44	Clear	9.00	0.15	Clear	-	-	-	45.90	0.77		915.50	
22-Oct-96	6.20	0.10	Clear	0.80	0.01	Clear	20.40	0.34	Clear	5.90	0.10	Clear	-	-	-	33.30	0.56		915.63	
27-Oct-96	6.00	0.10	Clear	1.50	0.03	Clear	24.20	0.40	Clear	6.40	0.11	Clear	-	-	-	38.10	0.64		916.00	
15-Mar-97	3.89	0.06	Clear	1.35	0.02	Clear	8.91	0.15	Clear	3.19	0.05	Clear	-	-	-	17.34	0.29	pig installed, sump pumped out	918.00	
16-Mar-97	3.48	0.06	Clear	1.15	0.02	Clear	8.37	0.14	Clear	2.87	0.05	Clear	-	-	-	15.88	0.26	pig installed, sump pumped out	918.20	
02-Apr-97	2.10	0.04	Clear	1.12	0.02	Clear	8.40	0.14	Clear	3.46	0.06	Clear	-	-	-	15.08	0.25	pig installed, sump pumped out	920.27	
23-Apr-97	4.14	0.07	Clear	0.94	0.02	Clear	11.56	0.19	Clear	2.35	0.04	Clear	-	-	-	18.99	0.32	pig installed, sump pumped out	923.70	
24-Apr-97	3.16	0.05	Clear	0.84	0.01	Clear	12.73	0.21	Clear	2.05	0.03	Clear	-	-	-	18.78	0.31	pig installed, sump pumped out	923.75	
29-Apr-97	2.90	0.05	Clear	0.59	0.01	Clear	10.32	0.17	Clear	1.71	0.03	Clear	-	-	-	15.52	0.26	pig installed, sump pumped out	924.81	
08-May-97	3.60	0.06	Clear	0.76	0.01	Clear	14.15	0.24	Clear	1.92	0.03	Clear	-	-	-	20.43	0.34	pig out, pumped down	925.86	
13-May-97	4.04	0.07	Clear	0.79	0.01	Clear	14.85	0.25	Clear	1.95	0.03	Clear	-	-	-	21.63	0.36	pig out, pumped down	926.43	
20-May-97	4.11	0.07	Clear	0.77	0.01	Clear	17.09	0.28	Clear	1.85	0.03	Clear	-	-	-	23.82	0.40	pig out, pumped down	926.20	
28-May-97	3.99	0.07	Clear	0.80	0.01	Clear	15.71	0.26	Clear	1.87	0.03	Clear	-	-	-	22.37	0.37	pig out, pumped down	926.25	
10-Jun-97	4.15	0.07	Clear	0.82	0.01	Clear	18.35	0.31	Clear	1.89	0.03	Clear	-	-	-	25.21	0.42	pig out, pumped down	926.34	
17-Jun-97	4.10	0.07	Clear	0.78	0.01	Clear	19.93	0.33	Clear	1.85	0.03	Clear	-	-	-	26.66	0.44	pig out, pumped down	926.40	
24-Jun-97	3.97	0.07	Clear	0.84	0.01	Clear	17.24	0.29	Clear	1.83	0.03	Clear	-	-	-	23.88	0.40	pig out, pumped down	926.39	
01-Jul-97	3.93	0.07	Clear	0.69	0.01	Clear	14.72	0.25	Clear	1.73	0.03	Clear	-	-	-	21.07	0.35	pig out, pumped down	926.38	
08-Jul-97	4.05	0.07	Clear	0.72	0.01	Clear	18.07	0.30	Clear	1.88	0.03	Clear	-	-	-	24.72	0.41	pig out, pumped down	926.39	
15-Jul-97	4.11	0.07	Clear	0.88	0.01	Clear	15.38	0.26	Clear	2.24	0.04	Clear	-	-	-	22.61	0.38	pig out, pumped down	926.57	
22-Jul-97	4.06	0.07	Clear	0.91	0.02	Clear	15.83	0.26	Clear	2.05	0.03	Clear	-	-	-	22.85	0.38	pig out, pumped down	926.66	
29-Jul-97	4.40	0.07	Clear	0.85	0.01	Clear	20.48	0.34	Clear	2.11	0.04	Clear	-	-	-	27.84	0.46	pig out, pumped down	926.73	
05-Aug-97	4.13	0.07	Clear	0.79	0.01	Clear	18.35	0.31	Clear	1.97	0.03	Clear	-	-	-	25.24	0.42	pig out, pumped down	926.75	
13-Aug-97	4.12	0.07	Clear	0.78	0.01	Clear	24.19	0.40	Clear	2.02	0.03	Clear	-	-	-	31.11	0.52	pig out, pumped down	926.82	
20-Aug-97	4.13	0.07	Clear	0.76	0.01	Clear	15.95	0.27	Clear	1.80	0.03	Clear	-	-	-	22.64	0.38	pig out, pumped down	926.75	
26-Aug-97	4.62	0.08	Clear	0.76	0.01	Clear	18.75	0.31	Clear	1.92	0.03	Clear	-	-	-	26.05	0.43	pig out, pumped down	926.86	
03-Sep-97	4.48	0.07	Clear	0.76	0.01	Clear	16.95	0.28	Clear	1.76	0.03	Clear	-	-	-	23.95	0.40	pig out, pumped down	926.93	

Knight Piésold Ltd.
CONSULTING ENGINEERS

TABLE 3.5

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
SUMMARY OF FOUNDATION DRAIN FLOWS

SAMPLING DATE	FD-1			FD-2			FD-3			FD-4			FD-5			Total Flow Rate			Pond El (m)	GW96-9 (GW Well)
	Flow Rate			Flow Rate			Flow Rate			Flow Rate			Flow Rate							Elev. Above Top of Casing of well 9 (m)
Date	FD1(l/min)	(l/sec)	Comments	FD2(l/min)	(l/sec)	Comments	FD3(l/min)	(l/sec)	Comments	FD4(l/min)	(l/sec)	Comments	FD5(l/min)	(l/sec)	Comments	Tot(l/min)	(l/sec)	Comments	Pond Elev.	
09-Sep-97	4.57	0.08	Clear	0.75	0.01	Clear	16.04	0.27	Clear	1.81	0.03	Clear	-	-	-	23.17	0.39	pig out, pumped down	926.71	
17-Sep-97	4.62	0.08	Clear	0.77	0.01	Clear	16.71	0.28	Clear	1.78	0.03	Clear	-	-	-	23.88	0.40	pig out, pumped down	926.88	
23-Sep-97	4.64	0.08	Clear	0.78	0.01	Clear	17.75	0.30	Clear	1.83	0.03	Clear	-	-	-	25.00	0.42	pig out, pumped down	926.85	
02-Oct-97	4.78	0.08	Clear	0.82	0.01	Clear	16.76	0.28	Clear	1.86	0.03	Clear	-	-	-	24.22	0.40	pig out, pumped down	926.92	0.055
08-Oct-97	4.69	0.08	Clear	0.81	0.01	Clear	16.01	0.27	Clear	1.95	0.03	Clear	-	-	-	23.46	0.39	pig out, pumped down	926.97	0.065
16-Oct-97	5.14	0.09	Clear	1.11	0.02	Clear	17.86	0.30	Clear	2.31	0.04	Clear	-	-	-	26.42	0.44	pig out, pumped down	927.06	0.095
24-Oct-97	5.13	0.09	Clear	0.92	0.02	Clear	16.23	0.27	Clear	1.98	0.03	Clear	-	-	-	24.26	0.40	pig out, pumped down	927.23	0.095
06-Nov-97	5.51	0.09	Clear	1.20	0.02	Clear	17.70	0.30	Clear	2.39	0.04	Clear	-	-	-	26.80	0.45	pig out, pumped down	927.51	Frozen
13-Nov-97	4.90	0.08	Clear	0.65	0.01	Clear	18.58	0.31	Clear	1.87	0.03	Clear	-	-	-	26.00	0.43	pig out, pumped down	927.60	Frozen
21-Nov-97	4.37	0.07	Clear	0.76	0.01	Clear	17.91	0.30	Clear	1.79	0.03	Clear	-	-	-	24.83	0.41	pig out, pumped down	927.63	Frozen
28-Nov-97	4.14	0.07	Clear	0.77	0.01	Clear	18.18	0.30	Clear	1.85	0.03	Clear	-	-	-	24.94	0.42	pig out, pumped down	927.65	Frozen
04-Dec-97	4.03	0.07	Clear	0.85	0.01	Clear	17.67	0.29	Clear	1.78	0.03	Clear	-	-	-	24.33	0.41	pig out, pumped down	927.75	Frozen
02-Jan-98	3.81	0.06	Clear	0.74	0.01	Clear	16.30	0.27	Clear	1.73	0.03	Clear	-	-	-	22.58	0.38	pig out, pumped down	928.10	Frozen
14-Jan-98	3.85	0.06	Clear	0.80	0.01	Clear	16.57	0.28	Clear	1.77	0.03	Clear	-	-	-	22.99	0.38	pig out, needs pumping	928.25	Frozen
21-Jan-98	3.57	0.06	Clear	0.74	0.01	Clear	16.42	0.27	Clear	1.82	0.03	Clear	-	-	-	22.55	0.38	pig out, needs pumping	928.30	Frozen
08-Apr-98	3.84	0.06	Clear	0.67	0.01	Clear	15.54	0.26	Clear	1.52	0.03	Clear	-	-	-	21.57	0.36	pig out, pond pumped down	929.70	-
17-Apr-98	3.82	0.06	Clear	0.69	0.01	Clear	15.58	0.26	Clear	1.37	0.02	Clear	6.33	0.11	Clear	27.79	0.46	pig out, pond pumped down	929.85	-
25-May-98	3.82	0.06	Clear	0.69	0.01	Clear	15.58	0.26	Clear	1.37	0.02	Clear	6.33	0.11	Clear	27.79	0.46	pig out, pond pumped down	930.10	-
02-Jun-98	3.52	0.06	Clear	0.78	0.01	Clear	15.58	0.26	Clear	1.42	0.02	Clear	6.80	0.11	Clear	28.10	0.47	pig out, pond pumped down	930.36	-
10-Jun-98	3.83	0.06	Clear	0.79	0.01	Clear	14.60	0.24	Clear	1.44	0.02	Clear	7.51	0.13	Clear	28.17	0.47	pig out, pond pumped down	930.39	-
16-Jun-98	3.77	0.06	Clear	0.78	0.01	Clear	16.35	0.27	Clear	1.41	0.02	Clear	7.93	0.13	Clear	30.24	0.50	pig out, pond pumped down	930.42	-
03-Jul-98	3.89	0.06	Clear	0.76	0.01	Clear	16.14	0.27	Clear	2.37	0.04	Clear	12.53	0.21	Clear	35.69	0.59	FD-5 is spilling onto FD-4 providing higher values than normal	930.45	
07-Jul-98	3.71	0.06	Clear	0.72	0.01	Clear	16.03	0.27	Clear	2.22	0.04	Clear	9.66	0.16	Clear	32.34	0.54	negative value is below top of casing	930.50	-0.135
24-Jul-98	3.53	0.06	Clear	0.72	0.01	Clear	15.75	0.26	Clear	1.96	0.03	Clear	8.70	0.15	Clear	30.66	0.51	-	930.58	0.28
12-Aug-98	3.46	0.06	Clear	0.62	0.01	Clear	15.96	0.27	Clear	1.90	0.03	Clear	7.30	0.12	Clear	29.24	0.49	-	930.61	0.33
19-Aug-98	3.17	0.05	Clear	0.56	0.01	Clear	15.83	0.26	Clear	2.26	0.04	Clear	8.08	0.13	Clear	29.90	0.50	-	930.64	-
10-Sep-98	3.60	0.06	Clear	0.57	0.01	Clear	16.35	0.27	Clear	2.03	0.03	Clear	8.02	0.13	Clear	30.57	0.51	-	930.70	-
17-Sep-98	3.53	0.06	Clear	0.63	0.01	Clear	16.42	0.27	Clear	2.20	0.04	Clear	8.52	0.14	Clear	31.30	0.52	-	930.73	-
24-Sep-98	3.62	0.06	Clear	0.64	0.01	Clear	15.64	0.26	Clear	2.06	0.03	Clear	7.77	0.13	Clear	29.73	0.50	-	930.77	-
07-Oct-98	3.72	0.06	Clear	1.05	0.02	Clear	14.22	0.24	Clear	2.36	0.04	Clear	13.39	0.22	Clear	34.74	0.58	positive value is above top of casing	930.81	0.18
15-Oct-98	3.82	0.06	Clear	1.10	0.02	Clear	14.53	0.24	Clear	2.56	0.04	Clear	15.83	0.26	Clear	37.84	0.63	-	930.87	
21-Oct-98	3.94	0.07	Clear	1.12	0.02	Clear	15.35	0.26	Clear	2.95	0.05	Clear	18.46	0.31	Clear	41.82	0.70	-	930.95	
17-Nov-98																		Sump flooded,needs to be pumped		0.11
27-Nov-98	4.21	0.07	Clear	1.01	0.02	Clear	14.28	0.24	Clear	2.35	0.04	Clear	11.76	0.20	Clear	33.62	0.56		931.35	-0.03
02-Dec-98	4.35	0.07	Clear	0.92	0.02	Clear	14.16	0.24	Clear	2.37	0.04	Clear	11.46	0.19	Clear	33.26	0.55		931.97	-0.03

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TABLE 3.5

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
SUMMARY OF FOUNDATION DRAIN FLOWS

SAMPLING DATE	FD-1			FD-2			FD-3			FD-4			FD-5			Total Flow Rate			Pond El (m)	GW96-9 (GW Well)
	Flow Rate			Flow Rate			Flow Rate			Flow Rate			Flow Rate							Elev. Above Top of Casing of well 9 (m)
Date	FD1(l/min)	(l/sec)	Comments	FD2(l/min)	(l/sec)	Comments	FD3(l/min)	(l/sec)	Comments	FD4(l/min)	(l/sec)	Comments	FD5(l/min)	(l/sec)	Comments	Tot(l/min)	(l/sec)	Comments	Pond Elev.	
09-Dec-98	4.34	0.07	Clear	0.79	0.01	Clear	16.56	0.28	Clear	2.01	0.03	Clear	9.78	0.16	Clear	33.49	0.56		931.97	Frozen
16-Dec-98	4.33	0.07	Clear	0.97	0.02	Clear	13.92	0.23	Clear	2.83	0.05	Clear	19.32	0.32	Clear	41.37	0.69		931.97	Frozen
22-Dec-98																		Flooded, needs to be pumped down	932.08	Frozen
05-Jan-99																		Flooded needs to be pumped down	932.14	Frozen
12-Jan-99																		Flooded needs to be pumped down	932.17	Frozen
20-Jan-99																		Still Flooded	932.20	Frozen
28-Jan-99																		Flooded	932.23	Frozen

Notes:

1. The elevation for the top of the casing for Ground Water Well GW96-9 is approximately 916.78 m. The ground elevation is 916.18 m.

TABLE 3.6

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A EMBANKMENT CREST SURVEY MONUMENTS - RECORD OF DISPLACEMENTS

Monitoring and Survey Data							Displacements Between Readings (m)					Total Displacements (m)				
Monument	Hub No.	Date	Comments	N_n	E_n	El_n	ΔN	ΔE	ΔEl	D_{xy}	D_{xyz}	ΔN	ΔE	ΔEl	$D_{xy-total}$	$D_{xyz-total}$
A2-SM-02		21-Aug-97	Stage 1B - Initial Survey	5818484.664	595600.941	934.210	-	-	-	-	-	-	-	-	-	-
B2-SM-01		21-Aug-97	Stage 1B - Initial Survey	5818631.996	595796.816	934.107	-	-	-	-	-	-	-	-	-	-
C2-SM-03		21-Aug-97	Stage 1B - Initial Survey	5818397.426	595485.086	934.036	-	-	-	-	-	-	-	-	-	-
A2-SM-02		20-Mar-98	Stage 1B - Final Survey	5818484.693	595600.940	934.095	0.029	-0.001	-0.115	0.029	0.119	0.029	-0.001	-0.115	0.029	0.119
B2-SM-01		20-Mar-98	Stage 1B - Final Survey	5818631.977	595796.831	934.032	-0.019	0.015	-0.075	0.024	0.079	-0.019	0.015	-0.075	0.024	0.079
C2-SM-03		20-Mar-98	Stage 1B - Final Survey	5818397.485	595485.065	933.895	0.059	-0.021	-0.141	0.063	0.154	0.059	-0.021	-0.141	0.063	0.154
A2-SM-01	095 (U/S)	11-Jun-98	Stage 2A - Initial Survey	5818496.322	595589.736	935.802	-	-	-	-	-	-	-	-	-	-
A2-SM-02	096 (D/S)	11-Jun-98	Stage 2A - Initial Survey	5818486.754	595597.265	935.965	-	-	-	-	-	-	-	-	-	-
B2-SM-01	093 (U/S)	11-Jun-98	Stage 2A - Initial Survey	5818637.375	595776.540	935.755	-	-	-	-	-	-	-	-	-	-
B2-SM-02	094 (D/S)	11-Jun-98	Stage 2A - Initial Survey	5818627.127	595783.715	936.238	-	-	-	-	-	-	-	-	-	-
B2-SM-03	091 (U/S)	11-Jun-98	Stage 2A - Initial Survey	5818681.655	595835.527	936.021	-	-	-	-	-	-	-	-	-	-
B2-SM-04	092 (D/S)	11-Jun-98	Stage 2A - Initial Survey	5818672.076	595842.154	936.410	-	-	-	-	-	-	-	-	-	-
C2-SM-01	097 (U/S)	11-Jun-98	Stage 2A - Initial Survey	5818407.912	595472.445	936.042	-	-	-	-	-	-	-	-	-	-
C2-SM-02	098 (D/S)	11-Jun-98	Stage 2A - Initial Survey	5818398.806	595479.259	936.529	-	-	-	-	-	-	-	-	-	-
A2-SM-01	095 (U/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818496.321	595589.705	935.815	-0.001	-0.031	0.013	0.031	0.034	-0.001	-0.031	0.013	0.031	0.034
A2-SM-02	096 (D/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818486.738	595597.246	935.969	-0.016	-0.019	0.004	0.025	0.025	-0.016	-0.019	0.004	0.025	0.025
B2-SM-01	093 (U/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818637.365	595776.509	935.749	-0.010	-0.031	-0.006	0.033	0.033	-0.010	-0.031	-0.006	0.033	0.033
B2-SM-02	094 (D/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818627.103	595783.689	936.229	-0.024	-0.026	-0.009	0.035	0.037	-0.024	-0.026	-0.009	0.035	0.037
B2-SM-03	091 (U/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818681.632	595835.519	936.019	-0.023	-0.008	-0.002	0.024	0.024	-0.023	-0.008	-0.002	0.024	0.024
B2-SM-04	092 (D/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818672.034	595842.147	936.407	-0.042	-0.007	-0.003	0.043	0.043	-0.042	-0.007	-0.003	0.043	0.043
C2-SM-01	097 (U/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818408.212	595472.180	935.892	0.300	-0.265	-0.150	0.400	0.427	0.300	-0.265	-0.150	0.400	0.427
C2-SM-02	098 (D/S)	25-Jun-98	Stage 2A - Intermediate Survey	5818398.829	595479.299	936.519	0.023	0.040	-0.010	0.046	0.047	0.023	0.040	-0.010	0.046	0.047
A2-SM-01	095 (U/S)	17-Sep-98	Stage 2A - Final Survey	5818496.307	595589.754	935.798	-0.014	0.049	-0.017	0.051	0.054	-0.015	0.018	-0.004	0.023	0.024
A2-SM-02	096 (D/S)	17-Sep-98	Stage 2A - Final Survey	5818486.740	595597.285	935.940	0.002	0.039	-0.029	0.039	0.049	-0.014	0.020	-0.025	0.024	0.035
B2-SM-01	093 (U/S)	17-Sep-98	Stage 2A - Final Survey	5818637.374	595776.545	935.753	0.009	0.036	0.004	0.037	0.037	-0.001	0.005	-0.002	0.005	0.005
B2-SM-02	094 (D/S)	17-Sep-98	Stage 2A - Final Survey	5818627.116	595783.719	936.233	0.013	0.030	0.004	0.033	0.033	-0.011	0.004	-0.005	0.012	0.013
B2-SM-03	091 (U/S)	17-Sep-98	Stage 2A - Final Survey	5818681.646	595835.541	936.024	0.014	0.022	0.005	0.026	0.027	-0.009	0.014	0.003	0.017	0.017
B2-SM-04	092 (D/S)	17-Sep-98	Stage 2A - Final Survey	5818672.050	595842.175	936.413	0.016	0.028	0.006	0.032	0.033	-0.026	0.021	0.003	0.033	0.034
C2-SM-01	097 (U/S)	17-Sep-98	Stage 2A - Final Survey	5818408.200	595472.146	935.898	-0.012	-0.034	0.006	0.036	0.037	0.288	-0.299	-0.144	0.415	0.439
C2-SM-02	098 (D/S)	17-Sep-98	Stage 2A - Final Survey	5818398.809	595479.259	936.530	-0.020	-0.040	0.011	0.045	0.046	0.003	0.000	0.001	0.003	0.003

Notes:
1. Calculate displacements as follows:

Total Displacements from initial survey

$\Delta N = N_n - N_o$

$\Delta E = E_n - E_o$

$\Delta El = El_n - El_o$

$D_{xy-total} = (\Delta N^2 + \Delta E^2)^{1/2}$

$D_{xyz-total} = (\Delta N^2 + \Delta E^2 + \Delta El^2)^{1/2}$

Displacements between readings

$\Delta N = N_{(n+1)} - N_n$

$\Delta E = E_{(n+1)} - E_n$

$\Delta El = El_{(n+1)} - El_n$

$D_{xy} = (\Delta N^2 + \Delta E^2)^{1/2}$

$D_{xyz} = (\Delta N^2 + \Delta E^2 + \Delta El^2)^{1/2}$

Comments on calculations:
1. Coordinate system is (Easting, Northing, Elevation) = f(x,y,z).
2. Coordinate system is as shown on Drawings.

TABLE 3.7

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A COURSE BEARING LAYER SURVEY MONUMENTS - RECORD OF DISPLACEMENTS

Monitoring and Survey Data							Displacements Between Readings (m)					Total Displacements (m)				
Monument	Hub No.	Date	Comments	N_n	E_n	El_n	ΔN	ΔE	ΔEl	D_{xy}	D_{xyz}	ΔN	ΔE	ΔEl	$D_{xy-total}$	$D_{xyz-total}$
	TH 50	29-Apr-98	Stage 2A - Initial Survey	5818417.847	595473.995	931.009	-	-	-	-	-	-	-	-	-	-
	TH 51	29-Apr-98	Stage 2A - Initial Survey	5818459.668	595529.030	931.133	-	-	-	-	-	-	-	-	-	-
	TH 52	29-Apr-98	Stage 2A - Initial Survey	5818502.620	595585.431	930.820	-	-	-	-	-	-	-	-	-	-
	TH 53	29-Apr-98	Stage 2A - Initial Survey	5818600.657	595715.703	931.035	-	-	-	-	-	-	-	-	-	-
	TH 54	29-Apr-98	Stage 2A - Initial Survey	5818686.674	595830.528	931.113	-	-	-	-	-	-	-	-	-	-
	TH 50	05-Jun-98	Stage 2A - Re-surveyed	5818417.960	595473.944	930.835	0.113	-0.051	-0.174	0.124	0.214	0.113	-0.051	-0.174	0.124	0.214
	TH 51	05-Jun-98	Stage 2A - Re-surveyed	5818459.774	595528.983	931.080	0.106	-0.047	-0.053	0.116	0.127	0.106	-0.047	-0.053	0.116	0.127
	TH 52	05-Jun-98	Stage 2A - Re-surveyed	5818502.678	595585.372	930.700	0.058	-0.059	-0.120	0.083	0.146	0.058	-0.059	-0.120	0.083	0.146
	TH 53	05-Jun-98	Stage 2A - Re-surveyed	5818600.725	595715.599	930.921	0.068	-0.104	-0.114	0.124	0.169	0.068	-0.104	-0.114	0.124	0.169
	TH 54	05-Jun-98	Stage 2A - Re-surveyed	5818686.803	595830.390	931.114	0.129	-0.138	0.001	0.189	0.189	0.129	-0.138	0.001	0.189	0.189

Notes:
1. Calculate displacements as follows:

Total Displacements from initial survey

$\Delta N = N_n - N_o$

$\Delta E = E_n - E_o$

$\Delta El = El_n - El_o$

$D_{xy-total} = (\Delta N^2 + \Delta E^2)^{1/2}$

$D_{xyz-total} = (\Delta N^2 + \Delta E^2 + \Delta El^2)^{1/2}$

Displacements between readings

$\Delta N = N_{(n+1)} - N_n$

$\Delta E = E_{(n+1)} - E_n$

$\Delta El = El_{(n+1)} - El_n$

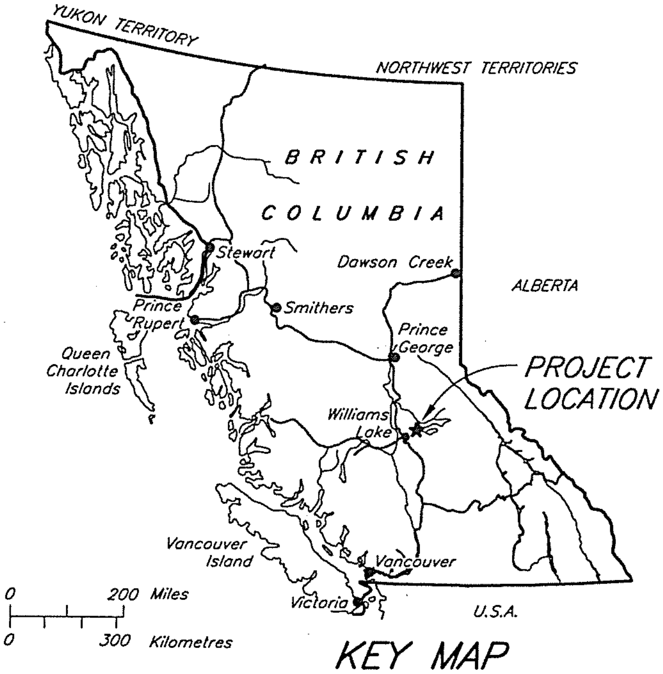
$D_{xy} = (\Delta N^2 + \Delta E^2)^{1/2}$

$D_{xyz} = (\Delta N^2 + \Delta E^2 + \Delta El^2)^{1/2}$

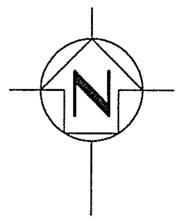
Comments on calculations:
1. Coordinate system is (Easting, Northing, Elevation) = f(x,y,z).
2. Coordinate system is as shown on Drawings.

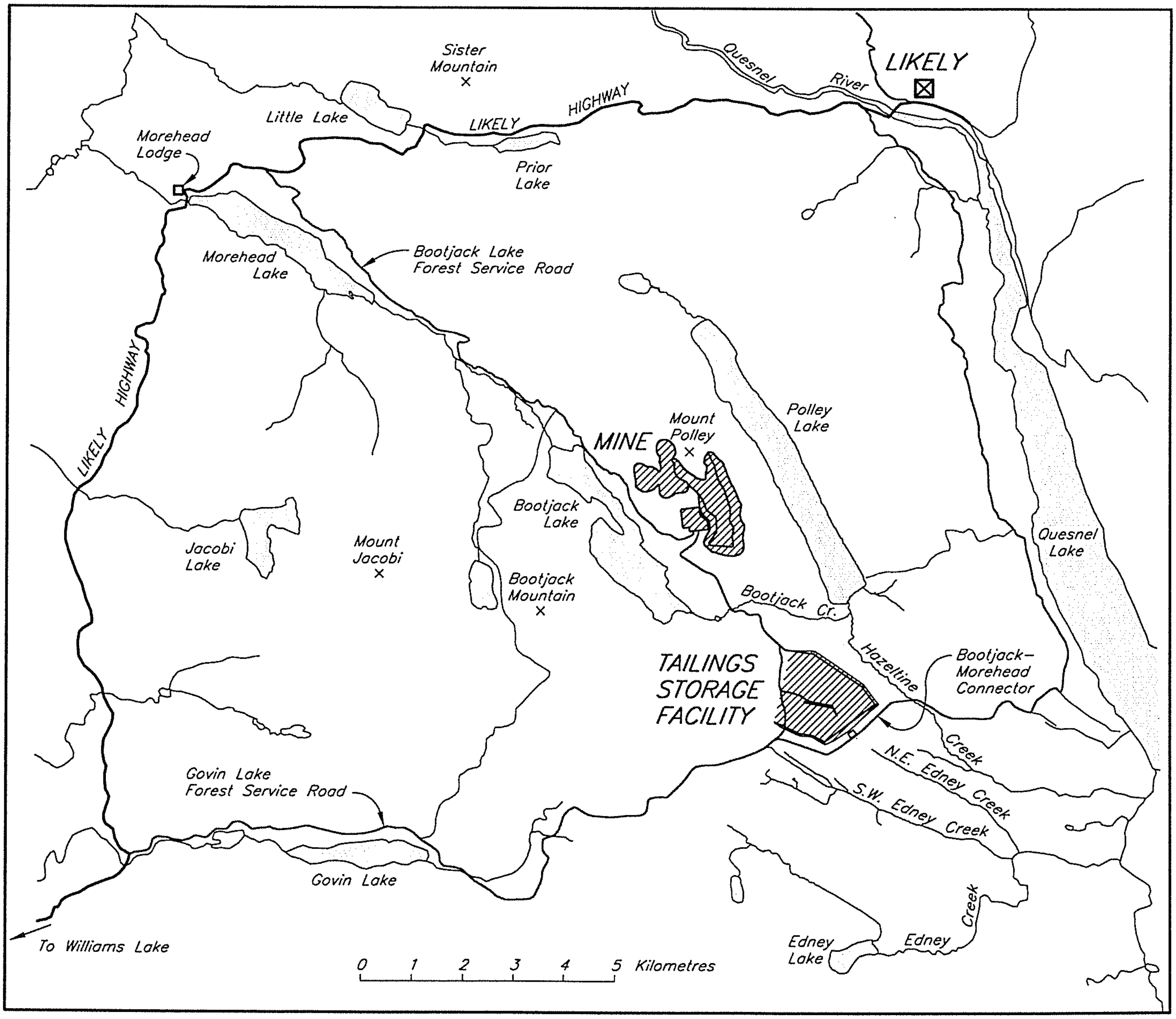
A1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PROJECT LOCATION AND ACCESS PLAN



KEY MAP





LOCATION MAP

June 9, 1999

Knight Piésold
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FIGURE 1.1

CAD FILE:\11162\10...A1 1:125,000 Plot 1=125

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION - ZONE S RECORD SAMPLES - GRADATION CURVES

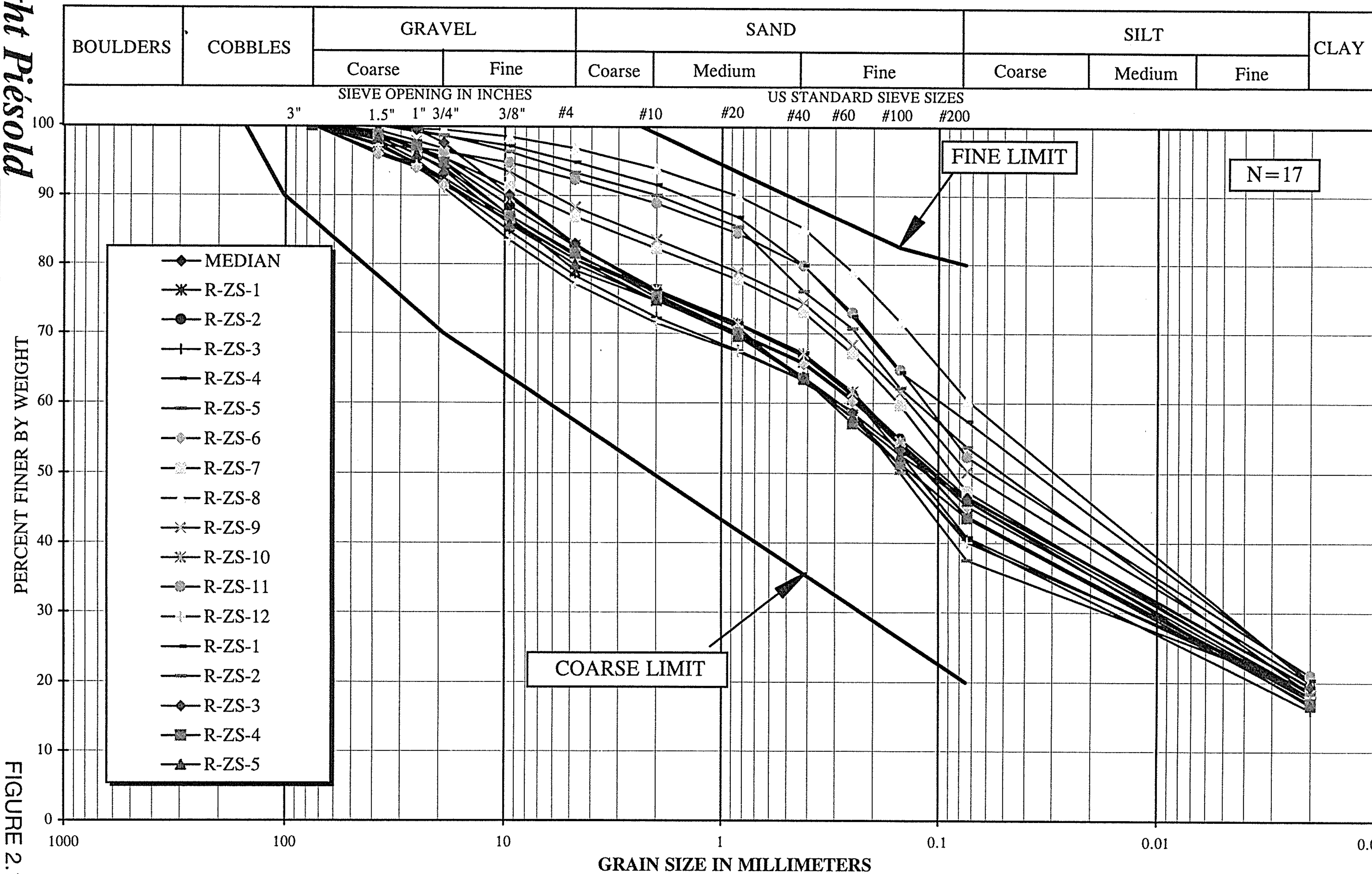

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FIGURE 2.1

<u>**MOUNT POLLEY MINING CORPORATION**</u>
<u>**MOUNT POLLEY MINE**</u>

<u>**STAGE 2A/2B CONSTRUCTION - ZONE S RECORD SAMPLES - MOISTURE CONTENT HISTOGRAMS**</u>

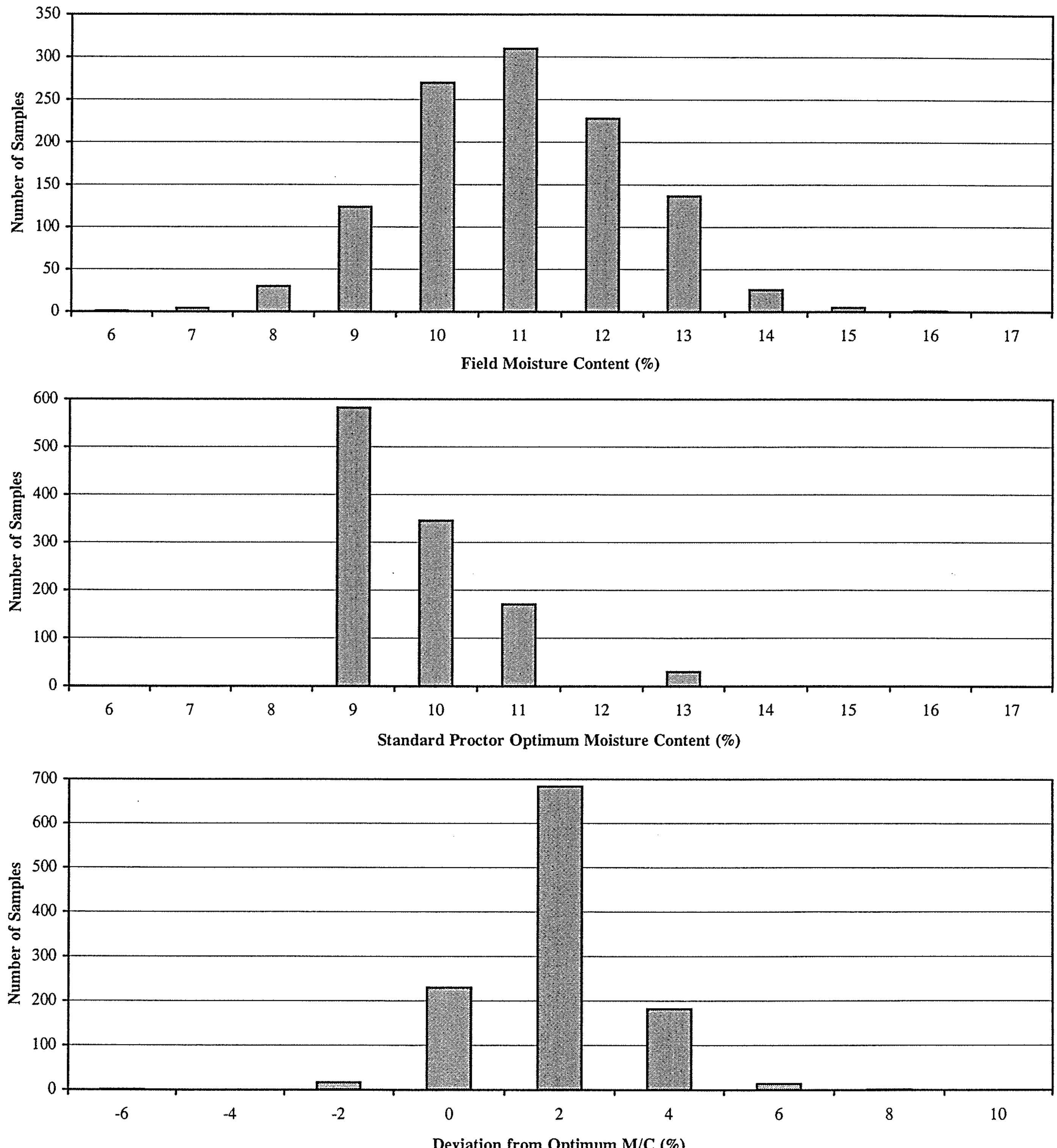

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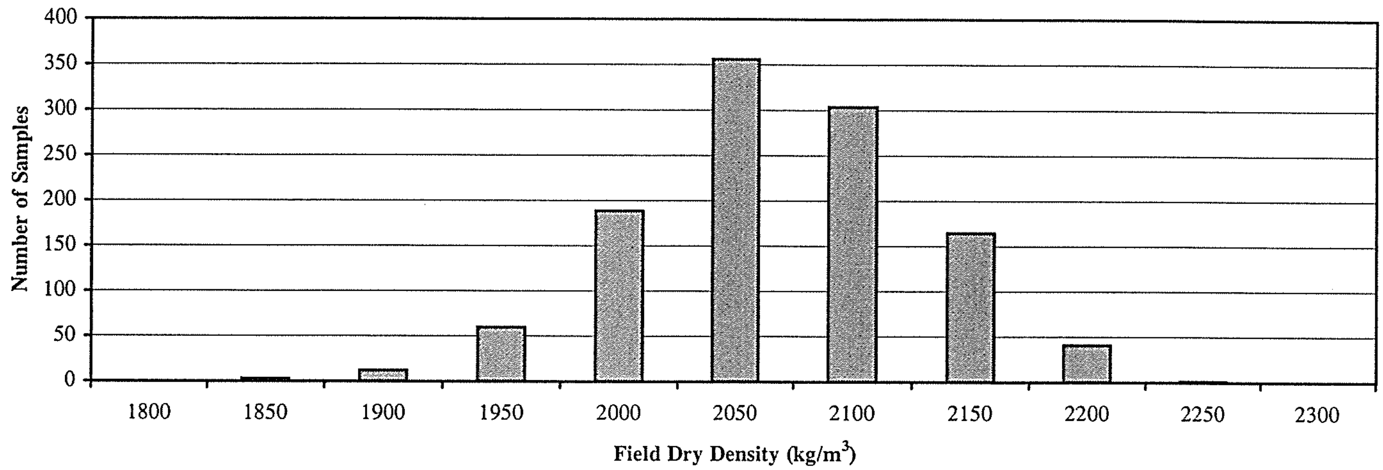
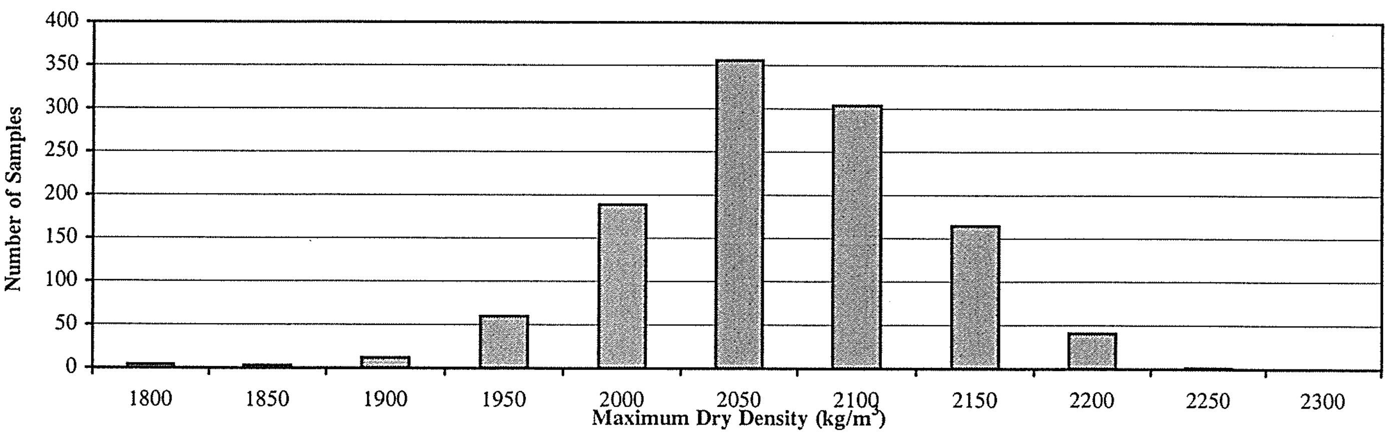
FIGURE 2.2

M:\11162\10\Report\1\ZSNUKE.XLS Chart1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

STAGE 2A/2B CONSTRUCTION - ZONE S RECORD SAMPLES - DENSITY AND COMPACTION HISTOGRAMS





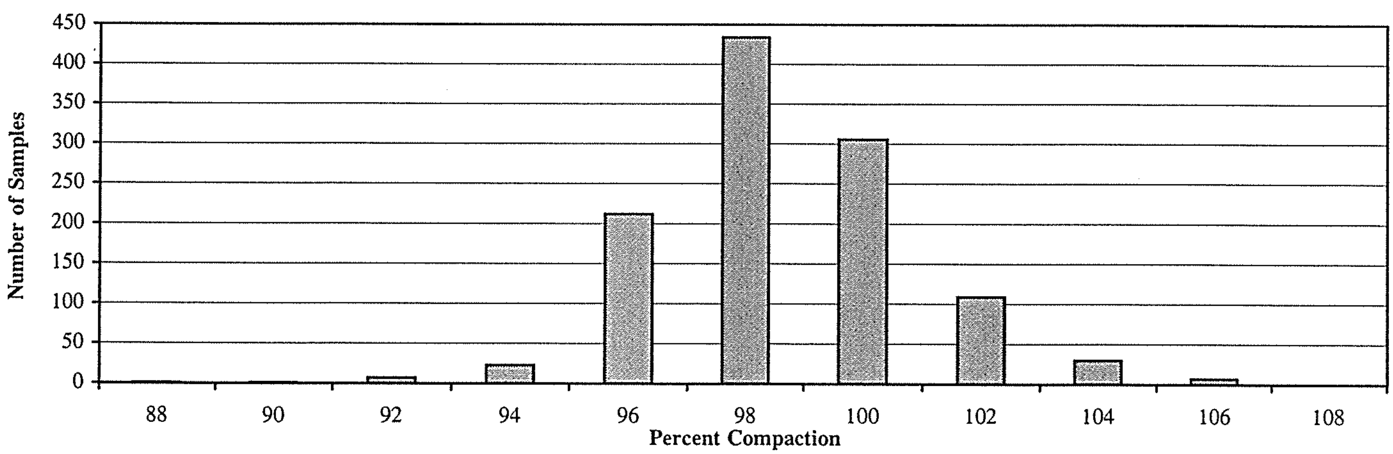


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FIGURE 2.3

M:\11162\10\Report\1\ZSNUKE.XLS Chart1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION - ZONE B RECORD SAMPLES - GRADATION CURVES

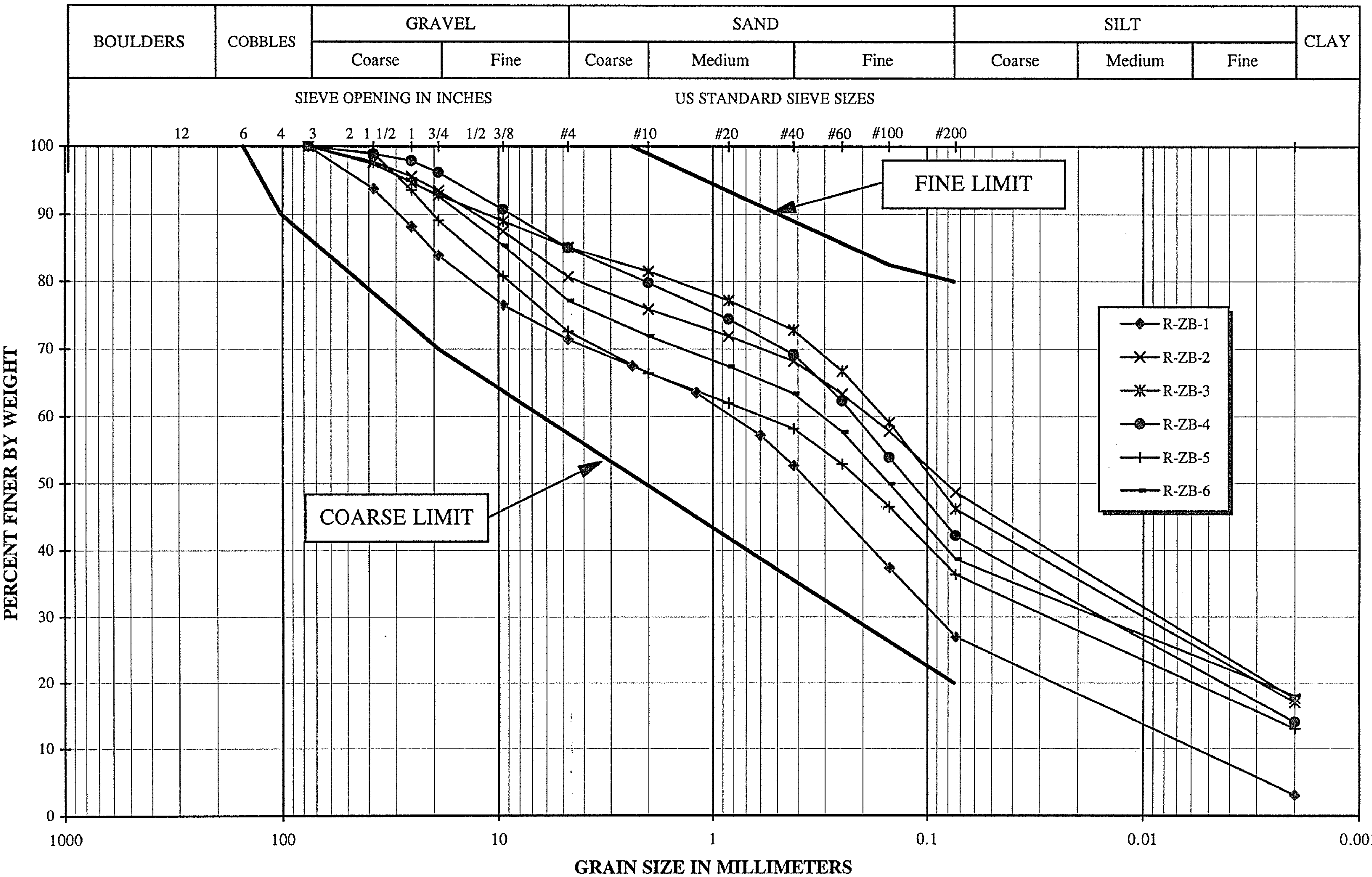

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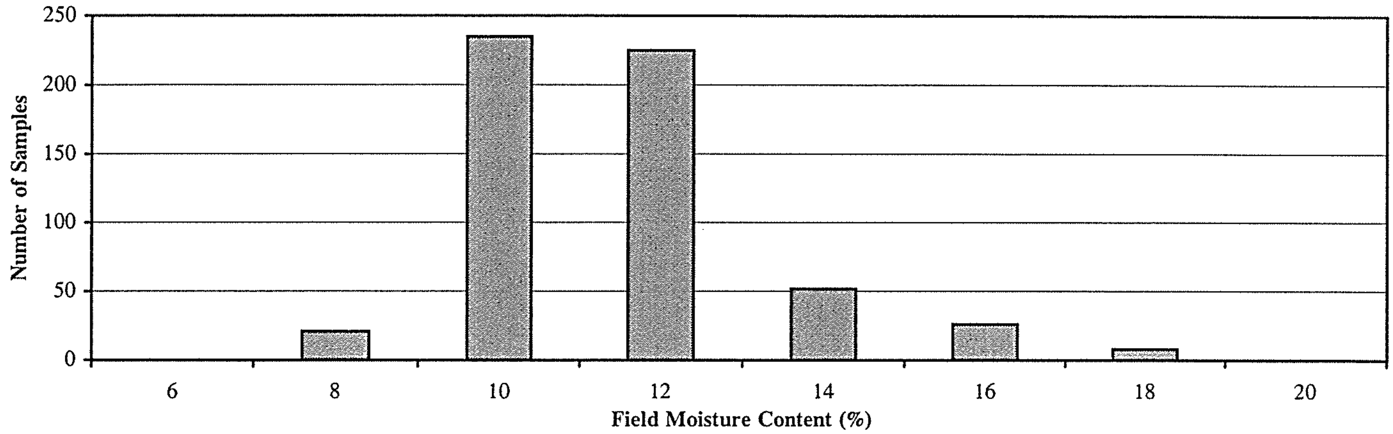
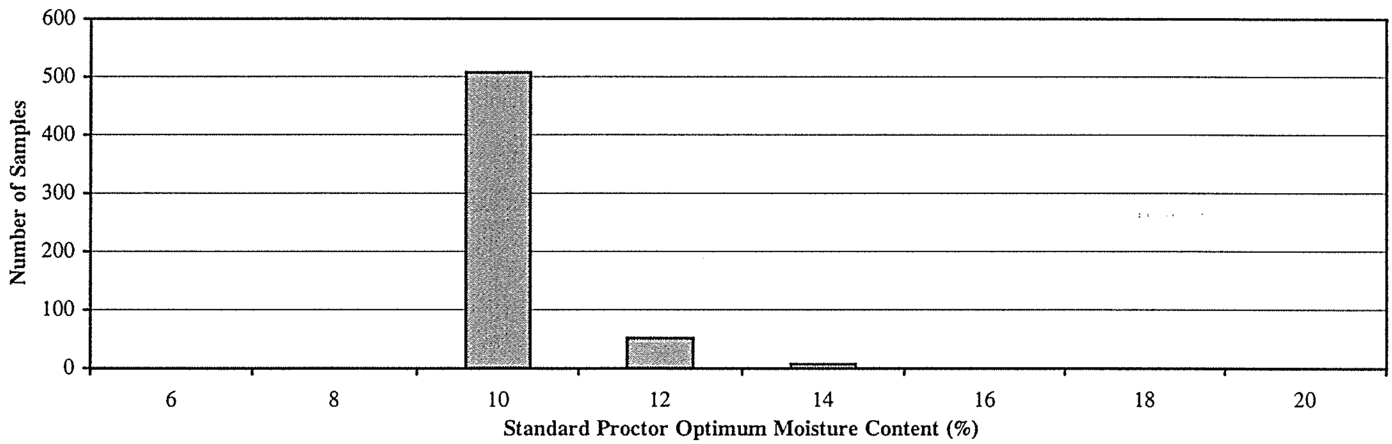
FIGURE 2.4

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

STAGE 2A/2B CONSTRUCTION - ZONE B RECORD SAMPLES - MOISTURE CONTENT HISTOGRAMS





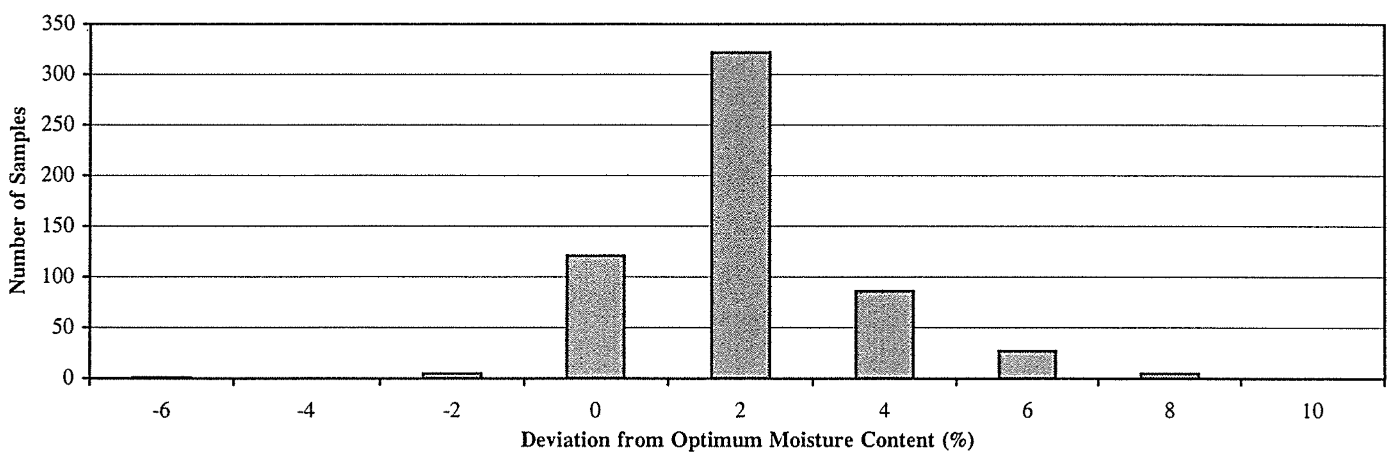


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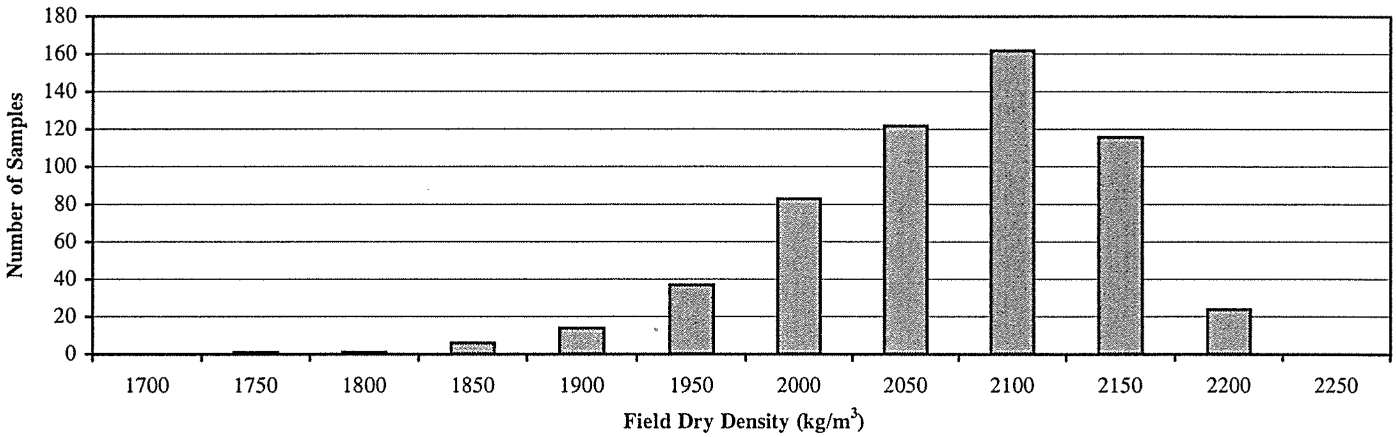
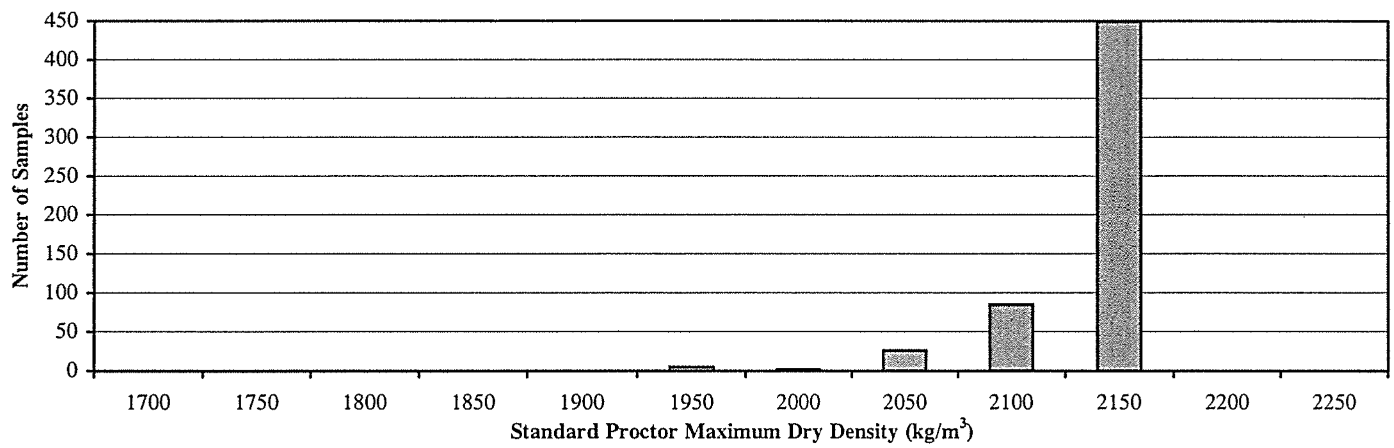
FIGURE 2.5

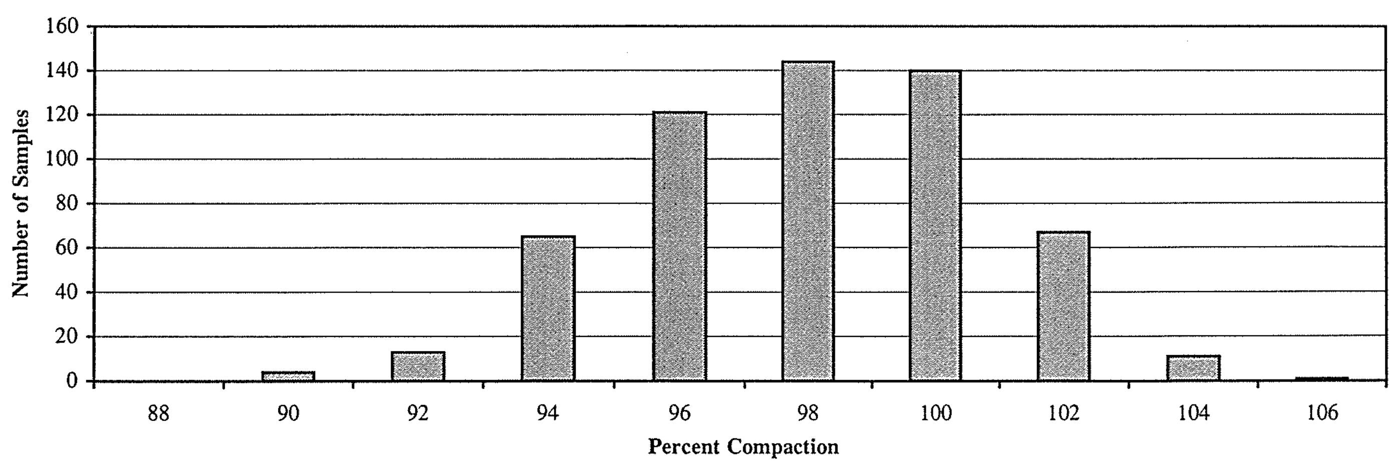
M:\11162\10\Report\1\ZBNUKE.XLS Chart1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

STAGE 2A/2B CONSTRUCTION - ZONE B RECORD SAMPLES - DENSITY AND COMPACTION HISTOGRAMS







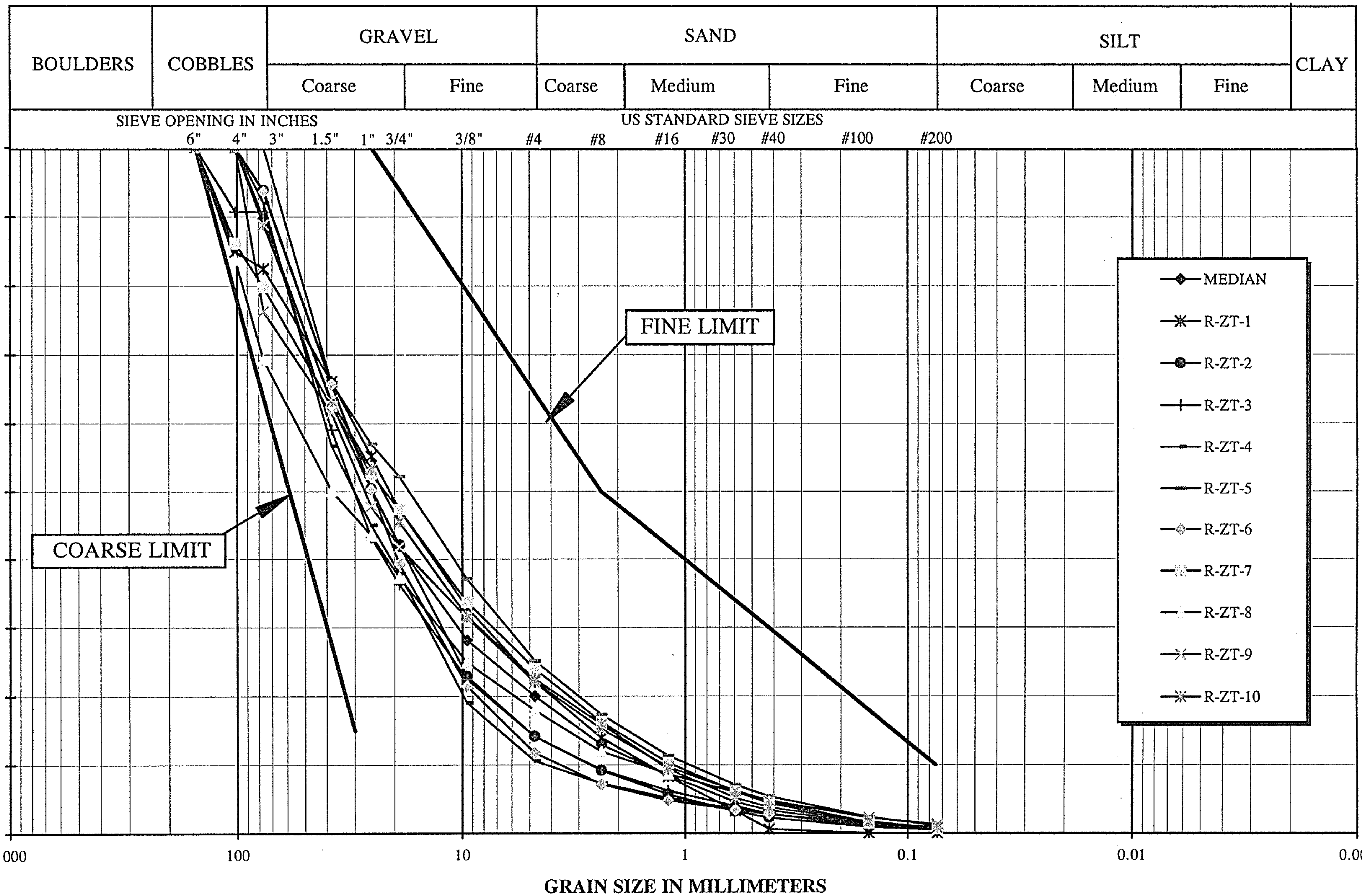
Knight Piésold CONSULTING

FIGURE 2.6

M:\11162\10\Report\1\ZBNUKE.XLS Chart2

m:\11162\10\report\1\\R-zt-sum.xls\PSA Plot 13-Apr-99 11:20 AM

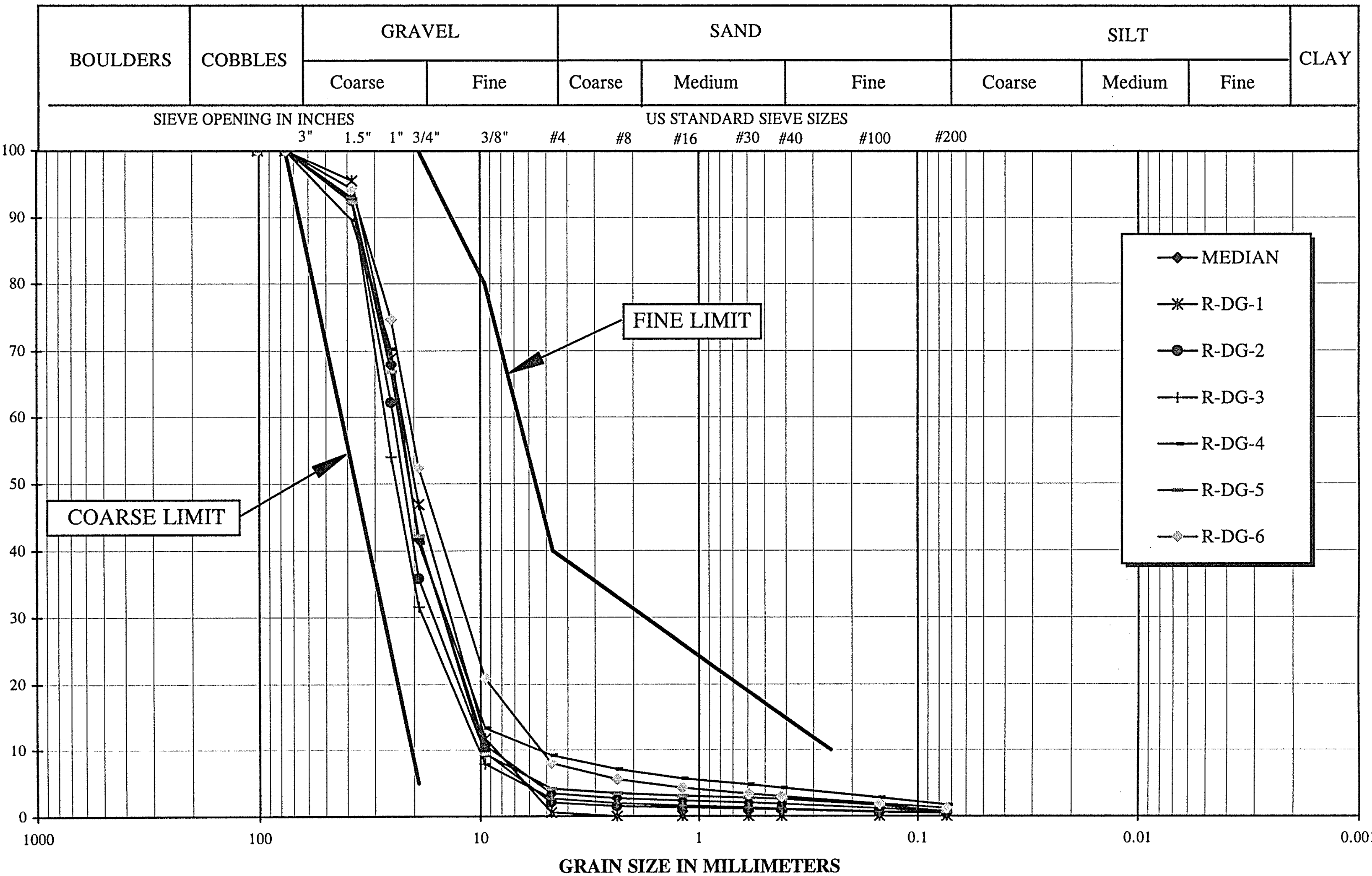
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION - ZONE T RECORD SAMPLES - GRADATION CURVES



