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**TO:** MPMC

**DATE:** Oct 22/01

**REF NO:** 1/3771

**FILE NO:** 11162/14.01

**ATTENTION:** Don Parsons

**RE:** Mount Polley Mine

WE ARE SENDING YOU  Attached  Under separate cover via \_\_\_\_\_  
the following items:

- Print(s)       Reproducibles       Letter(s)       Specifications       Disk(s)
- Report(s)       Shop Drawings       Other \_\_\_\_\_

NO.	DESCRIPTION
Copy Nos. 1-3	Report on Stage 3 Construction (Ref. No. 11162/14-3, Rev 0), dated October 19/01

**REMARKS:**

Copy To: \_\_\_\_\_

Signed: *R. Brown*

*Copy*

- 1 Parsons
- 2 Smyth
- 3 Headley



# **MOUNT POLLEY MINING CORPORATION**

A DIVISION OF IMPERIAL METALS CORPORATION

Mr. George Headley  
Ministry of Energy and Mines  
Mines Branch  
4<sup>th</sup> Floor, 1810 Blanshard Street  
Victoria, BC  
V8W 9N3

October 25, 2001

Dear Mr. Headley:

**Mt. Polley Mine Tailings Storage Facility**  
**Report on Stage 3 Construction**  
**Permit M-200**

The tailings embankments were recently raised under Stage 3 construction to Elevation 942.5 metres. Work started in April 2000 and finished in August 2001. The design criteria, quality assurance / quality control records, instrumentation and monitoring data is documented in the attached report.

Tailings addition to the facility was suspended on October 15, 2001. The impoundment was surveyed October 18<sup>th</sup>. The water balance will be updated. Supernatant quantity, storage volume and freeboard will be determined for the current facility geometry.

The Ministry of Water, Land and Air Protection approved the discharge of tailings impoundment supernatant to the Cariboo Pit on October 18<sup>th</sup>. Pumping has begun and is expected to continue until adequate storage and freeboard has been provided, estimated to be mid-November.

An Operation, Maintenance and Surveillance Manual is under development in consultation with the Ministry of Water, Land and Air Protection and Knight Piésold Ltd.

Please accept this *Report on Construction (Ref. No. 11162/14-3)* as part of our commitment to the M-200 Permit. Do not hesitate to contact the undersigned or Mr. Ken Brouwer or Mr. C. Wilson Muir of Knight Piésold should you have any questions regarding this report.

Yours truly,

**MOUNT POLLEY MINING CORPORATION**

Don Parsons  
Mine Superintendent

Enclosure(1): Report on Stage 3 Construction (Ref. No. 11162/14-3, Rev 0),  
October 19, 2001

**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE  
TAILINGS STORAGE FACILITY**

**REPORT ON  
STAGE 3 CONSTRUCTION  
(REF. NO. 11162/14-3)**

<b>Rev. No.</b>	<b>Revision</b>	<b>Date</b>	<b>Approved</b>
0	Issued in Final	October 19, 2001	<i>KJB</i>

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***Knight Piésold***  
CONSULTING

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**  
**TAILINGS STORAGE FACILITY**

**REPORT ON STAGE 3 CONSTRUCTION**  
**(REF. NO. 11162/14-3)**

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**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY**

**REPORT ON STAGE 3 CONSTRUCTION**

**(REF. NO. 11162/14-3)**

**SECTION 1.0 - INTRODUCTION**

1.1 **PROJECT DESCRIPTION**

The Mount Polley gold and copper mine is owned and operated by Mount Polley Mining Corporation (MPMC). It is located in central British Columbia, 56 kilometres northeast of Williams Lake, as shown on Figure 1.1. 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). The mine has been in production since June 13, 1997, but MPMC recently announced that operations will be suspended at the end of September, 2001 due to low copper and gold prices. An overall site plan of the Mount Polley Mine is shown on Drawing 11162-13-100.

Mill tailings are discharged as a slurry into the Tailings Storage Facility, which has been designed to provide environmentally secure storage of the solid and liquid components. The sub-aerial method of deposition is used to discharge tailings onto the beach from frequently rotated points around the perimeter of the facility. This produces a deposit that comprises numerous thin layers of tailings. The separation of liquids from solids is maximized and supernatant water and drainage flows are intercepted and recycled back to the mill for re-use in the process.

Knight Piésold Ltd. was originally engaged by Imperial Metals Corporation to provide engineering services for the design of the Tailings Storage Facility in 1989. Over 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.
- Preparation of 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.
- Site investigations and evaluations for engineering design and construction materials suitability.
- Consulting services on all aspects of the operation and monitoring of the Tailings Storage Facility.

The tailings embankments were recently raised under Stage 3 construction to El. 942.5 m. Work started in April 2000 and finished in August 2001. Knight Piésold Ltd. provided design, construction supervision and quality assurance/quality control (QA/QC) services for the embankment raise. Knight Piésold Ltd. also conducted on-going reviews of all instrumentation and monitoring records during construction and completed an annual inspection of the facility. The annual inspection is documented in a separate report. This report gives the details of Stage 3 construction.

## 1.2 TAILINGS STORAGE FACILITY

The Tailings Storage Facility is comprised of the following:

- A pipeline system conveys the tailings slurry via gravity from the Millsite to the Tailings Storage Facility. This system includes movable discharge sections with one end dump discharge to distribute the tailings along the embankment crest.
- A make-up water supply system provides extra water to the Tailings Storage Facility. This serves as a temporary storage and transfer point prior to pumping to the mill. This system comprises an intake and pump at Polley Lake and a pipeline to convey water to the Tailings Storage Facility. The water is discharged into the Tailings Storage Facility near the West abutment of the Perimeter Embankment.

- A Millsite Sump and Southeast Sediment Pond provide additional make-up water to the system by collecting drainage from the millsite and Southeast Waste Dump. 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 Drop Box.
- Graded earthfill and rockfill embankments with internal filters and drains retain the tailings solids in the Tailings Storage Facility. The embankments have been raised in stages by a combination of centreline and modified centreline approaches. A 5 metre high downstream rockfill buttress has been constructed at the Main Embankment to enhance embankment stability. This buttress is located from the valley bottom to El. 920 m.
- A low permeability basin liner (natural and constructed) covers the base of the entire facility to provide containment of process fluids and to minimize the potential for seepage through the underlying soils.
- A foundation drain and pressure relief well system located downstream of the Stage 1B Main Embankment prevent the build-up of pore pressure in foundation and collect seepage from the base of the Tailings Storage Facility.
- Seepage collection ponds located downstream of the Main and Perimeter Embankments were excavated in low permeability soils to store water collected from the embankment drains and from local runoff. Water from these ponds is pumped back into the Tailings Storage Facility and ultimately to the mill for use in the milling process.
- Instrumentation in the tailings, embankments and foundations, including vibrating wire piezometers, survey monuments, slope inclinometers and the measurement of drain flows, is used to monitor the performance of the Tailings Storage Facility.

- A reclaim water system, comprised of a barge mounted pump station in an excavated channel, an in-line booster pump station and a pipeline for recycling process water to the mill, is used to remove water from the Tailings Storage Facility for use in the mill process.
- A system of monitoring wells installed around the Tailings Storage Facility is used 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 Stage 3 construction program.

### 1.3 SCOPE OF REPORT

This report documents the Stage 3 construction. It 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 the new instrumentation and monitoring results from the construction program. Summaries and recommendations from the instrumentation reviews are included. The report also includes a complete and updated set of drawings issued as "As Constructed" for Stage 3.

**SECTION 2.0 - STAGE 3 CONSTRUCTION**

2.1 GENERAL

The Stage 3 raise of the Mount Polley Mine Tailings Storage Facility was constructed in 2000 and 2001. The work consisted mostly of raising the embankments but also included a small amount of work on the tailings basin and tailings distribution system. Drawing 11162-13-102 provides an overall plan view of the embankments and the facility and outlines the limits of the Stage 3 raise. The Stage 3 Main Embankment Plan is shown on Drawing 11162-13-210. Main Embankment sections are shown on Drawing 11162-13-215. The Stage 3 Perimeter Embankment Plan is presented on Drawing 11162-13-120 while the Perimeter Embankment sections are shown on Drawing 11162-13-125. The Stage 3 South Embankment plan and section are shown on Drawing 11162-13-130.

Construction of the embankment raises were split between Stage 3A and Stage 3B. Stage 3A construction consisted of the following:

- Completion of the South and Main Embankments to El. 942.5 m from Chainage 6+50 to 9+50 and from Chainage 15+00 to 28+00.
- Upstream Zone CS placement to El. 942.5 m from Chainage 32+00 to 44+50.
- Downstream Zone F, T and C placement to El. 942.5 m from Chainage 28+00 to 32+00.
- Zone S placement to approximate El. 941.3 m from Chainage 28+00 to 44+50.

Stage 3B construction consisted of the following:

- Downstream Zone C placement to minimum El. 937 m from Chainage 32+00 to 39+00 and from Chainage 40+00 to 44+50.
- Downstream Zone T placement to El. 942.5 m from Chainage 32+00 to 39+00 and from Chainage 40+00 to 44+75.
- Downstream Zone F placement to El. 942.5 m from Chainage 32+00 to 44+75.
- Zone S placement to El. 942.5 m from Chainage 28+00 to 44+75.

The continuity of Zones C and T is interrupted between Chainages 39+00 and 40+00 by the Stage 2C downstream cycloned sand trial berm. The berm was covered with Zone F to minimize the potential for erosion of the fine grained cycloned sand. This area of the Perimeter Embankment is shown on Section 1 on Drawing 11162-13-125.

Knight Piésold Ltd. provided construction supervision and technical direction of the work under the management and administration of MPMC. The earthworks were completed by MPMC, Tercon Contracting Limited (TCL) of Kamloops, Lake Excavating Limited (LEL) of Williams Lake and 153 Mile Contracting Limited (153 Mile) of Williams Lake.

## 2.2 SCOPE OF WORK

### 2.2.1 General

The Stage 3 construction program comprised work on the following main areas:

- Investigations
- Tailings Embankments
- Basin Liner
- Tailings Discharge System
- Instrumentation

A description of each of the main components of the Stage 3 construction program is presented in the following sub-sections.

### 2.2.2 Investigations

Materials investigations were completed in 2000 and 2001 to support construction and design of the Tailings Storage Facility. Borrow Areas 2 and 3, located downstream of the Main Embankment left (east) abutment and Borrow Area 5, upstream of the South Embankment, were investigated to determine the availability and suitability of Zone S material. A total of

80 boreholes (DH01-01 to 80) were drilled in April, 2001. The results of the borrow area investigations are presented in Appendix A.

### 2.2.3 Tailings Embankments

The Stage 3 construction program included raising the Main, Perimeter and South Embankments to El. 942.5 m. The Stage 3 Main Embankment is approximately 1,300 metres long, with a maximum height of about 32 metres. The Stage 3 Perimeter Embankment is approximately 1,700 metres long, with a maximum height of about 15 metres. The South Embankment is approximately 300 metres long, with a maximum height of about 3 metres.

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 competent natural ground.
- Placement and compaction of the fill materials in their respective zones in accordance with the Technical Specifications.
- 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 Basin Liner

The basin liner was expanded at the right (southwest) abutment of the Main Embankment, as shown on Drawing No. 11162-13-130. This was completed during Stage 3A construction and the basin liner was subsequently buried by tailings in early 2001. Details of this fill placement is presented in Section 2.5.7

2.2.5 Tailings Discharge System

The scope of work for the tailings discharge system during Stage 3 construction included upstream cycloned sand placement between Chainage 32+00 and 44+50 at the Perimeter Embankment. In addition, the pipeline and discharge locations were relocated periodically in order to minimize interference with embankment construction.

2.2.6 Instrumentation

Groundwater monitoring wells GW00-01, 02 and 03 were installed downstream of the South Embankment in the summer of 2000 to monitor ground water flows in this area. Locations of the groundwater monitoring wells are shown on Drawing 11162-13-254, while borehole logs are presented in Appendix A.

Slope Inclinometers SI01-01 and 02 were installed at the downstream toe of the Main Embankment in July of 2001 to monitor any movements in the foundation below the embankment. Locations of the slope inclinometers are shown on Drawing 11162-13-250 and drill hole logs are presented in Appendix A.

A total of seven (7) vibrating wire piezometers were installed during Stage 3 construction to monitor pore pressures in the foundation and the performance of the Zone F filter. The locations of the installed piezometers are shown on Drawings 11162-13-250, 251 and 254 and on Table 2.2.

Six survey monuments were installed on the Main and Perimeter Embankments to monitor any settlement that occurs on the embankments. Drawings 11162-250 and 251 show the as constructed locations of the survey monuments.



### 2.3 CONSTRUCTION SEQUENCE AND RESPONSIBILITIES

Construction of the Stage 3A embankment raise commenced in April 2000 and was completed in March 2001. MPMC was responsible for:

- Foundation preparation at the Perimeter Embankment from Chainage 28+00 to 32+00.
- Fill surface preparation at the Perimeter Embankment from Chainage 28+00 to 44+50.
- A portion of borrow area development.
- Cycloned sand placement.
- Relocation of tailings pipelines and appurtenances.
- Fill placement of Zones F, C and T from Chainage 28+00 to 32+00 and fill placement of Zone S from Chainage 28+00 to 44+50.

TCL was responsible for:

- Foundation preparation at the Main and South Embankments.
- Fill surface preparation at the Main and South Embankments.
- A portion of borrow area development.
- Fill placement at the Main and South Embankments.

The work began with the placement of cyclone underflow (Zone CS) upstream of the Main and Perimeter Embankment crests. The Basin Liner was constructed in August 2000 and TCL carried out the work on the Main and South Embankment through to the end of September. Work at the site then ceased during October and MPMC commenced embankment fill placement in November 2000. This portion of fill placement was finished by the end of March 2001.

Construction of the Stage 3B embankment raise was carried out on the Perimeter Embankment, commencing in May 2001 and completed at the end of August 2001. MPMC was responsible for:

- Fill surface preparation at the Perimeter Embankment.

- Borrow area development.
- Relocation of tailings pipelines and appurtenances.
- Fill placement of Zones C and T.
- A portion of Zone S fill placement.
- A portion of Zone F fill placement.

LEL was responsible for:

- A portion of Zone S fill placement.
- A portion of Zone F fill placement.

153 Mile was responsible for:

- A portion of Zone F fill placement.

#### 2.4 CONSTRUCTION SUPERVISION AND QUALITY ASSURANCE

Knight Piésold Ltd. provided construction quality assurance and control (QA/QC) services and QC lab testing for Stage 3 construction of the Tailings Storage Facility. MTS Testing Services Ltd., of Prince George, British Columbia carried out lab testing for the borrow area investigation in 2001. Key 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 and compacted fill for moisture content and density.
- Collection and testing of control and record samples at the required frequencies.
- Installation and monitoring of instrumentation.

The QA/QC procedures were similar to previous construction programs. During placement of fill materials, Control (prior to placement) and Record (after compaction)

samples of the materials were collected for laboratory testing. Control testing was typically carried out on materials in borrow pits or from source locations to determine their suitability for use in the work. Record testing was typically performed 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 testing were used as a basis for modifying the construction procedures as and when necessary. Estimated quantities are also summarized on Table 2.1 with the Control and Record testing requirements and frequencies. Control test results are summarized in Appendix B. Record test results are discussed throughout this report and are summarized in Figures 2.1 to 2.17 and tabulated in Appendix C.

A minor portion of the work was completed in winter and required intensive monitoring. However, the work was carried out at all times in accordance with the Technical Specifications, as described in the "Tender Documents for Stage 3 Tailings Facility Construction, Ref. No. 11162/13-2", April 14, 2000. The QA/QC program confirmed this compliance with the Technical Specifications and 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

Stripping and preparatory work was completed on all foundation and abutment areas to ensure that a good tie-in was achieved with the natural ground and with the Stage 2C embankment. Organic debris and topsoil were removed according to the Technical Specifications. Foundation approval was required by the Engineer prior to the placement of any fill material.

Earthworks for the Stage 3 Tailings Storage Facility construction comprised the following zones and materials:

- Zone S - fine grained glacial till.
- Zone CS - cycloned sand.
- Zone F - processed gravel and sand filter.
- Zone T - select rockfill transition zone.
- Zone C - rockfill zone.
- Basin Liner - fine grained glacial till.

The gradation requirements for the fill materials are shown on Drawing 11162-13-104. Results of these, together with density, moisture content and other tests, are discussed in the following sections.

### 2.5.2 Zone S

Zone S forms the low permeability core and seal zones for the Main, Perimeter and South Embankments. The material used in Zone S was fine grained glacial till from Borrow Area No. 2, which is located downstream of the left (East) abutment of the Main Embankment.

The Specification for Zone S material required placement and compaction in maximum 300 mm thick horizontal lifts. The compaction specification was 95 percent of the Standard Proctor maximum dry density.

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)
- Field Moisture Content by Nuclear Methods (ASTM D3017)

A total of nine(9) complete Record Tests of Zone S material were made. An additional 379 field density and moisture content tests were made by the nuclear densometer.

The particle size analyses showed that the Zone S glacial till is a well-graded sandy silt with some clay and gravel. All of the test results were within the specified limits for the material. The gradation curves of the Zone S Record Tests are shown on Figure 2.1.

Atterberg limits testing was carried out on five samples. The plastic limits of these samples ranged from 13.4 to 14, with a median of 13.7. The liquid limits ranged from 22.5 to 24.5, with a median of 24.4. The plasticity index ranged from 8.8 to 10.8, with a median of 10.0. 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 the nuclear densometer was 10.2 percent, while the median optimum moisture content was 8.8 percent. The median deviation from the optimum moisture content was 1.7 percent wet of optimum. Material too wet for direct placement in the Zone S fill was avoided in the borrow areas.

The median field dry density, as measured with the nuclear densometer, was 2109 kg/m<sup>3</sup>, while the median Standard Proctor maximum dry density was 2115 kg/m<sup>3</sup>. Percent compaction values for all nine Record Tests ranged from 98 percent to 105 percent. The median percent compaction from the nuclear densometer tests was 99.1 percent. These results indicate that the compaction specification of 95 percent was achieved. Each lift of Zone S was tested prior to the placement of the next lift. If any test failed to meet the compaction requirements, the area in question was re-compacted until the minimum compaction requirements were met. Of the 379 nuclear densometer tests, only one failed the compaction requirement. The material in this area was allowed to remain in place based on visual inspections carried out by the Engineer.

Histograms were generated to illustrate the results of the field density and moisture content testing. The histograms in Figures 2.2 to 2.4 present the field moisture content, Standard Proctor optimum moisture content and deviation from optimum for the Zone S Record samples, while Figures 2.5 to 2.7 show the measured field dry density, the Standard Proctor maximum dry density and the corresponding percent compaction. Figures 2.8 to 2.11 display the results of 379 field density and moisture content tests conducted in Zone S with the nuclear densometer during Stage 3 construction.

Specific gravity was determined for five samples. The median result was 2.62, which is consistent with values measured on similar materials during previous construction programs.

### 2.5.3 Zone CS

Zone CS consists of cycloned tailings sand which was placed in the upstream zone of the Perimeter Embankment by mechanical methods. The material was spread in horizontal lifts up to 1000 mm thick and then compacted with a 10-ton vibratory roller augmented with truck traffic. KP field personnel were on site during the compaction of the final lift only. The compaction of the first lift was carried out while KP field personnel were not on site.

Record tests on Zone CS consisted of:

- Particle Size Distribution (ASTM D422)
- Field Density by Nuclear Methods (ASTM D2922)
- Moisture Content by Nuclear Methods (ASTM D3017)

A total of five (5) particle size distribution tests were made on Zone CS material. An additional 19 field density and moisture content tests were carried out with the nuclear densometer on the final lift of the material.

The particle size analyses showed that Zone CS is a uniform silty sand. All of the test results were within the specified limits for the material. The gradation curves are shown on Figure 2.12.

The median field moisture content, as measured with the nuclear densometer, was 4.8 percent and the range of moisture contents was from 3.8 to 6.2 percent. The material was placed and shaped in the fall of 2000 and the spring of 2001 and the final lift was not compacted and tested until July 2001. As a result, the moisture contents reported here are lower than freshly placed materials.

The median field dry density of the Zone CS material, as measured with the nuclear densometer, was 1611 kg/m<sup>3</sup>.

Histograms illustrating the results from the 19 nuclear densometer field moisture content and field density tests were generated. These are shown on Figures 2.13 and 2.14.

#### 2.5.4 Zone F

Zone F forms the filter zone immediately downstream of Zone S on the Main and Perimeter Embankments. The material used in Zone F was mine waste rock which was crushed at the millsite.

The Specification for Zone F called for placement and compaction in maximum 600 mm thick horizontal lifts. However, due to difficulties experienced in placing these lifts on the sloping downstream surface of Zone S (see Drawing 11162-13-125), the specification was modified in the field to allow for placement in a 1000 mm thick lift on the slope. The Zone F fill placement was carefully monitored to ensure that segregation did not occur. Compaction was achieved with a 10 ton vibratory smooth drum roller running up and down the slope.

Record tests on Zone F consisted of:

- Particle Size Distribution (ASTM D422)
- Moisture Content (ASTM D2216)

A total of forty two (42) particle size distribution tests were completed on Zone F. These tests showed that Zone F consists of a well-graded gravel and sand. Thirteen of the Zone F test results fell outside of the specified coarse limit for particle sizes smaller than 5 mm. However, in a check with the particle sizes in Zone S, an adequate filter relationship between Zone S and Zone F was confirmed and the material was allowed to remain in place. Gradation curves are shown on Figure 2.15.

Twelve Zone F samples were tested for moisture content. The median field moisture content, as measured in the laboratory, was 4.5 percent and the range of moisture contents was from 2.3 percent to 8.4 percent.

#### 2.5.5 Zone T

Zone T is a transition zone immediately downstream of Zone F in the Main and Perimeter Embankments. The material used in Zone T was select rockfill which was quarried from the Rock Borrow.

The Specification for Zone T required placement and compaction in maximum 600 mm thick horizontal lifts. However, for reasons similar to Zone F, the specification was modified in the field to allow for placement in a 1000 mm thick lift on the sloping face of the embankment. Fill placement was carefully monitored to ensure that segregation did not occur. Compaction was achieved with a 10 tonne vibratory smooth drum roller on the slope.

Record tests on Zone T consisted of:

- Particle Size Distribution (ASTM D422)
- Moisture Content (ASTM D2216)



A total of eighteen (18) Zone T samples were tested for particle size distribution. These tests showed that Zone T consists of a well-graded gravel with some cobbles and trace sand. Gradation curves are shown on Figure 2.16. One of the Zone T record test results fell slightly outside of the specified coarse limit for particle sizes greater than 100 mm. This will not affect the behavior of Zone T and the material was left in place.

Seven Zone T samples were tested for moisture content. The median field moisture content, as measured in the laboratory, was 3.6 percent and the range of moisture contents was from 1.4 percent to 4.4 percent.

#### 2.5.6 Zone C

Zone C is a rockfill zone immediately downstream of Zone T in the Main and Perimeter Embankments. The material used in Zone C was rockfill which was quarried from the Rock Borrow.

The Specification for Zone C called for placement and compaction in maximum 1000 mm thick horizontal lifts. This was followed and compaction was achieved with a 10 ton vibratory smooth drum roller augmented with 85 tonne haul trucks.

Record tests on Zone C consisted of Particle Size Distribution (ASTM D422). A total of five(5) Record Tests were completed on Zone C. The results showed that Zone C is a well graded cobbly gravel with trace boulders and sand. All of the test results were within the specified limits for Zone C. Gradation curves are shown on Figure 2.17.

#### 2.5.7 Basin Liner

The Basin Liner was constructed out of locally borrowed glacial till placed in three 150 mm thick lifts to a total thickness of 450 mm. The material in each lift was compacted to a dry density of greater than 92 percent of the Standard

Proctor maximum dry density. A 300 mm thick layer of till, nominally compacted, was then placed over the liner as frost protection.

No laboratory testwork was conducted on the Basin Liner material. The material quality and lift and compaction control was made by thorough and continuous visual inspections during construction.

## 2.6 EMBANKMENT DRAIN SYSTEMS

Foundation Drain FD-5 was extended to the right abutment of the Main Embankment in order to control a small groundwater seep observed in the area and to provide a conduit for local runoff. The as-built location of the drain extension is presented on Drawing 11162-13-250.

## 2.7 TAILINGS DISCHARGE SYSTEM

The tailings discharge system includes a single HDPE pipeline approximately 7,000 metres in length from the Millsite to the left (west) abutment of the Perimeter Embankment. Downstream of this, the system included pipework to route the tailings through cyclones for Zone CS construction, or to a number of discharge points on the embankment crest.

Construction activities related to the tailings discharge system included the following:

- Operation of Krebs 20" cyclones at the embankment crest and in Borrow Area No. 4 to supply material for Zone CS at the Perimeter Embankment.
- Discharge of tailings from various points around the perimeter of the facility to establish beaches.

## 2.8 INSTRUMENTATION AND MONITORING

### 2.8.1 General

Construction activities related to instrumentation and monitoring systems included installing the following:

- Vibrating wire piezometers
- Groundwater monitoring wells
- Slope inclinometers
- Survey monuments

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

### 2.8.2 Vibrating Wire Piezometers

A total of seven(7) vibrating wire piezometers were installed during Stage 3 construction, as summarized below and on Table 2.3. Details of the as-built piezometer locations are shown on Drawings 11162-13-250, 251, 254, 258 and 259 with instrumentation details shown on Drawing 11162-13-256.

Three(3) piezometers were installed in the foundation under the Zone C buttress (one each at Planes A, B and C) to monitor pore pressures in the foundation.

One(1) piezometer was installed in the foundation under the South Embankment (Plane F) to monitor pore pressures in the foundation.

Three(3) piezometers were installed in the Zone F (one each at Planes D, G and H) to monitor the performance of the filter.

No unexpected or anomalous pore pressures were observed while monitoring these or the previously installed vibrating wire piezometers during construction. Some of the piezometers in the Zone S fill responded to the

increased load from the additional material placed on the embankments. However, the increases did not result in any delays in construction.

The pore pressures in the tailings reflected the pond level. A total of 59 vibrating wire piezometers have been installed at the Tailings Storage Facility. Of these, 53 remain in operation. The results of all piezometer monitoring are discussed in detail in the KP document "Report on 2000 and 2001 Annual Inspection", (Ref. No. 11162/14-2, October 3, 2001) and in the site progress reports.

### 2.8.3 Groundwater Monitoring Wells

Three(3) groundwater monitoring wells were installed downstream of the South Embankment during Stage 3 construction to monitor groundwater quality and water levels to the South of the Tailings Storage Facility. The borehole logs and installation details are presented in Appendix A. The as-built locations are shown on Drawing 11162-13-254 and are also provided on Table 2.2.

MPMC staff measure the piezometric levels within the wells and collect samples for water quality testing. The results of the water quality monitoring have been reported by MPMC in the report "2000 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, Mines and Northern Development).

### 2.8.4 Slope Inclometers

Two(2) slope inclinometers were installed immediately downstream of the Stage 3 Main Embankment to monitor any movements within the foundation materials. The borehole logs and installation details are presented in Appendix A. The as-built locations are shown on Drawing 11162-13-250 and are also presented on Table 2.2.

KP engineering staff monitored the slope inclinometers five times in August, 2001. This initial monitoring creates an average base file, to which all subsequent monitoring is compared. The first readings of these inclinometers are scheduled for November, 2001.

#### 2.8.5 Survey Monuments

Six(6) survey monuments were installed on the crests of the Main and Perimeter Embankments to monitor any future settlements of the crest. The as-built locations are shown on Drawings 11162-13-250, 251 and 254 and are tabulated on Table 2.2. The installation details are presented on Drawing 11162-13-256.

#### 2.9 DESIGN MODIFICATIONS

Knight Piésold Ltd. employs a strict procedure for making design modifications (changes or substitutions) in the field. All design change requests are submitted in writing by the Resident Engineer to the Knight Piésold Ltd. Vancouver Office for review and evaluation. If approved by the Project Principal, the design change request is forwarded to the Owner and Contractor in a formal, written decision.

Some modifications to the design and Technical Specifications were implemented during the Stage 3 construction program in order to adapt to site conditions. All modifications were approved on a technical basis by Knight Piésold Ltd. and on a permitting basis by the appropriate regulatory agencies. All modifications were also accepted and approved by Mount Polley Mining Corporation prior to their implementation.

The documentation associated with design modifications for Stage 3 construction are presented in Appendix E. Some minor modifications were made during Stage 3 construction other than those included in Appendix E. These modifications will have no significant impact on the design and operation of the facility. These were treated as "field fit" solutions and were not required to go through the formal design modification process. Field fits and approved design changes are shown on the as-built drawings.

**SECTION 3.0 - CONCLUSIONS AND RECOMMENDATIONS**

Stage 3 of the Mount Polley Mine Tailings Storage Facility was split into Stages 3A and 3B and constructed between April 2000 and August 2001. The construction program included the completion of the Main, Perimeter and South Embankments to El. 942.5 m. Technical supervision of the work included QA/QC testing and monitoring of instrumentation. This confirmed that the work was completed and the facility was performing in accordance with the design objectives. A few minor deviations from the Technical Specifications were made in the Zones F and T fill, as described in the report. However, each such case was carefully evaluated and determined to have no adverse affect on the facility.

An updated operating performance review has been made of the Tailings Storage Facility and it is presented in a separate document entitled "Report on 2000 and 2001 Annual Inspection" (Ref. No. 11162/14-2, October 3, 2001). From this, Knight Piésold Ltd. recommends that the pond level in the Tailings Storage Facility be closely monitored to ensure that the water level does not encroach on the required freeboard of the Stage 3 embankments. The reclaim barge and reclaim line should also be closely monitored to ensure that they remain in good working order.

**SECTION 4.0 - 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.
- 28) Mount Polley Mining Corporation, Mount Polley Mine, 1998 Construction and Annual Inspection, Ref. No. 11162/10-1, June 16, 1999.

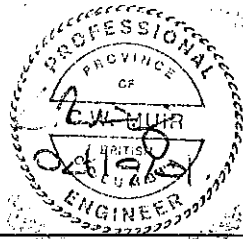
- 29) Mount Polley Mining Corporation, Mount Polley Mine, Report on Cycloned Sand Construction of Stage 3 and On-going Stages of the Tailings Storage Facility, Ref. No. 11162/12-2, December 13, 1999.
- 30) Mount Polley Mining Corporation, Mount Polley Mine, Project Procedures Manual for Stage 2C and 3 TSF (Ref. No. 11162/13-1, Rev. 0), March 15, 2000
- 31) Mount Polley Mining Corporation, Mount Polley Mine, Contract Documents for Construction of Stage 3 TSF (Ref. No. 11162/13-2, Rev. 2), June 8, 2000
- 32) Mount Polley Mining Corporation, Mount Polley Mine, Operation, Surveillance and Maintenance Manual for Stage 3 (El. 944) Embankment (Ref. No. 11162/13-3, Rev. A) DRAFT, August 17, 2000
- 33) Mount Polley Mining Corporation, Mount Polley Mine, Addendum to Report on Cycloned Sand Construction of Stage 3 and On-going Stages of the TSF (Ref. No. 11162/13-4, Rev. 0), May 11, 2000
- 34) Mount Polley Mining Corporation, Mount Polley Mine, Report on 1999 Construction (Ref. No. 11162/13-5, Rev. 0), August 30, 2000
- 35) Mount Polley Mining Corporation, Mount Polley Mine, Stage 3 TSF Selected Excerpts from Reference Information (Ref. No. 11162/13-6, Rev. 0), April 20, 2000
- 36) Mount Polley Mining Corporation, Mount Polley Mine, Site Inspection Manual for Stage 3 Construction of the Main and South Embankments (Ref. No. 11162/13-7, Rev. 0), June 23, 2000
- 37) Mount Polley Mining Corporation, Mount Polley Mine, TSF Rock Borrow Bench Stability Assessment (Ref. No. 11162/13-8, Rev. A), August 18, 2000

- 38) Mount Polley Mining Corporation, Mount Polley Mine, Report on 1999 Annual Inspection (Ref. No. 11162/13-9, Rev. 0), October 16, 2000
  
- 39) Mount Polley Mining Corporation, Mount Polley Mine, Report on 2000 and 2001 Annual Inspection (Ref. No. 11162/14-2, Rev. 0), October 3, 2001

**SECTION 5.0 - CERTIFICATION**

This report was prepared and approved by the undersigned.

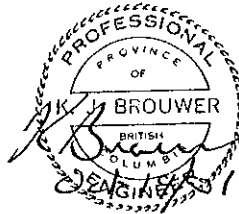
Prepared by:



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C. Wilson Muir, P.Eng.  
Project Engineer

Approved by:



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Ken J. Brouwer, P.Eng.  
President

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**TABLE 2.1**

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY - STAGE 3 CONSTRUCTION**  
**TABLE OF QUANTITIES AND QA/QC TESTING FREQUENCIES**

Date Printed: 12-Oct-01  
Date Rev'd: 12-Oct-01

MA111621AR report(3) (3-00)P-1.tbl Schedule\_r0

ZONE Material	STAGE 3A QUANTITY <sup>(1)</sup> (m <sup>3</sup> )	STAGE 3B QUANTITY <sup>(4)</sup> (m <sup>3</sup> )	CONTROL TESTS						RECORD TESTS															
			C1		C2		C3		C4		C6		R1		R2		R3		R4		R7			
			I per	No.	I per	No.	I per	No.	I per	No.	I per	No.	I per	No.	I per	No.	I per	No.	I per	No.	I per	No.		
Zone S	25,000	17,000	-	-	840	50	1,680	25	-	-	-	-	-	-	8,400	5	4,667	9	4,667	9	4,667	9	111	379
Glacial Till																								
Basin Liner	3,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glacial Till																								
Zone CS	-	9,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cycloned Sand																								
Zone F <sup>(2)</sup>	24,000	25,000	-	-	3,063	16	1,065	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Filter Sand																								
Zone T <sup>(3)(5)</sup>	51,000	26,000	-	-	77,000	1	77,000	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Select Rockfill																								
Zone C <sup>(1)(6)</sup>	366,000	88,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rockfill																								
Totals	469,000	165,500	0	0	67	67	72	72	0	0	0	0	0	0	5	5	28	28	79	79	9	9	398	519
Grand Totals		634,500					139	139																

**Notes:**

- Zones F and C received from MPMC as one volume for Stage 3A construction. As a result, Zone T test line design volume used for as-built volume.
- Zones F, T and C received from MPMC as one volume for Stage 3B construction. As a result, Zones F and T test line design volumes to EL 945 used for as-built volume.
- EL 945 volume used due to visual evidence of overbuild during construction.
- Includes construction of Zones F, T and C at the Perimeter Embankment between Setting Out Points S5 and S6 to EL 942.5 m.
- Includes construction of Zone S at the Perimeter Embankment to EL 941.3 m, which was completed for Stage 3A Construction.

**Control Tests:**

- C1 Atterberg Limits (ASTM D4318)
- C2 Moisture Content (ASTM D2216)
- C3 Particle Size Distribution (ASTM D422)
- C4 Laboratory Compaction (ASTM D698)
- C6 Specific Gravity (ASTM C127)

**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)

**TABLE 2.2**

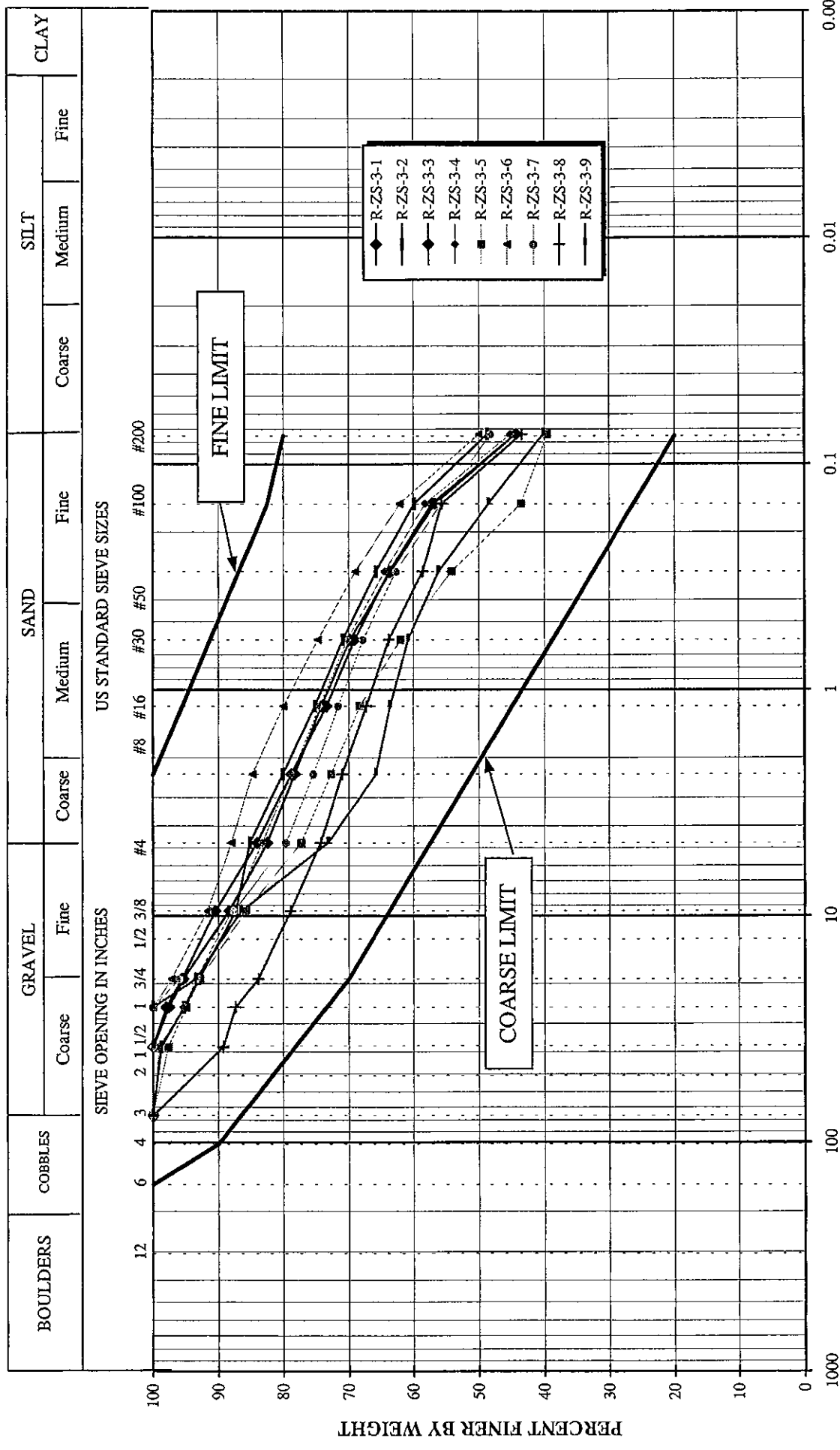
**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**  
**TAILINGS STORAGE FACILITY**  
**STAGE 3 INSTRUMENTATION INSTALLATION DATA**

Date Printed: 10-Oct-01

Date Rev'd: 10-Sep-01

MA11162N14\Report\3\3-tbl2-2.XLS\3 Installation Data\_r0

Type	Identification Number	Serial Number	Tip El. (m)	Ground El. (m)	Zone Monitored	Co-ordinates	
						Northing	Easting
Piezometer	A2-PE1-03	69697	909.2	910.0	Foundation	5818423	595663
Piezometer	B2-PE1-03	69696	913.8	914.5	Foundation	5818573	595847
Piezometer	C2-PE1-03	69698	913.4	914.0	Foundation	5818237	595531
Piezometer	D1-PE1-03	50679	933.3	934.0	Zone F	5819775	595308
Piezometer	F2-PE2-01	53765	939.7	941.0	Foundation	Chainage 7+60	
Piezometer	G1-PE1-01	50678	933.2	934.0	Zone F	5819966	595013
Piezometer	H1-PE1-01	50681	936.8	937.5	Zone F	5819518	595668
Slope Inclinator	SI-01-1	N/A	N/A	915.7	Foundation	5818464	595667
Slope Inclinator	SI-01-2	N/A	N/A	917.3	Foundation	5818401	595589
Monitoring Well	GW00-01	N/A	N/A	939.2	Surficial and Bedrock Foundation	5818476	594368
Monitoring Well	GW00-02	N/A	N/A	943.4	Surficial and Bedrock Foundation	5818338	594652
Monitoring Well	GW00-03	N/A	N/A	943.1	Surficial and Bedrock Foundation	5818238	594896
Survey Monument	A2-SM-12	N/A	N/A	942.5	Embankment Fill, Plane A	5818492	595593
Survey Monument	B2-SM-13	N/A	N/A	942.5	Embankment Fill, Plane B	5818643	595794
Survey Monument	C2-SM-14	N/A	N/A	942.5	Embankment Fill, Plane C	5818398	595468
Survey Monument	D2-SM-15	N/A	N/A	942.4	Embankment Fill, Plane D	5819749	595300
Survey Monument	G2-SM-16	N/A	N/A	942.6	Embankment Fill, Plane G	5819922	595043
Survey Monument	H2-SM-17	N/A	N/A	942.3	Embankment Fill, Plane H	5819528	595629