Knight Piésold CONSULTING

FIGURE 2.7

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION - ZONE G RECORD SAMPLES - GRADATION CURVES



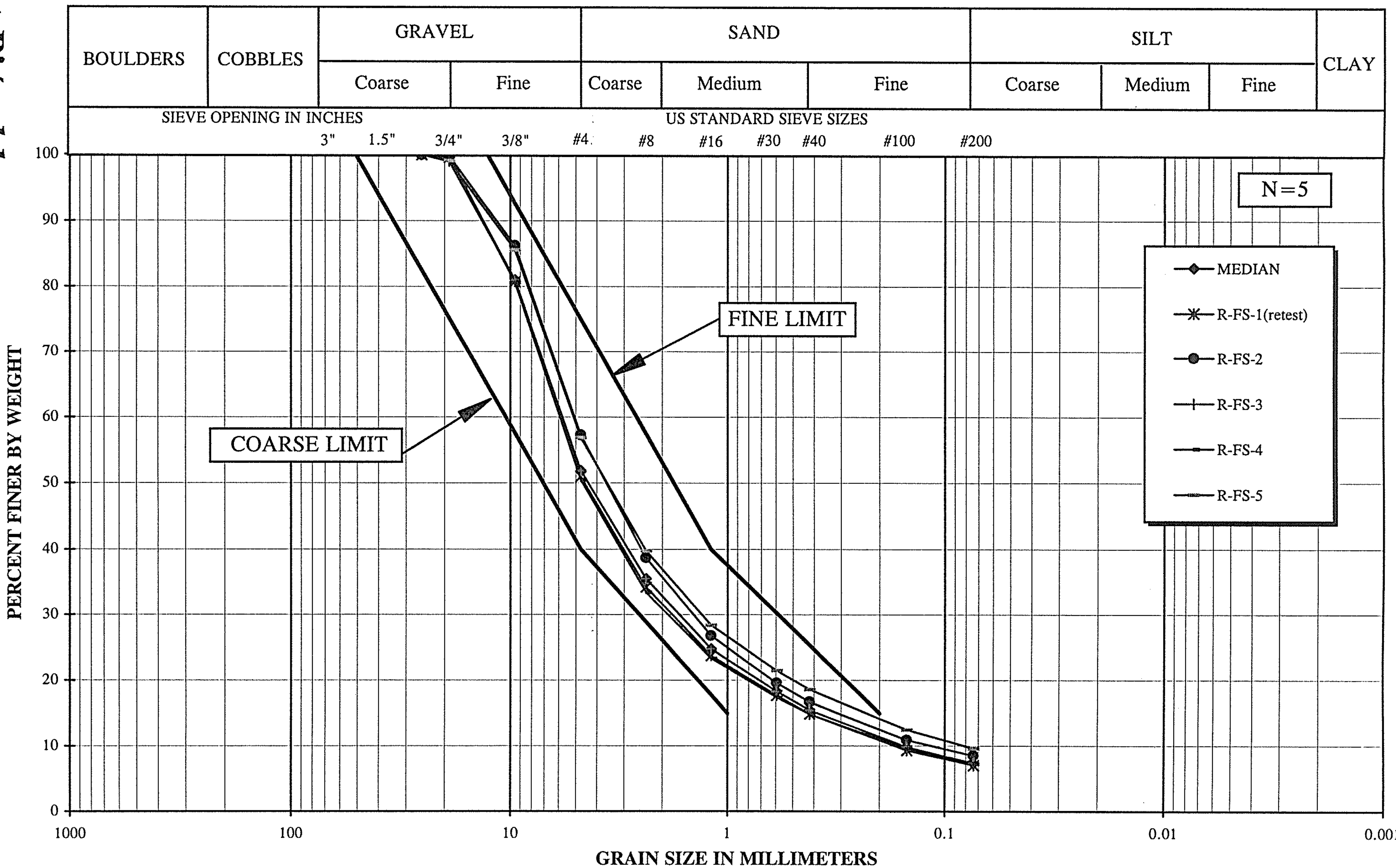
Knight Piésold CONSULTING

FIGURE 2.8

m:\11162\10\report\1\R-FS-SUM.xls\PSA Plot

13-Apr-99 11:21 AM

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION - ZONE F RECORD SAMPLES - GRADATION CURVES



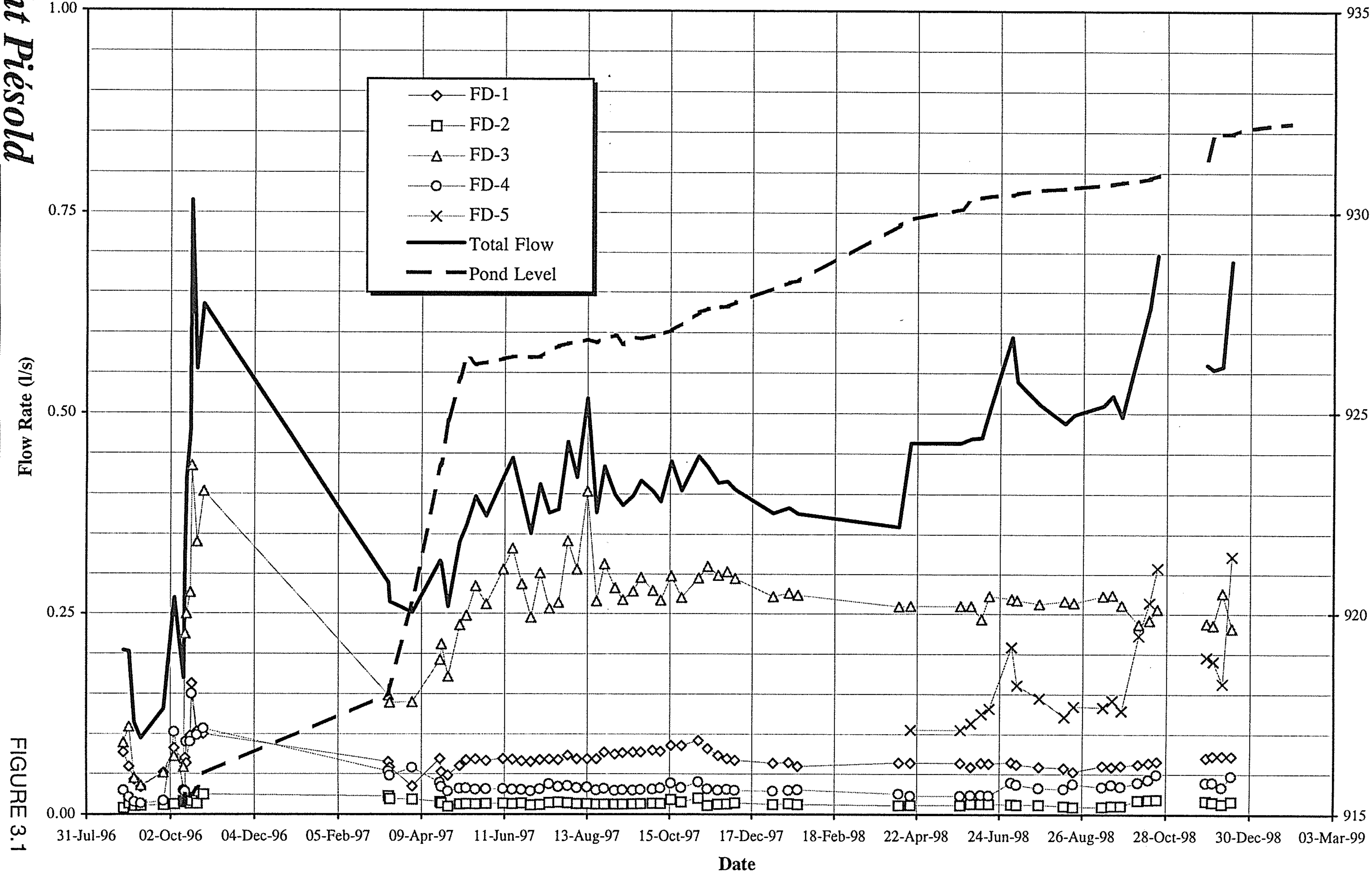
Knight Piésold
CONSULTING

FIGURE 2.9

m:\11162\10\report\1\Mpfd_5.xls\graph

12-Apr-99 11:24 AM

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
TAILINGS STORAGE FACILITY
MAIN EMBANKMENT FOUNDATION DRAIN FLOWS



Knight Piésold CONSULTING

FIGURE 3.1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
TAILINGS STORAGE FACILITY
FILLING SCHEDULE AND STAGED CONSTRUCTION FOR EARTH/ROCKFILL EMBANKMENT

Updated : June 14, 1999

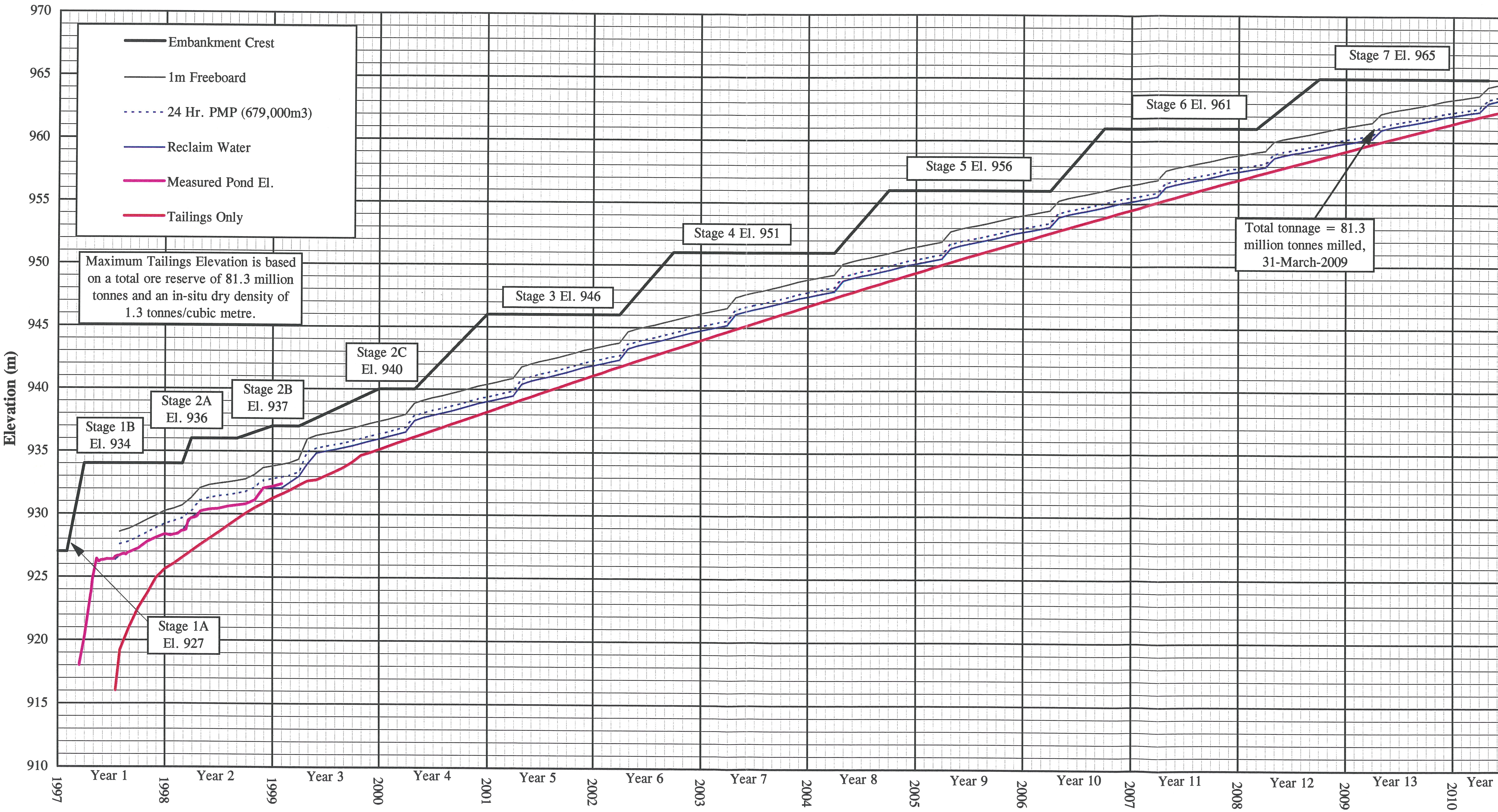


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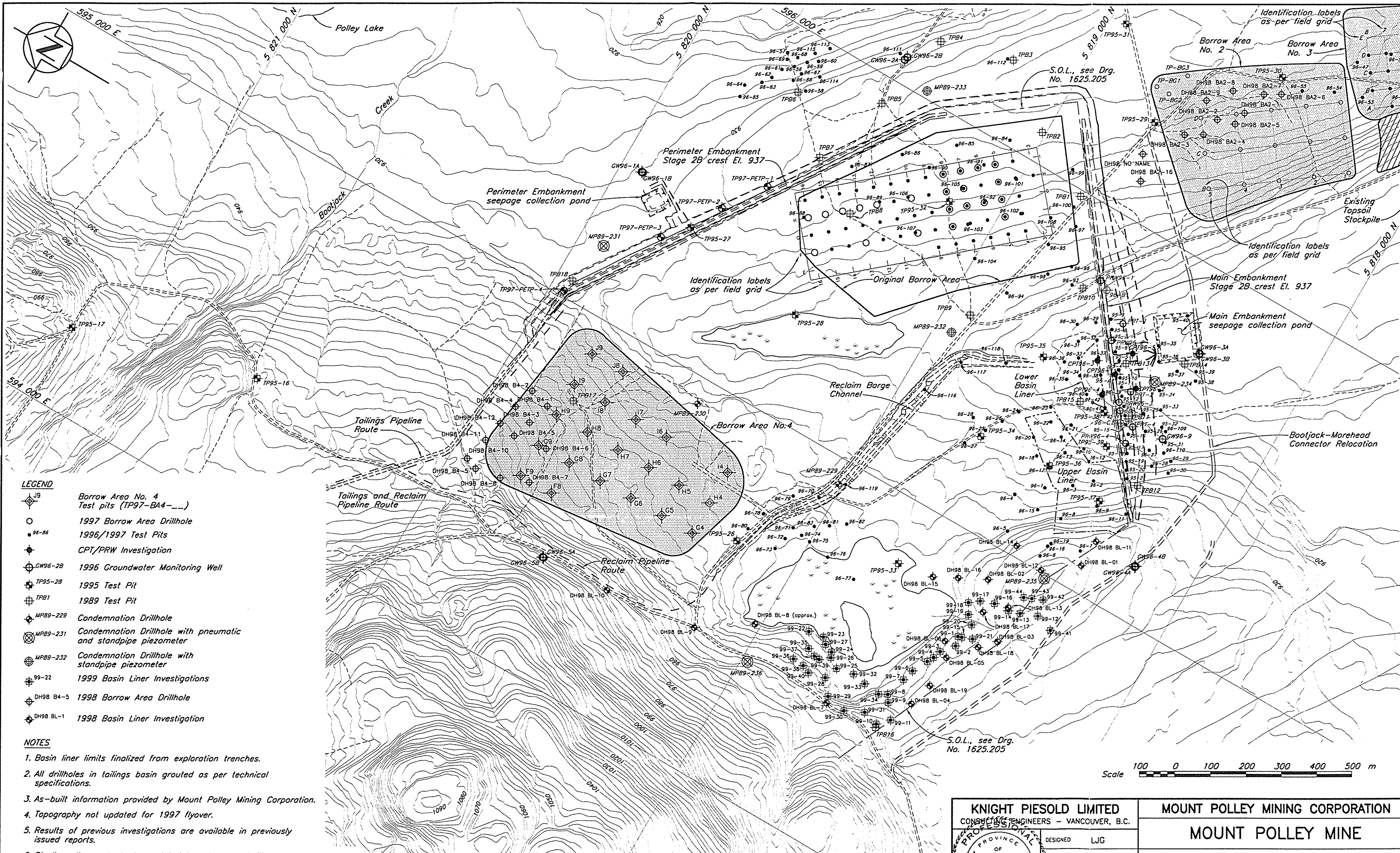
FIGURE 3.2



LEGEND

J9	Borrow Area No. 4 Test pits (TP97-BA4-__)
	1997 Borrow Area Drillhole
96-86	1996/1997 Test Pits
	CPT/PRW Investigation
GW96-2B	1996 Groundwater Monitoring Well
TP95-28	1995 Test Pit
TPB1	1989 Test Pit
MP89-229	Condemnation Drillhole
MP89-231	Condemnation Drillhole with pneumatic and standpipe piezometer
MP89-232	Condemnation Drillhole with standpipe piezometer
99-22	1999 Basin Liner Investigations
DH98 B4-5	1998 Borrow Area Drillhole
DH98 BL-1	1998 Basin Liner Investigation

NOTES

1. Basin liner limits finalized from exploration trenches.
2. All drillholes in tailings basin grouted as per technical specifications.
3. As-built information provided by Mount Polley Mining Corporation.
4. Topography not updated for 1997 flyover.
5. Results of previous investigations are available in previously issued reports.
6. Pipeline alignments to be updated based on as-built survey.

DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	APPROVED	REV.	DATE	DESCRIPTION	APPROVED
						0	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
REFERENCE DRAWINGS		REVISIONS				REVISIONS			

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER – PROVINCE OF BRITISH COLUMBIA – K. BROUWER

DESIGNED	LJG
DRAWN	NSD/WAL
CHECKED	BB
APPROVED	KJB

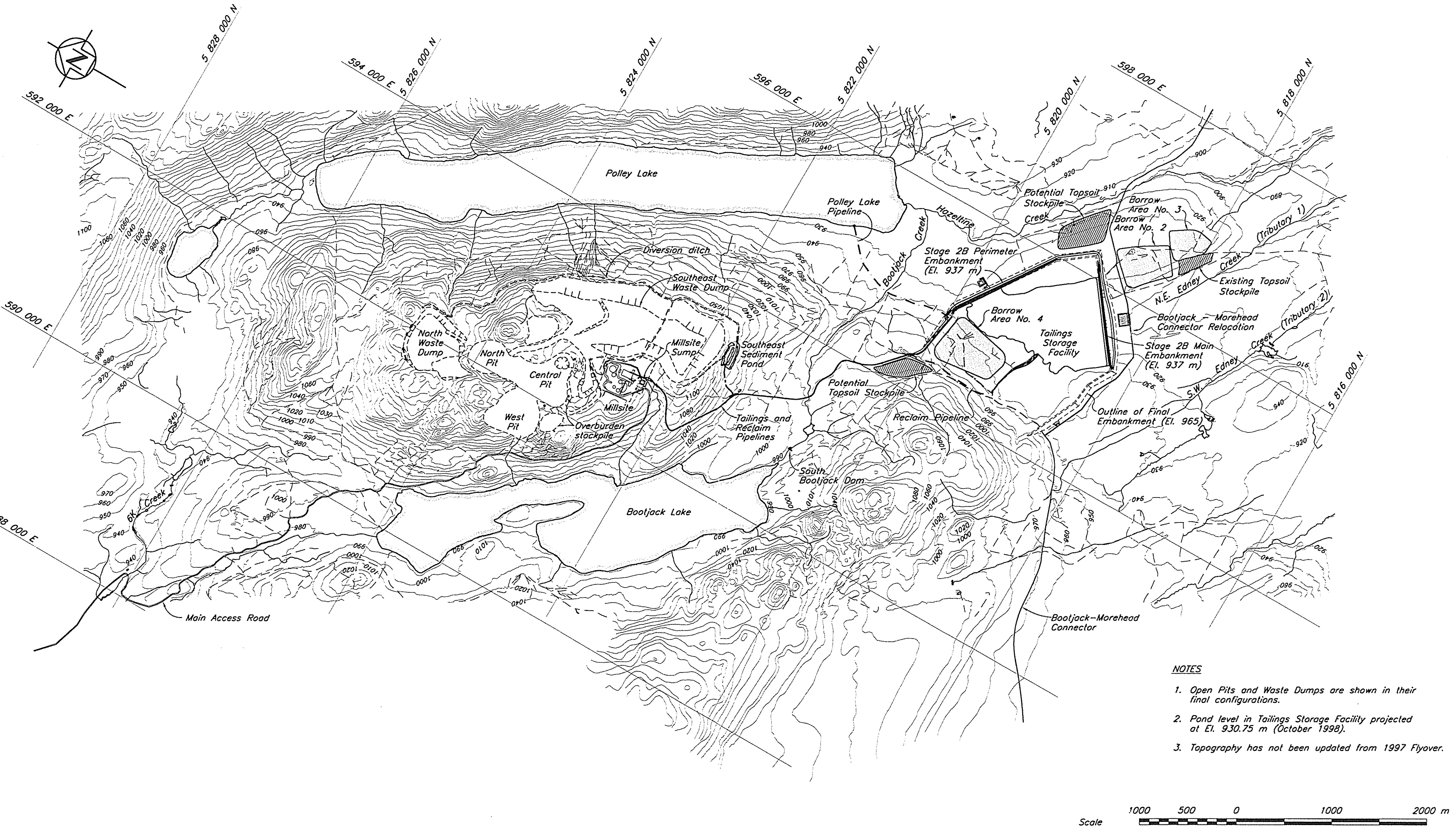
MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
GEOLOGICAL INVESTIGATIONS
LOCATION PLAN

DATE JUNE 11, 1999 | SCALE AS SHOWN | DRG. NO. 10162-9-001 | REV. 0

CAD FILE: M:\1\162\9\ACAD\drg\1030\030.DWG 1=5000 PLOT 1=1 JUNE 15, 1999 by-WAL



NOTES

1. Open Pits and Waste Dumps are shown in their final configurations.
2. Pond level in Tailings Storage Facility projected at El. 930.75 m (October 1998).
3. Topography has not been updated from 1997 Flyover.

Scale 1000 500 0 1000 2000 m

CAD FILE: M:\1\1162\9\ACAD\dwgs\04\04-dwg 1=20000 PLOT 1=20 12/05/99 by:wal Time 11:43

DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	APPROVED
REVISIONS			

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 6/98	ISSUED FOR CONSTRUCTION	
0	NOV 10/97	ISSUED FOR TENDER	
REVISIONS			

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K. J. BROUWER

DESIGNED	KDE/KJB
DRAWN	NSD
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

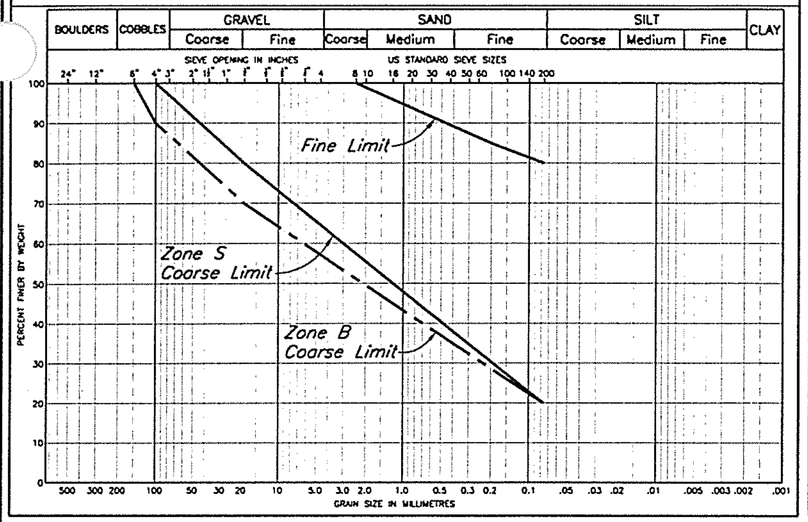
MOUNT POLLEY MINE

OVERALL SITE PLAN
SHOWING STAGE 2B TAILINGS EMBANKMENT

DATE	NOV. 10, 1997	SCALE AS SHOWN	DRG. NO.	10162-9-100	REV.	2

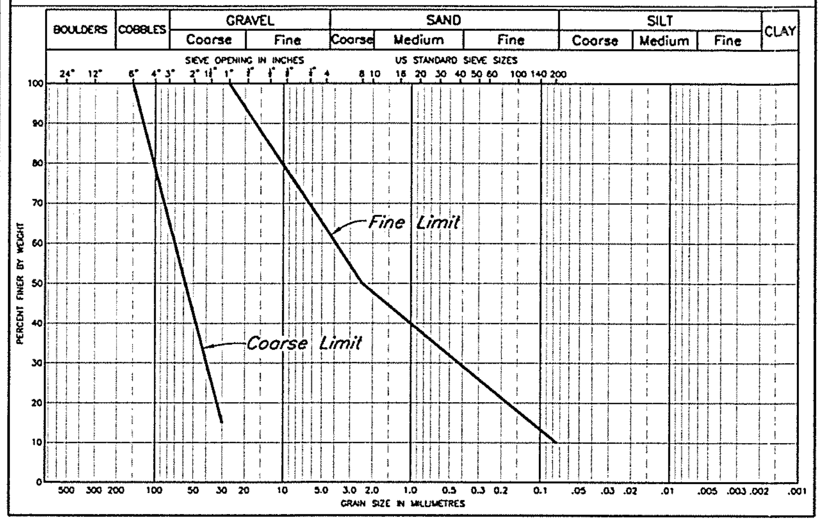
UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT: *ZONE S and ZONE B*



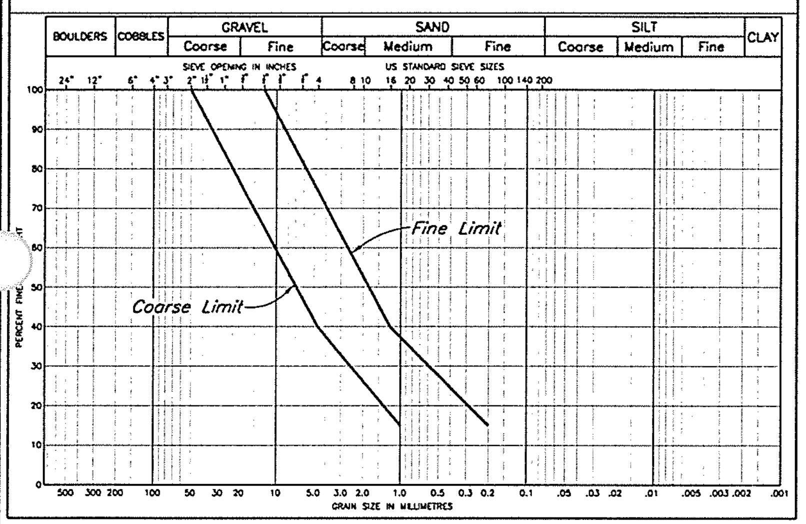
UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT: *ZONE T*



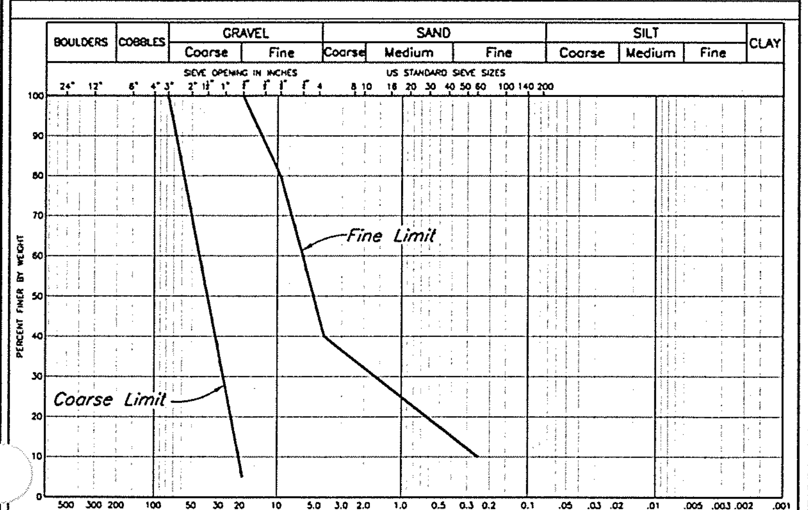
UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT: *ZONE F*



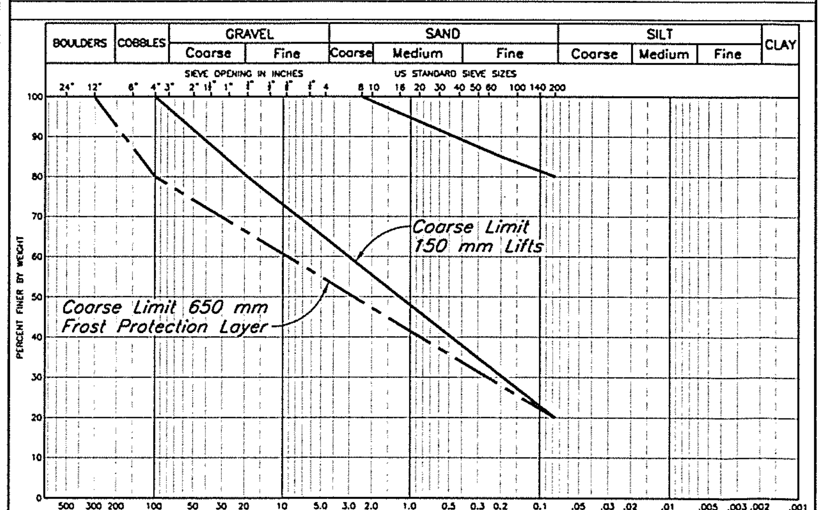
UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT: *ZONE G*



UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT: *BASIN LINER*



ZONE	*LOCATION*	*MATERIAL TYPE*	*PLACEMENT AND COMPACTION REQUIREMENTS*
S	*Core Zone*	*Glacial till*	*Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.*
B	*Fill Zone*	*Glacial till, glaciolacustrine or granular material*	*Placed, moisture conditioned and spread in maximum 1000 mm thick layers (after compaction). Vibratory compaction to 92% of Standard Proctor maximum dry density or as approved by the Engineer.*
T	*Transition Zone*	*Mine Rock*	*Placed and spread in maximum 600 mm thick layers. Compaction as directed by the Engineer.*
F	*Chimney Drain*	*Filter sand*	*Placed and spread in maximum 600 mm thick lifts. Compaction as directed by the Engineer.*
F	*Longitudinal/ Outlet Drain*	*Filter Sand*	*Placed and spread carefully around filter fabric/drain gravel. Compaction as directed by the Engineer.*
G	*Foundation/ Longitudinal/ Outlet Drain*	*Drain Gravel*	*Placed and spread carefully around seepage collection pipes. Compaction as directed by the Engineer.*
CBL	*Coarse Bearing Layer*	*Random Rockfill*	*End dumped and spread as required for trafficability and fill placement.*
–	*Basin Liner*	*Glacial till, glaciolacustrine material*	*Placed and spread in maximum 150 mm thick lifts. Compacted to 92% of the Standard Proctor Maximum Dry Density, or as approved by the Engineer.*
–	*Basin Liner Frost Protection*	*Glacial till, glaciolacustrine or granular material*	*Placed and spread in maximum 300 mm thick lift. Compaction as directed by the Engineer.*

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DRG. NO.	DESCRIPTION

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 6/98	ISSUED FOR CONSTRUCTION	
0	NOV 10/97	ISSUED FOR TENDER	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K. J. BROUWER

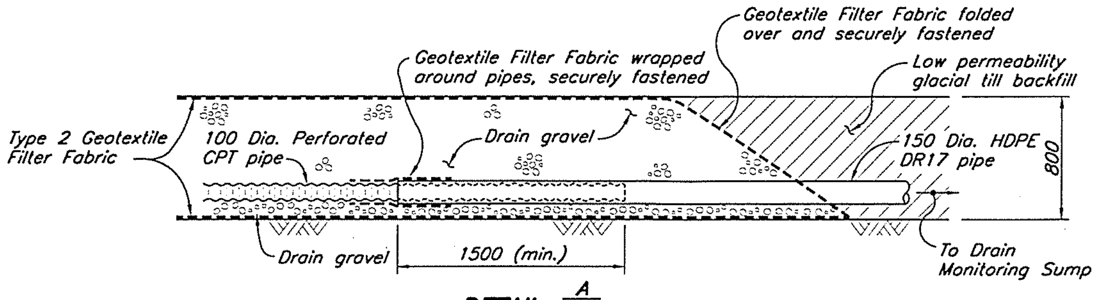
DESIGNED	KDE/PJP
DRAWN	NSO
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

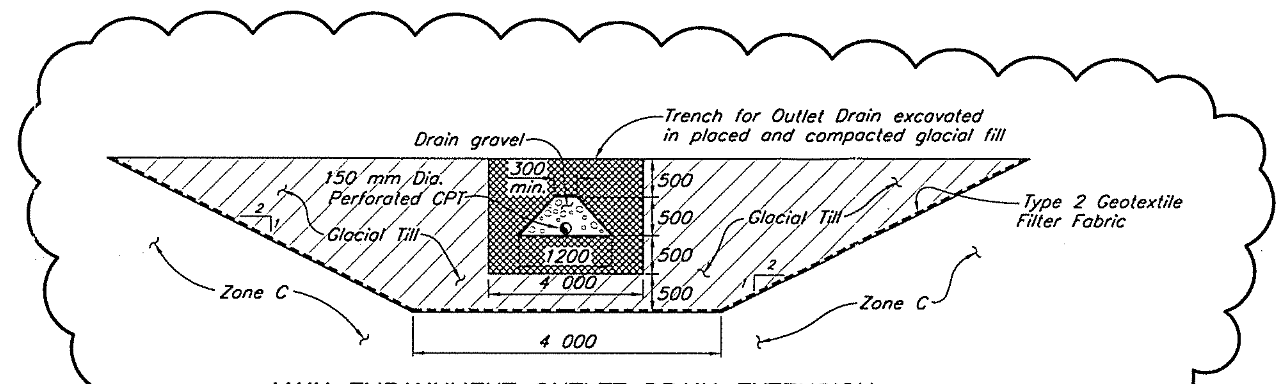
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A/2B EXPANSION
MATERIAL SPECIFICATIONS

DATE NOV. 10, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-104 | REV. 2

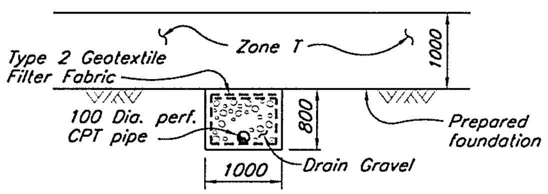


DETAIL $\frac{A}{111}$
EMBANKMENT FOUNDATION DRAIN TIE-IN (IN SECTION)
Scale B

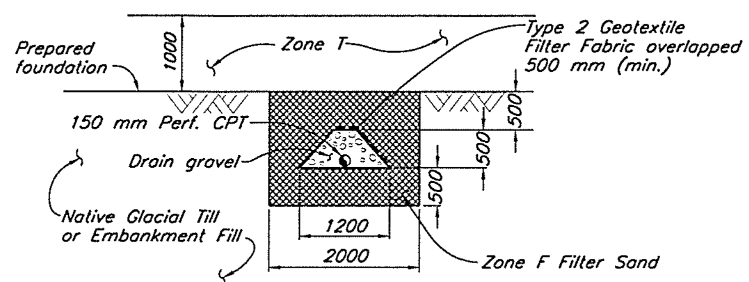


MAIN EMBANKMENT OUTLET DRAIN EXTENSION
Scale A

HOLD
For Stage 2C Construction



SECTION $\frac{4}{110}$
FOUNDATION DRAIN DETAIL
Scale A



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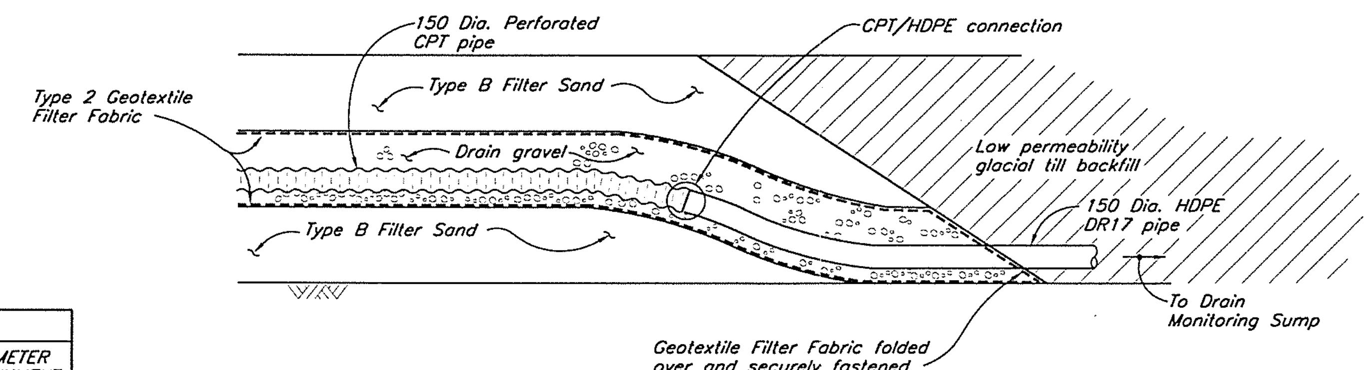
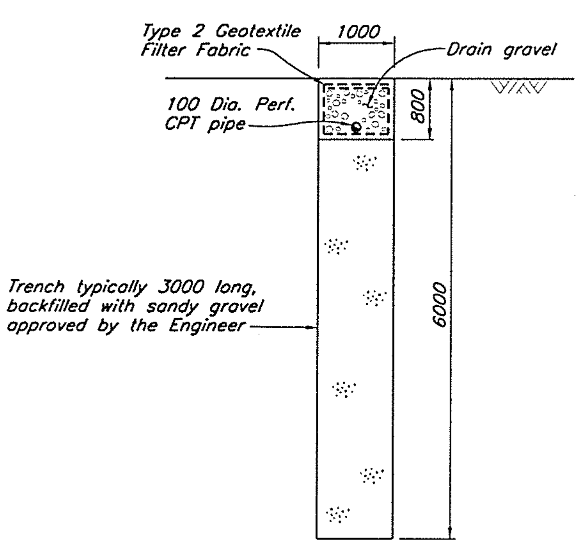
OUTLET DRAIN DETAIL
Scale A

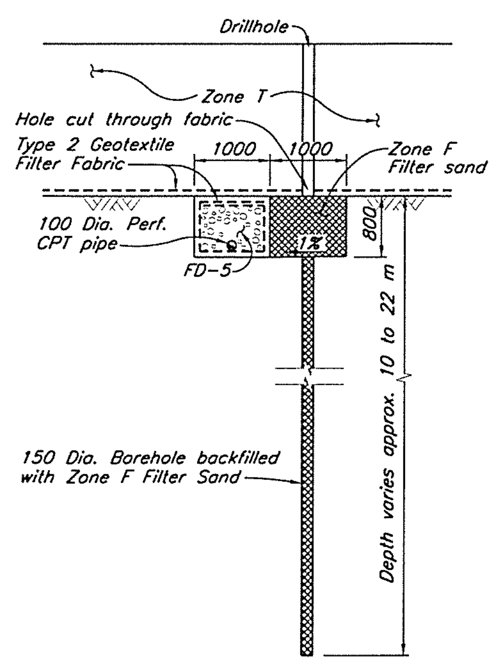


DETAIL $\frac{B}{121}$
OUTLET DRAIN TIE-IN (IN SECTION)
Scale B

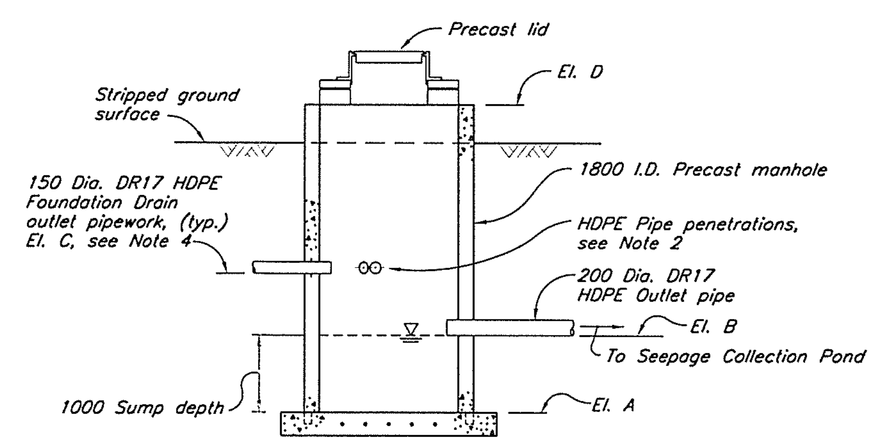
Table 1		
ELEV.	MAIN EMBANKMENT	PERIMETER EMBANKMENT
A	907.5	925.5
B	908.5	926.5
C	909.3	927.0
D	911.5	930.5



EMBANKMENT FOUNDATION DRAIN
PRESSURE RELIEF TRENCH
TYPICAL DETAIL
Scale A



EMBANKMENT FOUNDATION DRAIN
PRESSURE RELIEF WELL
TYPICAL DETAIL
Scale A

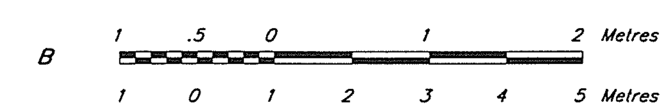


DETAIL $\frac{C}{111}$, $\frac{C}{121}$
DRAIN MONITORING SUMP (Typ.)
Scale A

NOTE: See Table 1 for key elevations

NOTES

1. All pipework to have a minimum of 1 m of cover for frost protection.
2. All HDPE pipe penetrations to be water tight.
3. Buried pipework to be covered by a berm and clearly marked by a line of stakes.
4. Elevation of new HDPE pipe penetrations at Drain Monitoring Sump to be determined in the field by the Engineer.
5. For locations of Pressure Relief Trenches and Wells, see Drg. No. 10162-9-155.



ORG. NO.	DESCRIPTION
121	TSF - STAGE 2A PERIMETER EMBANKMENT - SECTIONS
120	TSF - STAGE 2A PERIMETER EMBANKMENT -PLAN
111	TSF - STAGE 2A MAIN EMBANKMENT -SECTIONS
110	TSF - STAGE 2A MAIN EMBANKMENT -PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A/2B AS-BUILT	KB
1	JAN 6/97	ISSUED FOR CONSTRUCTION	
0	NOV 10/97	ISSUED FOR TENDER	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, K. J. BROUWER

DESIGNED	KDE
DRAWN	DSR/NSD
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A/2B EXPANSION
EMBANKMENT DRAIN SYSTEMS
SECTIONS AND DETAILS

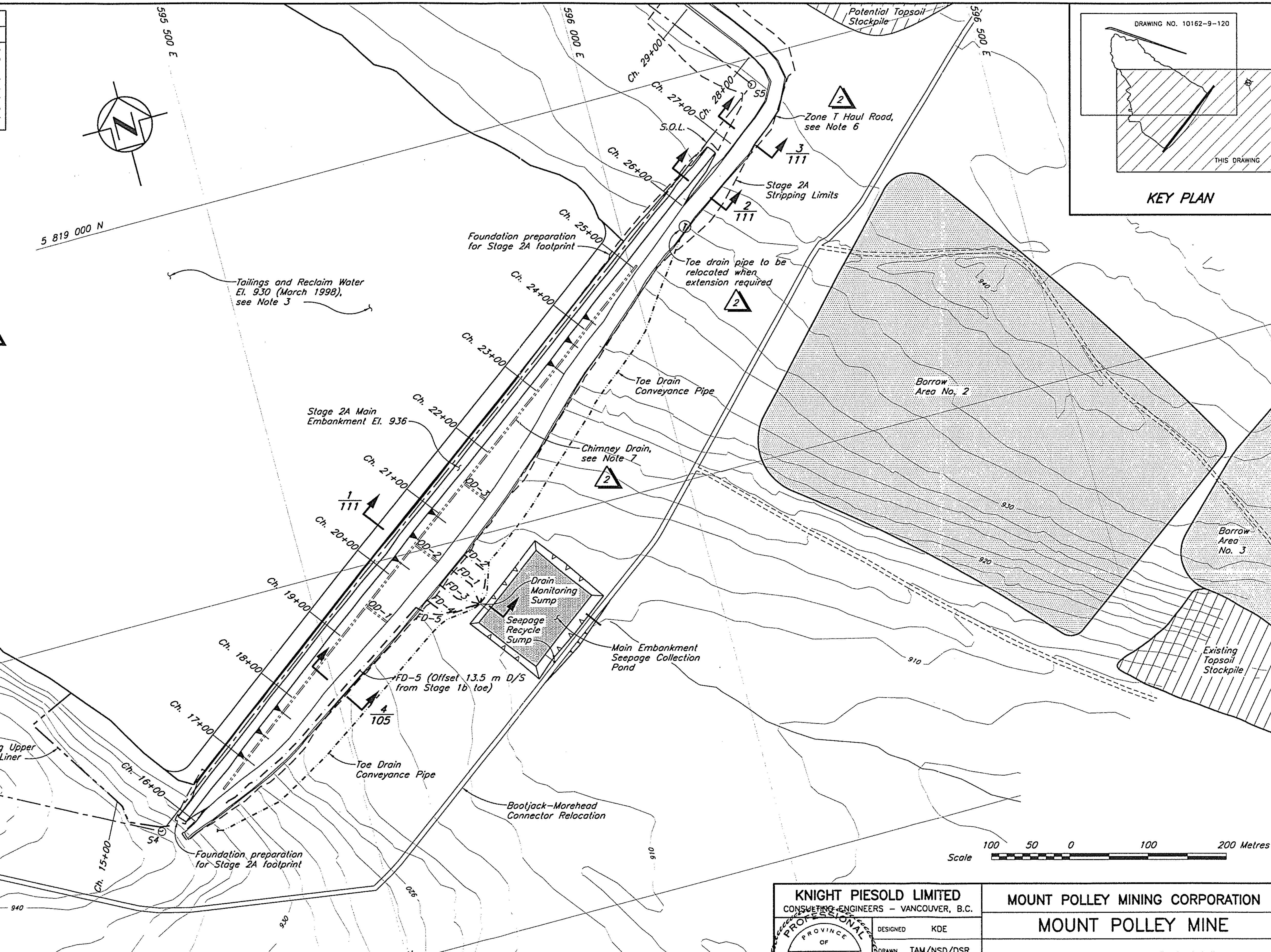
DATE NOV. 10, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-105 | REV. 2

CAD FILE: M:\1\162\9\ACAD\dwgs\015\015.dwg 1=50 PLOT 1=0.05 10/06/99 by:DSR

EMBANKMENT SETTING OUT POINTS			
Point	Northing	Easting	Chainage
S1	5 818 622.590	594 258.688	5+00.00
S2	5 818 392.402	594 765.778	10+56.89
S3	5 818 365.375	594 995.246	12+87.94
S4	5 818 238.539	595 240.350	15+63.92
S5	5 818 966.983	596 208.866	27+75.80
S6	5 819 304.035	595 955.881	31+97.23
S7	5 819 939.748	595 010.249	43+36.69
S8	5 820 053.034	594 396.471	49+60.83

NOTES

1. Chainage defined by Setting Out Point S1 at Ch. 5+00.
2. Stripping and clearing required 5 m beyond toe of embankments.
3. Pond elevation estimated from Filling Schedule and Staged Construction Curve.
4. Topography has not been updated from 1997 Flyover.
5. Tailings pipeline on embankment crest not shown for clarity.
6. Zone T Haul Road to be constructed at the downstream toe of the Stage 1b Main Embankment to El. 931.0. Above El. 931.0 Haul Road is offset 30 m from S.O.L. 2
7. Longitudinal (collector) Drain for Chimney Drain constructed to invert El. 929 (Stage lb)



DRG. NO.	DESCRIPTION
105	TSF - STAGE 2 EXPANSION - EMBANKMENT DRAIN SYSTEMS - SECTIONS & DETAILS
111	TSF - STAGE 2A MAIN EMBANKMENT - SECTIONS

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A AS-BUILT	KJB
1	JAN 6/98	ISSUED FOR CONSTRUCTION	
0	NOV 10/97	ISSUED FOR TENDER	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K. J. BROUWER

DESIGNED	KDE
DRAWN	TAM/NSD/DSR
CHECKED	BB
APPROVED	KJB

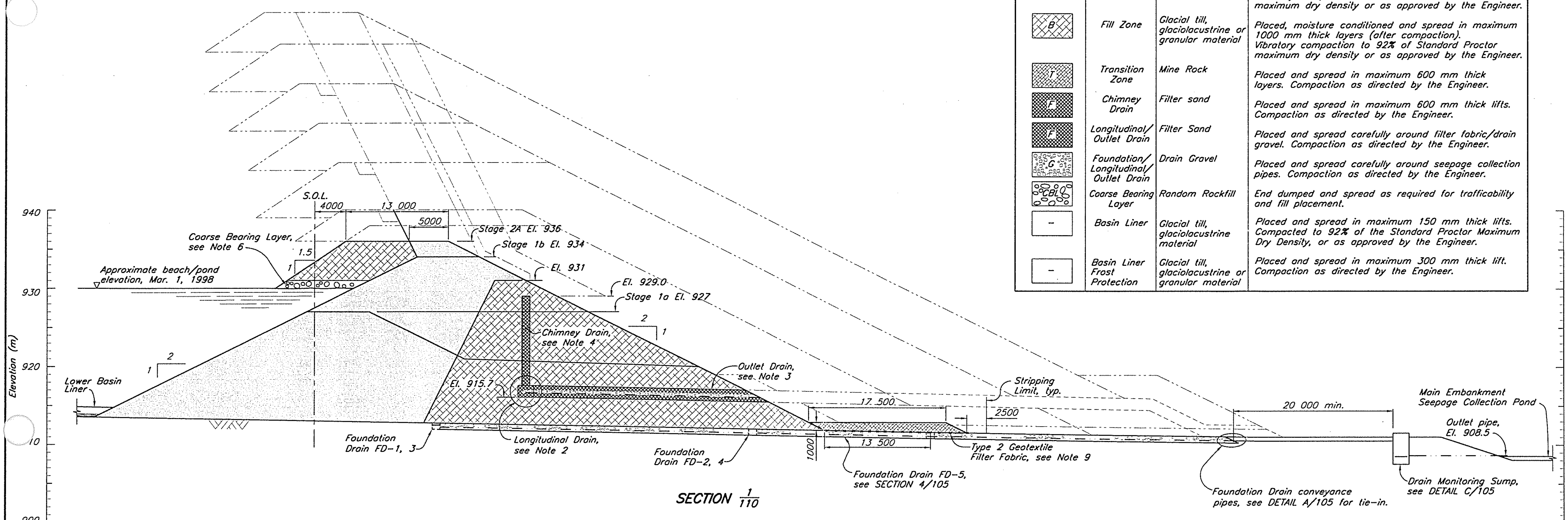
MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

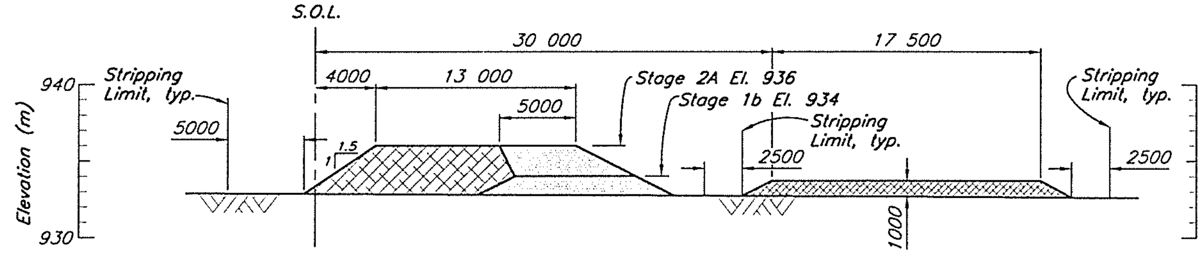
TAILINGS STORAGE FACILITY
STAGE 2A MAIN EMBANKMENT
PLAN

DATE NOV. 10, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-110 | REV. 2

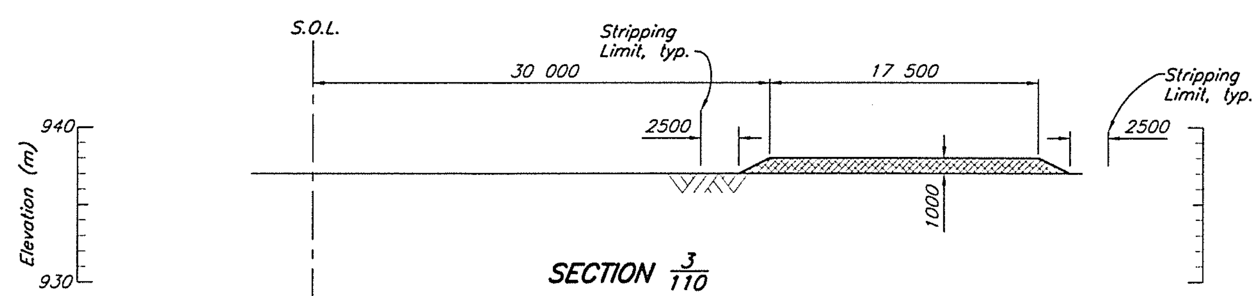
ZONE	LOCATION	MATERIAL TYPE	PLACEMENT AND COMPACTION REQUIREMENTS
S	Core Zone	Glacial till	Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.
B	Fill Zone	Glacial till, glaciolacustrine or granular material	Placed, moisture conditioned and spread in maximum 1000 mm thick layers (after compaction). Vibratory compaction to 92% of Standard Proctor maximum dry density or as approved by the Engineer.
T	Transition Zone	Mine Rock	Placed and spread in maximum 600 mm thick layers. Compaction as directed by the Engineer.
F	Chimney Drain	Filter sand	Placed and spread in maximum 600 mm thick lifts. Compaction as directed by the Engineer.
F	Longitudinal/ Outlet Drain	Filter Sand	Placed and spread carefully around filter fabric/drain gravel. Compaction as directed by the Engineer.
G	Foundation/ Longitudinal/ Outlet Drain	Drain Gravel	Placed and spread carefully around seepage collection pipes. Compaction as directed by the Engineer.
CBL	Coarse Bearing Layer	Random Rockfill	End dumped and spread as required for trafficability and fill placement.
-	Basin Liner	Glacial till, glaciolacustrine material	Placed and spread in maximum 150 mm thick lifts. Compacted to 92% of the Standard Proctor Maximum Dry Density, or as approved by the Engineer.
-	Basin Liner Frost Protection	Glacial till, glaciolacustrine or granular material	Placed and spread in maximum 300 mm thick lift. Compaction as directed by the Engineer.



SECTION $\frac{1}{110}$



SECTION $\frac{2}{110}$



SECTION $\frac{3}{110}$

NOTES

1. Pond elevations estimated from Filling Schedule and Staged Construction Curve.
2. Longitudinal Drain constructed to invert El. 929 (Stage 1b)
3. Outlet Drains to be extended to Drain Monitoring Sump during Stage 2C construction.
4. Chimney Drain to be extended during Stage 2C if required.
5. Fill placement rates to be monitored by the Engineer. Placement rates to be modified if excess pore pressures observed in fill or foundation piezometers.
6. Coarse Bearing Layer required on tailings. To be added on ground as required to provide a firm bearing layer for fill placement.
7. All dimensions in millimetres and elevations in metres, unless noted otherwise.
8. Type 1 Geotextile Filter Fabric to be placed on tailings as required. Specification is provided in Tender Documents (12 oz/sq. yd).
9. Type 2 Geotextile Filter Fabric required from the right abutment (approx. Ch. 15+75) to El. 920.0 m on the left abutment (approx. Ch. 23+00). Specification is provided in Tender Documents (8 oz/sq. yd).
10. All Foundation Drains are not intersected on this cross-section.

Scale 5 0 5 10 15 20 25 Metres

CAD FILE: M:\1\162\9\ACAD\dwgs\D111.dwg 1=250 PLOT 1=0.25 11/06/99 by:DSR

DRG. NO.	DESCRIPTION
110	TSF - STAGE 2A MAIN EMBANKMENT - PLAN
105	TSF - STAGE 2 EXPANSION - EMBANKMENT DRAIN SYSTEMS - SECTIONS & DETAILS

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A AS-BUILT	KJB
1	JAN 6/98	ISSUED FOR CONSTRUCTION	
0	NOV 10/97	ISSUED FOR TENDER	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA K. BROUWER

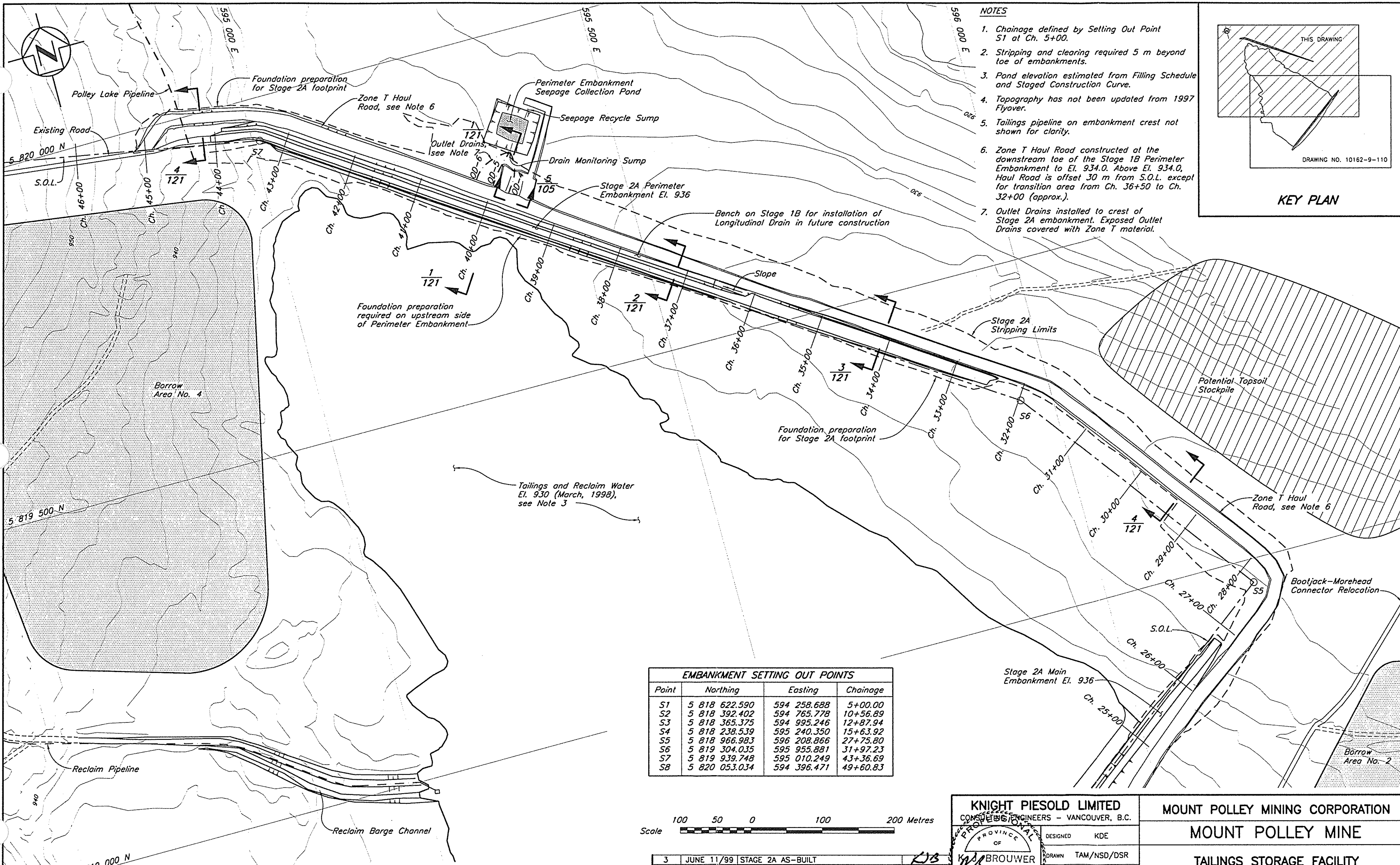
DESIGNED KDE
DRAWN DSR
CHECKED BB
APPROVED KJB

MOUNT POLLEY MINING COMPANY

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A MAIN EMBANKMENT
SECTIONS

DATE NOV. 10, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-111 | REV. 2



KEY PLAN

NOTES

1. Chainage defined by Setting Out Point S1 at Ch. 5+00.
2. Stripping and clearing required 5 m beyond toe of embankments.
3. Pond elevation estimated from Filling Schedule and Staged Construction Curve.
4. Topography has not been updated from 1997 Flyover.
5. Tailings pipeline on embankment crest not shown for clarity.
6. Zone T Haul Road constructed at the downstream toe of the Stage 1B Perimeter Embankment to El. 934.0. Above El. 934.0, Haul Road is offset 30 m from S.O.L. except for transition area from Ch. 36+50 to Ch. 32+00 (approx.).
7. Outlet Drains installed to crest of Stage 2A embankment. Exposed Outlet Drains covered with Zone T material.

EMBANKMENT SETTING OUT POINTS

Point	Northing	Easting	Chainage
S1	5 818 622.590	594 258.688	5+00.00
S2	5 818 392.402	594 765.778	10+56.89
S3	5 818 365.375	594 995.246	12+87.94
S4	5 818 238.539	595 240.350	15+63.92
S5	5 818 966.983	596 208.866	27+75.80
S6	5 819 304.035	595 955.881	31+97.23
S7	5 819 939.748	595 010.249	43+36.69
S8	5 820 053.034	594 396.471	49+60.83

REFERENCE DRAWINGS

DRG. NO.	DESCRIPTION
105	TSF - STAGE 2 EXPANSION - EMBANKMENT DRAIN SYSTEMS - SECTIONS & DETAILS
121	TSF - STAGE 2A PERIMETER EMBANKMENT - SECTIONS

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
3	JUNE 11/99	STAGE 2A AS-BUILT	KJB
2	JAN 28/98	UPDATED BENCH ON STAGE 1b CREST	
1	JAN 6/98	ISSUED FOR CONSTRUCTION	
0	NOV 10/97	ISSUED FOR TENDER	

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K. J. BROUWER

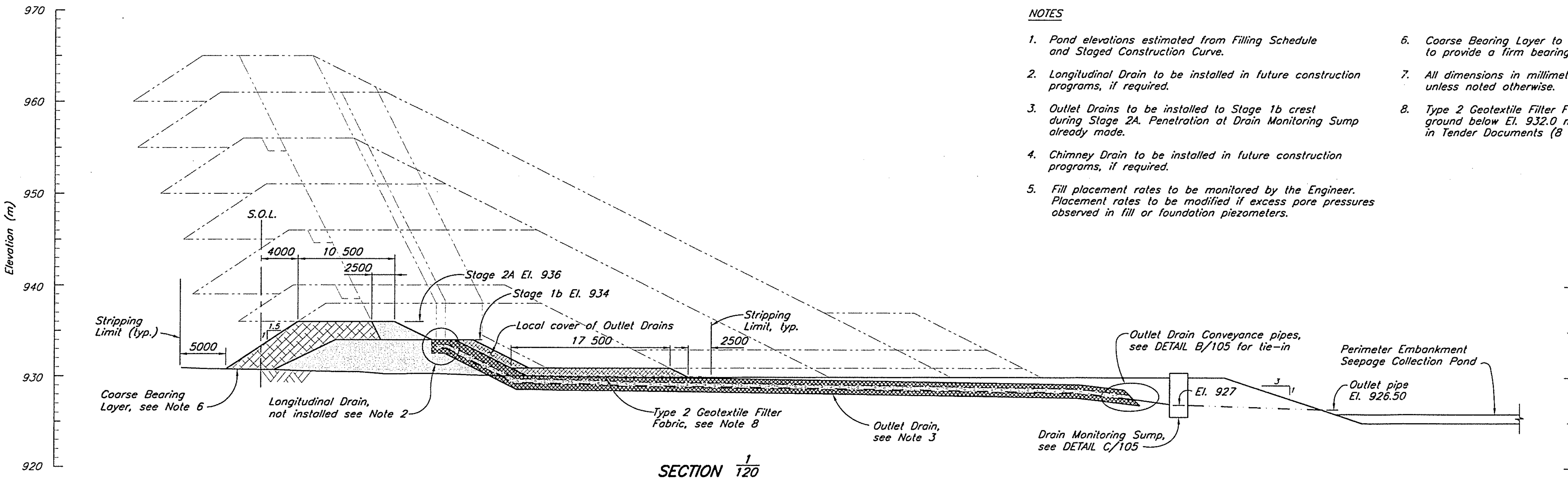
DESIGNED KDE
DRAWN TAM/NSD/DSR
CHECKED BB
APPROVED KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A PERIMETER EMBANKMENT
PLAN

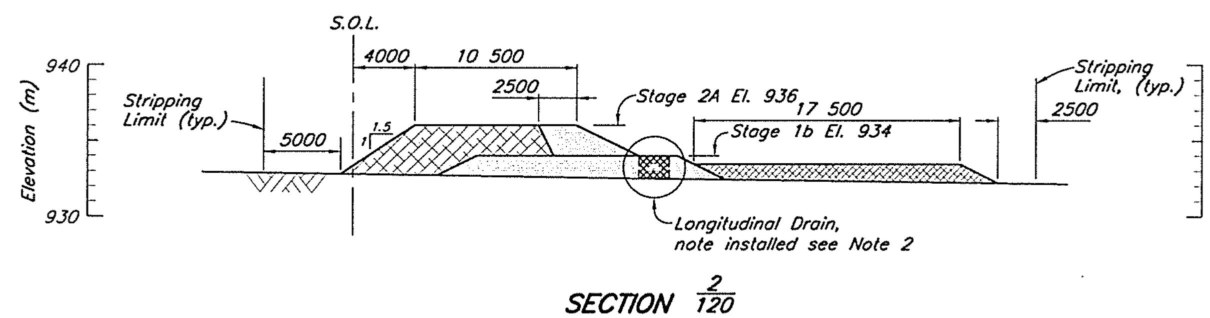
DATE NOV. 10, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-120 | REV. 3



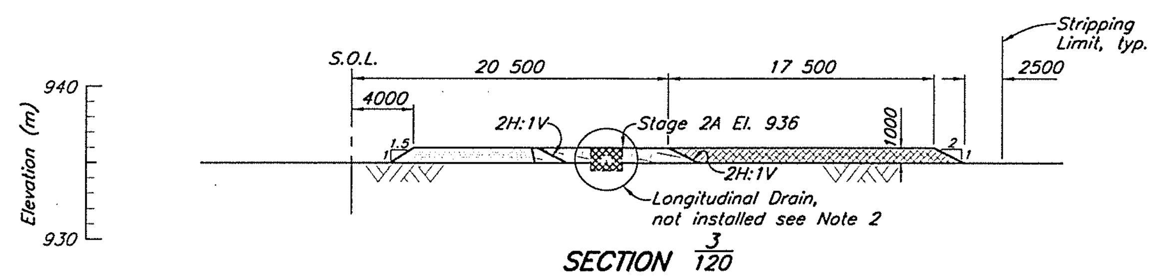
SECTION $\frac{1}{120}$

NOTES

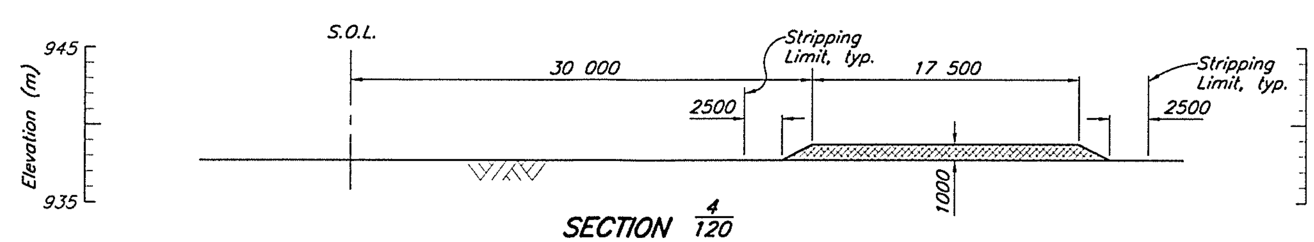
1. Pond elevations estimated from Filling Schedule and Staged Construction Curve.
2. Longitudinal Drain to be installed in future construction programs, if required.
3. Outlet Drains to be installed to Stage 1b crest during Stage 2A. Penetration at Drain Monitoring Sump already made.
4. Chimney Drain to be installed in future construction programs, if required.
5. Fill placement rates to be monitored by the Engineer. Placement rates to be modified if excess pore pressures observed in fill or foundation piezometers.
6. Coarse Bearing Layer to be added on ground as required to provide a firm bearing layer for fill placement.
7. All dimensions in millimetres with elevations in metres, unless noted otherwise.
8. Type 2 Geotextile Filter Fabric only required on prepared ground below El. 932.0 m. The specification is provided in Tender Documents (8 oz/sq. yd).