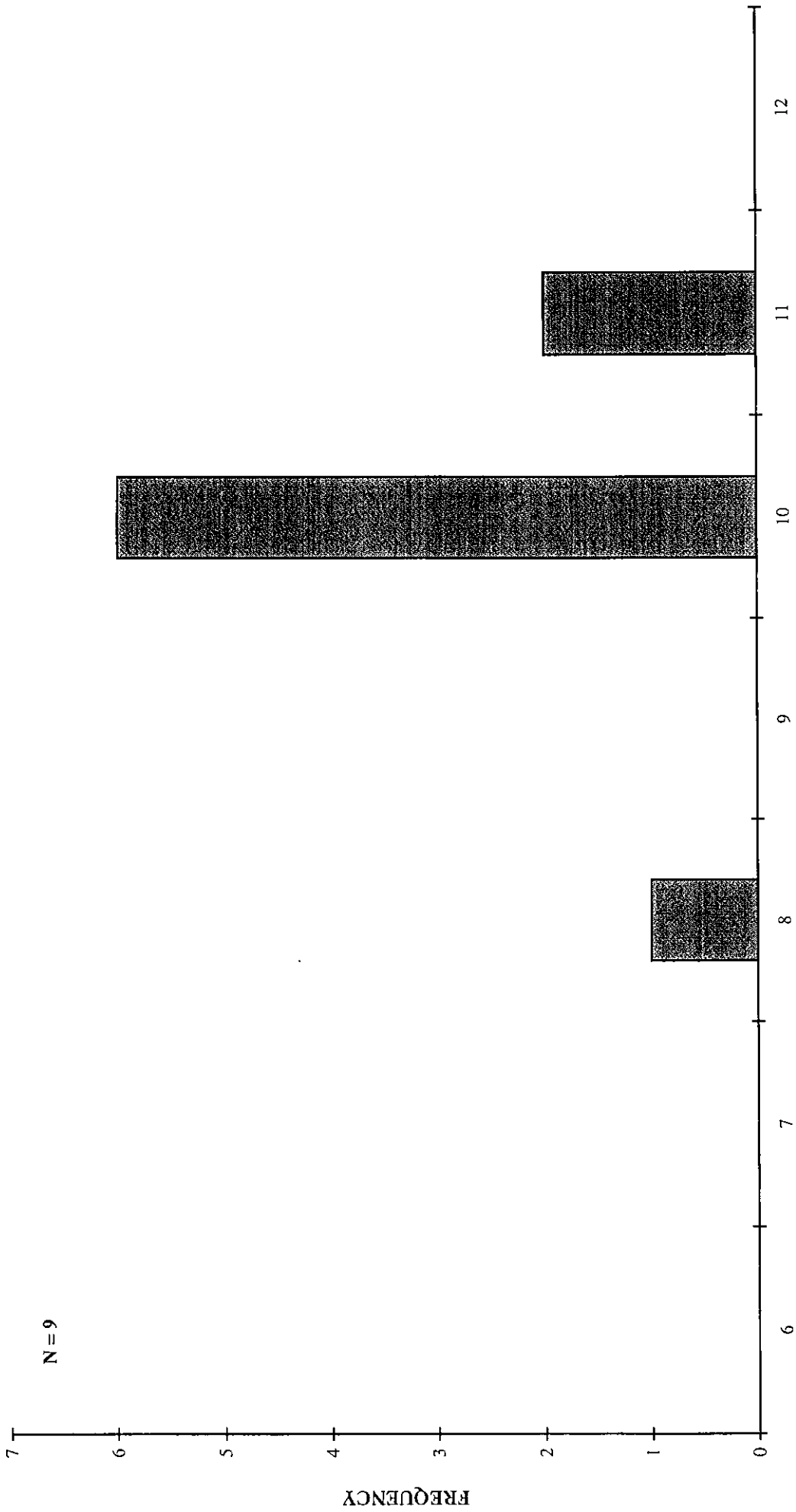
MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY - STAGE 3  
 CONSTRUCTION - ZONE S RECORD SAMPLES -  
 GRADATION CURVES

PROJECT NO. 111621/4  
 REF. NO. 3  
 REV. 0

**Knight Piésold**  
 CONSULTING

FIGURE 2.1

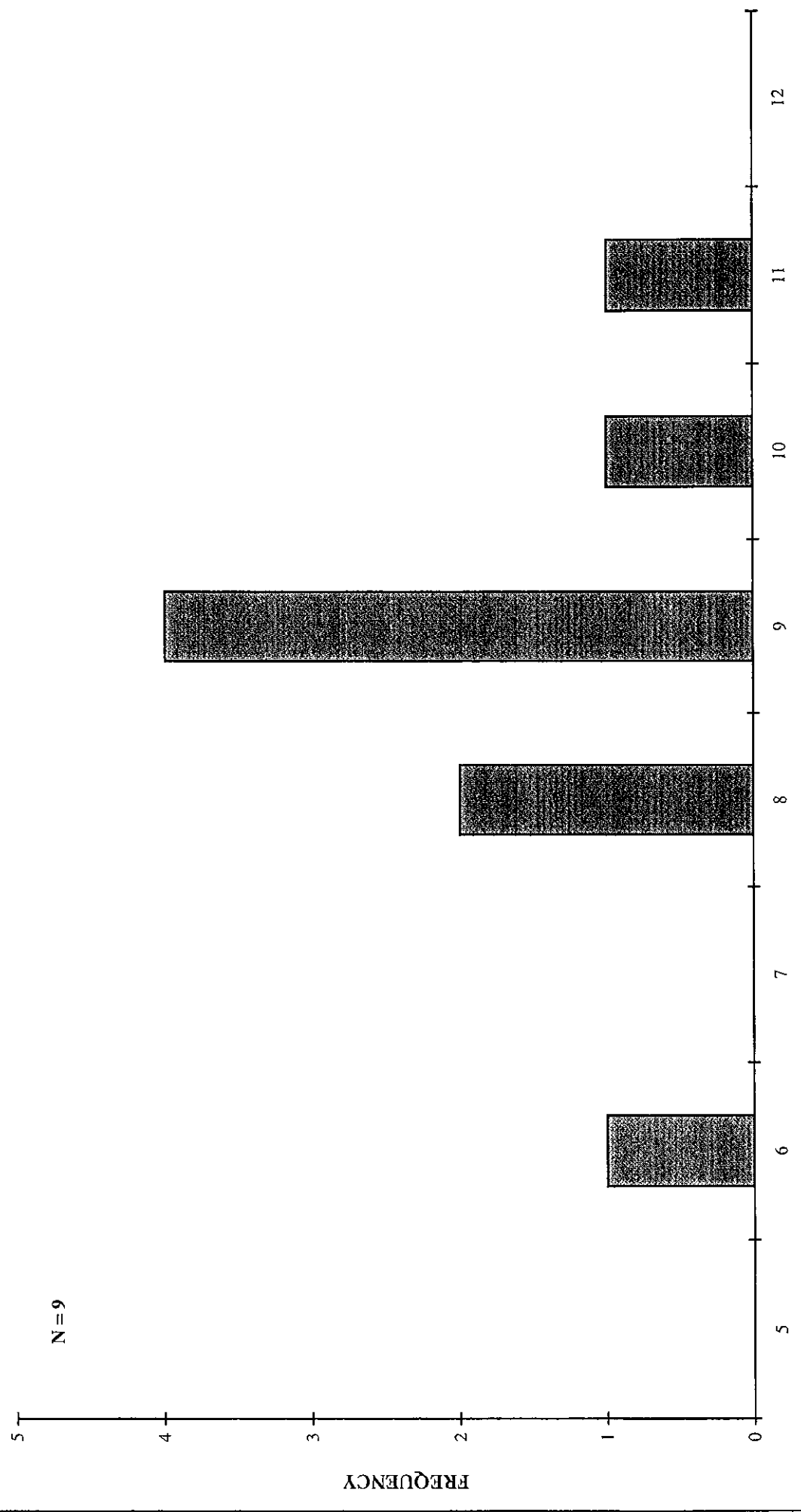


N = 9

FIELD MOISTURE CONTENT (%)

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TAILINGS STORAGE FACILITY	
STAGE 3 CONSTRUCTION - ZONE S RECORD	
SAMPLES - FIELD MOISTURE CONTENT	
<b><i>Knight Piesold</i></b> CONSULTING	PROJECT 11162/14
	REV. 3
	0
FIGURE 2.2	



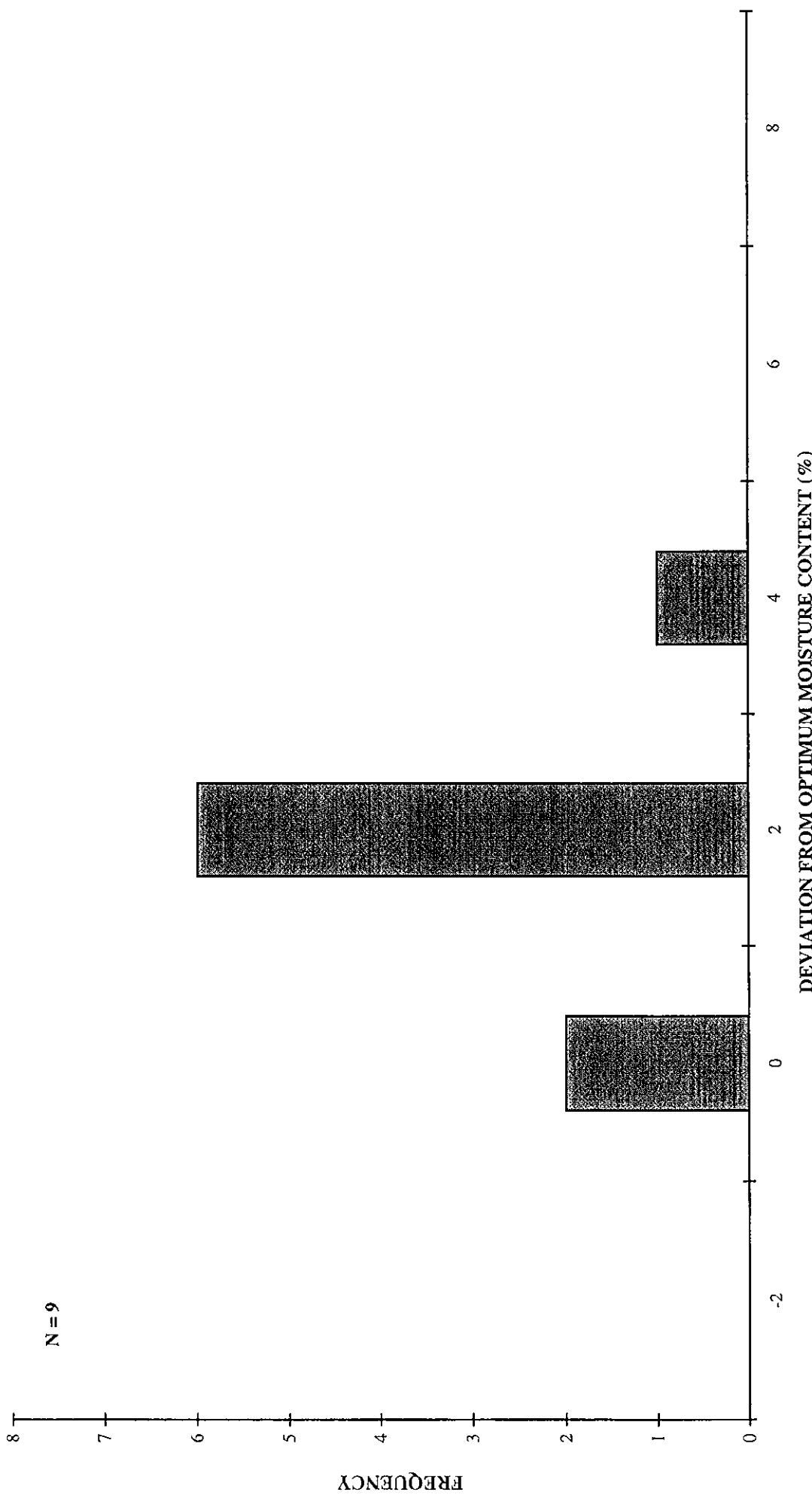


OPTIMUM MOISTURE CONTENT (%)

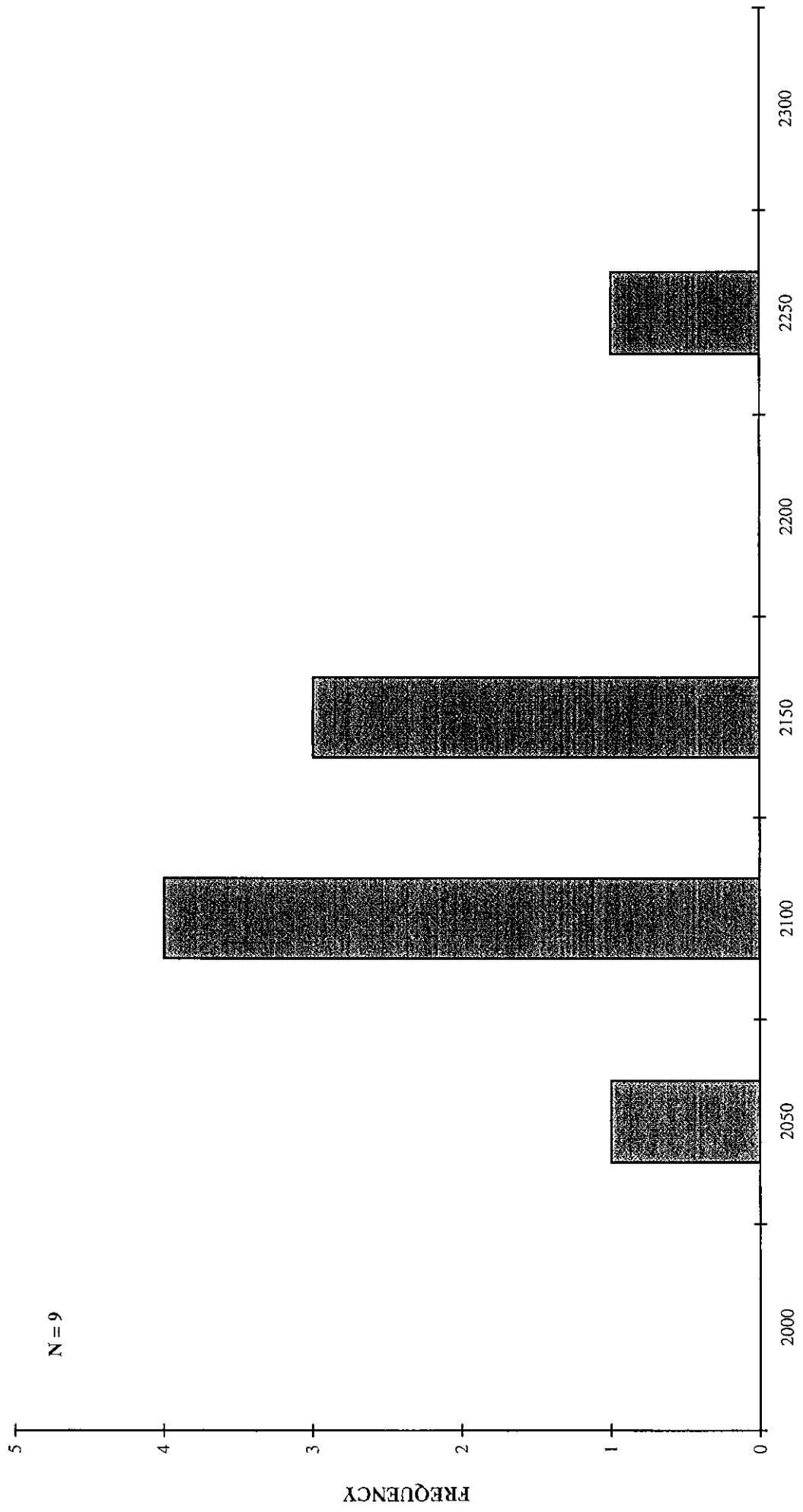
MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TAILINGS STORAGE FACILITY	
STAGE 3 CONSTRUCTION - ZONE 5 RECORD	
SAMPLES - OPTIMUM MOISTURE CONTENT	
PROJECT	REV.
11162/14	3
	0

**Knight Piesold**  
CONSULTING

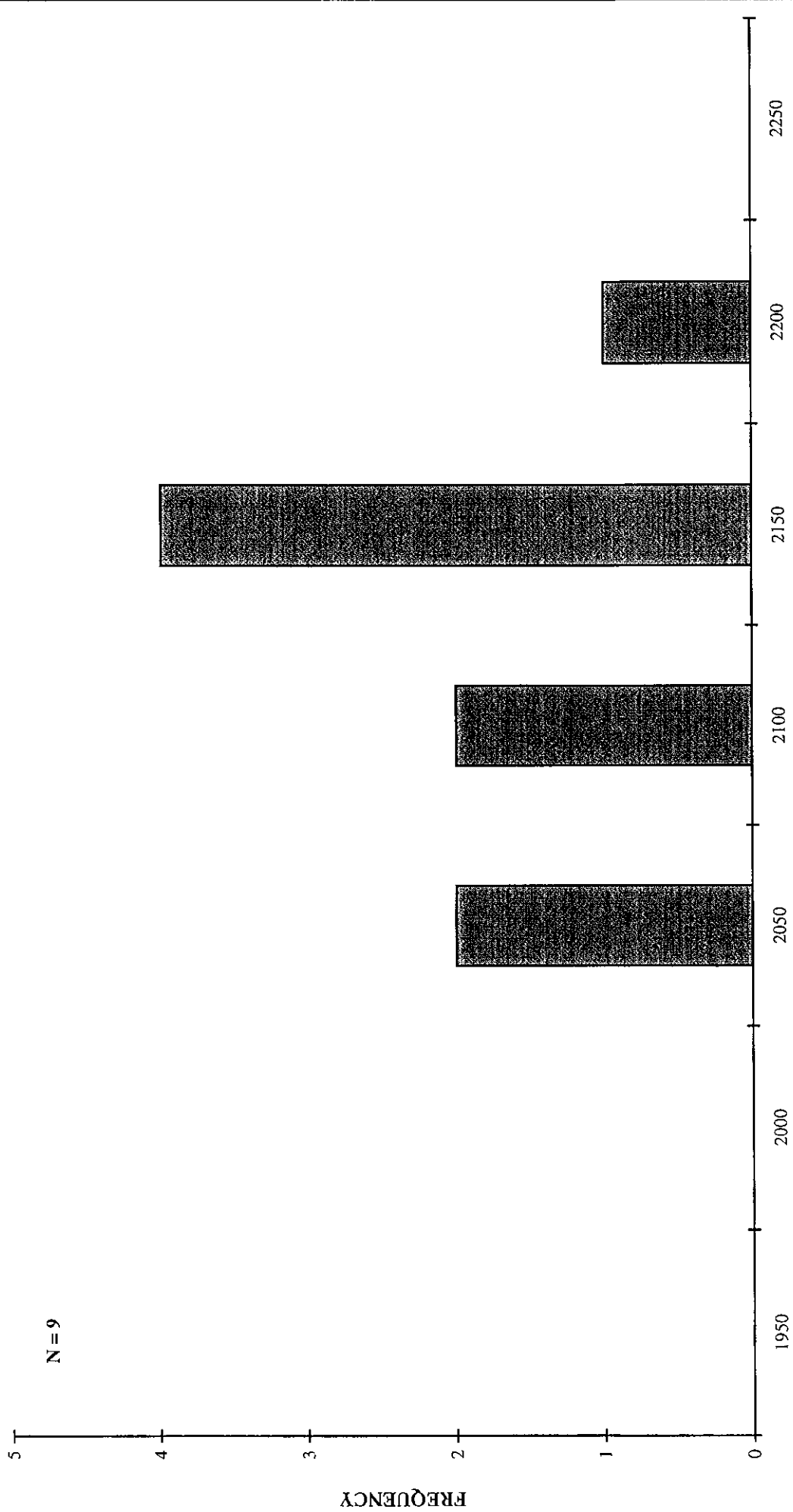
FIGURE 2.3



MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TSF - STAGE 3 CONSTRUCTION - ZONE S	
RECORD SAMPLES - DEVIATION FROM OPTIMUM MOISTURE CONTENT	
<b>Knight Piesold</b> CONSULTING	PROJECT 11162/14
	REF. 3
	REV. 0
FIGURE 2.4	

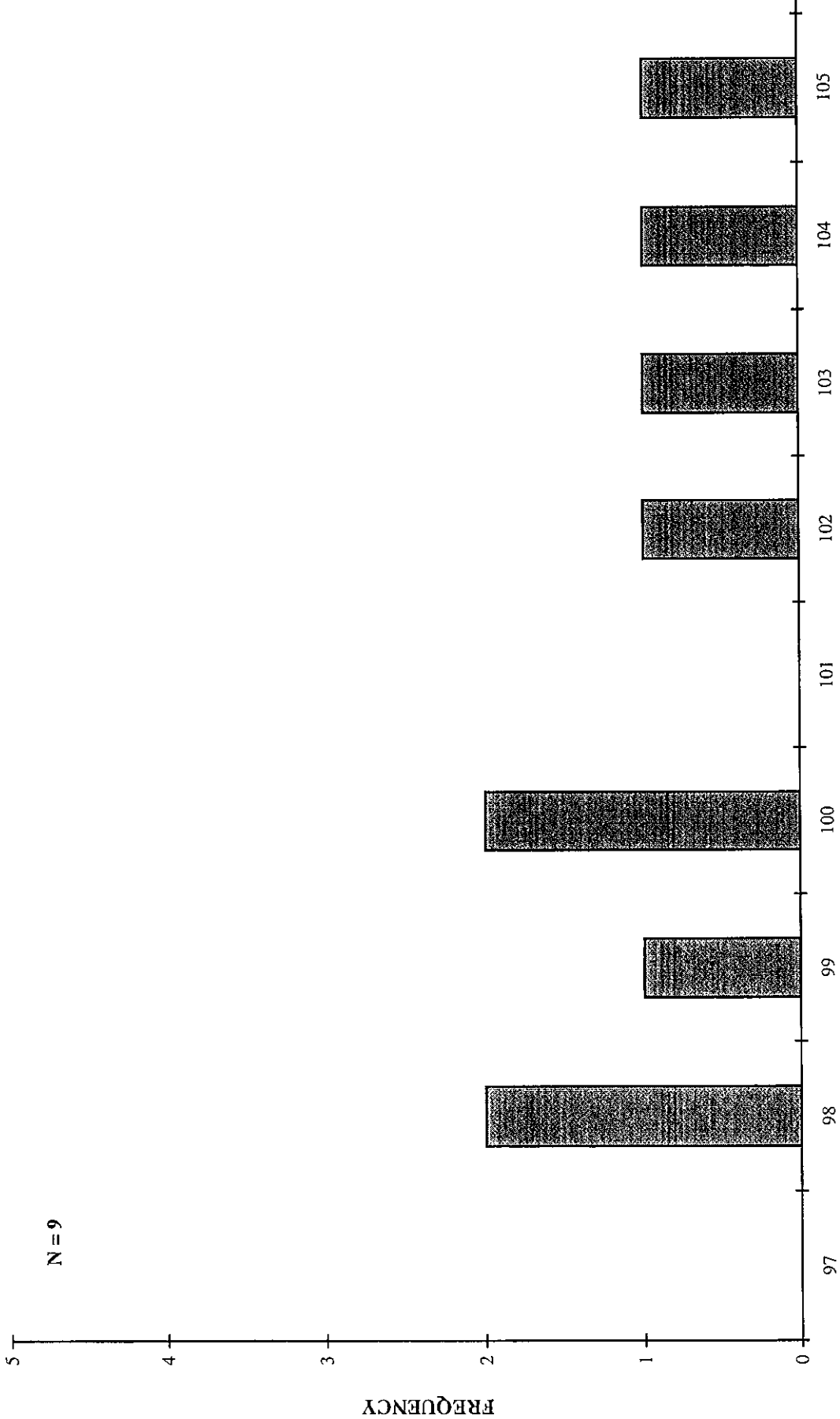


MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TAILINGS STORAGE FACILITY	
STAGE 3 CONSTRUCTION - ZONE 5 RECORD	
SAMPLES - FIELD DRY DENSITY	
<b>Knight Piésold</b>	PROJECT 11162/14
CONSULTING	REF. 3
	REV. 0
	FIGURE 2.5



MAXIMUM DRY DENSITY (kg/cubic metre)

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TAILINGS STORAGE FACILITY	
STAGE 3 CONSTRUCTION - ZONE 5 RECORD	
SAMPLES - MAXIMUM DRY DENSITY	
PROJECT	REV.
11162/14	3
REF.	0
<b>Knights Piesold</b>	
CONSULTING	
FIGURE 2.6	



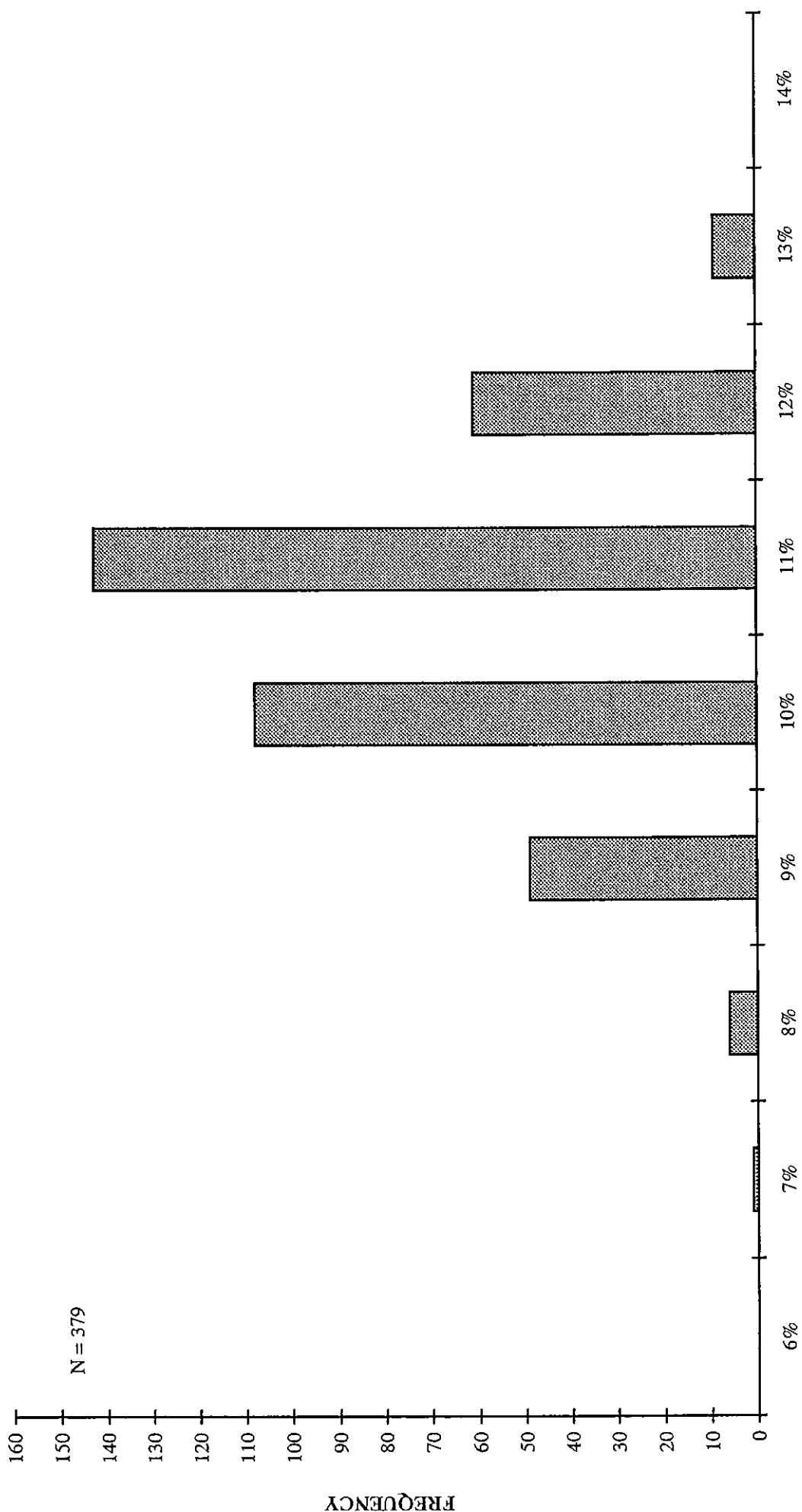
**MOUNT POLLEY MINING CORPORATION**  
MOUNT POLLEY MINE

**TAILINGS STORAGE FACILITY**  
**STAGE 3 CONSTRUCTION - ZONE S RECORD**  
**SAMPLES - PERCENT COMPACTION**

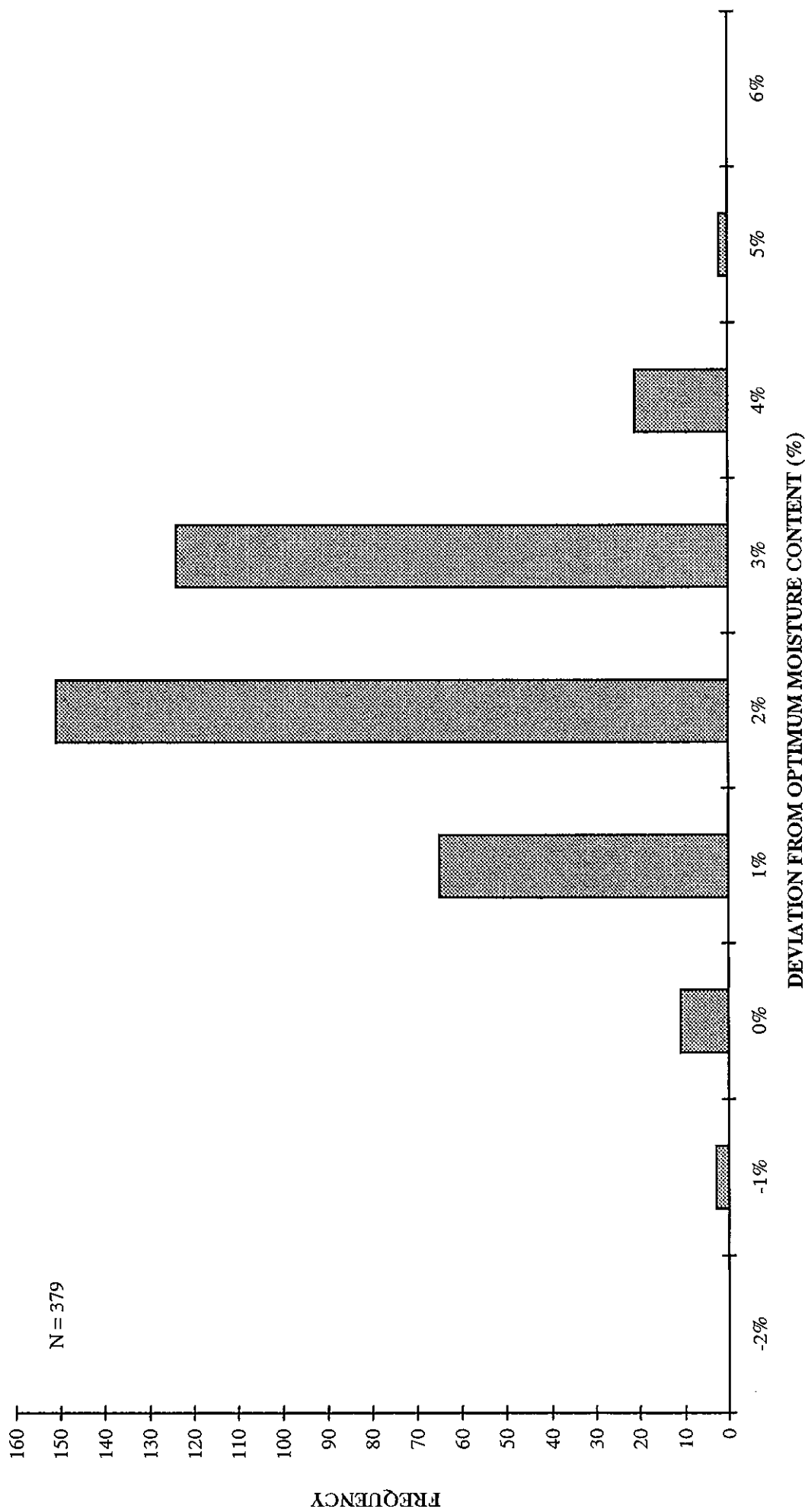
PROJECT	REF.	REV.
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**Knights Piesold**  
CONSULTING

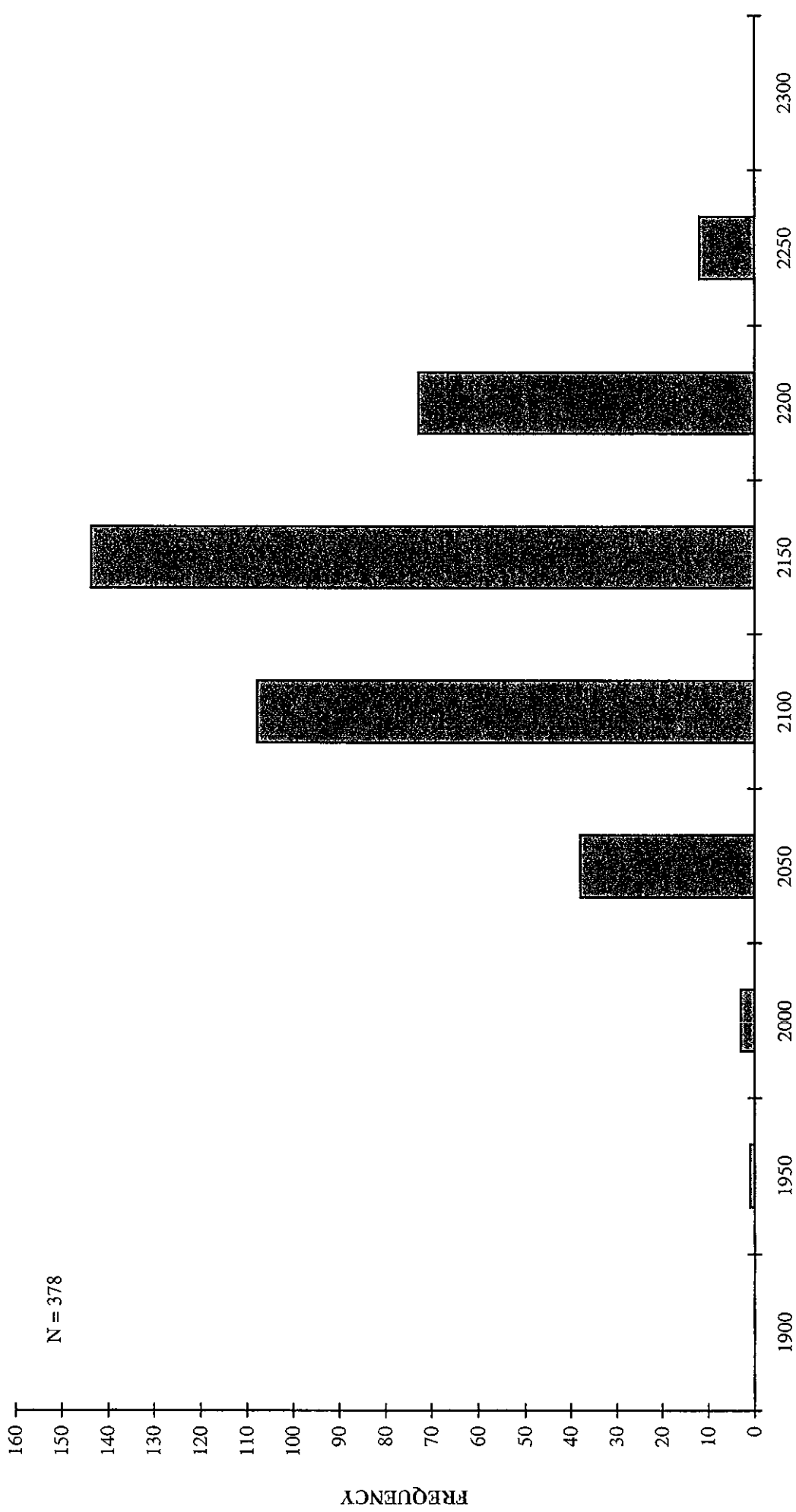
FIGURE 2.7



MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TAILINGS STORAGE FACILITY - STAGE 3 CONSTRUCTION - ZONE S - FIELD MOISTURE CONTENT - NUCLEAR DENSOMETER	
<b>Knight Piésold</b> CONSULTING	
PROJECT 11162/14	REV. 3 0
FIGURE 2.8	



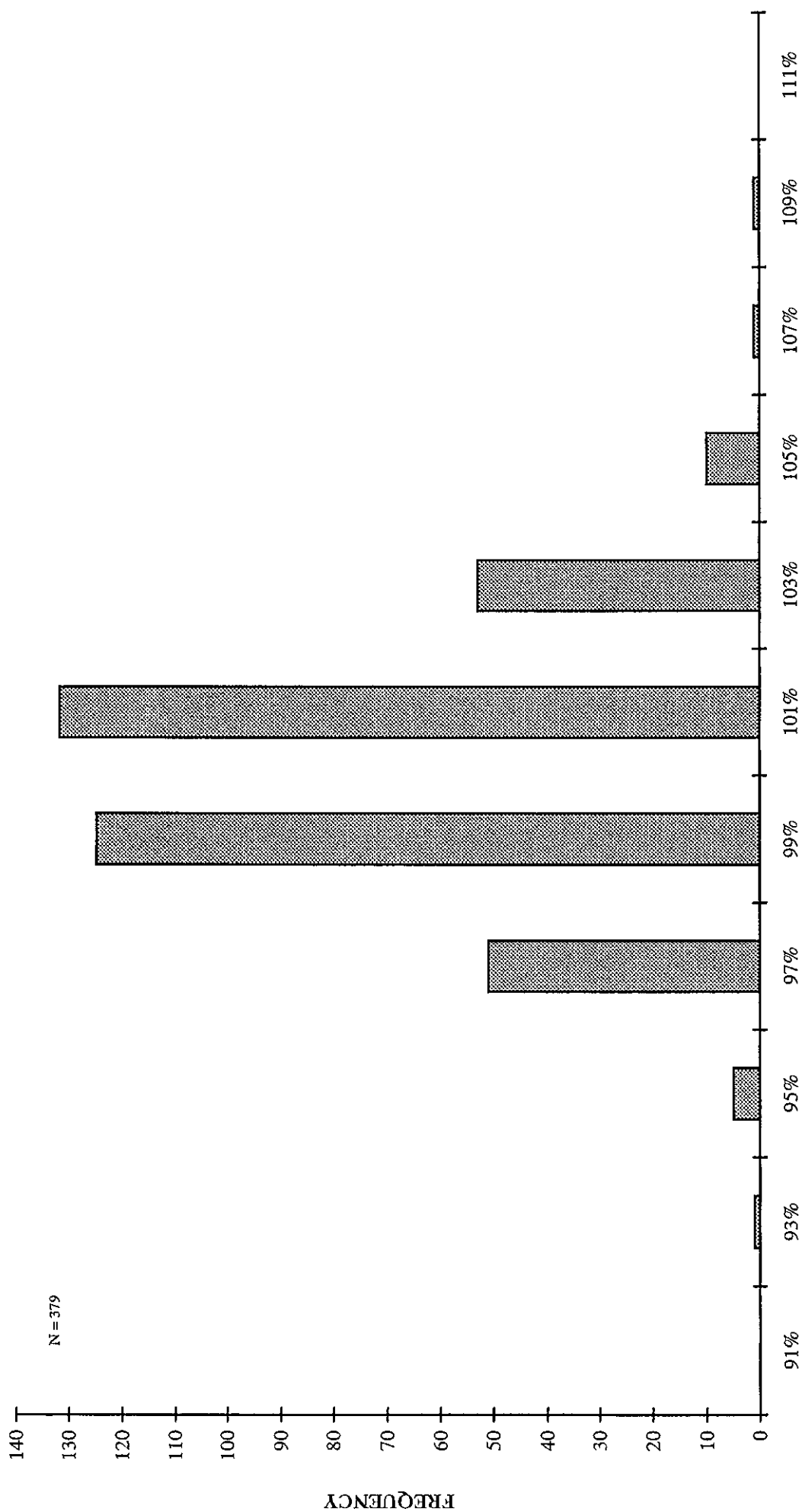
MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TSF - STAGE 3 CONSTRUCTION - ZONE S	
DEVIATION FROM OPTIMUM MOISTURE	
CONTENT - NUCLEAR DENSOMETER	
<b>Knight Piesold</b>	PROJECT REF. REV.
<b>CONSULTING</b>	11162/14 3 0
FIGURE 2.9	



FIELD DRY DENSITY (kg/cubic metre)

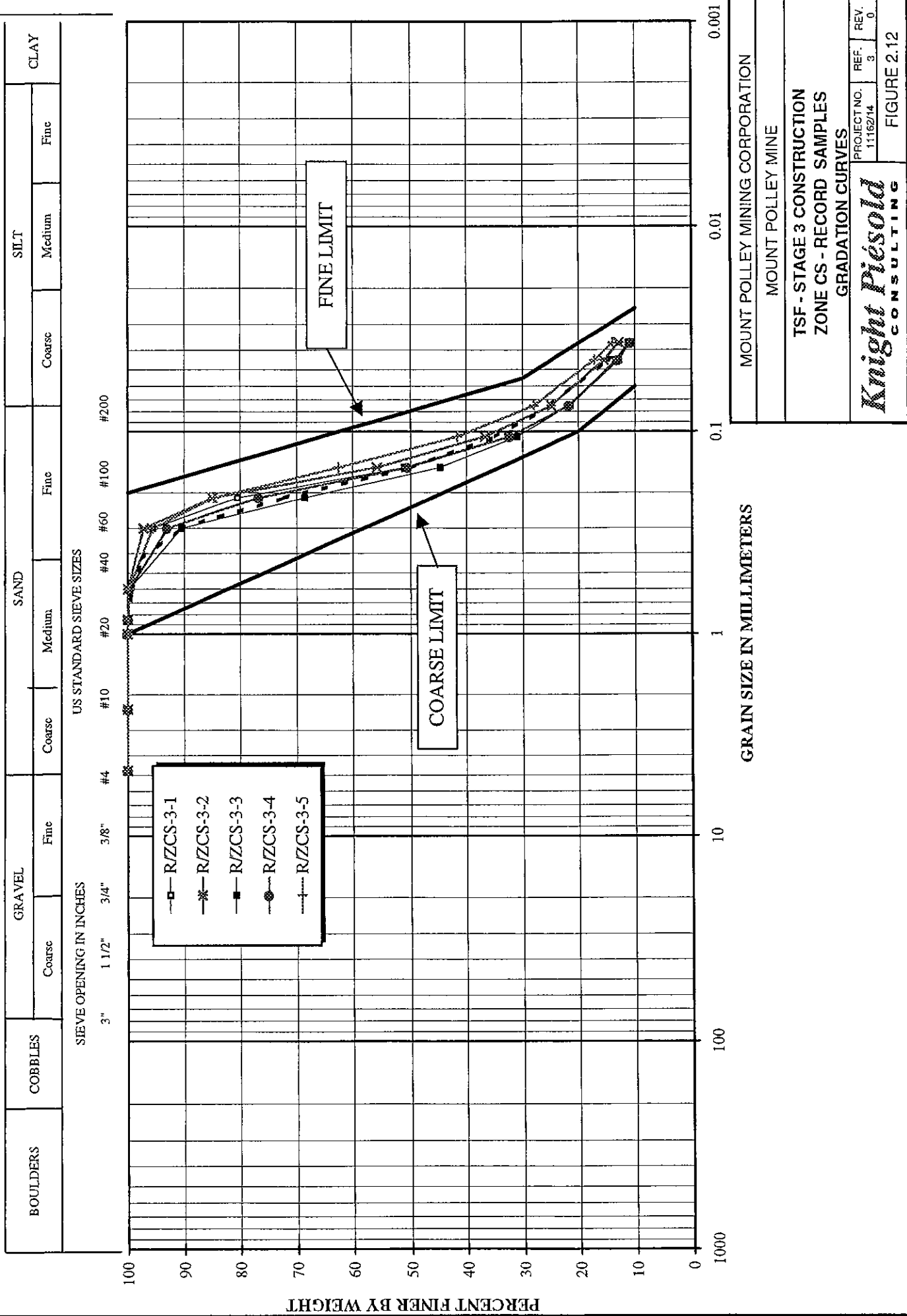
MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TAILINGS STORAGE FACILITY - STAGE 3	
CONSTRUCTION - ZONE S - FIELD DRY	
DENSITY - NUCLEAR DENSOMETER	
<b>Knight Piésold</b> CONSULTING	PROJECT
	11162/14
REF.	3
REV.	0
FIGURE 2.10	