SECTION $\frac{2}{120}$



SECTION $\frac{3}{120}$



SECTION $\frac{4}{120}$

ZONE	LOCATION	MATERIAL TYPE	PLACEMENT AND COMPACTION REQUIREMENTS
S	Core Zone	Glacial till	Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.
B	Fill Zone	Glacial till, glaciolacustrine or granular material	Placed, moisture conditioned and spread in maximum 1000 mm thick layers (after compaction). Vibratory compaction to 92% of Standard Proctor maximum dry density or as approved by the Engineer.
T	Transition Zone	Mine Rock	Placed and spread in maximum 600 mm thick layers. Compaction as directed by the Engineer.
F	Chimney Drain	Filter sand	Placed and spread in maximum 600 mm thick lifts. Compaction as directed by the Engineer.
F	Longitudinal/ Outlet Drain	Filter Sand	Placed and spread carefully around filter fabric/drain gravel. Compaction as directed by the Engineer.
G	Foundation/ Longitudinal/ Outlet Drain	Drain Gravel	Placed and spread carefully around seepage collection pipes. Compaction as directed by the Engineer.
CBL	Coarse Bearing Layer	Random Rockfill	End dumped and spread as required for trafficability and fill placement.
-	Basin Liner	Glacial till, glaciolacustrine material	Placed and spread in maximum 150 mm thick lifts. Compacted to 92% of the Standard Proctor Maximum Dry Density, or as approved by the Engineer.
-	Basin Liner Frost Protection	Glacial till, glaciolacustrine or granular material	Placed and spread in maximum 300 mm thick lift. Compaction as directed by the Engineer.

Scale 5 0 5 10 15 20 25 Metres

CAD FILE: M:\11162\9\ACAD\dwgs\012\012.dwg 1=250 PLOT 1=0.25 10/06/99 by:DSR

DRG. NO.	DESCRIPTION
105	TSF - STAGE 2 EXPANSION-EMBANKMENT DRAIN SYSTEMS-SECTIONS & DETAILS
120	TSF - STAGE 2A PARIMETER EMBANKMENT - PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A AS-BUILT	KJB
1	JAN 6/98	ISSUED FOR CONSTRUCTION	
0	NOV 10/97	ISSUED FOR TENDER	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA K.J. BROUWER

DESIGNED KDE
DRAWN DSR
CHECKED BB
APPROVED KJB

MOUNT POLLEY MINING COMPANY

MOUNT POLLEY MINE

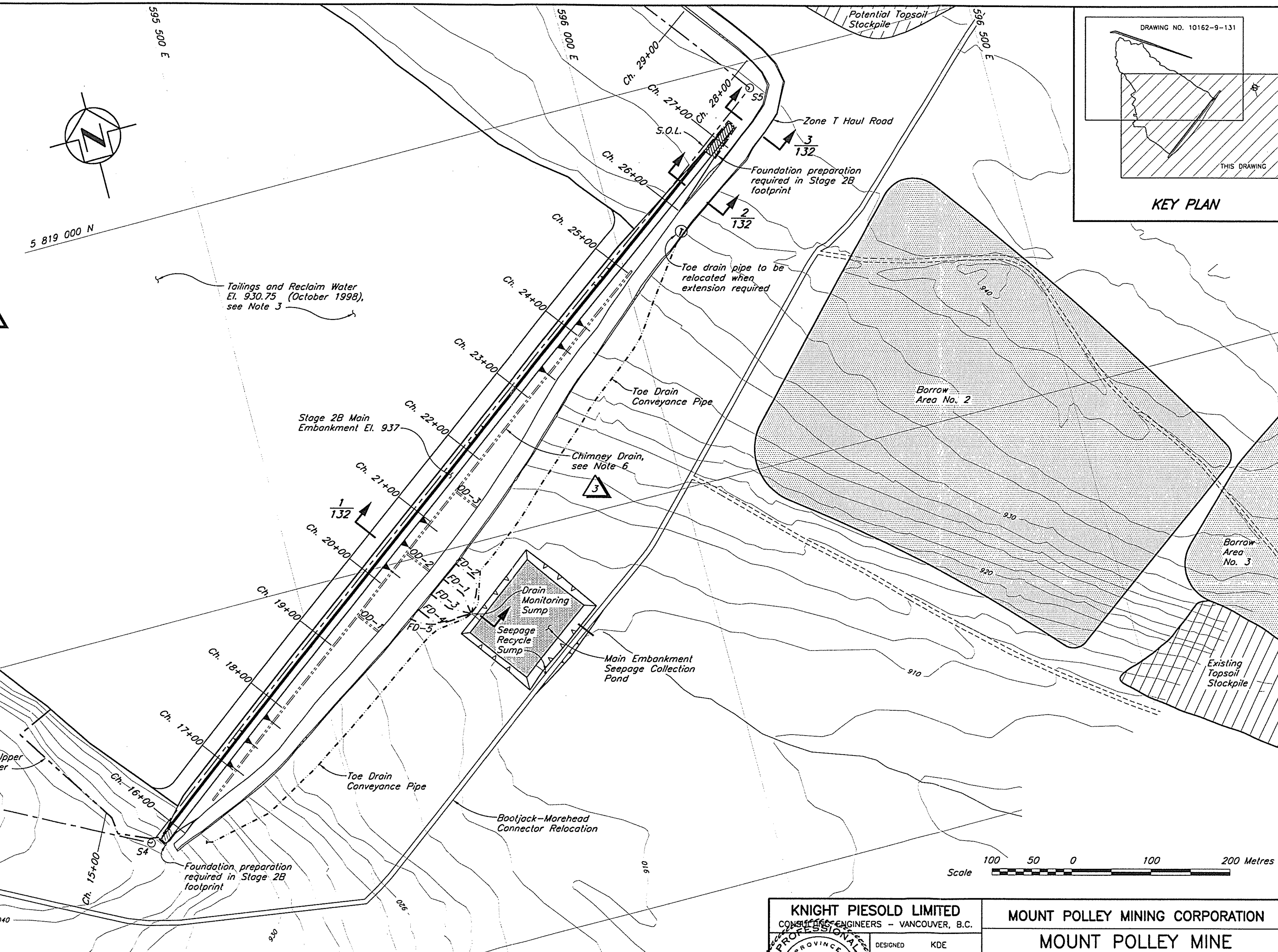
TAILINGS STORAGE FACILITY
STAGE 2A PERIMETER EMBANKMENT
SECTIONS

DATE NOV. 10, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-121 | REV. 2

EMBANKMENT SETTING OUT POINTS			
Point	Northing	Easting	Chainage
S1	5 818 622.590	594 258.688	5+00.00
S2	5 818 392.402	594 765.778	10+56.89
S3	5 818 365.375	594 995.246	12+87.94
S4	5 818 238.539	595 240.350	15+63.92
S5	5 818 966.983	596 208.866	27+75.80
S6	5 819 304.035	595 955.881	31+97.23
S7	5 819 939.748	595 010.249	43+36.69
S8	5 820 053.034	594 396.471	49+60.83

NOTES

1. Chainage defined by Setting Out Point S1 at Ch. 5+00.
2. Stripping and clearing required 5 m beyond toe of embankments.
3. Pond elevation estimated from Filling Schedule and Staged Construction Curve.
4. Topography has not been updated from 1997 Flyover.
5. Tailings pipeline on embankment crest not shown for clarity.
6. Longitudinal (collector) Drain for Chimney Drain installed to invert El. 929 (Stage 1b) 3



KEY PLAN

DRAWING NO. 10162-9-131

THIS DRAWING

DRG. NO.	DESCRIPTION
132	TSF - STAGE 2B MAIN EMBANKMENT - SECTIONS
131	TSF - STAGE 2B PERIMETER EMBANKMENT - PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED
3	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
2	SEPT 22/98	ISSUED FOR CONSTRUCTION	
1	SEPT 14/98	ISSUED FOR REVIEW	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K.J. BROUWER

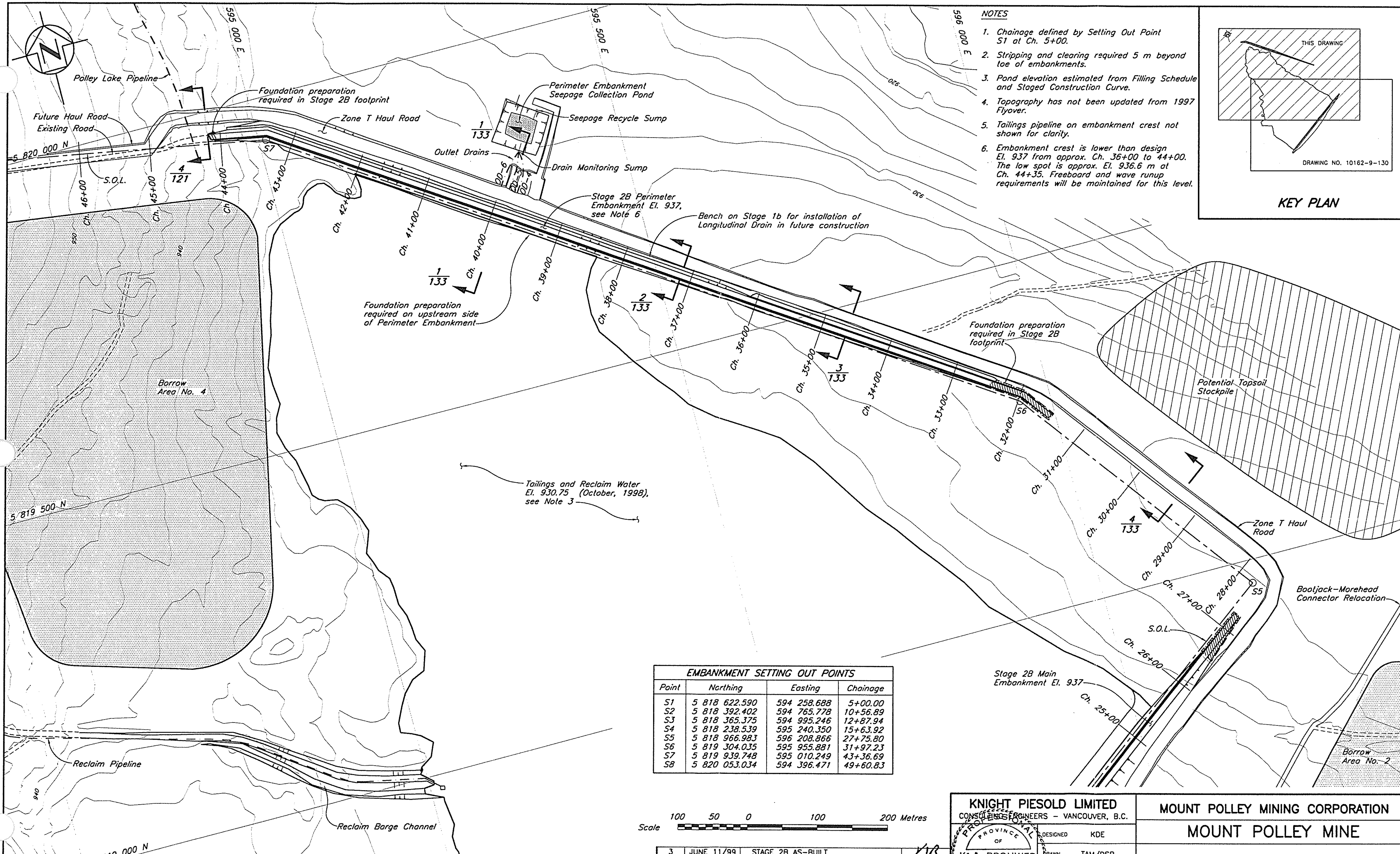
DESIGNED	KDE
DRAWN	TAM/DSR
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2B MAIN EMBANKMENT
PLAN

DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-130 | REV. 3



NOTES

1. Chainage defined by Setting Out Point S1 at Ch. 5+00.
2. Stripping and clearing required 5 m beyond toe of embankments.
3. Pond elevation estimated from Filling Schedule and Staged Construction Curve.
4. Topography has not been updated from 1997 Flyover.
5. Tailings pipeline on embankment crest not shown for clarity.
6. Embankment crest is lower than design El. 937 from approx. Ch. 36+00 to 44+00. The low spot is approx. El. 936.6 m at Ch. 44+35. Freeboard and wave runup requirements will be maintained for this level.

EMBANKMENT SETTING OUT POINTS

Point	Northing	Easting	Chainage
S1	5 818 622.590	594 258.688	5+00.00
S2	5 818 392.402	594 765.778	10+56.89
S3	5 818 365.375	594 995.246	12+87.94
S4	5 818 238.539	595 240.350	15+63.92
S5	5 818 966.983	596 208.866	27+75.80
S6	5 819 304.035	595 955.881	31+97.23
S7	5 819 939.748	595 010.249	43+36.69
S8	5 820 053.034	594 396.471	49+60.83

Scale 100 50 0 100 200 Metres

DRG. NO.	DESCRIPTION
133	TSF – STAGE 2B PERIMETER EMBANKMENT – SECTIONS
130	TSF – STAGE 2B MAIN EMBANKMENT – PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED
3	JUNE 11/99	STAGE 2B AS-BUILT	KJB
2	SEPT 22/98	ISSUED FOR CONSTRUCTION	
1	SEPT 14/98	ISSUED FOR REVIEW	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER – PROVINCE OF BRITISH COLUMBIA – K.J. BROUWER

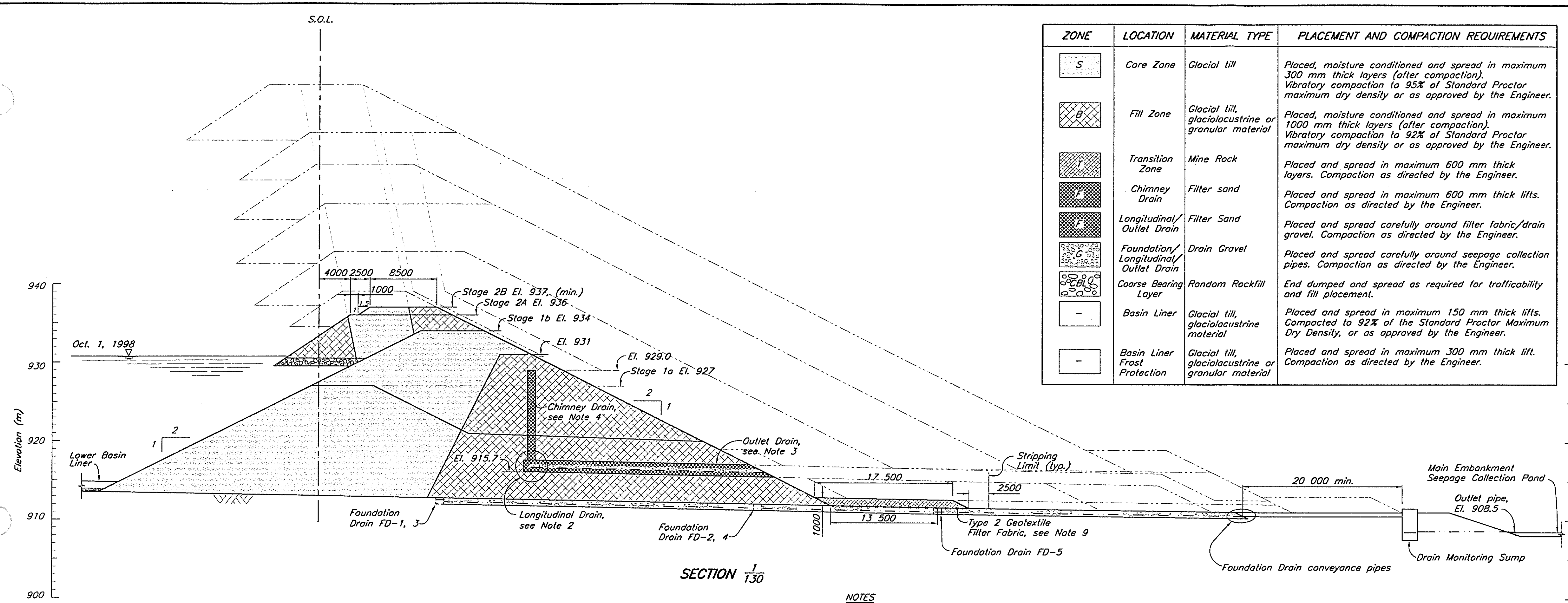
DESIGNED KDE
DRAWN TAM/DSR
CHECKED BB
APPROVED KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

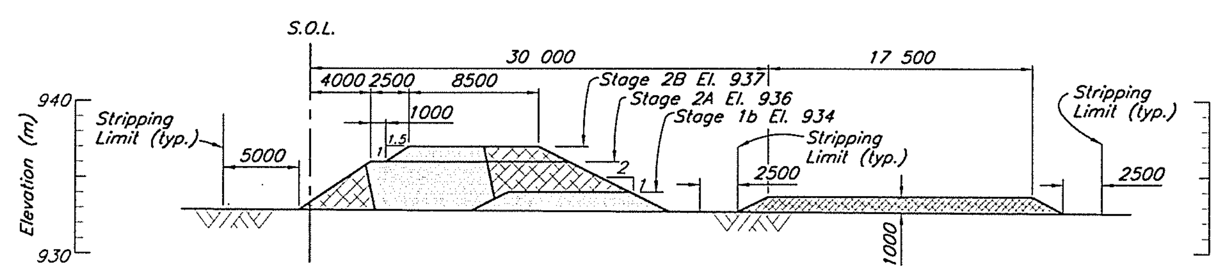
TAILINGS STORAGE FACILITY
STAGE 2B PERIMETER EMBANKMENT
PLAN

DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-131 | REV. 3

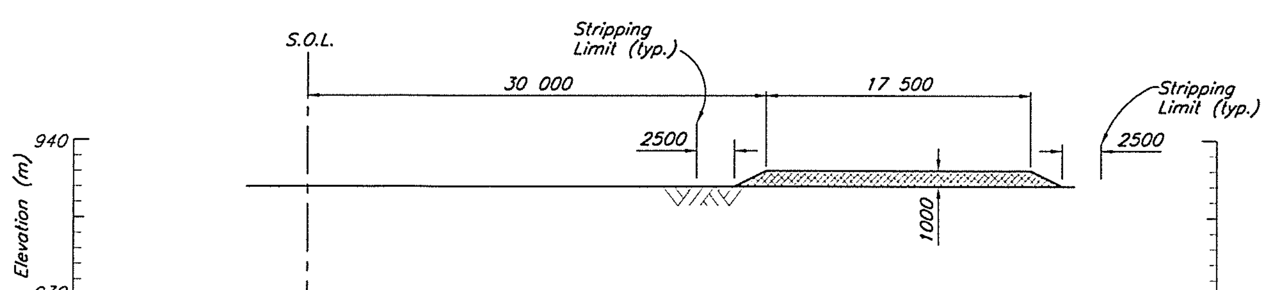


SECTION 1/130

ZONE	LOCATION	MATERIAL TYPE	PLACEMENT AND COMPACTION REQUIREMENTS
S	Core Zone	Glacial till	Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.
B	Fill Zone	Glacial till, glaciolacustrine or granular material	Placed, moisture conditioned and spread in maximum 1000 mm thick layers (after compaction). Vibratory compaction to 92% of Standard Proctor maximum dry density or as approved by the Engineer.
T	Transition Zone	Mine Rock	Placed and spread in maximum 600 mm thick layers. Compaction as directed by the Engineer.
F	Chimney Drain	Filter sand	Placed and spread in maximum 600 mm thick lifts. Compaction as directed by the Engineer.
F	Longitudinal/ Outlet Drain	Filter Sand	Placed and spread carefully around filter fabric/drain gravel. Compaction as directed by the Engineer.
G	Foundation/ Longitudinal/ Outlet Drain	Drain Gravel	Placed and spread carefully around seepage collection pipes. Compaction as directed by the Engineer.
CBL	Coarse Bearing Layer	Random Rockfill	End dumped and spread as required for trafficability and fill placement.
–	Basin Liner	Glacial till, glaciolacustrine material	Placed and spread in maximum 150 mm thick lifts. Compacted to 92% of the Standard Proctor Maximum Dry Density, or as approved by the Engineer.
–	Basin Liner Frost Protection	Glacial till, glaciolacustrine or granular material	Placed and spread in maximum 300 mm thick lift. Compaction as directed by the Engineer.



SECTION 2/130



SECTION 3/130

NOTES

1. Pond elevations estimated from Filling Schedule and Staged Construction Curve.
2. Longitudinal Drain constructed to invert El. 929 (Stage 1b)
3. Outlet Drains to be extended to Drain Monitoring Sump during Stage 2C.
4. Chimney drain to be extended during Stage 2C, if required.
5. Fill placement rates to be monitored by the Engineer. Placement rates to be modified if excess pore pressures observed in fill or foundation piezometers.
6. Coarse Bearing Layer required on tailings and added on ground as required to provide a firm bearing layer fill placement.
7. All dimensions in millimetres and elevations in metres, unless noted otherwise.
8. Type 1 (12 oz./sq.yd.) Geotextile Filter Fabric placed on tailings as required.
9. Type 2 (8 oz./sq.yd.) Geotextile Filter Fabric to be placed from the right abutment (approx. Ch. 15+75) to El. 920.0 m on the left abutment (approx. Ch. 23+00).
10. All Foundation Drains are not intersected on this cross section.

Scale 5 0 5 10 15 20 25 Metres

CAD FILE: M:\1\1162\9\ACAD\dwgs\028\028.dwg 1=250 PLOT 1=0.25 10/06/99 by:DSR

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K. J. BROUWER

DESIGNED	KDE
DRAWN	DSR
CHECKED	BB
APPROVED	KJB

MOUNT POLLY MINING CORPORATION

MOUNT POLLY MINE

TAILINGS STORAGE FACILITY
STAGE 2B MAIN EMBANKMENT
SECTIONS

DATE SEPT. 22, 1998 — SCALE AS SHOWN — DRG. NO. 10162-9-132 — REV. 1

REFERENCE DRAWINGS

DRG. NO.	DESCRIPTION
130	STAGE 2B MAIN EMBANKMENT – PLAN

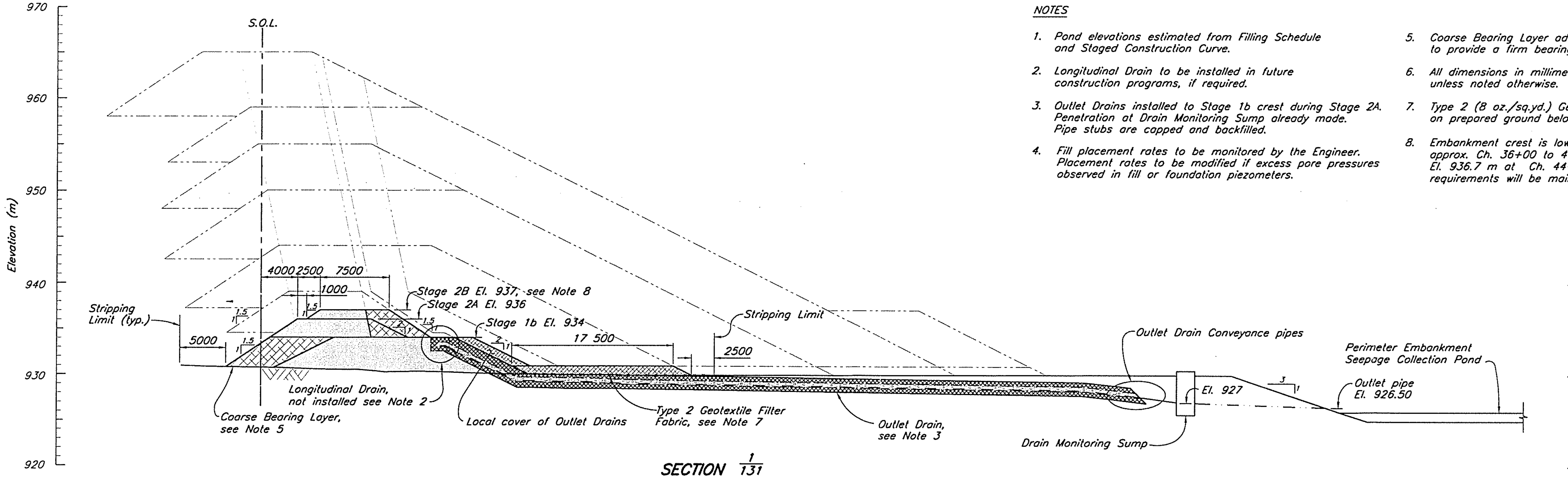
REVISIONS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
1	JUNE 11/99	STAGE 2B AS-BUILT	KJB
0	SEPT 22/98	ISSUED FOR CONSTRUCTION	

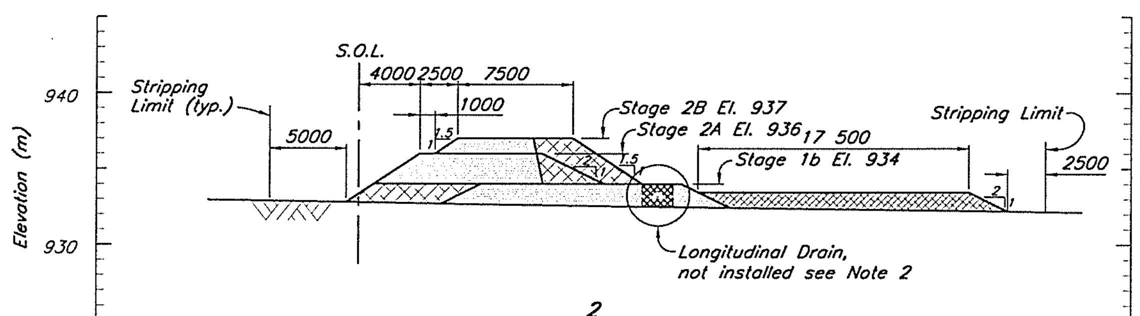
XREF FILE:



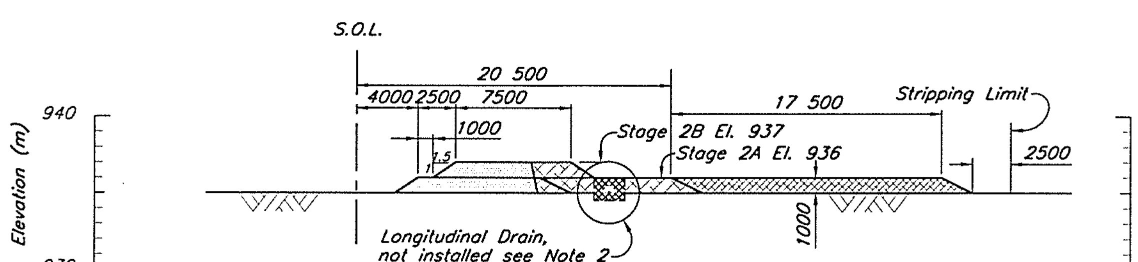
SECTION $\frac{1}{131}$

NOTES

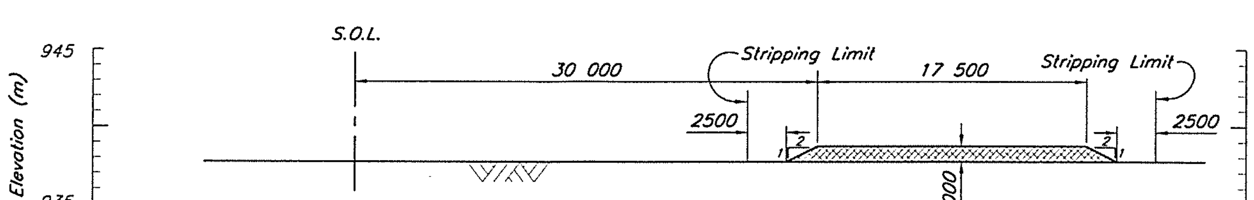
1. Pond elevations estimated from Filling Schedule and Staged Construction Curve.
2. Longitudinal Drain to be installed in future construction programs, if required.
3. Outlet Drains installed to Stage 1b crest during Stage 2A. Penetration at Drain Monitoring Sump already made. Pipe stubs are capped and backfilled.
4. Fill placement rates to be monitored by the Engineer. Placement rates to be modified if excess pore pressures observed in fill or foundation piezometers.
5. Coarse Bearing Layer added on ground as required to provide a firm bearing layer for fill placement.
6. All dimensions in millimetres with elevations in metres, unless noted otherwise.
7. Type 2 (8 oz./sq.yd.) Geotextile Filter Fabric only required on prepared ground below El. 932.0 m.
8. Embankment crest is lower than design El. 937 from approx. Ch. 36+00 to 44+00. The low spot is approx. El. 936.7 m at Ch. 44+35. Freeboard and wave runup requirements will be maintained for this level.



SECTION $\frac{2}{131}$



SECTION $\frac{3}{131}$



SECTION $\frac{4}{131}$

ZONE	LOCATION	MATERIAL TYPE	PLACEMENT AND COMPACTION REQUIREMENTS
S	Core Zone	Glacial till	Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.
B	Fill Zone	Glacial till, glaciolacustrine or granular material	Placed, moisture conditioned and spread in maximum 1000 mm thick layers (after compaction). Vibratory compaction to 92% of Standard Proctor maximum dry density or as approved by the Engineer.
T	Transition Zone	Mine Rock	Placed and spread in maximum 600 mm thick layers. Compaction as directed by the Engineer.
F	Chimney Drain	Filter sand	Placed and spread in maximum 600 mm thick lifts. Compaction as directed by the Engineer.
F	Longitudinal/ Outlet Drain	Filter Sand	Placed and spread carefully around filter fabric/drain gravel. Compaction as directed by the Engineer.
G	Foundation/ Longitudinal/ Outlet Drain	Drain Gravel	Placed and spread carefully around seepage collection pipes. Compaction as directed by the Engineer.
CBL	Coarse Bearing Layer	Random Rockfill	End dumped and spread as required for trafficability and fill placement.
–	Basin Liner	Glacial till, glaciolacustrine material	Placed and spread in maximum 150 mm thick lifts. Compacted to 92% of the Standard Proctor Maximum Dry Density, or as approved by the Engineer.
–	Basin Liner Frost Protection	Glacial till, glaciolacustrine or granular material	Placed and spread in maximum 300 mm thick lift. Compaction as directed by the Engineer.

Scale 5 0 5 10 15 20 25 Metres

CAD FILE: M:\11162\9\ACAD\dwgs\029\029.dwg 1=250 PLOT 1=0.25 10/06/99 by:DSR

DRG. NO.	DESCRIPTION
131	STAGE 2B PERIMETER EMBANKMENT – PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
1	JUNE 11/99	STAGE 2B AS-BUILT	KJB
0	SEPT 22/98	ISSUED FOR CONSTRUCTION	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA K. J. BROUWER

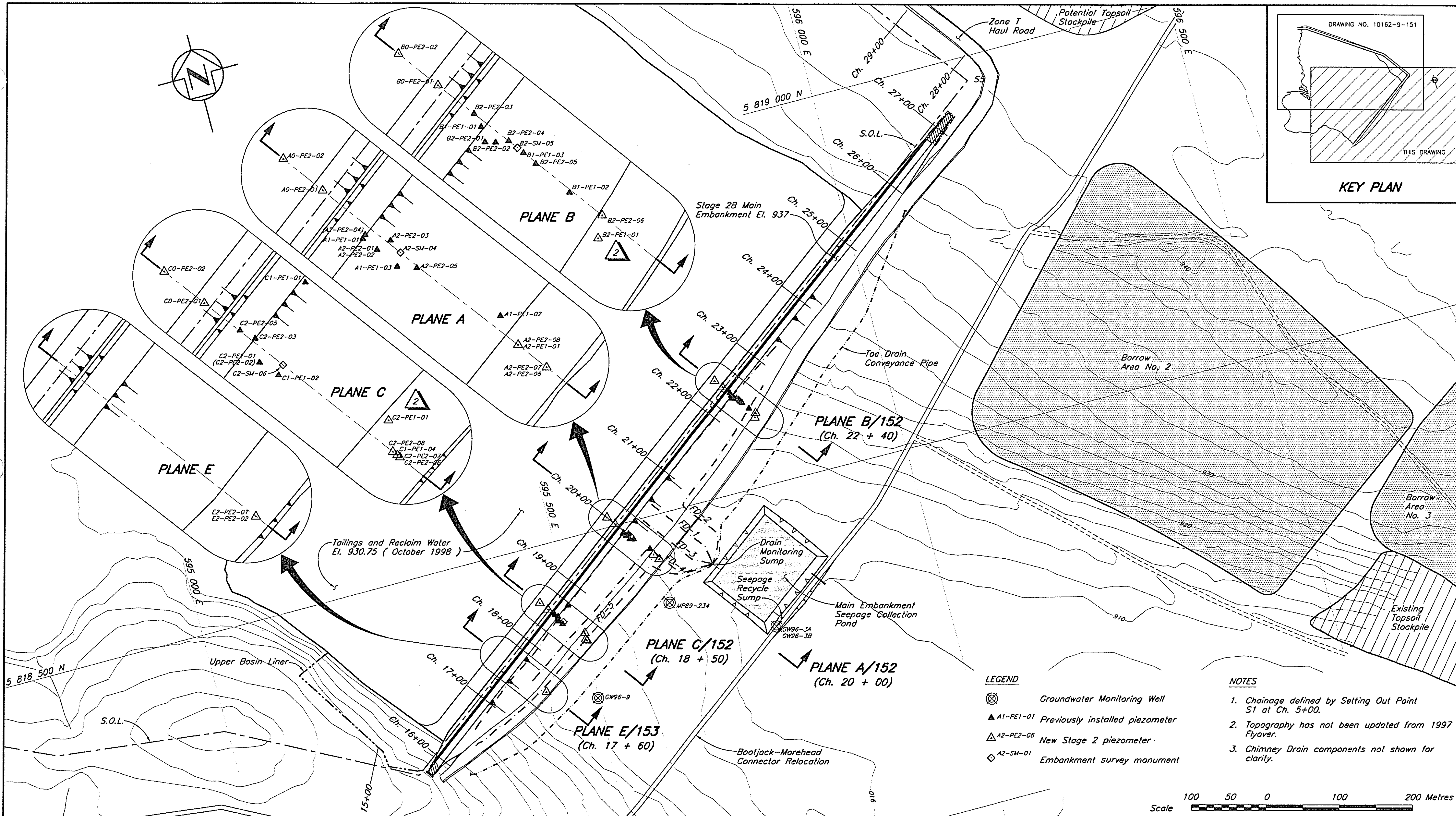
DESIGNED KDE
DRAWN DSR
CHECKED BB
APPROVED KJB

MOUNT POLLY MINING CORPORATION

MOUNT POLLY MINE

TAILINGS STORAGE FACILITY
STAGE 2B PERIMETER EMBANKMENT
SECTIONS

DATE SEPT. 22, 1998 SCALE AS SHOWN DRG. NO. 10162– 9 –133 REV. 1



LEGEND

⊗	Groundwater Monitoring Well
▲ A1-PE1-01	Previously installed piezometer
△ A2-PE2-06	New Stage 2 piezometer
◇ A2-SM-01	Embankment survey monument

NOTES

1. Chainage defined by Setting Out Point S1 at Ch. 5+00.
2. Topography has not been updated from 1997 Flyover.
3. Chimney Drain components not shown for clarity.

Scale 100 50 0 100 200 Metres

REFERENCE DRAWINGS

DRG. NO.	DESCRIPTION
153	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION SECTIONS-SHEET 2 OF 2
152	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION SECTIONS-SHEET 1 OF 2
151	TSF-STAGE 2A/2B EXPANSION-PERIMETER EMBANKMENT INSTRUMENTATION-PLAN

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	MAY 11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 16/98	ISSUED FOR STAGE 2A INSTRUMENTATION INSTALLATION	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA K. J. BROUWER

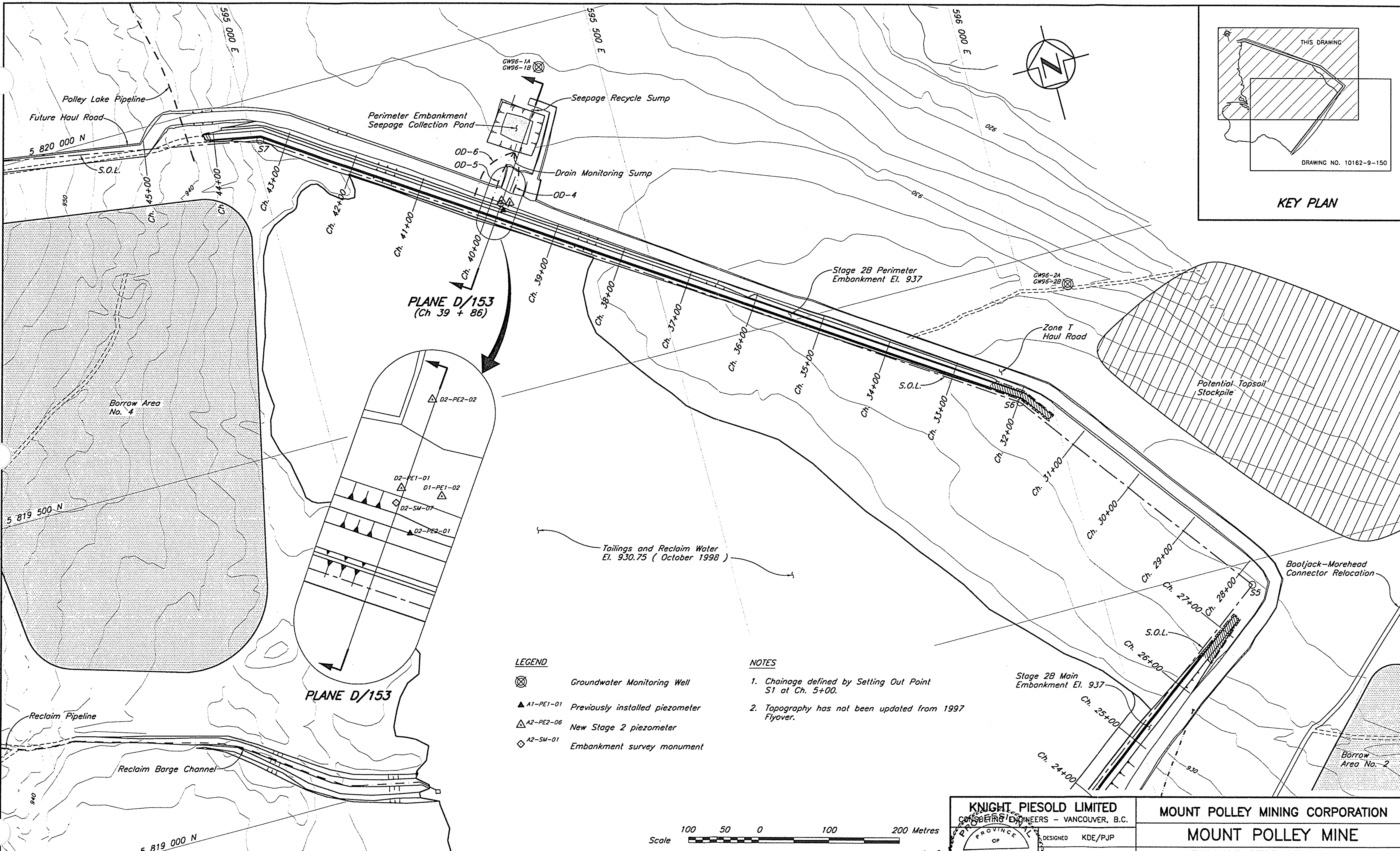
DESIGNED	KDE/PJP
DRAWN	TAM
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A/2B EXPANSION
MAIN EMBANKMENT
INSTRUMENTATION PLAN

DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-150 | REV. 2



LEGEND

- Groundwater Monitoring Well
- A1-PE1-01 Previously installed piezometer
- A2-PE2-06 New Stage 2 piezometer
- A2-SM-01 Embankment survey monument

NOTES

1. Chainage defined by Setting Out Point S1 at Ch. 5+00.
2. Topography has not been updated from 1997 Flyover.

Scale 100 50 0 100 200 Metres

DRG. NO.	DESCRIPTION
153	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION-SECTIONS-SHEET 2 OF 2
152	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION-SECTIONS-SHEET 1 OF 2
150	TSF-STAGE 2A/2B EXPANSION-MAIN EMBANKMENT INSTRUMENTATION-PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 16/98	ISSUED FOR STAGE 2A INSTRUMENTATION INSTALLATION	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K. J. BROUWER

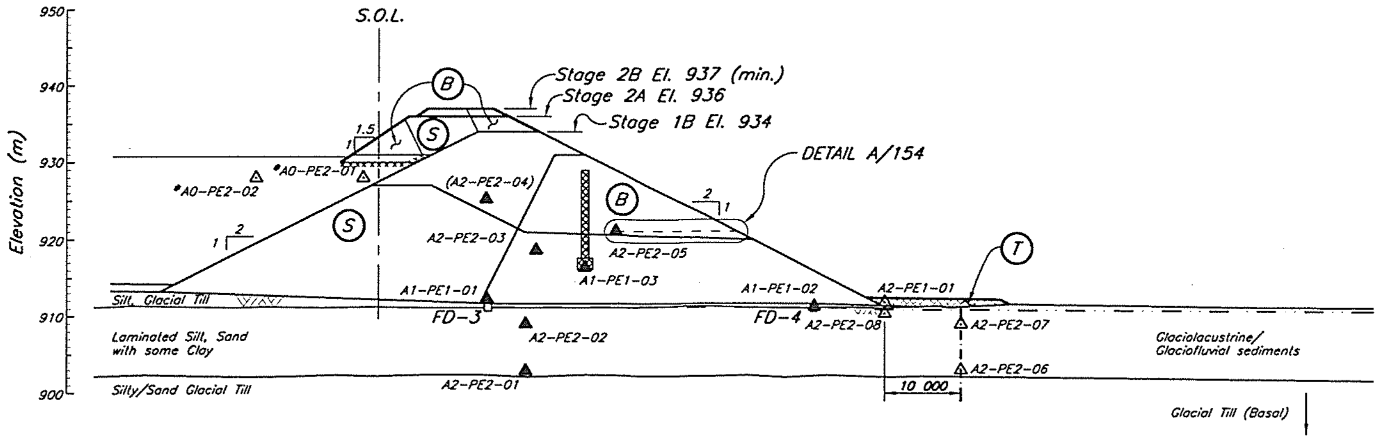
DESIGNED	KDE/PJP
DRAWN	TAM/NSD
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

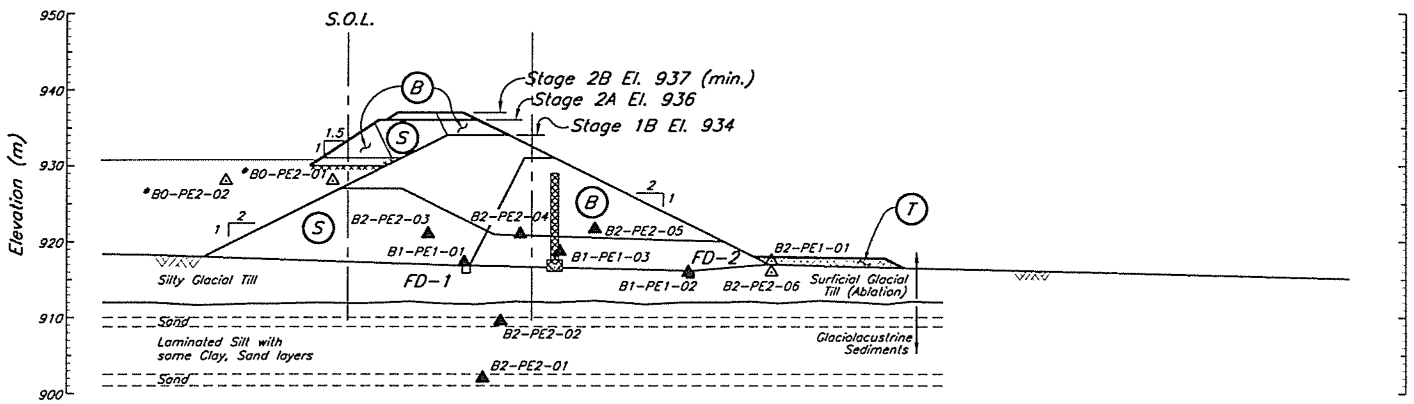
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A/2B EXPANSION
PERIMETER EMBANKMENT
INSTRUMENTATION PLAN

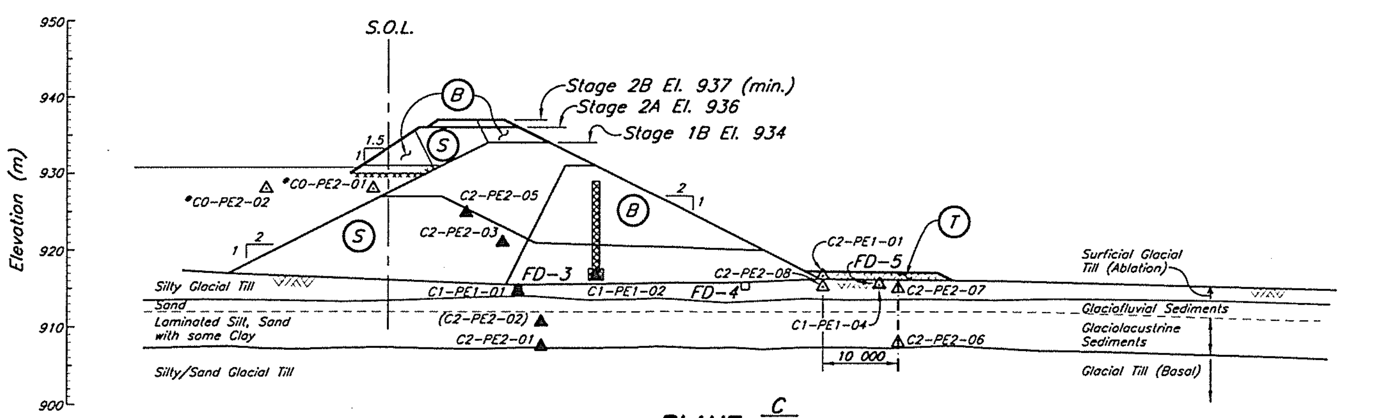
DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-151 | REV. 2



PLANE $\frac{A}{150}$
CH. 20+00



PLANE $\frac{B}{150}$
CH. 22+40



PLANE $\frac{C}{150}$
CH. 18+50

SUMMARY OF INSTRUMENTATION INSTALLATIONS

PIEZOMETER ID	LEAD LENGTH (m)	NORTHING	EASTING	ELEV.	DATE INSTALLED
(A0-PE2-01)	75	–	–	928	09/03/98
(A0-PE2-02)	75	–	–	928	09/03/98
A1-PE1-01	175	5 818 486.650	595 595.060	912.99	27/08/96
A1-PE1-02	150	5 818 456.420	595 626.250	912.14	27/08/96
(A1-PE1-03)	200	5 818 476.822	595 602.380	917.17	22/10/96
A2-PE1-01	100	5 818 446.550	595 628.010	912	26/08/98
A2-PE2-01	200	5 818 482.710	595 598.140	903.7	25/07/96
(A2-PE2-02)	200	5 818 482.710	595 598.140	909.8	25/07/96
A2-PE2-03	175	5 818 484.196	595 598.140	919.43	12/02/97
(A2-PE2-04)	200	5 818 487.510	595 595.995	926.07	22/02/97
A2-PE2-05	175	5 818 475.061	595 607.560	921.87	22/02/97
(A2-PE2-06)	100	5 818 453.926	595 648.458	903	21/06/98
(A2-PE2-07)	100	5 818 453.926	595 648.458	909	21/06/98
A2-PE2-08	100	5 818 447.045	595 627.758	910	23/06/98
B0-PE2-01	75	–	–	928	06/03/98
B0-PE2-02	75	–	–	928	06/03/98
B1-PE1-01	300	5 818 632.550	595 787.910	917.27	10/09/96
B1-PE1-02	275	5 818 609.040	595 806.770	915.95	10/09/96
B1-PE1-03	305	5 818 622.780	595 797.260	918.69	22/10/96
(B2-PE1-01)	100	5 818 594.940	595 811.260	935	26/08/98
B2-PE2-01	325	5 818 628.270	595 787.880	902.00	25/07/96
B2-PE2-02	325	5 818 627.470	595 790.660	909.50	25/07/96
B2-PE2-03	325	5 818 636.530	595 786.970	921.00	22/10/96
B2-PE2-04	330	5 818 626.940	595 794.190	921.00	22/10/96
B2-PE2-05	325	5 818 619.014	595 799.804	921.70	14/03/97
B2-PE2-06	100	5 818 595.767	595 810.605	914.59	23/06/98
(C0-PE2-01)	75	–	–	928	09/03/98
(C0-PE2-02)	75	–	–	928	09/03/98
C1-PE1-01	325	5 818 410.500	595 496.070	914.70	28/09/96
C1-PE1-02	330	5 818 410.500	595 496.070	916.60	22/10/96
C1-PE1-04	100	–	–	915	03/04/98
C2-PE1-01	100	5 818 367.670	595 508.900	917	26/08/98
(C2-PE2-01)	350	5 818 392.410	595 478.240	907.50	25/07/96
C2-PE2-02	350	5 818 392.410	595 478.240	910.50	25/07/96
C2-PE2-03	325	5 818 399.106	595 478.824	920.97	12/02/97
C2-PE2-05	325	5 818 402.343	595 475.326	924.84	12/02/97
C2-PE2-06	100	5 818 359.734	595 513.663	913	18/06/98
C2-PE2-07	100	5 818 359.734	595 513.663	915	18/06/98
C2-PE2-08	100	5 818 367.087	595 509.351	935	19/06/98
(D1-PE1-02)	100	5 819 775.449	595 310.522	929	30/01/98
(D2-PE1-01)	100	5 819 775.449	595 310.522	930	26/08/98
D2-PE2-01	85	5 819 756.360	595 316.210	931.00	15/12/96
(D2-PE2-02)	75	–	–	922	22/06/98
E2-PE2-01	100	5 818 307.454	595 435.983	908	17/06/98
E2-PE2-02	100	5 818 307.454	595 435.983	913	17/06/98

( ) Piezometer no longer functioning.

NOTES

1. Piezometers are vibrating wire type, SINCA Model 52611030 and RST Model 45005-0100 with a pressure rating of 100 psi or equivalent, connected to a readout panel via standard non-vented direct burial cable.
2. Piezometer leads extended as directed by the Engineer.
3. Future survey monuments not shown. A minimum of 2 monuments will be installed for each embankment raise.
4. Installation details for borehole piezometers as shown on Drg. No. 10162-9-154.

LEGEND

A0-PE1-01
- Plane I.D. (A, B etc.)
- Area (0-Tailings, 1-Drain, 2-Embankment)
- Number I.D.
- Pressure Rating (1-Low, 2-High)
- Type of Instrumentation (PE-Piezometer electric, SM-Survey Monument)

A1-PE1-01 ▲ Previously installed piezometer
A2-PE2-06 △ New Stage 2 piezometer
A2-SM-01 ◇ Embankment survey monument
(B) Zone B
(C) Zone C
(S) Zone S
(T) Zone T

Scale 10 0 10 20 30 40 50 m

CAD FILE: M:\1\162\9\ACAD\dwgs\D14\D14.dwg 1=500 PLOT 1=0.5 19/05/99 bywal Time @ 08:20

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.

PROVINCE OF BRITISH COLUMBIA
K. J. BROUWER
ENGINEER

DESIGNED	KDE/PJP
DRAWN	NSD
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A/2B EXPANSION
INSTRUMENTATION SECTIONS
SHEET 1 OF 2

DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-152 | REV. 2

DRG. NO.	DESCRIPTION
154	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION-DETAILS
153	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION-SECTIONS-SHEET 2 OF 2
150	TSF-STAGE 2A/2B EXPANSION-MAIN EMBANKMENT INSTRUMENTATION-PLAN

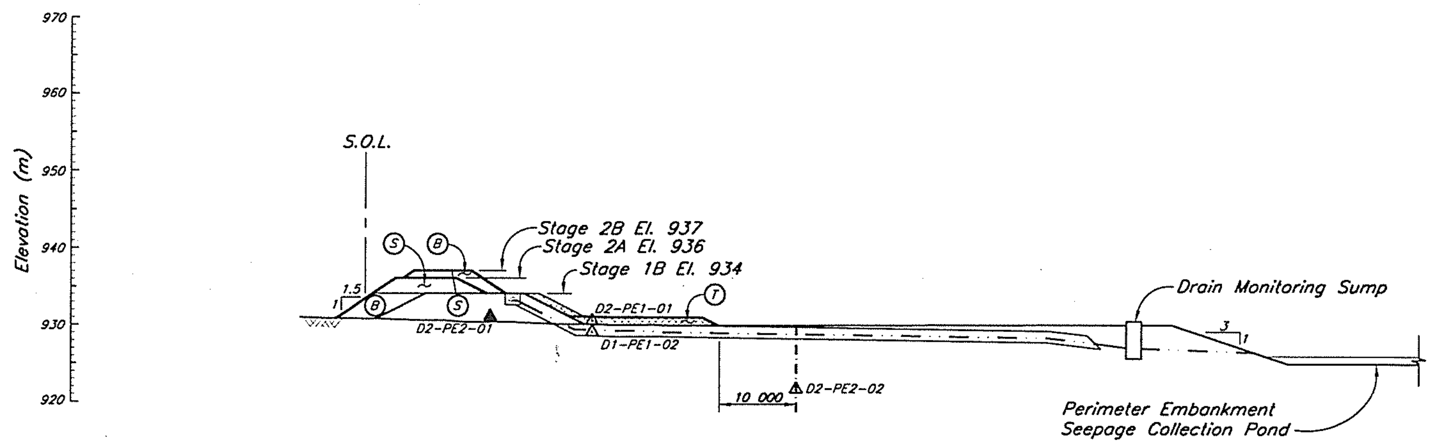
REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

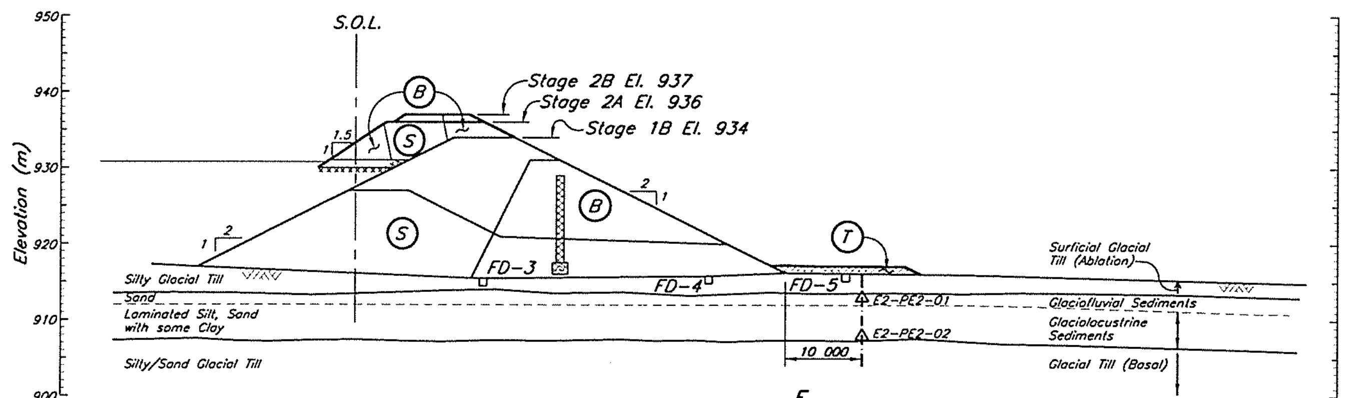
REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 16/98	ISSUED FOR STAGE 2A INSTRUMENTATION INSTALLATION	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

REVISIONS



PLANE $\frac{D}{151}$
CH. 39+86



PLANE $\frac{E}{150}$
CH. 17+60

NOTES

1. Piezometers are vibrating wire type, SINCA Model 52611030 and RST Model 45005-0100 with a pressure rating of 100 psi or equivalent, connected to a readout panel via standard non-vented Model 50613524 direct burial cable.
2. Piezometer leads are to be extended as directed by the Engineer.
3. Future survey monuments not shown. A minimum of 2 monuments will be installed for each embankment raise.
4. Installation details for borehole piezometers as shown on Drg. No. 10162-9-154.
5. See Drg. No. 10162-9-152 for Summary of Instrumentation Installations.

LEGEND

D0-PE1-01
- Plane I.D. (A, B etc.)
- Area (0-Tailings, 1-Drain, 2-Embankment)
- Number I.D.
- Pressure Rating (1-Low, 2-High)
- Type of Instrumentation (PE-Piezometer electric, SM-Survey Monument)

D1-PE1-01 ▲ Previously installed piezometer

D2-PE2-02 △ New Stage 2 piezometer

D2-SM-07 ◇ Embankment survey monument

(B) Zone B

(C) Zone C

(S) Zone S

(T) Zone T

Scale 10 0 10 20 30 40 50 m

DRG. NO.	DESCRIPTION
154	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION-DETAILS
152	TSF-STAGE 2A/2B EXPANSION-INSTRUMENTATION-SECTIONS-SHEET 1 OF 2
151	TSF-STAGE 2A/2B EXPANSION-PERIMETER EMBANKMENT INSTRUMENTATION-PLAN
150	TSF-STAGE 2A/2B EXPANSION-MAIN EMBANKMENT INSTRUMENTATION-PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 16/98	ISSUED FOR STAGE 2A INSTRUMENTATION INSTALLATION	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, K. BROUWER

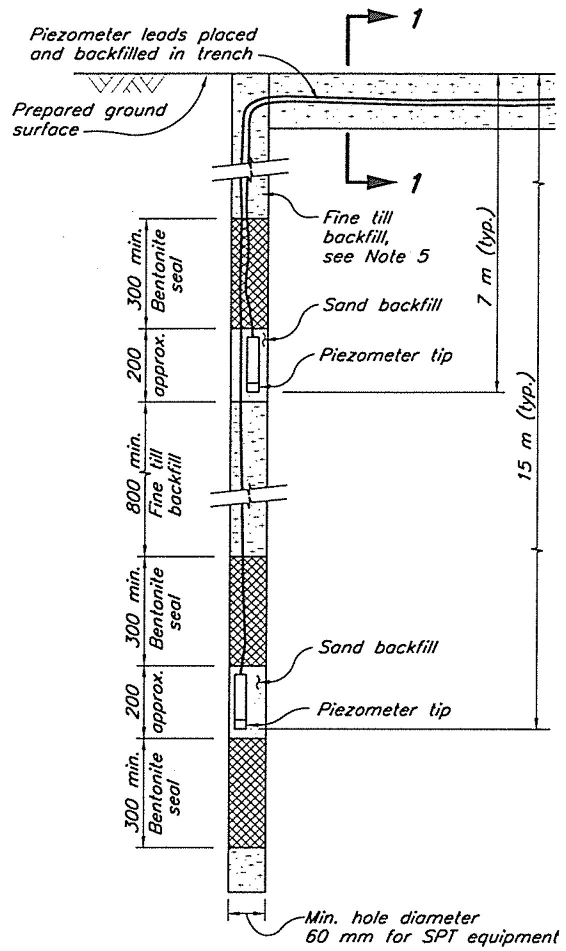
DESIGNED	KDE/PJP
DRAWN	NSD
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

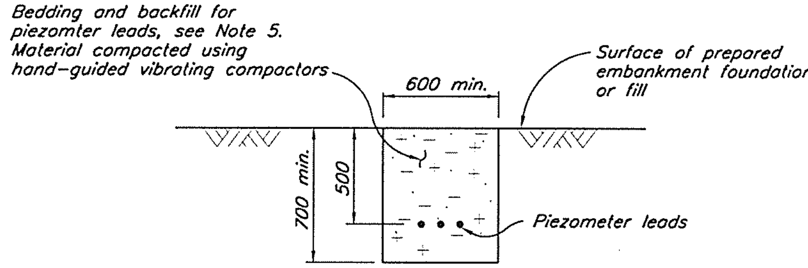
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A/2B EXPANSION
INSTRUMENTATION SECTIONS
SHEET 2 OF 2

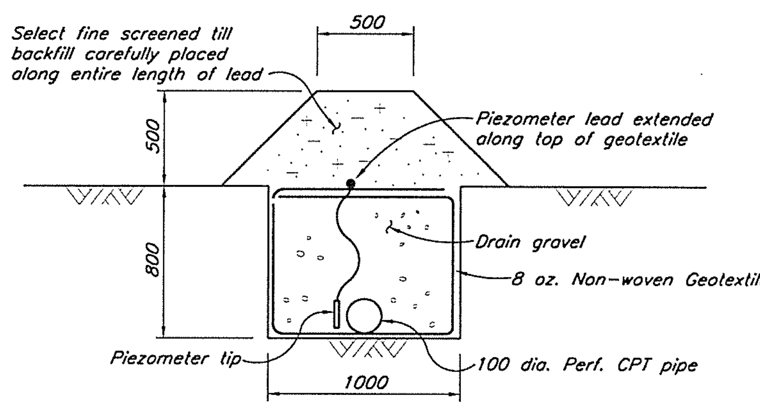
DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-153 | REV. 2



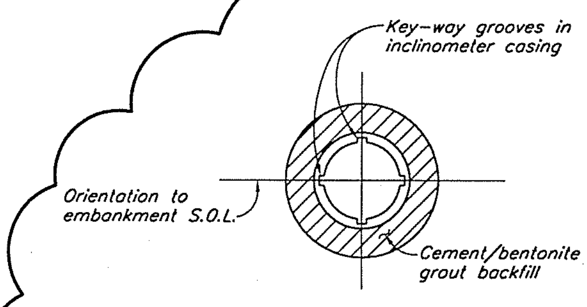
TYPICAL INSTALLATION OF PIEZOMETERS IN BOREHOLES
NTS



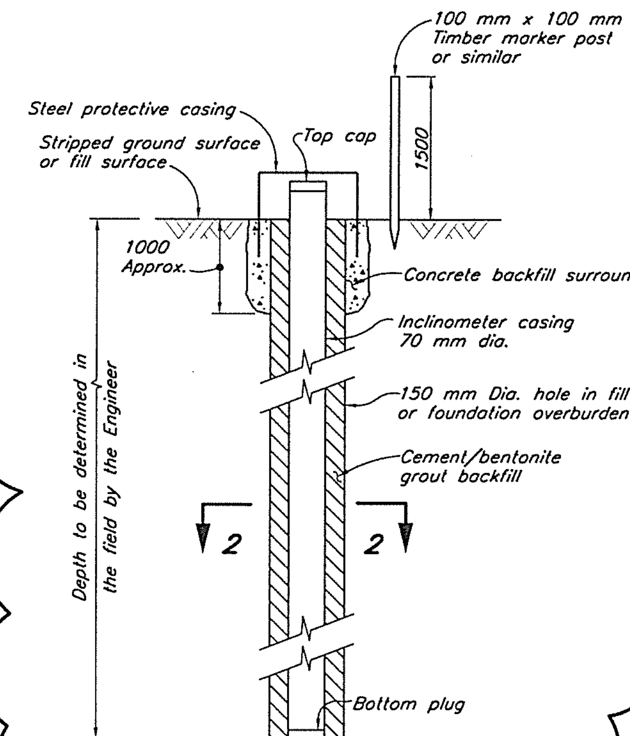
SECTION 1
TYPICAL SECTION THROUGH PIEZOMETER LEAD TRENCH IN PREPARED EMBANKMENT FOUNDATION OR FILL
Scale A



TYPICAL PIEZOMETER INSTALLATION IN EMBANKMENT FOUNDATION DRAIN OR TOE DRAIN
Scale A



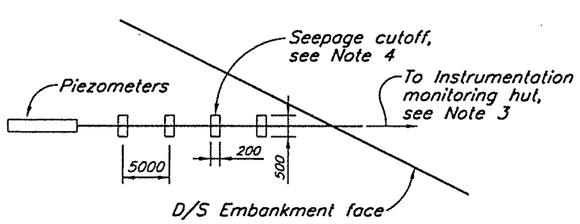
SECTION 2
NTS



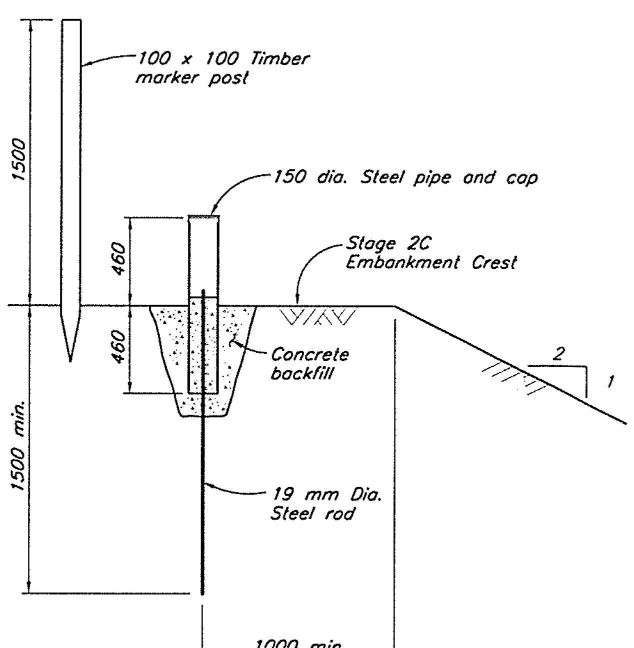
DETAIL C
TYPICAL INCLINOMETER INSTALLATION IN BOREHOLE
NTS

HOLD
For Future Construction
2

NOTES
1. Dimensions are in millimeters unless otherwise noted.
2. Tailings piezometers to be installed during future investigation programs.
3. Piezometer leads are to be extended as directed by the Engineer.
4. Seepage cutoffs placed at 5 m intervals with 10% bentonite added to fine grained till backfill.
5. Fine grained till backfill must have all particles exceeding 25 mm removed.



DETAIL A/140
TYPICAL DETAIL OF SEEPAGE CUTOFF FOR PIEZOMETER LEADS IN GLACIAL TILL
NTS



DETAIL OF SURFACE MOVEMENT MONUMENT
Scale A

Scale 1000 500 0 1000 2000 mm

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DRG. NO.	DESCRIPTION
153	TSF - STAGE 2A/2B EXPANSION - INSTRUMENTATION - SECTIONS - SHEET 2 OF 2
152	TSF - STAGE 2A/2B EXPANSION - INSTRUMENTATION - SECTIONS - SHEET 1 OF 2
151	TSF - STAGE 2A/2B EXPANSION - PERIMETER EMBANKMENT INSTRUMENTATION - PLAN
150	TSF - STAGE 2A/2B EXPANSION - MAIN EMBANKMENT INSTRUMENTATION - PLAN

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 16/98	ISSUED FOR STAGE 2A INSTRUMENTATION INSTALLATION	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

REVISIONS

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL PROVINCE OF K. J. BROUWER BRITISH COLUMBIA ENGINEER

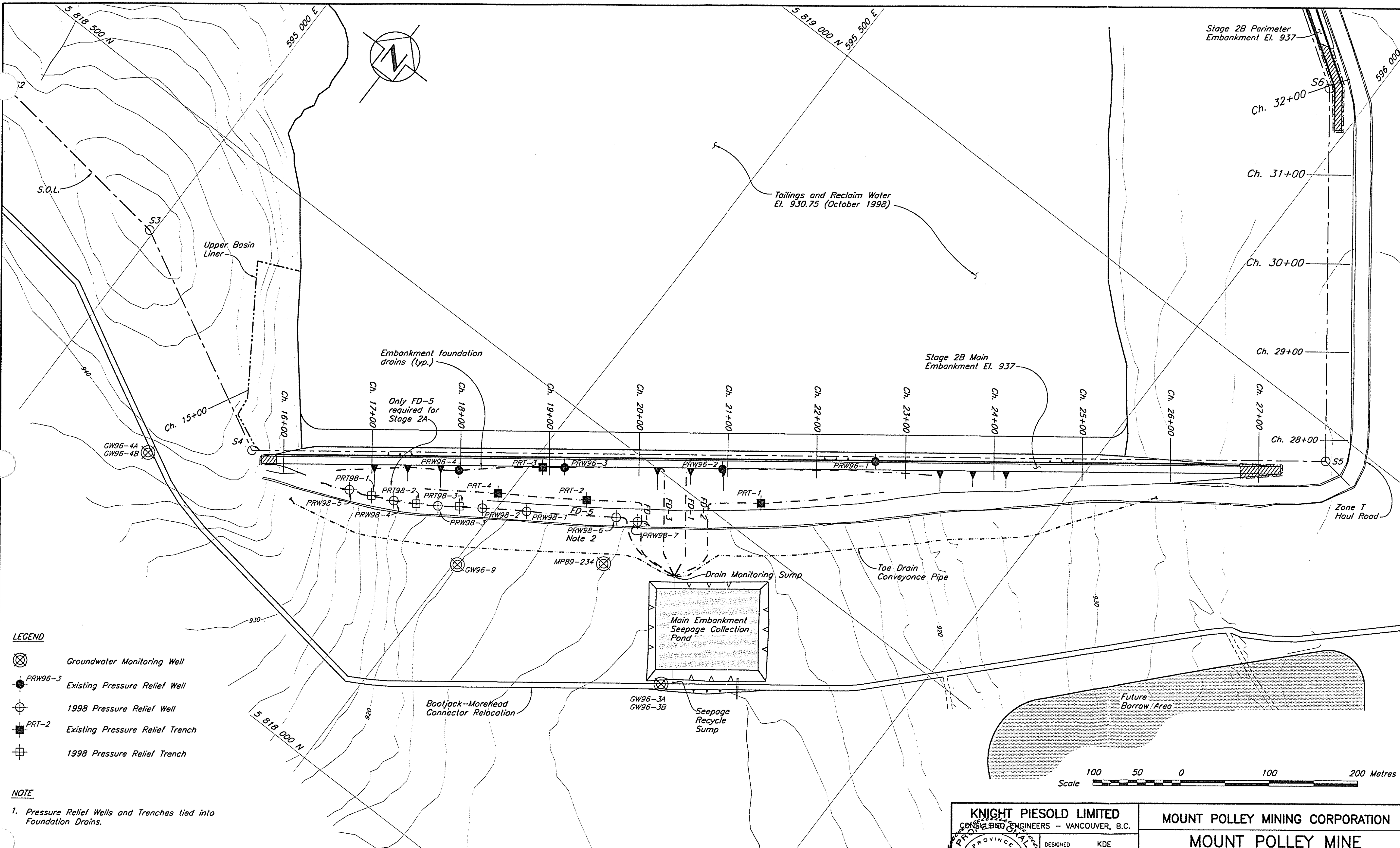
DESIGNED	KDE
DRAWN	NSD
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2 EXPANSION INSTRUMENTATION
DETAILS

DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-154 | REV. 2



KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS - VANCOUVER, B.C.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — K. J. BROUWER

DESIGNED	KDE
DRAWN	NSD
CHECKED	BB
APPROVED	KJB

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
STAGE 2A/2B EXPANSION
MAIN EMBANKMENT
PRESSURE RELIEF DETAILS

DATE DEC. 1, 1997 | SCALE AS SHOWN | DRG. NO. 10162-9-155 | REV. 2

REV.	DATE	DESCRIPTION	APPROVED
2	JUNE 11/99	STAGE 2A/2B AS-BUILT	KJB
1	JAN 6/98	ISSUED FOR STAGE 2A PRESSURE RELIEF CONSTRUCTION	
0	DEC 1/97	ISSUED FOR DESIGN REPORT	

REVISIONS

DRG. NO.	DESCRIPTION

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED

REVISIONS

APPENDIX A

BORROW AREA AND
BASIN LINER INVESTIGATIONS

APPENDIX A

BORROW AREA AND BASIN LINER INVESTIGATIONS

TABLE OF CONTENTS

TABLES

FIGURES

TABLE A1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
BORROW AREA 2 INVESTIGATION - SAMPLE SUMMARY

Sample No.	Location	C1 Atterberg Limits			C2	C3 (Particle Size Distribution)			
		PL %	LL %	PI %	Field m/c (%)	Gravel %	Sand %	Silt %	Clay %
DH98-BA2-6 (7.5 ft)	-	11.5	22.7	11.2	10.9	8.4	48.6	30.3	12.7
DH98-BA2-9 (14 ft)	-	11.6	23.2	11.6	14.5	23.1	39.1	24.3	13.5
DH98-BA2-11 (12.5 ft)	-	13.1	20.0	6.9	10.6	13.7	45.9	27.1	13.3
DH98-BA2-16 (6 ft)	-	11.6	25.4	13.8	11.8	13.0	34.9	33.2	18.9
	MEAN	12.0	22.8	10.9	12.0	14.6	42.1	28.7	14.6
	MEDIAN	11.6	23.0	11.4	11.4	13.4	42.5	28.7	13.4
	MAXIMUM (*)	13.1	25.4	13.8	14.5	23.1	48.6	33.2	18.9
	MINIMUM (*)	11.5	20.0	6.9	10.6	8.4	34.9	24.3	12.7

Notes: These are 100% limits.

C1 Atterberg Limits (ASTM D4318)

C2 Moisture Content (ASTM D2216)

C3 Particle Size Distribution (ASTM D422)

TABLE A2

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
BORROW AREA 4 INVESTIGATION - SAMPLE SUMMARY

Sample No.	Location	C1 Atterberg Limits			C2	C3 (Particle Size Distribution)			
		PL %	LL %	PI %	Field m/c (%)	Gravel %	Sand %	Silt %	Clay %
DH98-BA4-1 (9.0 ft)	-	11.9	21.1	9.2	11.3	7.3	37.8	41.7	13.2
DH98-BA4-6 (14.0 ft)	-	12.3	22.6	10.3	11.0	7.3	36.0	41.6	15.1
DH98-BA4-9 (4.0 ft)	-	10.7	21.7	11.0	12.4	1.0	42.0	38.6	18.4
	MEAN	11.6	21.8	10.2	11.6	5.2	38.6	40.6	15.6
	MEDIAN	11.9	21.7	10.3	11.3	7.3	37.8	41.6	15.1
	MAXIMUM (*)	12.3	22.6	11.0	12.4	7.3	42.0	41.7	18.4
	MINIMUM (*)	10.7	21.1	9.2	11.0	1.0	36.0	38.6	13.2

Notes: These are 100% limits.
C1 Atterberg Limits (ASTM D4318)
C2 Moisture Content (ASTM D2216)
C3 Particle Size Distribution (ASTM D422)

TABLE A3

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
TAILINGS STORAGE FACILITY

SOUTH EMBANKMENT
SUMMARY OF 1998 BASIN LINER INVESTIGATION

M:\11162\10\Data\basliner\[DRILLSUM.XLS]99 summ

7-May-99 11:45

Drill Hole	Depth (ft)	Description	Samples (ft)	Comments
DH98-BL-1	0-2.5	Sand Till, weathered.	1.5	Relatively high permeability.
	2.5-5	Bedrock, volcanic, slightly weathered.	3.5	
DH98-BL-2	0-17.5	Silt Till.	1.5, 4, 7.5, 11, 14, 16	Low permeability.
	17.5-20	Sand Till.	18	Seepage.
DH98-BL-3	0-6	Silt Till.	2, 4, 5-6.5	Low permeability.
	6-9.5	Sand Till.	7.5	Water bearing.
	9.5-12	Clay Till.	10-11.5	Low permeability.
	12-17	Silt, glaciolacustrine/glaciofluvial.	12.5, 14.5, 15-16.5	Rel. low permeability.
	17-22	Bedrock, volcanic.	18, 20-21.5	
DH98-BL-4	0-12	Silt Till.	2, 4, 5-6.5, 7.5, 9, 10-11.5	Low permeability.
	12-17	Sand, glaciofluvial or Till.	13, 15-16.5	Water bearing.
	17-25	Bedrock, volcanic, sediment-like.	17.5, 20-21.5, 25-26.5	
DH98-BL-5	0-15	Silt Till.	2, 4, 7.5, 11, 14	Low permeability.
DH98-BL-6	0-2	Silt Till, weathered.		Rel. high permeability.
	2-4	Bedrock, volcanic, weathered.	3	
DH98-BL-7	0-0.5	Gravel Road fill.		
	0.5-4	Gravel, Till or glaciofluvial.	2.5	High permeability.
	4-15	Silt Till.	4.5, 7.5, 12.5	Low permeability.
DH98-BL-8	0-6	Sand, glaciofluvial.	2.5	High permeability.
	6-10	Silt Till, possibly glaciofluvial/lacustrine.	7.5	Relatively low permeability.
	10-13	Silt, glaciolacustrine.	12	Relatively low permeability.
	13-20	Sand, till or glaciofluvial.	14, 17.5	Water bearing.
DH98-BL-9	0-2.5	Sand, road fill.	1.5	
	2.5-15	Silt Till.	4, 7.5, 11, 14	Low permeability.
DH98-BL-10	0-15	Silt Till.	1.5, 4.5, 7.5, 11, 14	Low permeability.
DH98-BL-11	0-6	Silt Till.	2, 4	Low permeability.
	6-7	Bedrock, volcanic.	7	
DH98-BL-12	0-10	Silt Till.	2, 4, 7.5	Low permeability.
DH98-BL-13	0-10	Silt Till.	2, 4, 7.5	Low permeability.
DH98-BL-14	0-10	Silt then Sand Till.	1.5, 3.5, 7	Low permeability.
DH98-BL-15	0-10	Silt Till.	2, 4, 7	Low permeability.
DH98-BL-16	0-10	Silt Till.	2, 4, 7	Low permeability.
DH98-BL-17	0-10	SiltTill.	2, 4, 7 (?)	Low permeability.
DH98-BL-18	0-10	SiltTill.	2, 4, 7	Low permeability.
DH98-BL-19	0-10	SiltTill.	2, 4, 7.5	Low permeability.

Knight Piésold Ltd.
CONSULTING ENGINEERS

TABLE A4

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
TAILINGS STORAGE FACILITY

SOUTH EMBANKMENT
SUMMARY OF 1999 BASIN LINER INVESTIGATION

Bore Hole	Depth (m)	Description	Samples (m depth)	Comments
BH99-1	0-2.3	Snow and organics		Relatively high permeability
	2.3-3	Glacial Till, very wet		Low permeability
	3-4.6	Glacial Till		Low permeability
BH99-2	-0.6-0	Glacial Till		Low permeability
	0-0.6	Glacial Till		Low permeability
	0.6	Bedrock		High permeability
BH99-3 [1]	0-0.6	Glacial Till		Low permeability
	0.6	Bedrock		High permeability
BH99-4 [1]	0-0.9	Glacial Till		Low permeability
	0.9	Bedrock		High permeability
BH99-5	0-1.2	Glacial Till		Low permeability
	1.2	Bedrock		High permeability
BH99-6	0-1.8	Glacial Till		Low permeability
	1.8	Bedrock		High permeability
BH99-7	0-2.4	Glacial Till		Low permeability
	2.4	Bedrock		High permeability
BH99-8	0-3.7	Glacial Till		Low permeability
	3.7	Bedrock		High permeability
BH99-9	0-5.8	Glacial Till		Low permeability
	5.8	Bedrock		High permeability
BH99-10	0-4.3	Glacial Till		Low permeability
	4.3-5.5	Glacial Till, very wet		Low permeability
	5.5-6.1	Glacial Till		Low permeability
BH99-11	0-6.7	Glacial Till		Low permeability
	6.7	Bedrock, weathered, wet		High permeability
BH99-12	0-5.5	Glacial Till	2.6-3.0	Low permeability
	5.5	Bedrock		High permeability
BH99-13	0-5.5	Glacial Till	2.6-3.0	Low permeability
	5.5	Bedrock		High permeability
BH99-14	0-5.2	Glacial Till	2.6-3.0	Low permeability
	5.2	Bedrock		High permeability
BH99-15 [1]	0-1.2	Snow and organics		Relatively high permeability
	1.2-1.8	Glacial Till		Low permeability
	1.8	Bedrock		High permeability
BH99-16	0-4.3	Glacial Till	2.6-3.0	Low permeability
	4.3-8.5	Glacial Till, 3-3.5% above optimum m/c	5.7-6.1	Low permeability
	8.5-9.1	Glacial Till, 4-5% above optimum m/c	8.7-9.1	Low permeability
BH99-17	0-5.8	Glacial Till, approx. 4% above optimum m/c	2.6-3.0	Low permeability
	5.8	Bedrock		High permeability
BH99-18	0-0.9	Glacial Till		Low permeability
	0.9-2.7	Glacial Till layered with glaciolacustrine sediments, G+C105 seams 5-10 cm thick,		Low permeability
	2.7-6.1	Glacial Till		Low permeability
BH99-19 [2]	0-0.1	Organic material		High permeability
	0.1-1.2	Glaciolacustrine silt		Moderately low permeability
	1.2-4.6	Glacial Till		Low permeability
BH99-20	0-0.1	Organic material		High permeability
	0.1-4.6	Glacial Till		Low permeability
	4.6-6.1	Glacial Till, wet		Low permeability
	6.1	Bedrock		High permeability
BH99-21	0-4.3	Glacial Till		Low permeability
	4.3	Bedrock		High permeability
BH99-22 [2]	0-0.9	Glaciofluvial Sand and Gravel		High permeability
	0.9-3.7	Glacial Till		Low permeability
	3.7-4.6	Glaciolacustrine Sand and Silt, very wet		Moderately high permeability
	4.6-6.1	Weathered Bedrock, moist		Low permeability
BH99-23 [2]	0-0.6	Glaciofluvial Sand with Some Gravel and Fines		High permeability
	0.6-2.4	Glacial Till, wet		Low permeability
	2.4-3.0	Glacial Till, moist		Low permeability
	3.0-6.7	Glaciofluvial Sand, Some Fines, Trace Gravel, very wet		High permeability
	6.7-7.6	Glaciolacustrine Sandy Silt, very moist		Moderately low permeability
BH99-24 [2]	0-4.3	Glaciolacustrine Sandy Silt, wet at bottom	2.4-2.9	Moderately low permeability
	4.3	Bedrock		High permeability
BH99-25 [2]	0-1.5	Glaciofluvial Gravelly Sand with Some Fines		High permeability
	1.5-3.0	Glacial Till		Low permeability
	3.0	Bedrock, hard		High permeability
BH99-26 [2]	0-1.5	Glacial Till		Low permeability
	1.5-1.8	Glaciolacustrine Sandy Silt		Moderately low permeability
	1.8-3.4	Reddish Brown Sandy Silt, Trace Clay, wet at bottom		Moderately low permeability
	3.4-4.6	Weathered Bedrock, dry		Low permeability

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TABLE A4

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
TAILINGS STORAGE FACILITY

SOUTH EMBANKMENT
SUMMARY OF 1999 BASIN LINER INVESTIGATION

Bore Hole	Depth (m)	Description	Samples (m depth)	Comments
BH99-27 [2]	0-4.6	Glacial Till		Low permeability
	4.6-6.4	Glaciolacustrine Sandy Silt	5.3-6.1	Moderately low permeability
	6.4-6.7	Glaciolacustrine Sand and Silt, very wet		Moderately high permeability
	6.7-9.1	Glaciolacustrine Sandy Silt		Moderately low permeability
BH99-28	0-0.6-0	Glacial Till		Low permeability
	0-4.0	Glacial Till		Low permeability
BH99-29	0-5.2	Glacial Till		Low permeability
	5.2	Bedrock, hard		High permeability
BH99-30 [2]	0-0.6	Glaciofluvial Sand and Gravel, Trace Fines		High permeability
	0.6-5.2	Glacial Till		Low permeability
	5.2	Bedrock		High permeability
BH99-31	0-5.2	Glacial Till		Low permeability
	5.2-5.8	Bedrock		High permeability
BH99-32	0-0.6	Snow		
	0.6-7.0	Peat		High permeability
	7.0-9.1	Glacial Till, very wet		Low permeability
BH99-33	0-5.5	Peat		High permeability
	5.5-7.6	Glacial Till, very wet		Low permeability
BH99-34	0-0.3	Peat		High permeability
	0.3-5.2	Glacial Till		Low permeability
	5.2	Bedrock		High permeability
BH99-35 [2]	0-0.6	Glacial Till		Low permeability
	0.6-1.2	Sand and Gravel		High permeability
	1.2-6.1	Glacial Till		Low permeability
BH99-36 [2]	0-0.6	Glacial Till		Low permeability
	0.6-1.2	Sand and Gravel		High permeability
	1.2-3.0	Glacial Till		Low permeability
BH99-37 [2]	0-0.3	Glacial Till		Low permeability
	0.3-1.2	Sand and Gravel		High permeability
	1.2-6.1	Glacial Till		Low permeability
BH99-38 [2]	0-0.6	Sand, some gravel		Low permeability
	0.6-1.2	Sandy gravel		High permeability
	1.2-6.1	Glacial Till		Low permeability
BH99-39 [2]	0-0.6	Sand and Gravel		High permeability
	0.6-6.1	Glacial Till		Low permeability
BH99-40 [2]	0-0.6	Sand and Gravel		High permeability
	0.6-3.0	Glacial Till		Low permeability
BH99-41	0-5.2	Glacial Till	2.6-3.0	Low permeability
	5.2-5.8	Bedrock		High permeability
BH99-42	0-3.4	Glacial Till, 1-2% above optimum m/c	2.6-3.0	Low permeability
	3.4-6.4	Glacial Till, 2-3% above optimum m/c	5.7-6.1	Low permeability
	6.4-7.6	Glacial Till, 3-4% above optimum m/c		Low permeability
BH99-43	0-3.0	Glacial Till, 0-1% above optimum m/c	2.6-3.0	Low permeability
	3.0-6.1	Glacial Till, 1-2% above optimum m/c	5.7-6.1	Low permeability
BH99-44	0-4.6	Glacial Till, 0-1% above optimum m/c	2.6-3.0	Low permeability
	4.6-6.1	Glacial Till, 1-2% above optimum m/c	5.7-6.1	Low permeability

Notes:
1. Indicates that the minimum 1.0 m thickness of low permeability soil or Glacial Till is not present.
2. Indicates the presence of Glaciolacustrine sediments. Permeability estimated using results from Particle Size Analyses.

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TABLE A5

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
1998 BASIN LINER INVESTIGATION - SAMPLE SUMMARY

Sample No.	Location	C1			C2	C3 (Particle Size Distribution)			
		Atterberg Limits			Field				
		PL %	LL %	PI %	m/c (%)	Gravel %	Sand %	Silt %	Clay %
DH98-BL-4 (4.0 ft)	-	13.6	24.1	10.5	13.7	8.5	39.3	33.8	18.4
DH98-BL-8 (12.0 ft)	-	-	-	-	46.0	-	-	-	-
DH98-BL-10 (4.5 ft)	-	16.0	26.9	10.9	14.0	0.4	41.7	33.6	24.3
DH98-BL-12 (4.0 ft)	-	13.9	26.7	12.8	13.9	11.7	35.7	30.8	21.8
MEAN		14.5	25.9	11.4	21.9	6.9	38.9	32.7	21.5
MEDIAN		13.9	26.7	10.9	14.0	8.5	39.3	33.6	21.8
MAXIMUM (*)		16.0	26.9	12.8	46.0	11.7	41.7	33.8	24.3
MINIMUM (*)		13.6	24.1	10.5	13.7	0.4	35.7	30.8	18.4

Notes: These are 100% limits.
C1 Atterberg Limits (ASTM D4318)
C2 Moisture Content (ASTM D2216)
C3 Particle Size Distribution (ASTM D422)

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TABLE A6

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
1999 BASIN LINER INVESTIGATION - GLACIAL TILL SAMPLE SUMMARY

Date Sampled	Sample No. (depth)	Field m/c (%)	Particle Size Distribution			
			Gravel %	Sand %	Silt %	Clay %
16-Feb-99	BH99-12A (8.5 - 10 ft)	13.7	6.2	32.3	61.5	
16-Feb-99	BH99-13A (8.5 - 10 ft)	15.2	8.5	30.9	27.6	33.0
16-Feb-99	BH99-14A (8.5 - 10 ft)	19.8	11.5	30.9	57.6	
16-Feb-99	BH99-16A (8.5 - 10 ft)	13.5	8.2	33.7	24.3	33.8
16-Feb-99	BH99-16B (18.5 - 20 ft)	13.9	18.1	26.2	55.7	
16-Feb-99	BH99-16C (28.5 - 30 ft)	15.9	15.3	26.4	58.3	
16-Feb-99	BH99-17A (8.5 - 10 ft)	14.0	5.0	31.3	63.7	
18-Feb-99	BH99-41A (8.5 - 10 ft)	13.4	11.1	34.8	54.1	
18-Feb-99	BH99-42A (8.5 - 10 ft)	14.0	11.1	30.8	25.8	32.3
18-Feb-99	BH99-42B (18.5 - 20 ft)	15.4	8.5	30.9	60.6	
18-Feb-99	BH99-43A (8.5 - 10 ft)	13.9	5.1	31.6	63.3	
18-Feb-99	BH99-43B (18.5 - 20 ft)	15.3	6.4	29.8	63.8	
18-Feb-99	BH99-44A (8.5 - 10 ft)	12.4	14.2	31.0	54.8	
18-Feb-99	BH99-44B (18.5 - 20 ft)	13.2	22.0	26.6	21.8	29.6
	MEAN	14.5	10.8	30.5	49.5	32.2
	MEDIAN	14.0	9.8	30.9	56.7	32.7
	MAXIMUM	19.8	22.0	34.8	63.8	33.8
	MINIMUM	12.4	5.0	26.2	21.8	29.6

Notes:
1. These are 100% limits.
2. Samples tested by Materials Testing Services, Prince George, B.C.
3. Tests carried out include Moisture Content Determination (ASTM D2216) and Parti
4. "-" denotes that no testing was carried out.

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TABLE A7

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
1999 BASIN LINER INVESTIGATION - GLACIOLACUSTRINE SAMPLE SUMMARY

Date Sampled	Sample No. (depth)	Field m/c (%)	Particle Size Distribution			
			Gravel %	Sand %	Silt %	Clay %
17-Feb-99	BH99-24A (8 - 9.5 ft)	20.9	6.6	15.1	78.3	
17-Feb-99	BH99-27A (17.5 - 20 ft)	21.7	1.8	28.9	69.3	
	MEAN	21.3	4.2	22.0	73.8	
	MEDIAN	21.3	4.2	22.0	73.8	
	MAXIMUM	21.7	6.6	28.9	78.3	
	MINIMUM	20.9	1.8	15.1	69.3	

Notes:
1. These are 100% limits.
2. Samples tested by Materials Testing Services, Prince George, B.C.
3. Tests carried out include Moisture Content Determination (ASTM D2216) and Partic
4. "-" denotes that no testing was carried out.

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
BORROW AREA 2 INVESTIGATION - GLACIAL TILL SAMPLES - GRADATION CURVES

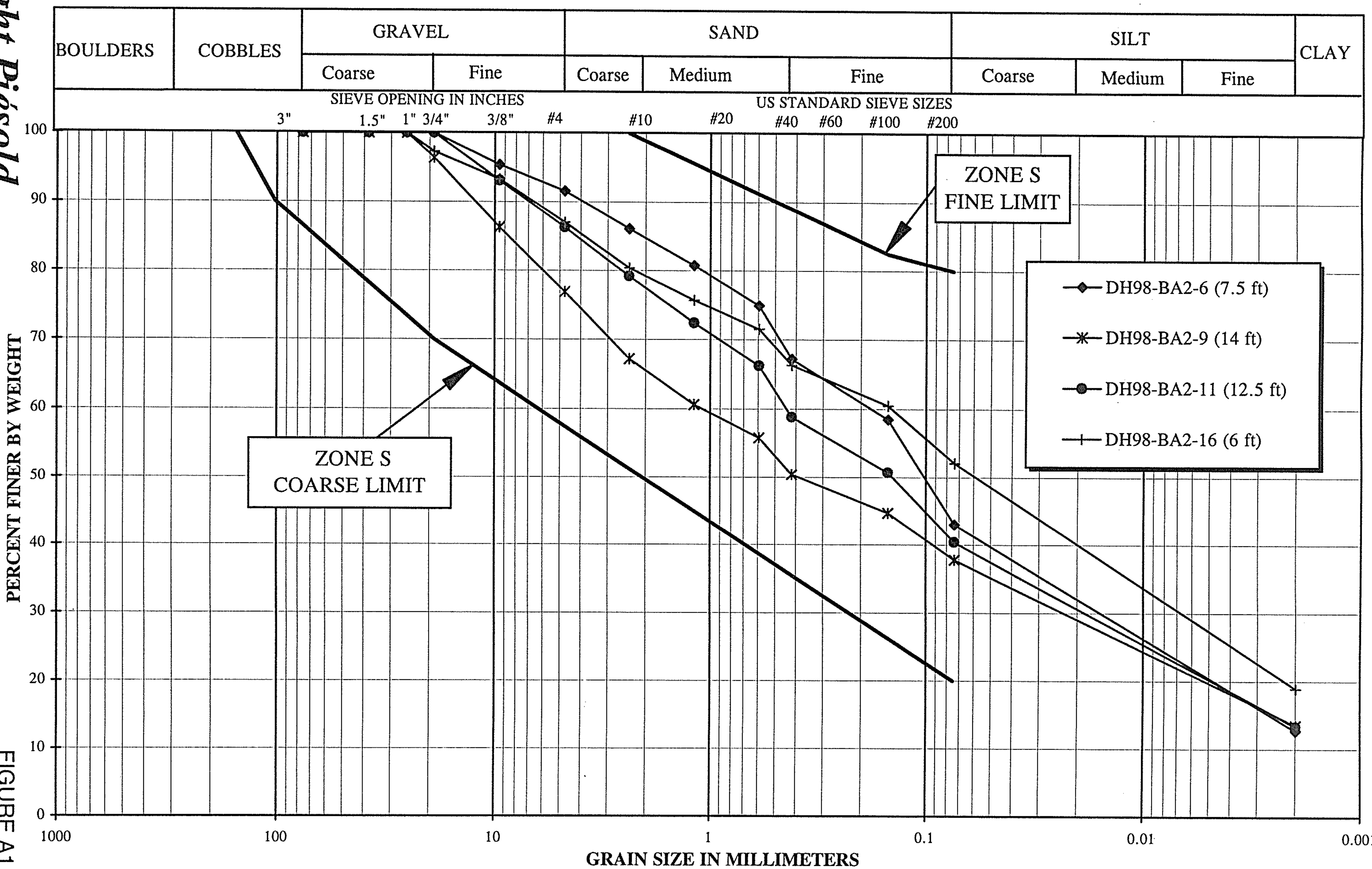

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FIGURE A1

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
BORROW AREA 4 INVESTIGATION - GLACIAL TILL SAMPLES - GRADATION CURVES

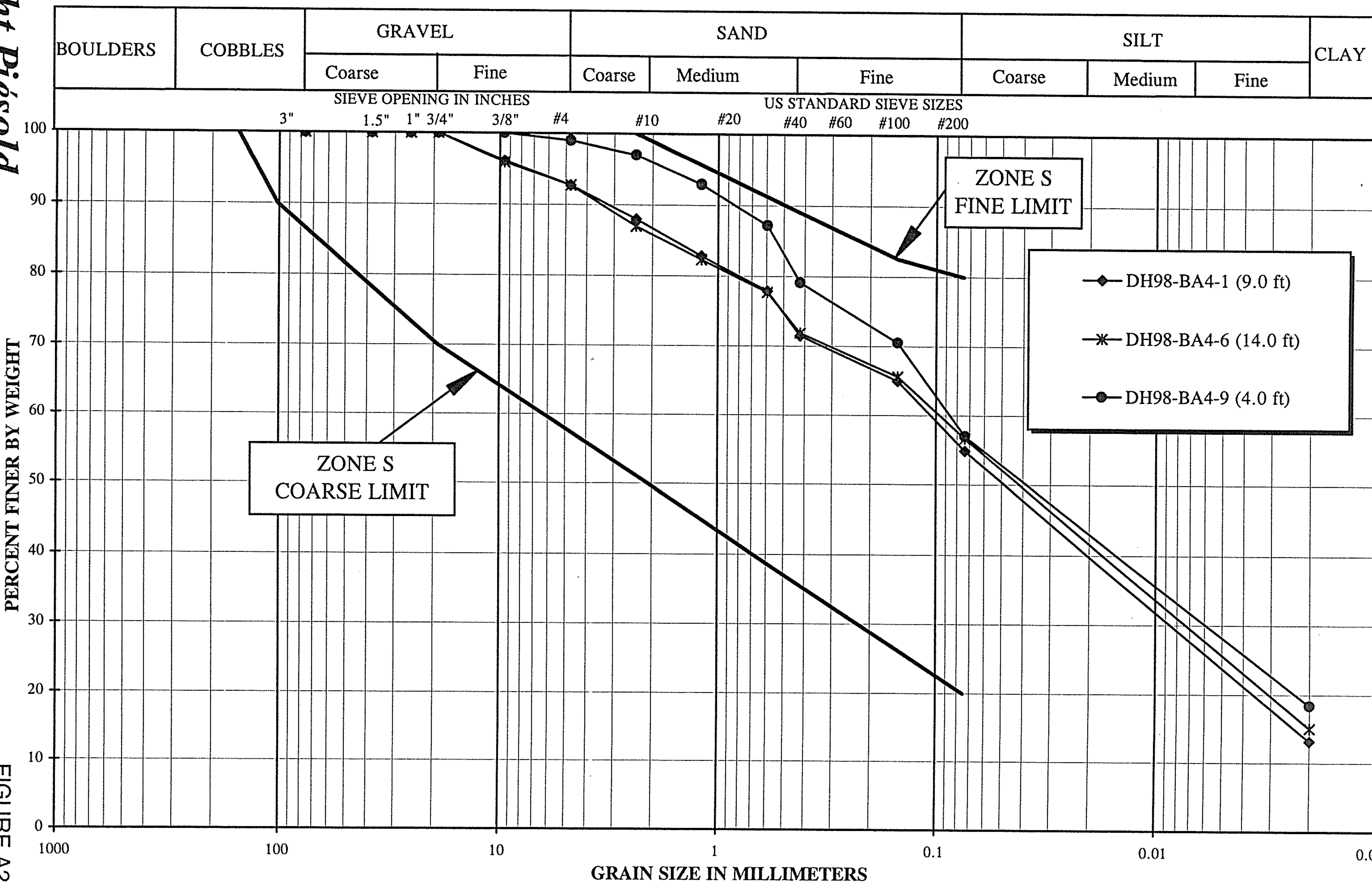

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FIGURE A2

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
1998 BASIN LINER INVESTIGATION - GLACIAL TILL SAMPLES - GRADATION CURVES

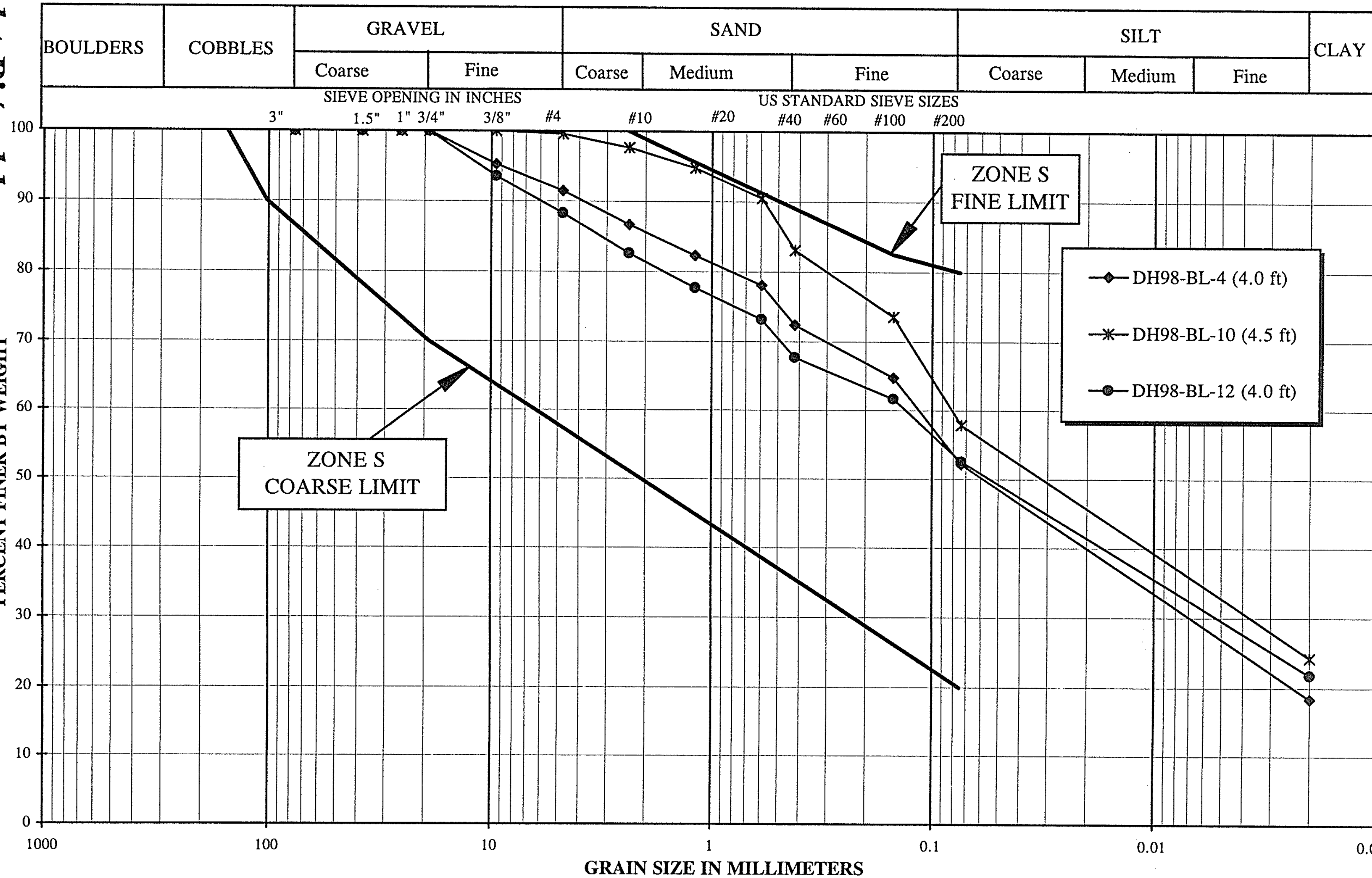

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FIGURE A3

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
1999 BASIN LINER INVESTIGATION - GLACIAL TILL SAMPLES - GRADATION CURVES

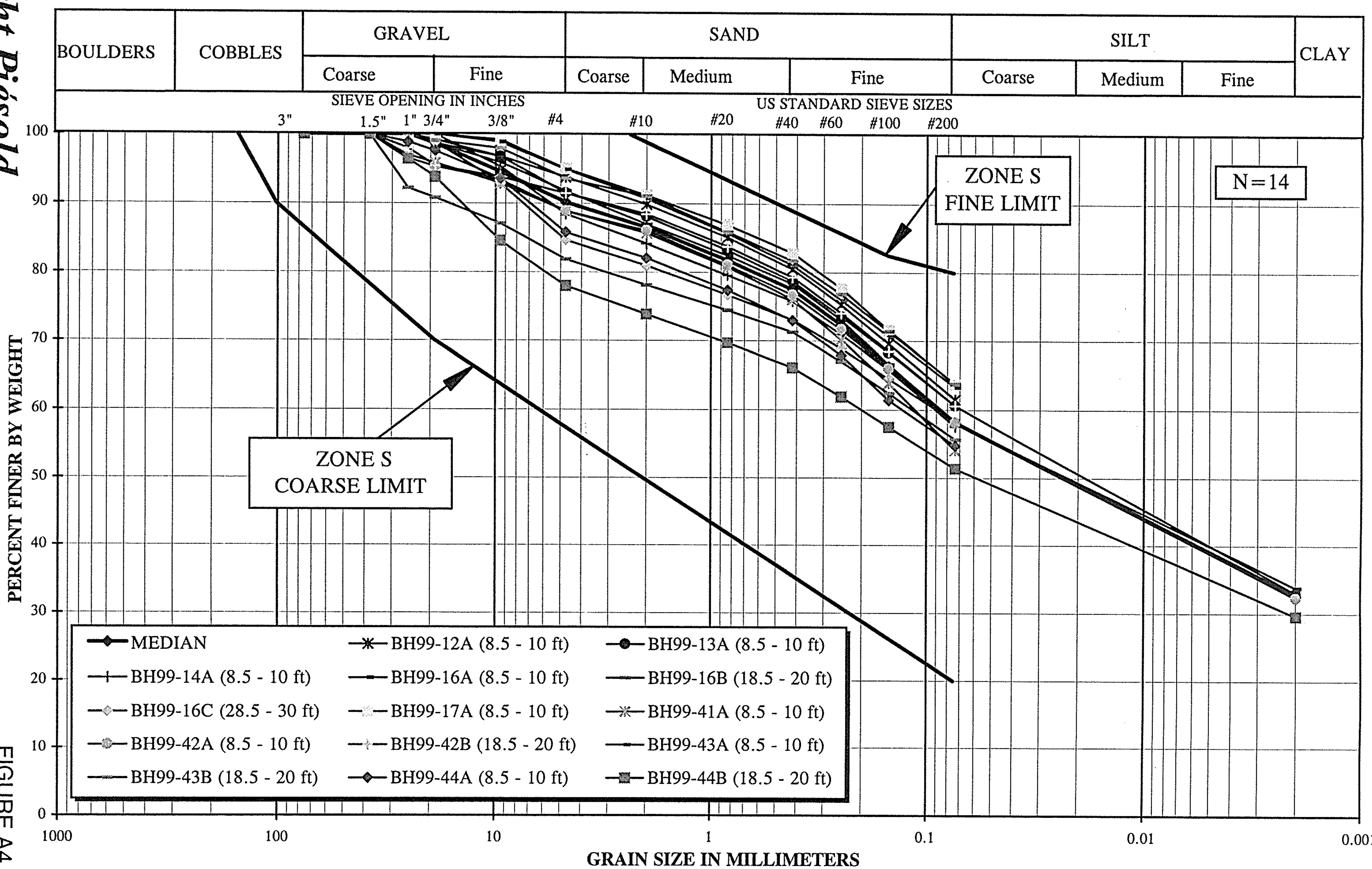

FIGURE A4

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
1999 BASIN LINER INVESTIGATION - GLACIOLACUSTRINE SAMPLES - GRADATION CURVES

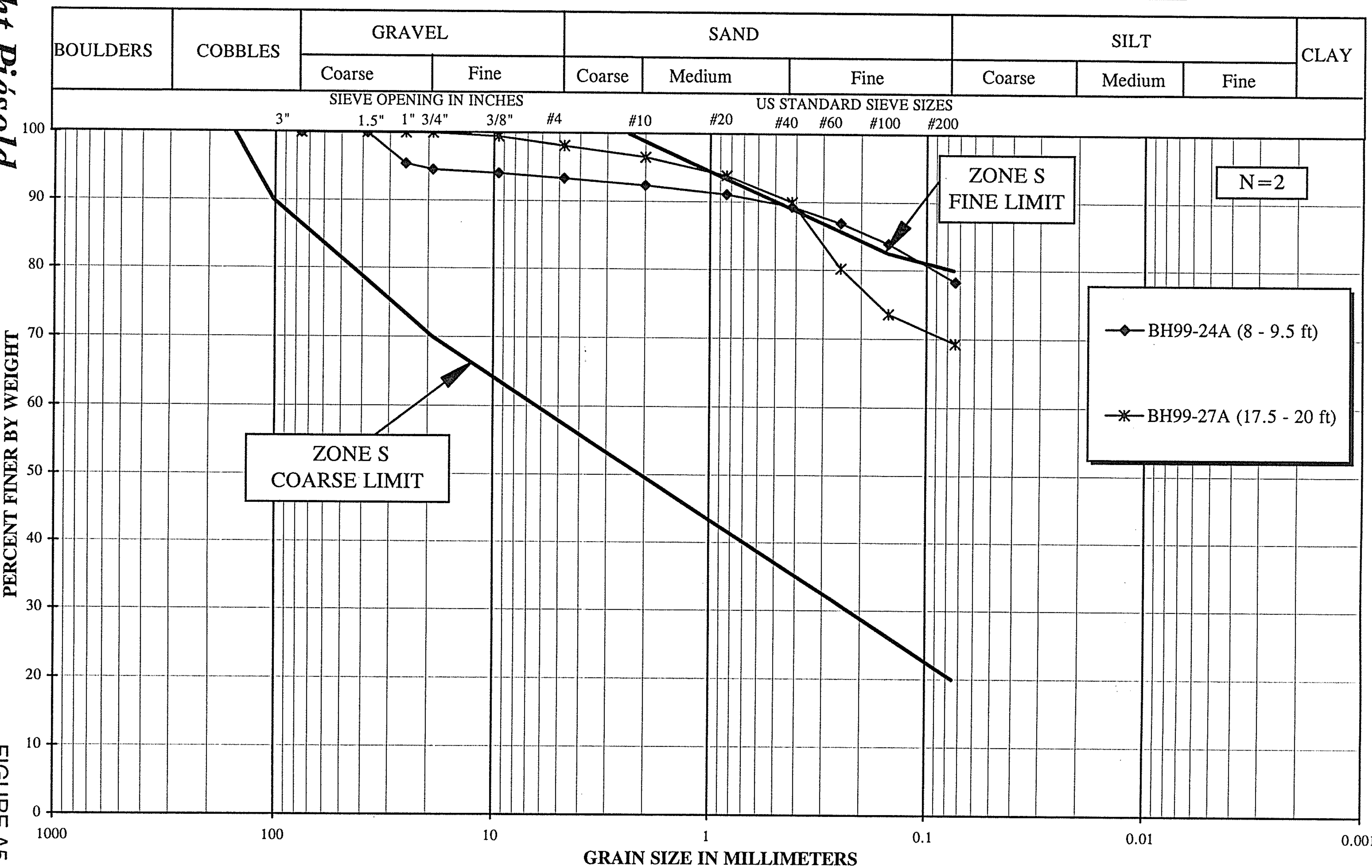

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FIGURE A5

APPENDIX B

CONSTRUCTION QUALITY ASSURANCE RECORD TEST SUMMARY SHEETS

APPENDIX B

CONSTRUCTION QUALITY ASSURANCE RECORD TEST SUMMARY SHEETS

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TABLES

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TABLE B1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE S RECORD TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	Elev. (m)	R1 Atterberg Limits PL %	R1 LL %	R1 PI %	R2 Field m/c %	LI %	R3 (Particle Size Distribution) Gravel %	Sand %	Silt %	Clay %	R4 Standard Proctor Max Dry Density kg/m³	R4 Optimum m/c %	R6 Specific Gravity	R7 Field Density Dry Density kg/m³	R7 m/c %
29-Apr-98	R-ZS-1	23+37, 8.5m D/S from U/S shoulder	932.5	16.4	24.3	7.9	14.1	-0.29	20.9	35.2	26.4	17.5	2130	8.7	2.8	2072	10.5
30-Apr-98	R-ZS-2	25+25, 3.5m D/S from U/S shoulder	935.8	12.9	25.1	12.2	10.4	-0.20	17.4	35.9	27.2	17.5	2103	9.2	-	2121	9.6
03-May-98	R-ZS-3	21+76, 9m D/S from U/S shoulder	934.3	14.1	26.7	12.6	9.8	-0.34	21.7	37.8	24.5	17.5	2072	10.3	-	2112	8.4
04-May-98	R-ZS-4	20+50, 11m D/S from U/S shoulder	933.9	13.0	26.0	13.0	10.5	-0.19	18.8	40.4	22.8	17.5	2075	9.7	-	2102	8.6
06-May-98	R-ZS-5	19+00, 10m D/S from U/S shoulder	932.2	14.3	25.8	11.5	10.0	-0.37	19.3	43.2	18.5	17.5	2089	9.3	-	2147	9.1
07-May-98	R-ZS-6	18+03, 7.5m D/S from U/S shoulder	933.1	13.8	26.8	13.0	11.7	-0.16	19.3	35.4	27.3	17.5	2084	10.4	-	2042	10.1
07-May-98	R-ZS-7	34+00, 4.5m D/S from U/S shoulder	935.8	13.4	25.9	12.5	10.3	-0.25	13.1	39.5	29.4	17.5	2062	10.0	-	2110	8.0
07-May-98	R-ZS-8	38+05, 6m D/S from U/S shoulder	934.8	13.5	25.2	11.7	12.5	-0.09	3.2	36.4	40.4	17.5	1961	12.1	-	1981	12.1
09-May-98	R-ZS-9	41+04, 5m D/S from U/S shoulder	935.0	13.3	24.1	10.8	12.6	-0.06	11.7	38.1	30.2	17.5	2085	9.4	-	2022	10.8
09-May-98	R-ZS-10	16+82, 6.5m D/S from U/S shoulder	935.0	13.1	30.8	17.7	11.7	-0.08	17.2	39.1	25.7	17.5	2060	10.5	-	2046	9.8
12-May-98	R-ZS-11	43+67, 4m U/S from D/S shoulder	933.7	15.8	25.7	9.9	12.1	-0.37	7.7	40.0	31.3	17.5	1980	11.6	-	1962	11.7
13-May-98	R-ZS-12	26+40, 6m D/S from U/S shoulder	936.0	12.8	25.5	12.7	12.3	-0.04	22.9	37.0	21.1	17.5	2089	10.0	-	2106	9.2
28-Sep-98	R-ZS-1	43+45, 3m D/S from U/S shoulder	935.9	15.7	25.9	10.2	11.3	-0.43	5.2	37.4	37.0	17.5	2048	10.6	2.7	2037	11.3
30-Sep-98	R-ZS-2	39+00, 1m D/S from U/S shoulder	936.6	14.5	25.0	10.5	11.4	-0.30	6.7	39.6	35.2	17.5	2038	10.4	-	2035	11.4
04-Dec-98	R-ZS-3	33+00, 6m D/S from U/S shoulder	937.0	16.0	28.6	12.6	11.5	-0.36	17.0	36.5	27.1	17.5	2053	11.6	2.6	2042	11.5
18-Dec-98	R-ZS-4	21+50, 5m D/S from U/S shoulder	936.4	15.7	28.7	13.0	11.5	-0.32	18.4	38.0	26.6	17.5	2055	11.2	-	1979	11.5
22-Dec-98	R-ZS-5	16+75, 5m D/S from U/S shoulder	937.0	15.9	29.8	13.9	10.0	-0.42	20.0	33.9	29.4	17.5	2069	10.1	2.7	2063	10.0
			MEAN	14.4	26.5	12.1	11.4	-0.3	15.3	37.8	28.2	17.5	2062	10.3	2.68	2058	10.2
			MEDIAN	14.1	25.9	12.5	11.5	-0.3	17.4	37.8	27.2	17.5	2069	10.3	2.67	2046	10.1
			MAXIMUM (*)	16.4	30.8	17.7	14.1	0.0	22.9	43.2	40.4	17.5	2130	12.1	2.76	2147	12.1
			MINIMUM (*)	12.8	24.1	7.9	9.8	-0.4	3.2	33.9	18.5	17.5	1961	8.7	2.63	1962	8.0

Notes : These are 100% limits.
Values for Standard Proctor maximum dry density and optimum moisture content include oversize correction.
R1 Atterberg Limits (ASTM D4318)
R2 Moisture Content (ASTM D2216)
R3 Particle Size Distribution (ASTM D422)
R4 Laboratory Compaction (ASTM D1557)
R6 Specific Gravity (ASTM D854)
R7 Density by Nuclear Methods (ASTM D2922)

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TABLE B2

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE B RECORD TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	Elev. (m)	R1 Atterberg Limits PL %	LL %	PI %	R2 Field m/c %	LI %	R3 (Particle Size Distribution) Gravel %	Sand %	Silt %	Clay %	R4 Standard Proctor Max Dry Density kg/m^3	Optimum m/c %	R6 Specific Gravity	R7 Field Density Dry Density kg/m^3	m/c %
27-Feb-98	R-ZB-1	Ch. 42+55, cL	932.2	14.6	18.6	4.0	8.7	-1.48	28.6	44.4	24.0	3.0	2120	8.8	-	2059	10.0
29-Apr-98	R-ZB-2	24+10, 2.0m D/S from U/S shoulder	933.5	13.4	22.6	9.2	12.2	-0.13	19.3	32.0	31.1	17.6	2132	8.9	-	2052	10.3
04-May-98	R-ZB-3	35+27, 3m U/S from D/S shoulder	935.7	13.2	22.6	9.4	10.2	-0.32	14.9	38.9	29.2	17.0	2075	10.2	-	2056	10.7
07-May-98	R-ZB-4	19+79, 1m D/S from U/S shoulder	935.4	13.7	26.8	13.1	14.3	0.05	15.0	42.8	28.2	14.0	2026	10.4	-	1959	10.8
12-May-98	R-ZB-5	22+50, 3m U/S from D/S shoulder	935.9	12.5	23.0	10.5	11.1	-0.13	27.4	36.2	23.4	13.0	2122	9.4	-	2054	10.6
13-May-98	R-ZB-6	17+38, 3.5m U/S from D/S shoulder	936.0	13.6	25.3	11.7	9.8	-0.32	22.8	38.5	20.7	18.0	2094	8.5	-	2072	8.6
			MEAN	13.3	24.1	10.8	11.5	-0.2	19.9	37.7	26.5	15.9	2090	9.5	-	2039	10.2
			MEDIAN	13.4	23.0	10.5	11.1	-0.1	19.3	38.5	28.2	17.0	2094	9.4	-	2054	10.6
			MAXIMUM (*)	13.7	26.8	13.1	14.3	0.0	27.4	42.8	31.1	18.0	2132	10.4	-	2072	10.8
			MINIMUM (*)	12.5	22.6	9.2	9.8	-0.3	14.9	32.0	20.7	13.0	2026	8.5	-	1959	8.6

Notes : These are 100% limits.

Values for Standard Proctor maximum dry density and optimum moisture content include oversize correction.

R1 Atterberg Limits (ASTM D4318)
R2 Moisture Content (ASTM D2216)
R3 Particle Size Distribution (ASTM D422)
R4 Laboratory Compaction (ASTM D1557)
R6 Specific Gravity (ASTM D854)
R7 Density by Nuclear Methods (ASTM D2922)

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TABLE B3

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE T RECORD TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	Depth (m)	R3 (Particle Size Distribution)				
				Cobble %	Gravel %	Sand %	Silt %	Clay %
26-Jan-98	R-ZT-1	Ch. 44+11, 12m from d/s toe of haul rd.	0.4	17.5	60.4	22.1	0.0	-
12-Feb-98	R-ZT-2	cL. of 2B haul road, 41+75	0.5	6.2	79.6	13.7	0.5	-
12-Feb-98	R-ZT-3	cL. of 2B haul road, 39+25	0.5	9.3	76.5	13.7	0.5	-
18-Feb-98	R-ZT-4	cL. of 2B haul road, 36+75	0.5	8.0	81.4	10.1	0.5	-
25-Feb-98	R-ZT-5	cL. of 2B haul road, 34+25	0.5	0.0	74.8	24.1	1.1	-
25-Feb-98	R-ZT-6	cL. of 2B haul road, 31+75	0.5	6.4	81.8	11.1	0.7	-
11-Mar-98	R-ZT-7	Ch. 29+30, 3m from d/s toe of haul rd.	0.5	20.2	55.8	23.3	0.7	-
11-Mar-98	R-ZT-8	Ch. 27+25, 5m from u/s toe of haul rd.	0.8	30.7	51.3	17.3	0.7	-
31-Mar-98	R-ZT-9	Ch. 25+00, 5m from d/s toe of haul rd.	0.5	23.7	54.2	20.8	1.3	-
31-Mar-98	R-ZT-10	Ch. 22+50, 5m from d/s toe of haul rd.	0.5	11.1	66.4	21.7	0.8	-
			MEAN	13.3	68.2	17.8	0.7	-
			MEDIAN	10.2	70.6	19.1	0.7	-
			MAXIMUM (*)	30.7	81.8	24.1	1.3	-
			MINIMUM (*)	0.0	51.3	10.1	0.0	-

Notes : These are 100% limits.
R3 Particle Size Distribution (ASTM D422)

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TABLE B4

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION

ZONE G RECORD TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	Depth (m)	R3 (Particle Size Distribution)			
				Gravel %	Sand %	Silt %	Clay %
28-Jan-98	R-DG-1	PE OD-6, 40.0m from toe of 1b Embank.	1.5	99.4	0.6	0.0	-
29-Jan-98	R-DG-2	PE OD-5, 7.5m from toe of 1b Embank.	1.0	97.9	1.7	0.4	-
30-Jan-98	R-DG-3	PE OD-4, 13.0m from toe of 1b Embank.	1.3	97.3	2.3	0.4	-
02-Apr-98	R-DG-4	ME FD-5, Ch. 16+60	0.3	90.8	7.5	1.7	-
02-Apr-98	R-DG-5	ME FD-5, Ch. 18+10	0.6	95.8	3.5	0.7	-
03-Apr-98	R-DG-6	ME FD-5, Ch. 20+00	0.5	92.0	6.8	1.2	-
			MEAN	95.5	3.7	0.7	-
			MEDIAN	96.6	2.9	0.6	-
			MAXIMUM (*)	99.4	7.5	1.7	-
			MINIMUM (*)	90.8	0.6	0.0	-

Notes : These are 100% limits.
R3 Particle Size Distribution (ASTM D422)

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TABLE B5

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE F RECORD TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	Depth (m)	R3 (Particle Size Distribution)			
				Gravel %	Sand %	Silt %	Clay %
28-Jan-98	R-FS-1(retest)	PE OD-6, 5.5m from toe of 1b Embank.	1.2	49.0	44.0	7.0	
29-Jan-98	R-FS-2	PE OD-5, 25.0m from toe of 1b Embank.	1.3	42.7	48.8	8.5	
30-Jan-98	R-FS-3	PE OD-4, 14.5m from toe of 1b Embank.	1.6	48.1	44.6	7.3	
12-Feb-98	R-FS-4	OD-4, 20m from toe of 2B haul road	0.3	49.5	43.3	7.2	
12-Feb-98	R-FS-5	OD-6, 19m from toe of 2B haul road	0.3	43.1	47.3	9.6	
MEAN				46.5	45.6	7.9	
MEDIAN				48.1	44.6	7.3	
MAXIMUM (*)				49.5	48.8	9.6	
MINIMUM (*)				42.7	43.3	7.0	

Notes : These are 100% limits.
R3 Particle Size Distribution (ASTM D422)

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APPENDIX C

CONSTRUCTION QUALITY ASSURANCE
CONTROL TEST SUMMARY SHEETS
AND GRADATION PLOTS

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APPENDIX C

CONSTRUCTION QUALITY ASSURANCE CONTROL TEST SUMMARY SHEETS AND GRADATION PLOTS

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TABLE C1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE S CONTROL TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	Depth	C1 Atterberg Limits			C2		C3 (Particle Size Distribution)				C4 Standard Proctor		C6
				PL	LL	PI	Field m/c	LI	Gravel	Sand	Silt	Clay	Max Dry Density	Optimum m/c	Specific Gravity
			(m)	%	%	%	%	%	%	%	%	%	kg/m^3	%	
13-Jan-98	C-ZS-3	BA4 - Grid I,10	1.7	14.0	23.6	9.6	9.7	-0.45	8.0	43.0	34.0	15.0	2120	9.6	2.72
13-Jan-98	C-ZS-4	BA4 - Grid HI,10	1.4	13.6	22.5	8.9	9.4	-0.47	11.7	39.2	35.6	13.5	2150	9.2	2.74
	C-ZS-16			13.4	22.7	9.3	12.5	-0.10	18.8	31.4	30.4	19.4	2121	9.0	-
09-Jan-98	C-ZS-1	BA4 - Grid I,8.5	2.0	15.0	18.5	3.5	12.0	-0.86	5.8	42.0	40.2	12.0	2060	10.0	-
13-Jan-98	C-ZS-2	BA4 - Grid H,9.5	2.3	15.3	22.0	6.7	12.8	-0.37	3.3	35.1	53.1	8.5	1955	12.4	-
13-Feb-98	C-ZS-5	BA2 - 47.1m west along 3 from D3	1.4	-	-	-	10.5	-	40.0	47.4	12.6	-	-	-	-
13-Feb-98	C-ZS-6	BA2 - 47.1m west along 3 from D3	3.0	-	-	-	7.9	-	37.5	51.8	10.7	-	-	-	-
13-Feb-98	C-ZS-7	BA2 - 61.3m north along D from D3, and	1.6	15.4	20.5	5.1	10.7	-0.92	27.8	36.8	27.9	7.5	2200	7.5	-
13-Feb-98	C-ZS-8	BA2 - 61.3m north along D from D3, and	2.9	-	-	-	10.5	-	31.6	32.3	36.1	-	-	-	-
13-Feb-98	C-ZS-9	BA2 - 84.8m south along D from D5, and	0.8	15.7	22.5	6.8	12.2	-0.51	25.3	40.2	27.5	7.0	2150	8.7	-
13-Feb-98	C-ZS-10	BA2 - 84.8m south along D from D5, and	2.2	14.9	20.5	5.6	10.2	-0.84	25.1	32.8	35.9	6.2	2210	7.7	-
13-Feb-98	C-ZS-11	BA2 - 16.8m south along D from D5, and	1.5	15.6	24.5	8.9	11.0	-0.52	23.5	55.7	16.5	4.3	2110	9.3	-
13-Feb-98	C-ZS-12	BA2 - 64.2m north along D from D5, and	1.3	15.7	24.0	8.3	11.1	-0.55	22.1	34.9	35.0	8.0	2125	9.4	-
13-Feb-98	C-ZS-13	BA2 - 64.2m north along D from D5, and	3.0	-	-	-	-	-	21.5	58.6	19.9	-	-	-	-
22-Mar-98	C-ZS-14	BA#4, TP#5	1.6	16.2	20.0	3.8	-	-	8.9	26.9	58.0	6.2	2019	11.0	-
22-Mar-98	C-ZS-15	BA#4, Near TP#5, 0.3m above top of TP	-	-	-	-	-	-	4.0	38.9	57.1	-	2023	11.0	-
			MEAN	15.0	21.9	7.0	10.8	-0.6	19.7	40.4	33.2	9.8	2104	9.6	2.73
			MEDIAN	15.3	22.5	6.8	10.7	-0.5	21.8	39.1	34.5	8.0	2121	9.4	2.73
			MAXIMUM (*)	16.2	24.5	9.6	12.8	-0.1	40.0	58.6	58.0	19.4	2210	12.4	2.74
			MINIMUM (*)	13.4	18.5	3.5	7.9	-0.9	3.3	26.9	10.7	4.3	1955	7.5	2.72

Notes : These are 100% limits.
Values for Standard Proctor maximum dry density and optimum moisture content include oversize correction.
C1 Atterberg Limits (ASTM D4318)
C2 Moisture Content (ASTM D2216)
C3 Particle Size Distribution (ASTM D422)
C4 Laboratory Compaction (ASTM D1557)
C6 Specific Gravity (ASTM D854)

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TABLE C2

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE B CONTROL TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	Depth (m)	C1 Atterberg Limits PL %	LL %	PI %	C2 Field m/c %	LI %	C3 (Particle Size Distribution) Gravel %	Sand %	Silt %	Clay %	C4 Standard Proctor Max Dry Density kg/m^3	Optimum m/c %	C6 Specific Gravity
13-Jan-98	C-ZB-1	BA4 - Grid H,9.5	1.2	14.5	26.0	11.5	18.0	0.30	2.6	39.3	40.1	18.0	1940	13.4	2.75
13-Jan-98	C-ZB-2	BA4 - Grid I,10	1.0	16.0	26.2	10.2	19.2	0.31	1.8	37.6	42.6	18.0	1960	12.6	2.73
13-Jan-98	C-ZB-3	BA4 - Grid HI,10	0.8	15.9	29.3	13.4	19.9	0.30	3.5	45.8	26.7	24.0	1945	13.1	2.76
			MEAN	15.5	27.2	11.7	19.0	0.3	2.6	40.9	36.5	20.0	1948	13.0	2.75
			MEDIAN	15.9	26.2	11.5	19.2	0.3	2.6	39.3	40.1	18.0	1945	13.1	2.75
			MAXIMUM (*)	16.0	29.3	13.4	19.9	0.3	3.5	45.8	42.6	24.0	1960	13.4	2.76
			MINIMUM (*)	14.5	26.0	10.2	18.0	0.3	1.8	37.6	26.7	18.0	1940	12.6	2.73

Notes : These are 100% limits.
Values for Standard Proctor maximum dry density and optimum moisture content include oversize correction.
C1 Atterberg Limits (ASTM D4318)
C2 Moisture Content (ASTM D2216)
C3 Particle Size Distribution (ASTM D422)
C4 Laboratory Compaction (ASTM D1557)
C6 Specific Gravity (ASTM D854)

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TABLE C3

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE T CONTROL TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	C3 (Particle Size Distribution)				
			Cobble %	Gravel %	Sand %	Silt %	Clay %
22-Jan-98	C-ZT-1	Rock Quarry - mat'l from 1st blast	17.6	63.1	19.3	0.0	-
06-Feb-98	C-ZT-2	Rock borrow - mat'l from 2nd blast	26.0	61.0	13.0	0.0	-
18-Feb-98	C-ZT-3	Rock borrow - mat'l from 3rd blast	7.2	87.4	4.9	0.5	-
25-Feb-98	C-ZT-4	Rock borrow	10.9	52.9	34.5	1.7	-
05-Mar-98	C-ZT-5	Rock borrow - mat'l from 4th blast	13.4	68.6	17.4	0.6	-
31-Mar-98	C-ZT-6	Rock borrow - mat'l from 7th blast	11.2	75.2	13.2	0.4	-
		MEAN	14.4	68.0	17.1	0.5	-
		MEDIAN	12.3	65.9	15.3	0.5	-
		MAXIMUM (*)	26.0	87.4	34.5	1.7	-
		MINIMUM (*)	7.2	52.9	4.9	0.0	-

Notes : These are 100% limits.
C3 Particle Size Distribution (ASTM D422)

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TABLE C4

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE G CONTROL TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	C3 (Particle Size Distribution)			
			Gravel %	Sand %	Silt %	Clay %
09-Jan-98	C-DG-1	DG-Stockpile Near Rock Quarry	97.7	2.0	0.3	-
28-Jan-98	C-DG-2	DG-Stockpile Near Rock Quarry	99.6	0.4	0.0	-
06-Feb-98	C-DG-3	DG-Stockpile Near Rock Quarry	96.6	2.7	0.7	-
02-Apr-98	C-DG-4	DG-Stockpile, Main Embankment	90.9	7.3	1.8	-
02-Apr-98	C-DG-5	DG-Stockpile Near Rock Quarry	97.4	2.0	0.6	-
		MEAN	96.4	2.9	0.7	-
		MEDIAN	97.4	2.0	0.6	-
		MAXIMUM (*)	99.6	7.3	1.8	-
		MINIMUM (*)	90.9	0.4	0.0	-

Notes : These are 100% limits.