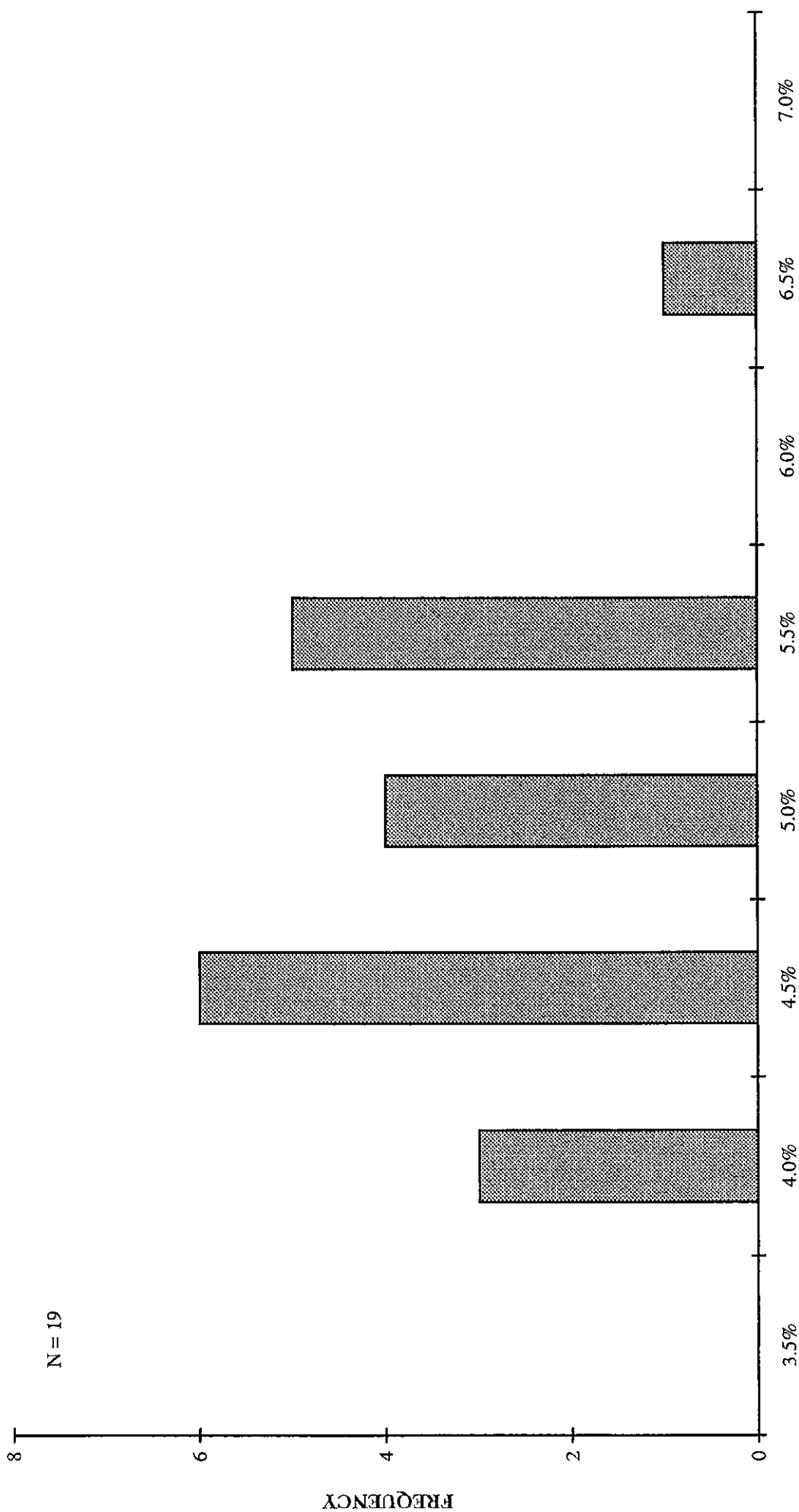




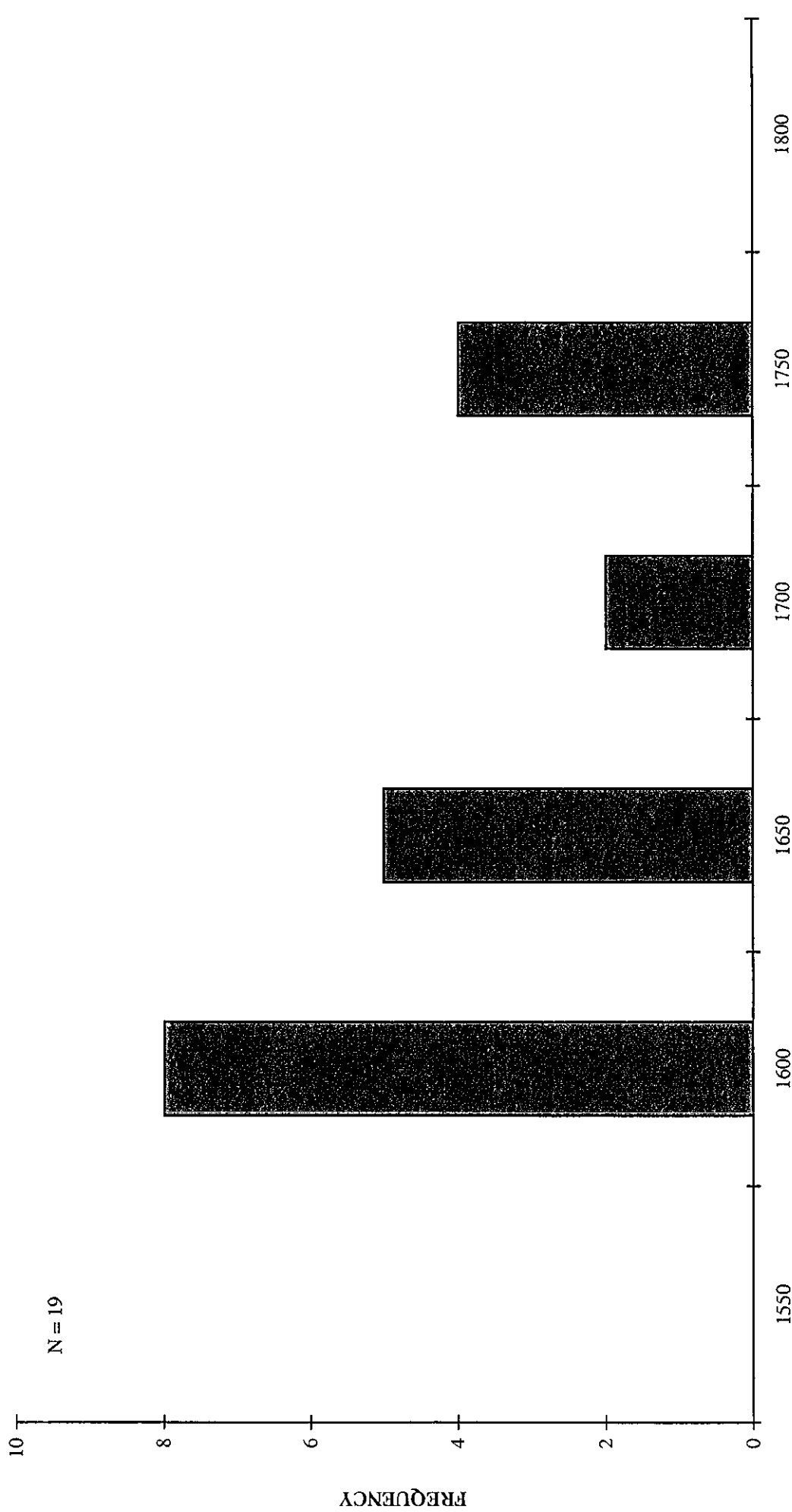
COMPACTION (%)

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TSF - STAGE 3 CONSTRUCTION - ZONE S	
PERCENT COMPACTION	
NUCLEAR DENSOMETER	
<b>Knight Piesold</b> CONSULTING	PROJECT 11162/14
	REF. REV. 3 0
FIGURE 2.11	



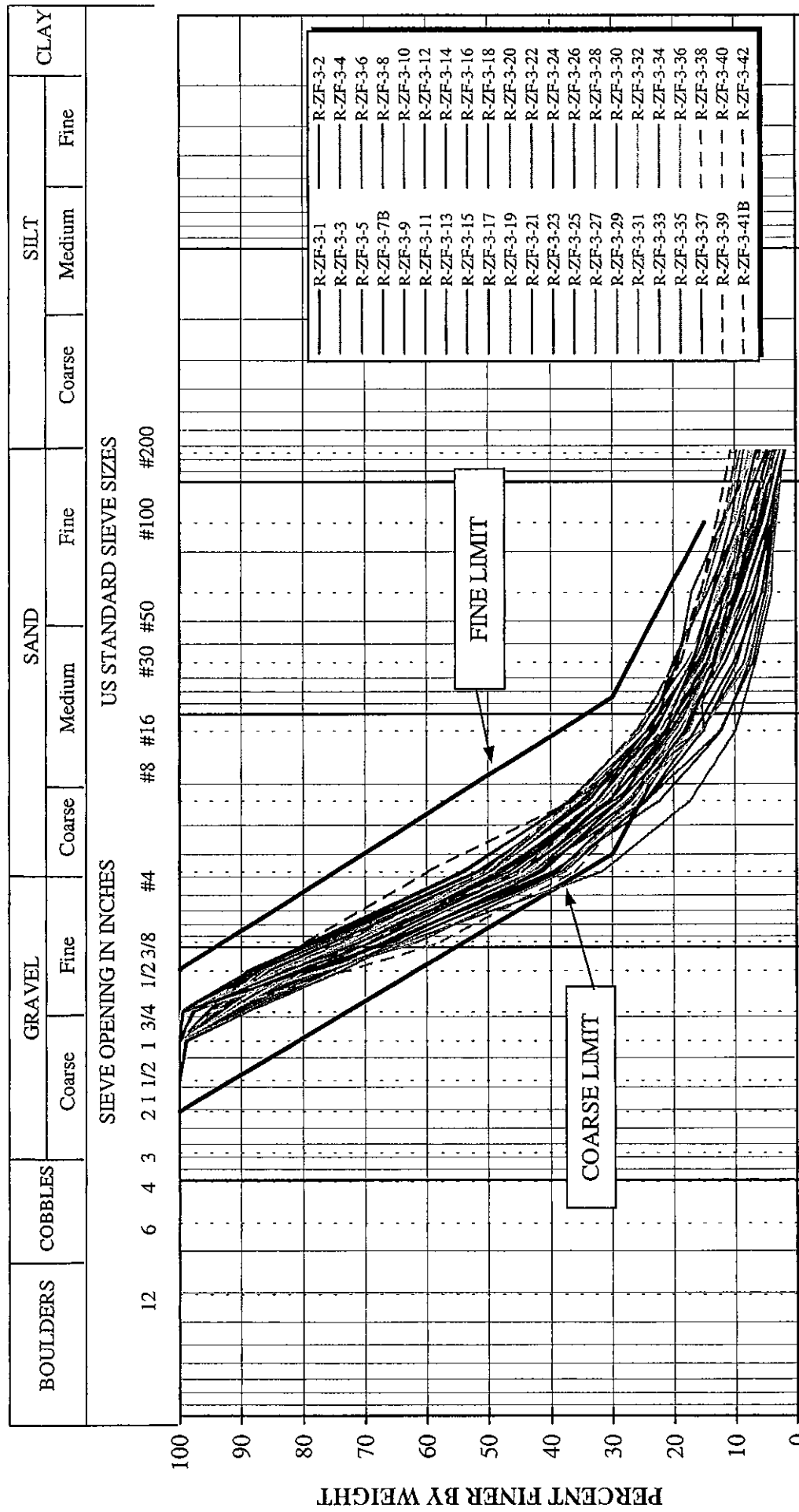


MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TSF - STAGE 3 CONSTRUCTION - ZONE CS	
FIELD MOISTURE CONTENT	
NUCLEAR DENSOMETER	
<i>Knight Piesold</i>	PROJECT 11162/14
CONSULTING	REF. 3
	REV. 0
	FIGURE 2.13



FIELD DRY DENSITY (kg/cubic metre)

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
TSF - STAGE 3 CONSTRUCTION - ZONE CS	
FIELD DRY DENSITY	
NUCLEAR DENSOMETER	
<b>Knight Piésold</b>	PROJECT 11162/14
CONSULTING	REF. 3
	REV. 0
FIGURE 2.14	



MOUNT POLLEY MINING CORPORATION

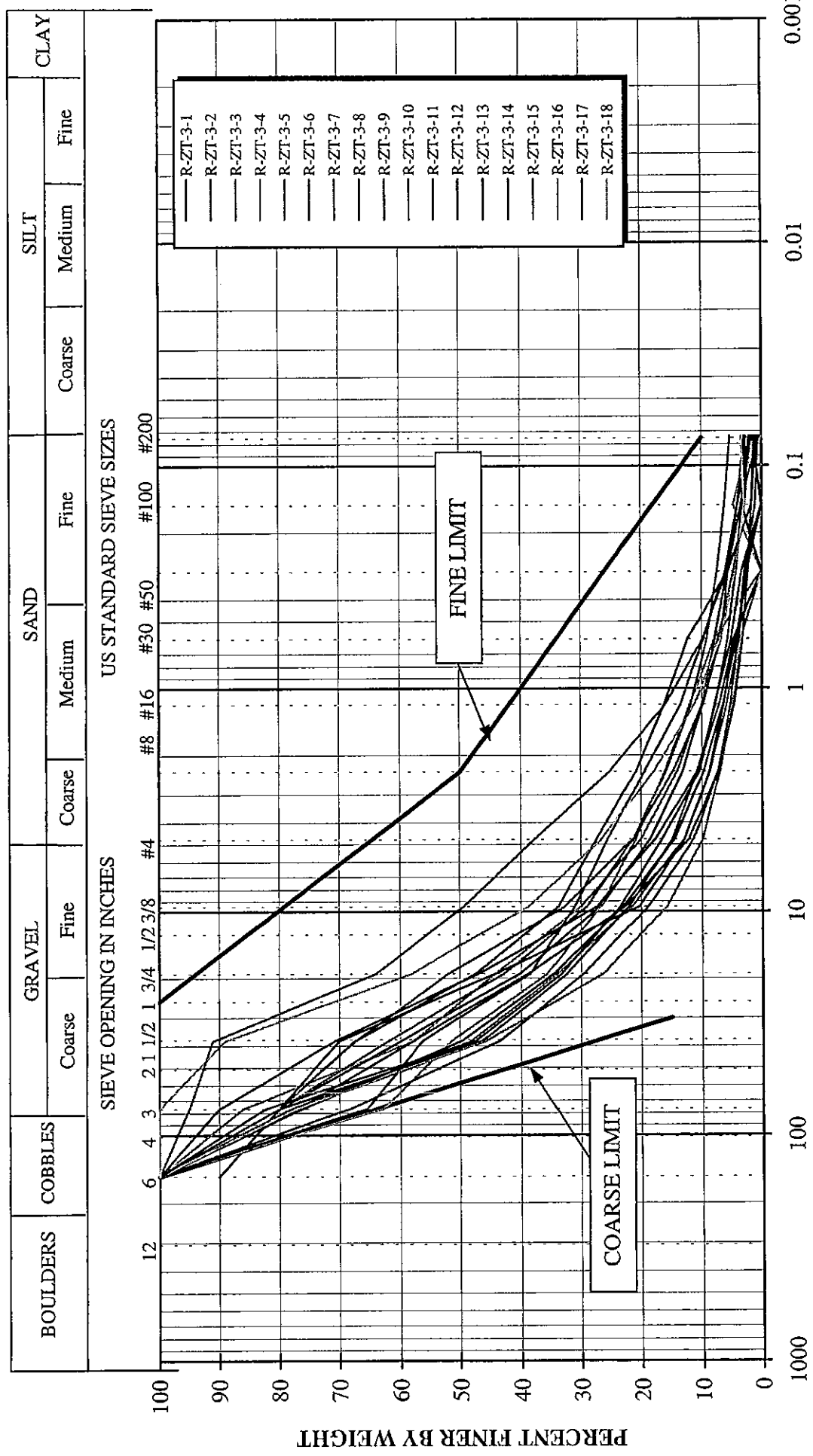
MOUNT POLLEY MINE

TSF - STAGE 3 CONSTRUCTION  
 ZONE F RECORD SAMPLES  
 GRADATION CURVES

**Knight Piésold**  
 CONSULTING

PROJECT 1116214  
 REF. 3  
 REV. 0

FIGURE 2.15



MOUNT POLLEY MINING CORPORATION

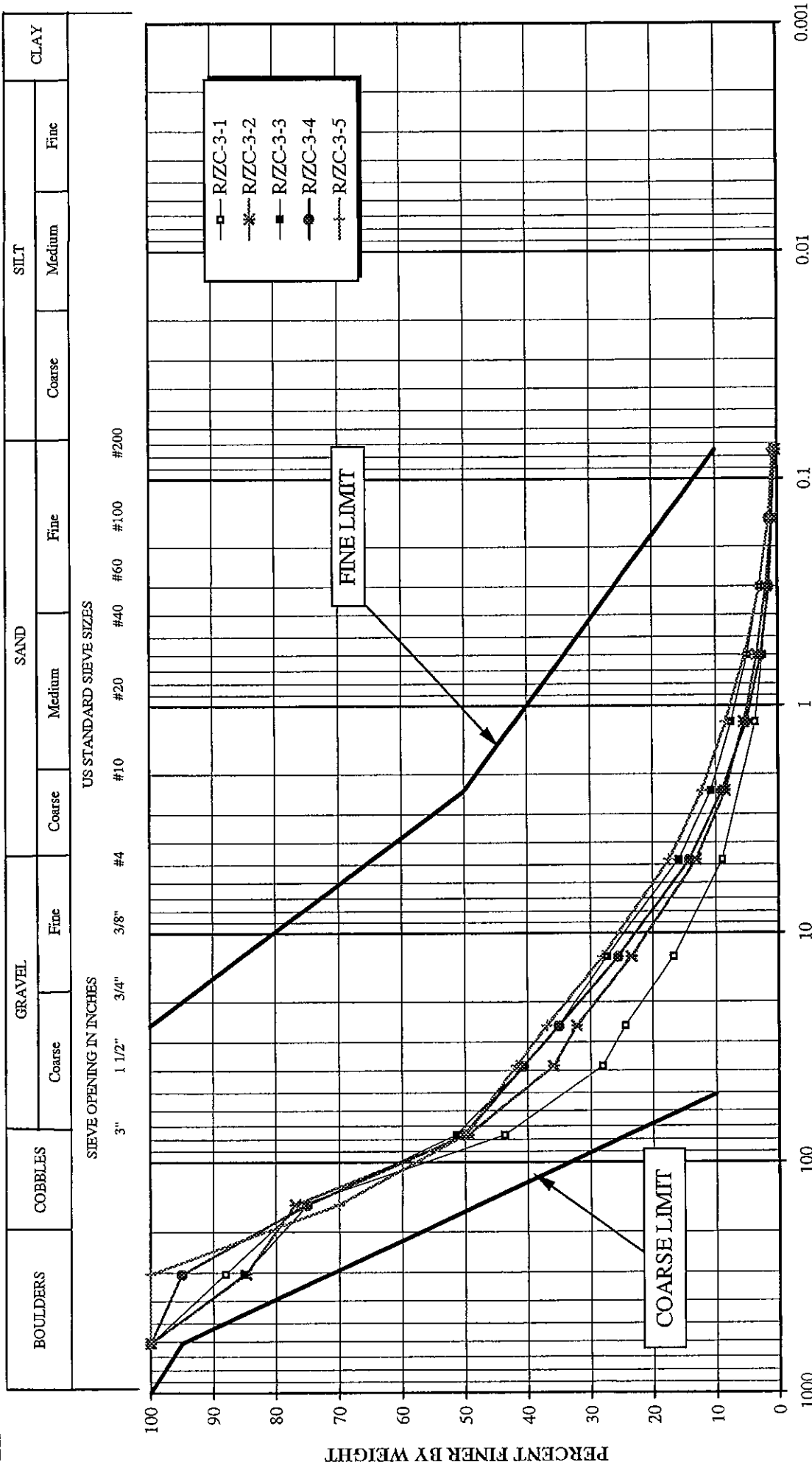
MOUNT POLLEY MINE

TSF - STAGE 3 CONSTRUCTION  
 ZONE T RECORD SAMPLES  
 GRADATION CURVES

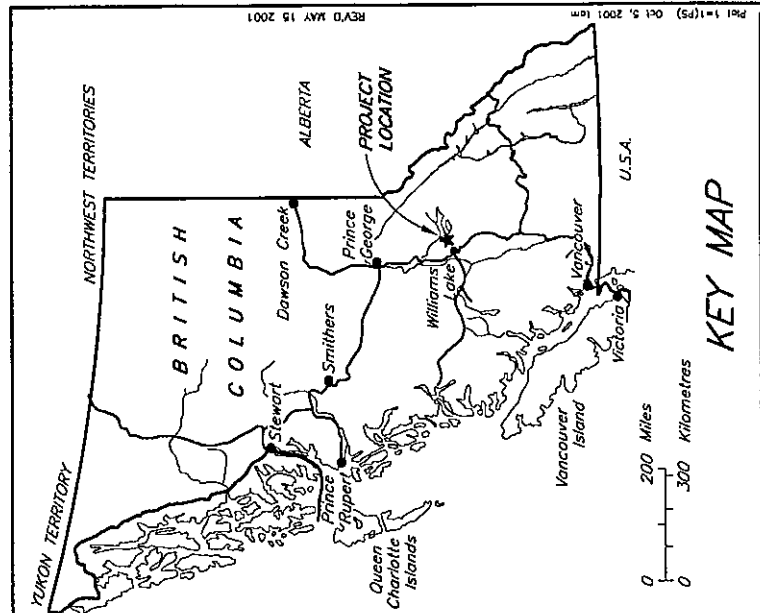
**Knight Piésold**  
 CONSULTING

PROJECT	REF.	REV.
1116214	3	0

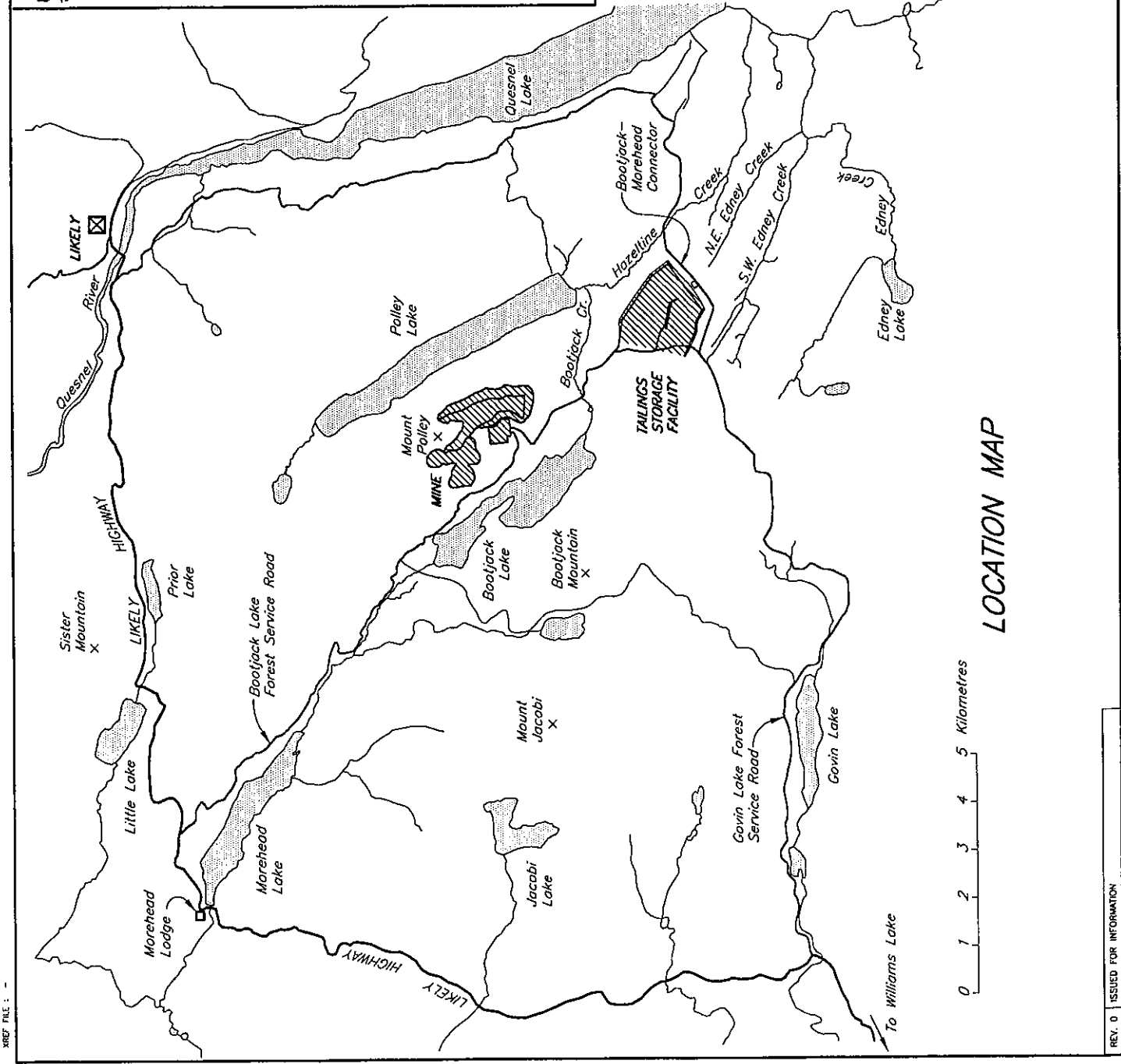
FIGURE 2.16



MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE  
 TSF - STAGE 3 CONSTRUCTION  
 ZONE C RECORD SAMPLES  
 GRADATION CURVES  
 PROJECT: 11162/14  
 REF: 3  
 REV: 0  
**Knight Piésold**  
 CONSULTING  
 FIGURE 2.17



MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY PROJECT  
 PROJECT LOCATION AND ACCESS PLAN  
**Knight Piesold**  
 CONSULTING  
 PROJECT NO. 11162/14 REF. NO. 3 REV. NO. 0  
**FIGURE 1.1**

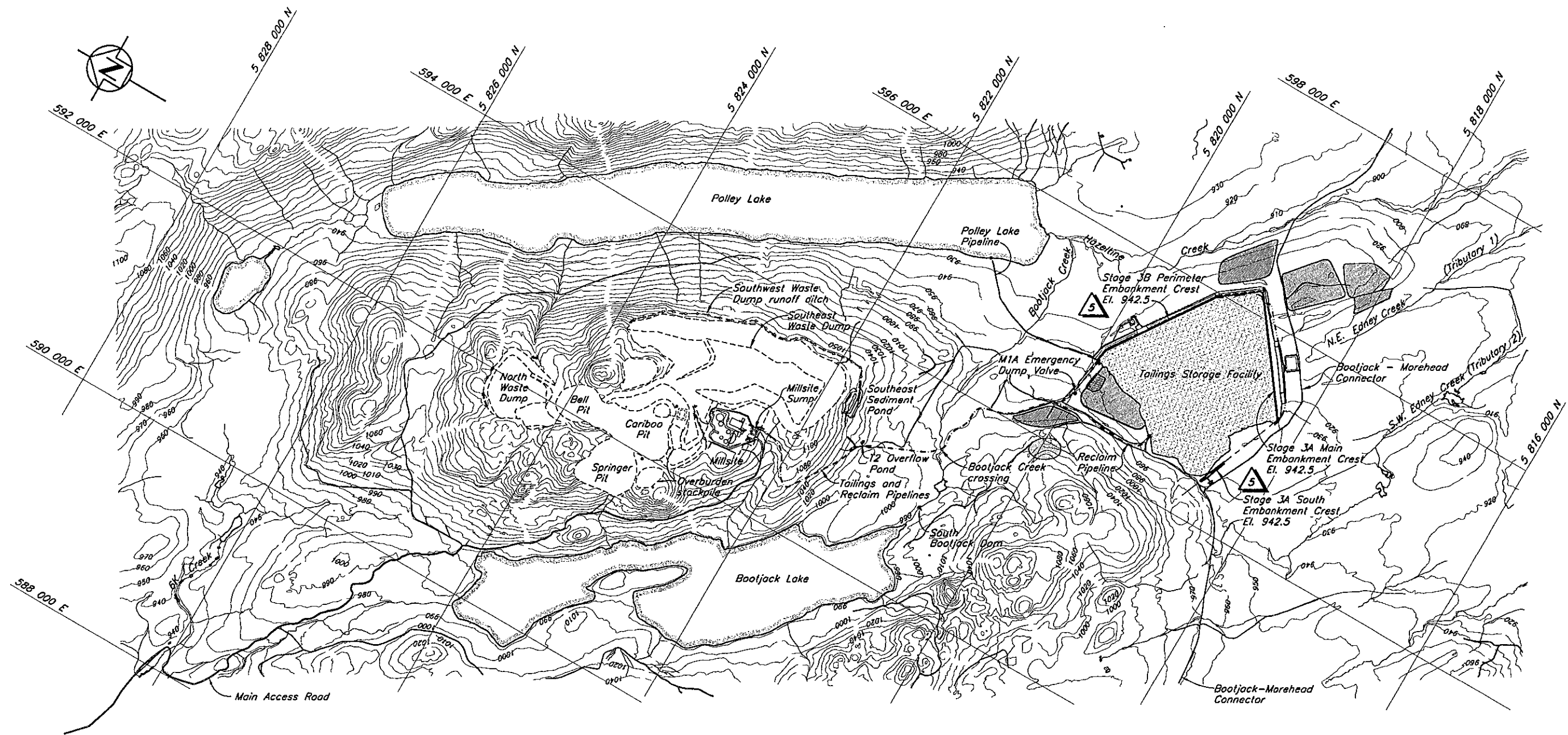


REV. 0 ISSUED FOR INFORMATION

XREF FILE: -

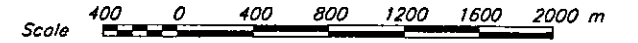
WACOVER B.C. CAD FILE: W\11162\14\Kvd\Fig\A02 1-25000 Plt 1-1(75) Oct 5, 2001 lam REV'D MAY 15 2001



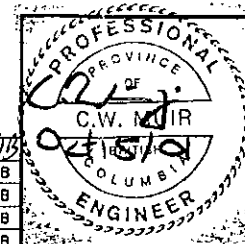


**NOTES**

1. Open Pits and Waste Dumps are shown in their final configurations.
2. Topography at TSF generated from points and break lines sent from MPMC in July 1999. The topography outside the TSF area is from 1997 flyover. UTM, NAD83, ZONE 10.
3. Current size and location of potential and existing Borrow Areas and Topsoil Stockpiles are to be confirmed.
4. All dimensions in millimetres with elevations in metres, unless noted otherwise.
5. No work was completed at the Main and South Embankments during Stage 3B construction.



REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
5	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
4	13SEPT'01	ISSUED FOR 2000 & 2001 ANNUAL INSPECTION REPORT	CWM	TAM	LJGV	KJB
3	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
2	26JAN'01	STAGE 3B CREST EL. 945	JRK	TAM	JMTW	KJB
1	2JUN'00	ISSUED FOR CONSTRUCTION	MDB	TAM	ABW	KJB
0	14APR'00	ISSUED FOR TENDER	MDB	TAM	JRK	KJB



**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**  
**TAILINGS STORAGE FACILITY**  
**STAGE 3 TAILINGS EMBANKMENT**  
**OVERALL SITE PLAN**

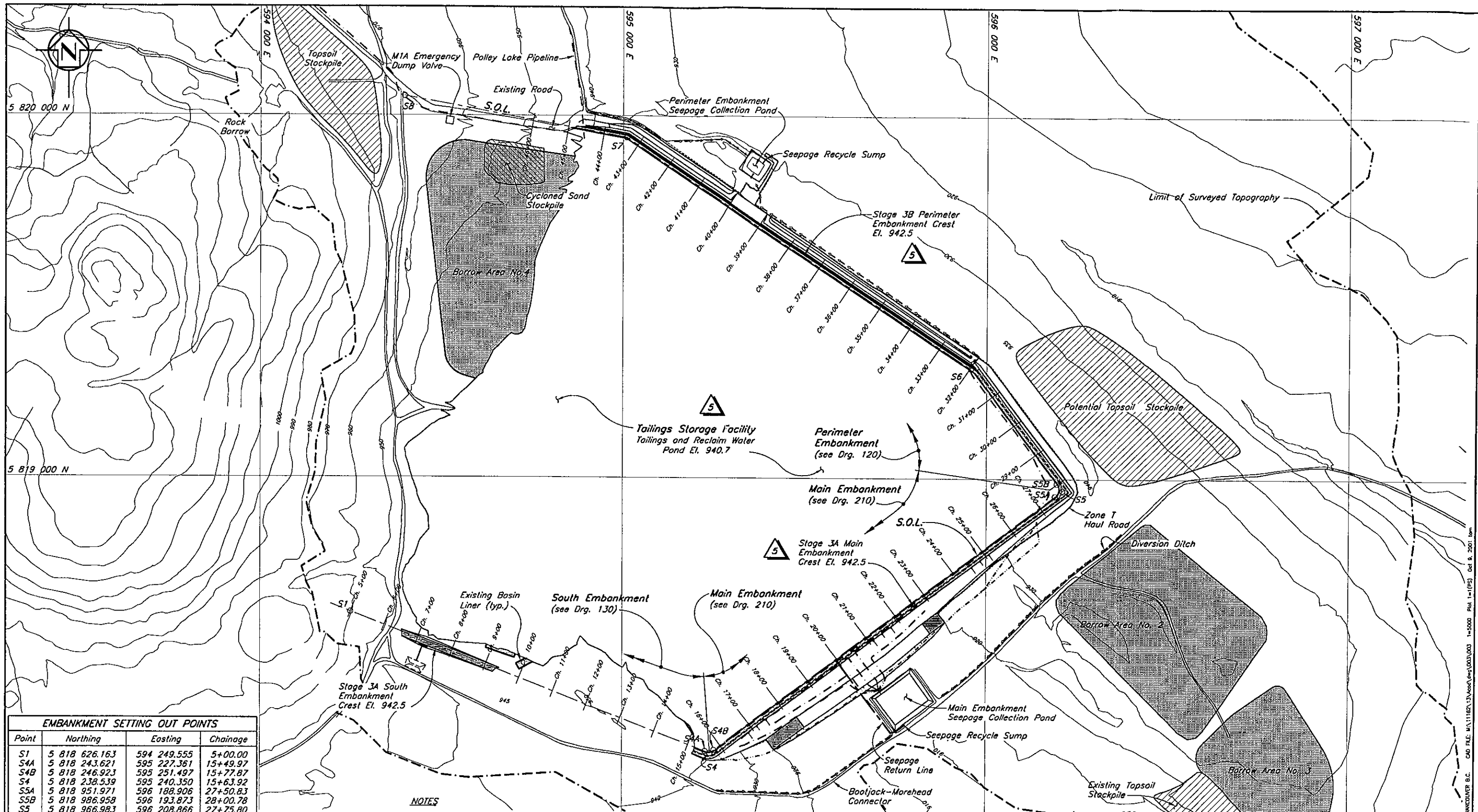
**Knight Piésold CONSULTING**

SCALE: AS SHOWN  
 REVISION: 5  
 DRAWING NO. 11162-13-100

XREF FILE: TOP0909.AS BUILT

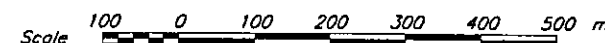
CAD FILE: M:\11162\13\Asst\Gm\011\011 1-20 000 Plt 1-1 (PS) Oct 9, 2001 km VANCOUVER B.C.

ORG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
	REFERENCE DRAWINGS			REVISIONS							REVISIONS				



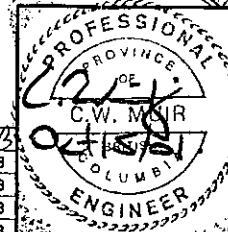
EMBANKMENT SETTING OUT POINTS			
Point	Northing	Eastng	Chainage
S1	5 818 626.163	594 249.555	5+00.00
S4A	5 818 243.621	595 227.361	15+49.97
S4B	5 818 246.923	595 251.497	15+77.87
S4	5 818 238.539	595 240.350	15+63.92
S5A	5 818 951.971	596 188.906	27+50.83
S5B	5 818 986.958	596 193.873	28+00.78
S5	5 818 966.983	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. Topography at TSF generated from points and break lines sent from MPMC in July 1999. The topography outside the TSF area is from 1997 flyover. UTM, NAD83, Zone 10.
  2. Current size and location of potential and existing Borrow Areas and Topsoil Stockpiles are to be confirmed.
  3. All dimensions in millimetres with elevations in metres, unless noted otherwise.
  4. No work was completed at the Main and South Embankments during Stage 3B construction.



DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
210	T.S.F. - STAGE 3 MAIN EMBANKMENT - PLAN							
130	T.S.F. - STAGE 3 SOUTH EMBANKMENT - PLAN AND SECTION							
120	T.S.F. - STAGE 3 PERIMETER EMBANKMENT - PLAN							
REFERENCE DRAWINGS				REVISIONS				

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
5	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	KJB	KJB
4	SEPT14'01	ISSUED FOR 2000 & 2001 ANNUAL INSPECTION REPORT	CWM	TAM	VLJG	KJB
3	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
2	26JAN'01	STAGE 3B - CREST EL. 945	JRK	TAM	JMTW	KJB
1	2JUN'00	ISSUED FOR CONSTRUCTION	MDB	TAM	ABW	KJB
0	14APR'00	ISSUED FOR TENDER	MDB	NSD	JRK	KJB
REVISIONS				DESIGNED: MDB CHECKED: JRK DRAWN: TAM APPROVED: KJB		



**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

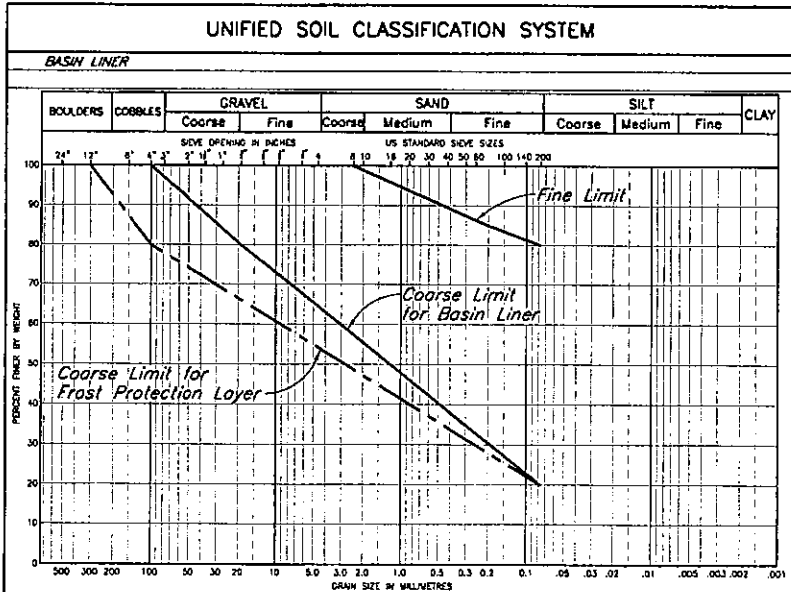
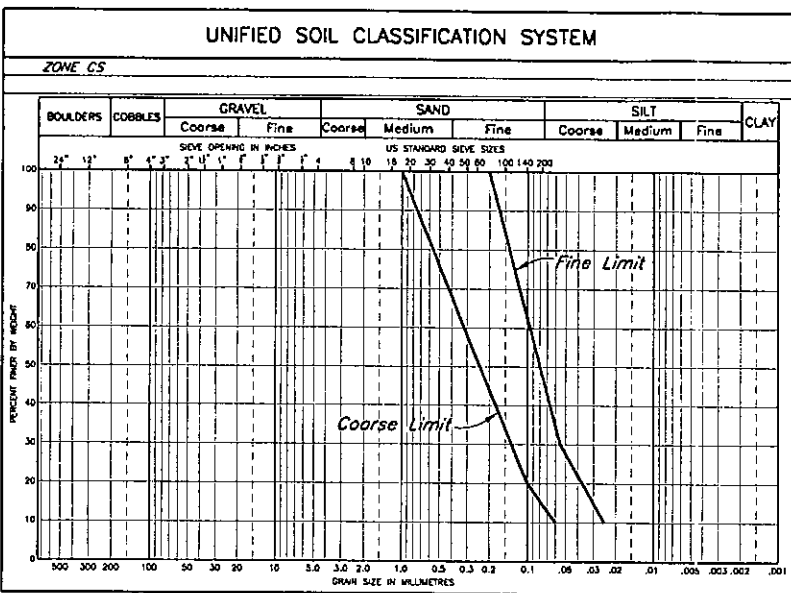
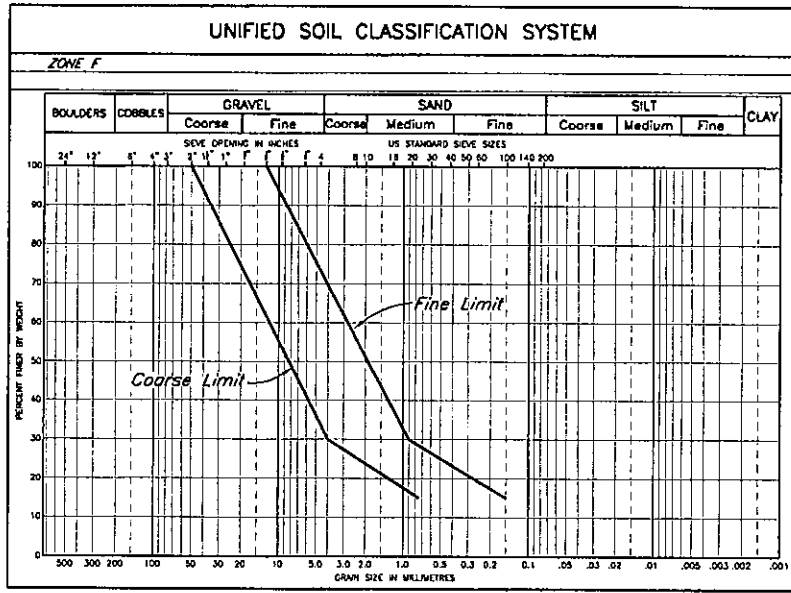
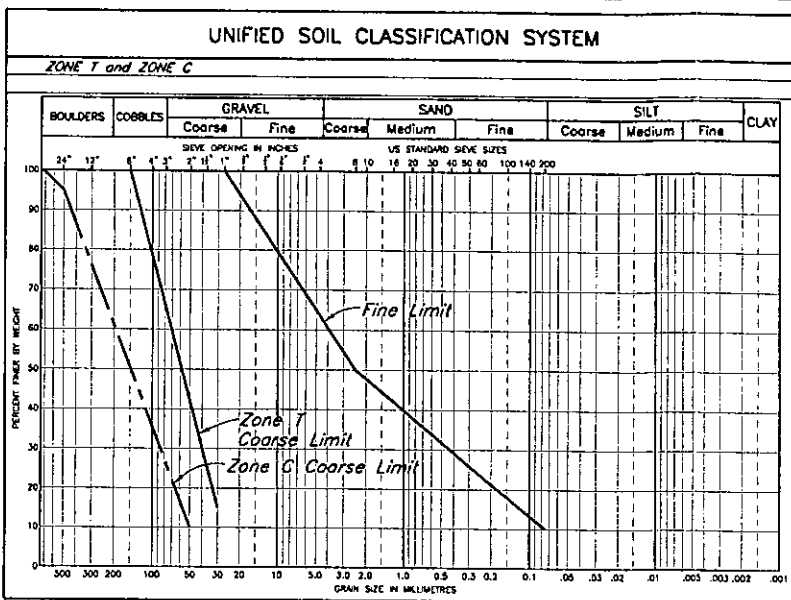
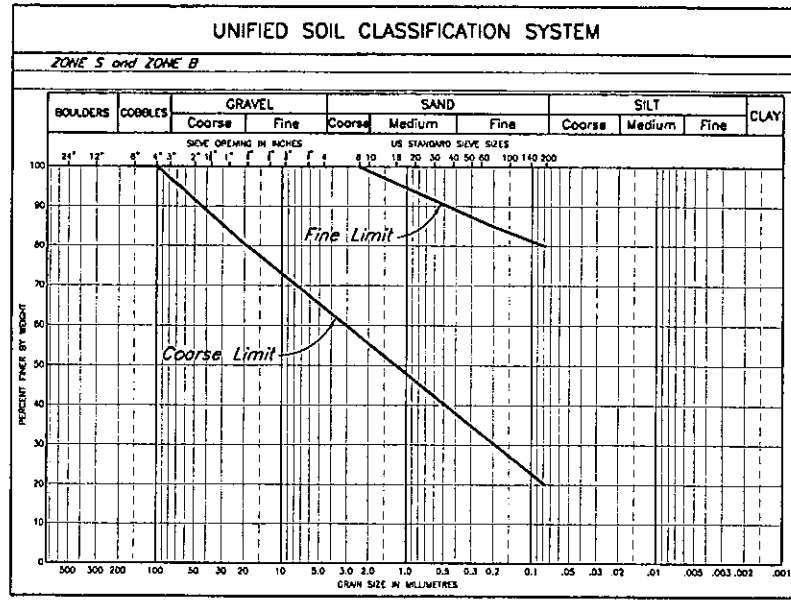
**TAILINGS STORAGE FACILITY**  
**STAGE 3 TAILINGS EMBANKMENT**  
**GENERAL ARRANGEMENT**

**Knicht Piésold CONSULTING**

SCALE: AS SHOWN  
REVISION: 5  
DRAWING NO.: 11162-13-102

XREF FILE: TOPSOIL\_AS-BUILT

W:\CDRIVER B.C. CAD FILE: M:\11162\13\Mod\Topsoil\003\003 1-5000 Plot 1=(PS) Oct 8, 2001 10m

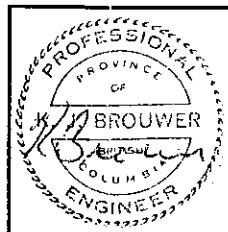


ZONE	MATERIAL TYPE	LOCATION	PLACEMENT AND COMPACTION REQUIREMENTS
S	Glacial till	Core Zone	Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.
C	Rock	Shell Zone	Placed and spread in maximum 1000 mm thick lift. Compaction as directed by the Engineer.
T	Rock	Transition Zone/ Confining Berm	Placed and spread in maximum 600 mm thick layers. Compaction as directed by the Engineer.
F	Filter sand	Chimney Drain	Placed and spread in maximum 600 mm thick lifts. Compaction as directed by the Engineer.
CS	Cyclone Sand, Mechanically placed	Shell Zone	Placed, moisture conditioned and spread in maximum 500 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor Maximum Dry Density, or as approved by the Engineer.
CS	Cyclone Sand, Hydraulically placed	Shell Zone	Nominal compaction by construction equipment
	Random Rockfill	Coarse Bearing Layer	End dumped and spread as required for trafficability and fill placement.
-	Glacial till, glacialacustrine material	Basin Liner	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.
-	Glacial till, glacialacustrine or granular material	Basin Liner Frost Protection	Placed and spread in maximum 300 mm thick lift. Compaction as directed by the Engineer.

225	TSF - STAGE 3 PERIMETER EMBANKMENT - SECTION - OPTION 2
215	TSF - STAGE 3 MAIN EMBANKMENT - SECTION - OPTION 2
130	TSF - STAGE 3 SOUTH EMBANKMENT - PLAN AND SECTION
125	TSF - STAGE 3 PERIMETER EMBANKMENT - SECTIONS - OPTION 1
115	TSF - STAGE 3 MAIN EMBANKMENT - SECTIONS - OPTION 1
DRG. NO.	DESCRIPTION
	REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
0	14APR'00	ISSUED FOR TENDER				

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D



**MOUNT POLLEY MINING CORPORATION**

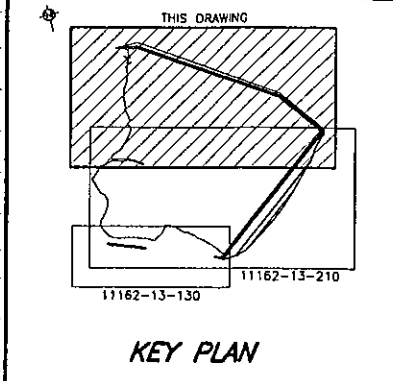
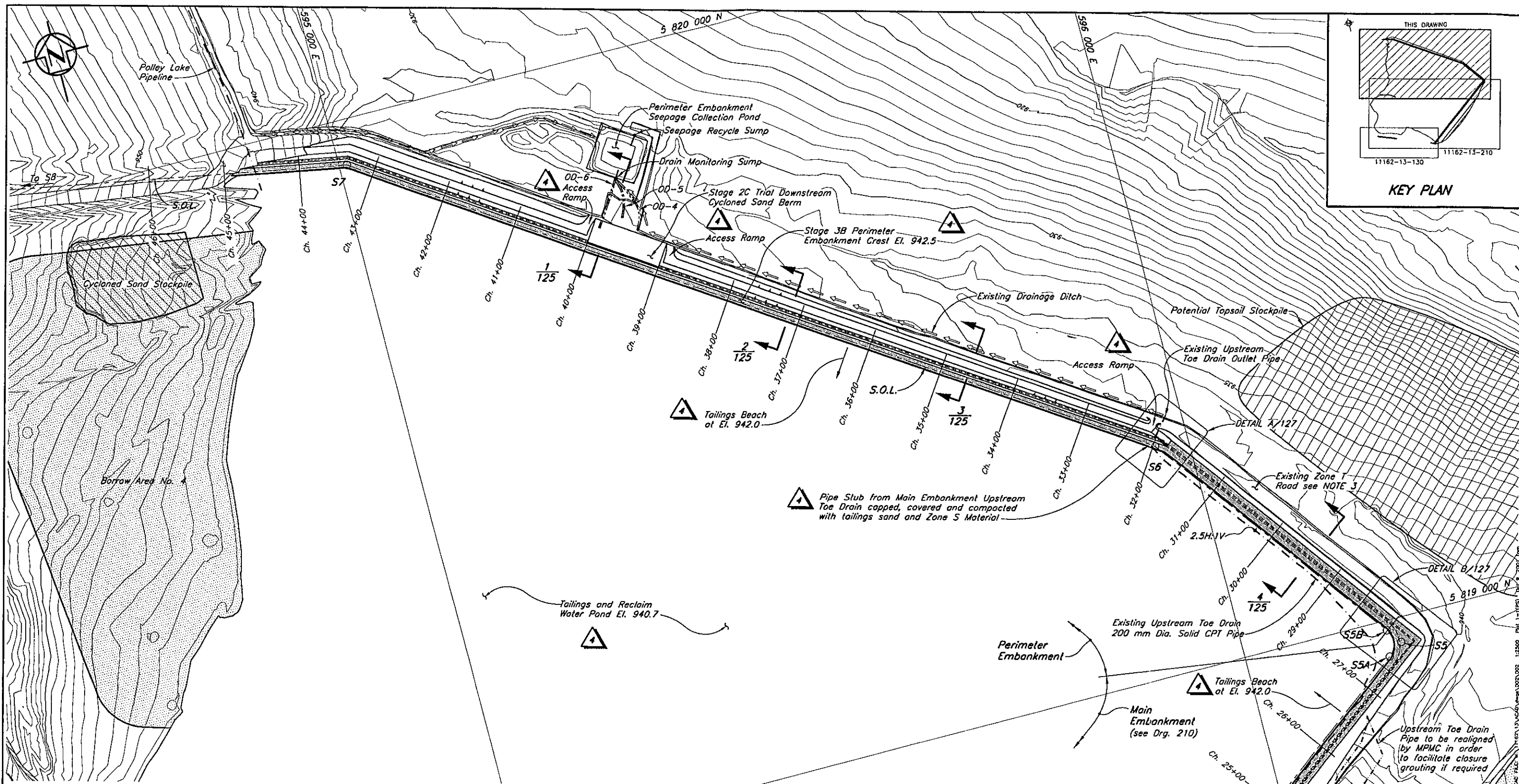
**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
STAGE 3 TAILINGS EMBANKMENT  
MATERIAL SPECIFICATIONS**

SCALE	AS SHOWN	REVISION	0
DRAWING NO.	11162-13-104		

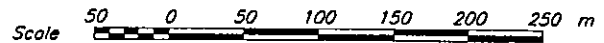
XREF FILE

VANCOUVER, B.C. CAD FILE: M:\11162\13\Asst\Plan\DRG\009.dwg 1-1 PLOT: 1-1 07/04/00 brouwer Time: 09:53



EMBANKMENT SETTING OUT POINTS			
Point	Northing	Easting	Chainage
S1	5 818 626.163	594 249.555	5+00.00
S4A	5 818 243.621	595 227.361	15+49.97
S4B	5 818 246.923	595 251.497	15+77.87
S4	5 818 238.539	595 240.350	15+63.92
S5A	5 818 951.971	596 188.906	27+50.83
S5B	5 818 986.958	596 193.873	28+00.78
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

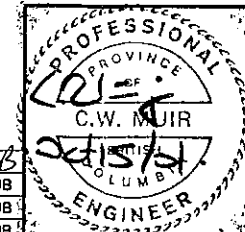
- NOTES**
- Chainage defined by Setting Out Point S1 at Ch. 5+00.
  - Topography at TSF generated from points and break lines sent from MPMC in July 1999. The Topography outside the TSF area is from 1997 flyover.
  - Zone T haul road partially covered by embankment fill to El. 942.5.
  - All dimensions in millimetres with elevations in metres, unless noted otherwise.



DRG. NO.	DESCRIPTION
210	TSF - STAGE 3 MAIN EMBANKMENT - PLAN
127	TSF - STAGE 3 PERIMETER EMBANKMENT - TRANSITION ZONE DETAILS
125	TSF - STAGE 3 PERIMETER EMBANKMENT - SECTIONS

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
3	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
2	26JAN'01	STAGE 3B CREST EL. 945	JRK	TAM	JMTW	KJB
1	16OCT'00	ISSUED FOR CONSTRUCTION - GENERAL REVISIONS	JRK	NSD	JMTW	KJB
0	14APR'00	ISSUED FOR TENDER	KDE	DSR	JRK	KJB



**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY**  
**STAGE 3 PERIMETER EMBANKMENT**  
**PLAN**

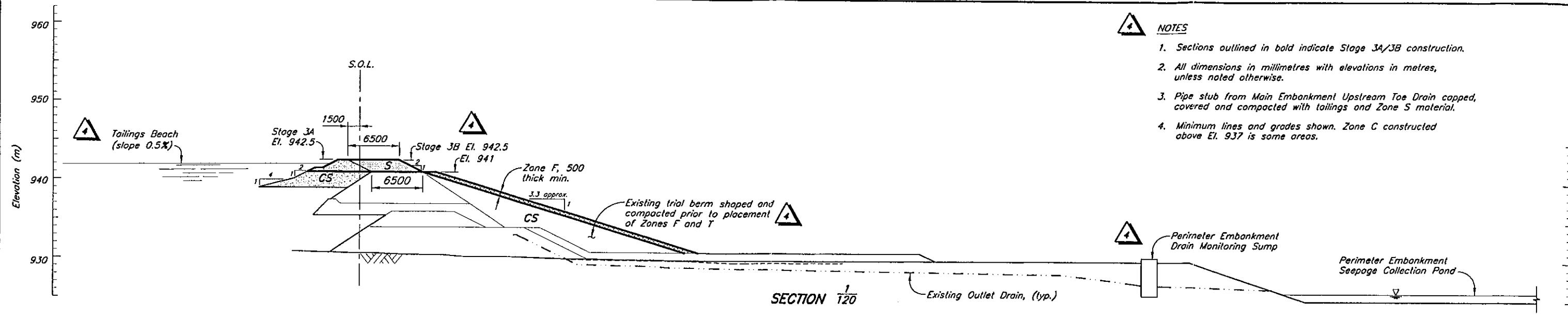
**Knight Piésold CONSULTING**

SCALE: AS SHOWN  
REVISION: 4  
DRAWING NO.: 11162-13-120

REF. FILE: TSP03B, ST0303B, AS-BUC7

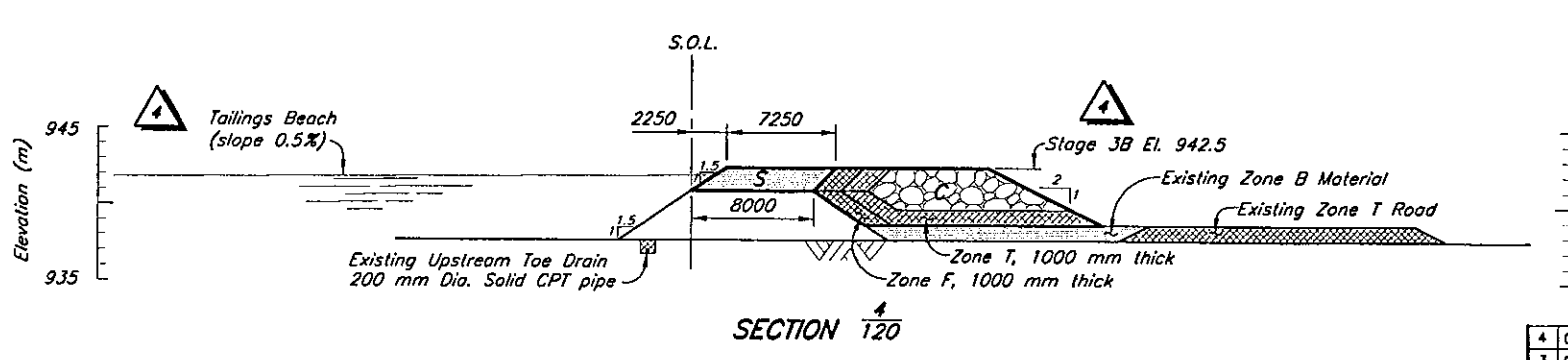
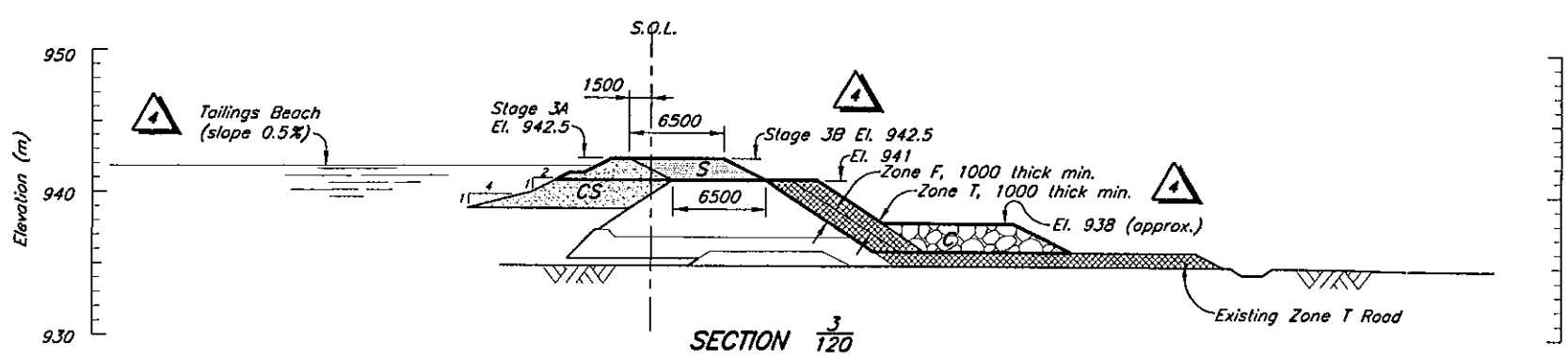
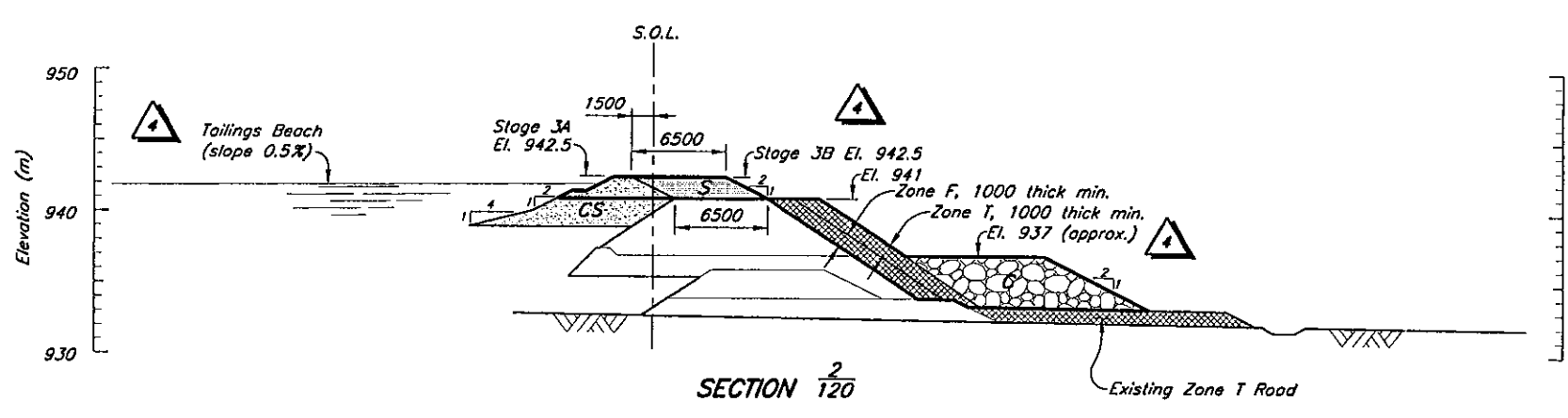
VANCOUVER, B.C.



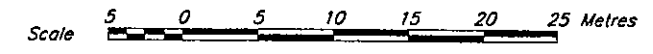


**NOTES**

1. Sections outlined in bold indicate Stage 3A/3B construction.
2. All dimensions in millimetres with elevations in metres, unless noted otherwise.
3. Pipe stub from Main Embankment Upstream Toe Drain capped, covered and compacted with tailings and Zone S material.
4. Minimum lines and grades shown. Zone C constructed above El. 937 in some areas.



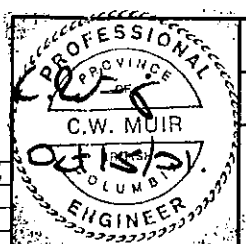
ZONE	LOCATION	MATERIAL TYPE	PLACEMENT AND COMPACTION REQUIREMENTS
S	Core Zone	Glacial till	Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.
C	Shell Zone	Rock	Placed and spread in maximum 1000 mm thick layers and compacted with a minimum 4 passes of 10 ton Smooth Drum Vibratory Roller, or as approved by the Engineer.
T	Transition Zone/ Confining Berm	Select Rockfill	Placed and spread in maximum 600 mm thick layers and compacted with a minimum 4 passes of 10 ton Smooth Drum Vibratory Roller or as approved 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, glaciallacustrine 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, glaciallacustrine or granular material	Placed and spread in maximum 300 mm thick lift. Compaction as directed by the Engineer.
CS	Cycloned Sand	Hydraulically placed	Nominal compaction by construction equipment
CS	Cycloned Sand	Mechanically placed	Placed, moisture conditioned and spread in maximum 1000 mm thick layers (after compaction). Vibratory compaction to 95% of Standard Proctor maximum dry density or as approved by the Engineer.



REF. FILE	DESCRIPTION
120	TSF - STAGE 3 - PERIMETER EMBANKMENT - PLAN
104	TSF - STAGE 3 - MATERIAL SPECIFICATIONS

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
3	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
2	09MAR'01	STAGE 3B - CREST ELEVATION 945	JRK	WAL	JMTW	KJB
1	18OCT'00	ISSUED FOR CONSTRUCTION - GENERAL REVISIONS	JRK	NSD	JMTW	KJB
0	14APR'00	ISSUED FOR TENDER	JRK	TAM	KDE	KJB

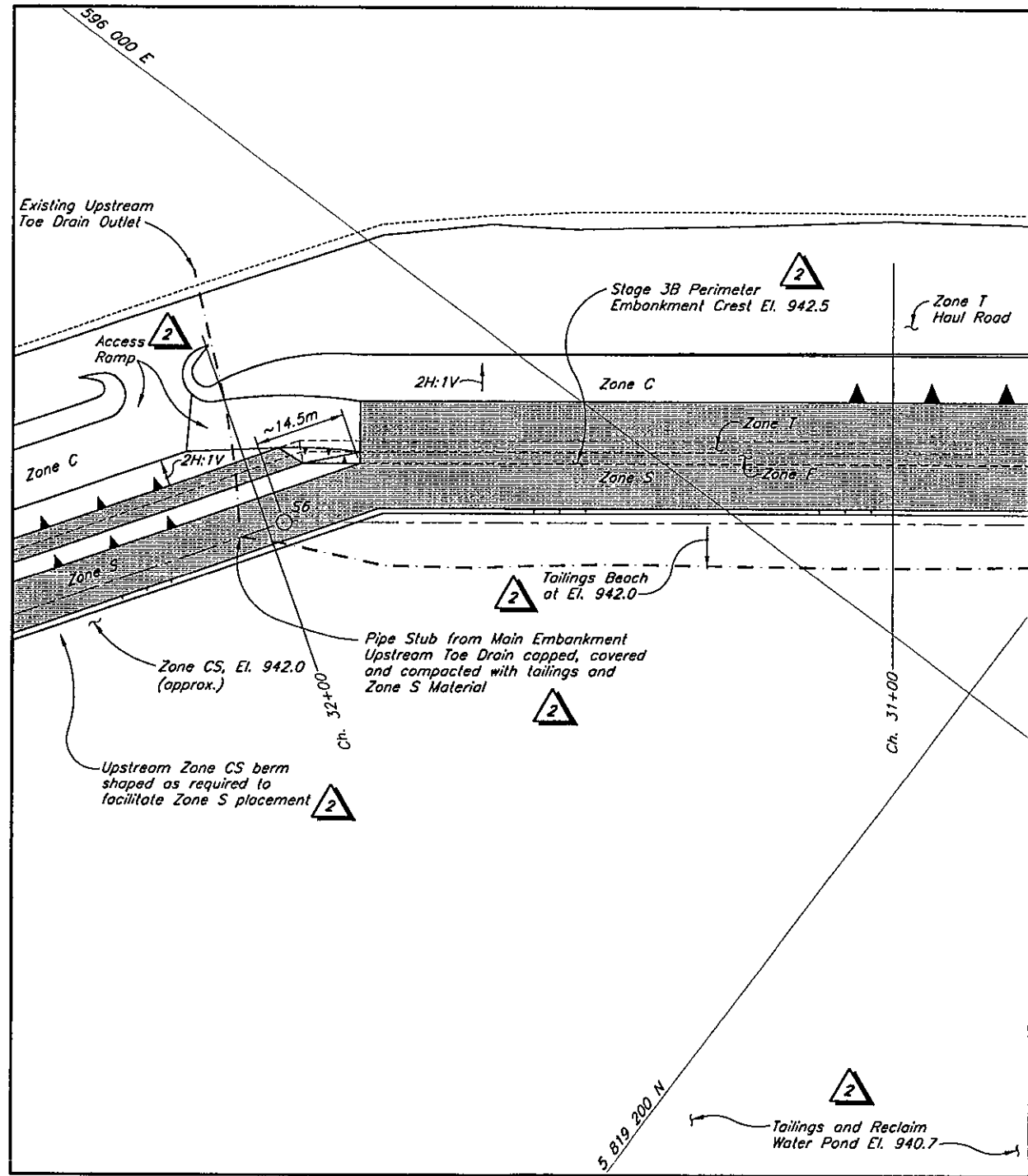


MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE  
TAILINGS STORAGE FACILITY  
STAGE 3 PERIMETER EMBANKMENT  
SECTIONS

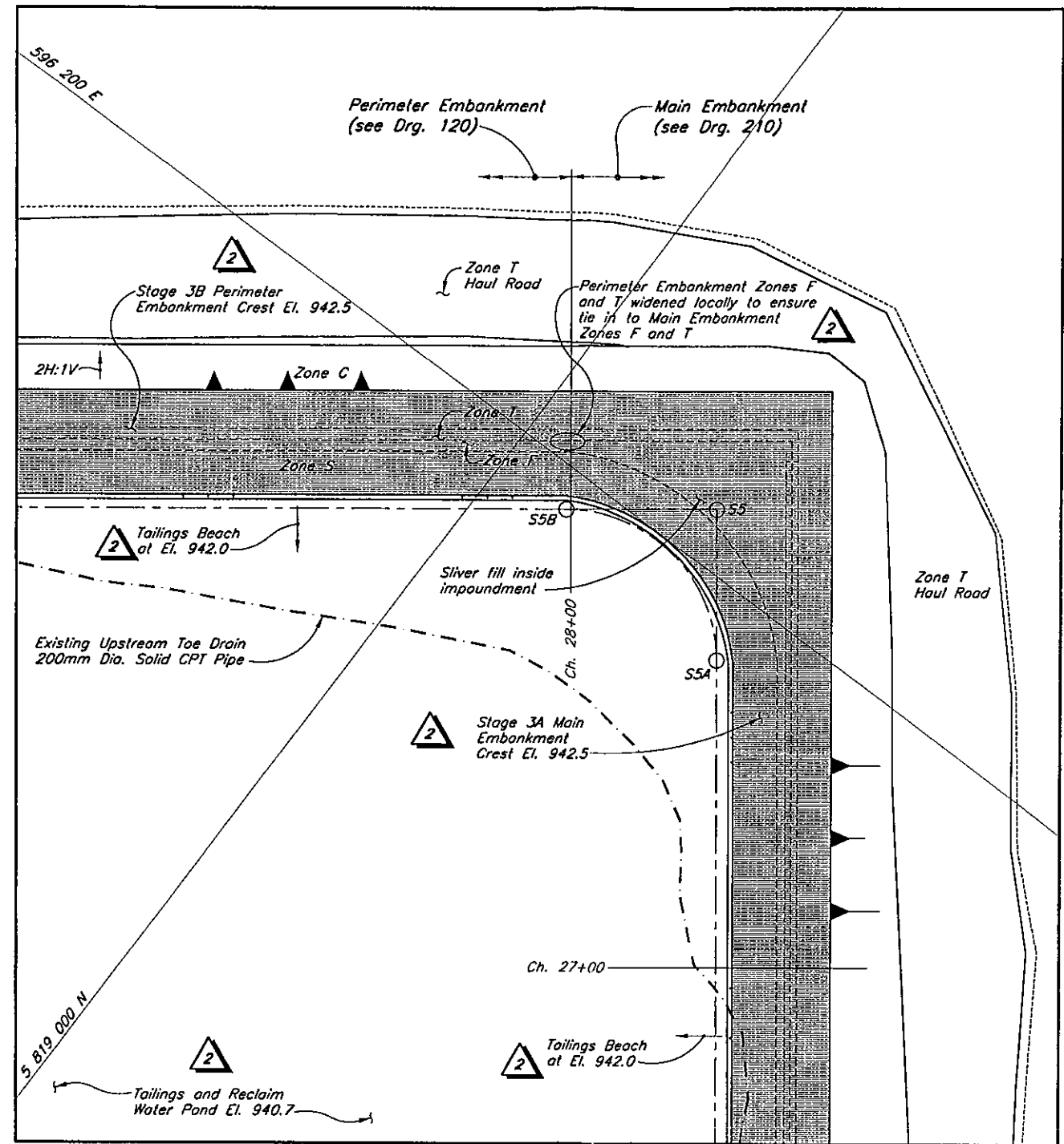
**Knight Piésold**  
CONSULTING

SCALE AS SHOWN REVISION 4

DRAWING NO. 11162-13-125



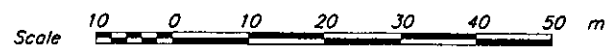
DETAIL A/120  
TRANSITION AT SETTING OUT POINT S6



DETAIL B/120  
TRANSITION TO MAIN EMBANKMENT

NOTE

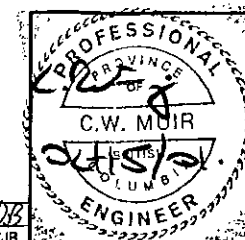
- All dimensions in millimetres with elevations in metres, unless noted otherwise.
- No work was completed at the Main Embankment during Stage 3B construction.



DRG. NO.	DESCRIPTION
210	TSF - STAGE 3 MAIN EMBANKMENT - PLAN
125	TSF - STAGE 3 PERIMETER EMBANKMENT - SECTIONS
120	TSF - STAGE 3 PERIMETER EMBANKMENT - PLAN

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
2	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
1	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
0	09MAR'01	STAGE 3B - CREST EL. 945	JRK	TAM	JMTW	KJB



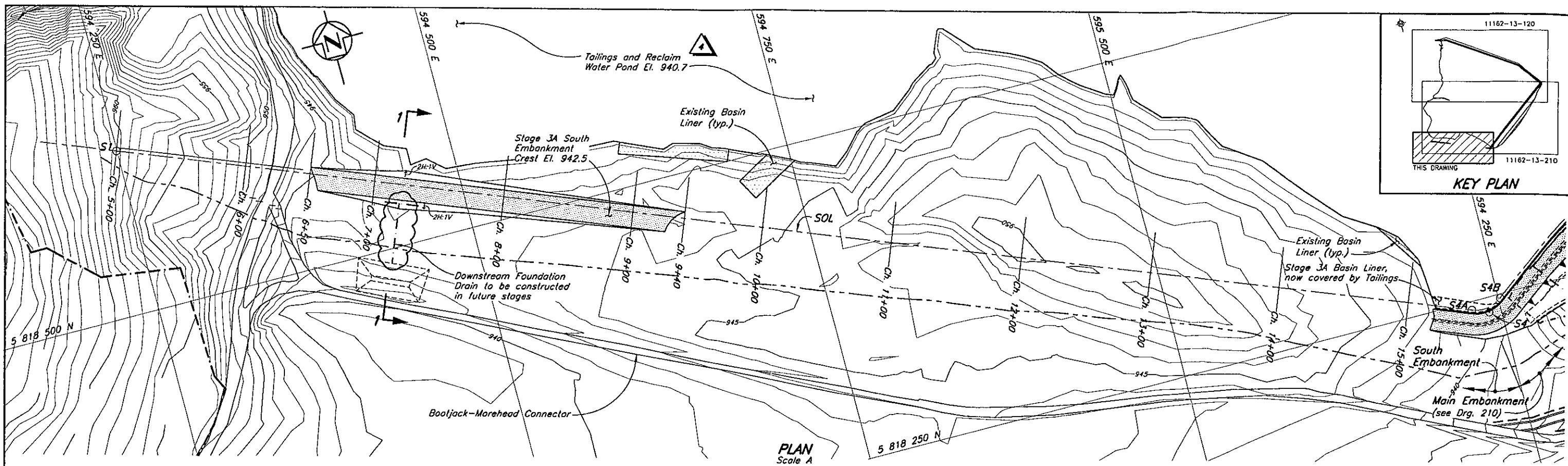
MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE  
TAILINGS STORAGE FACILITY  
STAGE 3 PERIMETER EMBANKMENT  
TRANSITION ZONES DETAILS

**Knight Piésold**  
CONSULTING

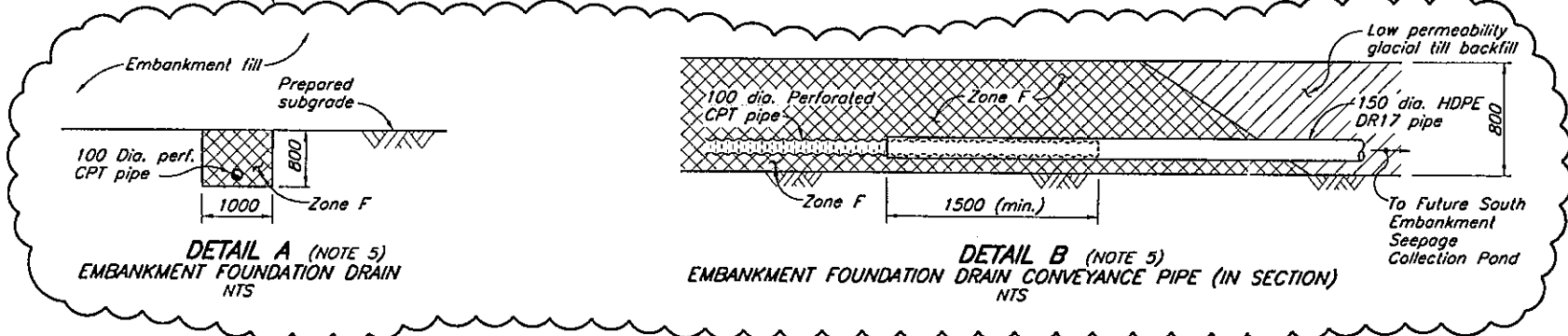
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REVISION: 2  
DRAWING NO. 11162-13-127

XREF FILE: STAGE3B.PLAN

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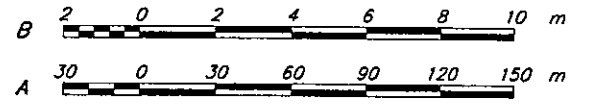
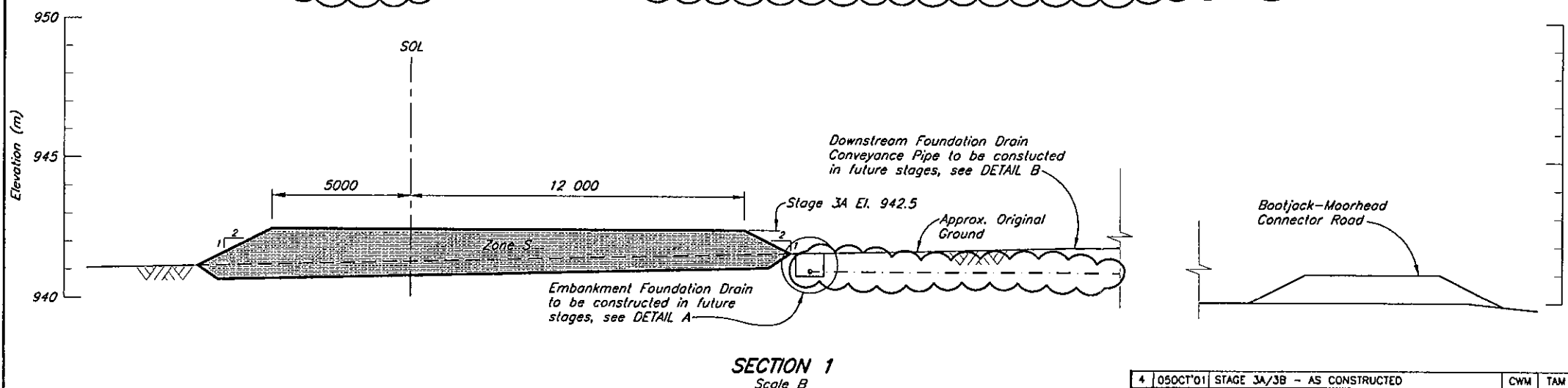


FOR CONSTRUCTION IN FUTURE STAGES



NOTES

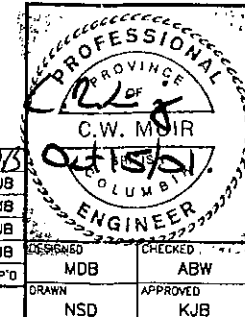
1. All dimensions in millimeters and elevations in metres, unless noted otherwise.
2. Topography at TSF generated from points and break lines sent from MPMC in July 1999. The topography outside the TSF area is from 1997 flyover.
3. For Zone Materials Specifications and legend, see Drg. 104.
4. Location of Future Embankment Foundation Drain and conveyance pipe to be installed in trench excavated in competent insitu material approved by Engineer.
5. Sections outlined in bold indicate Stage 3A/3B construction.
6. No work was completed at the South Embankment during Stage 3B construction.



ORG. NO.	DESCRIPTION
210	TSF - STAGE 3 MAIN EMBANKMENT - PLAN
120	TSF - STAGE 3 PERIMETER EMBANKMENT - PLAN
104	TSF - STAGE 3 TAILINGS EMBANKMENT - MATERIALS SPECIFICATIONS

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
3	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
2	08MAR'01	STAGE 3B - CREST EL. 945	JRK	TAM	JMTW	KJB
1	2JUN'00	ISSUED FOR CONSTRUCTION	MDB	TAM	ABW	KJB
0	14APR'00	ISSUED FOR TENDER	MDB	AW	JRK	KJB



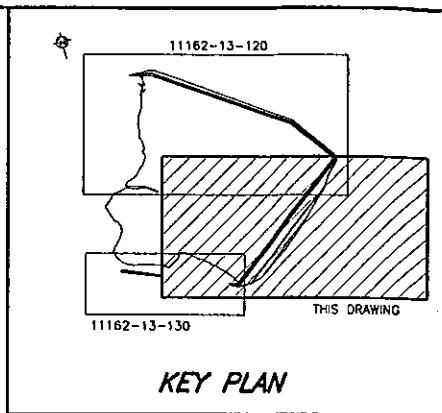
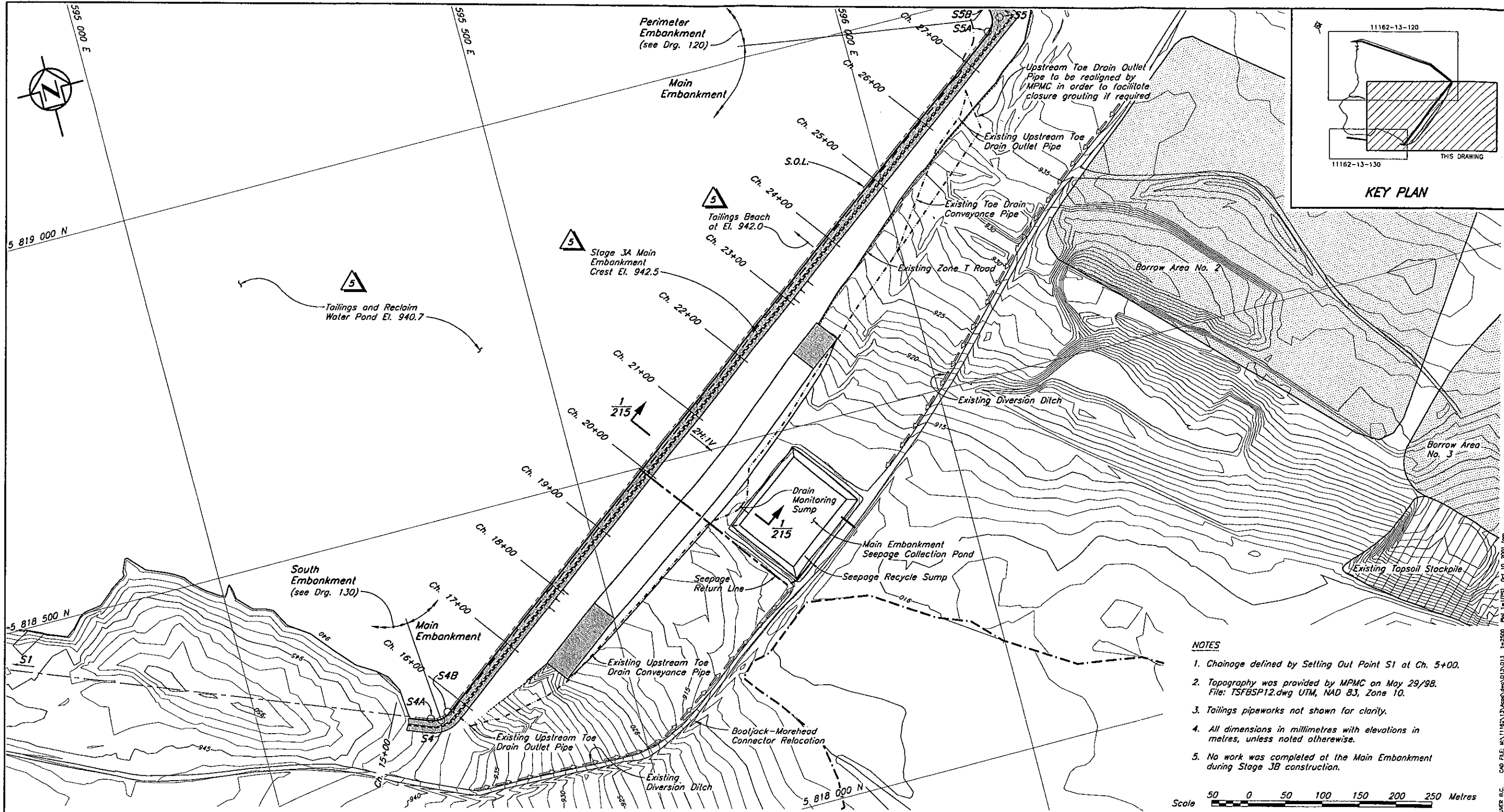
MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE  
TAILINGS STORAGE FACILITY  
STAGE 3 SOUTH EMBANKMENT  
PLAN AND SECTION

**Knight Piésold**  
CONSULTING

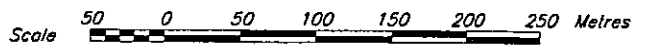
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REVISION: 4  
DRAWING NO. 11162-13-130

REF. FILE: T01099, STAGE3B\_PLAN

VANCOUVER B.C. CAD FILE: M:\11162\13\Stage3B\007\_14-1500\_Plan-1-100.dwg 11-15-00 Rev 1-1 (PS) GCS 9, 5001 km



- NOTES**
- Chainage defined by Setting Out Point S1 at Ch. 5+00.
  - Topography was provided by MPMC on May 29/98. File: TSFBSP12.dwg UTM, NAD 83, Zone 10.
  - Tailings pipeworks not shown for clarity.
  - All dimensions in millimetres with elevations in metres, unless noted otherwise.
  - No work was completed at the Main Embankment during Stage 3B construction.