C3 Particle Size Distribution (ASTM D422)

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TABLE C5

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY

STAGE 2A/2B CONSTRUCTION
ZONE F CONTROL TESTS - SUMMARY SHEET

Date Sampled	Sample No.	Location	C3 (Particle Size Distribution)			
			Gravel %	Sand %	Silt %	Clay %
09-Jan-98	C-FS-1	Filter Sand Stockpile, Centre, South Side	42.7	50.3	7.0	
28-Jan-98	C-FS-2	Filter Sand Stockpile, West Face	54.3	39.8	5.9	
06-Feb-98	C-FS-3	Filter Sand Stockpile, South Face	37.7	53.3	9.0	
		MEAN	44.9	47.8	7.3	
		MEDIAN	42.7	50.3	7.0	
		MAXIMUM (*)	54.3	53.3	9.0	
		MINIMUM (*)	37.7	39.8	5.9	

Notes : These are 100% limits.
C3 Particle Size Distribution (ASTM D422)

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION
ZONE S CONTROL TESTS - GRADATION PLOTS

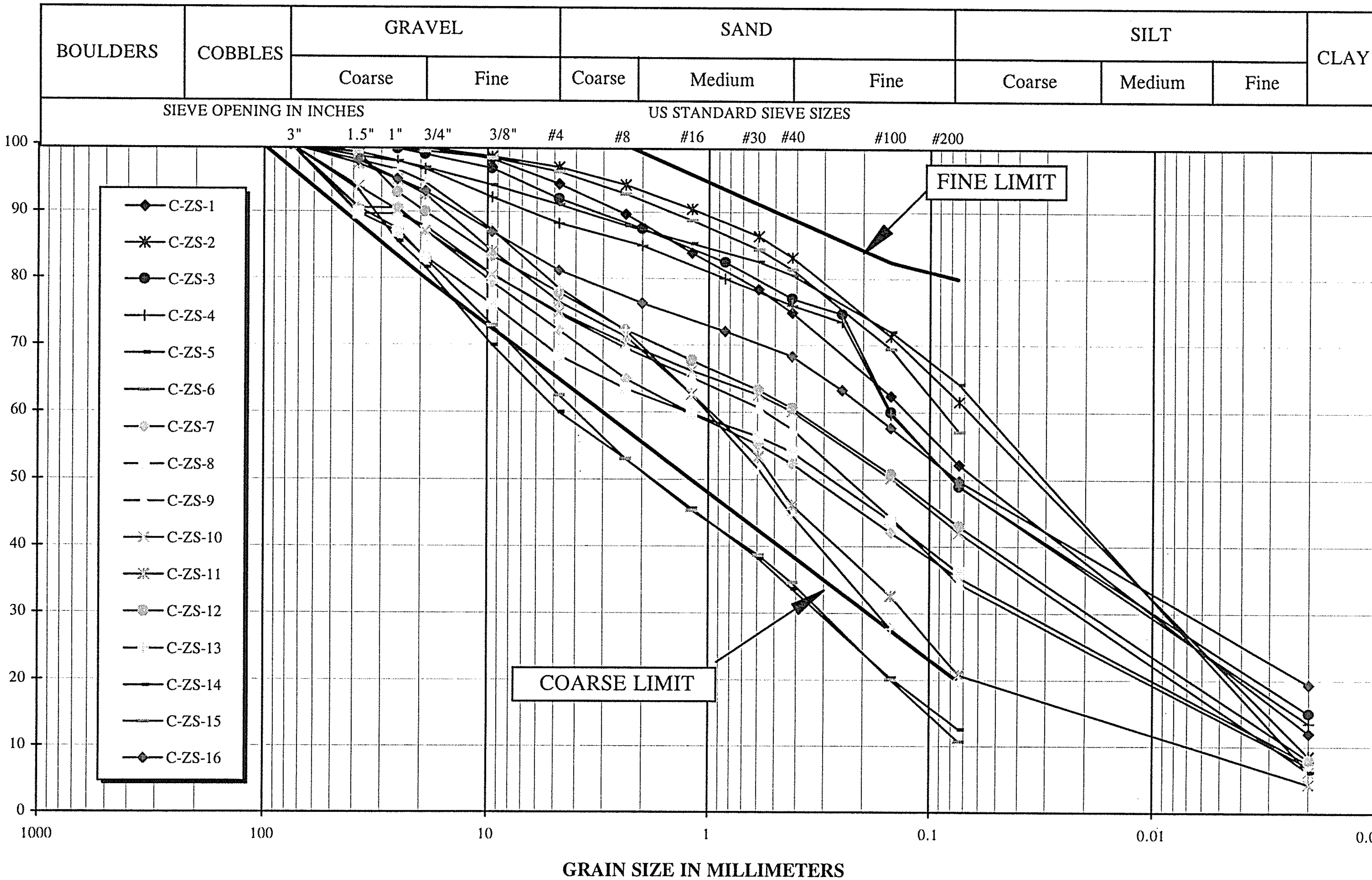

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FIGURE C1

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION
ZONE B CONTROL TESTS - GRADATION PLOTS

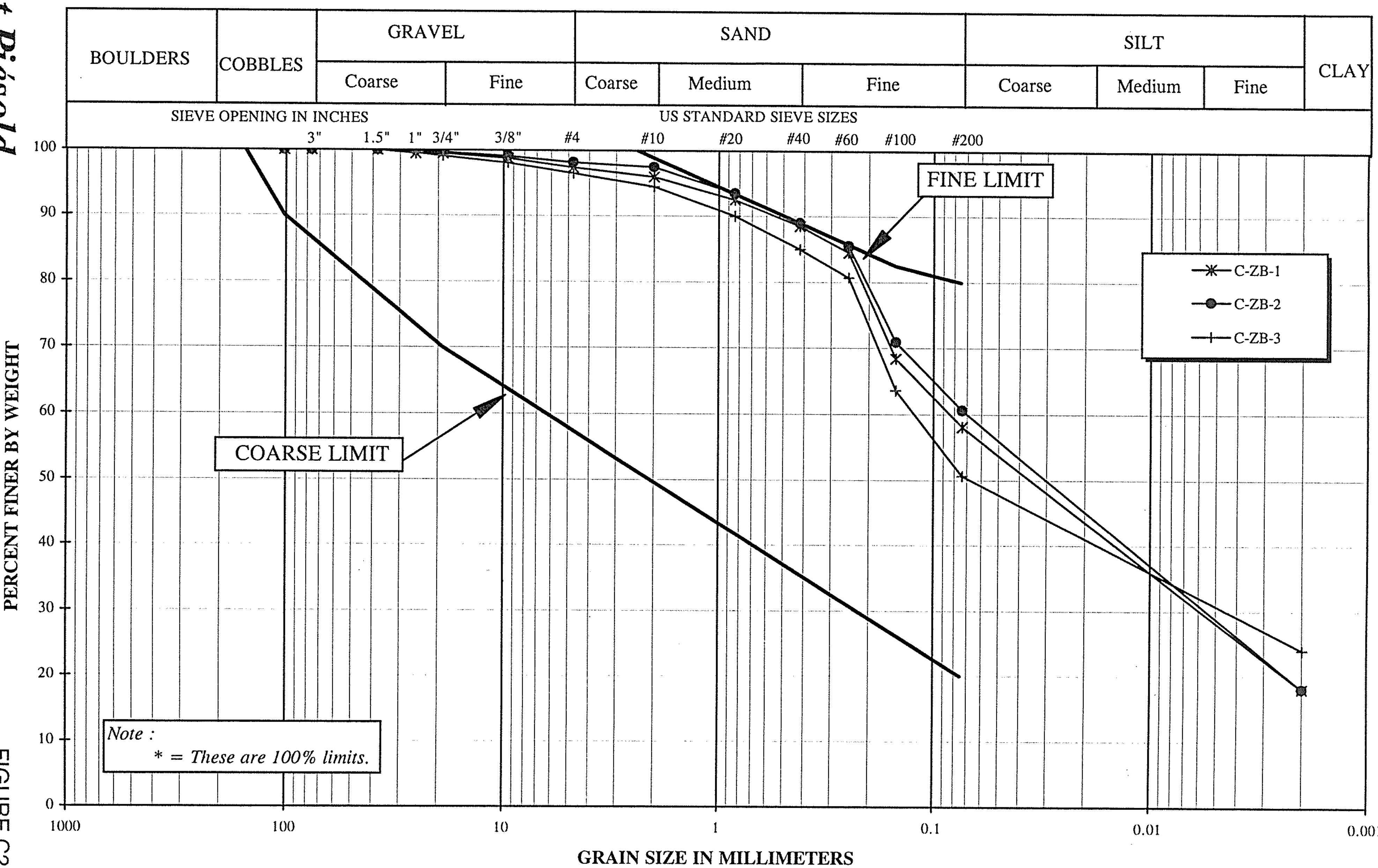

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FIGURE C2

C-7

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION
ZONE T CONTROL TESTS - GRADATION PLOTS

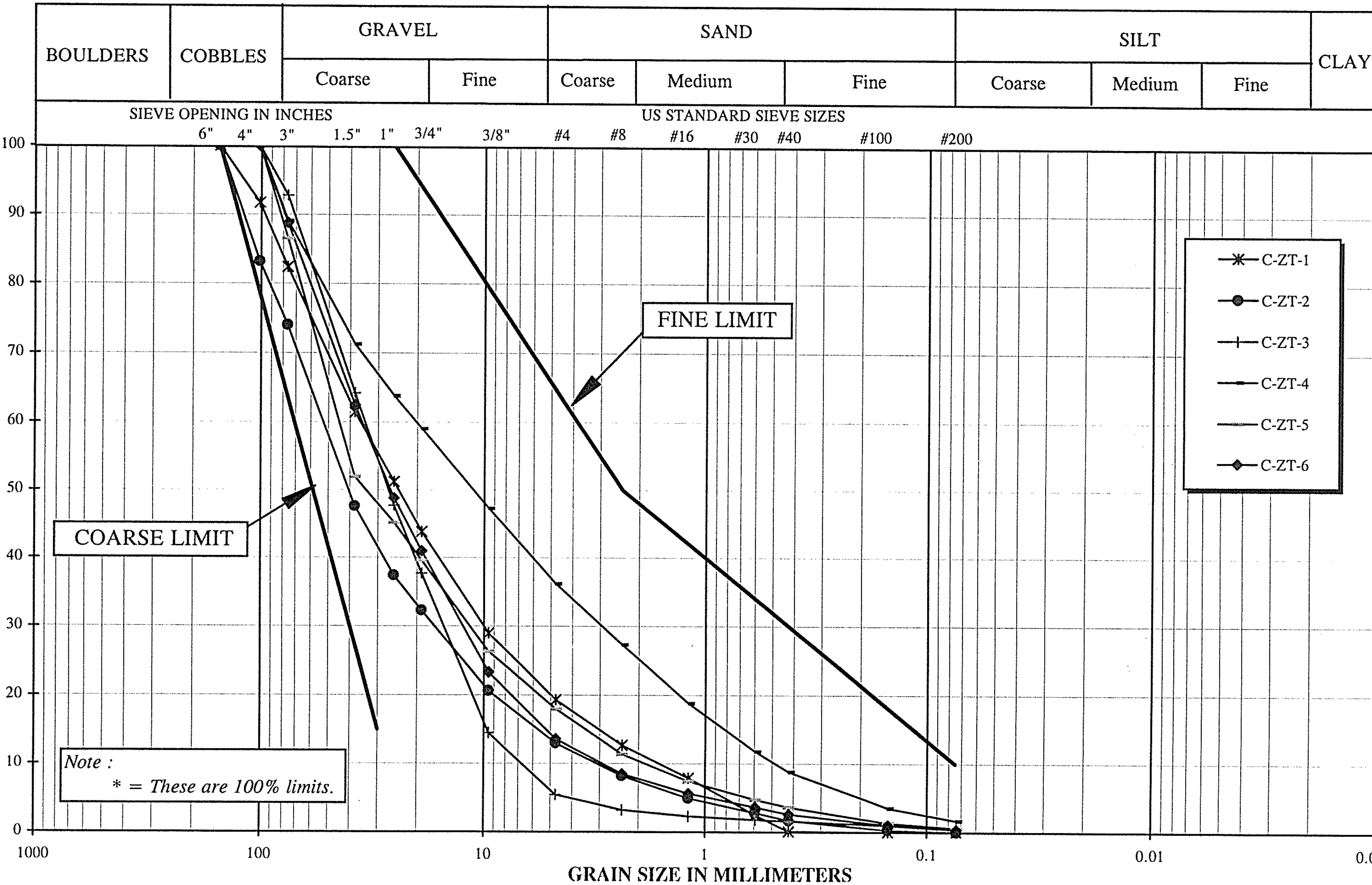

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FIGURE C3

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION
ZONE G CONTROL TESTS - GRADATION PLOTS

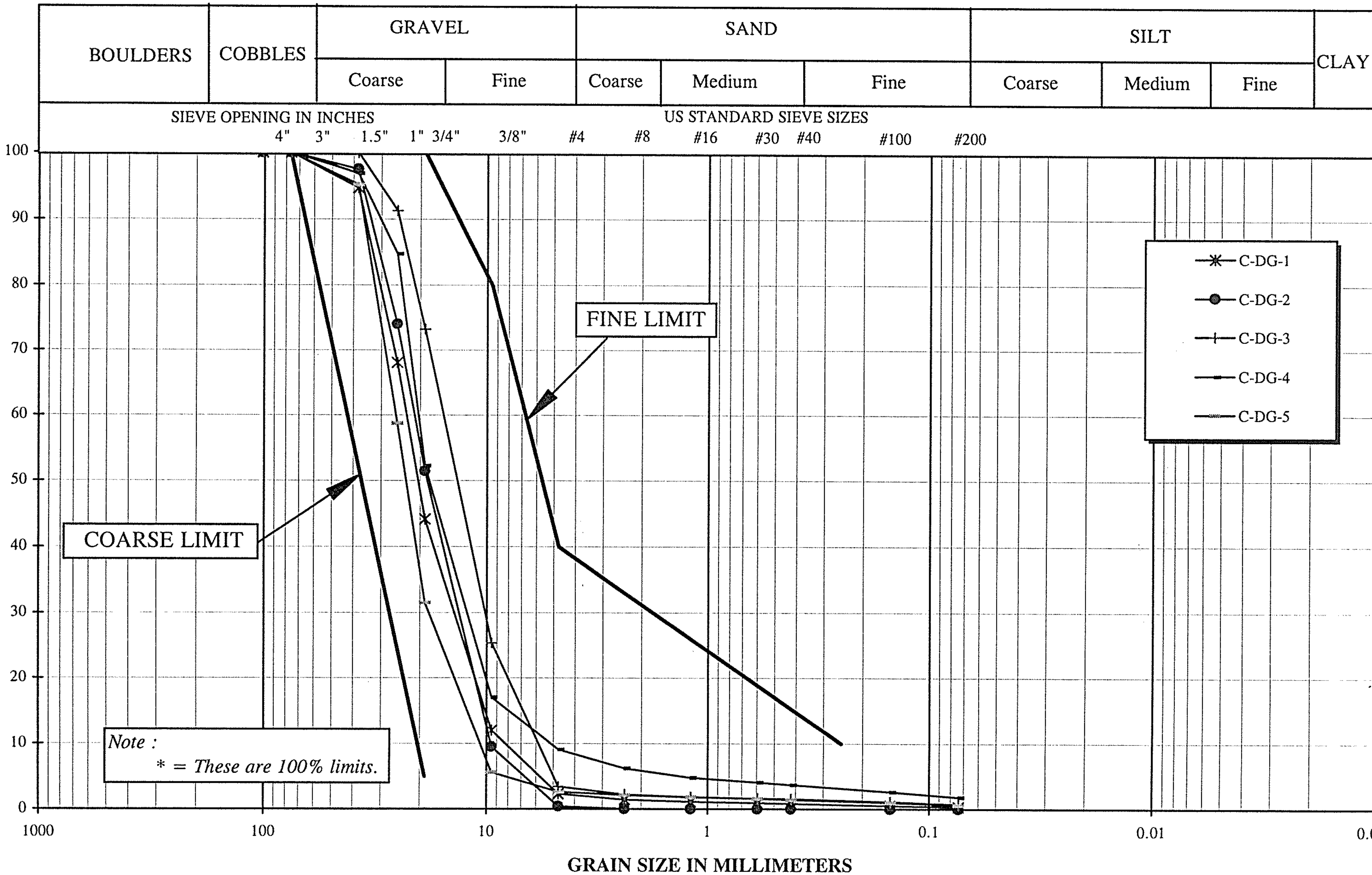

FIGURE C4

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY
STAGE 2A/2B CONSTRUCTION
ZONE F CONTROL TESTS - GRADATION PLOTS

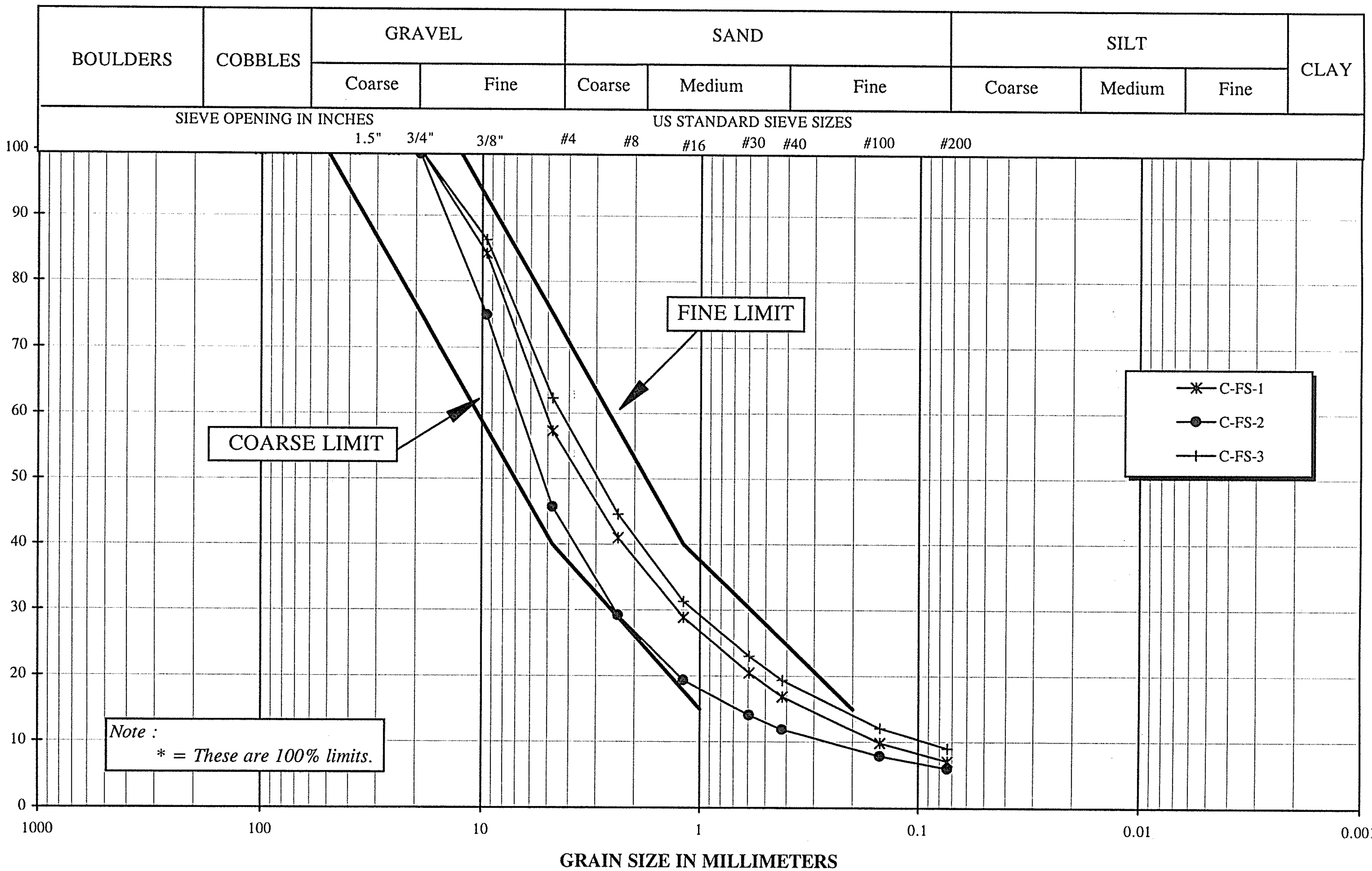

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FIGURE C5

C-10

APPENDIX D

CONSOLIDATED UNDRAINED TRIAXIAL TEST RESULTS FOR R/ZS-12

Project # 9821045C

Sch# 183

CIU TRIAXIAL TEST SUMMARY - Multi-Stage

Borehole		R-Z3-12 (Remoulded Sample)		
Test#		CIU-1	CIU-2	CIU-3
Initial Dimensions :				
H_o	(cm)	15.01	14.86	14.46
D_o	(cm)	7.60	7.48	7.48
A_o	(cm)	45.35	43.93	44.00
V_o	(cm)	680.7	652.9	636.0
Wt_{wet}	(g)	1510.1	1492.3	1475.2
Wt_{dry}	(g)	1309.8	1309.8	1309.8
Gs		2.75	2.75	2.75
w	(%)	15.3	13.9	12.6
ρ_{dry}	(Kg/m^3)	1924	2006	2060
e_o		0.43	0.37	0.34
B-Value Measurement :				
B-Value		0.97	0.97	0.97
Consolidation Results :				
σ_{CELL}	(kPa)	683	876	1233
σ_{BP}	(kPa)	480	481	480
$\sigma_{3c'}$	(kPa)	203	395	752
δV_c	(cc)	17.8	16.9	16.3
t_{50}	(min)	1.8	9.5	32
t_{100}	(min)	25	114	255
c_v	(cm^2/s)	1.1E-03	2.6E-04	1.1E-04
After Consolidation Dimensions :				
H_c	(cm)	14.86	14.46	13.89
D_c	(cm)	7.48	7.48	7.54
A_c	(cm)	43.93	44.00	44.62
V_c	(cm)	652.9	636.0	619.7
w_c	(%)	13.9	12.7	11.4
ρ_{dry}	(Kg/m^3)	2006	2060	2114
e_c		0.37	0.34	0.30
Stress Values at Failure :				
@ σ_d Max :				
Strain Rate :	(mm/min)	0.050	0.020	0.012
σ_D	(kPa)	131	308	636
E_f	(%)	1.42	4.67	13.15
s'	(kPa)	144.2	284.5	637.9
t	(kPa)	65.5	153.8	318.0
@ PSR Max :				
PSR		3.17	3.35	3.02
E_f	(%)	3.13	4.67	9.21
s'	(kPa)	125.6	284.5	616.6
t	(kPa)	65.4	153.8	309.6
Final Moisture Content :				
w_f	(%)	13.9	12.7	11.4

CIU-1 CIU-2

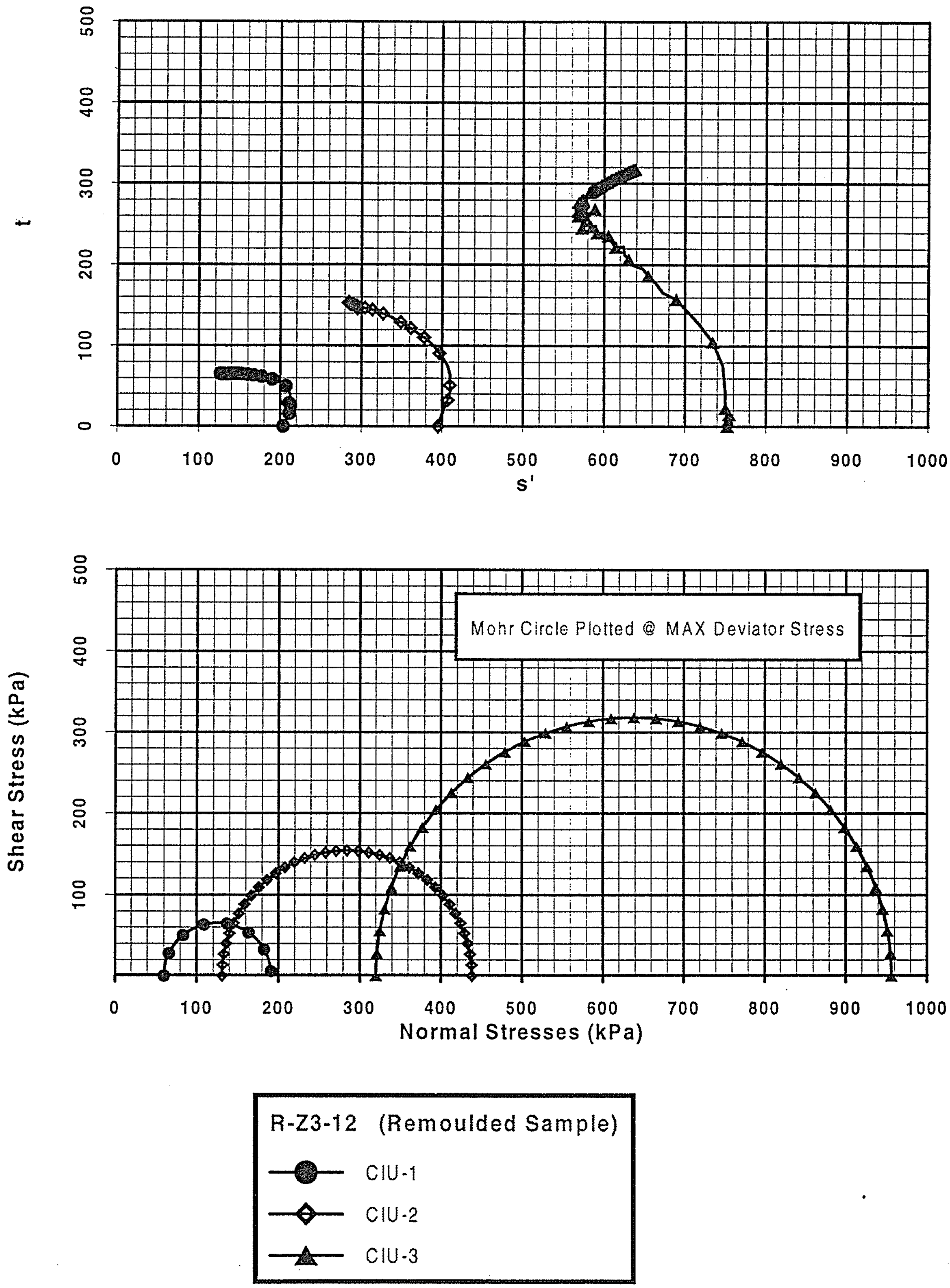
CIU-3 CIU-4

Failure Mode :

Bulging in mid-section of sample

Remarks :

- Test specimen was remoulded to ~95% Std. Proctor
- Multi-Stage CIU Tests
- Drainage both ends and radial boundry
- Gs = 2.75 (assumed)

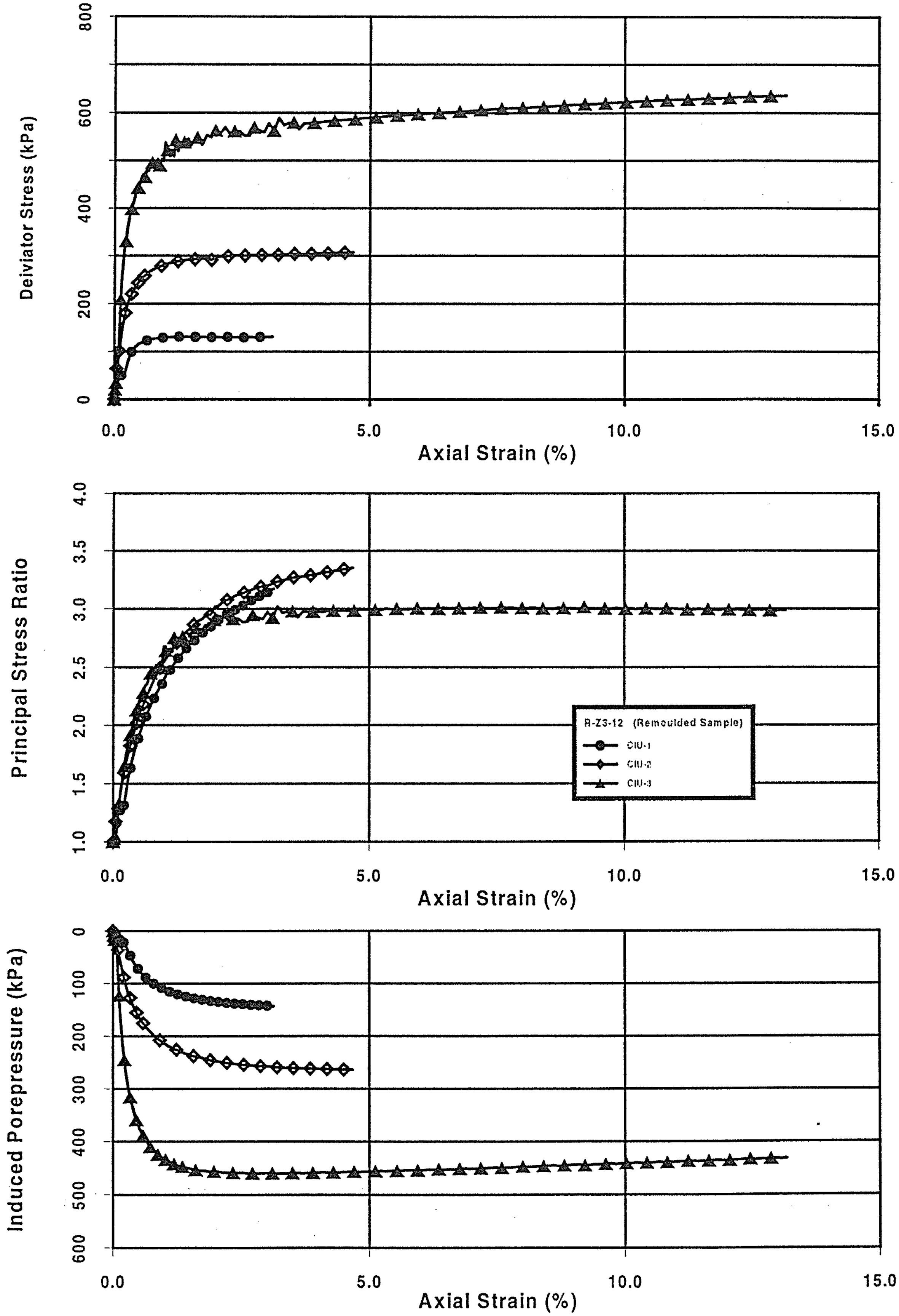


Golder Associates

Consolidated Undrained Triaxial Compression Test
ASTM D 4767-88 (Multi-Stage Test)

Figure

PROJECT No. 9851 DRAWN LL REVIEWED DATE 07/17/98



PROJECT No. 93210 DRAWN LL REVIEWED DATE 07/17/98

Golder Associates

Consolidated Undrained Triaxial Compression Test
ASTM D 4767-88 (Multi-Stage)

Figure

Consolidated Undrained Triaxial Compression Test on Cohesive Soils
ASTM D 4767 - 88

							Strength Results :		
PROJECT#	9821045C	L_c =	14.86	cm	DATE :	17-Jul-98	Max.σ_D' =	131.0	kPa
Borehole		A_c =	43.93	cm^2	FILE :	KPCIU-1	Strain @ =	1.42	%
Sample	R-Z3-12	V_c =	652.9	cm^3	TEST#	CIU-1	Max. PSR =	3.17	
Depth							Strain @ =	3.13	%
REMARKS :		**Consolidation Pressure :**			**CALIBRATIONS :**		**Consolidation Results:**		
- Failure Mode : Bulging in mid-section of sample		CP =	683.0	kPa	LOAD =	0.0036 kN/mV	δV_c =	27.8	cc
		BP =	479.6	kPa	PORE =	0.6895 kPa/mV	T_{100} =	25.0	min
- Corrections applied to σ_d as per ASTM D4767 Section 10.6 and 10.7 (filter paper and rubber membrane)		σ_{3c}' =	203.4	kPa	LVDT =	0.0045 mm/mV	T_{50} =	1.8	min
		B_{VALUE} =	0.97		Feed Rate =	0.05 mm/min	C_v =	1.2E-03	cm^2/s

δL (mV)	LOAD (mV)	δU (mV)	E (%)	LOAD (kN)	A_c (cm^2)	σ_D' corrected (kPa)	δU (kPa)	σ_3' (kPa)	σ_1' (kPa)	PSR	A	s' (kPa)	t' (kPa)
-1798.8	95.1	-696.0	0.00	0.00	43.93	0.0	0.0	203.4	203.4	1.00		203.4	0.0
-1793.6	101.2	-697.1	0.02	0.02	43.94	5.0	0.8	202.6	207.6	1.02	0.15	205.1	2.5
-1789.0	109.5	-699.8	0.03	0.05	43.95	11.8	2.6	200.8	212.5	1.06	0.22	206.7	5.9
-1783.8	121.3	-703.6	0.05	0.09	43.95	21.4	5.2	198.2	219.6	1.11	0.24	208.9	10.7
-1778.7	133.6	-708.1	0.06	0.14	43.96	31.5	8.3	195.1	226.5	1.16	0.27	210.8	15.7
-1773.2	145.4	-713.1	0.08	0.18	43.97	41.1	11.8	191.6	232.7	1.21	0.29	212.2	20.6
-1767.6	154.7	-717.3	0.09	0.21	43.98	48.4	14.7	188.7	237.1	1.26	0.30	212.9	24.2
-1761.7	157.8	-719.4	0.11	0.23	43.98	50.9	16.1	187.3	238.1	1.27	0.32	212.7	25.4
-1755.1	157.2	-720.2	0.13	0.22	43.99	50.7	16.7	186.7	237.4	1.27	0.33	212.1	25.4
-1749.0	159.0	-721.8	0.15	0.23	44.00	52.2	17.8	185.6	237.8	1.28	0.34	211.7	26.1
-1742.8	159.2	-722.7	0.17	0.23	44.01	52.3	18.4	185.0	237.3	1.28	0.35	211.1	26.2
-1736.3	159.1	-723.6	0.19	0.23	44.02	51.6	19.0	184.4	236.0	1.28	0.37	210.2	25.8
-1730.4	165.5	-726.8	0.21	0.25	44.02	56.8	21.2	182.2	239.0	1.31	0.37	210.6	28.4
-1724.5	170.8	-729.5	0.22	0.27	44.03	61.8	23.1	180.3	242.1	1.34	0.37	211.2	30.9
-1712.1	190.8	-740.2	0.26	0.34	44.05	78.1	30.5	172.9	251.0	1.45	0.39	212.0	39.0
-1700.5	206.3	-752.4	0.30	0.40	44.06	90.7	38.9	164.5	255.2	1.55	0.43	209.9	45.3
-1688.5	217.0	-763.6	0.33	0.44	44.08	99.4	46.6	156.8	256.1	1.63	0.47	206.5	49.7
-1676.2	224.4	-774.0	0.37	0.47	44.10	105.4	53.8	149.6	255.0	1.70	0.51	202.3	52.7
-1663.8	230.1	-783.5	0.41	0.49	44.11	109.9	60.3	143.1	253.0	1.77	0.55	198.0	55.0
-1651.3	234.9	-792.1	0.45	0.50	44.13	113.8	66.3	137.1	250.9	1.83	0.58	194.0	56.9
-1638.7	238.5	-799.9	0.48	0.52	44.15	116.7	71.6	131.8	248.4	1.89	0.61	190.1	58.3
-1625.8	241.2	-807.1	0.52	0.53	44.17	118.8	76.6	126.8	245.6	1.94	0.64	186.2	59.4
-1613.1	243.2	-813.3	0.56	0.53	44.18	120.4	80.9	122.5	242.9	1.98	0.67	182.7	60.2
-1600.4	245.2	-819.0	0.60	0.54	44.20	121.9	84.8	118.6	240.5	2.03	0.70	179.6	61.0
-1587.6	247.0	-824.3	0.64	0.55	44.22	123.3	88.5	114.9	238.3	2.07	0.72	176.6	61.7
-1574.7	248.7	-829.0	0.68	0.55	44.23	124.7	91.7	111.7	236.4	2.12	0.74	174.0	62.3
-1562.1	250.2	-833.5	0.72	0.56	44.25	125.9	94.8	108.6	234.4	2.16	0.75	171.5	62.9
-1549.2	250.7	-837.5	0.76	0.56	44.27	126.2	97.6	105.8	232.0	2.19	0.77	168.9	63.1
-1536.2	251.9	-841.2	0.80	0.56	44.29	127.1	100.1	103.3	230.3	2.23	0.79	166.8	63.5
-1523.3	253.0	-844.7	0.83	0.57	44.30	127.9	102.5	100.9	228.7	2.27	0.80	164.8	63.9
-1510.4	253.4	-847.7	0.87	0.57	44.32	128.1	104.6	98.8	226.9	2.30	0.82	162.9	64.1
-1497.4	253.9	-850.8	0.91	0.57	44.34	128.5	106.7	96.7	225.2	2.33	0.83	160.9	64.3
-1484.5	254.2	-853.4	0.95	0.57	44.36	128.7	108.5	94.9	223.5	2.36	0.84	159.2	64.3
-1471.6	255.2	-856.5	0.99	0.58	44.37	129.4	110.7	92.7	222.1	2.40	0.86	157.4	64.7
-1458.8	255.9	-859.2	1.03	0.58	44.39	129.9	112.5	90.9	220.8	2.43	0.87	155.8	65.0
-1446.0	256.0	-861.5	1.07	0.58	44.41	129.9	114.1	89.3	219.2	2.45	0.88	154.2	64.9
-1432.7	256.1	-863.5	1.11	0.58	44.43	129.9	115.5	87.9	217.9	2.48	0.89	152.9	65.0
-1420.0	256.8	-865.5	1.15	0.58	44.44	130.4	116.9	86.5	216.9	2.51	0.90	151.7	65.2
-1407.1	256.5	-867.4	1.19	0.58	44.46	130.1	118.2	85.2	215.3	2.53	0.91	150.3	65.1
-1394.2	257.0	-869.2	1.23	0.58	44.48	130.4	119.4	84.0	214.4	2.55	0.92	149.2	65.2
-1381.5	257.4	-870.9	1.26	0.58	44.50	130.7	120.6	82.8	213.5	2.58	0.92	148.2	65.3
-1368.4	257.2	-872.6	1.30	0.58	44.51	130.5	121.8	81.6	212.1	2.60	0.93	146.9	65.3
-1355.4	257.3	-874.0	1.34	0.58	44.53	130.5	122.7	80.7	211.1	2.62	0.94	145.9	65.2
-1342.2	257.9	-875.5	1.38	0.59	44.55	130.9	123.8	79.6	210.5	2.64	0.95	145.1	65.5
-1329.5	258.1	-876.8	1.42	0.59	44.57	131.0	124.7	78.7	209.7	2.66	0.95	144.2	65.5
-1316.3	258.1	-877.9	1.46	0.59	44.59	130.9	125.4	78.0	208.9	2.68	0.96	143.4	65.5
-1303.2	258.2	-879.4	1.50	0.59	44.60	130.9	126.5	76.9	207.9	2.70	0.97	142.4	65.5
-1290.3	258.2	-880.5	1.54	0.59	44.62	130.8	127.2	76.2	207.0	2.72	0.97	141.6	65.4
-1277.3	257.8	-881.7	1.58	0.59	44.64	130.5	128.0	75.4	205.8	2.73	0.98	140.6	65.2
-1264.1	257.5	-882.8	1.62	0.58	44.66	130.2	128.8	74.6	204.8	2.75	0.99	139.7	65.1
-1251.3	258.0	-883.9	1.66	0.59	44.67	130.5	129.6	73.8	204.4	2.77	0.99	139.1	65.3
-1238.3	258.1	-884.8	1.70	0.59	44.69	130.5	130.2	73.2	203.7	2.78	1.00	138.4	65.2
-1225.2	257.9	-885.9	1.74	0.59	44.71	130.3	130.9	72.5	202.7	2.80	1.01	137.6	65.1
-1212.1	258.1	-886.9	1.78	0.59	44.73	130.3	131.6	71.8	202.1	2.82	1.01	136.9	65.2
-1199.1	257.9	-887.6	1.82	0.59	44.75	130.1	132.1	71.3	201.4	2.82	1.02	136.3	65.0
-1186.0	258.3	-888.4	1.86	0.59	44.76	130.4	132.7	70.7	201.1	2.84	1.02	135.9	65.2
-1172.7	257.7	-889.1	1.90	0.59	44.78	129.8	133.1	70.3	200.1	2.85	1.03	135.2	64.9
-1159.6	257.9	-889.9	1.94	0.59	44.80	129.9	133.7	69.7	199.6	2.86	1.03	134.7	65.0
-1146.6	258.4	-890.7	1.98	0.59	44.82	130.2	134.2	69.2	199.4	2.88	1.03	134.3	65.1
-1133.5	257.8	-891.2	2.01	0.59	44.84	129.7	134.6	68.8	198.5	2.88	1.04	133.7	64.9
-1120.6	258.2	-892.2	2.05	0.59	44.85	130.0	135.3	68.1	198.1	2.91	1.04	133.1	65.0
-1107.3	258.7	-892.7	2.09	0.59	44.87	130.2	135.6	67.8	198.0	2.92	1.04	132.9	65.1
-1094.3	258.0	-893.3	2.13	0.59	44.89	129.7	136.0	67.4	197.0	2.92	1.05	132.2	64.8
-1081.4	258.3	-894.0	2.17	0.59	44.91	129.8	136.5	66.9	196.7	2.94	1.05	131.8	64.9
-1068.2	258.9	-894.6	2.21	0.59	44.93	130.2	136.9	66.5	196.6	2.96	1.05	131.6	65.1
-1055.2	258.7	-895.0	2.25	0.59	44.95	130.0	137.2	66.2	196.2	2.96	1.06	131.2	65.0
-1042.0	258.7	-895.5	2.29	0.59	44.96	129.9	137.6	65.8	195.7	2.97	1.06	130.8	64.9
-1028.9	258.5	-896.1	2.33	0.59	44.98	129.6	138.0	65.4	195.1	2.98	1.06	130.3	64.8
-1015.5	258.9	-896.4	2.37	0.59	45.00	129.9	138.2	65.2	195.1	2.99	1.06	130.2	64.9
-1002.4	259.1	-897.0	2.41	0.59	45.02	130.0	138.6	64.8	194.9	3.01	1.07	129.8	65.0
-989.3	258.9	-897.4	2.45	0.59	45.04	129.8	138.9	64.5	194.3	3.01	1.07	129.4	64.9
-976.2	258.6	-897.9	2.49	0.59	45.06	129.5	139.2	64.2	193.7	3.02	1.08	128.9	64.7
-963.1	258.9	-898.3	2.53	0.59	45.07	129.6	139.5	63.9	193.5	3.03	1.08	128.7	64.8
-950.0	259.2	-898.7	2.57	0.59	45.09	129.8	139.8	63.6	193.4	3.04	1.08	128.5	64.9

δL	LOAD	δU	E	LOAD	A_c	σ_D' corrected	δU	σ_3'	σ_1'	PSR	A	s'	t'
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
-936.9	259.4	-899.2	2.61	0.59	45.11	129.9	140.1	63.3	193.2	3.05	1.08	128.2	64.9
-923.9	259.8	-899.6	2.65	0.59	45.13	130.1	140.4	63.0	193.1	3.06	1.08	128.1	65.1
-910.8	259.8	-900.0	2.69	0.59	45.15	130.1	140.7	62.7	192.8	3.07	1.08	127.8	65.0
-897.7	259.4	-900.3	2.73	0.59	45.17	129.6	140.9	62.5	192.2	3.07	1.09	127.4	64.8
-884.6	259.4	-900.7	2.77	0.59	45.18	129.6	141.1	62.3	191.9	3.08	1.09	127.1	64.8
-871.6	260.1	-901.1	2.81	0.59	45.20	130.1	141.4	62.0	192.1	3.10	1.09	127.0	65.1
-858.5	260.3	-901.5	2.85	0.59	45.22	130.2	141.7	61.7	191.9	3.11	1.09	126.8	65.1
-845.3	260.6	-901.6	2.89	0.60	45.24	130.3	141.8	61.6	191.9	3.11	1.09	126.8	65.2
-832.2	260.4	-902.0	2.93	0.59	45.26	130.1	142.0	61.4	191.5	3.12	1.09	126.4	65.1
-818.8	260.7	-902.4	2.97	0.60	45.28	130.3	142.3	61.1	191.3	3.13	1.09	126.2	65.1
-805.8	260.8	-902.8	3.01	0.60	45.30	130.3	142.6	60.8	191.1	3.14	1.09	126.0	65.1
-792.6	261.1	-902.9	3.05	0.60	45.31	130.5	142.7	60.7	191.2	3.15	1.09	126.0	65.2
-779.3	261.9	-903.3	3.09	0.60	45.33	131.0	142.9	60.5	191.5	3.17	1.09	126.0	65.5
-766.0	261.8	-903.7	3.13	0.60	45.35	130.8	143.2	60.2	191.0	3.17	1.09	125.6	65.4

δL	LOAD	δU	E	LOAD	A_c	$\sigma_D'{}_{corrected}$	δU	σ_3'	σ_1'	PSR	A	s'	t'
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
691.1	516.7	-1080.9	4.67	1.43	46.15	307.6	264.3	130.7	438.4	3.35	0.86	284.5	153.8

Consolidated Undrained Triaxial Compression Test on Cohesive Soils
ASTM D 4767 - 88

									Strength Results :				
PROJECT#	9821045C			L_c =	14.46	cm	DATE :	17-Jul-98		Max.σ_D' =	307.6	kPa	
Borehole				A_c =	44.00	cm^2	FILE :	KPCIU-2		Strain @ =	4.67	%	
Sample	R-Z3-12			V_c =	636.0	cm^3	TEST#	CIU-2		Max. PSR =	3.35		
Depth										Strain @ =	4.67	%	
REMARKS :			Consolidation Pressure :				CALIBRATIONS :			Consolidation Results:			
- Failure Mode : Bulging in mid-section				CP =	876.0	kPa	LOAD =	0.0036	kN/mV	δV_c =	16.9	cc	
of sample				BP =	481.0	kPa	PORE =	0.6895	kPa/mV	T_{100} =	114.0	min	
- Corrections applied to σ_d as per ASTM D4767				σ_{3c}' =	395.0	kPa	LVDT =	0.0045	mm/mV	T_{50} =	9.5	min	
Section 10.6 and 10.7 (filter paper and rubber				B_{VALUE} =	0.97		Feed Rate =	0.02	mm/min	C_v =	2.6E-04	cm^2/s	
membrane)													

δL (mV)	LOAD (mV)	δU (mV)	E (%)	LOAD (kN)	A_c (cm^2)	σ_D'corrected (kPa)	δU (kPa)	σ_3' (kPa)	σ_1' (kPa)	PSR	A	s' (kPa)	t' (kPa)
-807.6	119.6	-697.6	0.00	0.00	44.00	0.0	0.0	395.0	395.0	1.00		395.0	0.0
-804.9	127.7	-700.3	0.01	0.03	44.00	6.6	1.9	393.2	399.8	1.02	0.28	396.5	3.3
-800.7	141.4	-706.5	0.02	0.08	44.00	17.8	6.1	388.9	406.7	1.05	0.34	397.8	8.9
-797.5	169.8	-717.3	0.03	0.18	44.01	41.0	13.6	381.4	422.5	1.11	0.33	401.9	20.5
-794.2	198.4	-727.4	0.04	0.28	44.01	64.4	20.5	374.5	438.9	1.17	0.32	406.7	32.2
-790.6	221.6	-736.4	0.05	0.37	44.02	83.4	26.8	368.3	451.7	1.23	0.32	410.0	41.7
-786.1	234.7	-742.8	0.07	0.41	44.02	93.9	31.2	363.8	457.8	1.26	0.33	410.8	47.0
-781.2	239.7	-746.4	0.08	0.43	44.03	97.9	33.6	361.4	459.3	1.27	0.34	410.3	49.0
-776.2	243.8	-750.1	0.10	0.45	44.04	101.4	36.2	358.8	460.3	1.28	0.36	409.5	50.7
-766.9	275.9	-768.7	0.13	0.56	44.05	127.7	49.0	346.0	473.7	1.37	0.38	409.8	63.8
-758.2	303.5	-789.3	0.15	0.66	44.06	150.2	63.2	331.8	482.0	1.45	0.42	406.9	75.1
-749.2	324.3	-808.4	0.18	0.74	44.08	166.5	76.4	318.6	485.2	1.52	0.46	401.9	83.3
-739.7	341.9	-826.1	0.21	0.80	44.09	180.8	88.6	306.4	487.2	1.59	0.49	396.8	90.4
-730.1	356.3	-841.9	0.24	0.85	44.10	193.1	99.5	295.5	488.6	1.65	0.52	392.1	96.5
-720.3	369.6	-856.8	0.27	0.90	44.12	203.9	109.8	285.2	489.1	1.71	0.54	387.2	101.9
-710.4	381.0	-870.1	0.30	0.94	44.13	213.1	118.9	276.1	489.2	1.77	0.56	382.6	106.6
-700.3	389.9	-882.2	0.33	0.97	44.14	220.3	127.3	267.7	488.0	1.82	0.58	377.9	110.1
-690.2	398.2	-893.5	0.37	1.00	44.16	227.0	135.1	259.9	486.9	1.87	0.60	373.4	113.5
-680.0	406.1	-904.8	0.40	1.03	44.17	233.3	142.9	252.2	485.5	1.93	0.61	368.8	116.7
-669.8	412.7	-914.5	0.43	1.06	44.18	238.6	149.6	245.5	484.1	1.97	0.63	364.8	119.3
-659.8	419.3	-923.1	0.46	1.08	44.20	243.9	155.5	239.5	483.4	2.02	0.64	361.5	121.9
-649.4	424.8	-931.2	0.49	1.10	44.21	248.3	161.1	233.9	482.2	2.06	0.65	358.1	124.1
-639.2	429.4	-938.5	0.52	1.12	44.23	251.9	166.1	228.9	480.8	2.10	0.66	354.9	126.0
-628.9	434.1	-945.7	0.56	1.13	44.24	255.7	171.1	224.0	479.6	2.14	0.67	351.8	127.8
-618.4	438.1	-952.2	0.59	1.15	44.26	258.8	175.5	219.5	478.3	2.18	0.68	348.9	129.4
-588.9	448.0	-968.7	0.68	1.18	44.30	266.6	186.9	208.1	474.7	2.28	0.70	341.4	133.3
-568.2	453.3	-978.3	0.75	1.20	44.33	270.7	193.5	201.5	472.1	2.34	0.72	336.8	135.3
-547.3	458.4	-987.0	0.81	1.22	44.35	274.6	199.5	195.5	470.1	2.40	0.73	332.8	137.3
-513.6	464.7	-999.0	0.92	1.24	44.40	279.4	207.8	187.2	466.6	2.49	0.74	326.9	139.7
-487.4	469.2	-1006.7	1.00	1.26	44.44	282.8	213.1	181.9	464.6	2.55	0.75	323.3	141.4
-461.1	471.7	-1013.9	1.08	1.27	44.48	284.5	218.1	176.9	461.4	2.61	0.77	319.2	142.3
-435.1	475.1	-1020.2	1.16	1.28	44.51	287.0	222.4	172.6	459.6	2.66	0.78	316.1	143.5
-408.9	477.7	-1025.4	1.24	1.29	44.55	288.8	226.0	169.0	457.8	2.71	0.78	313.4	144.4
-382.4	480.1	-1030.4	1.32	1.30	44.59	290.5	229.5	165.5	456.0	2.75	0.79	310.8	145.2
-356.1	481.8	-1034.8	1.41	1.30	44.62	291.6	232.5	162.5	454.1	2.79	0.80	308.3	145.8
-330.0	483.5	-1038.6	1.49	1.31	44.66	292.7	235.1	159.9	452.5	2.83	0.80	306.2	146.3
-303.7	484.8	-1042.2	1.57	1.31	44.70	293.4	237.6	157.4	450.8	2.86	0.81	304.1	146.7
-277.5	486.3	-1045.2	1.65	1.32	44.73	294.3	239.7	155.3	449.7	2.89	0.81	302.5	147.2
-251.1	486.3	-1047.7	1.73	1.32	44.77	294.1	241.4	153.6	447.7	2.91	0.82	300.7	147.0
-225.0	488.0	-1050.6	1.81	1.33	44.81	295.1	243.4	151.6	446.8	2.95	0.82	299.2	147.6
-198.8	483.7	-1053.8	1.90	1.31	44.85	291.4	245.6	149.4	440.8	2.95	0.84	295.1	145.7
-172.4	492.5	-1055.9	1.98	1.34	44.88	298.2	247.0	148.0	446.2	3.02	0.83	297.1	149.1
-146.2	492.9	-1057.3	2.06	1.34	44.92	298.2	248.0	147.0	445.2	3.03	0.83	296.1	149.1
-120.0	494.4	-1059.9	2.14	1.35	44.96	299.1	249.8	145.2	444.3	3.06	0.84	294.8	149.6
-94.0	495.3	-1061.3	2.22	1.35	44.99	299.6	250.8	144.2	443.8	3.08	0.84	294.0	149.8
-67.6	496.0	-1062.9	2.30	1.36	45.03	299.8	251.9	143.1	443.0	3.09	0.84	293.1	149.9
-41.5	497.4	-1064.4	2.38	1.36	45.07	300.7	252.9	142.1	442.8	3.12	0.84	292.4	150.3
-15.4	497.6	-1065.6	2.47	1.36	45.11	300.5	253.7	141.3	441.8	3.13	0.84	291.6	150.3
11.0	498.1	-1066.7	2.55	1.36	45.15	300.7	254.5	140.5	441.2	3.14	0.85	290.8	150.3
37.0	499.2	-1067.9	2.63	1.37	45.18	301.2	255.3	139.7	440.9	3.16	0.85	290.3	150.6
63.2	499.9	-1068.8	2.71	1.37	45.22	301.5	255.9	139.1	440.6	3.17	0.85	289.8	150.8
89.4	500.5	-1070.0	2.79	1.37	45.26	301.7	256.8	138.2	439.9	3.18	0.85	289.1	150.8
115.6	501.3	-1070.7	2.87	1.37	45.30	302.0	257.3	137.8	439.8	3.19	0.85	288.8	151.0
141.7	501.2	-1071.5	2.96	1.37	45.34	301.7	257.8	137.2	438.9	3.20	0.85	288.0	150.8
168.0	502.0	-1071.9	3.04	1.38	45.37	302.0	258.1	136.9	438.9	3.21	0.85	287.9	151.0
194.2	501.9	-1073.6	3.12	1.38	45.41	301.6	259.3	135.8	437.4	3.22	0.86	286.6	150.8
220.1	503.2	-1074.4	3.20	1.38	45.45	302.4	259.8	135.2	437.6	3.24	0.86	286.4	151.2
246.4	503.8	-1074.7	3.28	1.38	45.49	302.6	260.0	135.0	437.6	3.24	0.86	286.3	151.3
272.5	505.1	-1075.3	3.36	1.39	45.53	303.3	260.4	134.6	437.9	3.25	0.86	286.2	151.6
299.0	505.8	-1075.7	3.44	1.39	45.57	303.5	260.7	134.3	437.9	3.26	0.86	286.1	151.8
325.2	507.1	-1076.3	3.53	1.39	45.60	304.3	261.1	133.9	438.2	3.27	0.86	286.0	152.1
351.5	507.2	-1076.8	3.61	1.40	45.64	304.1	261.5	133.6	437.6	3.28	0.86	285.6	152.0
377.9	507.7	-1077.0	3.69	1.40	45.68	304.2	261.6	133.4	437.6	3.28	0.86	285.5	152.1
403.9	508.1	-1077.4	3.77	1.40	45.72	304.2	261.9	133.1	437.3	3.28	0.86	285.2	152.1
430.1	508.8	-1077.8	3.85	1.40	45.76	304.4	262.1	132.9	437.3	3.29	0.86	285.1	152.2
456.3	509.7	-1078.2	3.93	1.40	45.80	304.8	262.4	132.6	437.4	3.30	0.86	285.0	152.4
482.5	510.4	-1078.4	4.02	1.41	45.84	305.1	262.6	132.5	437.5	3.30	0.86	285.0	152.5
508.5	512.0	-1079.0	4.10	1.41	45.87	306.1	263.0	132.0	438.1	3.32	0.86	285.1	153.0
534.6	512.0	-1079.1	4.18	1.41	45.91	305.8	263.0	132.0	437.7	3.32	0.86	284.8	152.9
560.8	513.5	-1079.3	4.26	1.42	45.95	306.6	263.2	131.8	438.5	3.33	0.86	285.2	153.3
586.7	513.8	-1079.5	4.34	1.42	45.99	306.6	263.3	131.7	438.3	3.33	0.86	285.0	153.3
612.9	514.7	-1079.5	4.42	1.42	46.03	307.0	263.3	131.7	438.7	3.33	0.86	285.2	153.5
639.0	515.5	-1080.3	4.50	1.43	46.07	307.3	263.9	131.1	438.4	3.34	0.86	284.8	153.7
665.0	516.0	-1080.7	4.58	1.43	46.11	307.4	264.1	130.9	438.3	3.35	0.86	284.6	153.7

Consolidated Undrained Triaxial Compression Test on Cohesive Soils
ASTM D 4767 - 88

							Strength Results :	
PROJECT#	9821045C	L_c =	13.89 cm	DATE :	17-Jul-98		Max.σ_D' =	636.0 kPa
Borehole		A_c =	44.62 cm^2	FILE :	KPCIU-3		Strain @ =	13.15 %
Sample	R-Z3-12	V_c =	619.7 cm^3	TEST#	CIU-3		Max. PSR =	3.02
Depth							Strain @ =	9.21 %
REMARKS :		**Consolidation Pressure :**		**CALIBRATIONS :**			**Consolidation Results:**	
- Failure Mode : Bulging in mid-section of sample		CP =	1232.6 kPa	LOAD =	0.0036	kN/mV	δV_c =	16.3 cc
		BP =	480.2 kPa	PORE =	0.6895	kPa/mV	T_{100} =	255.0 min
- Corrections applied to σ_a as per ASTM D4767		σ_{3c}' =	752.5 kPa	LVDT =	0.0045	mm/mV	T_{50} =	32.0 min
Section 10.6 and 10.7 (filter paper and rubber membrane)		B_{VALUE} =	0.97	Feed Rate =	0.012	mm/min	C_v =	1.1E-04 cm^2/s

δL (mV)	LOAD (mV)	δU (mV)	E (%)	LOAD (kN)	A_c (cm^2)	σ_D' corrected (kPa)	δU (kPa)	σ_3' (kPa)	σ_1' (kPa)	PSR	A	s' (kPa)	t' (kPa)
-2891.8	151.3	-696.7	0.00	0.00	44.62	0.0	0.0	752.5	752.5	1.00		752.5	0.0
-2891.8	151.5	-697.6	0.00	0.00	44.62	0.2	0.6	751.8	752.0	1.00	3.34	751.9	0.1
-2890.3	163.0	-702.1	0.00	0.04	44.62	9.4	3.7	748.7	758.1	1.01	0.40	753.4	4.7
-2889.1	170.1	-705.6	0.01	0.07	44.62	15.2	6.1	746.3	761.5	1.02	0.40	753.9	7.6
-2887.6	177.1	-708.8	0.01	0.09	44.62	20.8	8.3	744.1	764.9	1.03	0.40	754.5	10.4
-2886.4	184.0	-711.9	0.02	0.12	44.63	26.4	10.5	742.0	768.3	1.04	0.40	755.1	13.2
-2884.8	188.2	-715.1	0.02	0.13	44.63	29.7	12.7	739.8	769.4	1.04	0.43	754.6	14.8
-2883.3	192.5	-717.9	0.03	0.15	44.63	33.2	14.6	737.8	771.0	1.04	0.44	754.4	16.6
-2882.1	194.9	-720.3	0.03	0.16	44.63	35.2	16.3	736.2	771.4	1.05	0.46	753.8	17.6
-2874.2	206.9	-732.6	0.06	0.20	44.64	44.8	24.8	727.7	772.5	1.06	0.55	750.1	22.4
-2868.1	258.5	-763.3	0.08	0.39	44.65	86.4	45.9	706.5	793.0	1.12	0.53	749.8	43.2
-2861.9	339.3	-814.4	0.10	0.68	44.66	151.2	81.2	671.3	822.5	1.23	0.54	746.9	75.6
-2855.3	412.2	-875.2	0.12	0.94	44.67	209.9	123.1	629.4	839.2	1.33	0.59	734.3	104.9
-2847.7	465.3	-929.7	0.14	1.13	44.68	252.5	160.7	591.8	844.3	1.43	0.64	718.0	126.3
-2840.1	506.6	-976.8	0.17	1.28	44.69	286.1	193.1	559.3	845.5	1.51	0.67	702.4	143.1
-2832.3	543.0	-1017.2	0.19	1.41	44.70	315.4	221.0	531.5	846.8	1.59	0.70	689.1	157.7
-2823.7	563.0	-1052.2	0.22	1.48	44.72	331.4	245.1	507.3	838.7	1.65	0.74	673.0	165.7
-2815.2	593.4	-1082.9	0.25	1.59	44.73	355.7	266.3	486.2	841.9	1.73	0.75	664.0	177.9
-2806.2	614.6	-1109.1	0.28	1.67	44.74	372.7	284.3	468.1	840.8	1.80	0.76	654.4	186.3
-2797.2	637.9	-1133.0	0.31	1.75	44.76	391.3	300.8	451.6	842.9	1.87	0.77	647.3	195.6
-2788.0	647.8	-1155.4	0.34	1.79	44.77	399.1	316.3	436.2	835.3	1.92	0.79	635.7	199.6
-2778.7	665.6	-1174.0	0.37	1.85	44.78	413.3	329.1	423.4	836.6	1.98	0.80	630.0	206.6
-2769.4	681.3	-1190.3	0.40	1.91	44.80	425.8	340.3	412.1	837.9	2.03	0.80	625.0	212.9
-2759.7	704.5	-1205.3	0.43	1.99	44.81	444.3	350.7	401.8	846.0	2.11	0.79	623.9	222.1
-2750.1	703.6	-1218.6	0.46	1.99	44.82	443.4	359.9	392.6	836.0	2.13	0.81	614.3	221.7
-2740.2	715.0	-1231.0	0.49	2.03	44.84	452.4	368.4	384.1	836.4	2.18	0.81	610.2	226.2
-2730.0	729.1	-1242.3	0.52	2.08	44.85	463.5	376.2	376.3	839.8	2.23	0.81	608.0	231.8
-2719.9	739.0	-1252.1	0.56	2.12	44.87	471.3	382.9	369.5	840.8	2.28	0.81	605.2	235.7
-2709.4	732.2	-1261.0	0.59	2.09	44.88	465.7	389.1	363.4	829.0	2.28	0.84	596.2	232.8
-2699.1	749.5	-1269.3	0.62	2.15	44.90	479.4	394.8	357.6	837.0	2.34	0.82	597.3	239.7
-2688.2	748.7	-1277.0	0.66	2.15	44.91	478.5	400.1	352.3	830.9	2.36	0.84	591.6	239.3
-2677.4	760.0	-1285.5	0.69	2.19	44.93	487.4	406.0	346.5	833.9	2.41	0.83	590.2	243.7
-2666.2	770.3	-1292.0	0.73	2.23	44.95	495.5	410.5	342.0	837.5	2.45	0.83	589.7	247.7
-2655.1	767.7	-1298.0	0.77	2.22	44.96	493.2	414.6	337.9	831.1	2.46	0.84	584.5	246.6
-2643.9	773.9	-1303.5	0.80	2.24	44.98	498.0	418.4	334.1	832.0	2.49	0.84	583.0	249.0
-2632.5	780.2	-1308.1	0.84	2.26	45.00	502.8	421.6	330.9	833.7	2.52	0.84	582.3	251.4
-2621.1	764.1	-1312.6	0.88	2.21	45.01	489.7	424.7	327.8	817.5	2.49	0.87	572.6	244.9
-2609.4	780.9	-1316.6	0.92	2.27	45.03	502.9	427.4	325.0	828.0	2.55	0.85	576.5	251.5
-2597.7	775.4	-1320.4	0.95	2.25	45.05	498.3	430.0	322.4	820.7	2.55	0.86	571.6	249.2
-2585.8	824.5	-1323.8	0.99	2.42	45.06	537.4	432.4	320.1	857.4	2.68	0.80	588.7	268.7
-2573.8	805.5	-1326.9	1.03	2.36	45.08	522.0	434.5	317.9	839.9	2.64	0.83	578.9	261.0
-2561.7	789.4	-1329.9	1.07	2.30	45.10	508.9	436.6	315.9	824.7	2.61	0.86	570.3	254.4
-2549.4	806.6	-1332.5	1.11	2.36	45.12	522.4	438.4	314.1	836.4	2.66	0.84	575.3	261.2
-2537.0	789.9	-1336.5	1.15	2.30	45.14	508.8	441.1	311.3	820.1	2.63	0.87	565.7	254.4
-2524.3	832.9	-1338.7	1.19	2.45	45.16	542.9	442.7	309.8	852.7	2.75	0.82	581.2	271.4
-2511.9	804.2	-1341.1	1.23	2.35	45.17	519.8	444.3	308.1	827.9	2.69	0.85	568.0	259.9
-2499.1	826.3	-1342.9	1.27	2.43	45.19	537.1	445.6	306.9	844.0	2.75	0.83	575.5	268.6
-2486.5	827.1	-1344.3	1.31	2.43	45.21	537.5	446.5	305.9	843.5	2.76	0.83	574.7	268.8
-2473.4	827.9	-1346.3	1.36	2.44	45.23	537.9	447.9	304.6	842.5	2.77	0.83	573.5	269.0
-2460.6	835.4	-1347.9	1.40	2.46	45.25	543.6	449.0	303.4	847.1	2.79	0.83	575.3	271.8
-2447.5	837.5	-1349.1	1.44	2.47	45.27	545.1	449.8	302.6	847.7	2.80	0.83	575.1	272.5
-2434.4	821.4	-1350.3	1.48	2.41	45.29	532.0	450.7	301.8	833.8	2.76	0.85	567.8	266.0
-2394.6	842.4	-1355.1	1.61	2.49	45.35	547.9	454.0	298.5	846.4	2.84	0.83	572.4	274.0
-2367.7	824.7	-1356.5	1.70	2.42	45.39	533.4	454.9	297.5	830.9	2.79	0.85	564.2	266.7
-2340.1	849.8	-1357.5	1.79	2.51	45.43	552.7	455.6	296.8	849.5	2.86	0.82	573.2	276.4
-2312.2	845.6	-1358.9	1.88	2.50	45.47	548.8	456.6	295.9	844.7	2.86	0.83	570.3	274.4
-2284.5	863.9	-1359.5	1.97	2.57	45.51	562.8	457.0	295.4	858.2	2.90	0.81	576.8	281.4
-2256.3	857.5	-1360.3	2.06	2.54	45.56	557.1	457.6	294.9	852.0	2.89	0.82	573.5	278.6
-2227.8	873.1	-1362.5	2.15	2.60	45.60	568.9	459.1	293.4	862.3	2.94	0.81	577.8	284.4
-2199.2	856.8	-1362.9	2.24	2.54	45.64	555.5	459.3	293.1	848.6	2.90	0.83	570.8	277.7
-2170.3	865.0	-1362.7	2.34	2.57	45.69	561.3	459.2	293.2	854.6	2.91	0.82	573.9	280.7
-2141.1	865.8	-1362.9	2.43	2.57	45.73	561.4	459.3	293.1	854.5	2.92	0.82	573.8	280.7
-2111.7	854.6	-1362.9	2.53	2.53	45.77	552.0	459.3	293.1	845.1	2.88	0.83	569.1	276.0
-2082.3	856.3	-1364.5	2.62	2.54	45.82	552.7	460.4	292.0	844.7	2.89	0.83	568.4	276.4
-2052.6	877.5	-1364.5	2.72	2.61	45.87	568.8	460.4	292.0	860.8	2.95	0.81	576.4	284.4
-2022.6	871.1	-1364.1	2.82	2.59	45.91	563.2	460.2	292.3	855.4	2.93	0.82	573.9	281.6
-1992.6	866.7	-1363.9	2.91	2.58	45.96	559.1	460.0	292.4	851.5	2.91	0.82	572.0	279.5
-1962.7	890.9	-1363.7	3.01	2.66	46.00	577.4	459.9	292.6	870.0	2.97	0.80	581.3	288.7
-1932.5	872.2	-1364.3	3.11	2.60	46.05	562.2	460.3	292.1	854.3	2.92	0.82	573.2	281.1
-1902.4	906.9	-1364.9	3.21	2.72	46.10	588.7	460.7	291.7	880.4	3.02	0.78	586.1	294.3
-1871.7	888.9	-1364.3	3.31	2.66	46.14	574.0	460.3	292.1	866.1	2.96	0.80	579.1	287.0
-1841.0	894.8	-1363.9	3.40	2.68	46.19	577.9	460.0	292.4	870.4	2.98	0.80	581.4	289.0
-1810.8	897.6	-1363.5	3.50	2.69	46.24	579.5	459.8	292.7	872.2	2.98	0.79	582.4	289.7
-1779.8	880.6	-1362.7	3.60	2.63	46.29	565.6	459.2	293.2	858.9	2.93	0.81	576.1	282.8