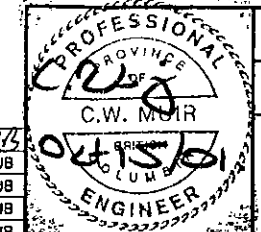


XREF FILE: Topo99, Stock99, Au-Batt

DRG. NO.	DESCRIPTION
215	TSF - STAGE 3 MAIN EMBANKMENT - SECTION AND DETAILS
130	TSF - STAGE 3 SOUTH EMBANKMENT - PLAN AND SECTION
120	TSF - STAGE 3 PERIMETER EMBANKMENT - PLAN

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
5	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
4	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
3	26JAN'01	STAGE 3B - CREST EL. 945	JRK	TAM	JMTW	KJB
2	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	ABW	KJB
1	17MAY'00	ISSUED FOR TENDER ADDENDUM 3	JRK	TAM	KDE	KJB
0	14APR'00	ISSUED FOR TENDER	JRK	WAL	KDE	KJB



**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**

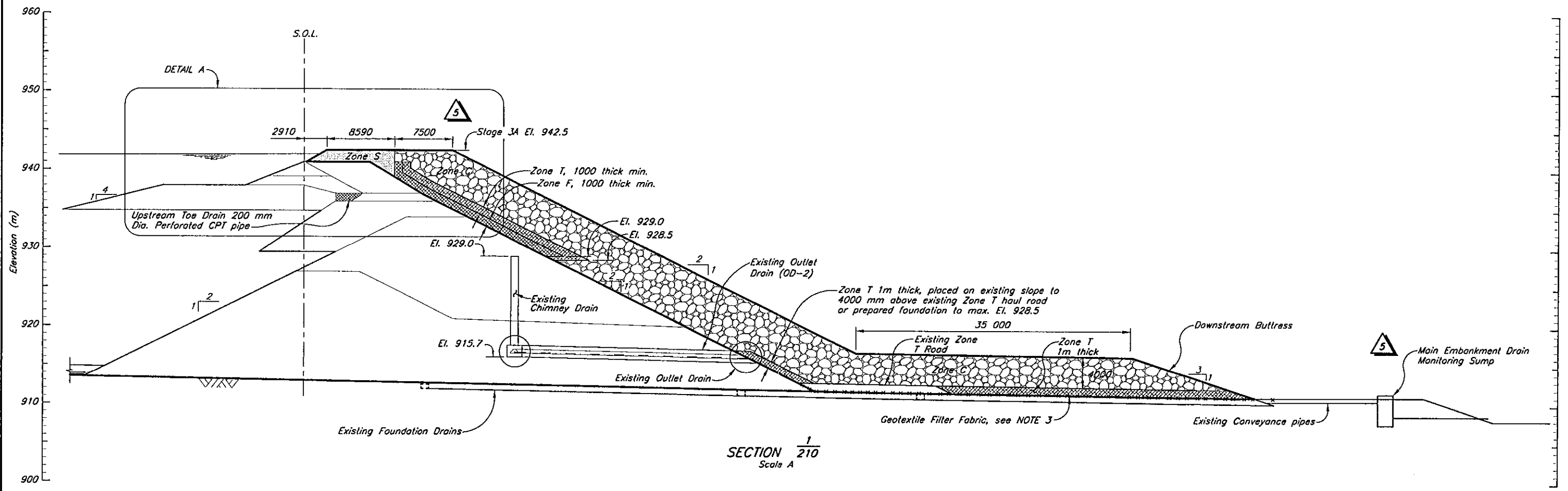
**TAILINGS STORAGE FACILITY**  
**STAGE 3 MAIN EMBANKMENT**  
**PLAN**

**Knight Piésold**  
CONSULTING

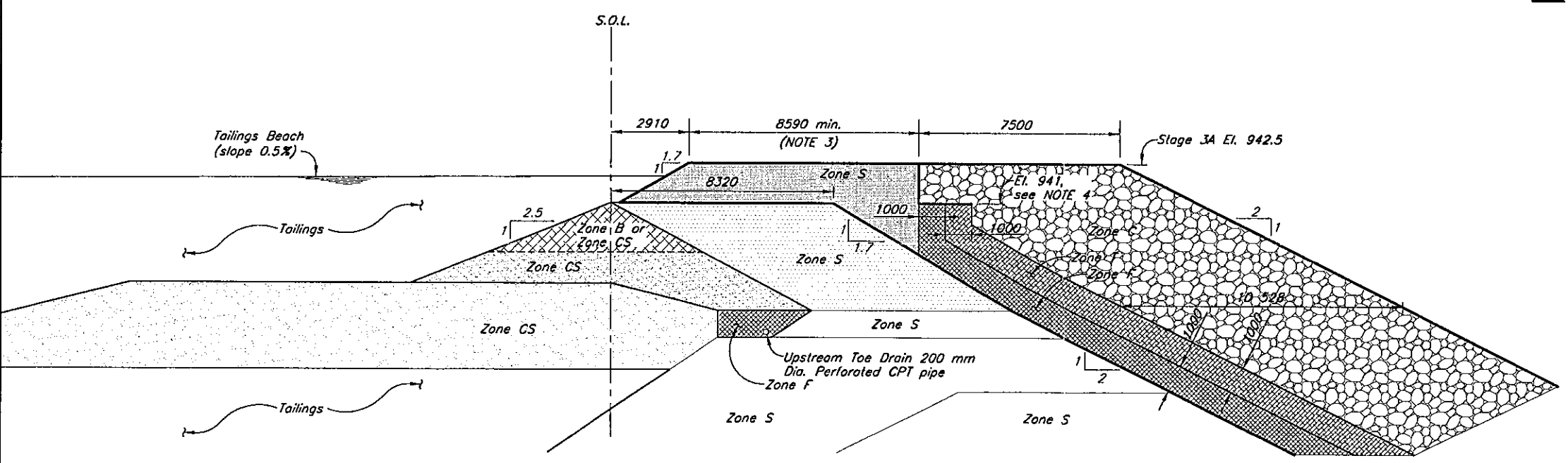
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 DRAWING NO. 11162-13-210

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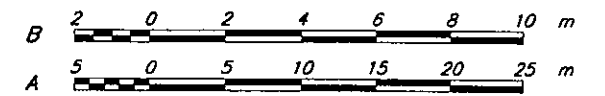


SECTION 210  
Scale A



DETAIL A  
Scale B

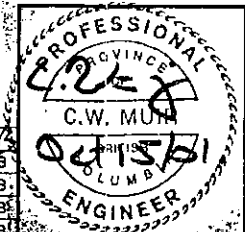
- 5** NOTES
- Sections outlined in bold indicate Stage 3A/3B construction.
  - For zone material specifications and legend see Drg. 104.
  - All dimensions in millimetres and elevations in metres, unless noted otherwise.
  - Zone F and T placed to El. 941. Zone C placed over Zones F and T to El. 942.5 during Stage 3A construction. Zone C to be removed and replaced with Zone F and T to El. 942.5 prior to future construction.
  - No work was completed at the Main Embankment during Stage 3B construction.



DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
210	TSF - STAGE 3 MAIN EMBANKMENT - PLAN														
104	TSF - STAGE 3 - MATERIALS SPECIFICATIONS														

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
5	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
4	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
3	08MAR'01	STAGE 3B - CREST ELEVATION 945	JRK	NSD	JMTW	KJB
2	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	AEW	KJB
1	17MAY'00	ISSUED FOR TENDER ADDENDUM 3	JRK	TAM	KJB	KJB
0	14APR'00	ISSUED FOR TENDER	MDB	WAL	JRK	KJB

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
5	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
4	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
3	08MAR'01	STAGE 3B - CREST ELEVATION 945	JRK	NSD	JMTW	KJB
2	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	AEW	KJB
1	17MAY'00	ISSUED FOR TENDER ADDENDUM 3	JRK	TAM	KJB	KJB
0	14APR'00	ISSUED FOR TENDER	MDB	WAL	JRK	KJB



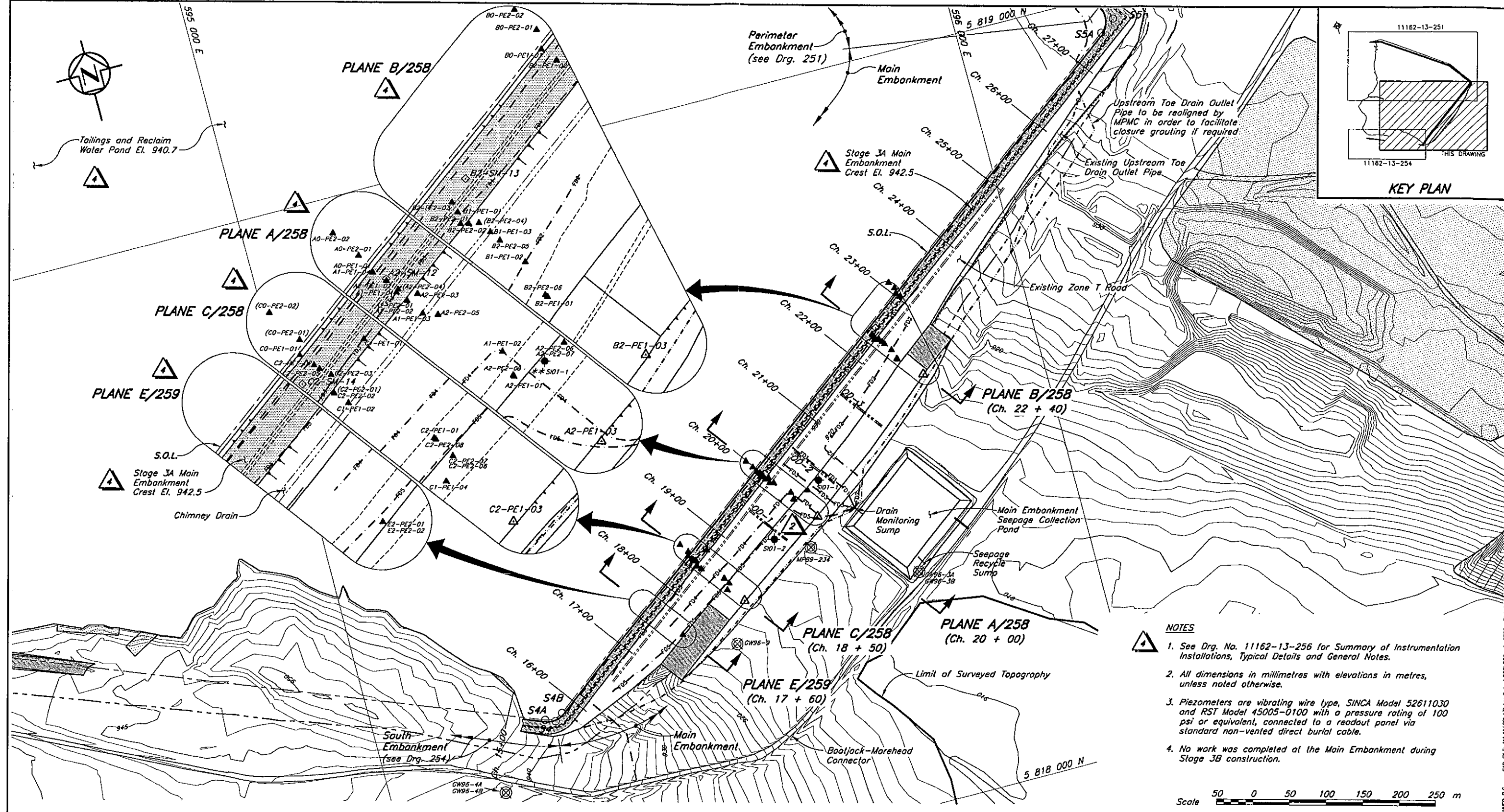
MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE  
TAILINGS STORAGE FACILITY  
STAGE 3 MAIN EMBANKMENT  
SECTION AND DETAILS

**Knight Piésold**  
CONSULTING

SCALE AS SHOWN  
REVISION 5  
DRAWING NO. 11162-13-215

XREF FILE:

V:\DRAWING\B.C. CAD FILE\M\11162\13\210\Drawings\006\_005\_1-250\_Plot 1-(PS) Oct 10, 2001 10m



- NOTES**
1. See Drg. No. 11162-13-256 for Summary of Instrumentation Installations, Typical Details and General Notes.
  2. All dimensions in millimetres with elevations in metres, unless noted otherwise.
  3. 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.
  4. No work was completed at the Main Embankment during Stage 3B construction.

- LEGEND**
- ⊗ GW96-9 Groundwater Monitoring Well
  - ▲ A1-PE1-01 Previously installed Piezometer
  - △ A2-PE2-06 New Stage 3 Piezometer
  - ◇ A2-SM-01 New Embankment Survey Monument
  - ◆ S101-1 Slope Inclinator

DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
259	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SECTIONS - SHEET 2 OF 2							
258	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SECTIONS - SHEET 1 OF 2							
256	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SUMMARY OF INSTALLATION AND TYPICAL DETAILS							
254	TSF - STAGE 3 SOUTH EMBANKMENT - INSTRUMENTATION - PLAN							
251	TSF - STAGE 3 PERIMETER EMBANKMENT - INSTRUMENTATION - PLAN							

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
3	SEPT14'01	ISSUED FOR 2000 & 2001 ANNUAL INSPECTION REPORT	CWM	TAM	VJG	KJB
2	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
1	26JAN'01	STAGE 3B - CREST EL. 945	JRK	TAM	JMTW	KJB
0	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	AGW	KJB



**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

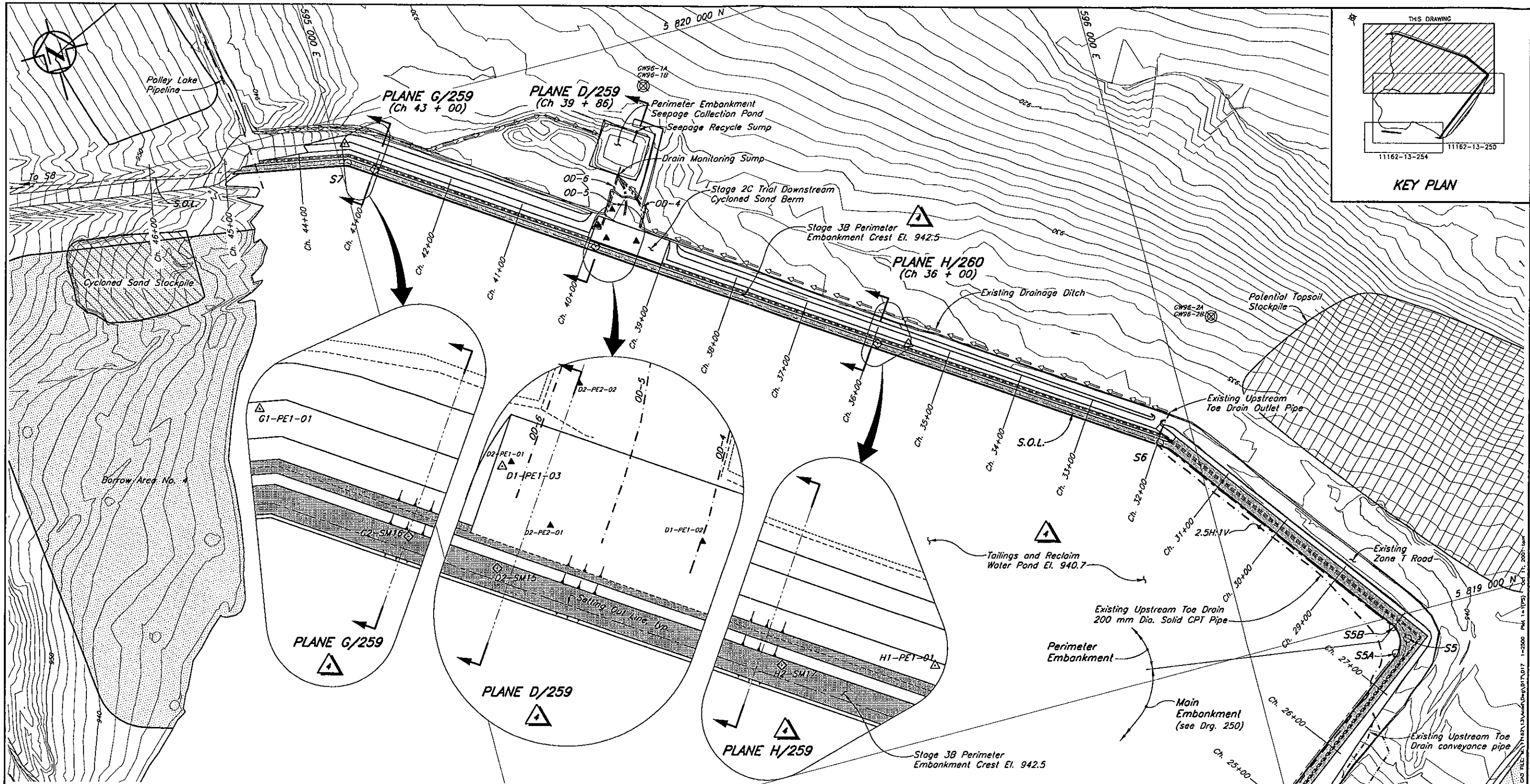
**TAILINGS STORAGE FACILITY**  
**STAGE 3 MAIN EMBANKMENT**  
**INSTRUMENTATION**  
**PLAN**

**Knight Piésold**  
CONSULTING

SCALE: AS SHOWN  
REVISION: 4  
DRAWING NO. 11162-13-250

XREF FILE: TOP099, STAGE3B, AS-BUILT

CAD FILE: M:\11162-13\Drawings\Stage3B\AS-BUILT.dwg 1:2500 Plot 1=1 (P) Oct 10, 2001

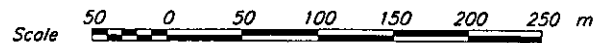


**LEGEND**

- ⊗ GW96-9 Groundwater Monitoring Well
- ▲ A1-PE1-01 Previously installed Piezometer
- ▲ A2-PE2-06 New Stage 3 Piezometer
- ◇ A2-SM-01 New Embankment Survey Monument

**NOTES**

1. Chainage defined by Setting Out Point S1 at Ch. 5+00.
2. Topography generated from points and break lines provided by MPMC on July 20, 1999. Topography outside the TSF area is from 1997 flyover.
3. See Drg. No. 11162-13-256 for Summary of Instrumentation Installations, Typical Details and General Notes.
4. All dimensions in millimetres with elevations in metres, unless noted otherwise.
5. 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.



DRG. NO.	DESCRIPTION
259	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SECTIONS - SHEET 2 OF 2
258	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SECTIONS - SHEET 1 OF 2
250	TSF - STAGE 3 MAIN EMBANKMENT - INSTRUMENTATION - PLAN

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	09OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	LJB	KJB
3	14SEPT'01	ISSUED FOR 2000 & 2001 ANNUAL INSPECTION REPORT	CWM	TAM	LJB	KJB
2	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
1	09MAR'01	STAGE 3B - CREST EL. 945	JRK	NSD	JMTW	KJB
0	20OCT'00	ISSUED FOR CONSTRUCTION	JRK	NSD	JMTW	KJB



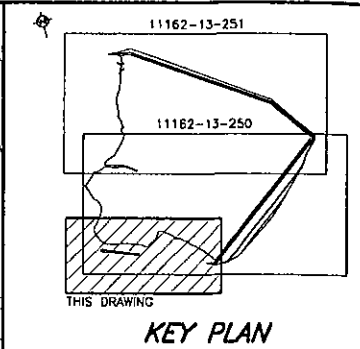
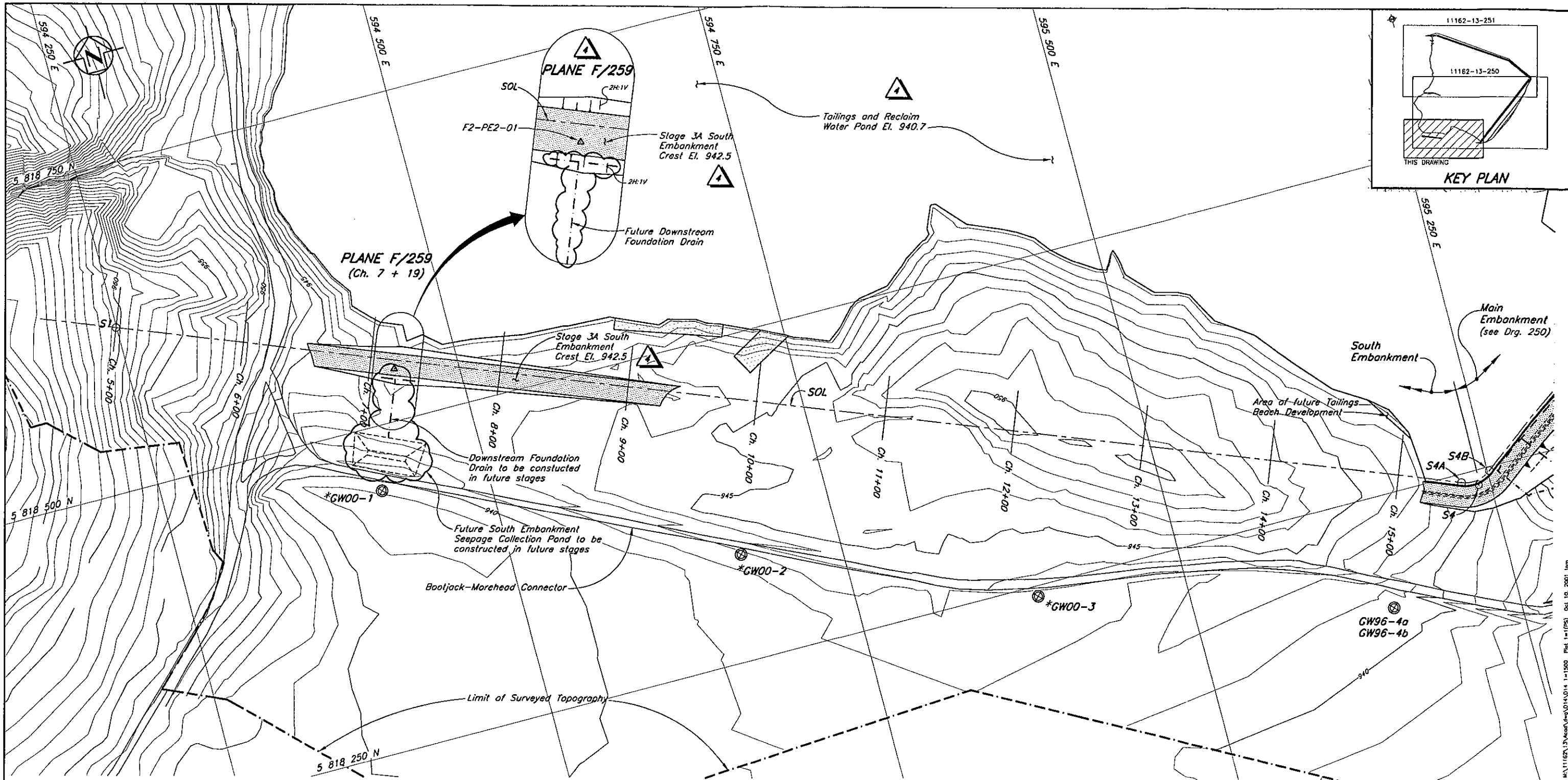
**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**  
**TAILINGS STORAGE FACILITY**  
**STAGE 3 PERIMETER EMBANKMENT**  
**INSTRUMENTATION PLAN**

**Knight Piésold**  
**CONSULTING**

SCALE: AS SHOWN  
 REVISION: 4  
 DRAWING NO.: 11162-13-251

REF FILE: TOPO99, ST0009, STAGE3B\_Plan

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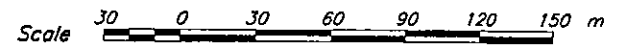
**LEGEND**

- ⊗ GW96-9 Groundwater Monitoring Well
- ▲ A1-PE1-01 Previously installed Piezometer
- △ A2-PE2-08 New Stage 3 Piezometer
- ◇ A2-SM-01 New Embankment Survey Monument



**NOTES**

1. See Drg. No. 11162-13-256 for Summary of Instrumentation Installations, Typical Details and General Notes.
2. All dimensions in millimetres with elevations in metres, unless noted otherwise.
3. No work was completed at the South Embankment during Stage 3B construction.
4. 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.



DRG. NO.	DESCRIPTION
259	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION SECTIONS - SHEET 2 OF 2
256	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SUMMARY OF INSTALLATION AND TYPICAL DETAILS
250	TSF - STAGE 3 MAIN EMBANKMENT - INSTRUMENTATION - PLAN

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM		
3	14SEPT'01	ISSUED FOR 2000 & 2001 ANNUAL INSPECTION REPORT	CWM	TAM	JGJ	KJB
2	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
1	26JAN'01	STAGE 3B - CREST EL. 945	JRK	TAM	JMTW	KJB
0	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	ABW	KJB



**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
 STAGE 3 SOUTH EMBANKMENT  
 INSTRUMENTATION PLAN**

**Knight Piésold  
 CONSULTING**

SCALE: AS SHOWN  
 REVISION: 4  
 DRAWING NO. 11162-13-254

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

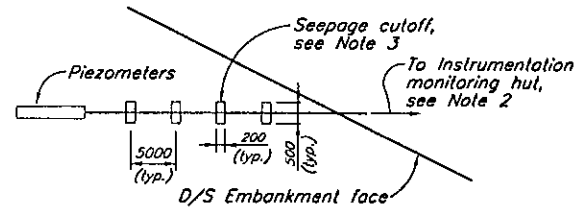
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

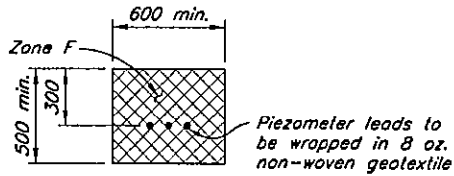
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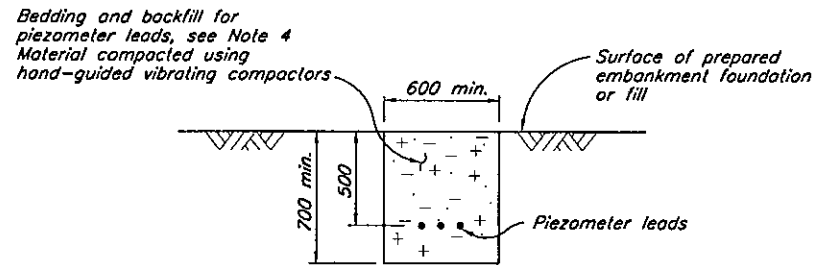




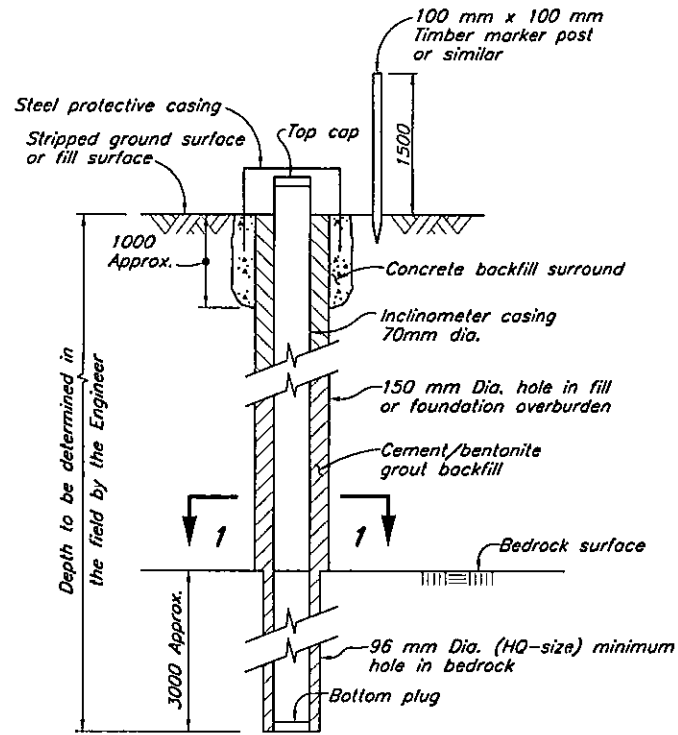
**DETAIL A**  
**258**  
 TYPICAL INSTALLATION DETAIL OF SEEPAGE CUTOFF FOR  
 PIEZOMETER LEADS IN GLACIAL TILL  
 N.T.S.



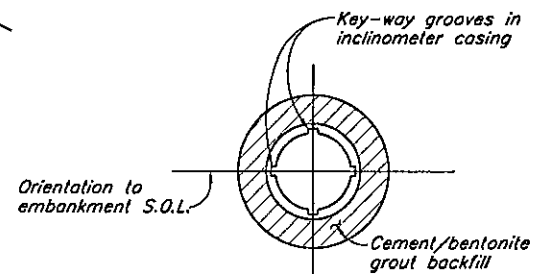
**DETAIL B**  
**258**  
 TYPICAL INSTALLATION DETAIL FOR  
 PIEZOMETER LEADS IN ZONE F



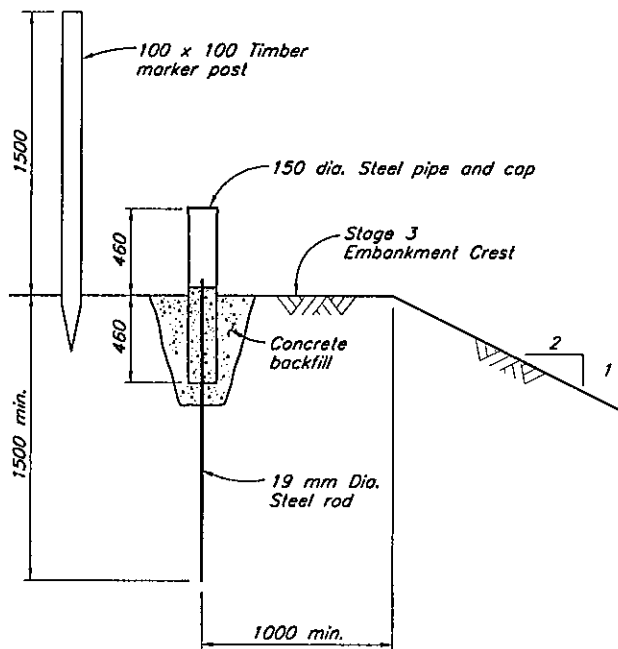
TYPICAL SECTION THROUGH PIEZOMETER LEAD TRENCH  
 IN PREPARED EMBANKMENT FOUNDATION OR FILL



TYPICAL INCLINOMETER INSTALLATION  
 IN BOREHOLE  
 N.T.S.



SECTION 1  
 N.T.S.



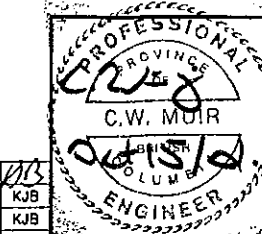
TYPICAL DETAIL OF  
 SURFACE MOVEMENT MONUMENT

SUMMARY OF INSTRUMENTATION INSTALLATIONS				
PIEZOMETER ID	NORTHING	EASTING	ELEV.	DATE INSTALLED
A0-PE1-01	5 818 495.773	595 588.746	938.542	25/02/00
A0-PE2-01	5 818 502.850	595 585.398	928.03	09/03/98
A0-PE2-02	5 818 513.042	595 578.418	927.87	09/03/98
A1-PE1-01	5 818 486.650	595 595.060	912.99	27/08/96
A1-PE1-02	5 818 456.420	595 626.250	912.14	27/08/96
A1-PE1-03	5 818 476.822	595 602.380	917.17	22/10/96
A1-PE1-04	5 818 495.773	595 588.746	936.5	01/11/99
A2-PE1-01	5 818 446.550	595 628.010	912.89	26/08/98
A2-PE1-02	5 818 491.574	595 592.678	938.474	27/02/00
A2-PE1-03	5 818 423.31	595 663.2	909.3	19/07/00
A2-PE2-01	5 818 482.710	595 598.140	903.7	25/07/96
A2-PE2-02	5 818 482.710	595 598.140	909.8	25/07/96
A2-PE2-03	5 818 484.196	595 602.354	919.43	12/02/97
A2-PE2-04	5 818 487.510	595 595.995	926.07	22/02/97
A2-PE2-05	5 818 475.061	595 607.560	921.87	22/02/97
A2-PE2-06	5 818 453.926	595 648.458	898.03	21/06/98
A2-PE2-07	5 818 453.926	595 648.458	902.83	21/06/98
A2-PE2-08	5 818 447.045	595 627.758	907.57	23/06/98
A2-SM-09	NOT INSTALLED		942.5	
A2-SM-12	5 818 492.317	595 592.84	942.5	
B0-PE1-01	5 818 681.542	595 831.874	939.05	20/02/00
B0-PE2-01	5 818 688.820	595 832.067	930.00	06/03/98
B0-PE2-02	5 818 697.980	595 826.160	927.18	06/03/98
B1-PE1-01	5 818 632.550	595 787.910	917.27	10/09/96
B1-PE1-02	5 818 609.040	595 806.770	915.95	10/09/96
B1-PE1-03	5 818 622.780	595 797.260	918.69	22/10/96
B2-PE1-01	5 818 594.940	595 811.260	916.272	26/08/98
B2-PE1-02	5 818 676.310	595 836.050	939.536	20/02/00
B2-PE1-03	5 818 572.78	595 847.27	914.1	19/07/00
B2-PE2-01	5 818 628.270	595 787.880	902.00	25/07/96
B2-PE2-02	5 818 627.470	595 790.660	909.50	25/07/96
B2-PE2-03	5 818 636.530	595 786.970	921.00	22/10/96
B2-PE2-04	5 818 626.940	595 794.190	921.00	22/10/96
B2-PE2-05	5 818 619.014	595 799.804	921.70	14/03/97
B2-PE2-06	5 818 595.767	595 810.605	914.59	23/06/98
B2-SM-10	NOT INSTALLED		942.5	
B2-SM-13	5 818 643.472	595 793.692	942.54	
S101-1	5 818 463.54	595 666.536	916.923	
S101-2	5 818 400.999	595 588.808	918.152	

SUMMARY OF INSTRUMENTATION INSTALLATIONS (con't)				
PIEZOMETER ID	NORTHING	EASTING	ELEV.	DATE INSTALLED
C0-PE1-01	5 818 408.969	595 469.750	939.267	26/02/00
(C0-PE2-01)	5 818 414.319	595 471.099	927.80	09/03/98
(C0-PE2-02)	5 818 426.495	595 463.101	927.48	09/03/98
C1-PE1-01	5 818 410.500	595 496.070	914.70	28/09/96
C1-PE1-02	5 818 387.690	595 482.400	916.60	22/10/96
C1-PE1-04	5 818 351.420	595 509.060	914.31	03/04/98
C2-PE1-01	5 818 367.670	595 508.900	915.016	26/08/98
C2-PE1-02	5 818 404.117	595 473.754	939.26	26/02/00
C2-PE1-03	5 818 327.18	595 530.51	912.6	12/07/00
(C2-PE2-01)	5 818 392.410	595 478.240	907.50	25/07/96
C2-PE2-02	5 818 392.410	595 478.240	910.50	25/07/96
C2-PE2-03	5 818 399.106	595 478.824	920.97	12/02/97
C2-PE2-05	5 818 402.343	595 475.326	924.84	12/02/97
C2-PE2-06	5 818 359.734	595 513.663	906.84	18/06/98
C2-PE2-07	5 818 359.734	595 513.663	912.28	18/06/98
C2-PE2-08	5 818 367.087	595 509.351	914.03	19/06/98
C2-SM-11	NOT INSTALLED		942.5	
C2-SM-14	5 818 398.488	595 468.018	942.54	
D1-PE1-02	5 819 742.03	595 353.980	928.76	30/01/98
D1-PE1-03	5 819 774.953	595 307.851	933.323	20/07/01
(D2-PE1-01)	5 819 775.449	595 310.522	930	26/08/98
D2-PE2-01	5 819 756.360	595 316.210	931.00	15/12/96
D2-PE2-02	5 819 791.103	595 333.275	922	22/06/98
D2-SM-15	5 819 749.019	595 299.627	942.421	04/10/01
E2-PE2-01	5 818 307.454	595 435.983	908	17/06/98
E2-PE2-02	5 818 307.454	595 435.983	913	17/06/98
G1-PE1-01	5 818 9665.212	595 012.935	933.19	20/07/01
G2-SM-16	5 819 922.045	595 042.824	942.643	04/10/01
H1-PE1-01	5 819 517.62	595 667.86	936.8	20/07/01
H2-SM-17	5 819 528.085	595 628.739	942.342	04/10/01

- LEGEND**
- Plane I.D. (A, B etc.)
  - Area (0-Tailings, 1-Drain, 2-Embankment)
  - A0-PE1-01 - Number I.D.
  - Pressure Rating (1-Low, 2-High)
  - Type of Instrumentation (PE-Piezometer electric, SM-Survey Monument)
  - A1-PE1-01 ▲ Previously installed Piezometer
  - D2-PE1-02 △ New Stage 3 Piezometer
  - A2-SM-12 ◇ New Embankment Survey Monument
  - GW96-9 ⊗ Groundwater Monitoring Well
  - S101-1 ● Slope Inclinometer

- NOTES**
- All dimensions in millimetres with elevations in metres, unless noted otherwise.
  - Piezometer leads extended as directed by the Engineer.
  - Seepage cutoffs placed at 5 m intervals with 10% bentonite added to fine grained till backfill.



MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE  
 TAILINGS STORAGE FACILITY  
 STAGE 3 TAILINGS EMBANKMENT  
 INSTRUMENTATION  
 SUMMARY OF INSTALLATION & TYPICAL DETAILS

**Knight Piésold**  
 CONSULTING

DESIGNED: JRK  
 CHECKED: JDC  
 APPROVED: DSR  
 KJB

SCALE: AS SHOWN  
 REVISION: 4  
 DRAWING NO.: 11162-13-256

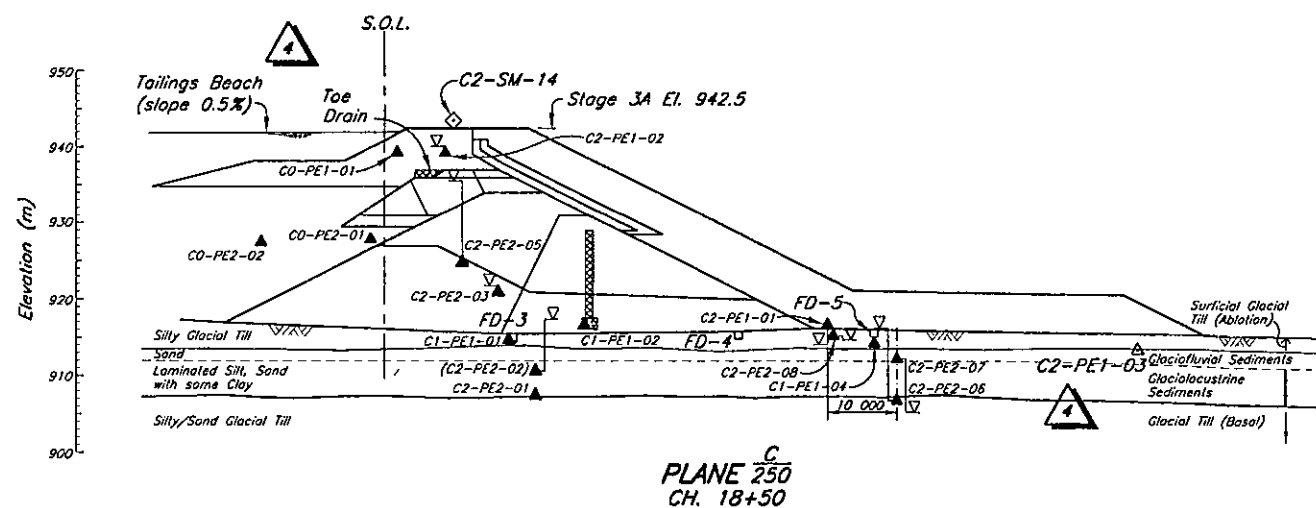
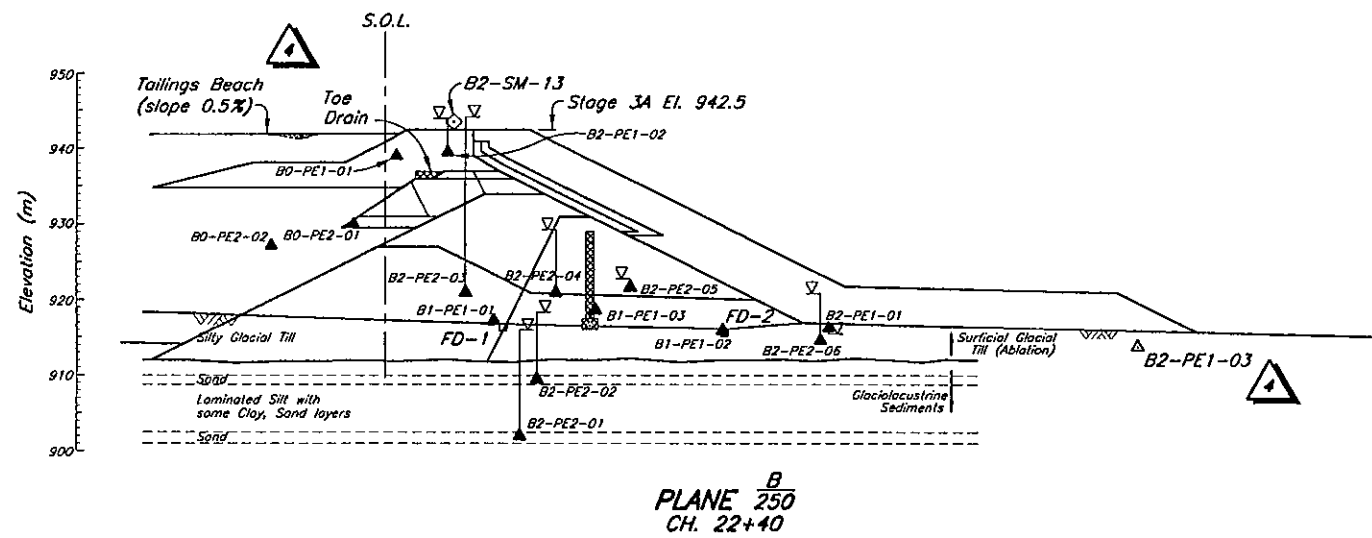
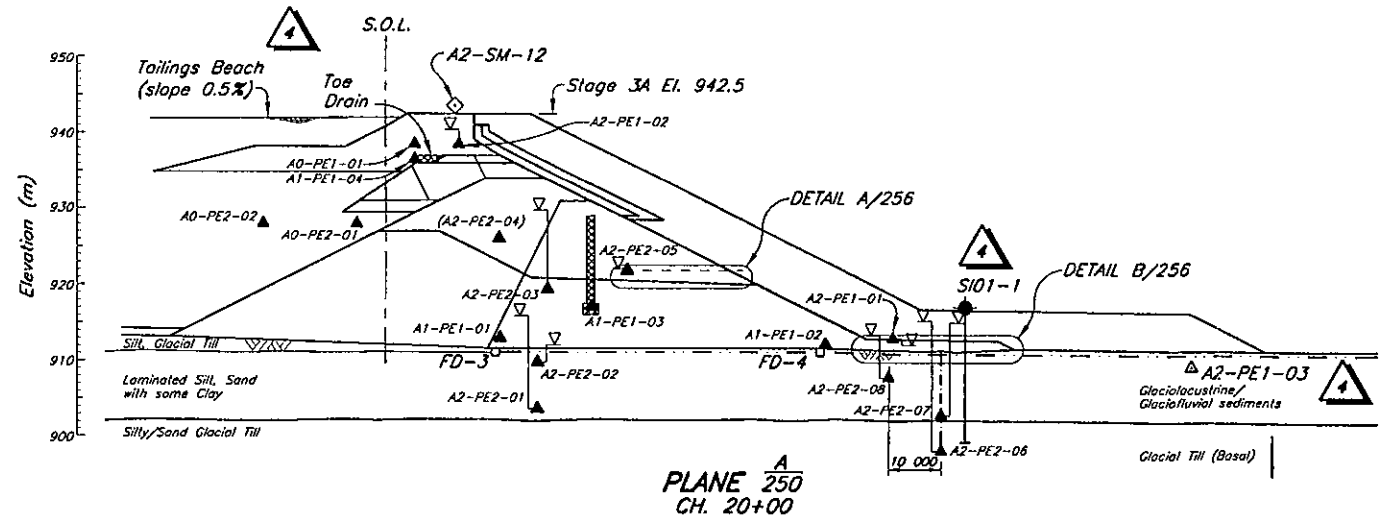
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258	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SECTIONS - SHEET 1 OF 2							
254	TSF - STAGE 3 SOUTH EMBANKMENT - INSTRUMENTATION - PLAN							
251	TSF - STAGE 3 PERIMETER EMBANKMENT - INSTRUMENTATION - PLAN							
250	TSF - STAGE 3 MAIN EMBANKMENT - INSTRUMENTATION - PLAN							

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM		
3	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
2	26JAN'01	STAGE 3B - CREST ELEVATION 945	JRK	WAL	JMTW	KJB
1	20OCT'00	PERIMETER EMBANKMENT INSTRUMENTATION ADDED	JRK	NSD	JMTW	KJB
0	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	JDC	KJB

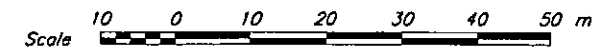
REF. FILE:

CAD FILE: M:\11162\13\Main\DWG\1015.DWG 1:20 Plot 1=1(P) Del 10, 2001 km



- LEGEND**
- Water level readings Apr. 21, 2001
  - A1-PE1-01 Previously installed Piezometer
  - A2-PE2-06 New Stage 3 Piezometer
  - A2-SM-01 New Embankment Survey Monument
  - SI01-1 Slope Inclinometer

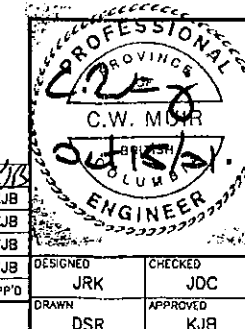
- NOTES**
1. Piezometers are vibrating wire type, SINCA Model 52611030 and RSI Model 45005-0100 with a pressure rating of 100 psi or equivalent, connected to a readout panel via standard non-vented direct burial cable.
  2. Piezometer leads extended as directed by the Engineer.
  3. Zone fill materials and drain pipes not shown in drawing for clarity. For Details see Drg. 215.
  4. See Drg. No. 11162-13-256 for Summary of Instrumentation Installations, Typical Details and General Notes.
  5. All dimensions in millimetres with elevations in metres, unless noted otherwise.
  6. No work was completed at the Main Embankment during Stage 3B construction.



DRG. NO.	DESCRIPTION
259	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SECTIONS 2 OF 2
256	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION - SUMMARY OF INSTALLATION & TYP. DETAILS
250	TSF - STAGE 3 MAIN EMBANKMENT - INSTRUMENTATION - PLAN

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
4	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JDC	KJB
3	13SEPT'01	ISSUED FOR 2000 & 2001 ANNUAL INSPECTION REPORT	CWM	DSR	JRK	KJB
2	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
1	26JAN'01	STAGE 3B - CREST ELEVATION 945	JRK	AW	JMTW	KJB
0	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	JDC	KJB



**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

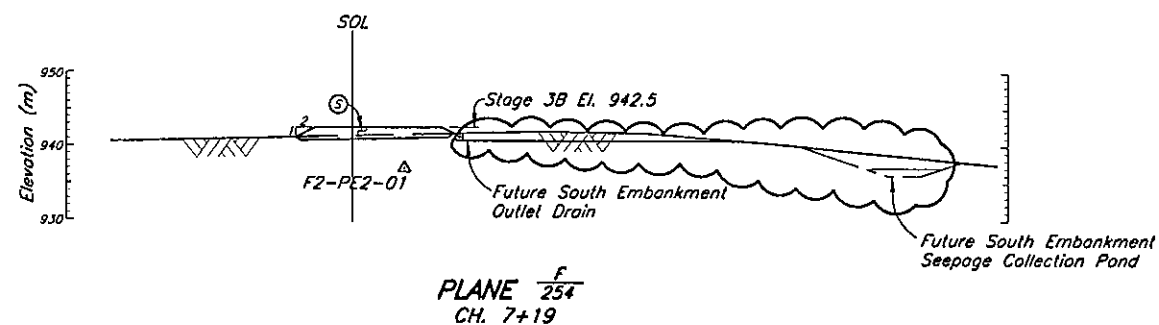
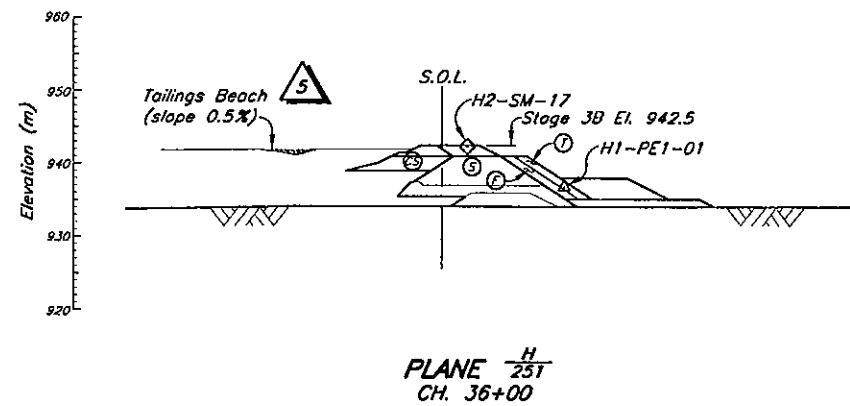
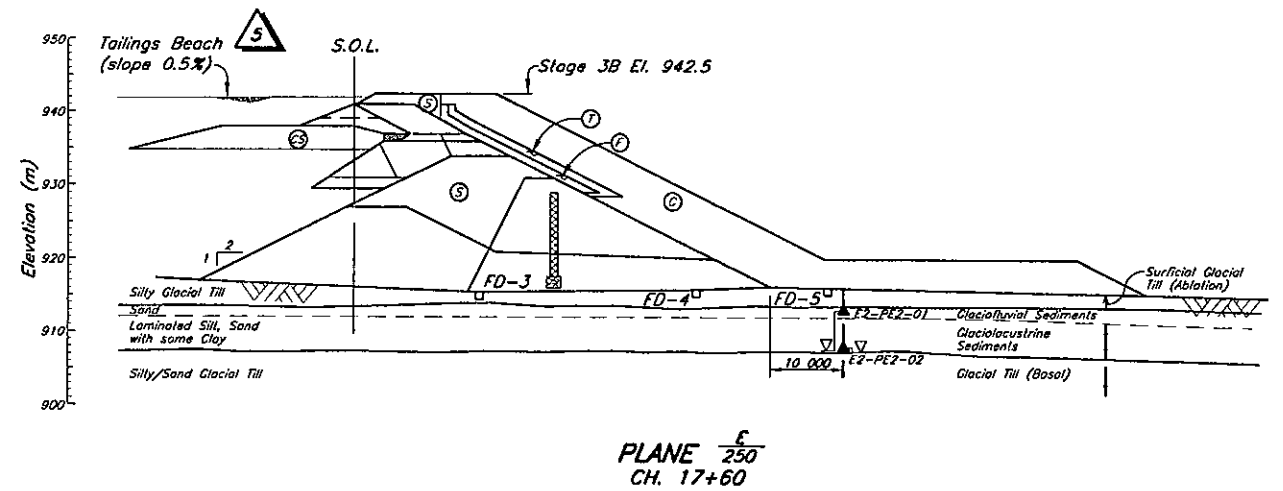
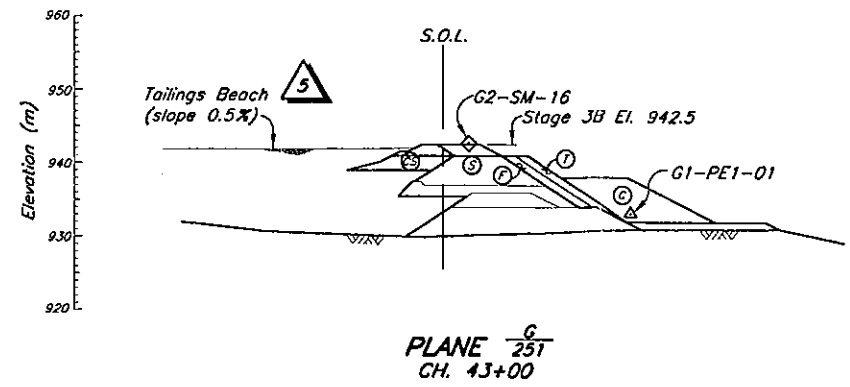
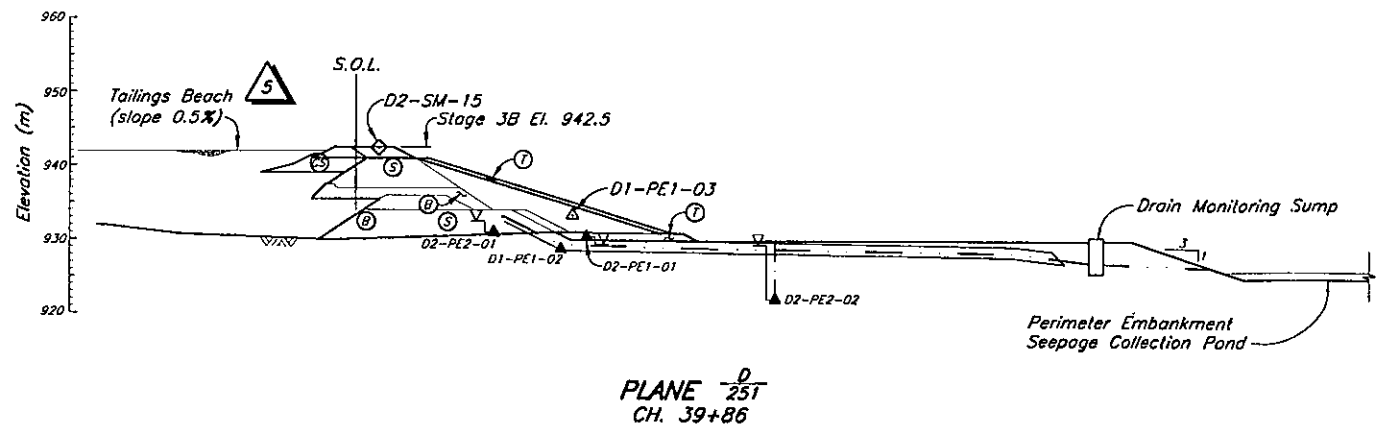
**TAILINGS STORAGE FACILITY**  
**STAGE 3 TAILINGS EMBANKMENT**  
**INSTRUMENTATION**  
**SECTIONS - SHEET 1 OF 2**

**Knight Piésold CONSULTING**

SCALE: AS SHOWN  
REVISION: 4  
DRAWING NO. 11162-13-258

REF. FILE:

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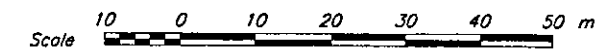
**NOTES**

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. Zone fill materials and drain pipes not shown in drawing for clarity. For Details see Drg. 215.
4. See Drg. No. 11162-13-256 for Summary of Instrumentation Installations, Typical Details and General Notes.
5. All dimensions in millimetres with elevations in metres, unless noted otherwise.
6. No work was completed at the Main and South Embankments during Stage 3B construction.



**LEGEND**

- ▽ Water level readings Apr. 21, 2001
- ▲ A1-PE1-01 Previously installed Piezometer
- △ A2-PE2-05 New Stage 3 Piezometer
- ◇ A2-SM-01 New Embankment Survey Monument



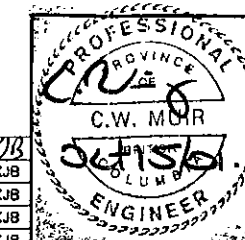
ORG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
256	TSF - STAGE 3 TAILINGS EMBANKMENT - INSTRUMENTATION SUMMARY OF INSTALLATION & TYPICAL DETAILS							
254	TSF - STAGE 3 TAILINGS EMBANKMENT - SOUTH EMBANKMENT - INSTRUMENTATION PLAN							
251	TSF - STAGE 3 PERIMETER EMBANKMENT - INSTRUMENTATION PLAN							
250	TSF - STAGE 3 TAILINGS EMBANKMENT - MAIN EMBANKMENT - INSTRUMENTATION PLAN							

REFERENCE DRAWINGS

REVISIONS

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
5	05OCT'01	STAGE 3A/3B - AS CONSTRUCTED	CWM	TAM	JRK	KJB
4	14SEPT'01	ISSUED FOR 2000 & 2001 ANNUAL INSPECTION REPORT	CWM	TAM	JRK	KJB
3	08MAY'01	ISSUED FOR STAGE 3B TENDER	CWM	DSR	JRK	KJB
2	26JAN'01	STAGE 3B - CREST ELEVATION 945	JRK	AW	JMTW	KJB
1	20OCT'00	PERIMETER EMBANKMENT SECTIONS ADDED	JRK	NSD	JMTW	KJB
0	2JUN'00	ISSUED FOR CONSTRUCTION	JRK	TAM	ABW	KJB

REVISIONS



DESIGNED: JRK  
CHECKED: ABW  
DRAWN: DSR  
APPROVED: KJB

**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY**  
**STAGE 3 TAILINGS EMBANKMENT**  
**INSTRUMENTATION**  
**SECTIONS - SHEET 2 OF 2**

**Knight Piésold**  
CONSULTING

SCALE: AS SHOWN  
REVISION: 5  
DRAWING NO. 11162-13-259

XREF FILE

C:\P\FILE\M\11162\13\mes\04\0181816 1-550 Plot 1-105 Dec 10, 2001 10m

## APPENDIX A

### INVESTIGATIONS

- Table A1.1 r0 Borrow Areas 2, 3 and 5 Materials Investigation  
Summary -- April 2001
- Figure A1 r1 Borrow Area No. 2 -- Plan
- Figure A2 r1 Borrow Area No. 2 -- Geologic Cross Sections --  
Sheet 1 of 3
- Figure A3 r1 Borrow Area No. 2 -- Geologic Cross Sections --  
Sheet 2 of 3
- Figure A4 r1 Borrow Area No. 2 -- Geologic Cross Sections --  
Sheet 3 of 3
- Overburden Logs



**TABLE A1.1**

**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**

**BORROW AREAS 2, 3 AND 5 MATERIALS INVESTIGATION SUMMARY  
APRIL, 2001**

Date Revised: 06-Apr-01

Date Printed: 06-Apr-01

M:\116214\Report\3\3-1b\A1-1.XLS\Table A1.1\_r0

Drillhole Number	Depth (ft)	Sample (ft)	Field Moisture (%)	Material Description
DH01-01	0-5	DH01-01A (10)	12.1	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	5-17			Medium brown silt and sand till, some gravel and clay, firm, very moist, plastic
	17-21			Grey silt and sand till, some gravel and clay, firm, very moist, plastic
	21-39			Grey silt and sand till, some gravel and clay, firm to stiff, moist, plastic
DH01-02	0-10	DH01-02A (10)	12.6	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	10-15	DH01-02B (20)	17.1	Medium brown silt and sand till, some gravel and clay, firm, very moist, plastic
	15-22			Grey silt and sand till, some gravel and clay, soft, very moist to wet, plastic
	22-25			Grey silty sand till, some gravel, trace clay, firm, moist, non plastic, non cohesive
	25-35	DH01-02C (30)	12.6	Grey silt and sand till, some gravel and clay, firm, very moist, plastic
35-38	Grey gravelly silt and sand till, some clay, firm, very moist, plastic			
DH01-03	0-11	DH01-03A (10)	10.9	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	11-17			Medium brown silt and sand till, some gravel and clay, firm, very moist, plastic
	17-21			Grey silt and sand till, some gravel and clay, soft, very moist to wet, plastic
	21-27			Grey silt and sand till, some gravel and clay, firm to stiff, moist, plastic
	27-30			Grey silty sand till, some gravel, trace clay, firm, moist, non plastic, non cohesive
	30-35			Grey gravelly silt and sand till, some clay, firm, very moist, plastic
	35-40			Grey gravelly silt and sand till, some clay, stiff, moist, plastic
DH01-04	0-8			Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	8-10			Medium brown silt and sand till, some gravel and clay, firm, moist, plastic
	10-25			Grey silt and sand till, some gravel and clay, firm, very moist, plastic
	25-33			Grey silty sand till, some gravel, trace clay, firm, moist, non plastic
DH01-05	0-12			Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	12-15			Grey silt and sand till, some gravel and clay, firm, very moist, plastic
	15-20			Grey silt and sand till, some gravel and clay, firm, very moist, plastic
	20-27			Grey gravelly silt and sand till, some clay, stiff, moist, plastic
	27-31			Grey silty sand till, some gravel, trace clay, firm, very moist, non plastic
	31-35			Grey silt and sand till, some gravel and clay, firm, very moist, plastic
35-37	Grey silt and sand till, some gravel and clay, firm, wet, plastic			
DH01-06	0-16	DH01-06A (10)	10.7	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	16-34			Grey silt and sand till, some gravel and clay, stiff, moist, plastic
DH01-07	0-17	DH01-07B (20)	10.9	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	17-36			Grey silt and sand till, some gravel and clay, stiff, moist, plastic
DH01-08	0-17	DH01-08 C (30)	11.2	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	17-30			Grey silt and sand till, some gravel and clay, stiff, moist, plastic
DH01-09	0-16	DH01-09A (10)	12.2	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	16-33			Grey silt and sand till, some gravel and clay, stiff, moist, plastic
DH01-10	0-6	DH01-10B (20)	12.7	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic
	6-10			Medium brown silty sand till, some gravel, trace clay, stiff, moist, non plastic
	10-14			Medium brown silty sand till, some gravel, trace clay, stiff, very moist, non plastic
	14-16			Varved fine sand and coarse silt seams, very thin (1-3 mm), firm, very moist
	16-20			Grey silt and sand till, some gravel and clay, stiff, very moist, plastic
	20-23			Grey silty sand till, some gravel, trace clay, firm, very moist, non plastic
	23-32.5			Grey silty sand till, some gravel, trace clay, stiff, moist, non plastic

**TABLE A1.1**

**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**

**BORROW AREAS 2, 3 AND 5 MATERIALS INVESTIGATION SUMMARY  
APRIL, 2001**

Date Revised: 06-Apr-01

Date Printed: 06-Apr-01

M:\1116214\Report\3\3-1b\A1-1.XLS\Table A1.1\_r0

Drillhole Number	Depth (ft)	Sample (ft)	Field Moisture (%)	Material Description	
DH01-11	0-10	DH01-11C (30)	11	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic	
	10-15			Medium brown silt and sand till, some gravel and clay, firm, very moist, plastic	
	15-34			Grey silt and sand till, some gravel and clay, firm, very moist, plastic	
DH01-12	0-10	DH01-12A (10)	11.9	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic	
	10-15	DH01-12B (20)	20.3	Medium brown silt and sand till, some gravel and clay, firm, very moist, plastic	
	15-25			Grey silt and sand till, some gravel and clay, soft, very moist to wet, plastic	
	25-33			Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic	
DH01-13	0-16	DH01-13A (10)	10.3	Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic	
	16-29			Grey silt and sand till, some gravel and clay, stiff, moist, plastic	
DH01-14	0-12	DH01-14A (10)	12.1	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	12-15			Medium brown silt and sand till, trace gravel, some clay, firm, very moist, plastic	
	15-22			Grey silt and sand till, some gravel and clay, stiff, moist, plastic	
	22-26			Grey silt and sand till, some gravel and clay, stiff, very moist, plastic	
	26-28			Grey silt and sand till, some gravel and clay, stiff, dry, plastic	
DH01-15	0-20	DH01-15A (10)	8.8	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	20-28			Grey silt and sand till, some gravel and clay, stiff, moist, plastic	
DH01-16	0-15	DH01-16B (20)	12.9	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	15-32			Grey silt and sand till, some gravel and clay, stiff, moist, plastic	
DH01-17	0-17	DH01-17A (10)	11	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	17-26			Grey silt and sand till, some gravel and clay, stiff, moist, plastic	
DH01-18	0-17	DH01-18A (10)	12.1	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	17-24			Medium brown silt and sand till, some gravel and clay, stiff, moist, plastic	
DH01-19	0-17	DH01-19B (20)	11	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	17-23			Grey silt and sand till, some gravel and clay, stiff, very moist, plastic	
DH01-20	0-15	DH01-20A (10)	12.4	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	15-22			Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic	
DH01-21	0-15	DH01-21B (20)	10.3	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	15-25			Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic	
DH01-22	0-5			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	5-15			Brown glaciofluvial dense gravelly sand, some silt, below Zone S coarse limit	
	15-20			Yellow brown sand, some silt, trace gravel, dry	
	20-25			Yellow brown glaciolacustrine fine sand and coarse silt, dry	
DH01-23	0-15	DH01-23A (10)	11.3	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	15-18			Brown glaciofluvial dense sand and gravel, some silt, below Zone S coarse limit	
	18-25			Yellow brown glaciolacustrine fine sand and coarse silt, dry	
DH01-24	0-15	DH01-24A (10)	11.9	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	15-20			Yellow brown glaciolacustrine fine sand and coarse silt, dry	
DH01-25	0-15	DH01-25A (10)	10.5	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	15-20			Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	20-25			Medium brown medium to fine sand, trace silt and gravel, medium dense, dry	
DH01-26	0-15	DH01-26A (10)	11.1	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic	
	15-20			DH01-26B (20)	Grey silt and sand till, trace gravel, some clay, stiff, dry, plastic
	20-30				Yellow brown glaciolacustrine fine sand and coarse silt, dry

**TABLE A1.1**

**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**

**BORROW AREAS 2, 3 AND 5 MATERIALS INVESTIGATION SUMMARY  
APRIL, 2001**

Date Revised: 06-Apr-01

Date Printed: 06-Apr-01

MA11162\14\Report\3\3-1b\A1-1.XLS\Table A1.1\_r0

Drillhole Number	Depth (ft)	Sample (ft)	Field Moisture (%)	Material Description
DH01-27	0-2			Medium brown silt
	2-20			Brown glaciofluvial sand and gravel, trace silt, moist, dense, water seam at 15'
	20-30			Yellow brown glaciolacustrine fine sand and coarse silt, wet from water above
DH01-28	0-2			Medium brown silt
	2-5			Brown glaciofluvial sand and gravel, trace silt, moist, dense
	5-10			Brown silt and sand, some gravel, medium dense, dry to moist, non plastic
	10-25			Yellow brown glaciolacustrine fine sand and coarse silt, trace gravel, dry
DH01-29	0-5	DH01-29A (10)	8	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	5-10			Brown gravelly silty sand till, medium dense, non plastic, non cohesive, moist
	10-15			Brown gravelly sand, some silt and clay, below coarse limit of Zone S
DH01-30	0-5	DH01-30A (10)	10.3	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	5-10			Medium brown silt and sand till, some gravel, trace clay, stiff, moist, non plastic
	10-20			Brown gravelly sand, some silt and clay, below coarse limit of Zone S
	20-25			Brown glaciofluvial gravelly sand, trace silt, moist, dense
DH01-31	0-5	DH01-31A (10)	10.7	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	5-10			Medium brown silt and sand till, trace gravel, trace clay, stiff, moist, non plastic
	10-16			Grey silt and sand till, trace gravel, trace clay, stiff, moist, non plastic
	16-20			Light brown glaciofluvial sand, some gravel, trace silt, dry, medium dense
DH01-32	0-5	DH01-32A (10)	10.2	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	5-16			Medium brown silty sand till, some gravel, trace clay, stiff, moist to dry, non plastic
	16-25			Brownish red glaciofluvial sand, trace to some gravel and silt, dry, medium dense
DH01-33	0-5	DH01-33B (20)	9.8	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	5-10			Medium brown silty sand till, some gravel, trace clay, stiff, moist to dry, non plastic
	10-24			Brownish green silty sand till, trace gravel, trace clay, stiff, moist, non plastic
	24-25			Yellow brown glaciolacustrine fine sand and coarse silt, dry
DH01-34	0-5			Brownish green silt and clay, trace sand, stiff, moist, plastic
	5-10			Medium brown glaciolacustrine silt and clay, stiff, moist, plastic
DH01-35	0-5			Brownish green silt and clay, trace sand, stiff, moist, plastic
	5-10			Medium brown glaciolacustrine silt and clay, stiff, moist, plastic
DH01-36	0-6			Greenish brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	6-10			Brown glaciolacustrine sand and silt, dry
DH01-37	0-5			Light brown silt, some sand, trace clay, stiff, moist, plastic
	5-10			Light brown glaciofluvial sandy silty gravel, dry, dense
DH01-38	0-5			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	5-15			Light brown medium to fine sand, trace silt, moist, medium dense
DH01-39	0-5	DH01-39A (10) DH01-39B (20)	8.6	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic
	5-12			Medium brown sand till, some gravel and silt, trace clay, stiff, moist, non plastic
	12-21		8.4	Medium brown gravelly sand till, some silt, trace clay, stiff, moist, non plastic
	21-27 27-30			Light brown sand, some gravel, trace silt, medium dense, moist Brown glaciofluvial sand and silt, medium dense, moist
DH01-40	0-15	DH01-40A (10)	11.4	Medium brown silt and sand till, some gravel, trace clay, firm, moist, non plastic
	15-18			Yellow brown glaciolacustrine fine sand and coarse silt, dry
	18-25			Brown glaciolacustrine fine sand, dry
DH01-41	0-13	DH01-41A (10)	10.4	Medium brown silt and sand till, some gravel, trace clay, firm, moist, non plastic

TABLE A1.1

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**

**BORROW AREAS 2, 3 AND 5 MATERIALS INVESTIGATION SUMMARY**  
**APRIL, 2001**

Date Revised: 06-Apr-01

Date Printed: 06-Apr-01

M:\11162\14\Report\3\3-lb\A1-1.XLS\Table A1.1\_r0

Drillhole Number	Depth (ft)	Sample (ft)	Field Moisture (%)	Material Description
	13-20 20-25			Yellow brown glaciolacustrine silt, dry Brown glaciolacustrine fine sand, dry
DH01-42	0-14 14-18	DH01-42A (10)	11.5	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic
DH01-43	0-11 11-15 15-20 20-25	DH01-43A (10)	10	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silt and sand till, some gravel, trace clay, stiff, moist, non plastic Yellow brown glaciolacustrine fine sand and coarse silt, dry Light brown sandy silt, some gravel, dry
DH01-44	0-6 6-10			Greenish brown silt, some sand and clay, firm to stiff, very thin varves, moist Greenish brown gravelly sand, trace silt, trace clay, dense, moist
DH01-45	0-6 6-10			Greenish brown sandy silt, some clay, trace gravel, stiff, very thin varves, moist Red brown fine sand, trace silt, trace gravel, dense, dry
DH01-46	0-6 6-15			Greenish brown sandy silt, some clay, trace gravel, stiff, very thin varves, moist Yellow brown fine sand, trace silt, trace gravel, dry
DH01-47	0-6 6-15			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Light brown fine sand, trace silt, dry
DH01-48	0-2 2-5			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Yellow brown fine sand, some silt, trace gravel, dry
DH01-49	0-2 2-5			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Yellow brown fine sand, some silt, trace gravel, dry
DH01-50	0-6 6-18 18-20			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Red brown gravelly sand till, trace to some silt, trace clay, medium dense, moist Light brown glaciolacustrine sand, trace silt, trace gravel, dry
DH01-51	0-5 5-15 15-20	DH01-51A (10)	10.3	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Medium brown silty sand till, some gravel, trace clay, stiff, moist, non plastic Light brown glaciolacustrine sand and silt, trace gravel, dry
DH01-52	0-2 2-20			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Yellow brown fine sand, some silt, trace gravel, dry
DH01-53	0-5 5-10 10-15			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silty sand till, trace gravel, trace clay, stiff, moist to dry, non plastic Light brown glaciolacustrine sand, some silt, trace gravel, dry
DH01-54	0-3 3-15			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Light brown glaciolacustrine sand, trace silt, trace gravel, dry
DH01-55	0-5 5-10 10-15 15-20			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Medium brown silty sand till, some gravel, trace clay, stiff, moist, non plastic Light brown glaciolacustrine sandy silt, dry Light brown glaciolacustrine silt, trace sand, trace clay, dry
DH01-56	0-5 5-15 15-20			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Medium brown silty sand till, some gravel, trace clay, stiff, moist, non plastic Light brown glaciolacustrine sand and silt, dry
DH01-57	0-6 6-15			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Light brown glaciolacustrine sand, trace silt, trace gravel, dry
DH01-58	0-10 5 10-15			Medium brown silt and sand till, trace gravel, some clay, soft to firm, wet, plastic Water seam Light brown glaciolacustrine sand, trace silt, trace gravel, dry
DH01-59	0-10 10-15 15-20	DH01-59A (10)	12.1	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Medium brown silt and sand till, some gravel, trace clay, stiff, moist, non plastic Light brown glaciolacustrine silt, trace sand, trace gravel, dry
DH01-60	0-21 21-25	DH01-60B (20)	10.8	Medium brown silt and sand till, some gravel, trace clay, stiff, moist, non plastic Light brown glaciolacustrine silt, some sand, dry
DH01-61	0-15 15-20 20-25	DH01-61A (10)	11.5	Medium brown silt and sand till, trace gravel, trace clay, stiff, moist, non plastic Grey silt and sand till, trace gravel, trace clay, stiff, moist, non plastic Light brown glaciolacustrine sandy silt, trace gravel, dry
DH01-62	0-5	DH01-62A (10)	10.2	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic

**TABLE A1.1**

**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**

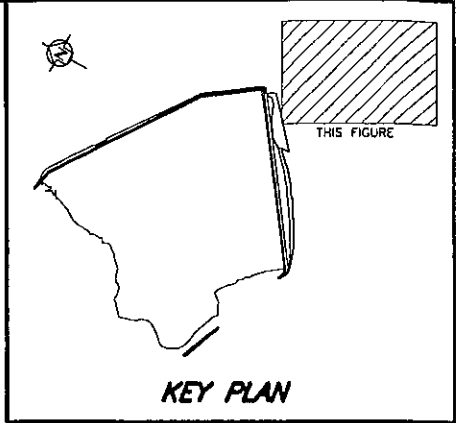
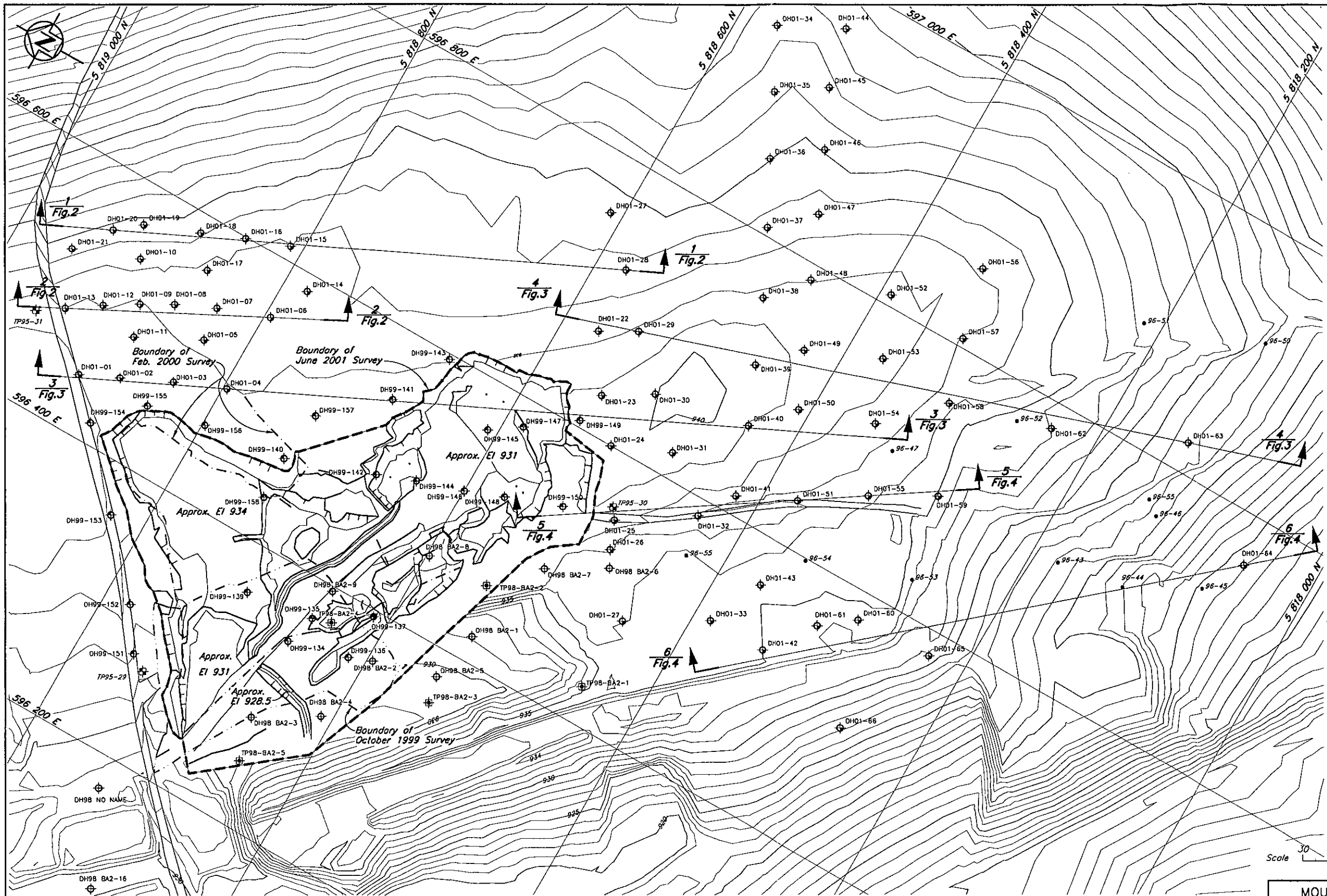
**BORROW AREAS 2, 3 AND 5 MATERIALS INVESTIGATION SUMMARY  
APRIL, 2001**

Date Revised: 06-Apr-01

Date Printed: 06-Apr-01

M:\11162\14\Report\3\3-1b\A1-1.XLS\Table A1.1\_r0

Drillhole Number	Depth (ft)	Sample (ft)	Field Moisture (%)	Material Description
	5-13			Medium brown silt and sand till, some gravel, trace clay, stiff, moist, non plastic
DH01-63	0-12 12-19			Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silt and sand till, some gravel, trace clay, stiff, moist, non plastic
DH01-64	0-5 5-14	DH01-64A (10)	10.7	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic
DH01-65	0-5 5-19	DH01-65A (10)	13.1	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic
DH01-66	0-12 12-16	DH01-66A (10)	12	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic
DH01-67	0-10 10-15 15-17 17	DH01-67A (10)	13.9	Medium brown silt and sand till, trace gravel, some clay, stiff, moist, plastic Grey silt and sand till, trace gravel, some clay, stiff, moist, plastic Red grey silt and sand till, trace gravel, some clay, stiff, moist, plastic Bedrock
DH01-68	0-3 3-9 9			Medium brown silt and sand till, trace gravel, some clay, firm, wet, plastic Red grey silt and sand till, trace gravel, some clay, stiff, moist, plastic Bedrock
DH01-69	0-5 5			Red grey silty sand till, trace gravel, trace clay, firm, very moist to wet, non plastic Bedrock
DH01-70	0-2 2-6 6-10 10			Medium brown silt and sand till, trace gravel, some clay, firm, wet, plastic Medium brown silt and sand till, trace gravel, some clay, firm, very moist, plastic Brownish red silt and sand till, trace gravel, some clay, firm, moist, plastic Bedrock
DH01-71	0-4 4			Brownish red silt and sand till, trace gravel, some clay, firm, moist, plastic Bedrock
DH01-72	0-5 5			Brownish red sandy silt till, trace gravel, some clay, stiff, moist, plastic Bedrock
DH01-73	0-9 9			Brownish red sandy silt till, trace gravel, some clay, stiff, moist, plastic Bedrock
DH01-74	0-13	DH01-74A (10)	14.2	Brownish red sandy silt till, trace gravel, some clay, stiff, moist, plastic
DH01-75	0-5 5-17	DH01-75A (10)	14.6	Medium brown sandy silt till, trace gravel, some clay, very stiff, moist, plastic Grey sandy silt till, trace gravel, some clay, very stiff, moist, plastic
DH01-76	0-15 5			Medium brown to grey sandy silt till, trace gravel, some clay, stiff, moist, plastic Water seam
DH01-77	0-12	DH01-76A (10)	17.5	Medium brown sand and silt till, trace gravel, some clay, firm, very moist, plastic
DH01-78	0-10 10-14			Medium brown sand and silt till, trace gravel, some clay, firm, very moist, plastic Grey sand and silt till, trace gravel, some clay, firm, very moist, plastic
DH01-79	0-5 4 5			Green brown sand and silt till, trace gravel, some clay, soft, wet, plastic Water seam Bedrock
DH01-80	0-10 10-20			Green brown sand and silt till, trace gravel, some clay, firm, very moist, plastic Blue grey sand and silt till, trace gravel, some clay, stiff, moist, plastic

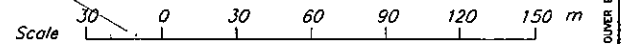


**NOTES**

1. Topography generated from points and break lines sent from MPMC on July 20, 1999. Topography for the October survey of borrow area generated from points and break lines sent by MPMC on October 12, 1999. Topography for the February 2000 survey was generated from points and break lines sent by MPMC on March 16, 2000. Topography for the June 2001 survey was sent by MPMC June 25, 2001
2. As-built information provided by Mount Polley Mining Corporation.
3. Results of previous investigations are available in previously issued reports.

**LEGEND**

- 96-86 1996/1997 Test Pits
- ⊕ TP95-28 1995 Test Pit
- ⊕ TP98-BA2-1 1998 Borrow Area No. 2 Test Pits Investigation
- ⊕ DH98 BL-1 1998 Basin Liner Investigation
- ⊕ DH99-134 1999 Borrow Area No. 2 Investigation
- ⊕ DH01-21 2001 Borrow Area No. 5 Investigation
- Boundary of October 1999 Survey
- - - Boundary of February 2000 Survey
- - - - Boundary of June 2001 Survey

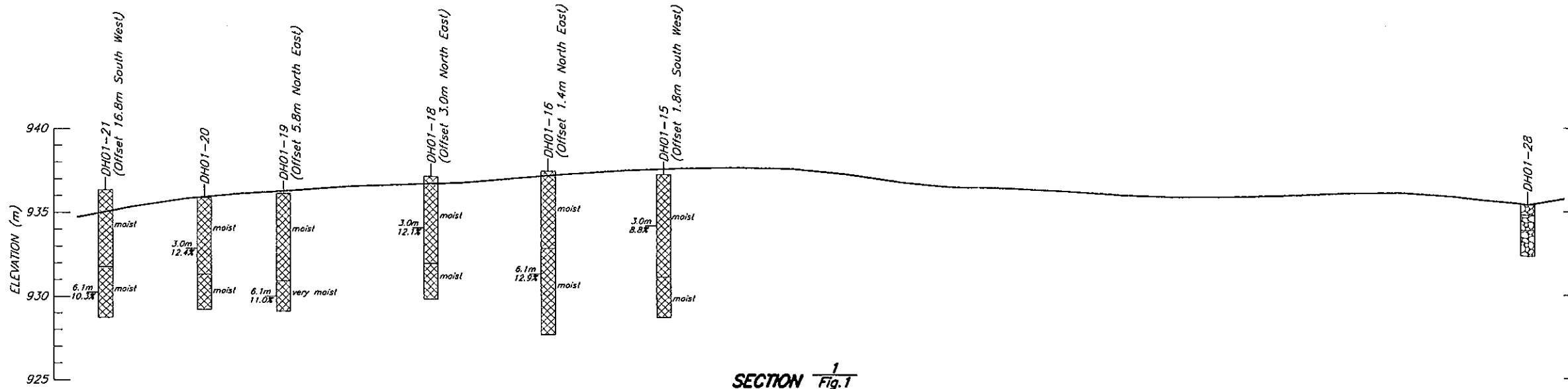


MOUNT POLLEY MINING CORPORATION		
MOUNT POLLEY MINE		
TAILINGS STORAGE FACILITY SITE INVESTIGATION BORROW AREA No.2 - PLAN		
<b>Knight Piésold</b> CONSULTING	PROJECT NO. 11162/14	REF. NO. 3
		REV. 1
<b>FIGURE A1</b>		

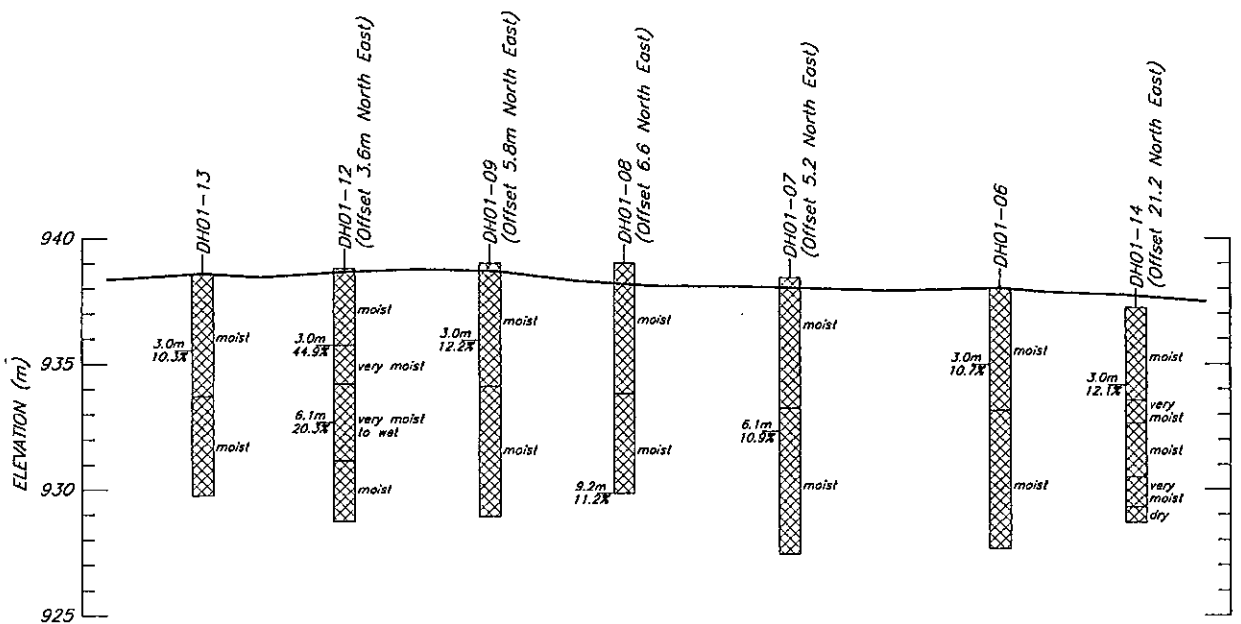
XREF FILE : TDP099

REV. 1 ISSUED WITH REPORT ON STAGE 3 CONSTRUCTION

CAD FILE: M:\11162\TA\NOVA\TSP\B09\_1 1-3000 Ref 1-1[P5] 10/10/01 km REV'D - Oct 10, 2001



**SECTION 1**  
Fig. 1  
Horiz. Scale A  
Vert. Scale B

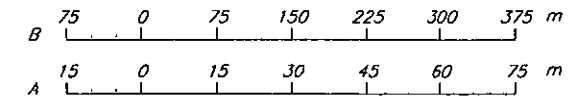


**SECTION 2**  
Fig. 1  
Horiz. Scale A  
Vert. Scale B

**LEGEND**

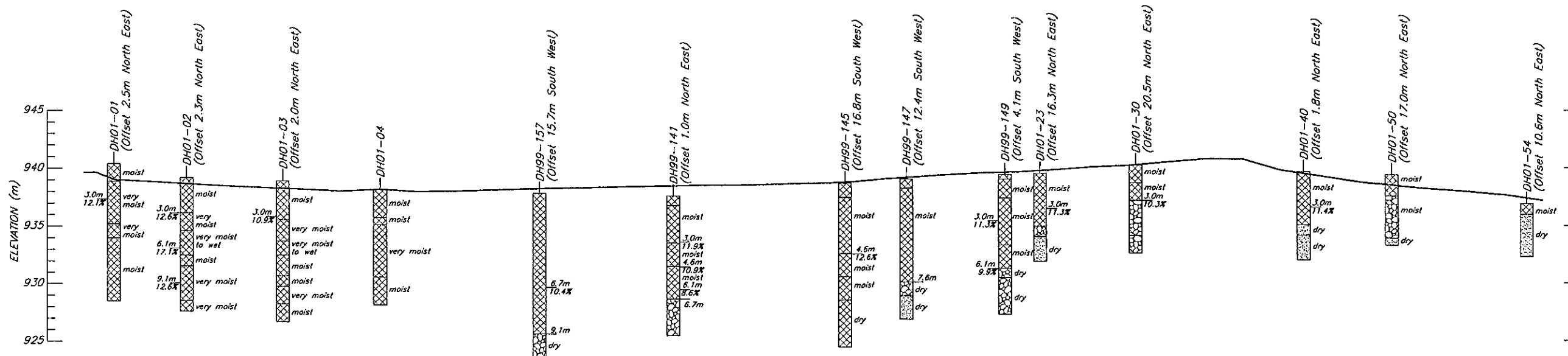
- Silty Sand to Sandy Silt, trace to some Gravel, Glacial Till. May contain isolated layers of coarser or finer material.
- Gravelly Sand to Sand, trace to some Silt, Glacial Till or Glaciofluvial.
- Silty Sand to Silt, Glaciolacustrine

3.0m — Depth of Sample  
8.8% — Moisture Content of Sample

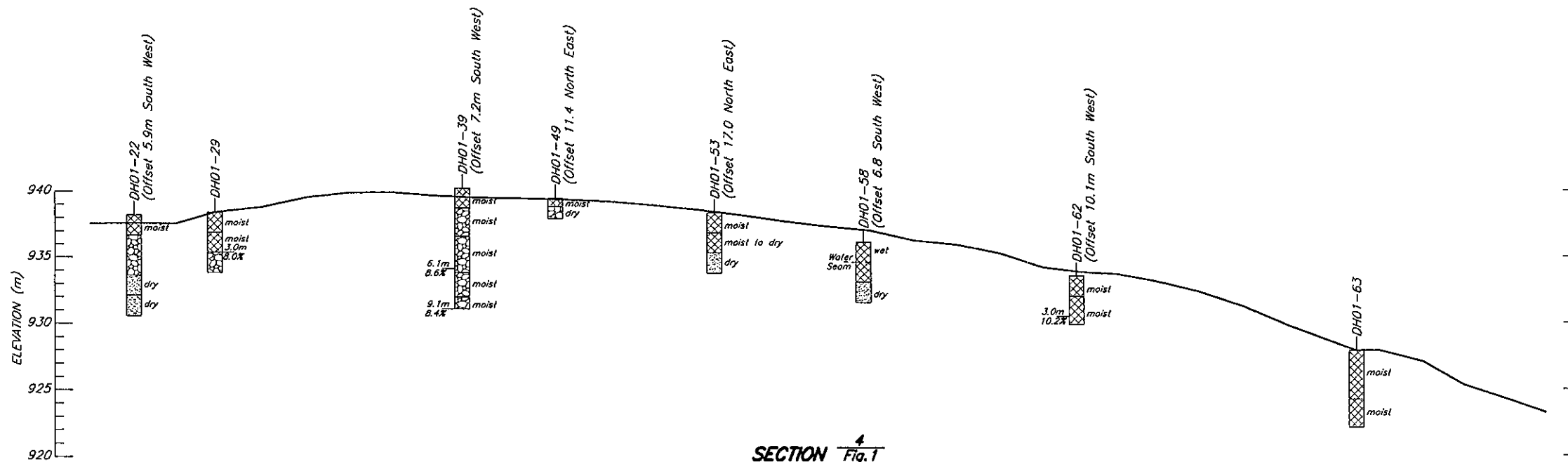


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MOUNT POLLEY MINING CORPORATION		
MOUNT POLLEY MINE		
TAILINGS STORAGE FACILITY		
SITE INVESTIGATION - BORROW AREA No. 2		
GEOLOGIC CROSS SECTIONS - SHEET 1 OF 3		
<b>Knight Piesold</b> CONSULTING	PROJECT NO. 11162/14	REF. NO. 3
	REV. 1	
<b>FIGURE A2</b>		



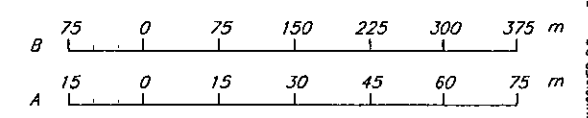
**SECTION 3**  
Fig.1  
Horiz. Scale A  
Vert. Scale B



**SECTION 4**  
Fig.1  
Horiz. Scale A  
Vert. Scale B

**LEGEND**

- Silty Sand to Sandy Silt, trace to some Gravel, Glacial Till. May contain isolated layers of coarser or finer material.
- Gravelly Sand to Sand, trace to some Silt, Glacial Till or Glacioluvial.
- Silty Sand to Silt, Glaciolacustrine
- 3.0m — Depth of Sample
- 8.8% — Moisture Content of Sample

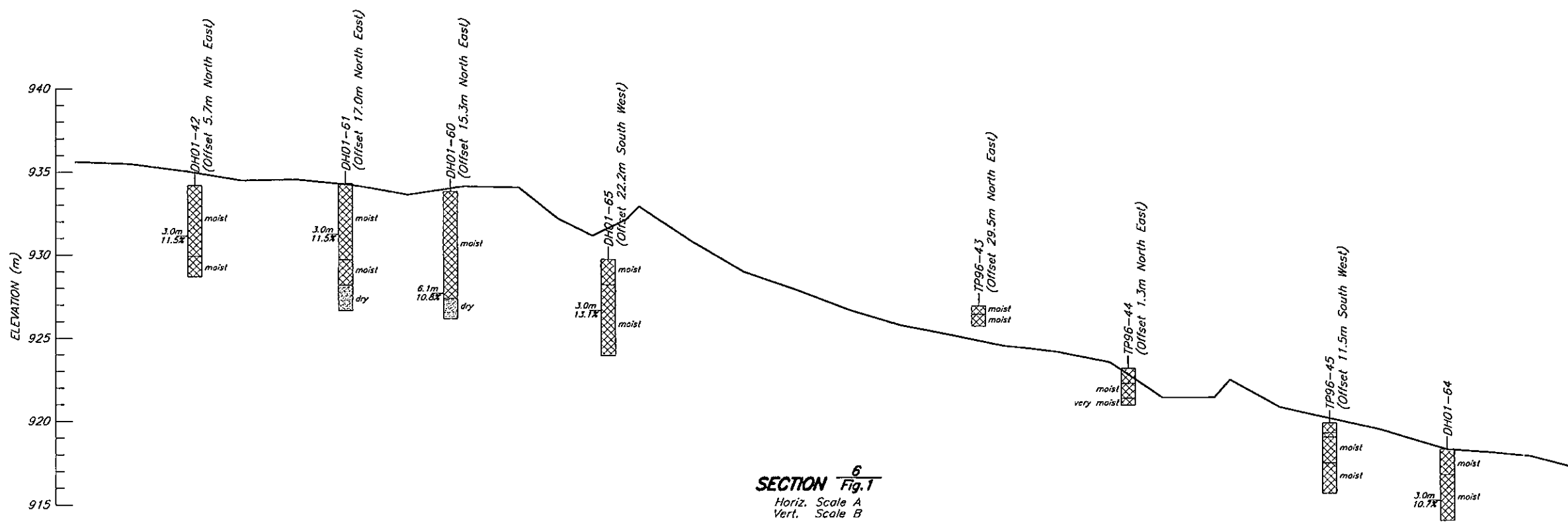
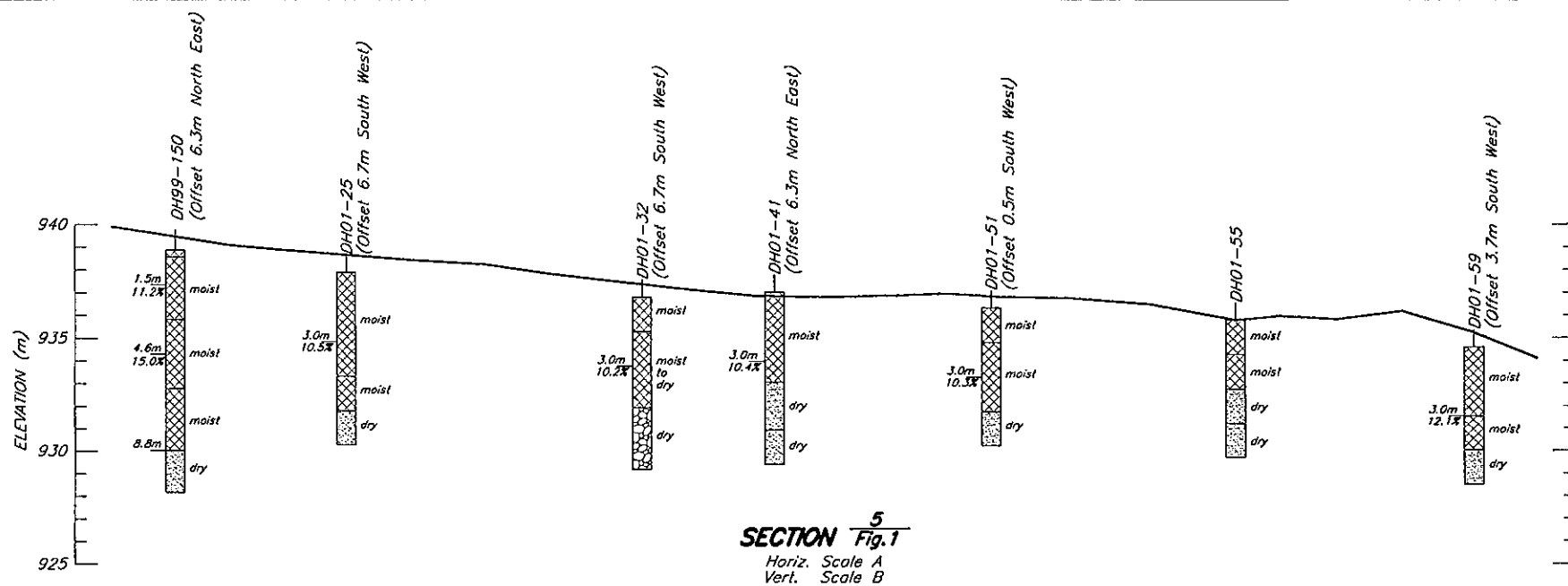


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MOUNT POLLEY MINING CORPORATION		
MOUNT POLLEY MINE		
TAILINGS STORAGE FACILITY		
SITE INVESTIGATION - BORROW AREA No. 2		
GEOLOGIC CROSS SECTIONS - SHEET 2 OF 3		
<b>Knight Piesold</b> CONSULTING	PROJECT NO. 11162/14	REV. NO. 3
	REV. 1	
<b>FIGURE A3</b>		

CAD FILE: M:\11162\14\Geotech\FigA3.dwg  
 1-2000 Plot 1-1 (PS) 10/10/01 lhw  
 REV'D OCT 10, 2001

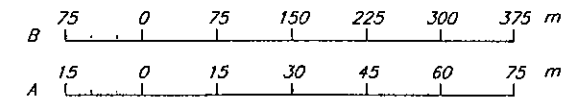




**LEGEND**

- Silty Sand to Sandy Silt, trace to some Gravel, Glacial Till. May contain isolated layers of coarser or finer material.
- Gravelly Sand to Sand, trace to some Silt, Glacial Till or Glacioluvial.
- Silty Sand to Silt, Glaciolacustrine

3.0m — Depth of Sample  
 8.8% — Moisture Content of Sample



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MOUNT POLLEY MINING CORPORATION		
MOUNT POLLEY MINE		
TAILINGS STORAGE FACILITY		
SITE INVESTIGATION - BORROW AREA No. 2		
GEOLOGIC CROSS SECTIONS - SHEET 3 OF 3		
<b>Knight Piesold</b> CONSULTING	PROJECT NO. 11162/14	REV. NO. 3
	REV. 1	
<b>FIGURE A4</b>		

**Project:** Mt. Polley Mine - TSF Stage 3 Construction **Drill Hole No.** GW00-1 Pg. 1 of 1

Drilling Co: Geotech Drilling Drilling Method: ODEX with D/H Hammer Date Started: August 2000

Location: South Embankment In-Situ Sampler: 45 cm Split Spoon Date Completed: August 2000

N 5818476.0 m , E 594368.0 m Total Depth: 21.03 m Logged by: jdc

Surface Elev.: 939.18 m Inclination: -90 Reviewed by: \_\_\_\_\_

DEPTH (ft)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	RECOVERY (%)	SAMPLES	SAMPLE NO.	BLOW COUNT	SPT 'N' VALUE	SPT TEST DATA Uncorrected 'N' values vs. depth (ft)				NOTES	
									20	40	60	80		
0.5	0.5	[Cross-hatch pattern]	Sand and Gravel Fill, Brown, saturated and silty											
1.0	1.0	[Cross-hatch pattern]												
1.5	1.5	[Cross-hatch pattern]	Till, Brown; silty and moist, some sand, gravel and clay; very stiff and intermediate plasticity											
2.0	2.0	[Cross-hatch pattern]												
2.5	2.5	[Cross-hatch pattern]												
3.0	3.0	[Cross-hatch pattern]												
3.5	3.5	[Cross-hatch pattern]												
4.0	4.0	[Cross-hatch pattern]												
4.5	4.5	[Cross-hatch pattern]												
5.0	5.0	[Cross-hatch pattern]												
5.5	5.5	[Cross-hatch pattern]												
6.0	6.0	[Dotted pattern]	Glaciofluvial Sand, Grey-brown, fine to coarse grained subrounded to subangular particles; some silt											
6.5	6.5	[Dotted pattern]												
7.0	7.0	[Dotted pattern]	Till, Grey silt with some sand, clay and trace gravel; moist and low to medium plasticity, stiff. 25 mm thick wet sandy seam at 26'											
7.5	7.5	[Dotted pattern]												
8.0	8.0	[Dotted pattern]												
8.5	8.5	[Dotted pattern]												
9.0	9.0	[Dotted pattern]												
9.5	9.5	[Dotted pattern]												
10.0	10.0	[Diagonal lines]	Bedrock, Volcanic, fractured											
10.5	10.5	[Diagonal lines]												
11.0	11.0	[Diagonal lines]												
11.5	11.5	[Diagonal lines]												
12.0	12.0	[Diagonal lines]												
12.5	12.5	[Diagonal lines]												
13.0	13.0	[Diagonal lines]												
13.5	13.5	[Diagonal lines]												
14.0	14.0	[Diagonal lines]												
14.5	14.5	[Diagonal lines]												
15.0	15.0	[Diagonal lines]												
15.5	15.5	[Diagonal lines]												
16.0	16.0	[Diagonal lines]												
16.5	16.5	[Diagonal lines]												
17.0	17.0	[Diagonal lines]												
17.5	17.5	[Diagonal lines]												
18.0	18.0	[Diagonal lines]												
18.5	18.5	[Diagonal lines]												
19.0	19.0	[Diagonal lines]												
19.5	19.5	[Diagonal lines]												
20.0	20.0	[Diagonal lines]												
20.5	20.5	[Diagonal lines]												
21.0	21.0	[Diagonal lines]												
21.5	21.5	[Diagonal lines]												
22.0	22.0	[Diagonal lines]												
22.5	22.5	[Diagonal lines]												
23.0	23.0	[Diagonal lines]												
23.5	23.5	[Diagonal lines]												
24.0	24.0	[Diagonal lines]												
24.5	24.5	[Diagonal lines]												
25.0	25.0	[Diagonal lines]												
25.5	25.5	[Diagonal lines]												
26.0	26.0	[Diagonal lines]												
26.5	26.5	[Diagonal lines]												
27.0	27.0	[Diagonal lines]												

SOILS LOG DRILL.GPJ DRILL.GDT 7 Sep 01



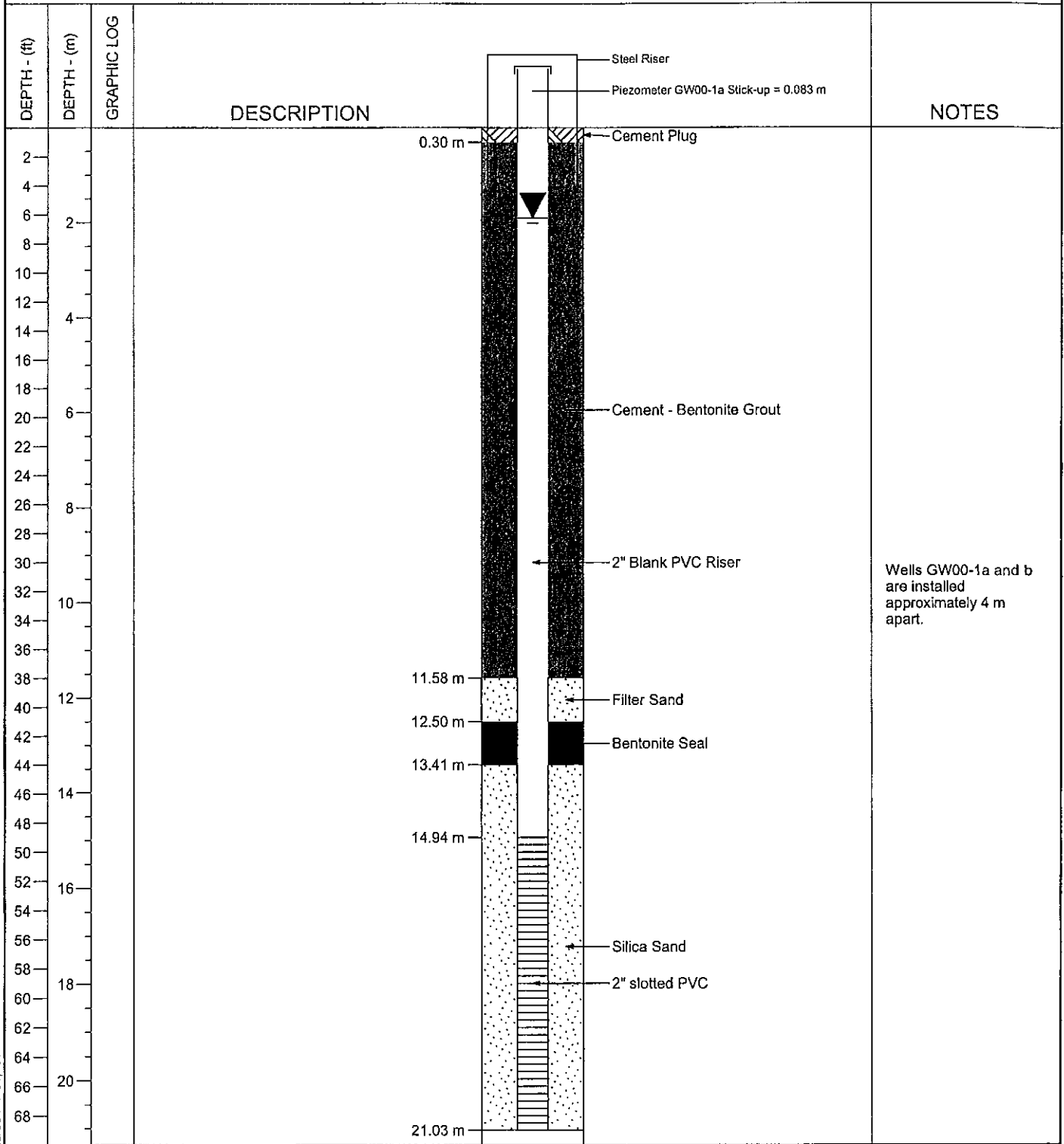
Mount Polley Mining Corporation  
Overburden Log of GW00-1

Ref. No. 3 Rev. No. 0

Project Location	Project No.	Fig.
Mount Polley Mine	11162/14	A - 5

Water Level Readings: Depth to Water / Water Elevation / Date Measured

Well 1: 1.90 m / 937.3 m / 4 Oct 01



Wells GW00-1a and b are installed approximately 4 m apart.

WELL DRILL.GPJ DRILL.GDT 7 Sep 01

***Knight Piésold***  
CONSULTING

Mount Polley Mining Corporation  
Well Construction Details of GW00-1A

Ref. No. 3

Rev. No. 0

Project Location

Project No.

Fig.

Mount Polley Mine

11162/14

A-6

**Project:** Mt. Polley Mine - TSF Stage 3 Construction

**Drill Hole No.:** GW00-1b

**Pg. 1 of 1**

**Hole Depth:** 21.03 m

**Hole Diameter:** 0.102 m

**Date Started:** 31-Aug-00

**Date Completed:** 31-Aug-00

**Surface Elev:** 939. m (Approx.)

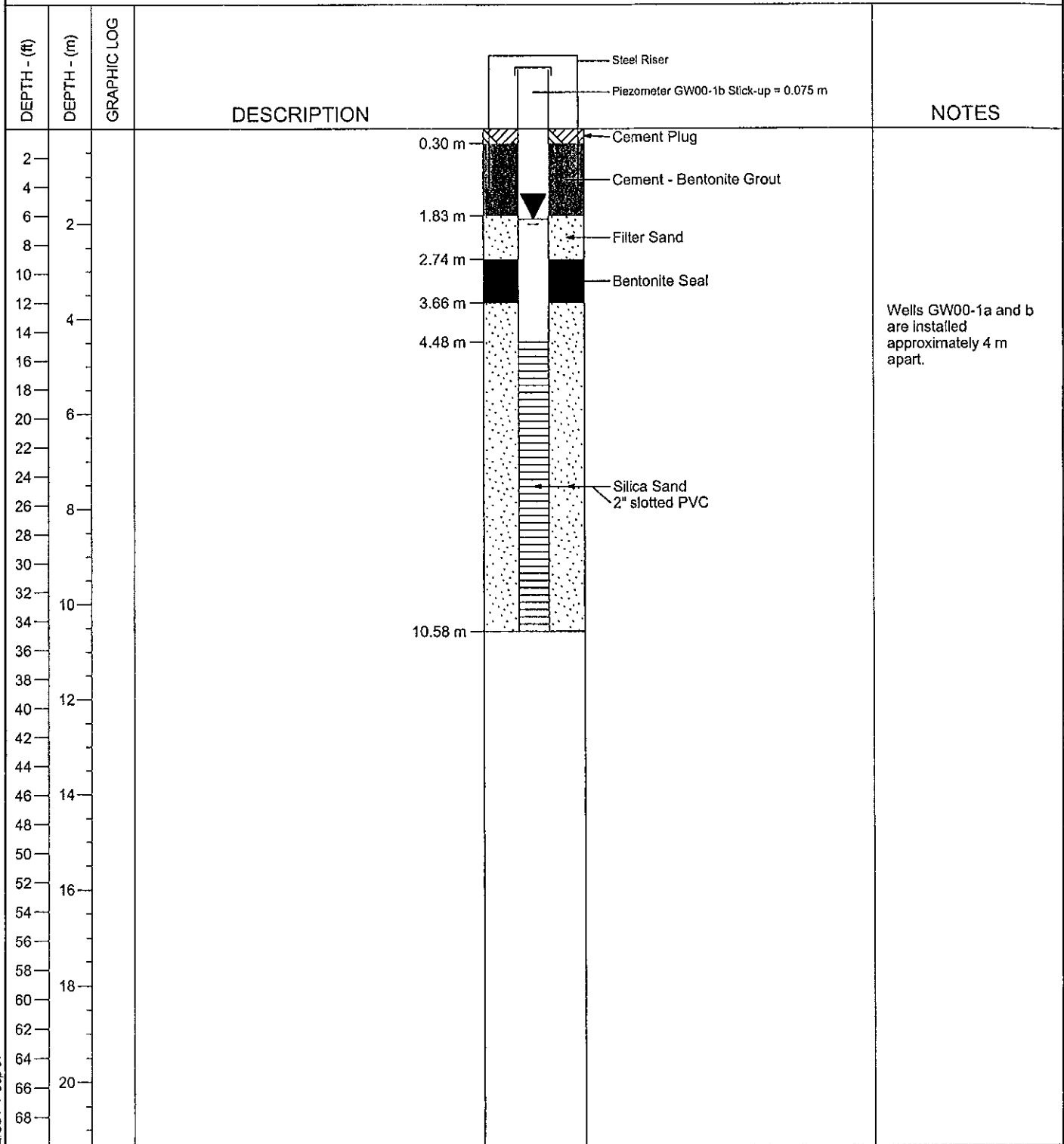
**Well Diameter:** 48.77 mm

**Logged by:** JDC

**Reviewed by:**

Water Level Readings: Depth to Water / Water Elevation / Date Measured

Well 1: 1.90 m / 937.2 m / 4 Oct 01



Wells GW00-1a and b are installed approximately 4 m apart.

WELL DRILL.GPJ DRILL.GDT 7 Sep 01

***Knight Piésold***  
CONSULTING

Mount Polley Mining Corporation  
Well Construction Details of GW00-1B

Ref. No. 3

Rev. No. 0

Project Location

Project No.

Fig.

Mount Polley Mine

11162/14

A-7

**Project:** Mt. Polley Mine - TSF Stage 3 Construction      **Drill Hole No.** GW00-2      Pg. 1 of 1  
**Drilling Co:** Geotech Drilling      **Drilling Method:** ODEX with D/H Hammer      **Date Started:** August 2000  
**Location:** South Embankment      **In-Situ Sampler:** 45 cm Split Spoon      **Date Completed:** August 2000  
N 5818337.5 m, E 594651.8 m      **Total Depth:** 21.55 m      **Logged by:** idc  
**Surface Elev.:** 943.40 m      **Inclination:** -90      **Reviewed by:** \_\_\_\_\_

DEPTH (ft)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	RECOVERY (%)	SAMPLES	SAMPLE NO.	BLOW COUNT	SPT 'N' VALUE	SPT TEST DATA Uncorrected 'N' values vs. depth (●)	NOTES
0.5	0.5	[Cross-hatched pattern]	Fill, Silt and organics							Drilling 4" ODEX, dry
1.0	1.0	[Cross-hatched pattern]								
1.5	1.5	[Cross-hatched pattern]								
2.0	2.0	[Cross-hatched pattern]								
2.5	2.5	[Cross-hatched pattern]								
3.0	3.0	[Cross-hatched pattern]	Sandy Silt, Brown with some fine to coarse gravel, trace clay; dense to hard, low plasticity, damp with increasing moisture with depth				16 36	44	●	
3.5	3.5	[Cross-hatched pattern]								
4.0	4.0	[Cross-hatched pattern]								
4.5	4.5	[Cross-hatched pattern]								
5.0	5.0	[Cross-hatched pattern]								
5.5	5.5	[Cross-hatched pattern]								
6.0	6.0	[Cross-hatched pattern]								
6.5	6.5	[Cross-hatched pattern]					18 38	30	●	
7.0	7.0	[Cross-hatched pattern]								
7.5	7.5	[Cross-hatched pattern]								
8.0	8.0	[Cross-hatched pattern]								
8.5	8.5	[Cross-hatched pattern]								
9.0	9.0	[Cross-hatched pattern]								
9.5	9.5	[Cross-hatched pattern]	SPT @ 30 to 31.5', some clay present, intermediate plasticity				6 30	>67		
10.0	10.0	[Cross-hatched pattern]	Bedrock, Red, volcanic in origin; thin weathered zone at surface becoming more competent with depth; soft zone from 45 to 46'							Seepage at bedrock surface Drilling dry with 4" Bullrock bit below 35'; probably seepage at 39' and 65'
10.5	10.5	[Cross-hatched pattern]								
11.0	11.0	[Cross-hatched pattern]								
11.5	11.5	[Cross-hatched pattern]								
12.0	12.0	[Cross-hatched pattern]								
12.5	12.5	[Cross-hatched pattern]								
13.0	13.0	[Cross-hatched pattern]								
13.5	13.5	[Cross-hatched pattern]								
14.0	14.0	[Cross-hatched pattern]								
14.5	14.5	[Cross-hatched pattern]								
15.0	15.0	[Cross-hatched pattern]								
15.5	15.5	[Cross-hatched pattern]								
16.0	16.0	[Cross-hatched pattern]								
16.5	16.5	[Cross-hatched pattern]								
17.0	17.0	[Cross-hatched pattern]								
17.5	17.5	[Cross-hatched pattern]								
18.0	18.0	[Cross-hatched pattern]								
18.5	18.5	[Cross-hatched pattern]								
19.0	19.0	[Cross-hatched pattern]								
19.5	19.5	[Cross-hatched pattern]								
20.0	20.0	[Cross-hatched pattern]								
20.5	20.5	[Cross-hatched pattern]								
21.0	21.0	[Cross-hatched pattern]								
21.5	21.5	[Cross-hatched pattern]								EOH
22.0	22.0	[Cross-hatched pattern]								
22.5	22.5	[Cross-hatched pattern]								
23.0	23.0	[Cross-hatched pattern]								
23.5	23.5	[Cross-hatched pattern]								
24.0	24.0	[Cross-hatched pattern]								
24.5	24.5	[Cross-hatched pattern]								
25.0	25.0	[Cross-hatched pattern]								
25.5	25.5	[Cross-hatched pattern]								
26.0	26.0	[Cross-hatched pattern]								
26.5	26.5	[Cross-hatched pattern]								
27.0	27.0	[Cross-hatched pattern]								

SOILS LOG DRILL.GPJ DRILL.GDT 7 Sep 01



**Mount Polley Mining Corporation**  
**Overburden Log of GW00-2**  
 Ref. No. 3      Rev. No. 0  
 Project Location: **Mount Polley Mine**      Project No. **11162/14**      Fig. **A - 8**

**Project:** Mt. Polley Mine - TSF Stage 3 Construction

**Drill Hole No.:** GW00-2a

Pg. 1 of 1

Hole Depth: 21.55 m

Hole Diameter: 0.102 m

Date Started: 30-Aug-00

Date Completed: 31-Aug-00

Surface Elev: 943. m (Approx.)

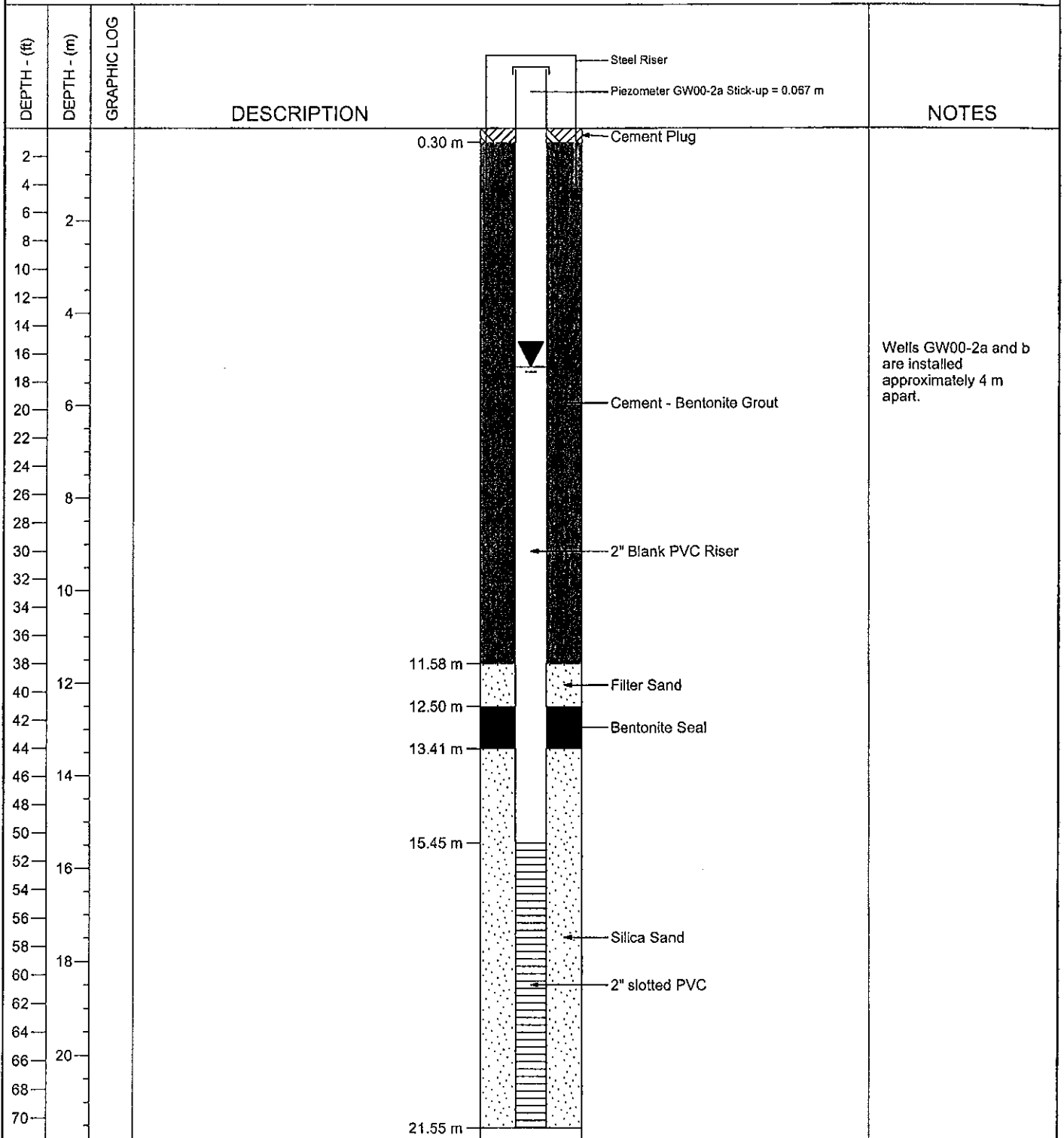
Well Diameter: 48.77 mm

Logged by: JDC

Reviewed by:

Water Level Readings: Depth to Water / Water Elevation / Date Measured

Well 1: 5.15 m / 938.2 m / 4 Oct 01



WELL DRILL.GPJ DRILL.GDT 7 Sep 01

**Knight Piésold**  
CONSULTING

Mount Polley Mining Corporation  
Well Construction Details of GW00-2A

Ref. No. 3

Rev. No. 0

Project Location

Project No.

Fig.