δL	LOAD	δU	E	LOAD	A_c	σ_{D}' corrected	δU	σ_3'	σ_1'	PSR	A	s'	t'
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
-1748.8	896.6	-1363.9	3.70	2.68	46.33	577.4	460.0	292.4	869.8	2.97	0.80	581.1	288.7
-1717.8	898.0	-1363.5	3.80	2.69	46.38	577.8	459.8	292.7	870.5	2.97	0.80	581.6	288.9
-1686.9	900.3	-1362.7	3.90	2.70	46.43	579.0	459.2	293.2	872.2	2.97	0.79	582.7	289.5
-1657.0	901.9	-1362.3	4.00	2.70	46.48	579.6	458.9	293.5	873.1	2.97	0.79	583.3	289.8
-1626.0	904.3	-1361.1	4.10	2.71	46.53	580.8	458.1	294.3	875.1	2.97	0.79	584.7	290.4
-1594.9	906.6	-1362.5	4.20	2.72	46.58	581.9	459.1	293.4	875.3	2.98	0.79	584.3	291.0
-1563.8	909.2	-1361.5	4.30	2.73	46.62	583.3	458.4	294.1	877.3	2.98	0.79	585.7	291.6
-1532.6	911.2	-1360.9	4.40	2.74	46.67	584.1	458.0	294.5	878.6	2.98	0.78	586.6	292.1
-1501.3	913.2	-1360.5	4.51	2.74	46.72	585.0	457.7	294.8	879.8	2.98	0.78	587.3	292.5
-1470.0	915.3	-1359.1	4.61	2.75	46.77	586.0	456.7	295.7	881.7	2.98	0.78	588.7	293.0
-1439.3	917.0	-1359.1	4.71	2.76	46.82	586.6	456.7	295.7	882.3	2.98	0.78	589.0	293.3
-1407.8	919.9	-1360.1	4.81	2.77	46.87	588.2	457.4	295.0	883.2	2.99	0.78	589.1	294.1
-1376.8	921.8	-1359.5	4.91	2.77	46.92	589.0	457.0	295.4	884.4	2.99	0.78	589.9	294.5
-1345.5	923.6	-1358.5	5.01	2.78	46.97	589.7	456.3	296.1	885.8	2.99	0.77	591.0	294.8
-1314.6	926.0	-1357.9	5.11	2.79	47.02	590.8	455.9	296.6	887.4	2.99	0.77	592.0	295.4
-1283.1	928.0	-1356.9	5.21	2.80	47.07	591.7	455.2	297.2	888.9	2.99	0.77	593.1	295.8
-1251.0	930.0	-1358.3	5.32	2.80	47.12	592.5	456.2	296.3	888.8	3.00	0.77	592.5	296.2
-1219.0	932.1	-1357.3	5.42	2.81	47.17	593.4	455.5	297.0	890.4	3.00	0.77	593.7	296.7
-1187.2	934.4	-1356.9	5.52	2.82	47.23	594.5	455.2	297.2	891.7	3.00	0.77	594.5	297.2
-1155.8	935.8	-1355.9	5.62	2.82	47.28	594.8	454.5	297.9	892.8	3.00	0.76	595.4	297.4
-1124.7	938.0	-1355.1	5.73	2.83	47.33	595.8	454.0	298.5	894.3	3.00	0.76	596.4	297.9
-1093.3	939.5	-1355.1	5.83	2.84	47.38	596.3	454.0	298.5	894.8	3.00	0.76	596.6	298.1
-1062.0	941.9	-1355.9	5.93	2.85	47.43	597.4	454.5	297.9	895.3	3.01	0.76	596.6	298.7
-1030.5	943.5	-1355.1	6.03	2.85	47.48	597.9	454.0	298.5	896.4	3.00	0.76	597.4	299.0
-999.1	945.6	-1354.3	6.13	2.86	47.53	598.8	453.4	299.0	897.9	3.00	0.76	598.4	299.4
-967.8	947.1	-1353.9	6.23	2.86	47.58	599.3	453.1	299.3	898.6	3.00	0.76	598.9	299.6
-936.4	948.7	-1353.3	6.34	2.87	47.64	599.8	452.7	299.7	899.5	3.00	0.75	599.6	299.9
-904.9	951.2	-1354.1	6.44	2.88	47.69	600.9	453.3	299.2	900.1	3.01	0.75	599.6	300.5
-873.6	952.5	-1353.1	6.54	2.88	47.74	601.2	452.6	299.9	901.1	3.01	0.75	600.5	300.6
-841.9	954.7	-1353.1	6.64	2.89	47.79	602.2	452.6	299.9	902.0	3.01	0.75	600.9	301.1
-810.3	956.4	-1352.1	6.74	2.90	47.84	602.7	451.9	300.6	903.3	3.01	0.75	601.9	301.4
-778.7	957.8	-1350.7	6.85	2.90	47.90	603.1	450.9	301.5	904.6	3.00	0.75	603.1	301.5
-747.1	960.1	-1351.3	6.95	2.91	47.95	604.1	451.3	301.1	905.2	3.01	0.75	603.2	302.0
-715.2	962.4	-1351.3	7.05	2.92	48.00	605.1	451.3	301.1	906.2	3.01	0.75	603.7	302.6
-683.5	964.7	-1350.7	7.16	2.93	48.06	606.1	450.9	301.5	907.6	3.01	0.74	604.6	303.1
-652.4	966.3	-1349.5	7.26	2.93	48.11	606.6	450.1	302.3	908.9	3.01	0.74	605.6	303.3
-621.0	968.5	-1348.5	7.36	2.94	48.16	607.5	449.4	303.0	910.6	3.00	0.74	606.8	303.8
-589.2	970.5	-1348.3	7.46	2.95	48.22	608.3	449.3	303.2	911.5	3.01	0.74	607.3	304.1
-557.3	972.2	-1349.3	7.56	2.96	48.27	608.8	450.0	302.5	911.3	3.01	0.74	606.9	304.4
-525.8	974.0	-1348.1	7.67	2.96	48.32	609.5	449.1	303.3	912.8	3.01	0.74	608.0	304.7
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-462.3	977.0	-1346.3	7.87	2.97	48.43	610.2	447.9	304.6	914.8	3.00	0.73	609.7	305.1
-430.5	979.0	-1346.3	7.97	2.98	48.48	611.0	447.9	304.6	915.5	3.01	0.73	610.0	305.5
-398.8	980.8	-1346.3	8.08	2.99	48.54	611.6	447.9	304.6	916.1	3.01	0.73	610.3	305.8
-367.0	982.7	-1346.3	8.18	2.99	48.59	612.2	447.9	304.6	916.8	3.01	0.73	610.7	306.1
-335.9	984.7	-1344.9	8.28	3.00	48.65	613.0	446.9	305.5	918.5	3.01	0.73	612.0	306.5
-304.2	986.2	-1344.3	8.38	3.01	48.70	613.4	446.5	305.9	919.3	3.00	0.73	612.6	306.7
-272.3	988.1	-1343.3	8.49	3.01	48.76	614.0	445.8	306.6	920.7	3.00	0.73	613.6	307.0
-240.6	989.9	-1342.3	8.59	3.02	48.81	614.6	445.1	307.3	921.9	3.00	0.72	614.6	307.3
-208.7	991.9	-1344.3	8.69	3.03	48.87	615.4	446.5	305.9	921.3	3.01	0.73	613.6	307.7
-176.9	994.0	-1342.9	8.80	3.03	48.92	616.2	445.6	306.9	923.0	3.01	0.72	615.0	308.1
-145.5	995.9	-1342.1	8.90	3.04	48.98	616.8	445.0	307.4	924.3	3.01	0.72	615.9	308.4
-113.6	997.8	-1341.3	9.00	3.05	49.03	617.5	444.5	308.0	925.5	3.00	0.72	616.7	308.7
-82.4	999.2	-1340.3	9.10	3.05	49.09	617.7	443.8	308.7	926.4	3.00	0.72	617.6	308.9
-50.5	1002.2	-1342.7	9.21	3.06	49.14	619.2	445.4	307.0	926.2	3.02	0.72	616.6	309.6
-18.8	1002.7	-1340.9	9.31	3.07	49.20	618.8	444.2	308.3	927.1	3.01	0.72	617.7	309.4
12.7	1004.4	-1339.9	9.41	3.07	49.25	619.3	443.5	309.0	928.3	3.00	0.72	618.6	309.6
44.1	1006.3	-1339.5	9.51	3.08	49.31	619.9	443.2	309.2	929.2	3.00	0.71	619.2	310.0
75.8	1008.1	-1339.1	9.62	3.08	49.36	620.5	442.9	309.5	930.0	3.00	0.71	619.8	310.2
107.5	1010.1	-1337.5	9.72	3.09	49.42	621.2	441.8	310.6	931.8	3.00	0.71	621.2	310.6
138.8	1011.7	-1338.9	9.82	3.10	49.48	621.6	442.8	309.7	931.3	3.01	0.71	620.5	310.8
170.6	1013.4	-1338.1	9.92	3.10	49.53	622.1	442.2	310.2	932.3	3.01	0.71	621.2	311.0
201.6	1015.0	-1336.9	10.02	3.11	49.59	622.5	441.4	311.0	933.5	3.00	0.71	622.3	311.3
233.0	1017.1	-1336.9	10.12	3.12	49.64	623.3	441.4	311.0	934.3	3.00	0.71	622.7	311.6
264.2	1018.7	-1335.3	10.23	3.12	49.70	623.7	440.3	312.1	935.8	3.00	0.71	624.0	311.8
295.9	1020.8	-1336.3	10.33	3.13	49.76	624.4	441.0	311.4	935.9	3.00	0.71	623.7	312.2
327.1	1022.4	-1336.1	10.43	3.14	49.81	624.8	440.9	311.6	936.4	3.01	0.71	624.0	312.4
358.6	1024.3	-1335.1	10.53	3.14	49.87	625.4	440.2	312.3	937.7	3.00	0.70	625.0	312.7
390.0	1026.0	-1334.1	10.63	3.15	49.93	625.9	439.5	313.0	938.9	3.00	0.70	625.9	313.0
421.4	1027.5	-1334.1	10.74	3.15	49.98	626.2	439.5	313.0	939.2	3.00	0.70	626.1	313.1
452.7	1029.3	-1334.3	10.84	3.16	50.04	626.8	439.6	312.8	939.6	3.00	0.70	626.2	313.4
484.1	1031.5	-1333.5	10.94	3.17	50.10	627.6	439.1	313.4	940.9	3.00	0.70	627.2	313.8
514.8	1032.6	-1332.9	11.04	3.17	50.15	627.6	438.7	313.8	941.4	3.00	0.70	627.6	313.8
546.1	1034.0	-1331.9	11.14	3.18	50.21	627.8	438.0	314.5	942.3	3.00	0.70	628.4	313.9
577.2	1035.6	-1331.3	11.24	3.18	50.27	628.2	437.6	314.9	943.1	3.00	0.70	629.0	314.1
608.4	1036.8	-1330.7	11.34	3.19	50.33	628.3	437.1	315.3	943.6	2.99	0.70	629.5	314.2
639.7	1039.0	-1331.5	11.44	3.20	50.38	629.1	437.7	314.8	943.9	3.00	0.70	629.3	314.6
671.0	1041.1	-1330.7	11.54	3.20	50.44	629.8	437.1	315.3	945.1	3.00	0.69	630.2	314.9
702.2	1042.9	-1330.5	11.65	3.21	50.50	630.4	437.0	315.4	945.8	3.00	0.69	630.6	315.2
733.3	1044.4	-1329.3	11.75	3.22	50.56	630.7	436.2	316.3	946.9	2.99	0.69	631.6	315.3
763.7	1045.9	-1328.3	11.84	3.22	50.61	631.0	435.5	317.0	947.9	2.99	0.69	632.4	315.5
795.1	1047.5	-1329.5	11.95	3.23	50.67	631.3	436.3	316.1	947.5	3.00	0.69	631.8	315.7
825.7	1048.8	-1328.7	12.05	3.23	50.73	631.5	435.8	316.7	948.2	2.99	0.69	632.4	315.7
856.8	1050.7	-1327.9	12.15	3.24	50.79	632.1	435.2	317.2	949.3	2.99	0.69	633.3	316.0
887.9	1053.1	-1327.9	12.25	3.25	50.84	633.0	435.2	317.2	950.2	3.00	0.69	633.7	316.5
918.5	1054.4	-1326.3	12.35	3.25	50.90	633.1	434.1	318.3	951.5	2.99	0.69	634.9	316.6
949.2	1056.4	-1325.5	12.45	3.26	50.96	633.8	433.6	318.9	952.7	2.99	0.68	635.8	316.9
980.4	1058.1	-1326.5	12.55	3.26	51.02	634.2	434.2	318.2	952.4	2.99	0.68	635.3	317.1
1011.3	1059.5	-1325.9	12.65	3.27	51.08	634.4	433.8	318.6	953.0	2.99	0.68	635.8	317.2
1042.2	1061.2	-1325.7	12.75	3.28	51.14	634.8	433.7	318.8	953.6	2.99	0.68	636.2	317.4

δL	LOAD	δU	E	LOAD	A_c	$\sigma_{D}'_{corrected}$	δU	σ_3'	σ_1'	PSR	A	s'	t'
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
1073.3	1062.5	-1324.4	12.85	3.28	51.20	634.9	432.8	319.7	954.6	2.99	0.68	637.1	317.5
1104.0	1063.9	-1323.4	12.95	3.29	51.25	635.1	432.1	320.3	955.5	2.98	0.68	637.9	317.6
1134.6	1065.7	-1324.8	13.05	3.29	51.31	635.6	433.1	319.4	955.0	2.99	0.68	637.2	317.8
1165.5	1067.4	-1324.0	13.15	3.30	51.37	636.0	432.5	319.9	956.0	2.99	0.68	637.9	318.0

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APPENDIX E

1998 CONSTRUCTION PHOTOS

Photo No. 1: Installing Foundation Drain FD-5 at Main Embankment, April 2, 1998.

Photo No. 2: Installing Outlet Drain OD-5 at Perimeter Embankment, January 29, 1998.

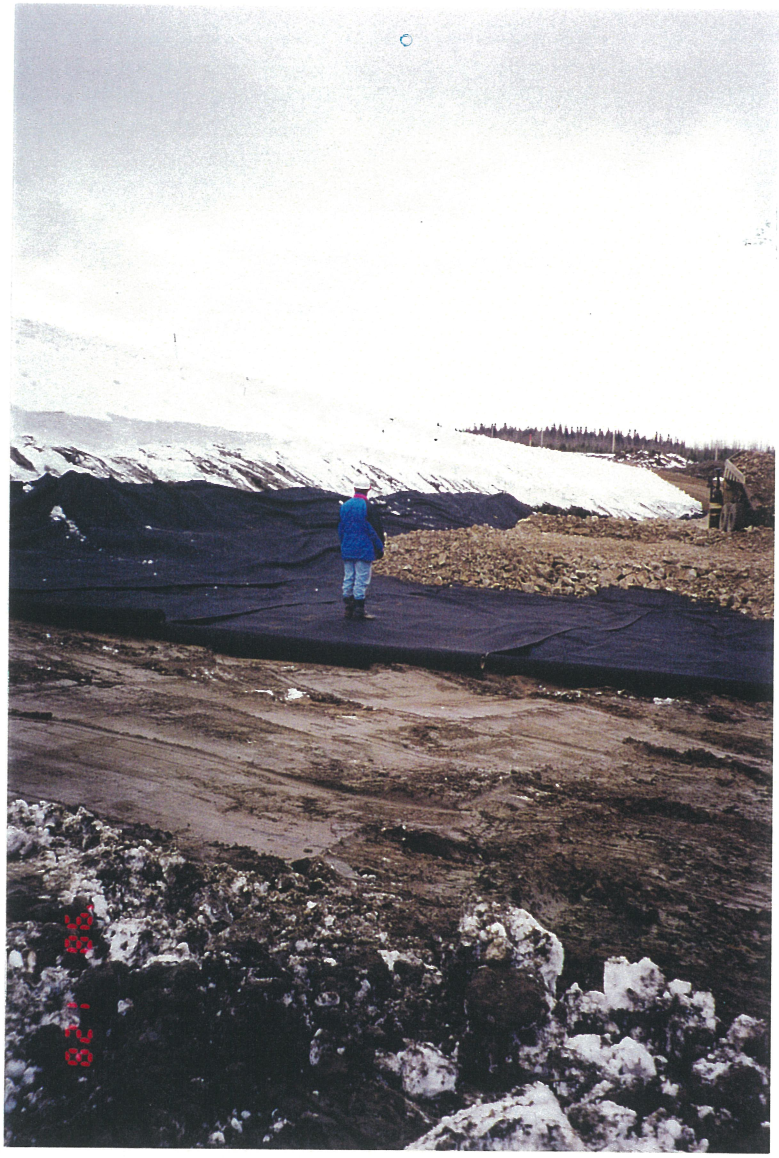

Photo No. 3: Prepared foundation at Perimeter Embankment with Type 2 Geotextile Filter Fabric layer between Transition Zone Material (Zone T) and Foundation Soil, January 28, 1998.

Photo No. 4: Completed Zone T Haul Road at Perimeter Embankment, Februrary 13, 1998.

Photo No. 5: Placement of Coarse Bearing Layer (Zone CBL) on Tailings at Main Embankment, March 18, 1998.

Photo No. 6: Glacial Till Borrow Area 4, near Perimeter Embankment, May 7, 1998.

Photo No. 7: Placement of Zone S Glacial Till at Main Embankment, May 7, 1998.

APPENDIX F

1998 ANNUAL INSPECTION PHOTOS

Photo No. 1: Main Embankment. View looking north, from Bootjack – Morehead Connector Road east of the Seepage Collection Pond. Note Seepage Collection Pond on left.

Photo No. 2: Main Embankment. View looking east, from right abutment.

Photo No. 3: Main Embankment. View looking west, from left abutment.

Photo No. 4: Perimeter Embankment from left abutment. Note tailings beach development and set-up of 60 inch cyclone.

Photo No. 5: Perimeter Embankment from near right abutment.

Photo No. 6: Perimeter Embankment. Looking upstream from access road on east side of Seepage Collection Pond. Note Outlet Drains going up face of embankment.

Photo No. 7: Perimeter Embankment. Looking downstream to Seepage Collection Pond. Note grading of area. Zone T platform was extended to final downstream toe.

Photo No. 8: Pipeline Containment Channel. Upstream end of pipeline sleeves at Bootjack Creek Crossing. Minor amount of tailings at bottom of sleeves.

Photo No. 9: Pipeline Containment Channel. Downstream end of pipeline sleeves at Bootjack Creek Crossing. Note minor amount of tailings at bottom of sleeves.

Photo No. 10: Bootjack Creek Culvert. Upstream side.

Photo No. 11: Bootjack Creek Culvert. Downstream side.

Photo No. 12: Tailings Pipeline System. Revised T2 Dropbox. Tailings Pipeline now extends all the way from the Mill to the Tailings Storage Facility. T2 Dropbox provides surge protection and is connected to the pipeline by a bifurcation.

Photo No. 13: Tailings Pipeline System. Full T2 Overflow Pond (water).

Photo No. 14: Reclaim Pipeline System. Reclaim Barge and Channel. Note 35 degree elbow added and barge alignment changed.

Photo No. 15: Southeast Sediment Pond – Runoff collection ditch, looking north. Note Mine waste dump to left and Polley Lake to right.

Photo No. 16: Southeast Sediment Pond – Runoff collection ditch, looking south.

Photo No. 17: Southeast Sediment Pond. Looking west, from end of runoff collection ditch to the manhole sump. Note overflow culvert in foreground.

Photo No. 18: Southeast Sediment Pond. Downstream fill slope looking east. Note dry stable slope and well established re-vegetation.

Photo No. 19: Polley Lake Pumping System. Intake Area. Note float on Polley Lake. Float is attached to the intake.

Photo No. 20: Millsite Sump. Note low water level and stable inner slopes.

Photo No. 21: Millsite Sump. View of south slope, looking west. Slope is stable. No seepage observed.

Photo No. 22: South Bootjack Dam. View of upstream face of embankment, looking northwest. Ponded water is now seeping through old dam back into Bootjack Lake.

Photo No. 23: South Bootjack Dam. View of downstream face of embankment, looking northeast.

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APPENDIX G

PIEZOMETER RECORDS

APPENDIX G

PIEZOMETER RECORDS

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G4 - DRAIN PIEZOMETERS

FIGURES

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APPENDIX G1

TAILINGS PIEZOMETERS

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A0-PE2-01
TAILINGS PIEZOMETER
TIP ELEVATION 928.03 m

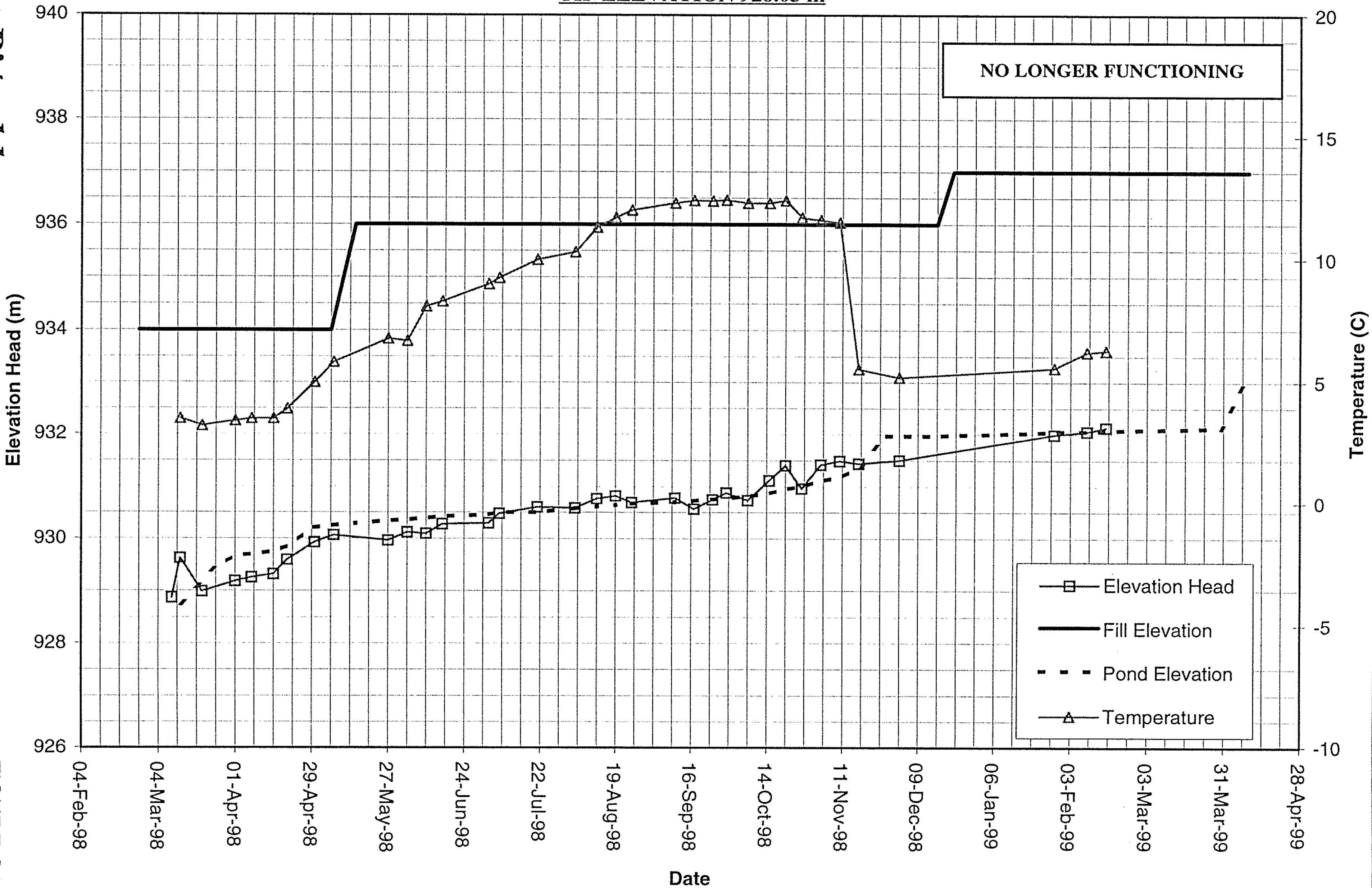

FIGURE G1-1

M:\11162\10\Report\1\MPIEZ-A.xls graph 1

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G1-1

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A0-PE2-02
TAILINGS PIEZOMETER
TIP ELEVATION 927.87 m

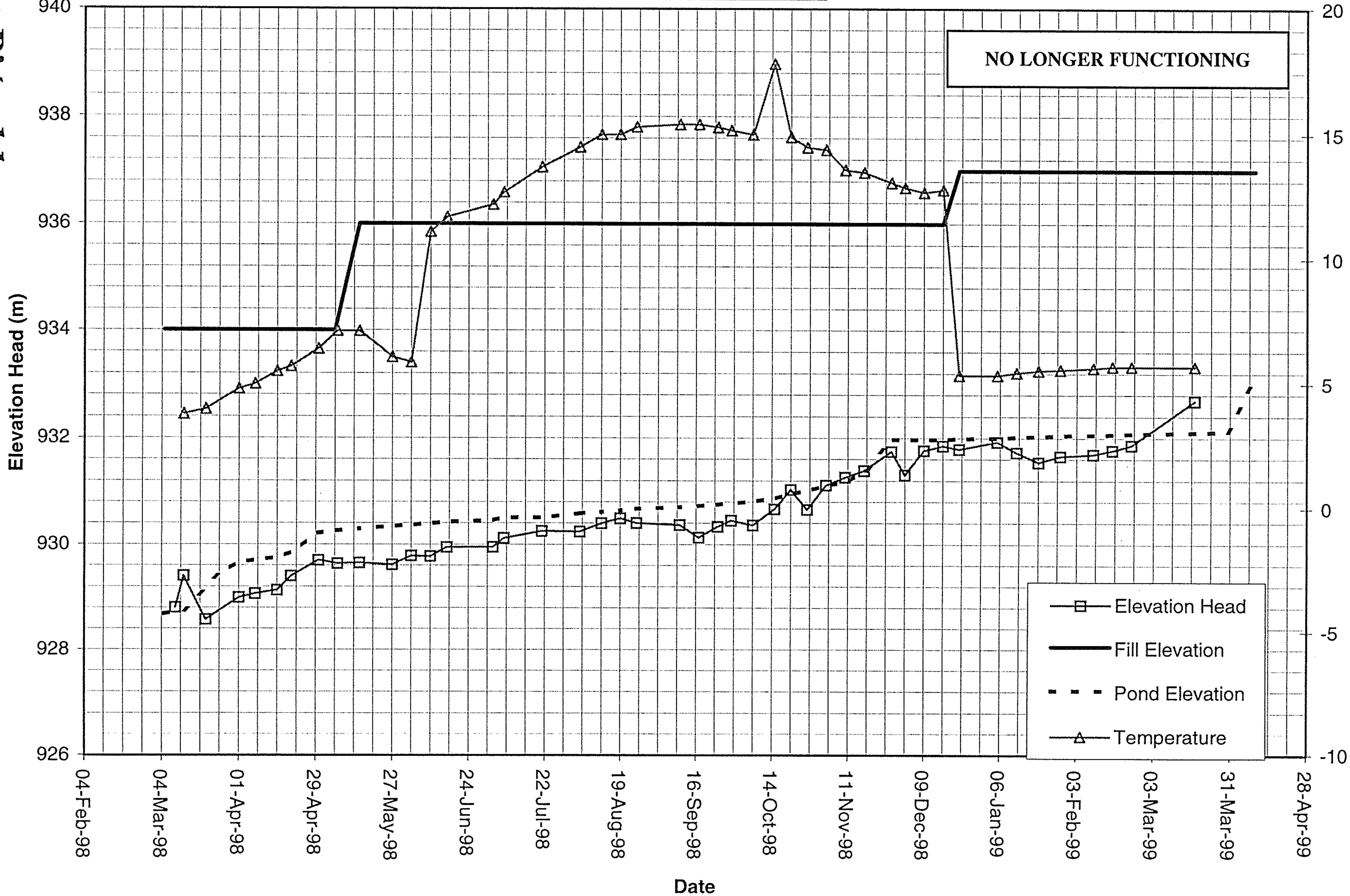

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FIGURE G1-2

M:\11162\10\Report\1\MPIEZ-A.xls graph 2

G1-2

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B0-PE2-01
TAILINGS PIEZOMETER
TIP ELEVATION 927.30 m

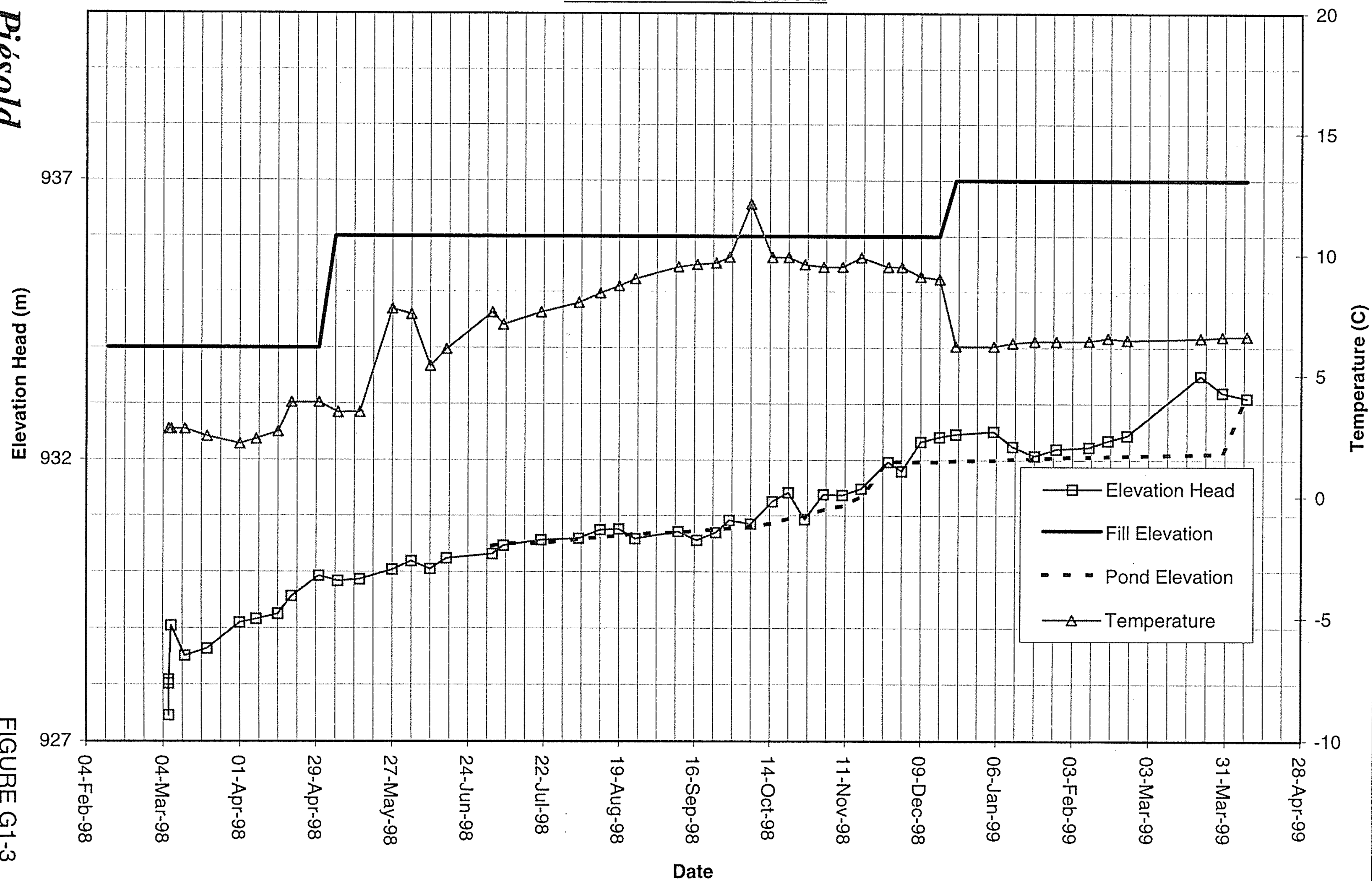

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FIGURE G1-3

M:\11162\10\Report\1\MPIEZ-B.xls graph 1

G1-3

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B0-PE2-02
TAILINGS PIEZOMETER
TIP ELEVATION 927.18 m

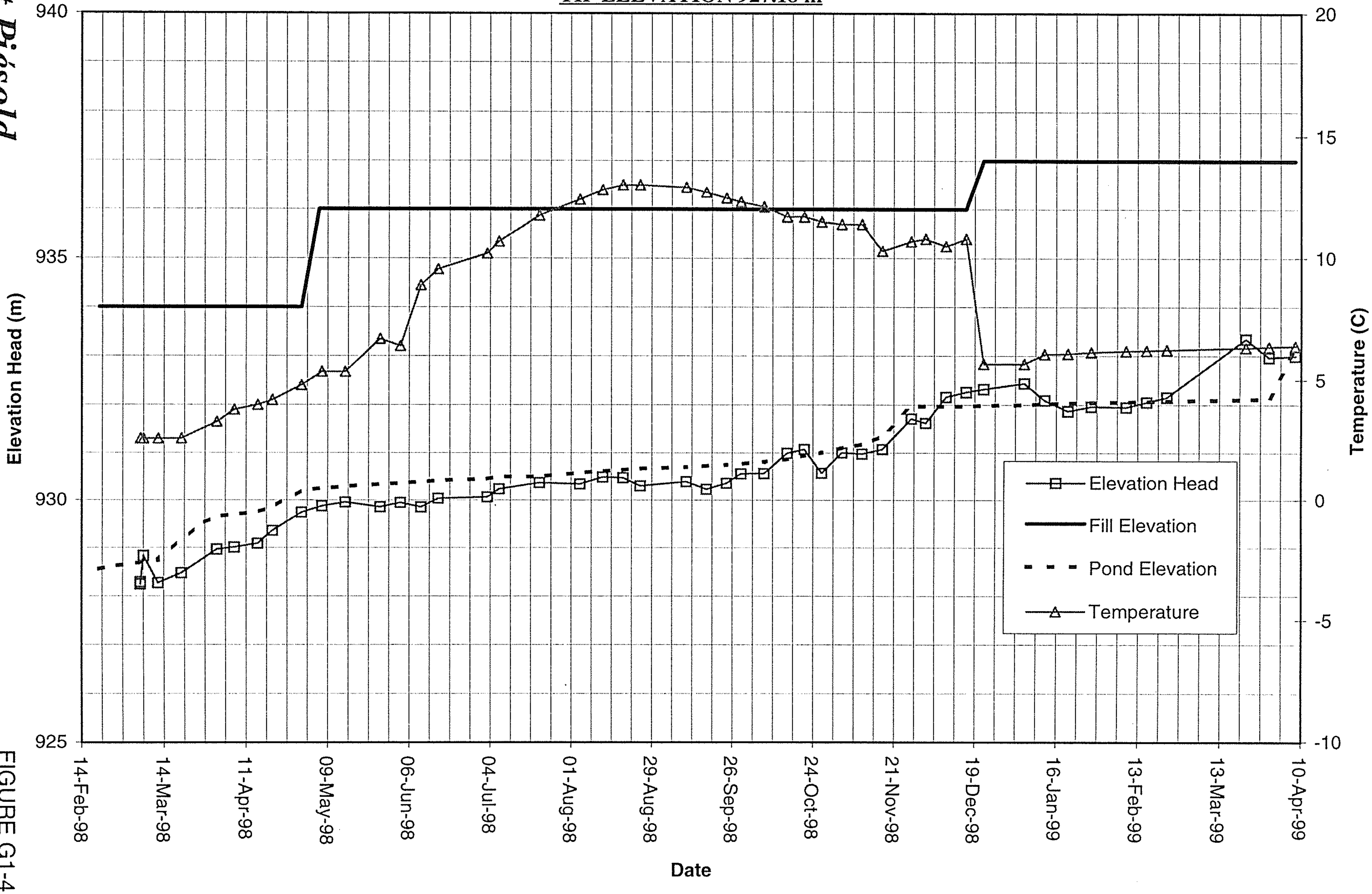

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FIGURE G1-4

M:\11162\10\Report\1\MPIEZ-B.xls graph 2

G1-4

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C0-PE2-01
TAILINGS PIEZOMETER
TIP ELEVATION 927.80 m

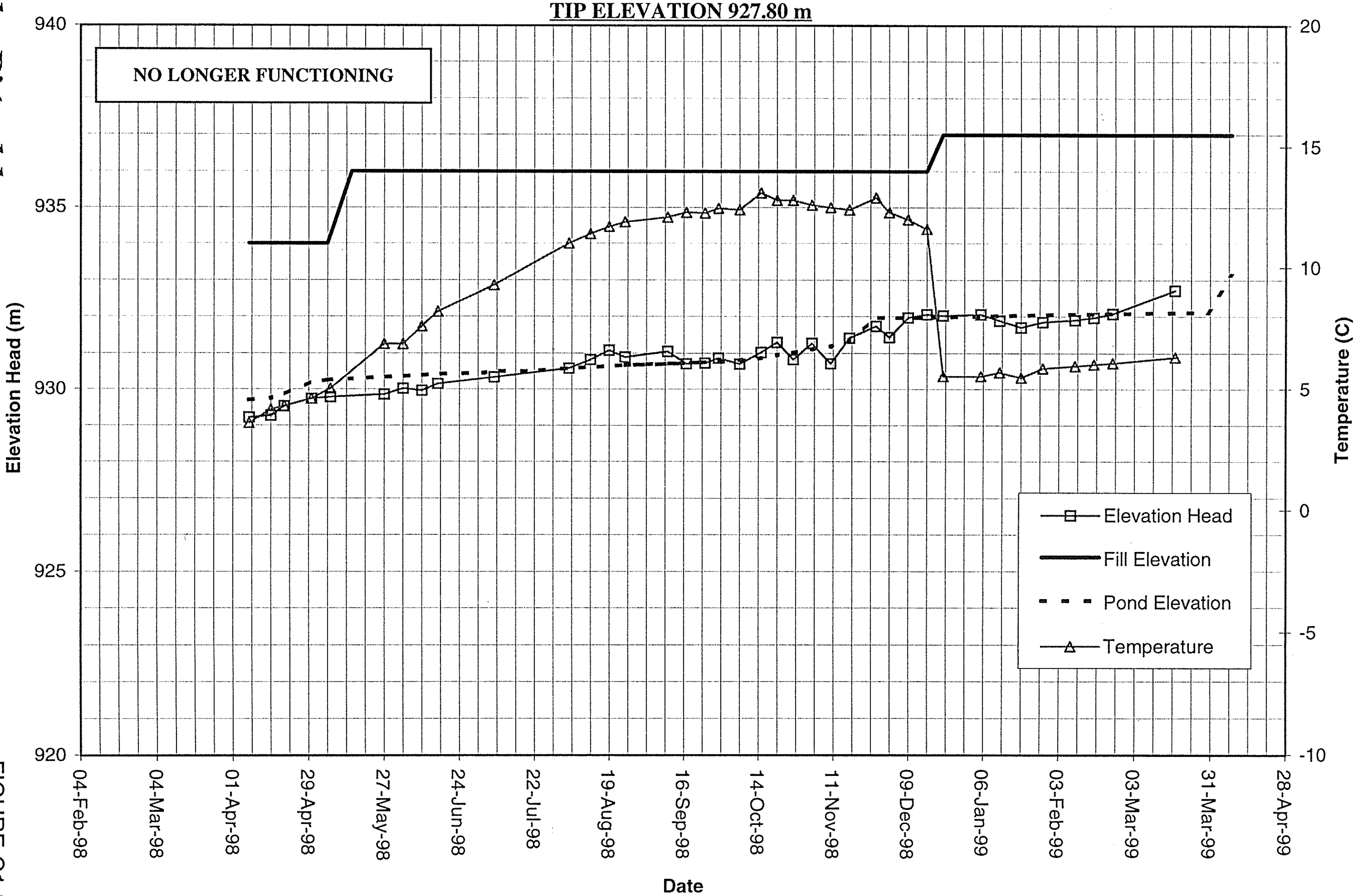

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FIGURE G1-5

M:\11162\10\Report\1\MPIEZ-C.xls graph 1

G1-6

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C0-PE2-02
TAILINGS PIEZOMETER
TIP ELEVATION 927.48 m

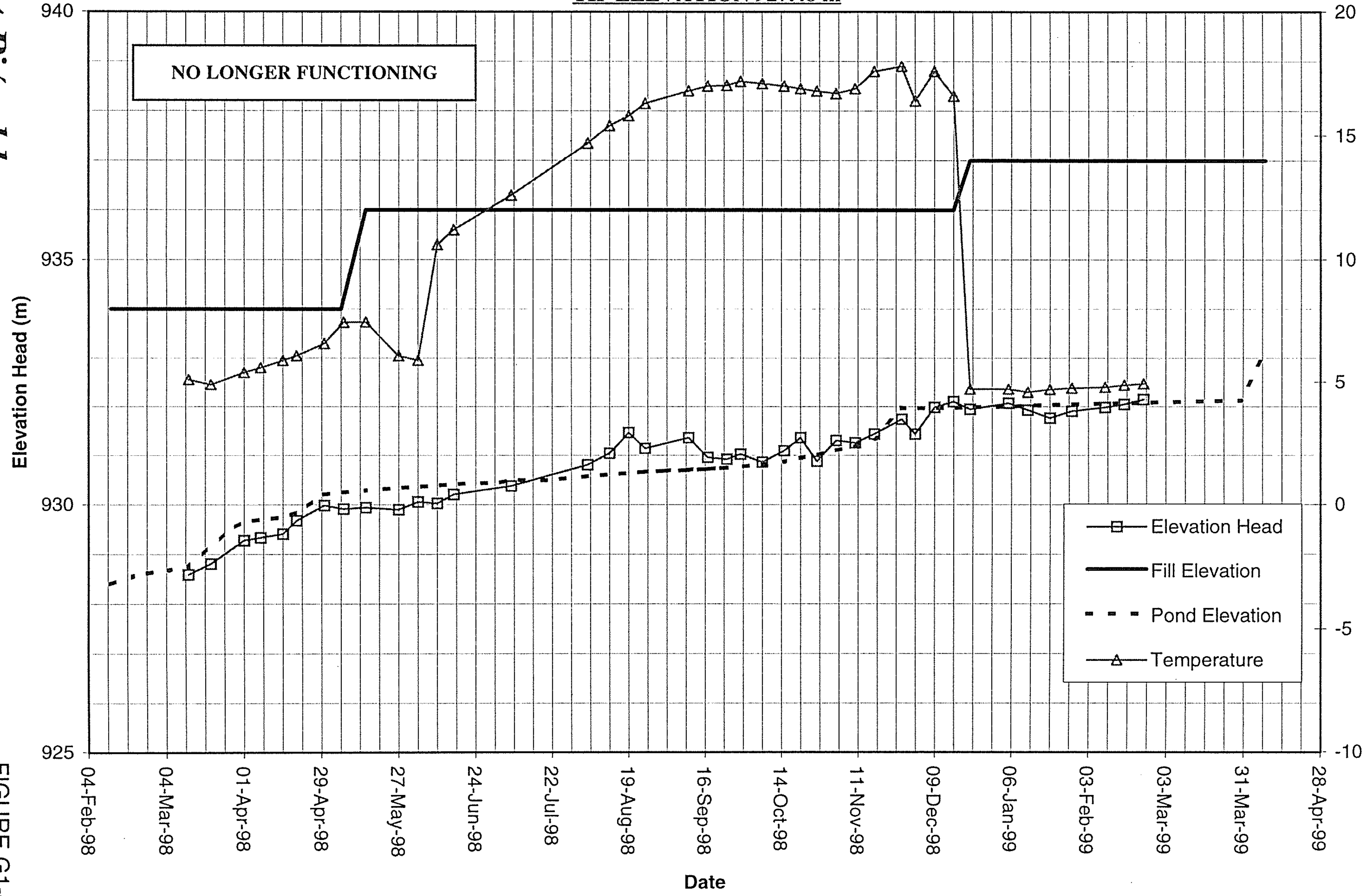

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FIGURE G1-6

M:\11162\10\Report\1\MPIEZ-C.xls graph 2

G1-6

APPENDIX G2

EMBANKMENT FOUNDATION PIEZOMETERS

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-01
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 903.68 m

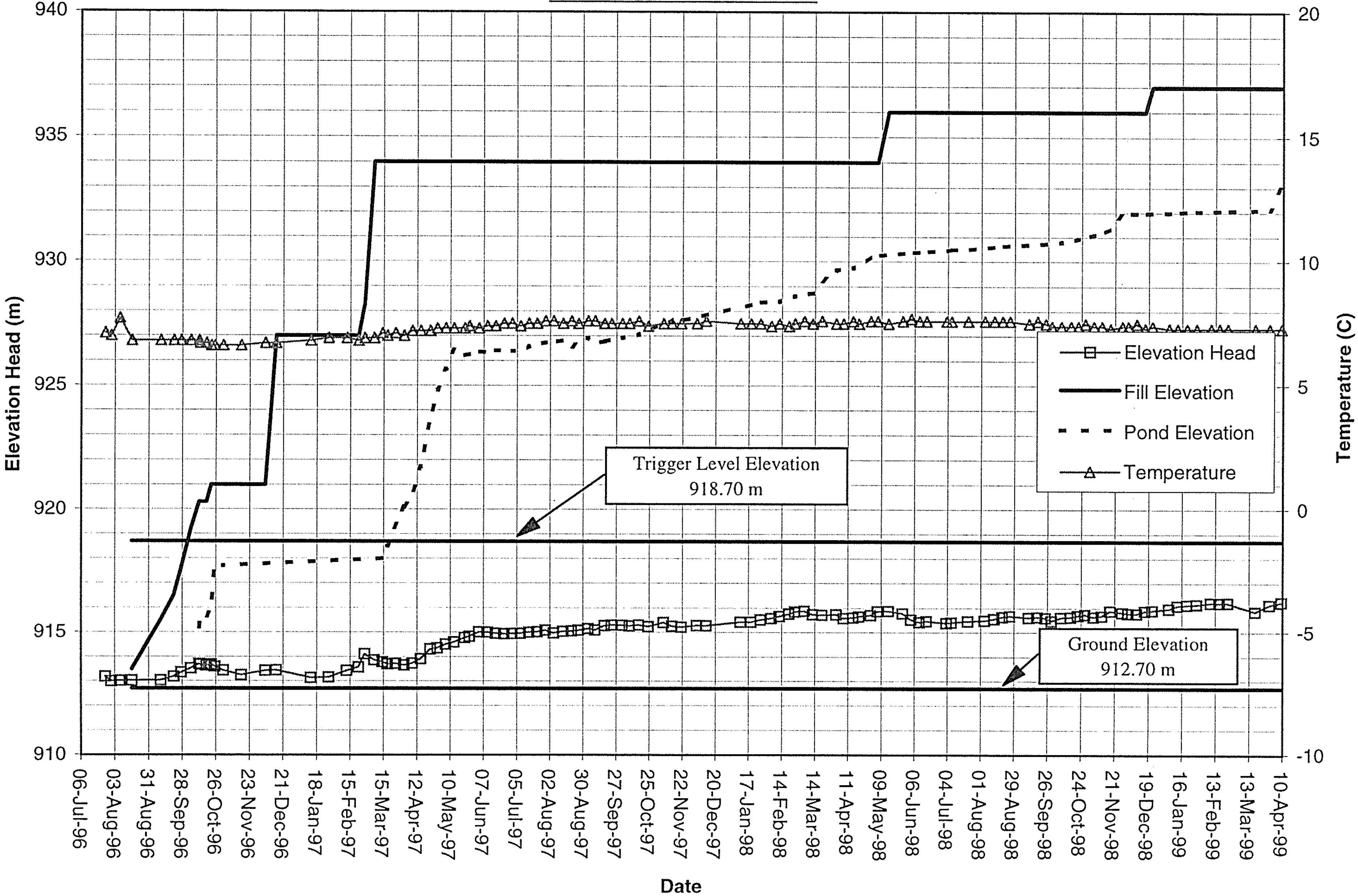

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FIGURE G2-1

M:\11162\10\Report\1\MPIEZ-A.xls graph 7

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-02
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 909.77 m

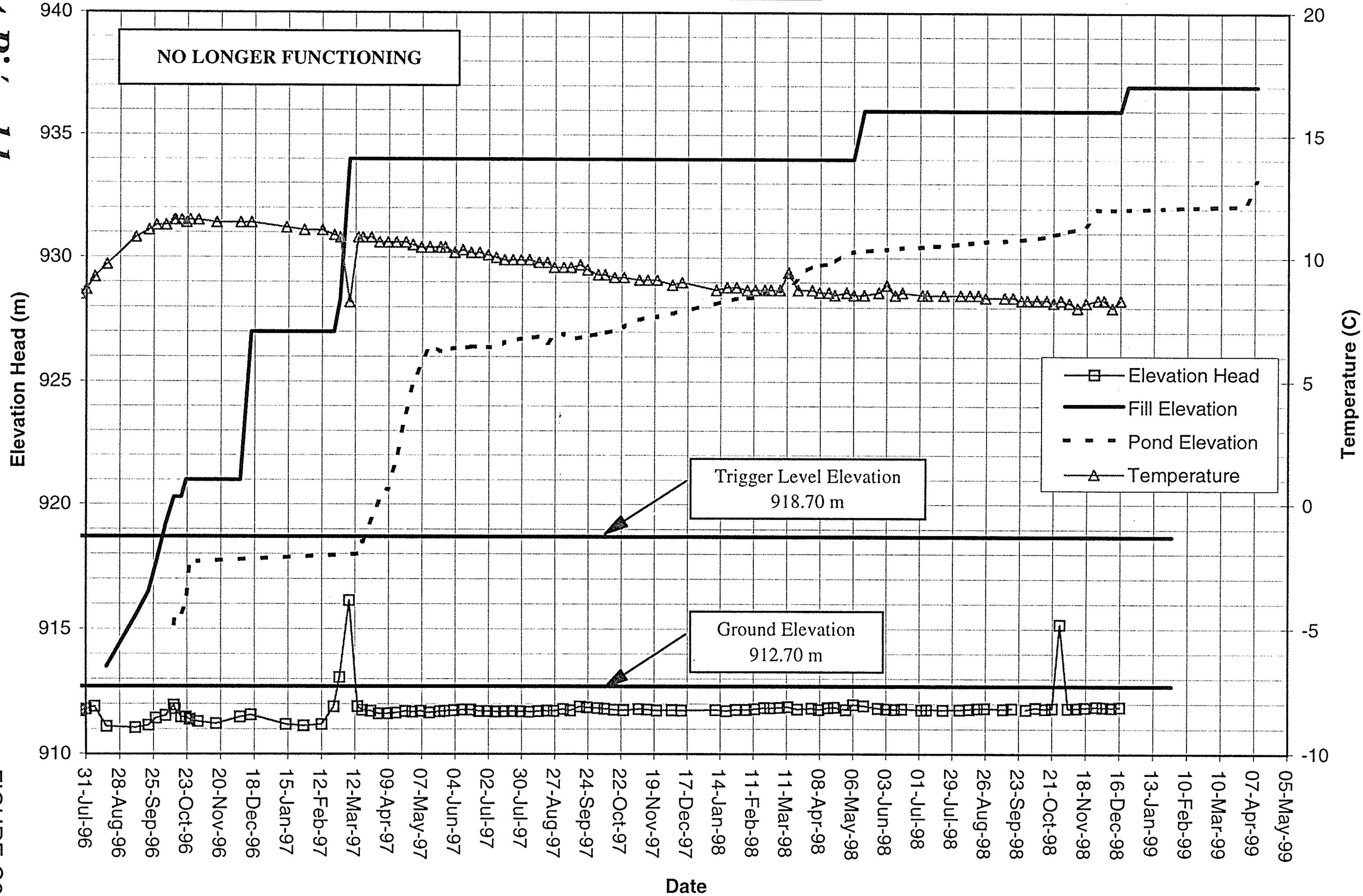

FIGURE G2-2

Knight Piésold CONSULTING

M:\11162\10\Report\1\MPIEZ-A.xls graph 8

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-06
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 898.01 m

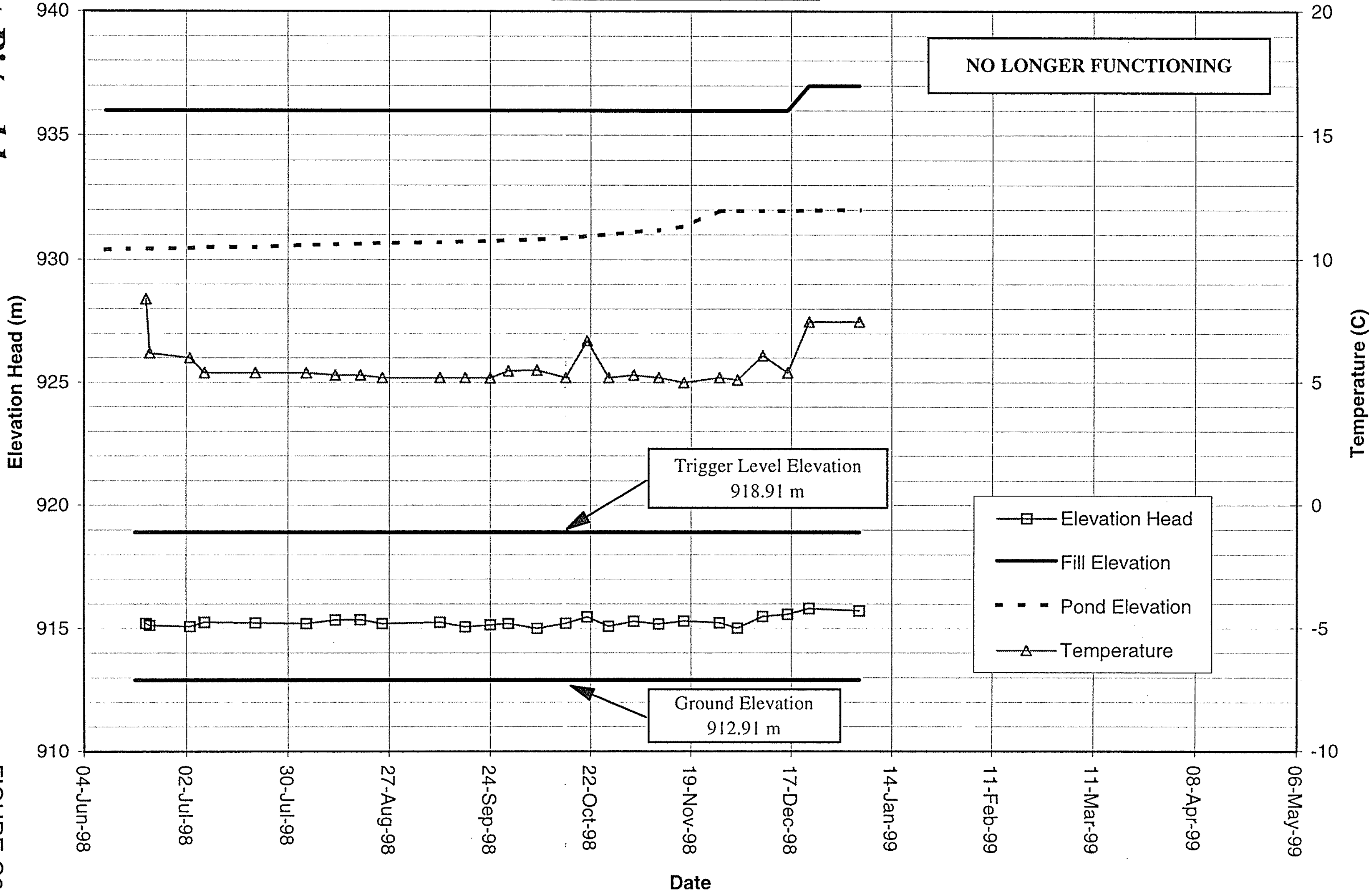

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FIGURE G2-3

M:\11162\10\Report\1\MPIEZ-A.xls graph 12

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-07
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 902.81 m

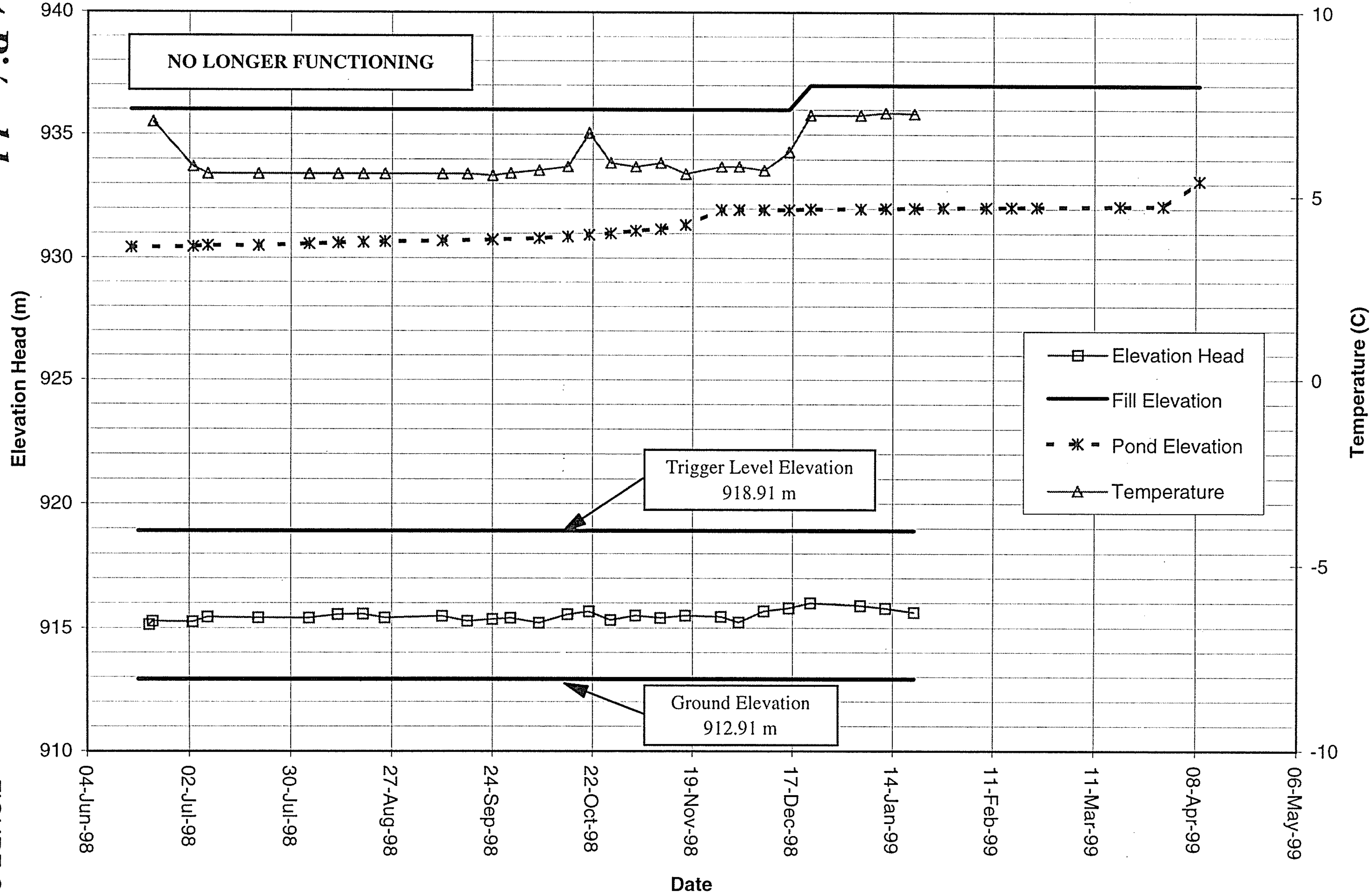

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FIGURE G2-4

M:\11162\10\Report\1\MPIEZ-A.xls graph 13

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-08
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 907.56 m

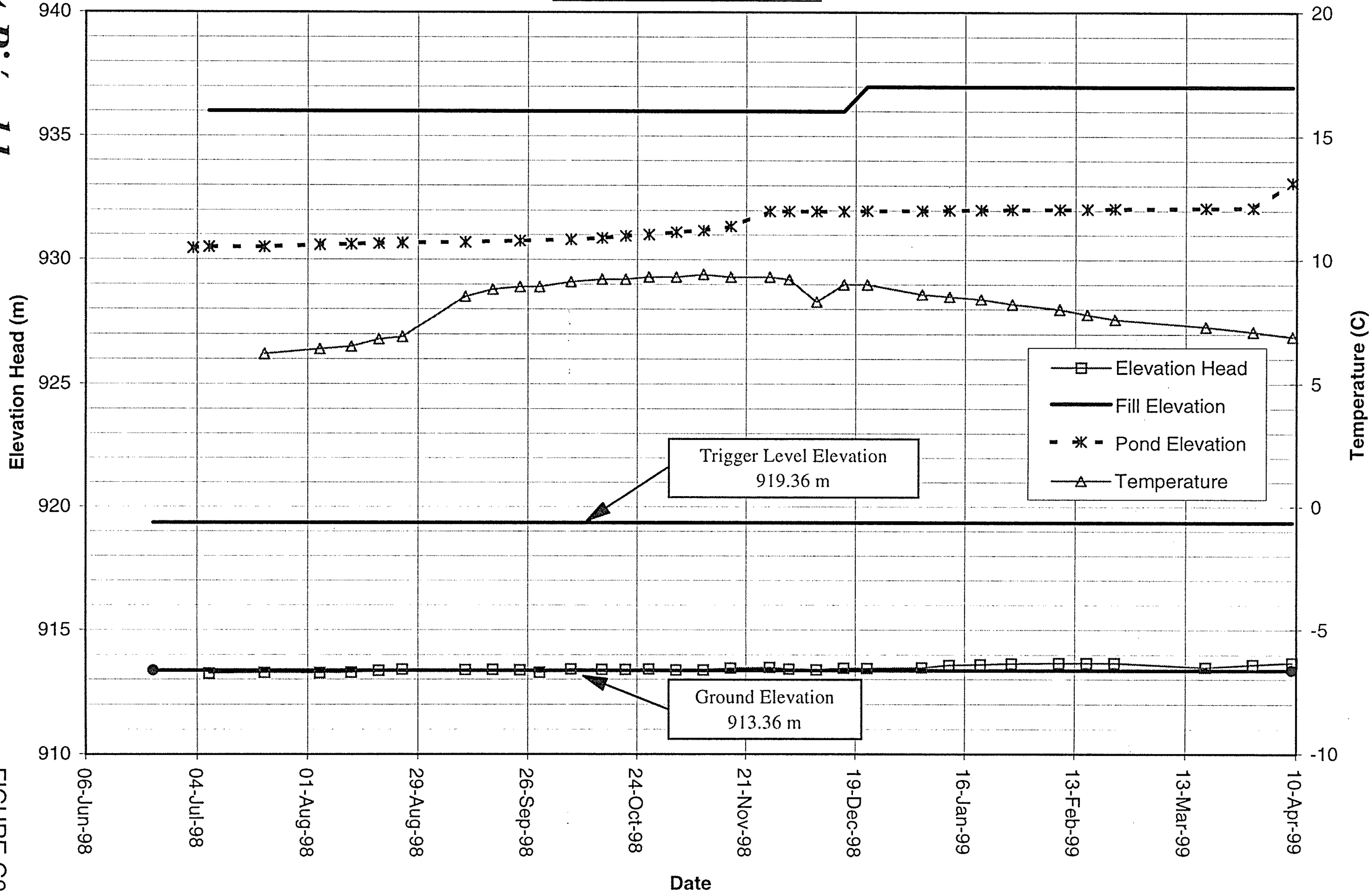

FIGURE G2-5

M:\11162\10\Report\1\MPIEZ-A.xls graph 14

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G2-5

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B2-PE2-01
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 901.98 m

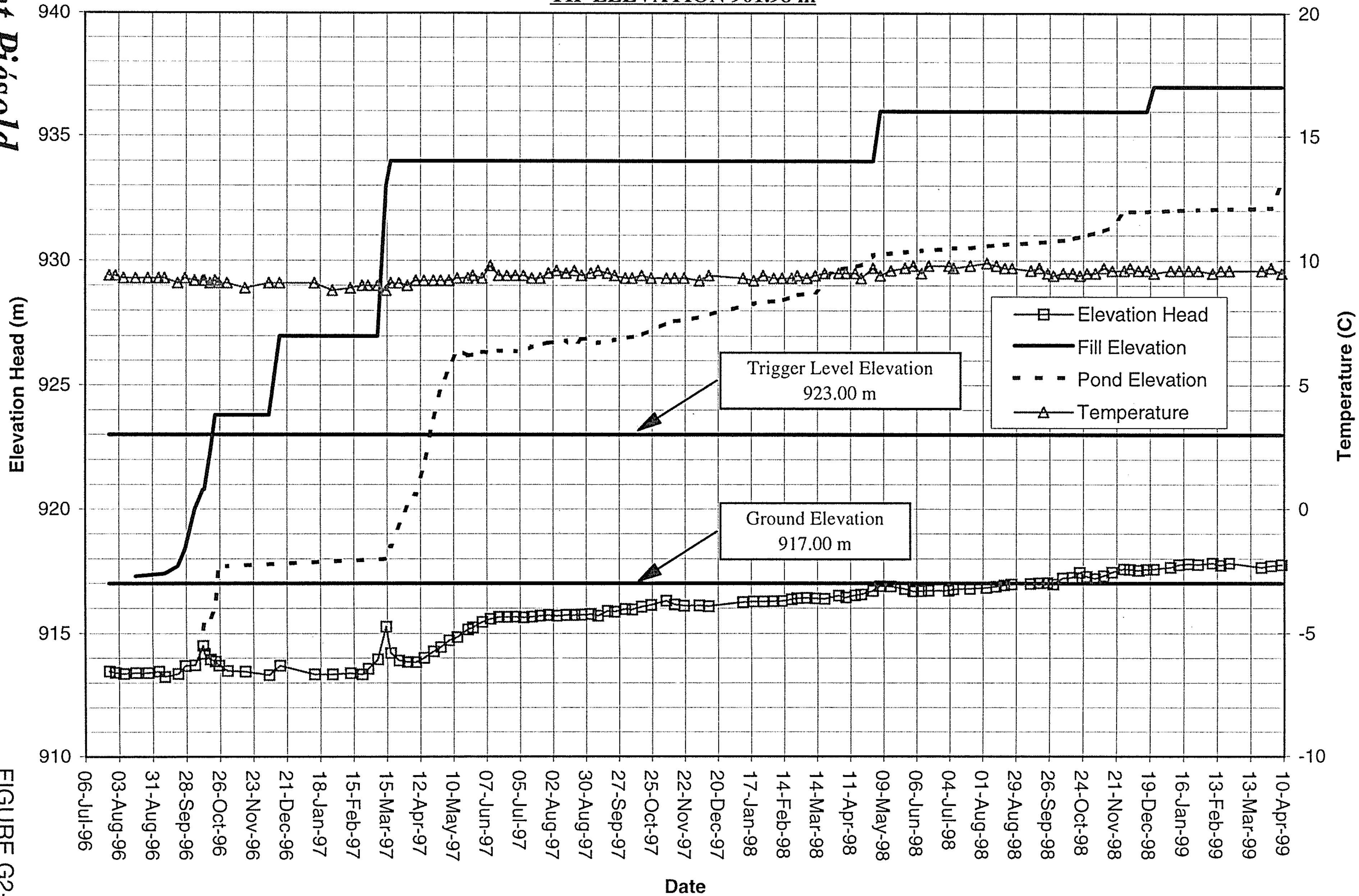

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FIGURE G2-6

M:\11162\10\Report\1\MPIEZ-B.xls graph 7

G2-6

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B2-PE2-02
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 909.51 m

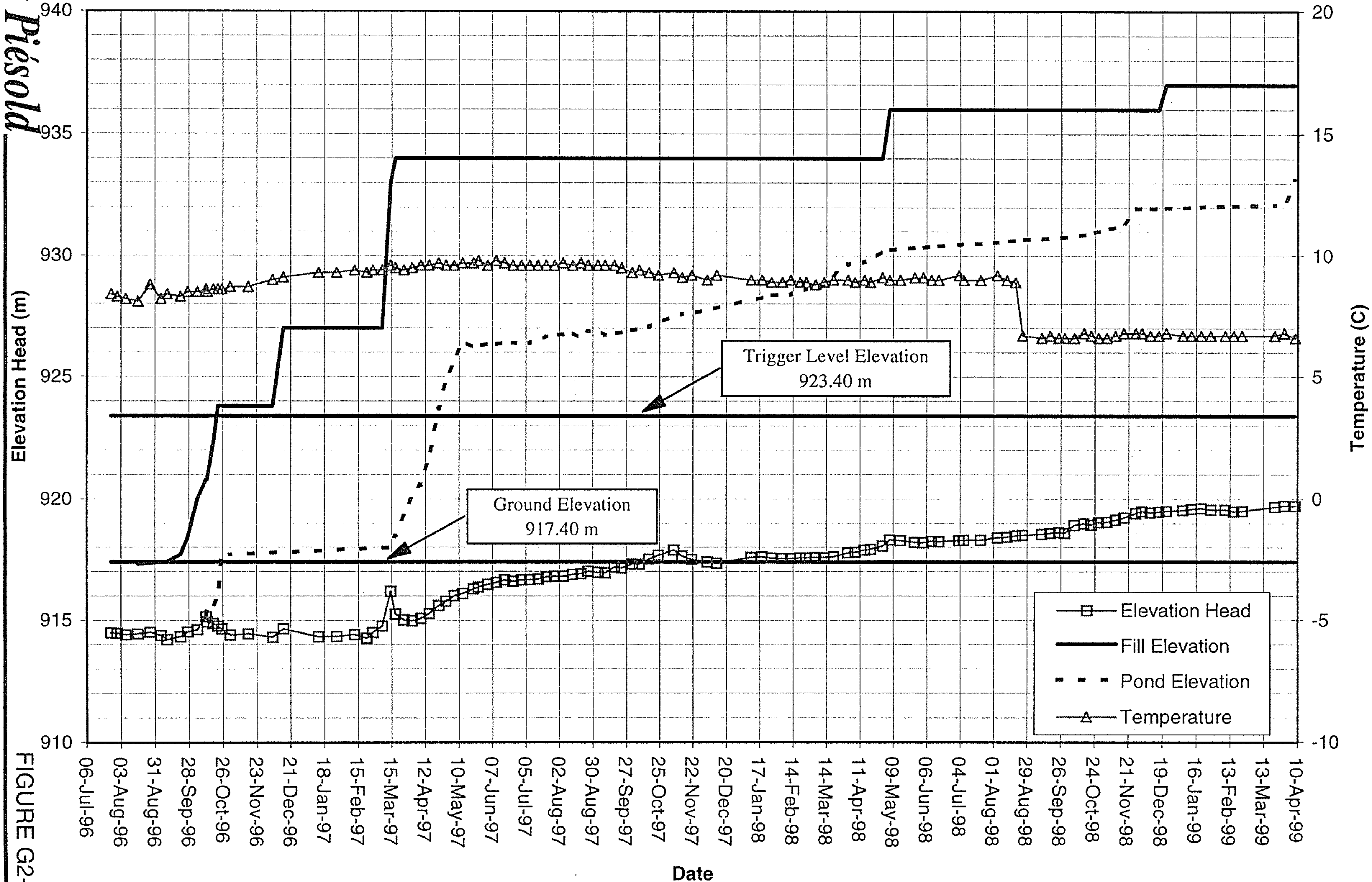

FIGURE G2-7

Knight Piésold
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M:\11162\10\Report\1\MPIEZ-B.xls graph 8

G2-7

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B2-PE2-06
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 914.60 m

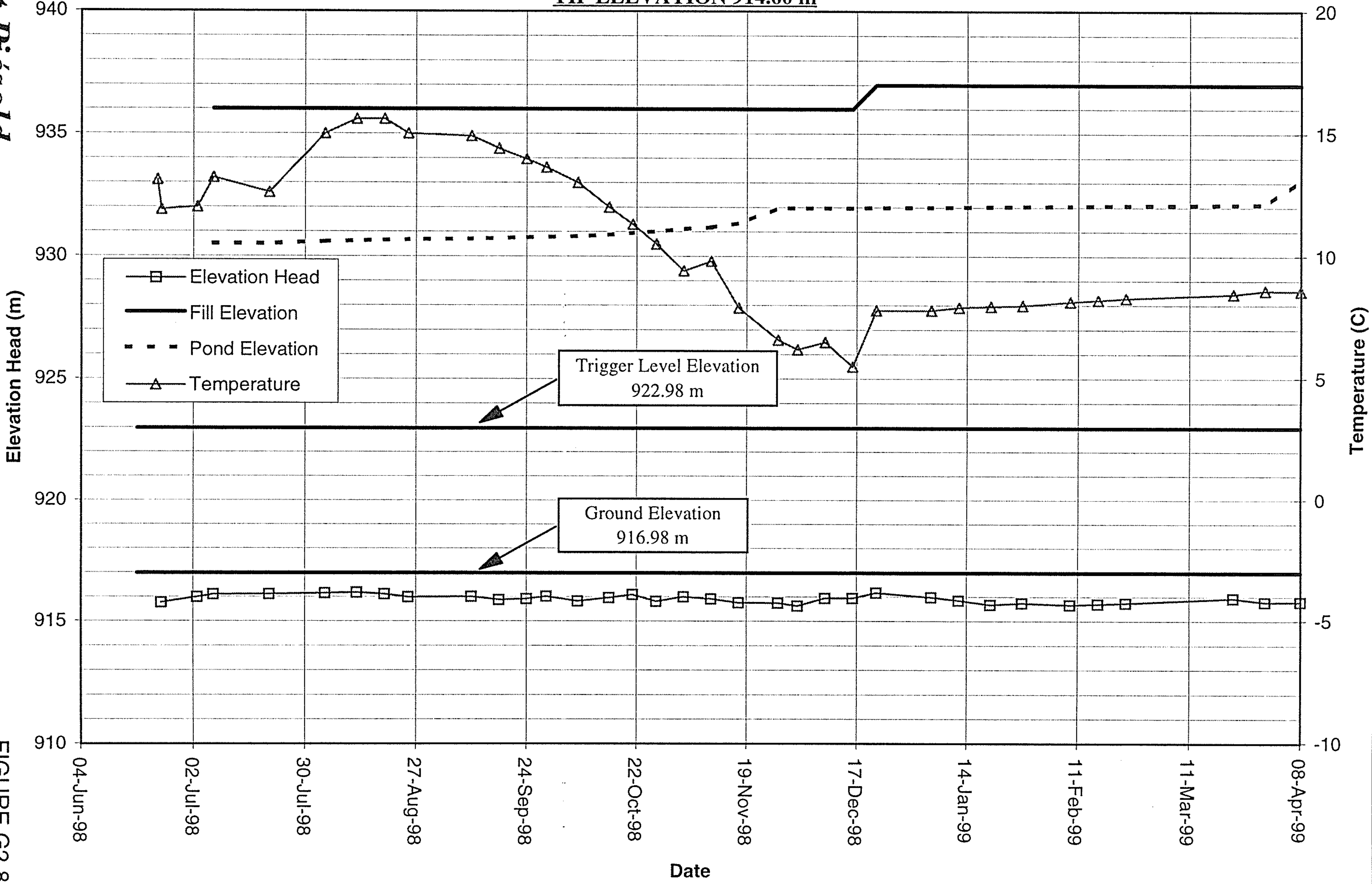

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FIGURE G2-8

M:\11162\10\Report\1\MPIEZ-B.xls graph 12

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE2-01
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 907.48 m

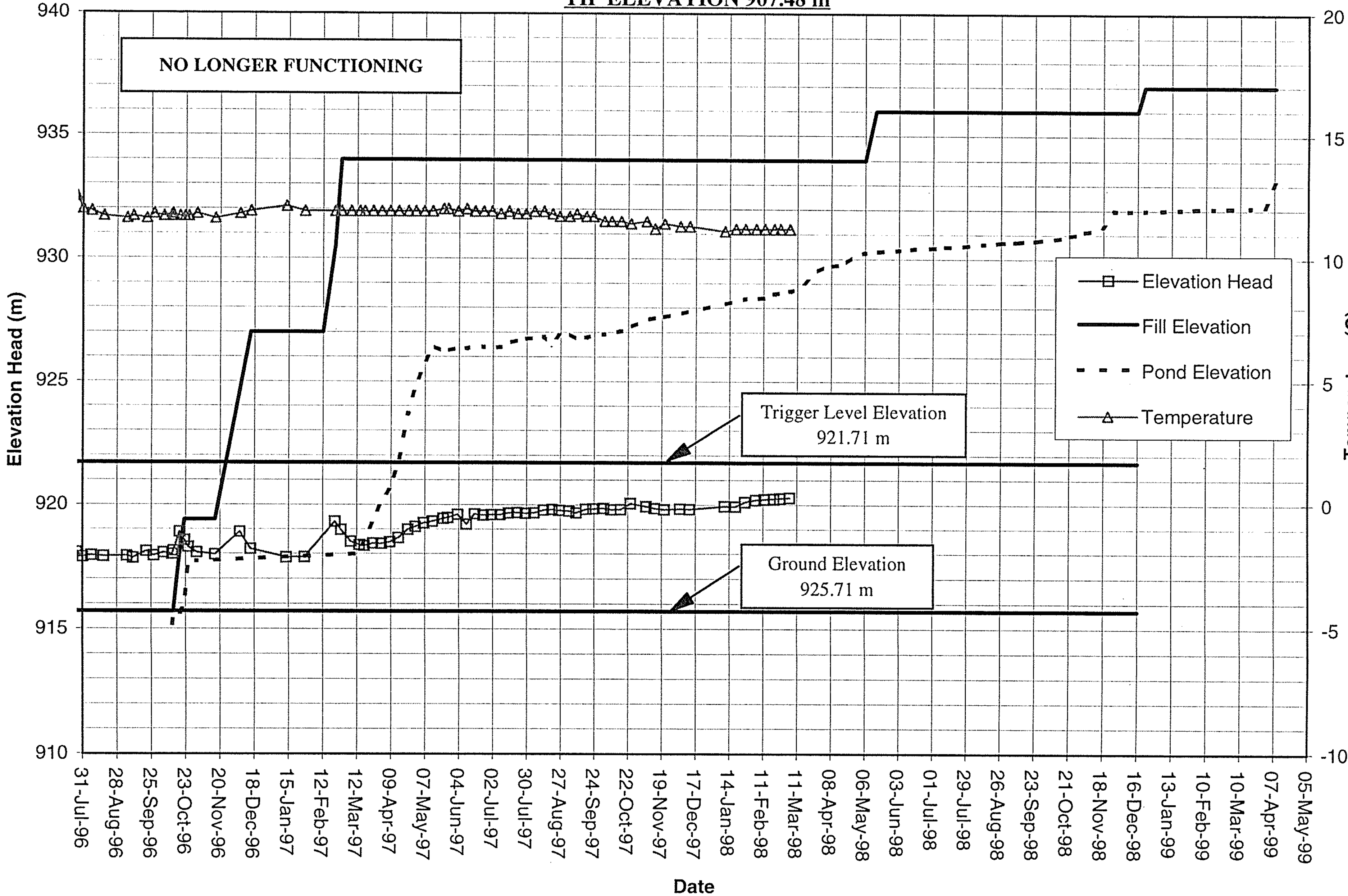

FIGURE G2-9

Knight Piésold CONSULTING

M:\11162\10\Report\1\MPIEZ-C.xls graph 7

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE2-02
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 910.53 m

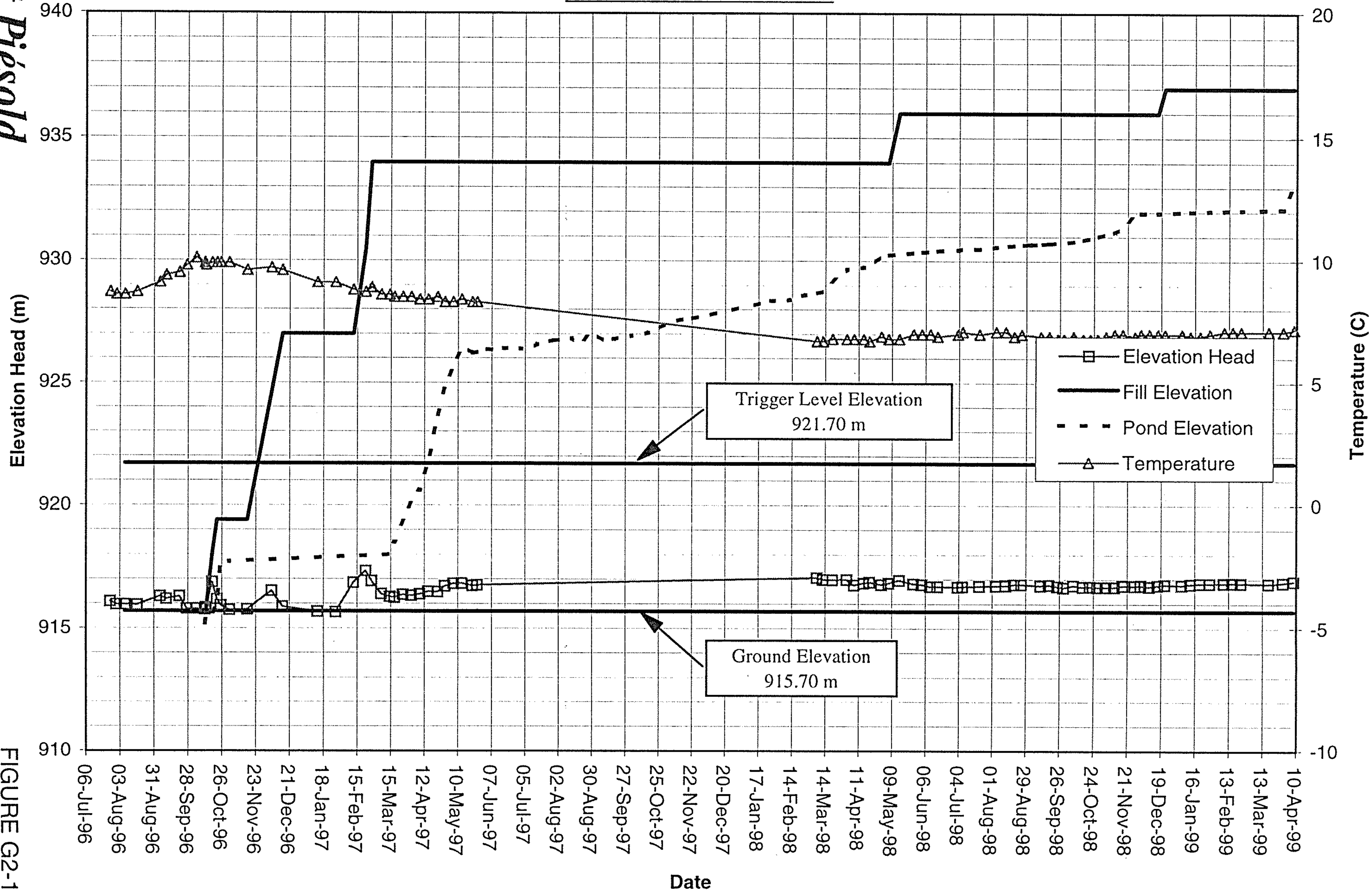

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FIGURE G2-10

M:\11162\10\Report\1\MPIEZ-C.xls graph 8

G2-10

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE2-06
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 906.84 m

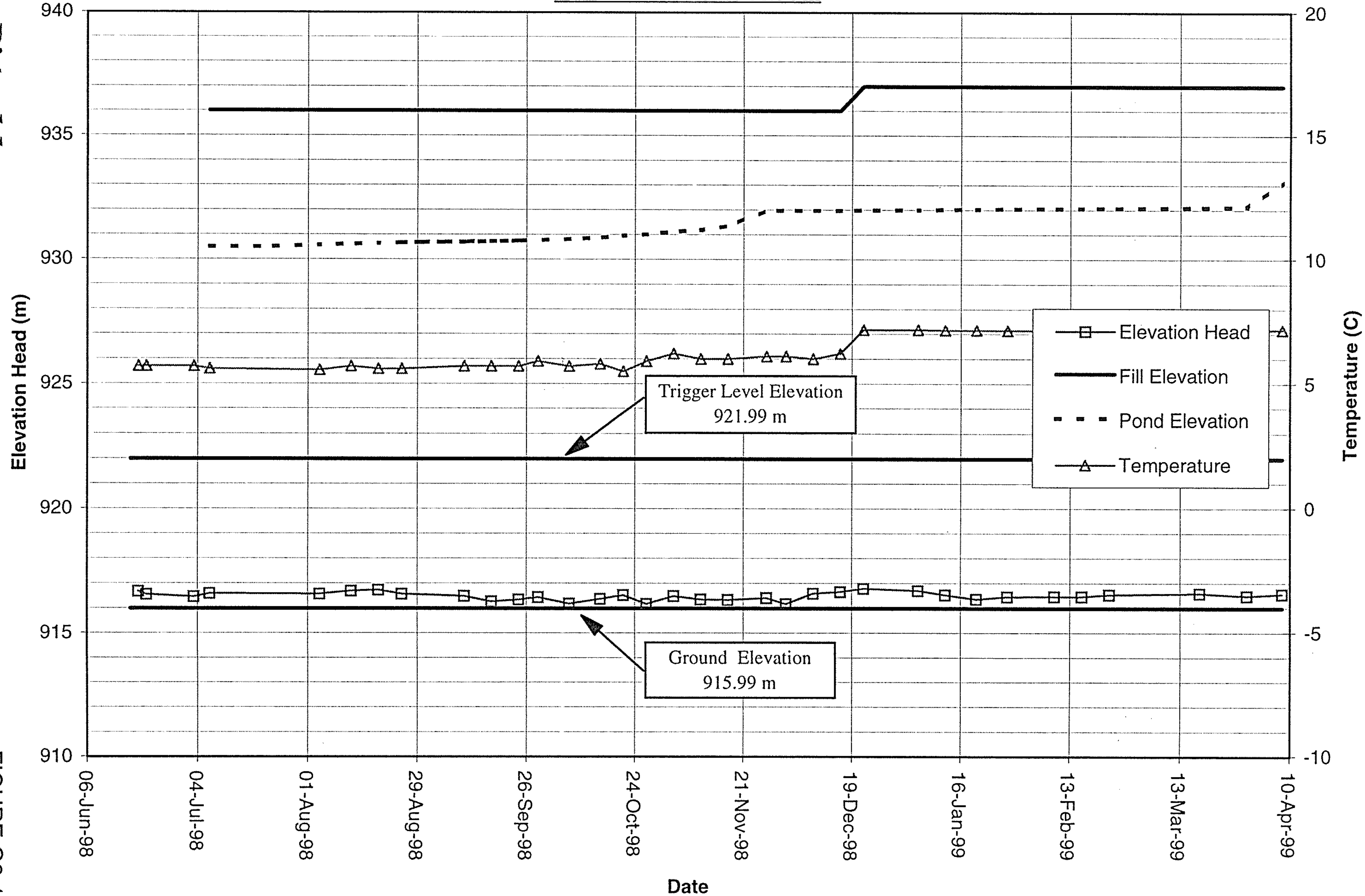

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FIGURE G2-11

M:\11162\10\Report\1\MPIEZ-C.xls graph 11

G2-11

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE2-07
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 912.29 m

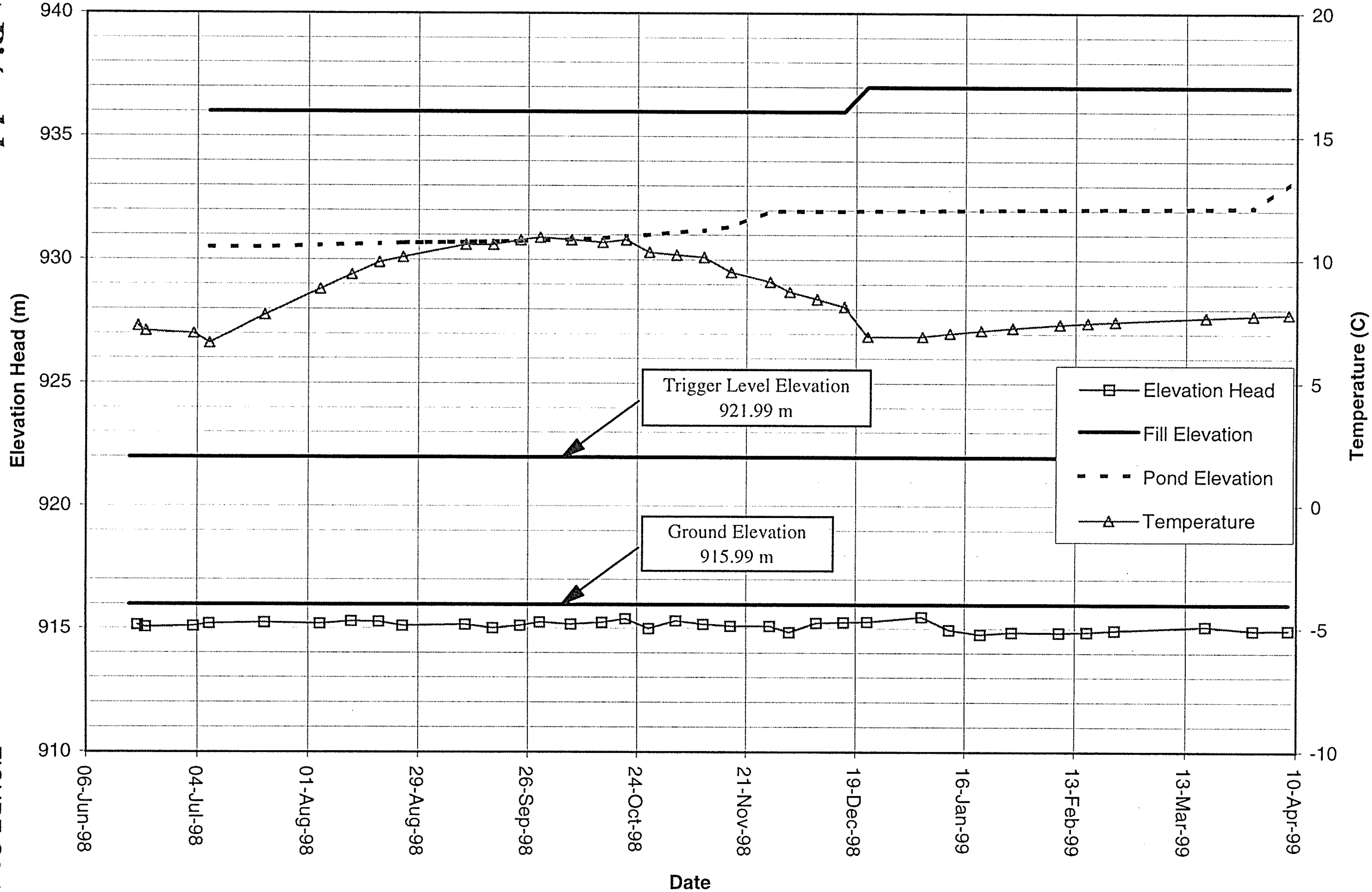

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FIGURE G2-12

M:\11162\10\Report\1\MPIEZ-C.xls graph 12

G2-12

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE2-08
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 914.03 m

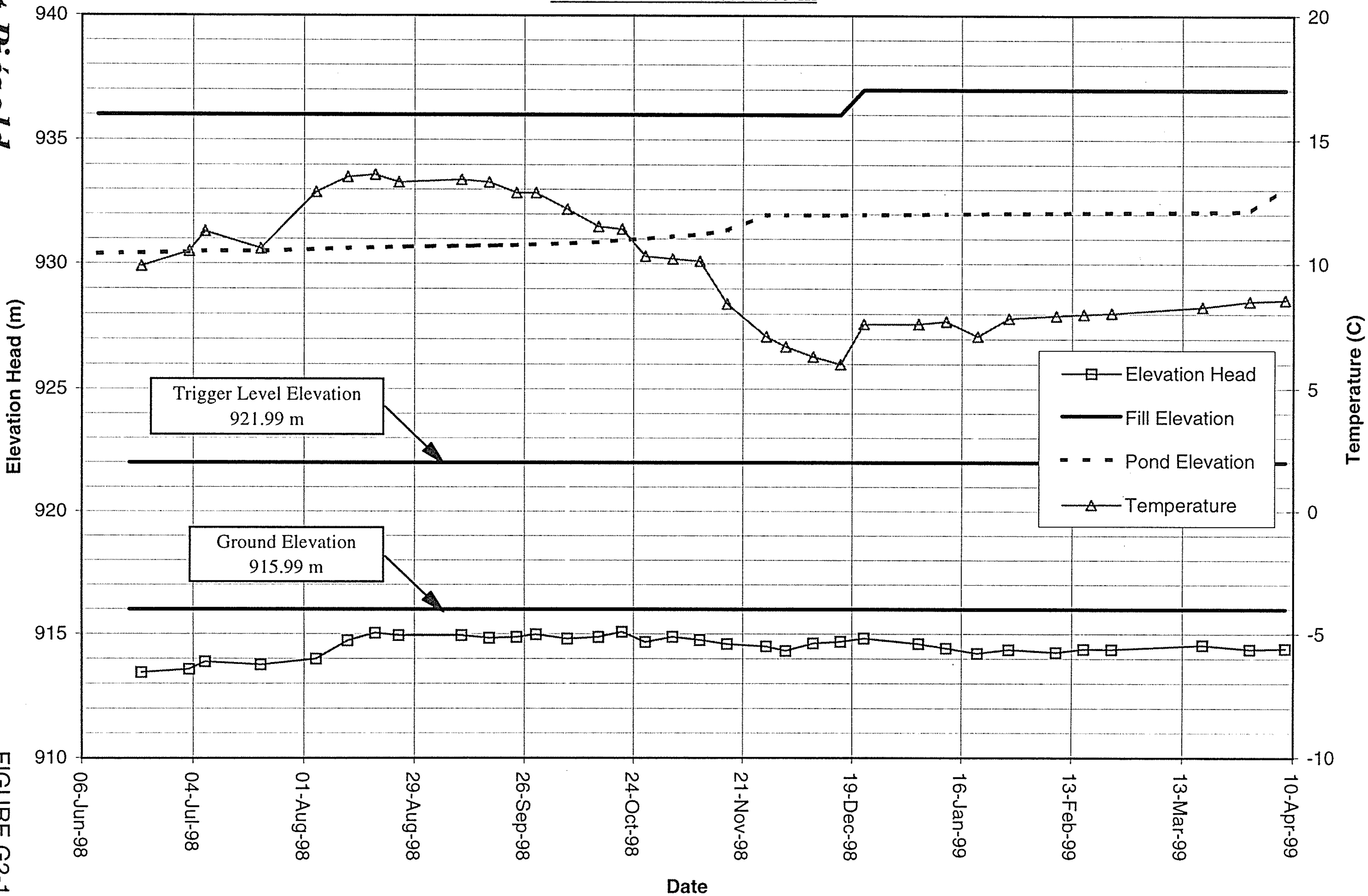

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FIGURE G2-13

M:\11162\10\Report\1\MPIEZ-C.xls graph 13

G2-13

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER D2-PE2-02
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 927.32 m

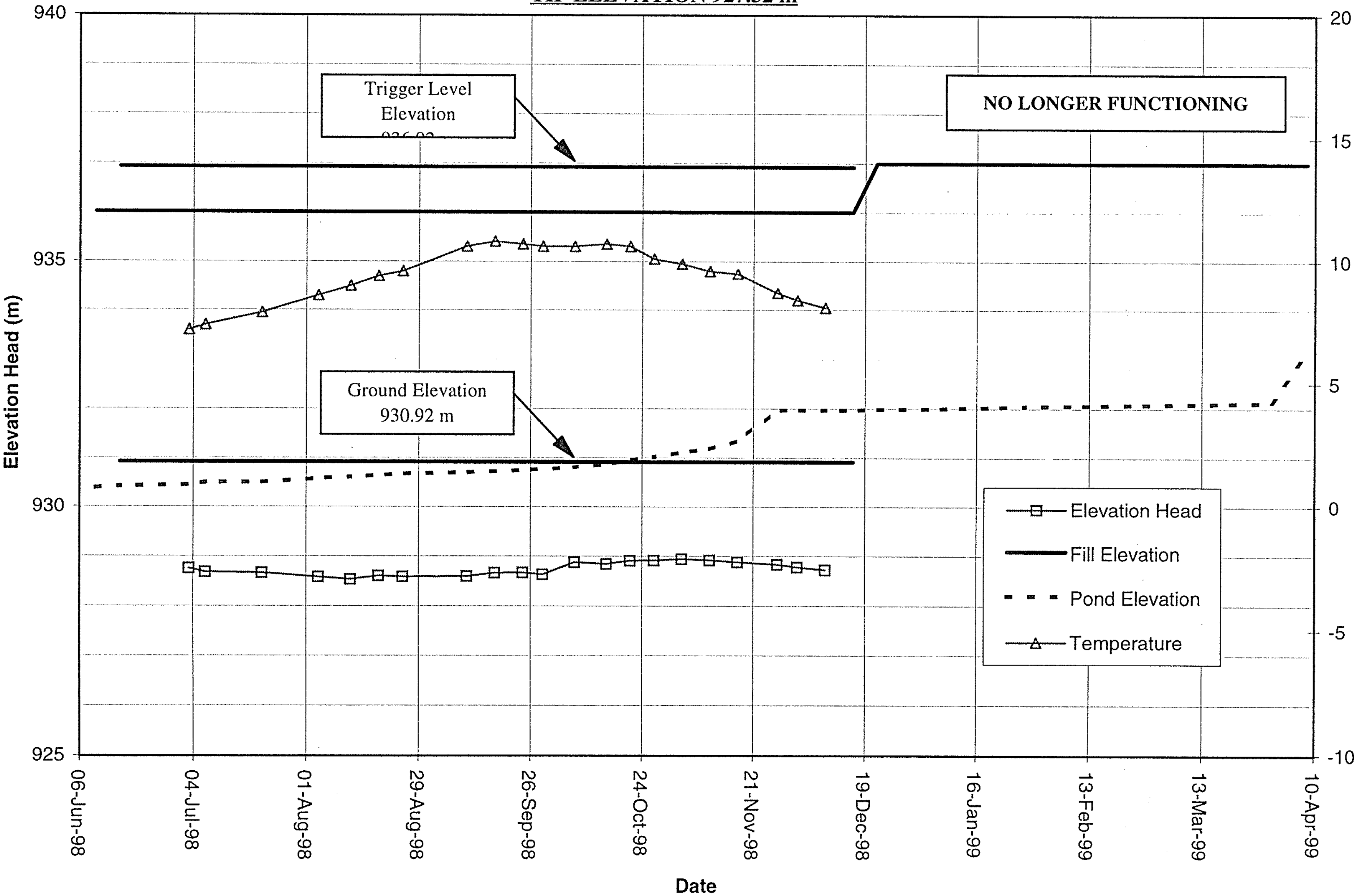

FIGURE G2-14

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER E2-PE2-01
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 914.21 m

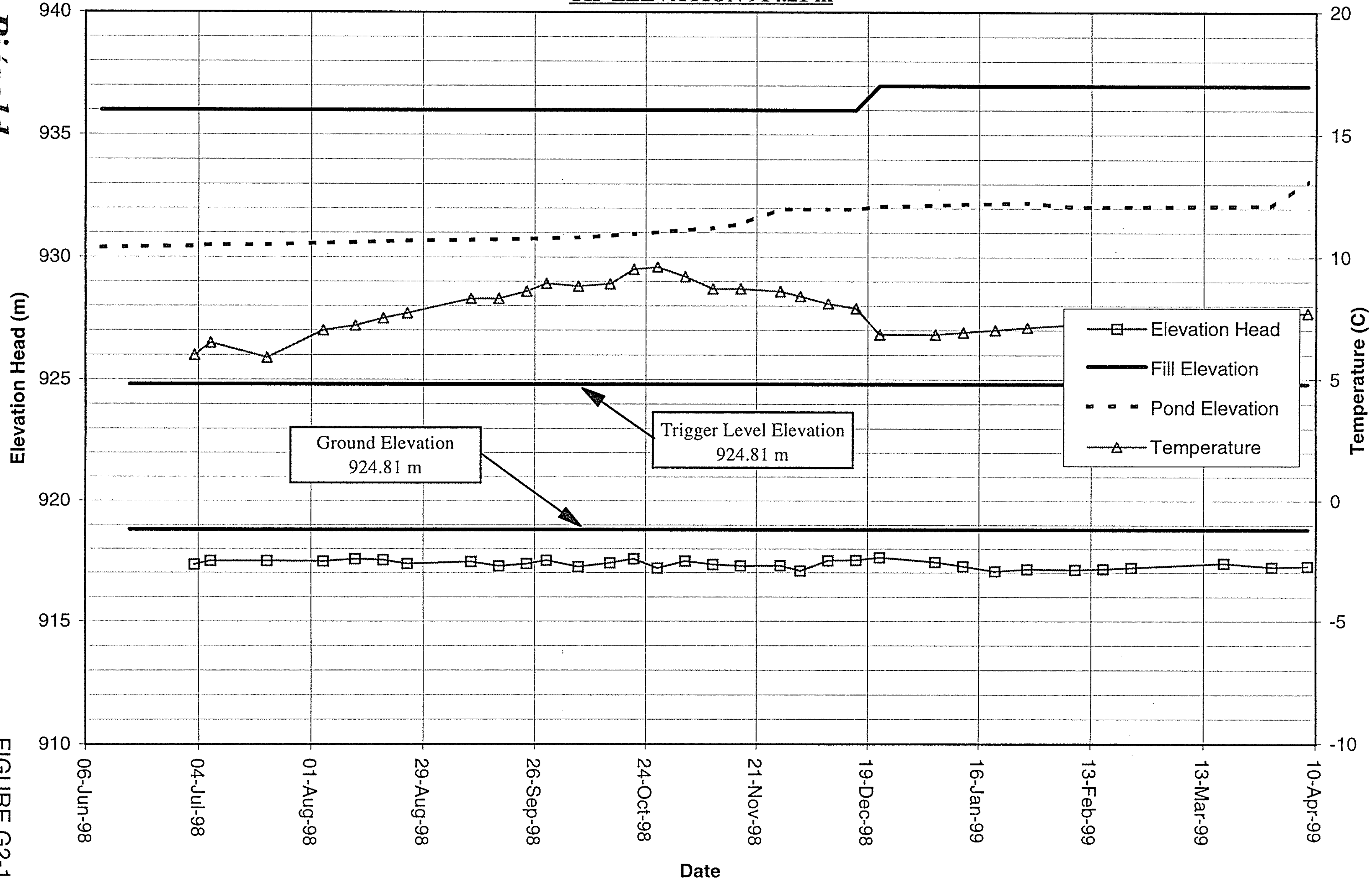

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FIGURE G2-15

M:\11162\10\Report\1\MPIEZ-E.xls graph 1

G2-15

6/15/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER E2-PE2-02
EMBANKMENT FOUNDATION PIEZOMETER
TIP ELEVATION 909.66 m

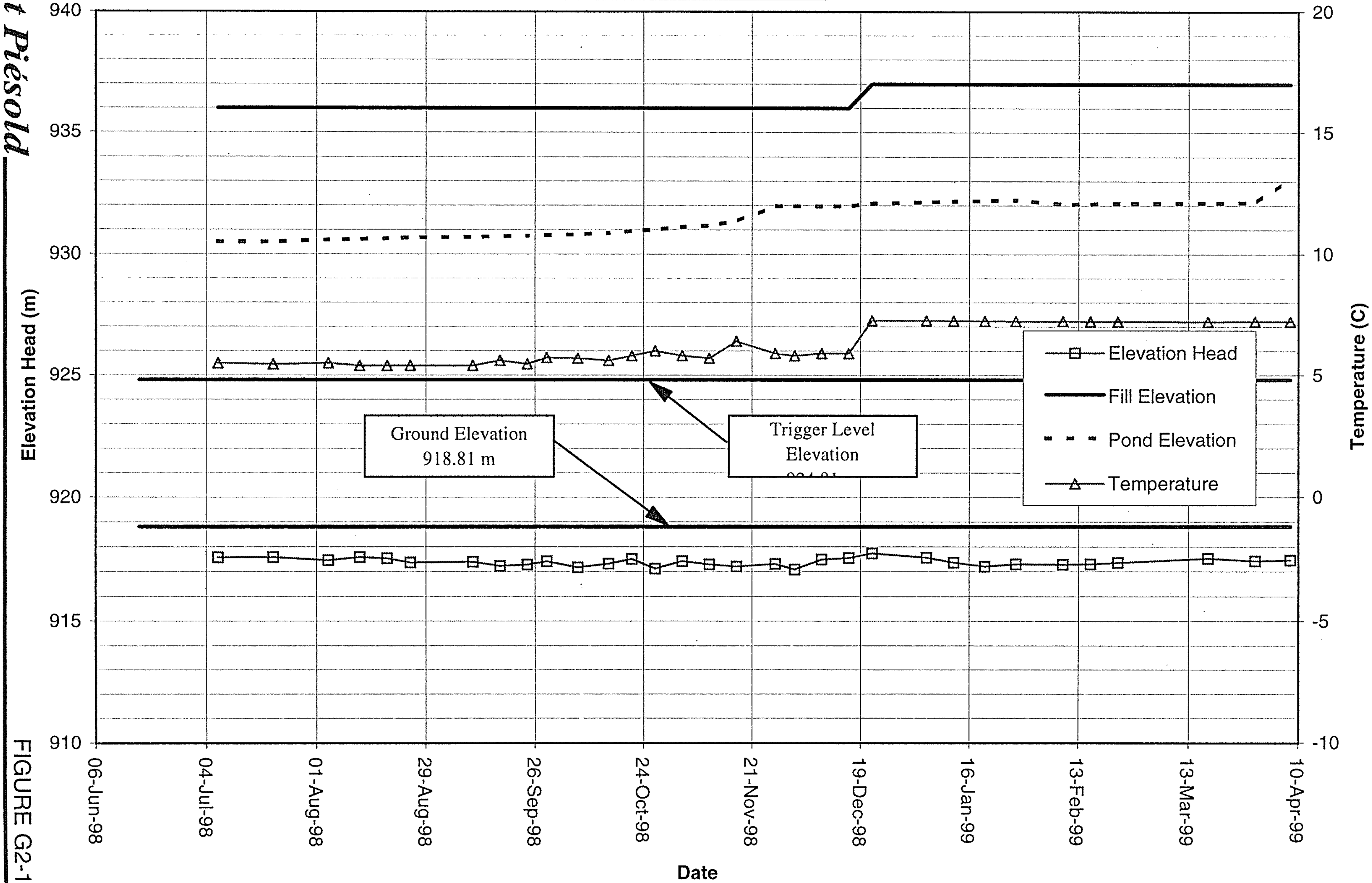

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FIGURE G2-16

G2-16

M:\11162\10\Report\1\MPIEZ-E.xls graph 2

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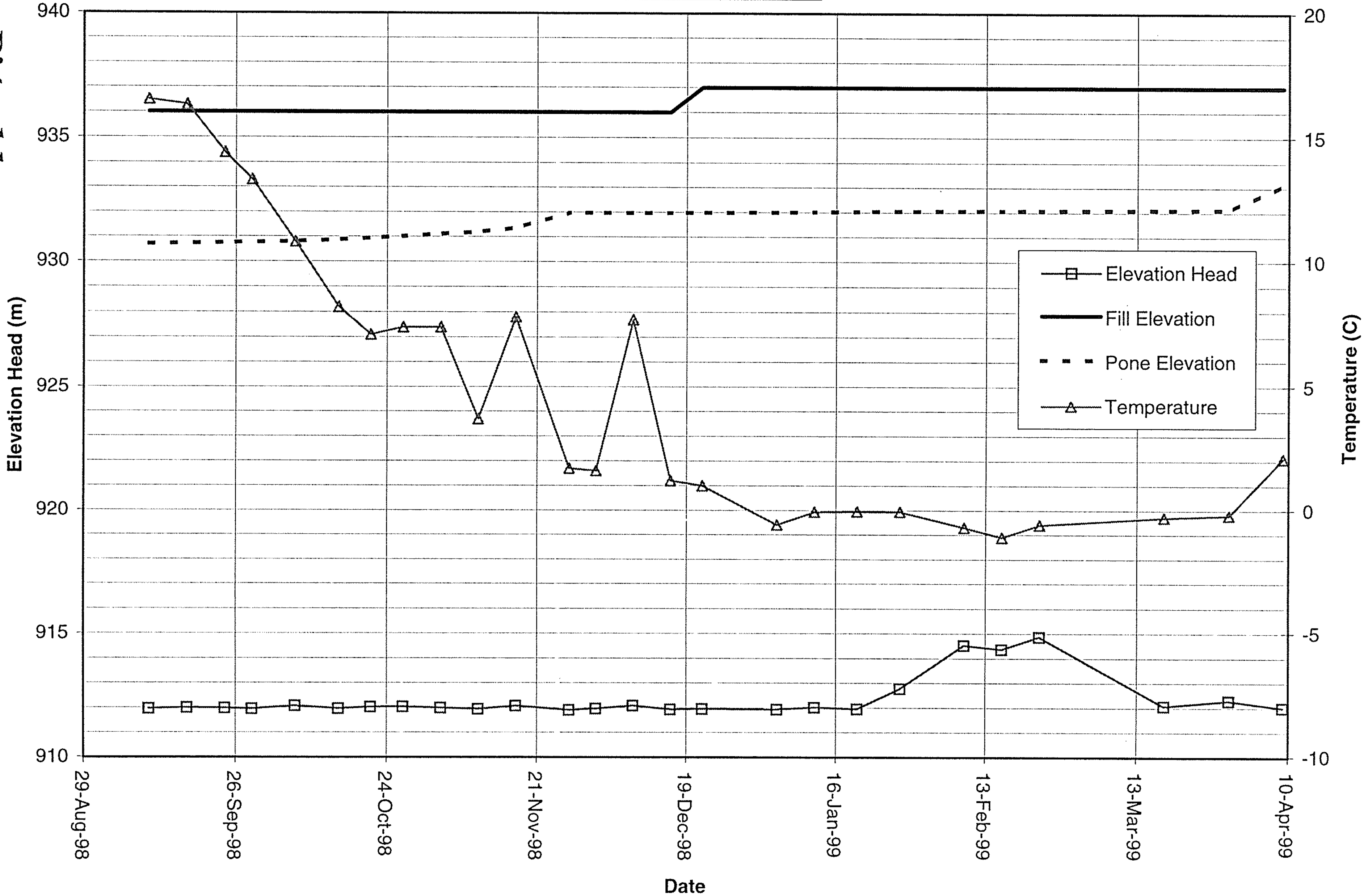
APPENDIX G3

EMBANKMENT FILL PIEZOMETERS

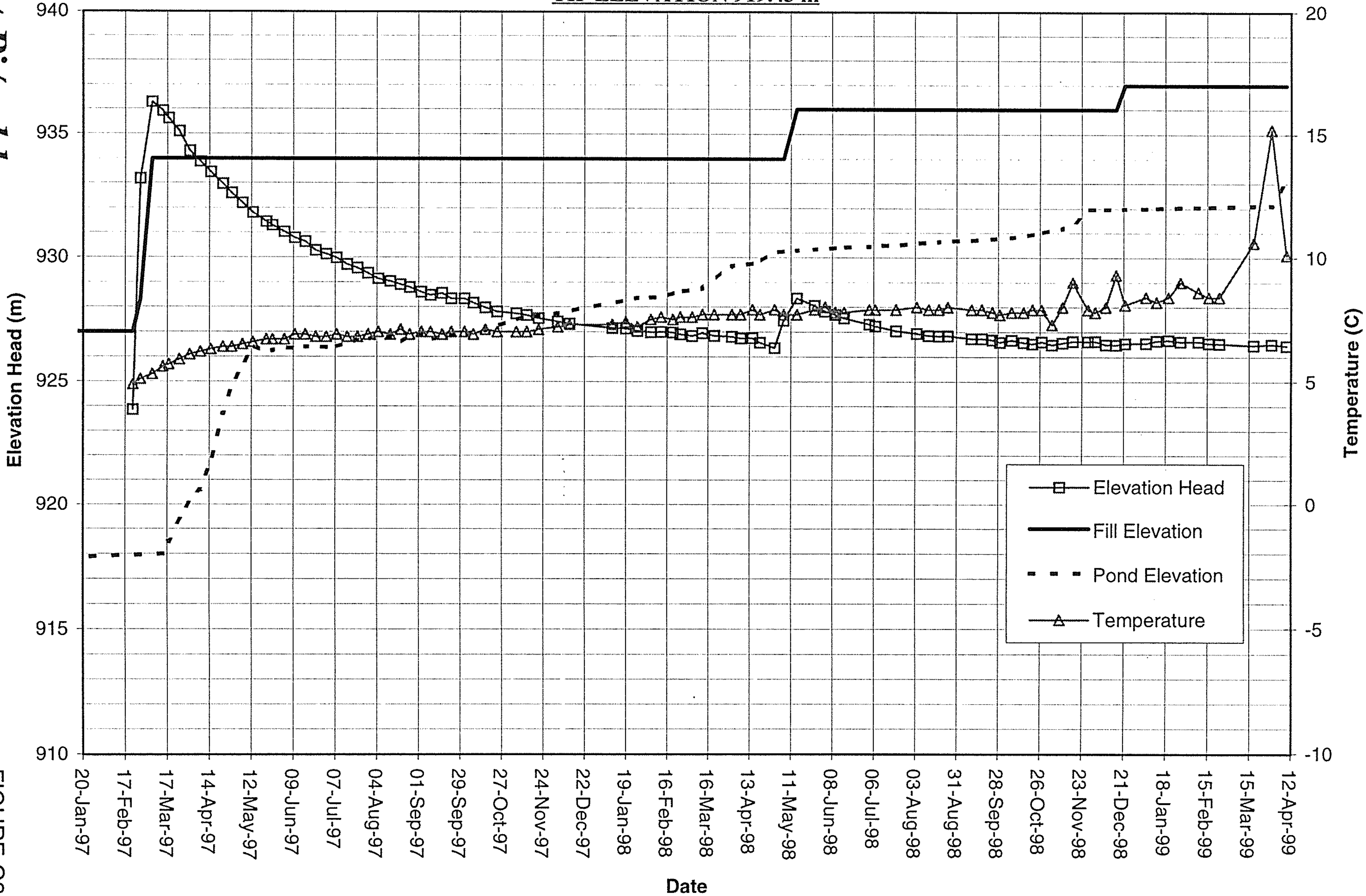
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE1-01
EMBANKMENT FILL PIEZOMETER - ZONE T
TIP ELEVATION 912.90 m



Knight Piésold CONSULTING

FIGURE G3-1

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-03
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 919.43 m



Knight Piésold
CONSULTING

FIGURE G3-2

M:\11162\10\Report\1\MPIEZ-A.xls graph 9

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-04
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 926.07 m

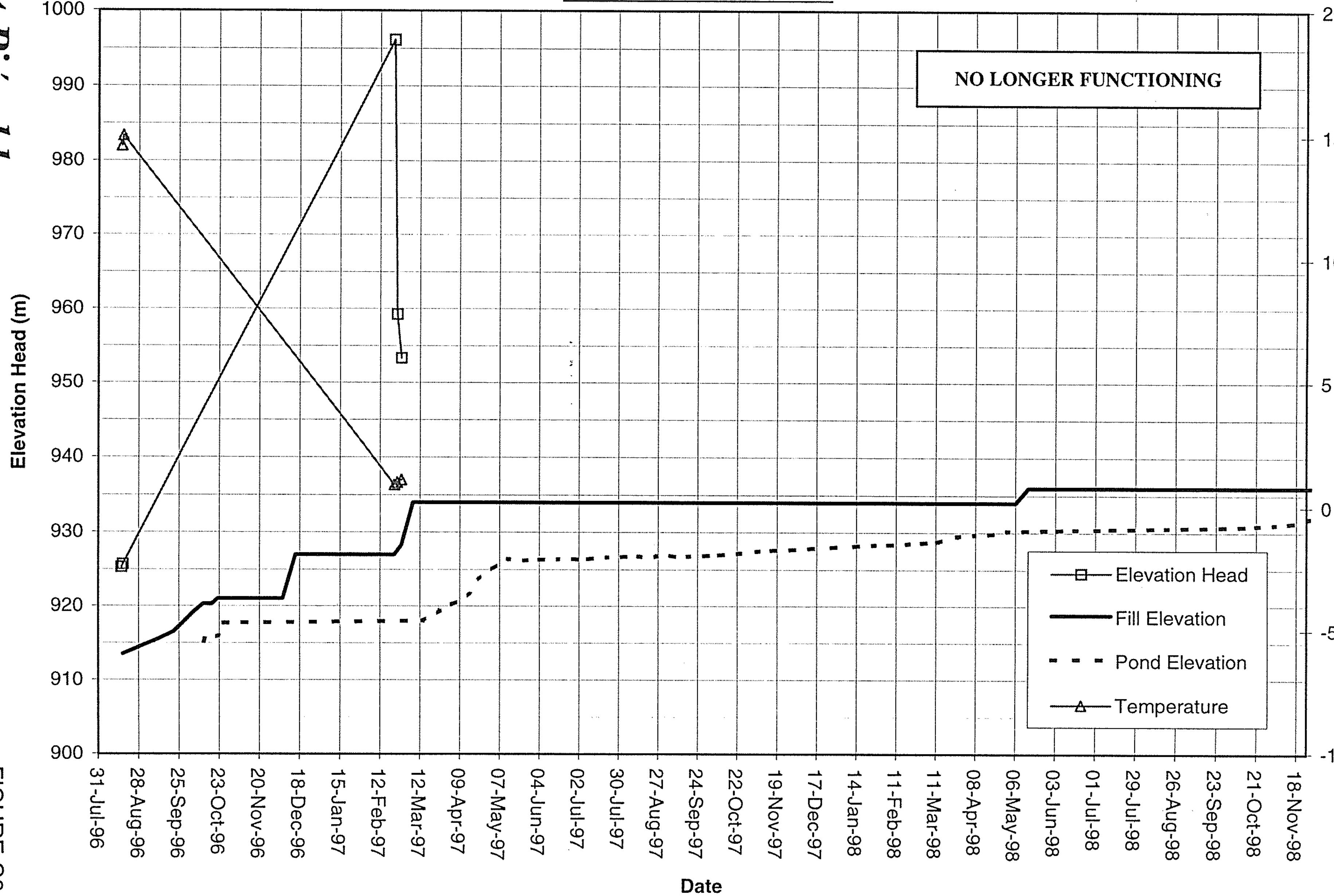

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FIGURE G3-3

M:\11162\10\Report\1\MPIEZ-A.xls graph 10

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A2-PE2-05
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 921.87 m

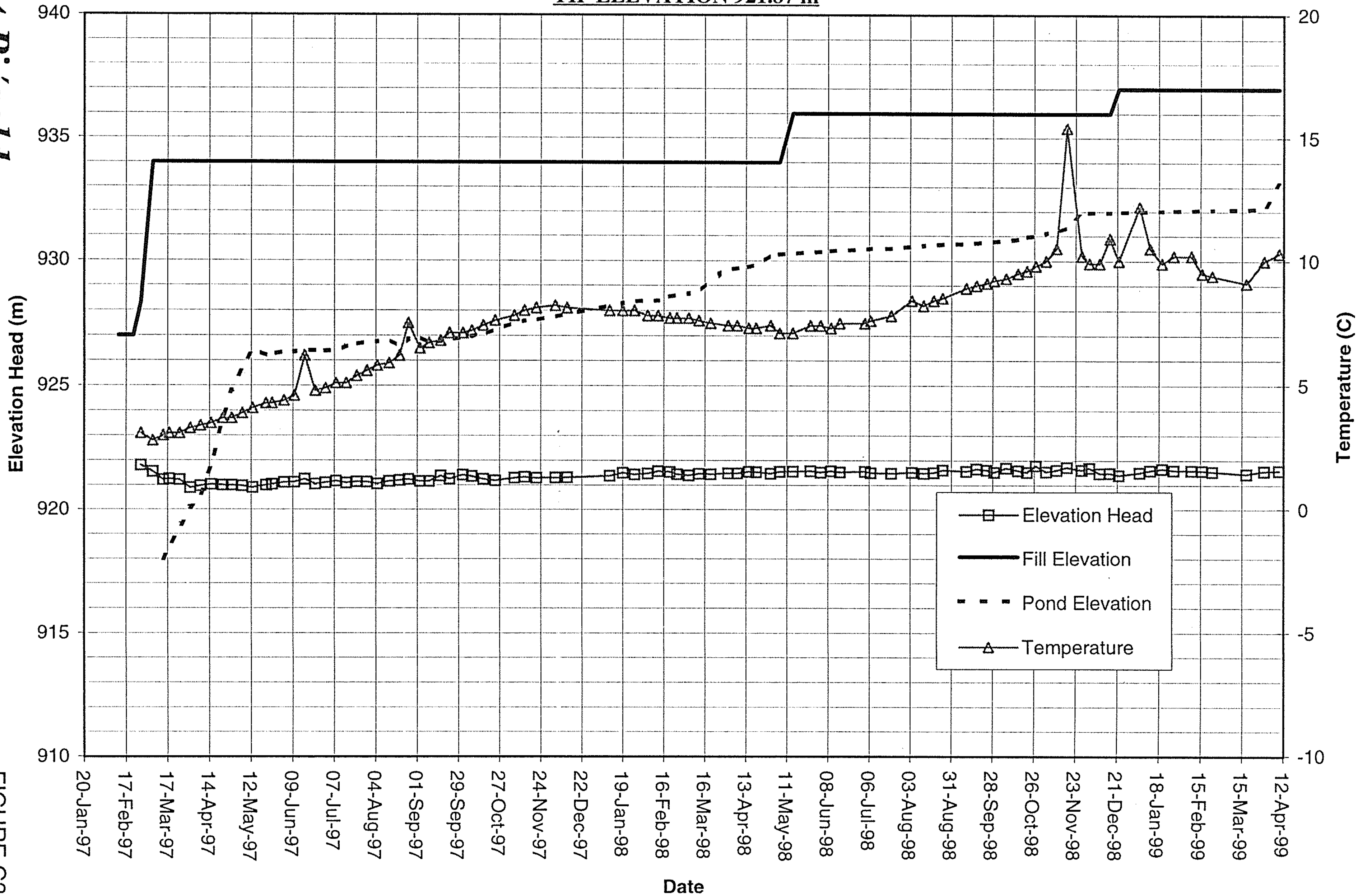

FIGURE G3-4

Knight Piésold CONSULTING

M:\11162\10\Report\1\MPIEZ-A.xls graph 11

G3-4

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B2-PE1-01
EMBANKMENT FILL PIEZOMETER - ZONE T
TIP ELEVATION 916.27 m

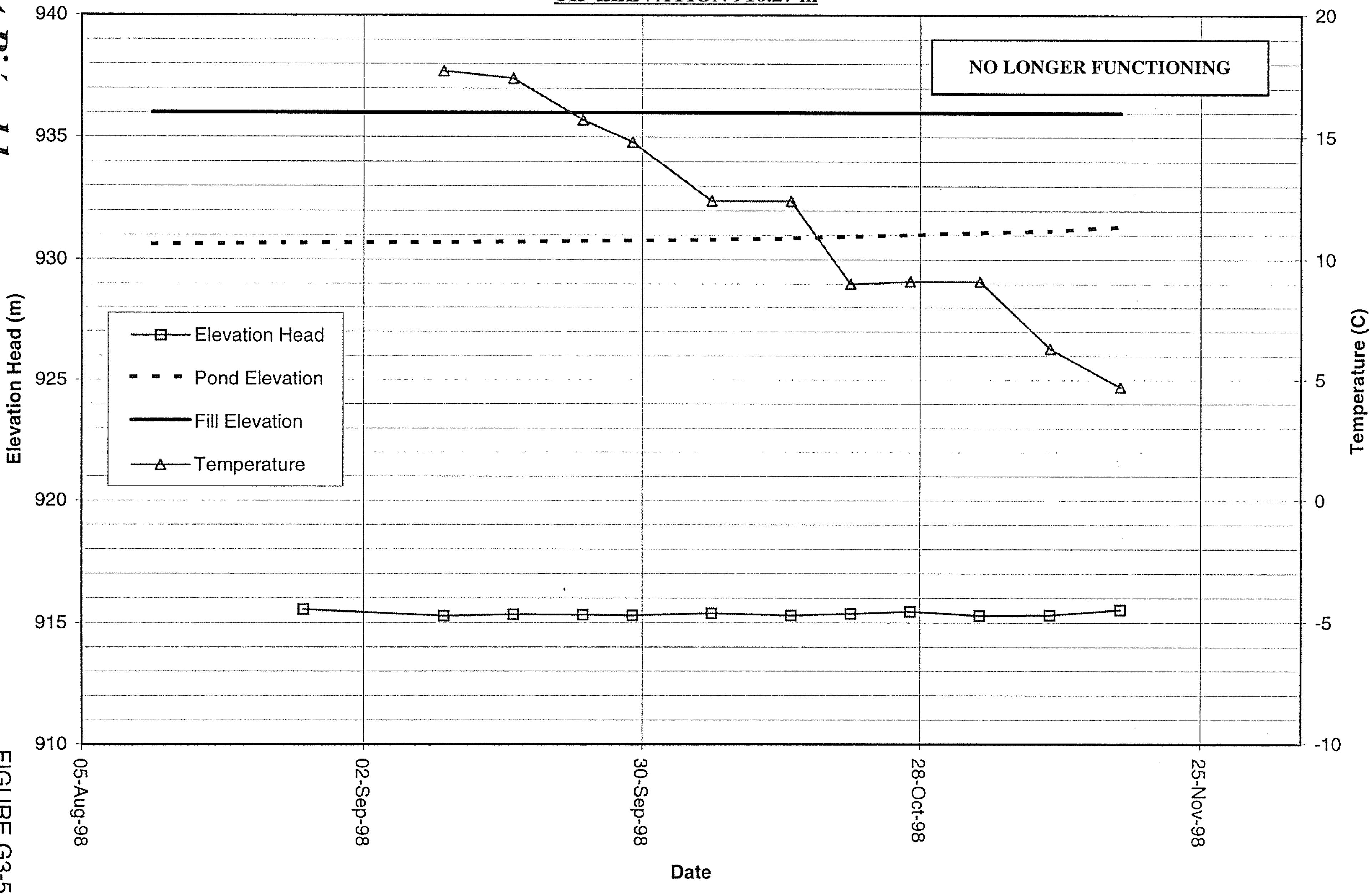

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FIGURE G3-5

M:\11162\10\Report\1\MPIEZ-B.xls graph 6

G3-5

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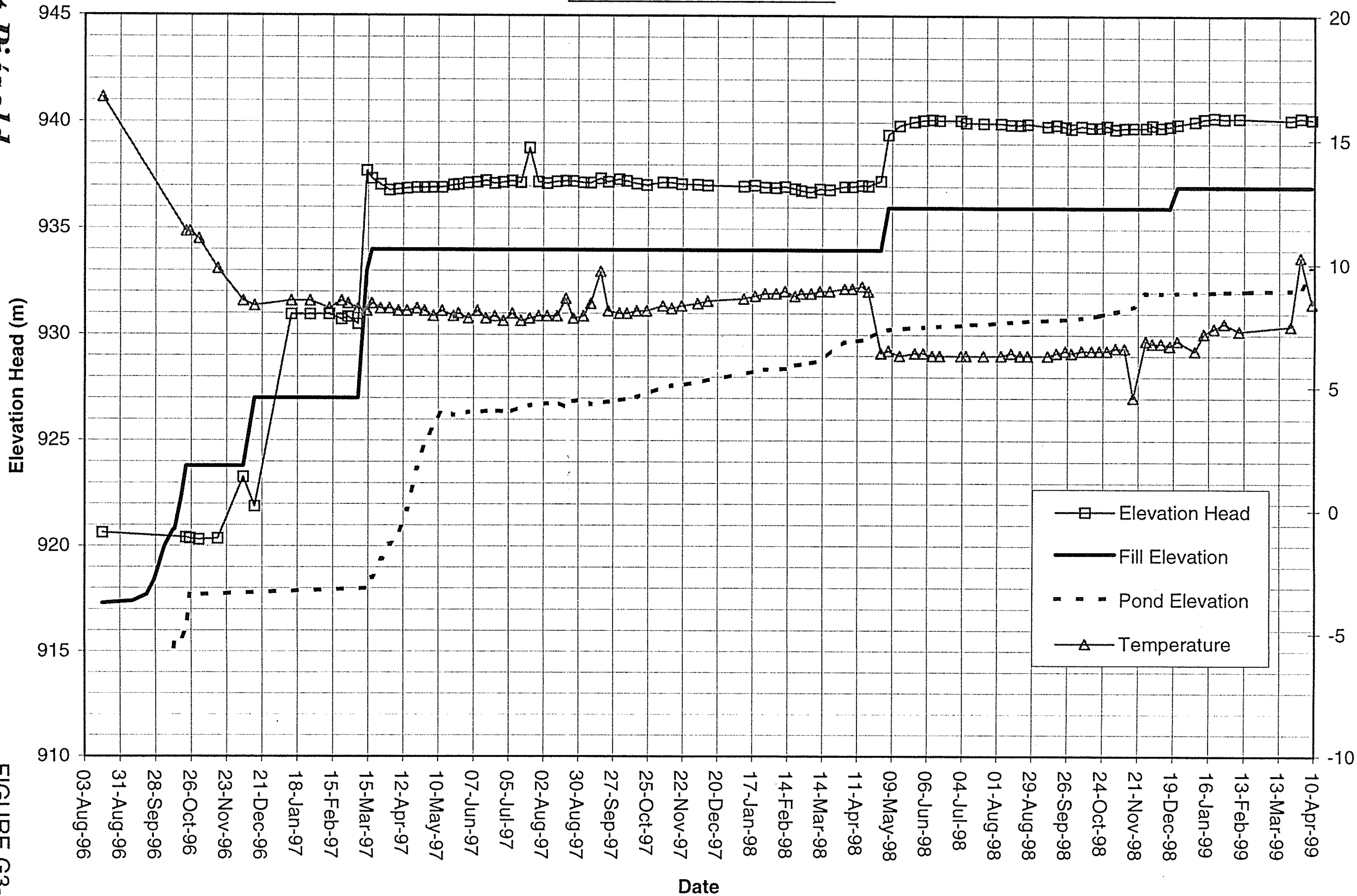
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B2-PE2-03
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 921.00 m



Knight Piésold CONSULTING

FIGURE G3-6

M:\11162\10\Report\1\MPIEZ-B.xls graph 9

G3-6

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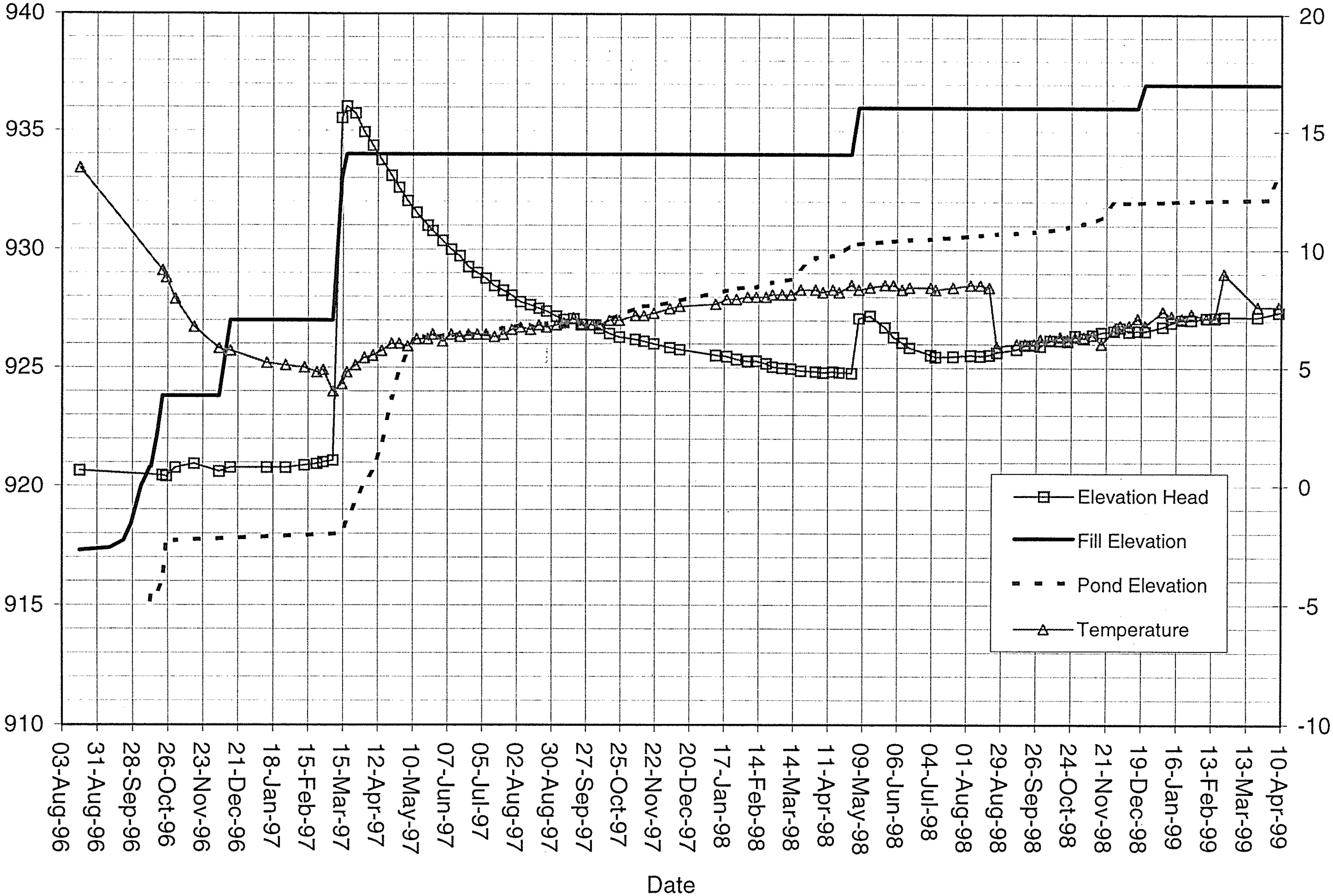
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B2-PE2-04
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 921.00 m



Knight Piésold CONSULTING

FIGURE G3-7

G3-7

M:\11162\10\Report\1\MPIEZ-B.xls graph 10

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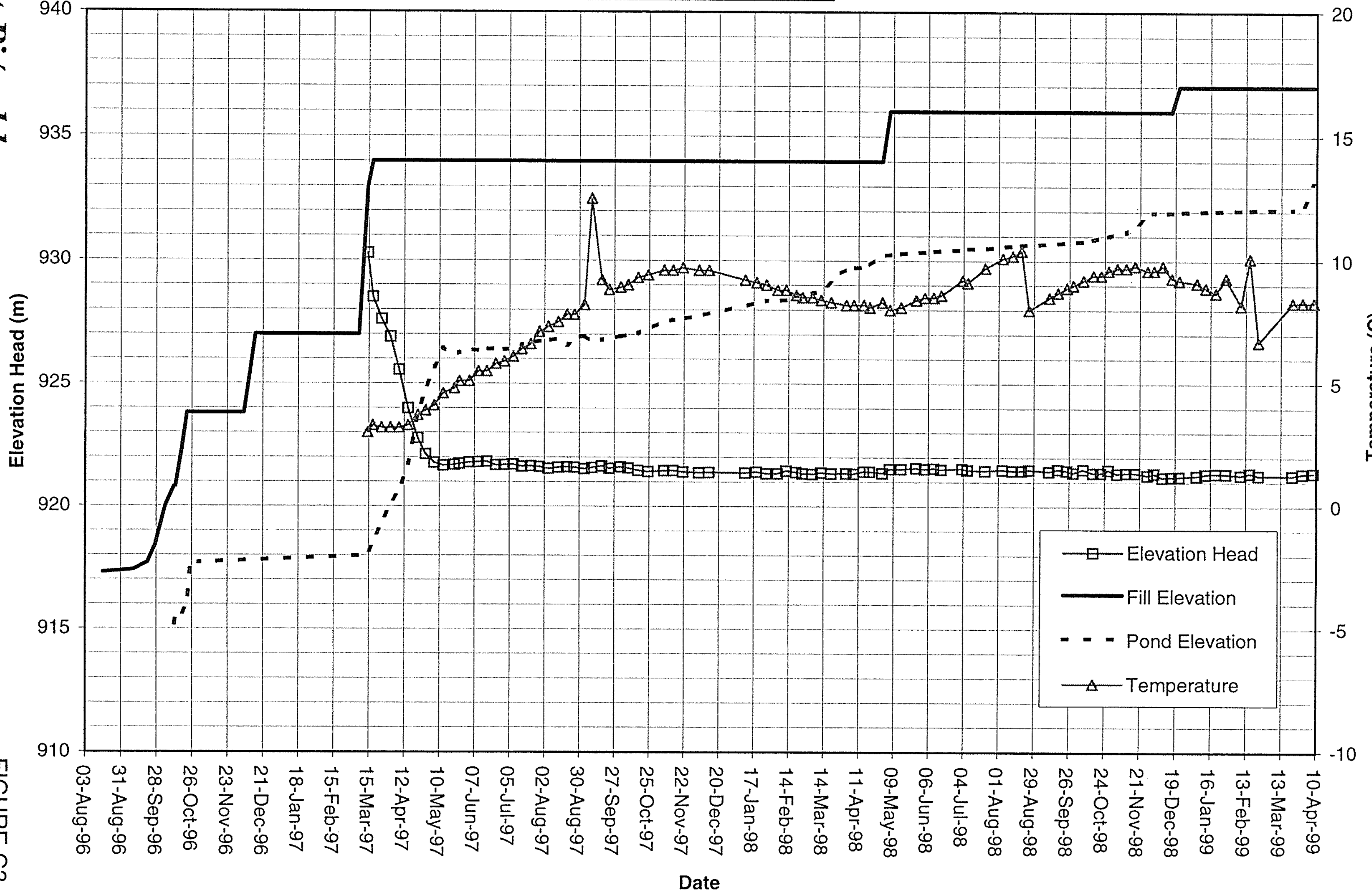
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B2-PE2-05
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 921.70 m



Knight Piésold CONSULTING

FIGURE G3-8

M:\11162\10\Report\1\MPIEZ-B.xls graph 11

G3-8

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE1-01
EMBANKMENT FILL PIEZOMETER - ZONE T
TIP ELEVATION 915.02 m

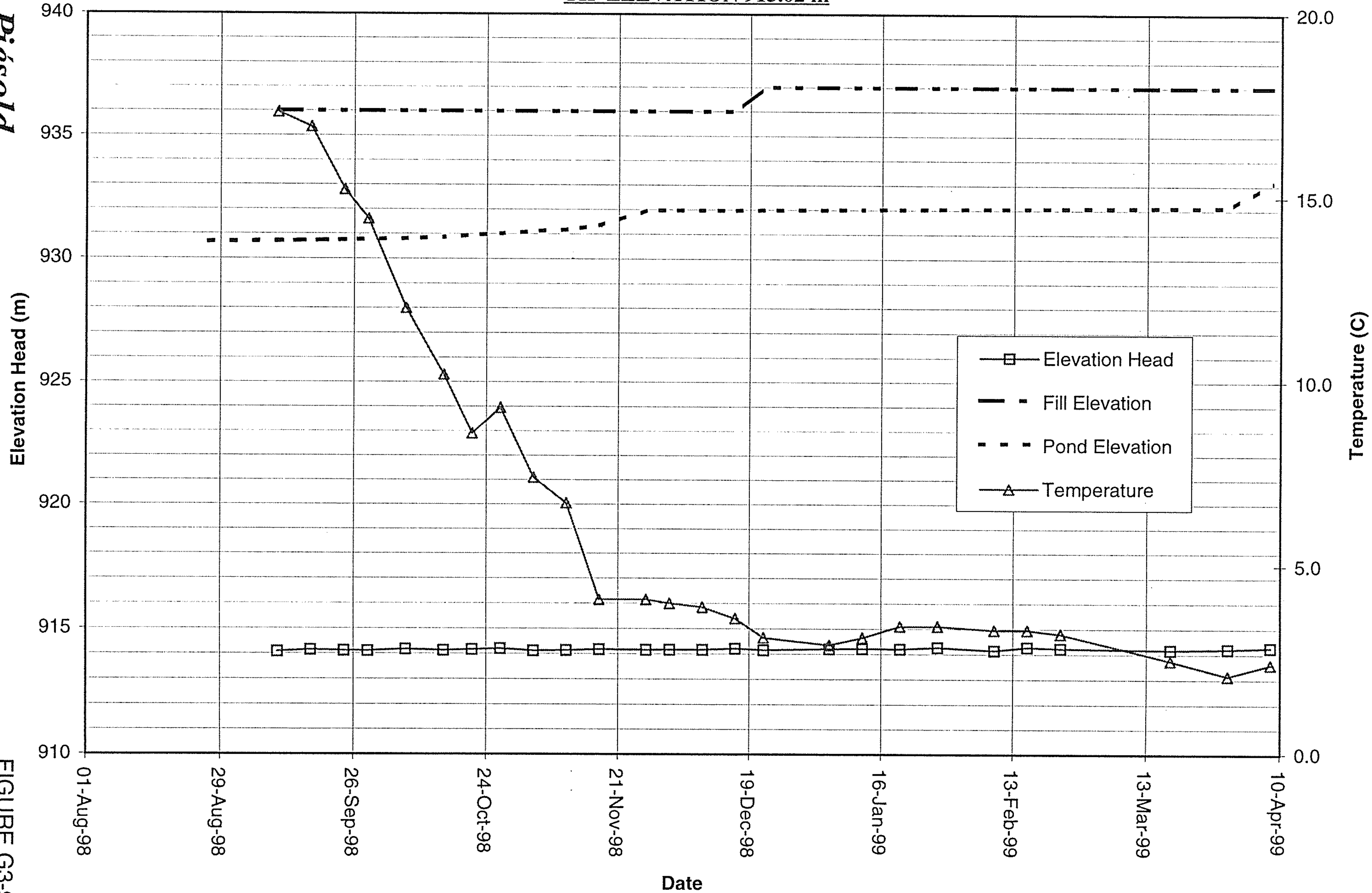


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FIGURE G3-9

G3-9

M:\11162\10\Report\1\MPIEZ-C.xls graph 6

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE2-03
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 921.00 m

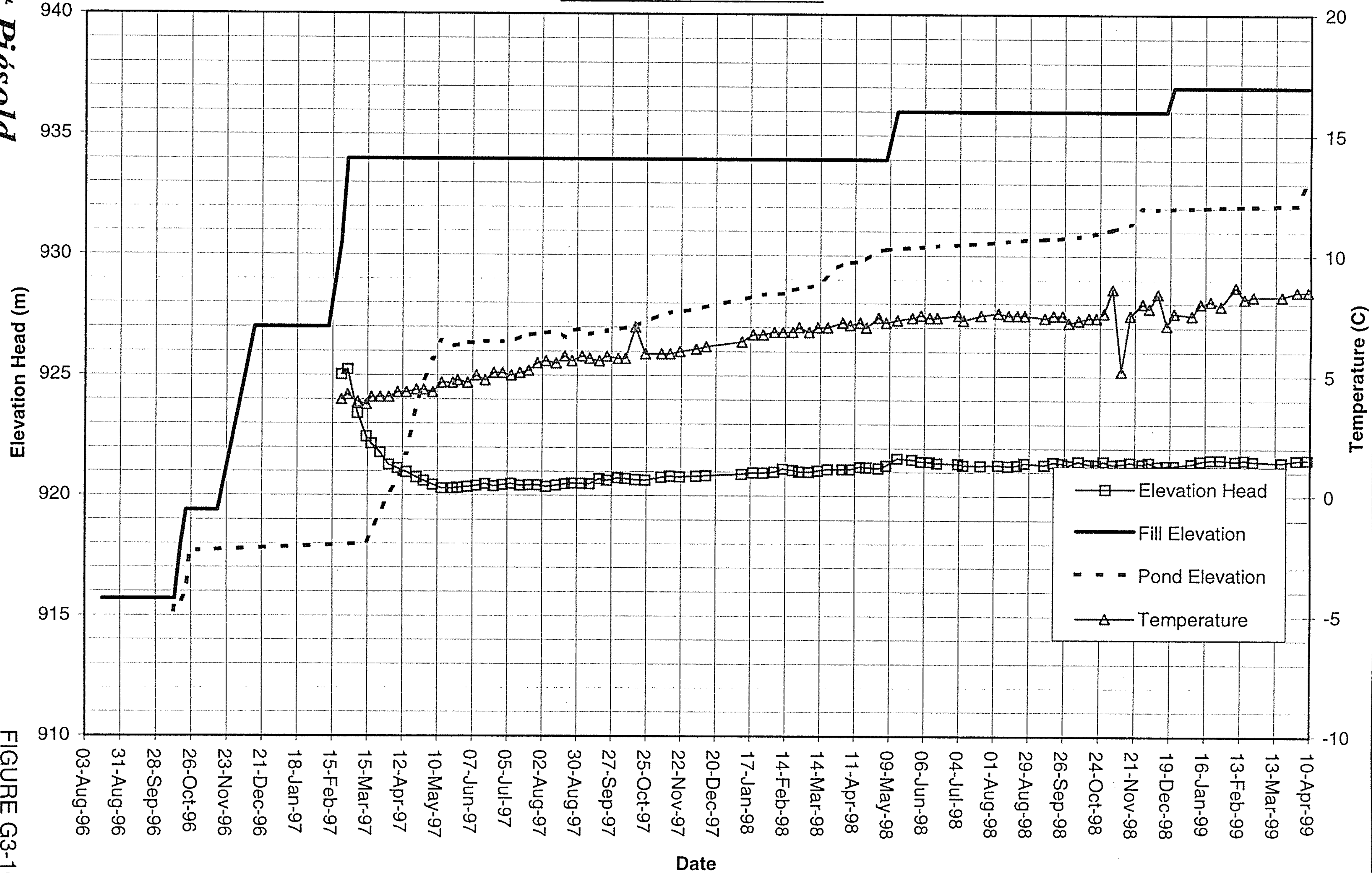

FIGURE G3-10

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M:\11162\10\Report\1\MPIEZ-C.xls graph 9

G3-10

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C2-PE2-05
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 924.80 m

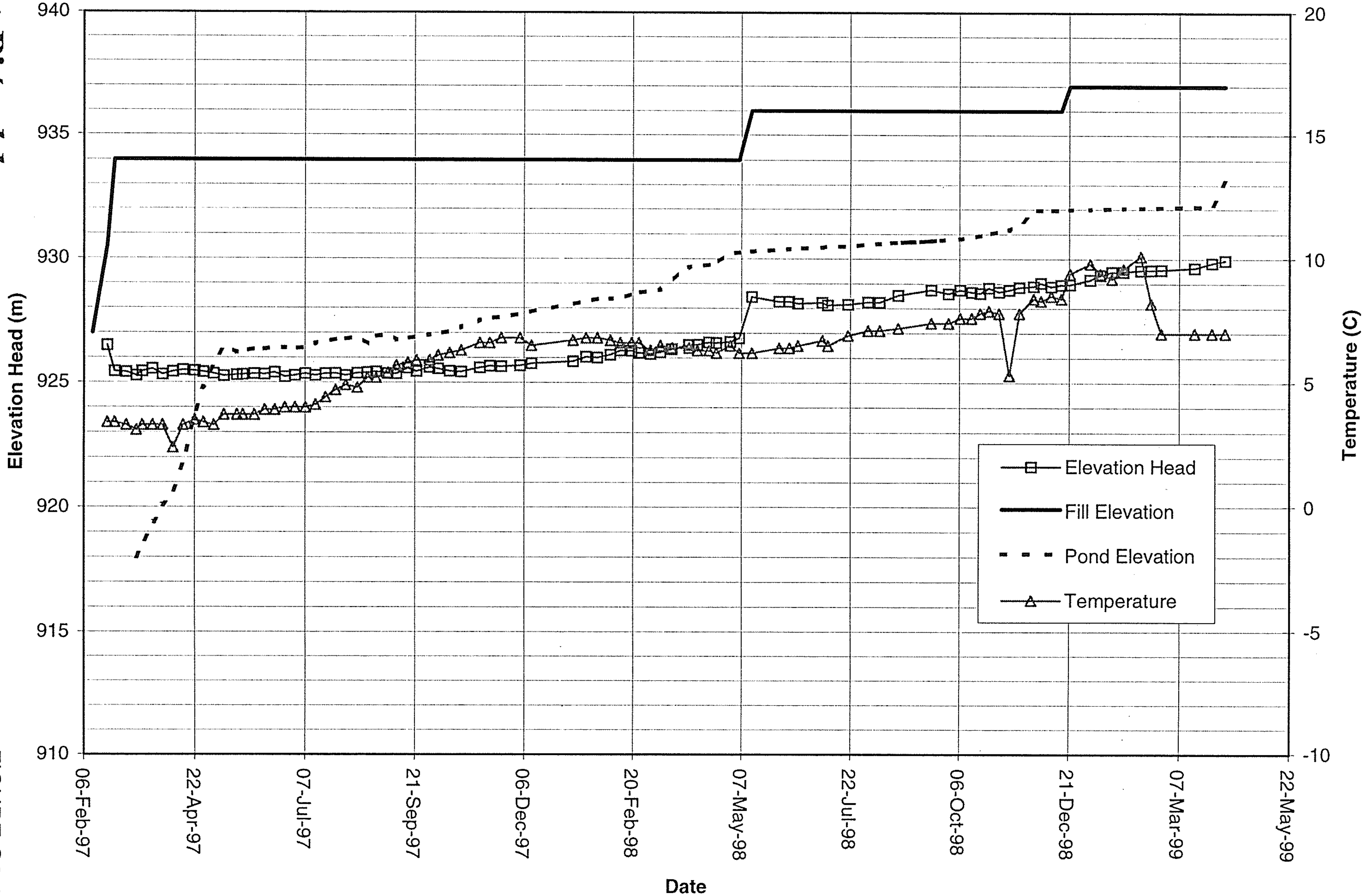

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FIGURE G3-11

M:\11162\10\Report\1\MPIEZ-C.xls graph 10

G3-11

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MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER D2-PE1-01
EMBANKMENT FILL PIEZOMETER - ZONE T
TIP ELEVATION 930.42 m

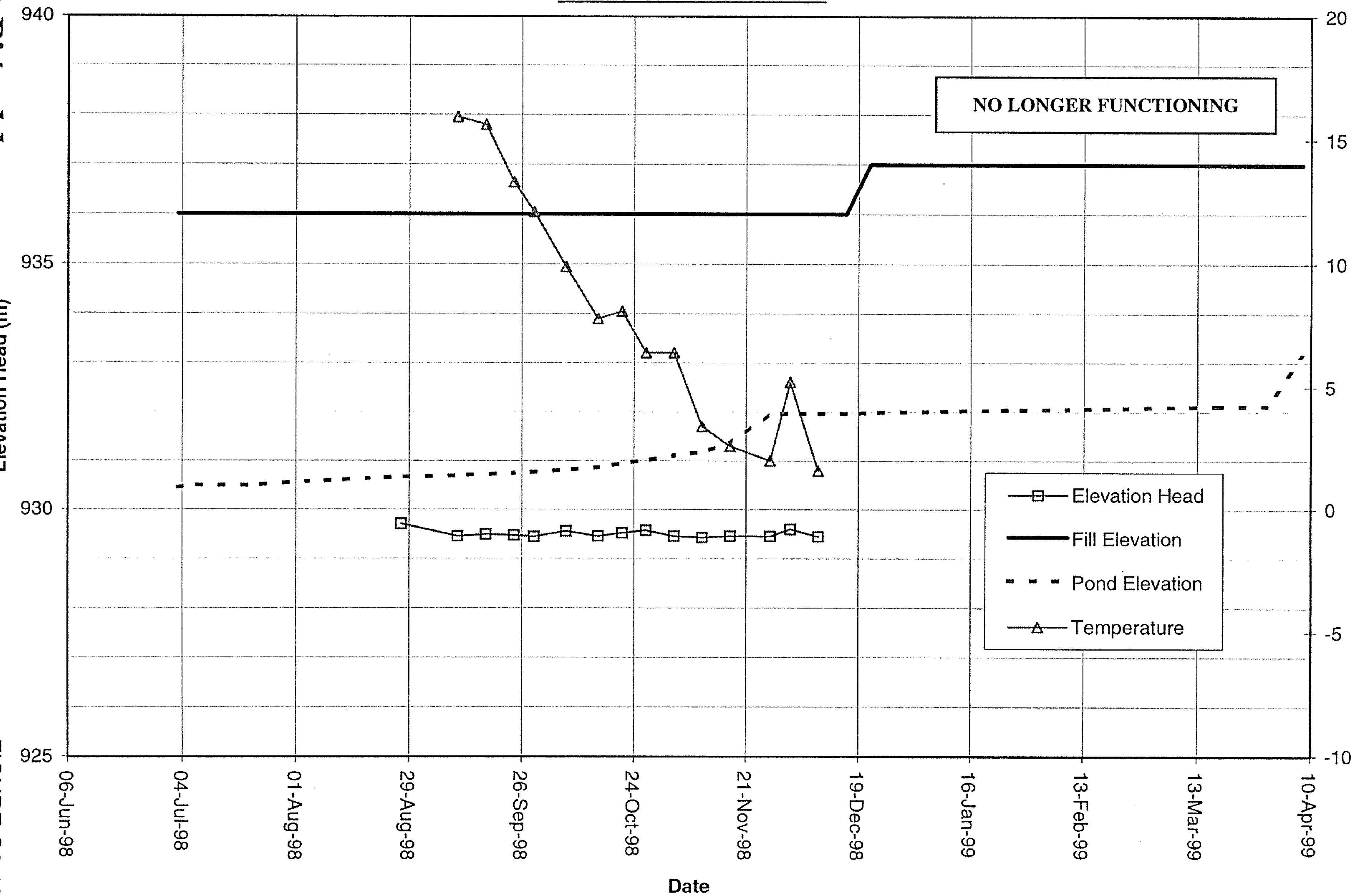

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FIGURE G3-12

M:\11162\10\Report\1\MPIEZ-D.xls graph 2

G3-12

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER D2-PE2-01
EMBANKMENT FILL PIEZOMETER - GLACIAL TILL
TIP ELEVATION 931.00 m

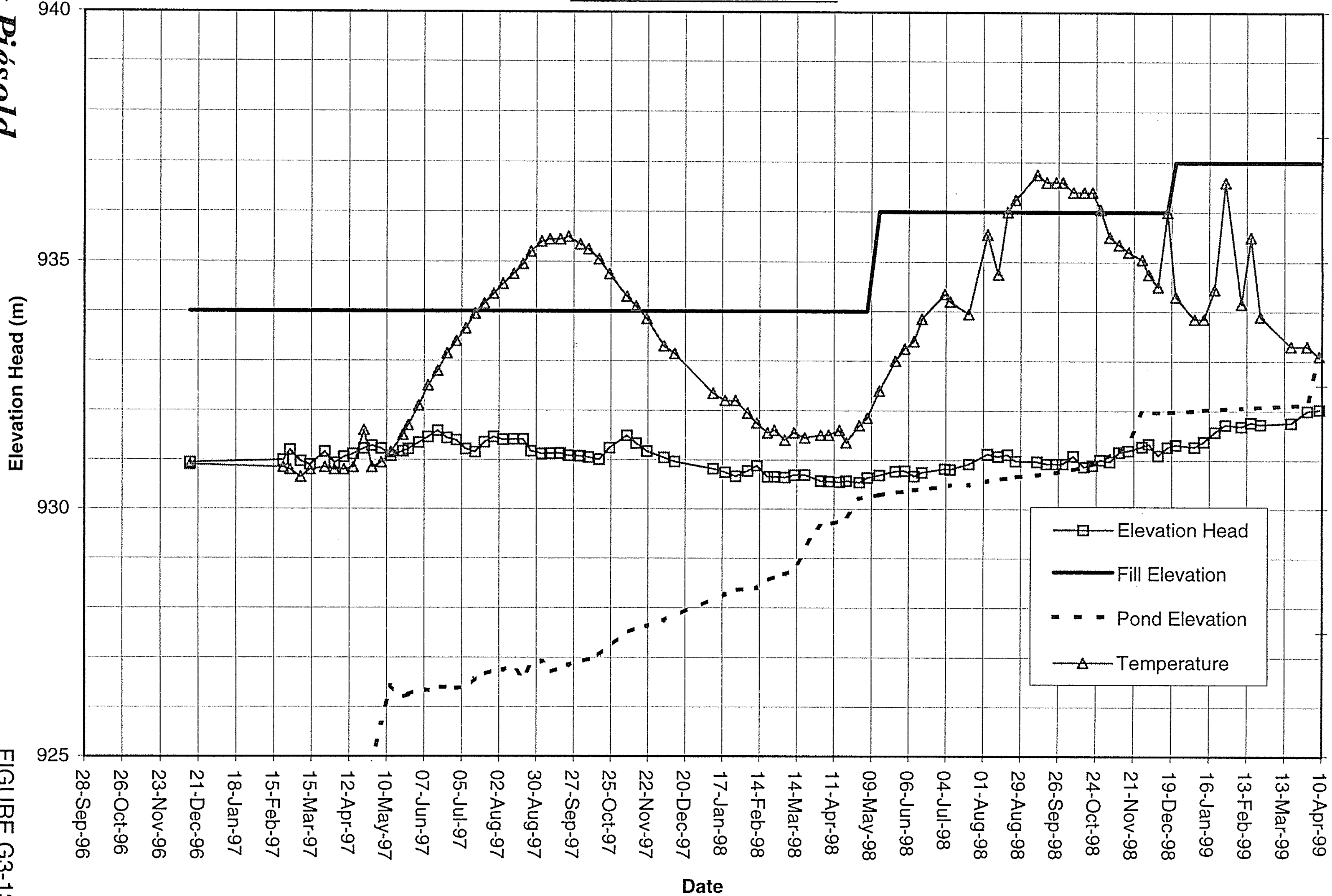

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FIGURE G3-13

M:\11162\10\Report\1\MPIEZ-D.xls graph 3

G3-13

APPENDIX G4

DRAIN PIEZOMETERS

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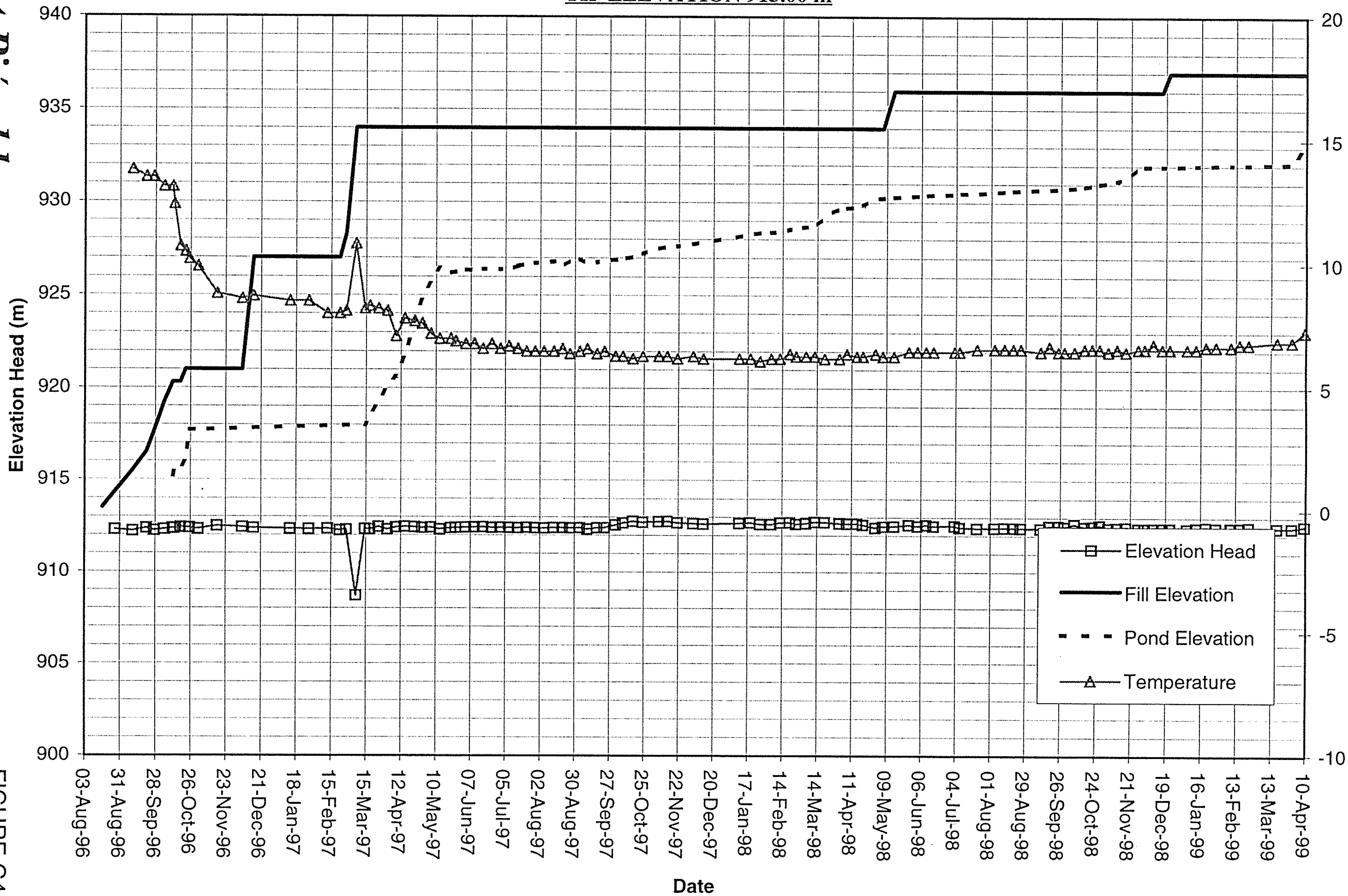
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A1-PE1-01
DRAIN PIEZOMETER - FD-3
TIP ELEVATION 913.00 m



Knight Piésold CONSULTING

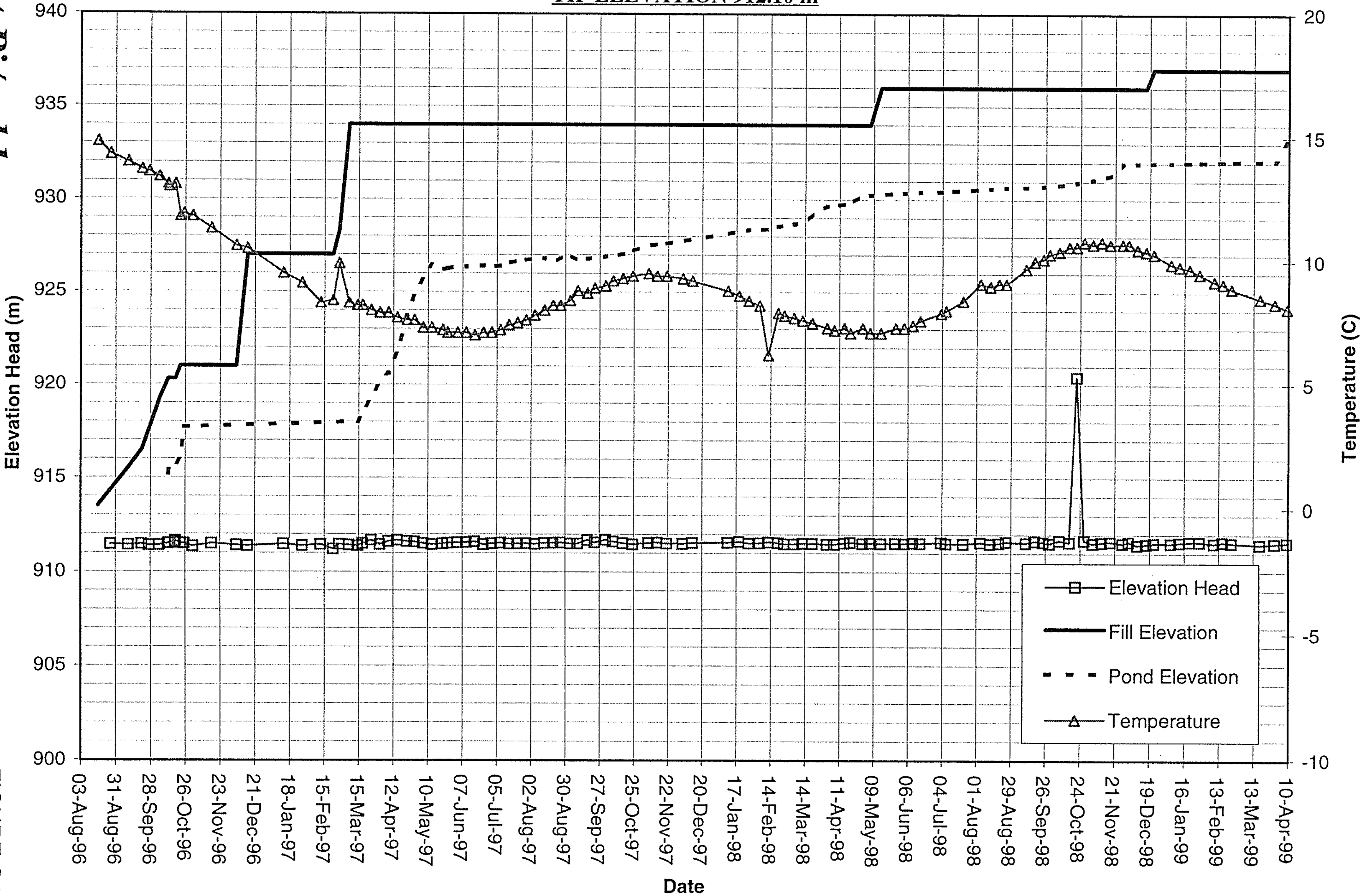
FIGURE G4-1

M:\11162\10\Report\1\MPIEZ-A.xls graph 3

G4-1

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A1-PE1-02
DRAIN PIEZOMETER - FD-4
TIP ELEVATION 912.10 m



Knight Piésold CONSULTING

FIGURE G4-2

M:\11162\10\Report\1\MPIEZ-A.xls graph 4

G4-2

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER A1-PE1-03
DRAIN PIEZOMETER - CHIMNEY DRAIN
TIP ELEVATION 917.20 m

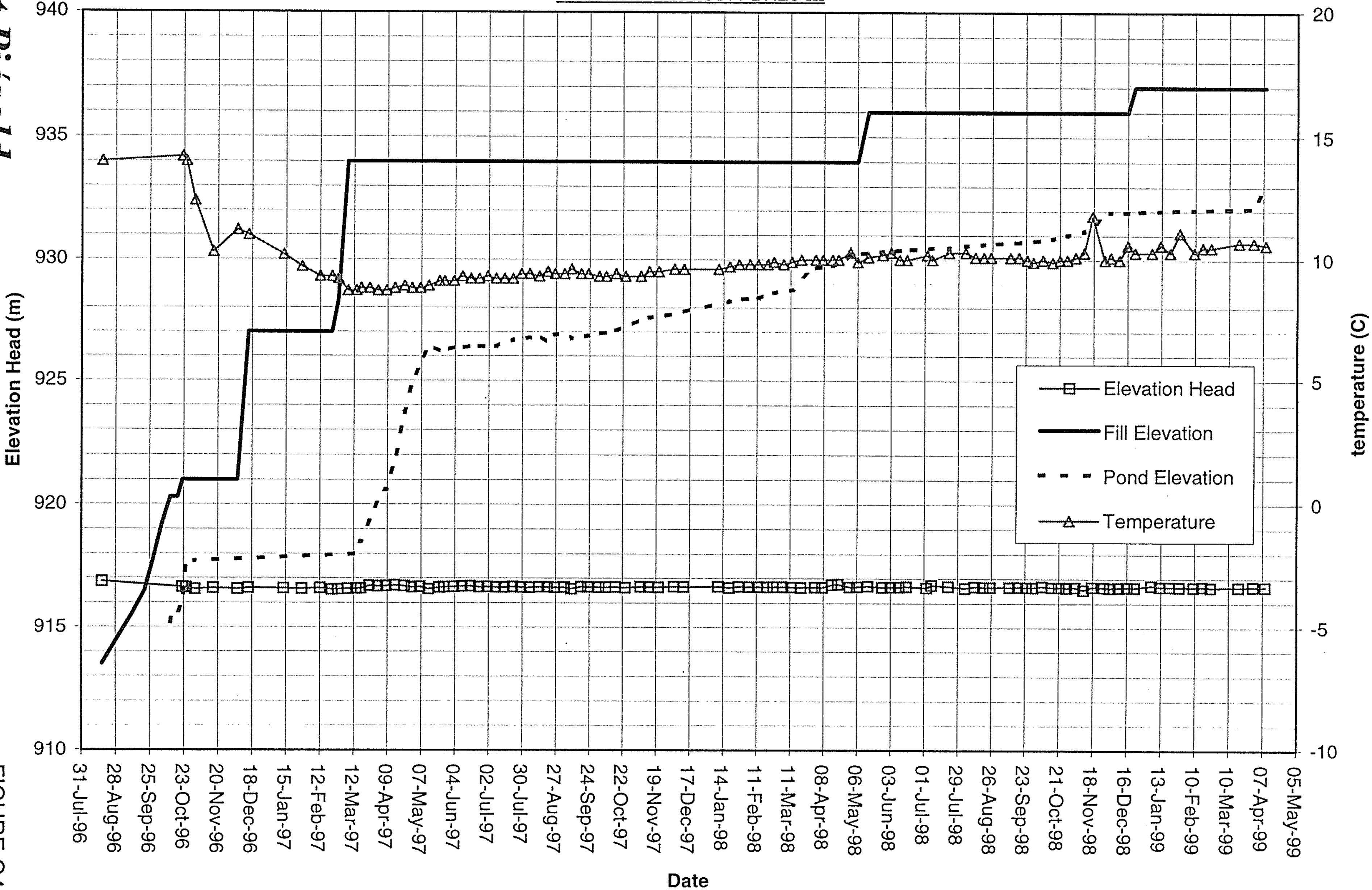


FIGURE G4-3

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M:\11162\10\Report\1\MPIEZ-A.xls graph 5

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B1-PE1-01
DRAIN PIEZOMETER - FD-1
TIP ELEVATION 917.3 m

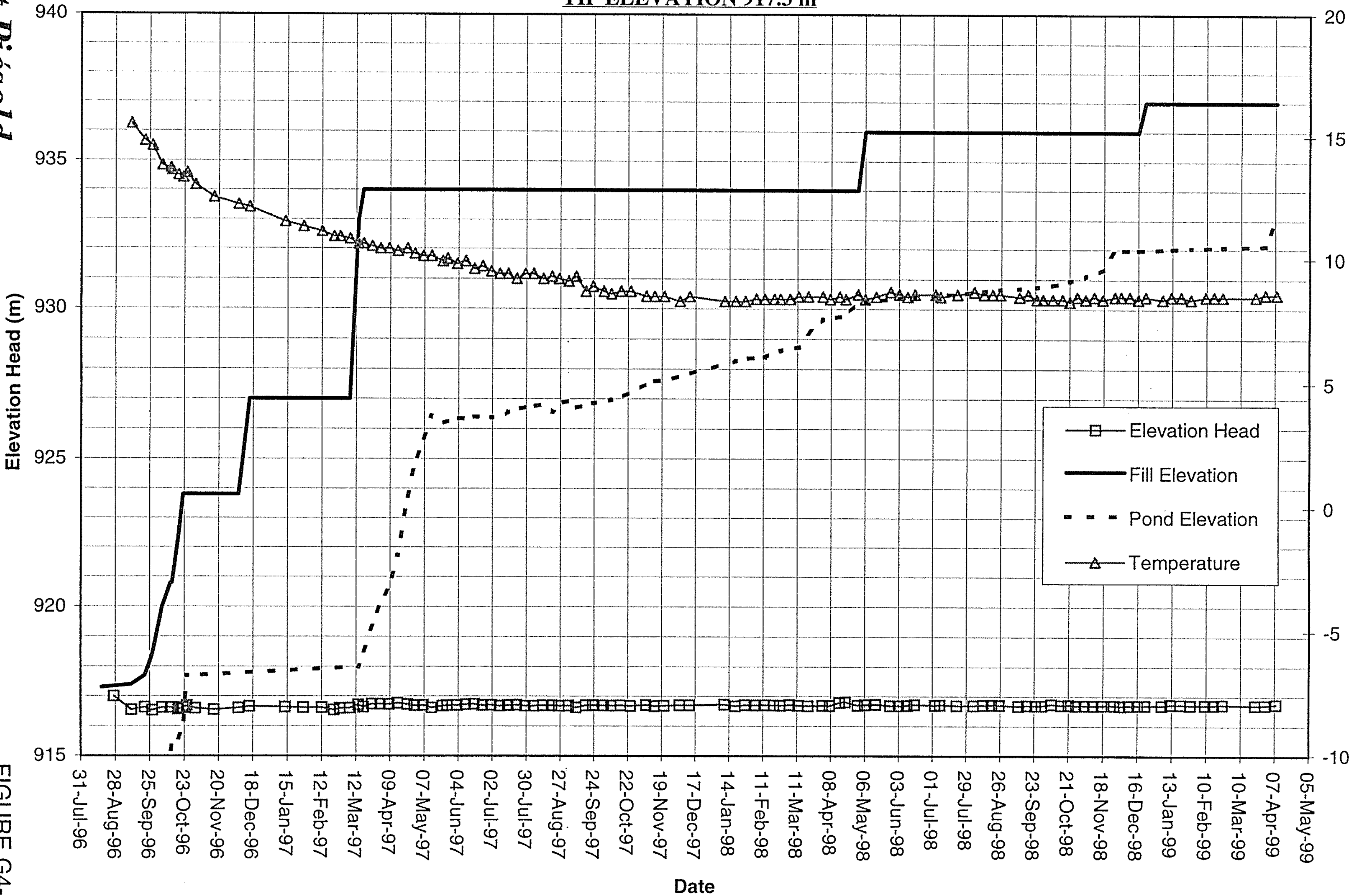

FIGURE G4-4

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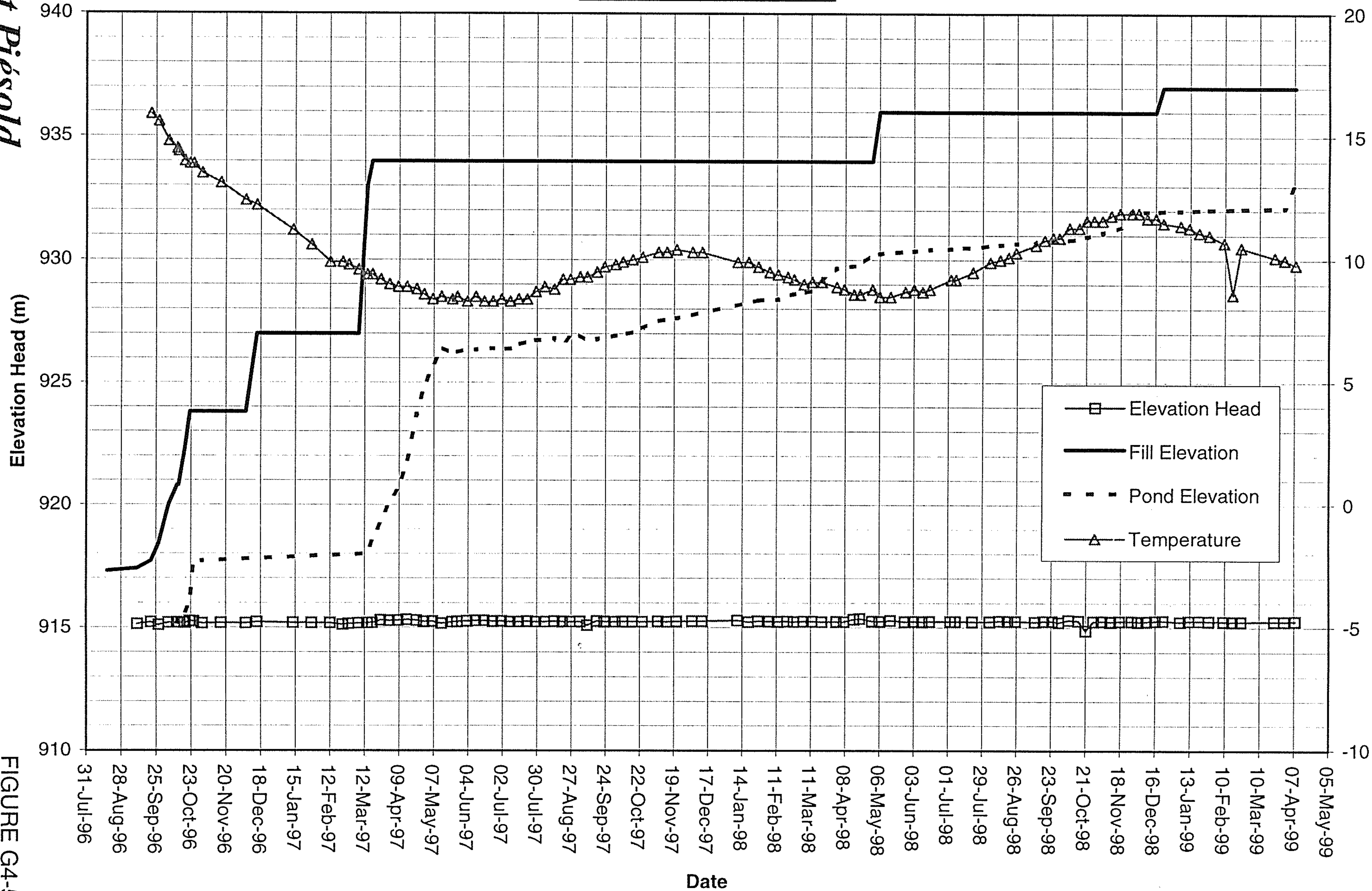
CONSULTING

M:\11162\10\Report\1\MPIEZ-B.xls graph 3

G4-4

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B1-PE1-02
DRAIN PIEZOMETER - FD-2
TIP ELEVATION 916.0 m



Knight Piésold
CONSULTING

FIGURE G4-5

G4-5

M:\11162\10\Report\1\MPIEZ-B.xls graph 4

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER B1-PE1-03
DRAIN PIEZOMETER - CHIMNEY DRAIN
TIP ELEVATION 918.7 m

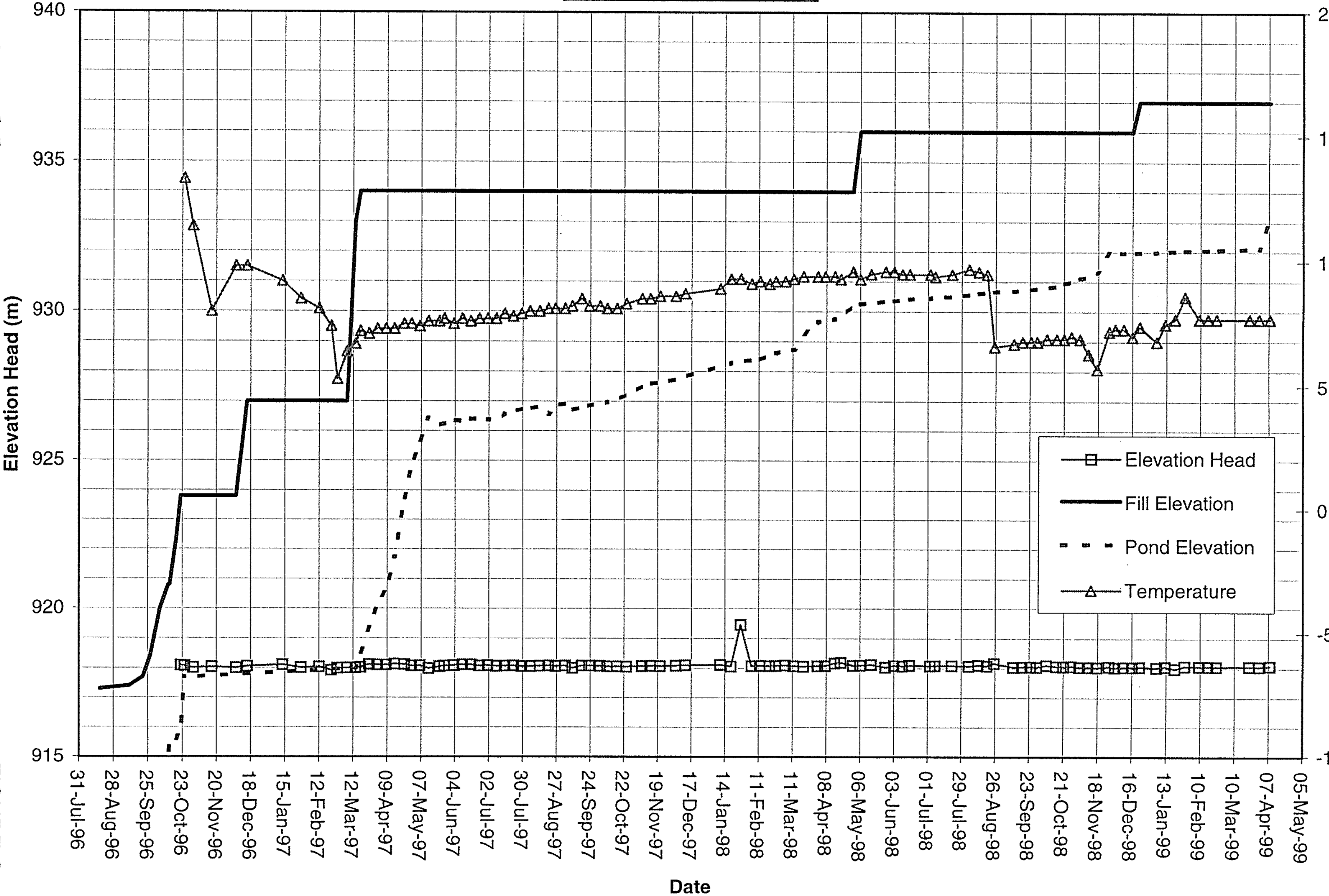


FIGURE G4-6

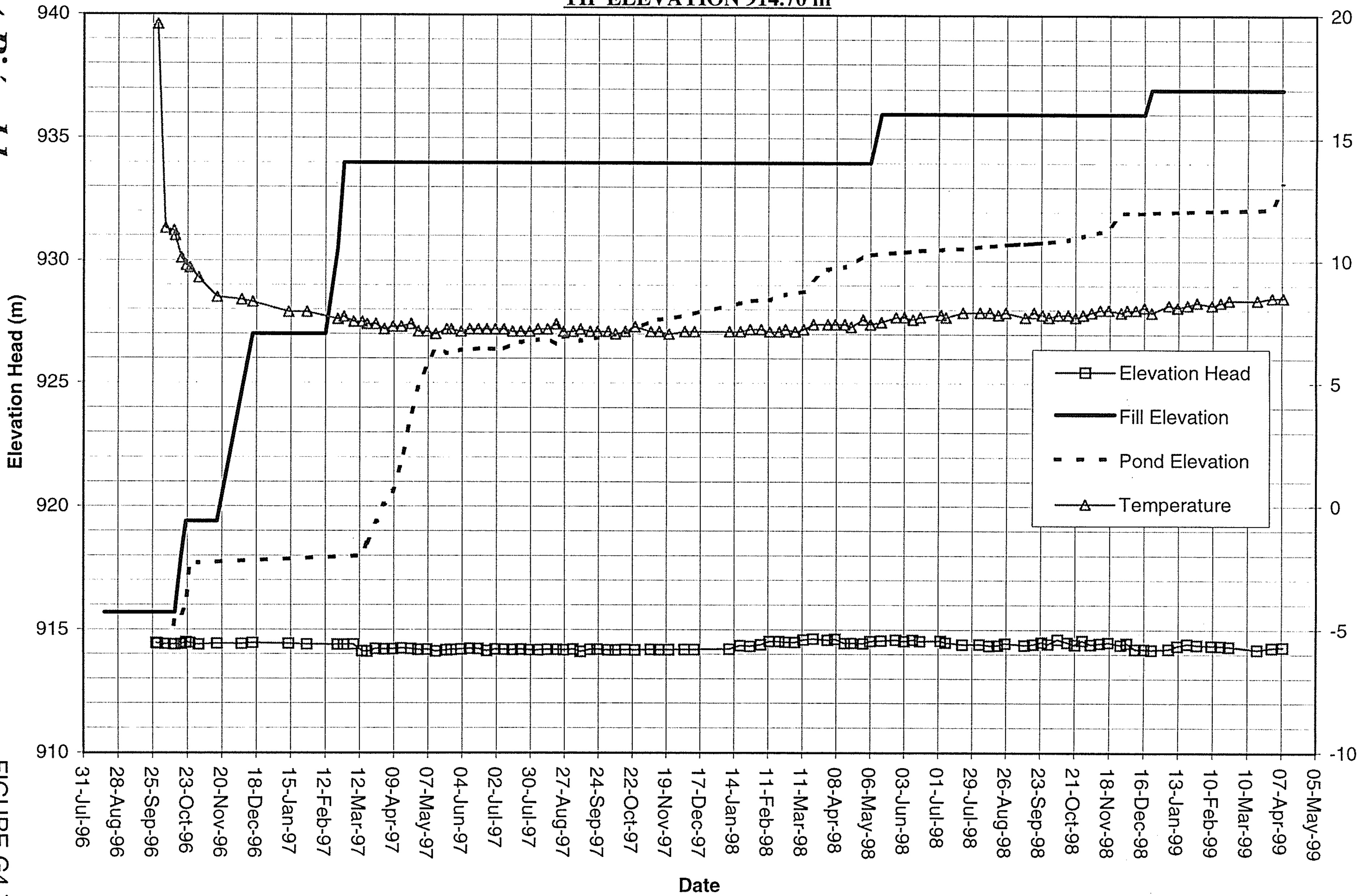
Knight Piésold CONSULTING

M:\11162\10\Report\1\MPIEZ-B.xls graph 5

G4-6

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C1-PE1-01
DRAIN PIEZOMETER - FD-1
TIP ELEVATION 914.70 m



Knight Piésold
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FIGURE G4-7

M:\11162\10\Report\1\MPIEZ-C.xls graph 3

G4-7

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C1-PE1-02
DRAIN PIEZOMETER - CHIMNEY DRAIN
TIP ELEVATION 916.60 m

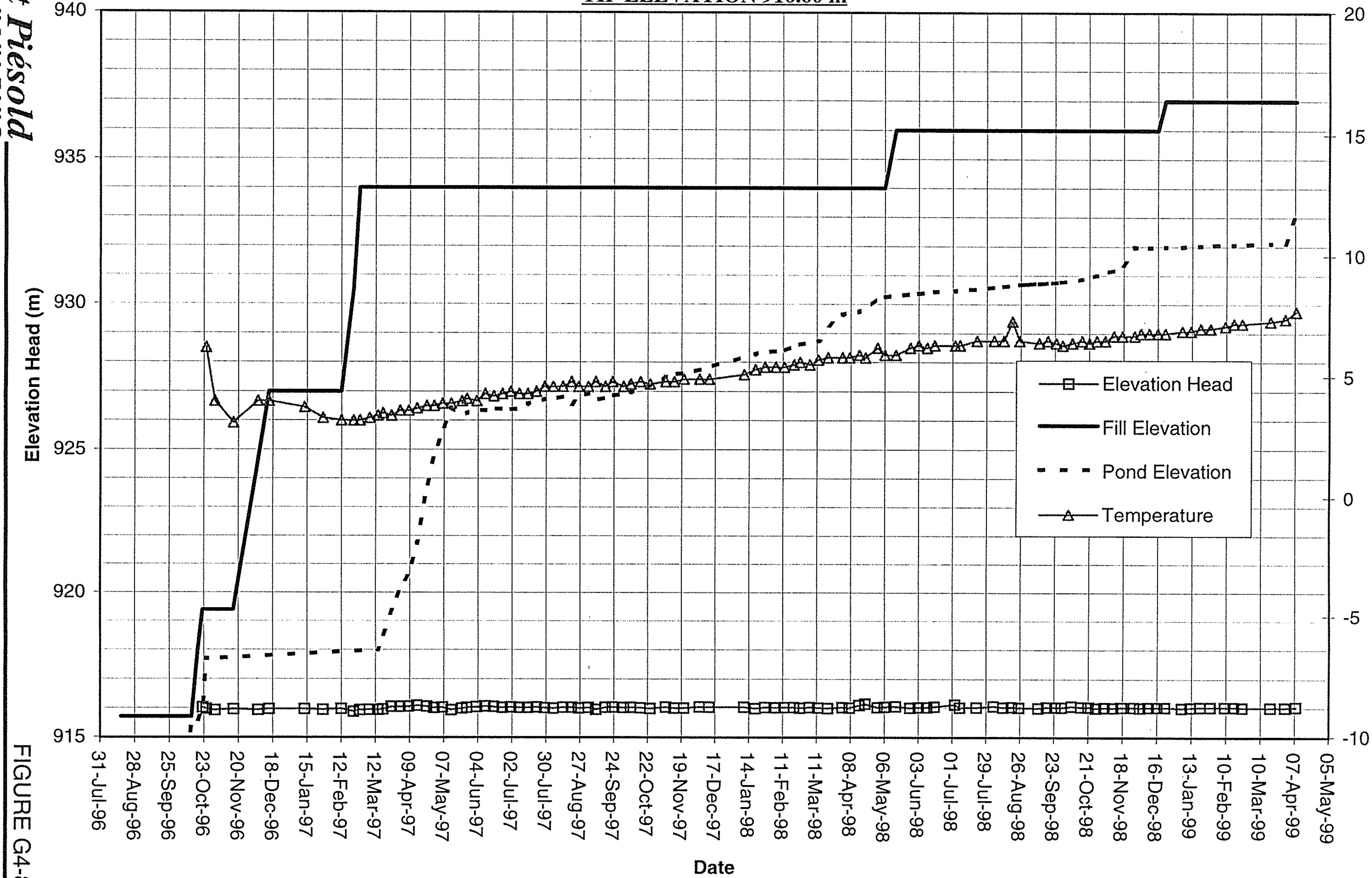

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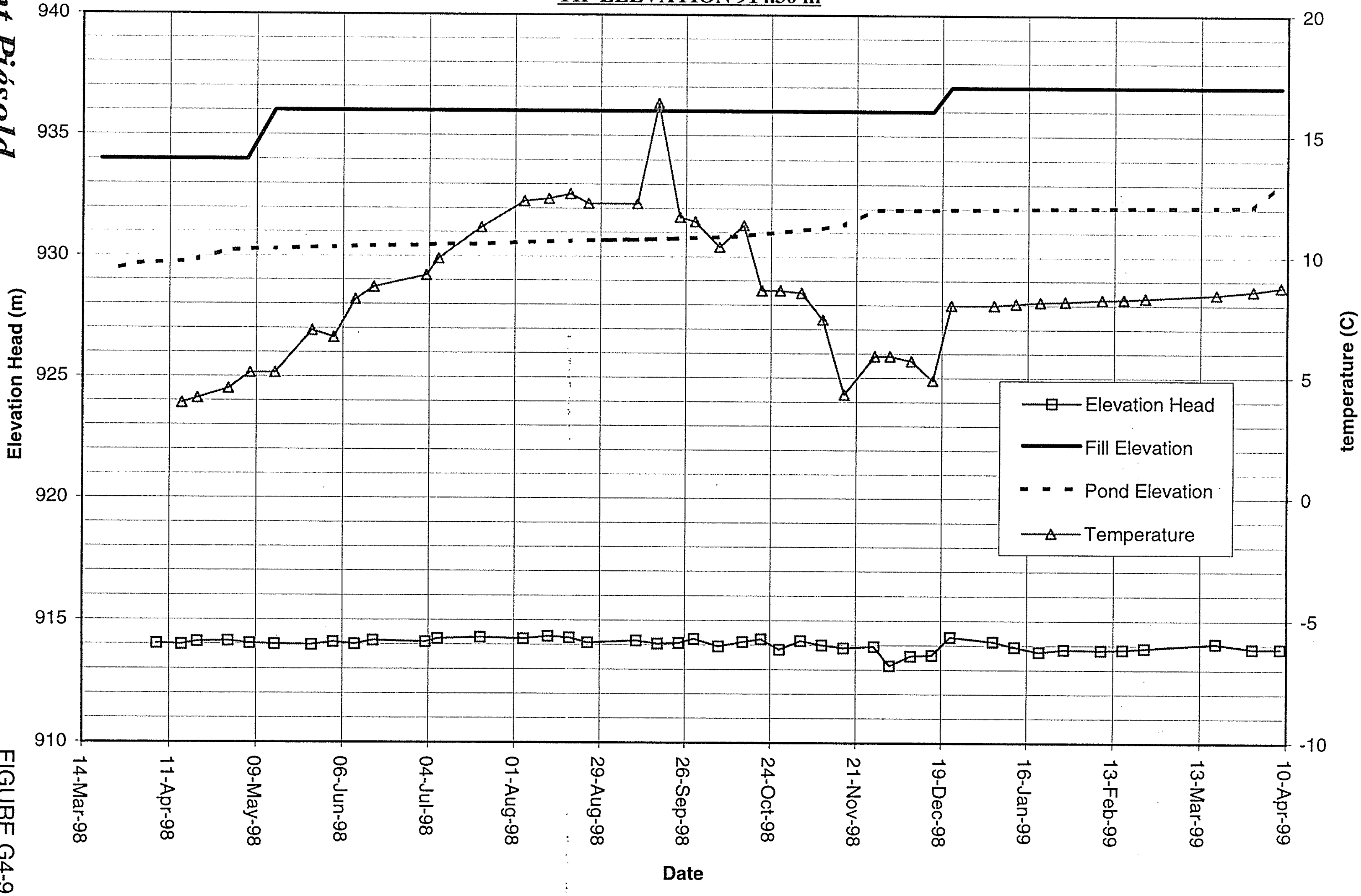
FIGURE G4-8

M:\11162\10\Report\1\MPIEZ-C.xls graph 4

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER C1-PE1-04
DRAIN PIEZOMETER - FD-5
TIP ELEVATION 914.30 m



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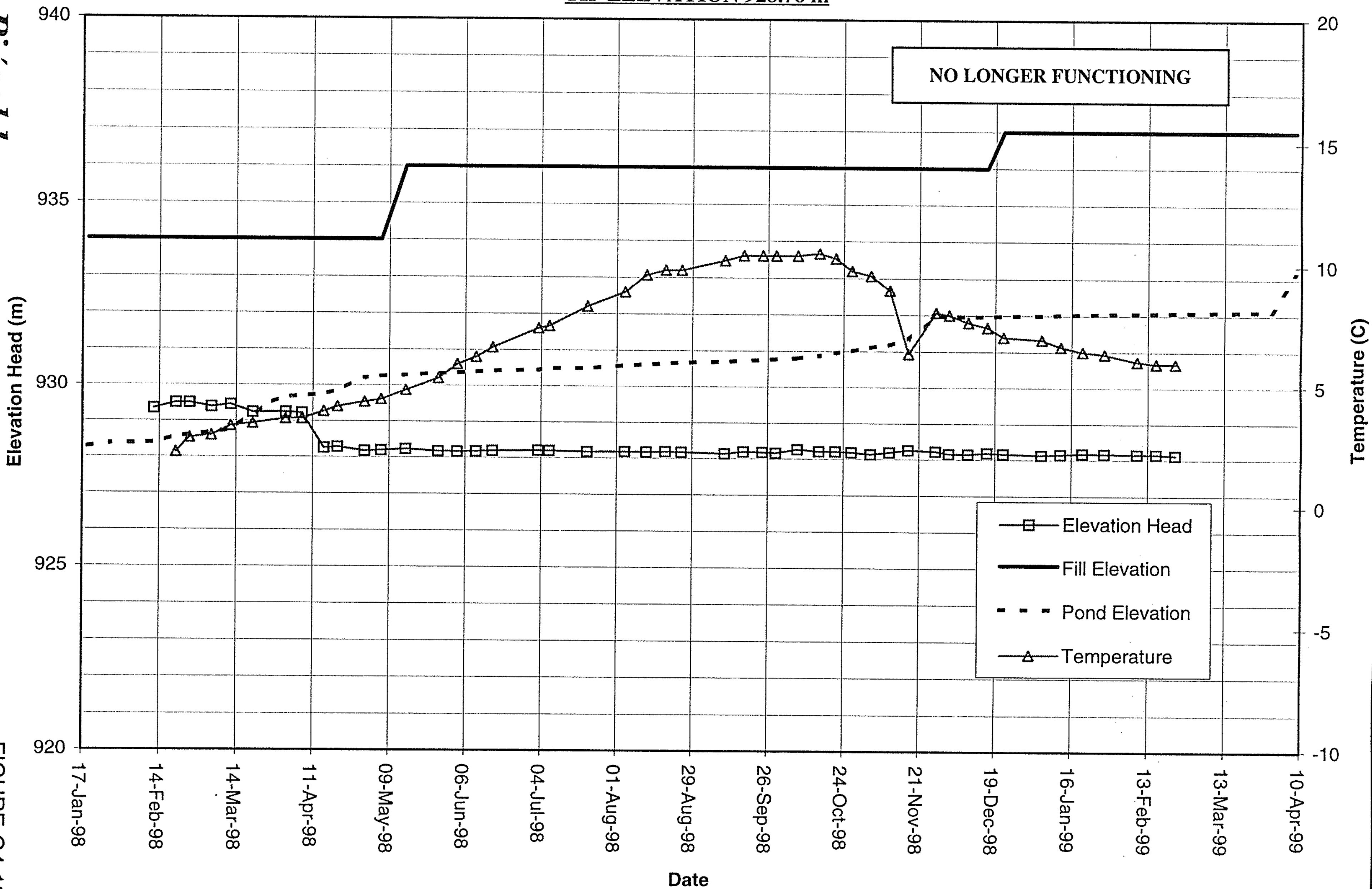
G4-9

FIGURE G4-9

M:\11162\10\Report\1\MPIEZ-C.xls graph 5

6/16/99

MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE
PIEZOMETER D1-PE1-02
DRAIN PIEZOMETER - OD-4
TIP ELEVATION 928.76 m



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G4-10

FIGURE G4-10

M:\11162\10\Report\1\MPIEZ-D.xls graph 1