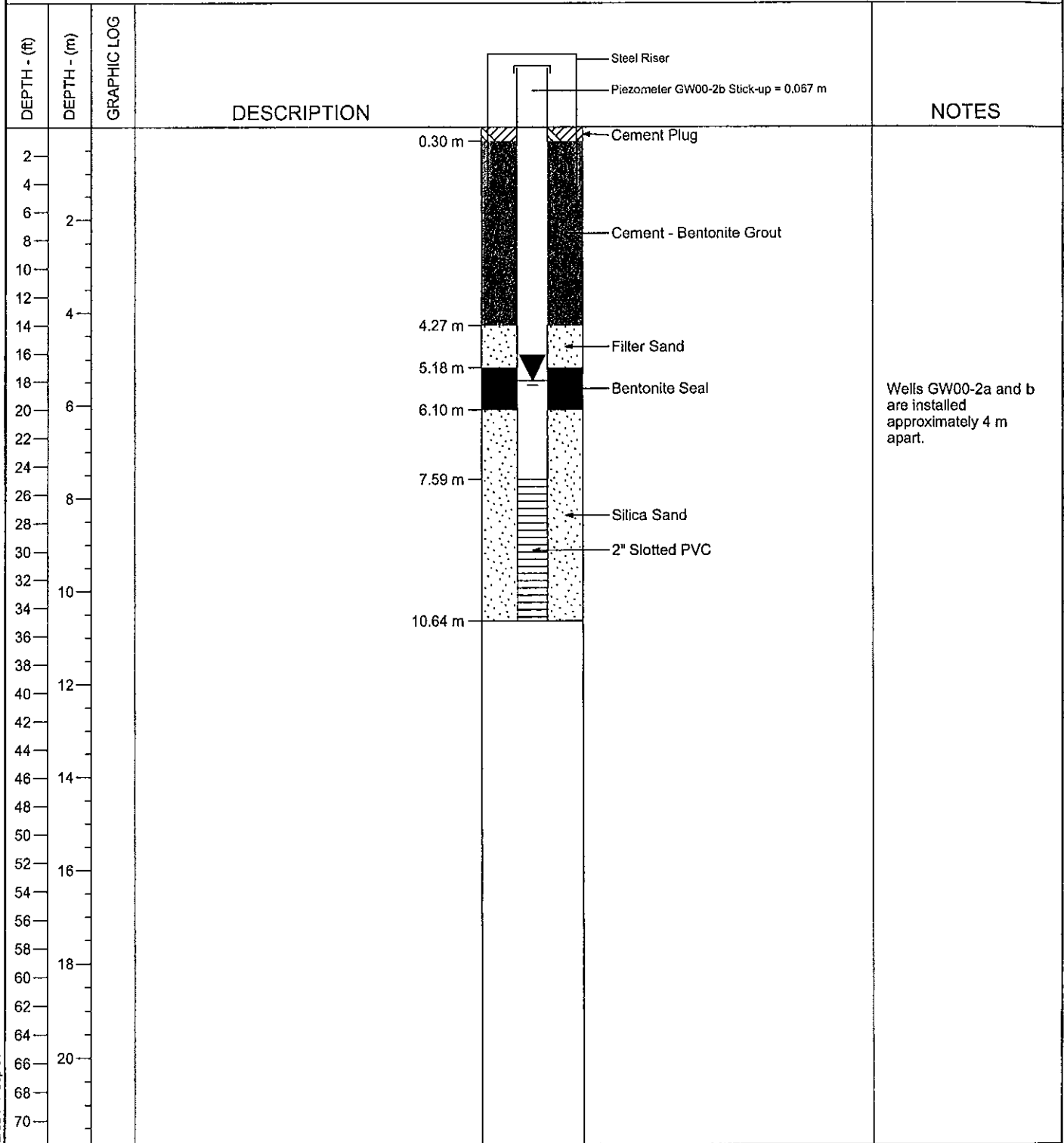
Mount Polley Mine

11162/14

A-9

Water Level Readings: Depth to Water / Water Elevation / Date Measured

Well 1: 5.46 m / 937.9 m / 4 Oct 01



WELL DRILL.GPJ\_DRILL.GDT 7 Sep 01

**Knight Piésold**  
CONSULTING

Mount Polley Mining Corporation  
Well Construction Details of GW00-2B

Project Location	Ref. No. 3	Rev. No. 0
Mount Polley Mine	Project No. 11162/14	Fig. A-10

**Project:** Mt. Polley Mine - TSF Stage 3 Construction

**Drill Hole No.:** GW00-3a

**Pg.** 1 of 1

**Hole Depth:** 24.29 m

**Hole Diameter:** 0.102 m

**Date Started:** 28-Aug-00

**Date Completed:** 30-Aug-00

**Surface Elev:** 943. m (Approx.)

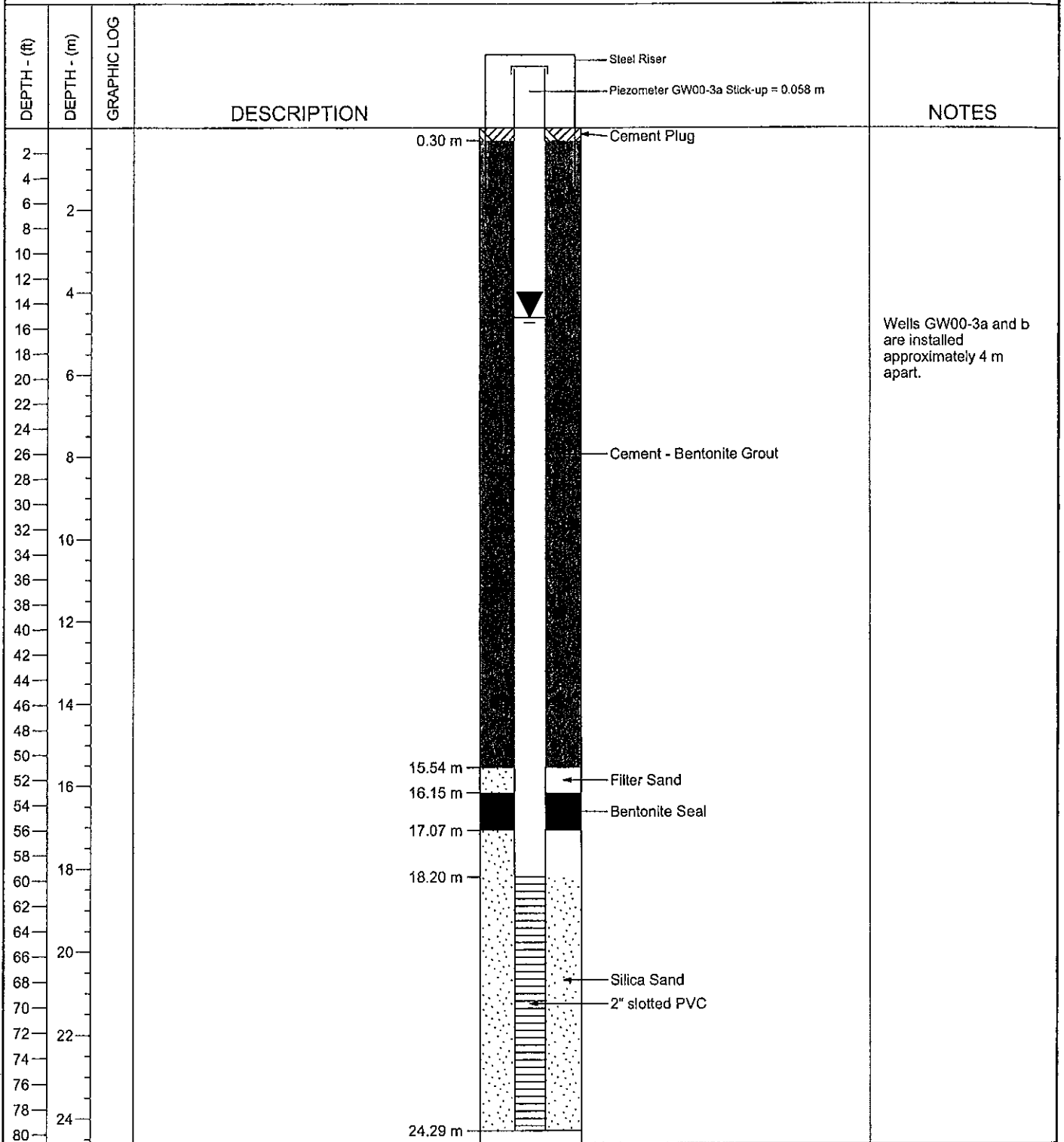
**Well Diameter:** 48.77 mm

**Logged by:** JDC

**Reviewed by:**

Water Level Readings: Depth to Water / Water Elevation / Date Measured

Well 1: 4.60 m / 938.5 m / 4 Oct 01



Wells GW00-3a and b are installed approximately 4 m apart.

WELL DRILL.GPJ DRILL.GDT 7 Sep 01

**Knight Piésold**  
CONSULTING

Mount Polley Mining Corporation  
Well Construction Details of GW00-3A

Ref. No. 3

Rev. No. 0

Project Location

Project No.

Fig.

Mount Polley Mine

11162/14

A-12



**Project:** Mt. Polley Mine - TSF Stage 3 Construction      **Drill Hole No.:** GW00-3      **Pg.** 1 **of** 1  
**Drilling Co.:** Geotech Drilling      **Drilling Method:** ODEX with D/H Hammer      **Date Started:** August 2000  
**Location:** South Embankment      **In-Situ Sampler:** 45 cm Split Spoon      **Date Completed:** August 2000  
N 5818238.1 m, E 594896.4 m      **Total Depth:** 24.29 m      **Logged by:** jdc  
**Surface Elev.:** 943.07 m      **Inclination:** -90      **Reviewed by:** \_\_\_\_\_

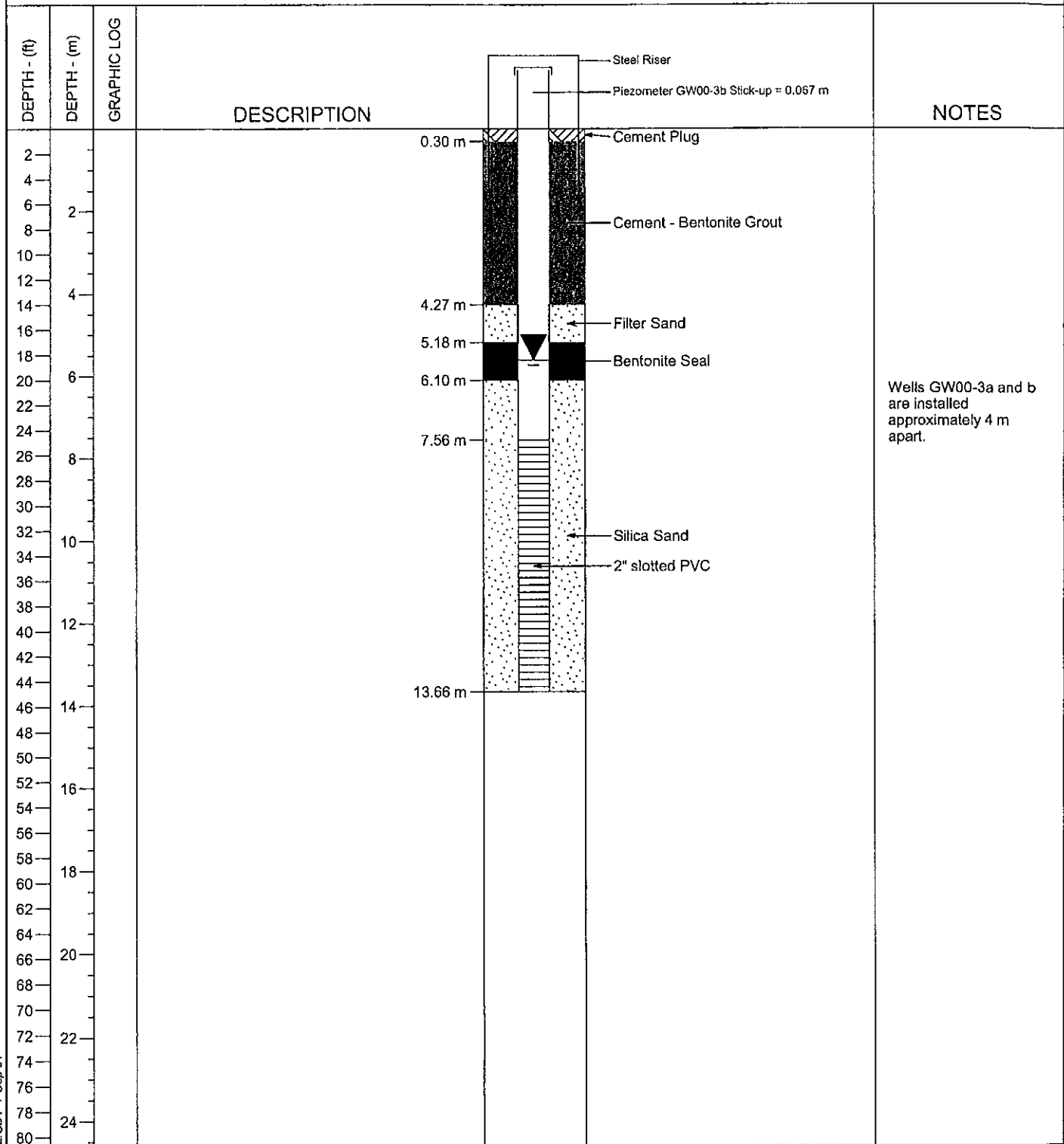
DEPTH (ft)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	RECOVERY (%)	SAMPLES	SAMPLE NO.	BLOW COUNT	SPT 'N' VALUE	SPT TEST DATA Uncorrected 'N' values vs. depth				NOTES	
									20	40	60	80		
0.5	0.5		Fill, silt with some gravel and organics, grey and very moist										Drilling with solid stem augers	
1.0	1.0		Silt and Sand; brown, some gravel and trace clay, medium dense to dense, non-plastic to low plasticity, very moist to wet. Coarse sand seam at 9'.											Seepage at 9'; hole sloughing in at 12.5', switched to 4" ODEX, drilling dry
1.5	1.5													
2.0	2.0													
2.5	2.5													
3.0	3.0													
3.5	3.5													
4.0	4.0													
4.5	4.5													
5.0	5.0			Silt, fine sand with trace gravel; compact, grey and very moist										Possible seepage at 23'
5.5	5.5													
6.0	6.0													
6.5	6.5													
7.0	7.0													
7.5	7.5													
8.0	8.0													
8.5	8.5													
9.0	9.0													
9.5	9.5													
10.0	10.0			Glaciofluvial, silt with fine sand with trace gravel in local areas; low plasticity and layered; very moist to wet										Softer drilling from 31 to 35'; drilling with water in places below 30' to prevent bit and casing from being plugged
10.5	10.5													
11.0	11.0													
11.5	11.5													
12.0	12.0			Till, Silt with fine sand, some gravel; non-plastic, very dense and moist. Distinct change from grey to brown at 40.5'; becoming more sandy and gravelly at 45'.										
12.5	12.5													
13.0	13.0													
13.5	13.5													
14.0	14.0													
14.5	14.5		Bedrock, Weathered, purpleish color. Becoming more competent below 75'.										Drilling dry with an uncased hole below 55'. Seepage between 70 to 75'.	
15.0	15.0													
15.5	15.5													
16.0	16.0													
16.5	16.5													
17.0	17.0													
17.5	17.5													
18.0	18.0													
18.5	18.5													
19.0	19.0													
19.5	19.5													
20.0	20.0													
20.5	20.5													
21.0	21.0													
21.5	21.5													
22.0	22.0													
22.5	22.5													
23.0	23.0													
23.5	23.5													
24.0	24.0													
24.5	24.5												EOH	
25.0	25.0													
25.5	25.5													
26.0	26.0													
26.5	26.5													
27.0	27.0													

SOILS LOG DRILL.GPJ DRILL.GDT 7 Sep 01

	<b>Mount Polley Mining Corporation</b> <b>Overburden Log of GW00-3</b>		Ref. No. 3	Rev. No. 0
	Project Location <b>Mount Polley Mine</b>	Project No. <b>11162/14</b>	Fig. <b>A - 11</b>	

Water Level Readings: Depth to Water / Water Elevation / Date Measured

Well 1: 5.61 m / 937.6 m / 4 Oct 01



Wells GW00-3a and b are installed approximately 4 m apart.

WELL DRILL.GPJ DRILL.GDT 7 Sep 01

***Knight Piésold***  
CONSULTING

Mount Polley Mining Corporation  
Well Construction Details of GW00-3B

Ref. No. 3 Rev. No. 0

Project Location	Project No.	Fig.
Mount Polley Mine	11162/14	A-13

**Project:** Mt. Polley Mine - TSF Stage 3 Construction      **Drill Hole No.** SI01-1      **Pg.** 1 of 1  
**Drilling Co:** Geotech Drilling      **Drilling Method:** ODEX with D/H Hammer      **Date Started:** 06-Jul-01  
**Location:** Main Embankment      **In-Situ Sampler:** 45 cm Split Spoon      **Date Completed:** 07-Jul-01  
N 5818464.0 m, E 595667.0 m      **Total Depth:** 24.38 m      **Logged by:** cwm  
**Surface Elev.:** 915.70 m      **Inclination:** -90      **Reviewed by:** cwm

DEPTH (ft)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	RECOVERY (%)	SAMPLES	SAMPLE NO.	BLOW COUNT	SPT 'N' VALUE	SPT TEST DATA				NOTES	
									Uncorrected 'N' values vs. depth					
									20	40	60	80		
0.5			Zone C, T and F fill material											
1.0														
1.5														
2.0														
2.5														
3.0														
3.5														
4.0														
4.5														
5.0														
5.5			Till - Stiff											
6.0														
6.5			Glaciolacustrine Clayey Silt											
7.0			Grey blue; very stiff to hard; plastic and moist; faintly laminated			SI01-1A	28							
7.5														
8.0														
8.5														
9.0			Silty clay with grey to grey-brown varves; very stiff, moist and plastic; approx 3 mm wide sand seams visible			1B	19							
9.5														
10.0														
10.5														
11.0						1C	18							
11.5														
12.0														
12.5			Soft to firm, wet grey clayey silt with trace sand			1D	18							
13.0														
13.5														
14.0														
14.5														
15.0														
15.5														
16.0														
16.5														
17.0			Glaciofluvial sediments, very wet, artesian conditions											
17.5														
18.0														
18.5														
19.0						no recovery	92							
19.5			Grey firm to stiff sandy silt, some clay, faint laminations, very moist											
20.0														
20.5														
21.0			Till, Grey, very stiff to hard sandy till, some gravel and silt & trace clay; non-plastic, moist to dry			1E	114							
21.5														
22.0			Bedrock			1F	150							
22.5														
23.0														
23.5														
24.0														
24.5														
25.0														
25.5														
26.0														
26.5														
27.0														
27.5														
28.0														
28.5														
29.0														
29.5														
30.0														
30.5														

SOILS LOG DRILL GPJ DRILL GDT 7 Sep 01



**Mount Polley Mining Corporation**  
**Overburden Log of SI01-1**  
 Ref. No. 3      Rev. No. 0  
 Project Location: **Mount Polley Mine**      Project No.: **11162/14**      Fig.: **A - 14**

**Project:** Mt. Polley Mine - TSF Stage 3 Construction      **Drill Hole No.:** SI01-2      Pg. 1 of 1  
**Drilling Co.:** Geotech Drilling      **Drilling Method:** ODEX with D/H Hammer      **Date Started:** 05-Jul-01  
**Location:** Main Embankment Ch. 19+40      **In-Situ Sampler:** 45 cm Split Spoon      **Date Completed:** 05-Jul-01  
**N 5818401.0 m, E 595589.0 m**      **Total Depth:** 30.33 m      **Logged by:** cwm  
**Surface Elev.:** 917.30 m      **Inclination:** -90      **Reviewed by:** cwm

DEPTH (ft)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	RECOVERY (%)	SAMPLES	SAMPLE NO.	BLOW COUNT	SPT 'N' VALUE	SPT TEST DATA Uncorrected 'N' values vs. depth				NOTES	
									20	40	60	80		
0.5	0.5		Zone C Fill											
1.0	1.0													
1.5	1.5													
2.0	2.0													
2.5	2.5													
3.0	3.0													
3.5	3.5													
4.0	4.0													
4.5	4.5													
5.0	5.0		Till - Stiff											
5.5	5.5													
6.0	6.0													
6.5	6.5													
7.0	7.0													
7.5	7.5													
8.0	8.0		Glaciolacustrine Clayey Silt, Moist, blue grey, plastic; trace clay and some fine sand lenses 3 mm to 3 cm thick; stiff to hard			SI-01-2A	18	29						
8.5	8.5													
9.0	9.0					2B	13	28						
9.5	9.5													
10.0	10.0					2C	16	16						
10.5	10.5													
11.0	11.0					2D	3	9						
11.5	11.5													
12.0	12.0					2E	8	0						
12.5	12.5													
13.0	13.0													
13.5	13.5													
14.0	14.0													
14.5	14.5													
15.0	15.0		Glaciofluvial, gravelly sand?											
15.5	15.5													
16.0	16.0													
16.5	16.5													
17.0	17.0		Till			2F	65	95						
17.5	17.5													
18.0	18.0													
18.5	18.5		Very dense gravelly, sandy till with trace clay and silt; reddish grey; moist to very moist			2G	> 90	> 100						
19.0	19.0													
19.5	19.5													
20.0	20.0					2H	65	105						
20.5	20.5													
21.0	21.0													
21.5	21.5					2I	43	79						
22.0	22.0		Glaciofluvial sand and gravel											
22.5	22.5													
23.0	23.0													
23.5	23.5													
24.0	24.0													
24.5	24.5													
25.0	25.0													
25.5	25.5													
26.0	26.0													
26.5	26.5	△ △	Conglomerate, Clasts are volcanic in origin											
27.0	27.0	△ △												
27.5	27.5	△ △												
28.0	28.0	△ △												
28.5	28.5	△ △												
29.0	29.0	△ △												
29.5	29.5	△ △												
30.0	30.0	△ △												
30.5	30.5	△ △												

SOILS LOG DRILL.GPJ DRILL.GDT 7 Sep 01



Mount Polley Mining Corporation  
Overburden Log of SI01-2

Ref. No. 3      Rev. No. 0

Project Location	Project No.	Fig.
Mount Polley Mine	11162/14	A - 15

**APPENDIX B**

CONSTRUCTION QUALITY ASSURANCE CONTROL  
TEST SUMMARY SHEETS AND GRADATION PLOTS

Table B1 r0	Stage 3 Construction - Zone F Control Test Summary Sheet
Table B2 r0	Stage 3B Construction - Zone T Control Test Summary Sheet
Table B3 r0	Stage 3 Construction - Borrow Areas 2 and 3 - Material Investigations – Zone S Control Test Summary Sheet
Table B4 r0	Stage 3 Construction - Borrow Area 5 - Material Investigations – Zone S Control Test Summary Sheet
Figure B1 r0	Stage 3 Construction – Zone F Control Samples - Gradation Curves
Figure B2 r0	Stage 3B Construction – Zone T Control Samples – Gradation Curves
Figure B3 r0	Stage 3 Construction – Borrow Areas 2 and 3 - Investigations – Gradation Plots
Figure B4 r0	Stage 3 Construction – Borrow Area 5 - Investigation











TABLE B3

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE  
TAILINGS STORAGE FACILITY

STAGE 3 CONSTRUCTION - BORROW AREAS 2 AND 3 MATERIAL INVESTIGATIONS  
ZONE 5 CONTROL TEST SUMMARY SHEET

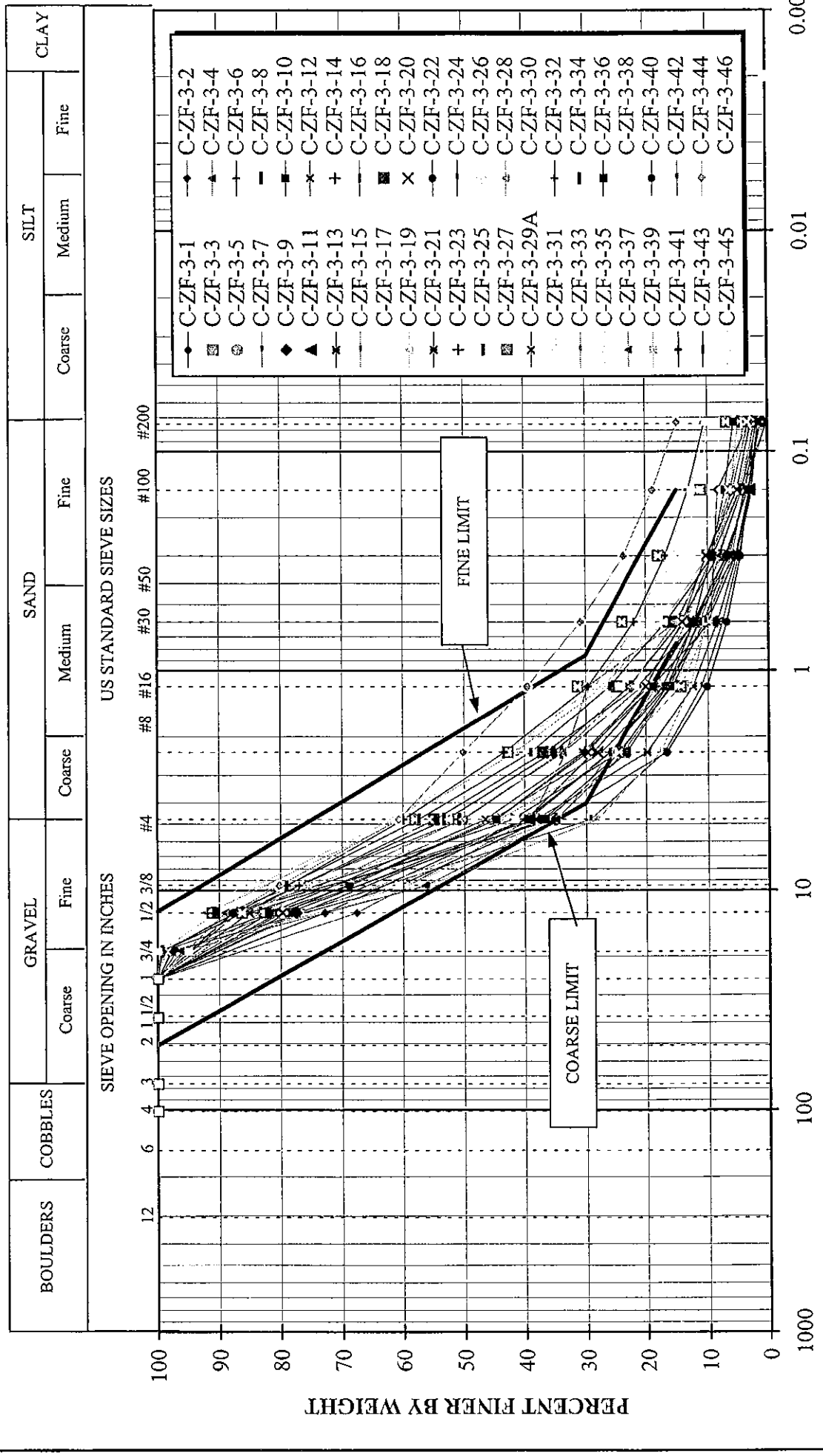
Printed: 2-Oct-01  
Rev'd: 2-Oct-01

M:\116231\41Data\April 2001 Site Investigation - Insk 0500\Sub\IC\_9A2ZS-SUM.s\3Summary Table\_r0

Date Sampled	Sample No.	Location	Ground El. (m)	C1				C2	C3 (Particle Size Distribution)											0.00199898	0.0000787		
				Atterberg Limits		PL %	PI %		Lab	76.2	50.8	38.1	25.4	19.05	12.7	9.525	4.7498	2	0.85			0.4191	0.25
				LL %	PI %				m/c	3	2	1.5	1	0.7500	0.5000	0.3750	0.1870	0.1320	0.0469	0.0165	0.0059	0.0029	0.0000787
							%	3	2	1 1/2	1	3/4	1/2	3/8	#4	#10	#20	#40	#60	#100	#200	Clay	
6-Apr-01	DH01-18A	Borrow Area 2, 10 ft depth	937.1				12.1																
6-Apr-01	DH01-19B	Borrow Area 2, 20 ft depth	936.1				11.0	100.0	100.0	98.4	96.7	94.5	92.8	91.5	88.0	84.0	79.8	75.8	68.4	57.8	39.2		
6-Apr-01	DH01-20A	Borrow Area 2, 10 ft depth	935.9				12.4	100.0	100.0	100.0	100.0	98.0	96.5	94.5	90.3	85.2	80.3	75.0	67.9	60.0	49.1		
6-Apr-01	DH01-21B	Borrow Area 2, 20 ft depth	936.3				10.3																
6-Apr-01	DH01-23A	Borrow Area 2, 10 ft depth	939.6				11.3	100.0	100.0	100.0	100.0	100.0	99.0	98.0	96.7	92.4	86.2	78.8	69.7	62.0	50.6		
6-Apr-01	DH01-24A	Borrow Area 2, 10 ft depth	939.8				11.9																
6-Apr-01	DH01-25A	Borrow Area 2, 10 ft depth	937.9				10.5																
9-Apr-01	DH01-26A	Borrow Area 2, 10 ft depth	936.5				11.1																
9-Apr-01	DH01-26B	Borrow Area 2, 20 ft depth	936.5				10.2	100.0	100.0	100.0	100.0	100.0	97.4	95.8	93.6	89.9	86.0	81.6	75.1	67.4	54.2		
9-Apr-01	DH01-29A	Borrow Area 2, 10 ft depth	938.4				8.0	100.0	100.0	100.0	97.3	91.5	82.2	76.5	70.3	61.2	53.5	47.2	40.2	34.4	27.6		
9-Apr-01	DH01-30A	Borrow Area 2, 10 ft depth	940.3				10.3																
9-Apr-01	DH01-31A	Borrow Area 2, 10 ft depth	939.5				10.7	100.0	100.0	100.0	96.9		94.8	94.0	92.8	88.8	84.1	78.8	71.7	61.9	52.9		
9-Apr-01	DH01-32A	Borrow Area 2, 10 ft depth	936.8				10.2																
9-Apr-01	DH01-33B	Borrow Area 2, 20 ft depth	935.0				9.8	100.0	100.0	100.0	94.0	92.8	91.4	89.3	86.7	83.2	79.4	75.2	69.0	61.8	50.4		
10-Apr-01	DH01-39A	Borrow Area 2, 10 ft depth	940.2				8.6	100.0	100.0	100.0	100.0	99.2	94.5	88.7	74.0	55.4	45.5	39.7	34.9	30.9	25.5		
10-Apr-01	DH01-39B	Borrow Area 2, 20 ft depth	940.2				8.4	100.0	100.0	100.0	95.3	92.7	88.0	84.7	77.2	68.6	60.4	52.9	44.5	39.8	31.0		
10-Apr-01	DH01-40A	Borrow Area 2, 10 ft depth	939.7				11.4																







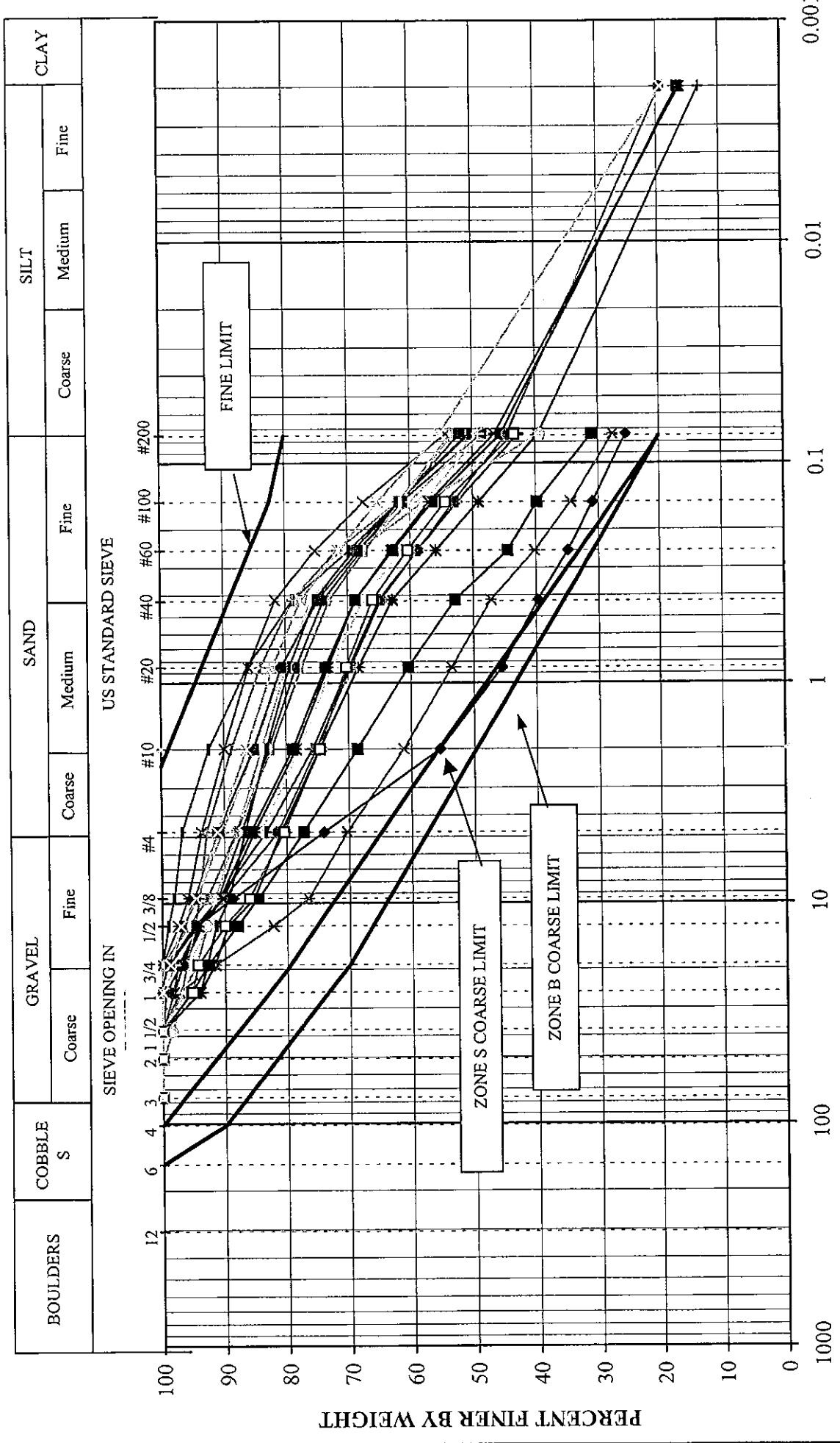
MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE  
 TAILINGS STORAGE FACILITY - STAGE 3  
 CONSTRUCTION - ZONE F CONTROL SAMPLES  
 GRADATION CURVES

**Knights Consulting**

PROJECT	REV.
11/02/14	3
	0

FIGURE B1





- DH01-01A —+— DH01-02A —+— DH01-03A —+— DH01-06A —+— DH01-01A —+— DH01-02A
- DH01-02B —○— DH01-02C —○— DH01-03A —○— DH01-06A —○— DH01-07B —○— DH01-08C
- DH01-12A —●— DH01-17A —●— DH01-19B —●— DH01-20A —●— DH01-23A —●— DH01-26B
- \*— DH01-29A —\*— DH01-31A —\*— DH01-33B —\*— DH01-39A —\*— DH01-39B —\*— DH01-42A
- DH01-51A —■— DH01-60B —■— DH01-62A —■— DH01-65A

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

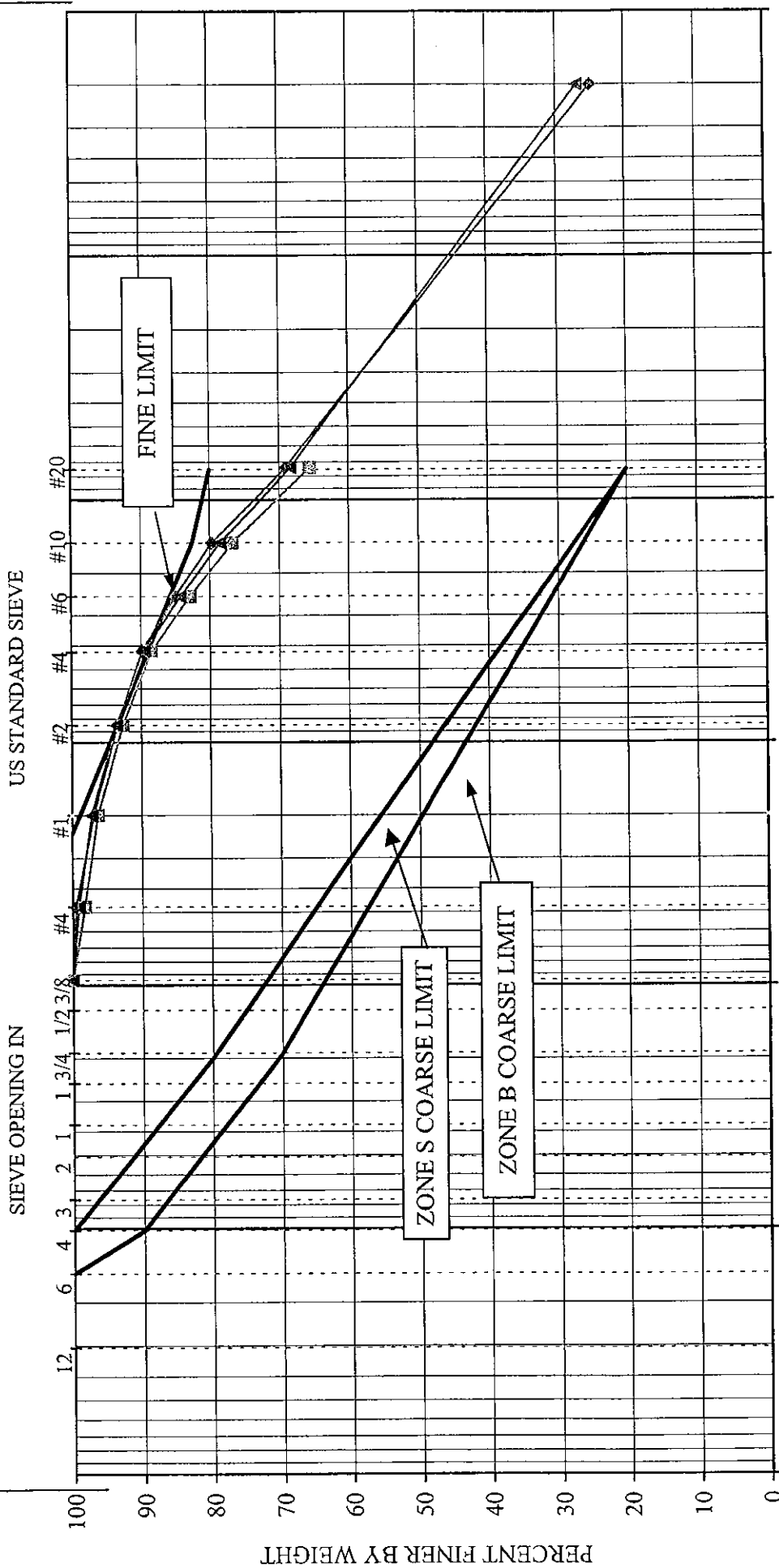
TAILINGS STORAGE FACILITY - STAGE 3  
CONSTRUCTION - BORROW AREAS 2 AND 3  
INVESTIGATIONS - GRADATION PLOTS

**Knight Piésold**  
CONSULTING

PROJECT: 11162/14  
REV: 3  
0

FIGURE B3

BOULDERS		COBBL ES		GRAVEL		SAND			SILT			CLAY
				Coarse	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	



DH01-67A

DH01-74A

DH01-75A

MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE  
 TAILINGS STORAGE FACILITY - STAGE 3  
 CONSTRUCTION - BORROW AREA 5  
 INVESTIGATION

**Knight Piésold**  
 CONSULTING

PROJECT: 11162/14  
 REV: 3  
 FIGURE B4



**APPENDIX C**

CONSTRUCTION QUALITY ASSURANCE RECORD  
TEST SUMMARY SHEETS

Table C1 r0	Zone Record Test Summary Sheet
Table C2 r0	Zone CS Record Tests – Summary Sheet
Table C3 r0	Zone F Record Test Summary Sheet
Table C4 r0	Zone T Record Test Summary Sheet
Table C5 r0	Zone C Record Tests – Summary Sheet

TABLE CI

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY - STAGE 3 CONSTRUCTION  
ZONE S RECORD TEST SUMMARY SHEET

Printed: 10/24/11  
Rev'd: 10/20/11

Sample No.	Date Sampled	Location	El. (m)	R1			R2	R3 (Particle Size Distribution)										R4				R6							
				Atterberg Limits				Field m/c %	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13		#14	#15	#16	Optimum m/c %	Field Density kg/m <sup>3</sup>	Field m/c %	Percent Compaction %
				PL %	LL %	PI %																							
R-2S-3-1	19-Sep-00	Ch. 27+00	941.2	13.9	24.5	10.6	9.8	100.0	100.0	98.0	95.6	90.5	84.1	78.8	73.4	69.1	63.7	57.2	44.3	-	2110	8.8	2108	9.8	99.9	1.636			
R-2S-3-2	21-Sep-00	Ch. 16+00	941.0	13.6	24.4	10.8	9.3	100.0	100.0	98.8	95.3	87.3	83.2	80.1	75.2	70.9	65.8	59.9	48.7	-	2018	9.6	2092	9.5	103.7	2.623			
R-2S-3-3	22-Sep-00	Ch. 23+60	941.6	13.7	24.4	10.7	9.9	100.0	100.0	97.6	95.4	88.4	82.5	78.3	74.2	69.8	63.5	56.7	44.3	-	2109	8.4	2142	9.9	101.6	2.605			
R-2S-3-4	23-Sep-00	Ch. 8+40	-	14.0	22.8	8.8	9.6	100.0	100.0	99.1	95.4	88.0	83.3	78.7	74.5	70.2	64.4	58.2	45.1	-	2141	7.8	2092	9.6	97.7	2.673			
R-2S-3-5	26-Sep-00	S.E. Zone S Fill	-	13.4	22.5	9.1	8.0	100.0	100.0	97.7	95.0	85.8	77.3	72.7	68.3	62.0	54.2	43.5	39.6	-	2140	7.2	2236	8.0	104.5	2.674			
R-2S-3-6	22-Jan-01	Ch. 33+00	941.3	-	-	-	10.5	100.0	100.0	100.0	97.2	91.7	88.0	84.8	80.0	74.7	69.0	62.1	50.0	-	2075	10.8	2064	10.5	99.5	-			
R-2S-3-7	12-Jul-01	28+25, 3 m D/S from U/S Toe	941.3	-	-	-	11.4	100.0	100.0	100.0	96.0	87.6	79.6	75.4	71.6	67.8	62.7	55.8	43.2	-	2080.0	9.0	2043.0	10.7	98.2	-			
R-2S-3-8	12-Aug-01	Ch. 42+75, 6 m D/S from U/S Toe	941.4	-	-	-	10.9	100.0	100.0	89.3	87.4	83.9	78.9	74.3	71.0	67.3	63.8	58.6	55.7	43.4	-	2045.0	6.0	2091.0	9.8	102.2	-		
R-2S-3-9	18-Aug-01	Ch. 38+18, 5 m D/S from U/S Toe	942.5	-	-	-	10.7	100.0	100.0	100.0	93.5	86.5	73.2	65.8	63.6	60.8	56.2	48.5	40.2	-	2190.0	8.4	2134.0	9.6	97.4	-			
			MEAN	13.7	23.7	10.0	10.0	#DIV/0!	100.0	98.3	96.5	93.4	87.2	80.8	76.2	72.0	67.7	62.0	55.3	44.9	#DIV/0!	2108.9			100.5	2.44			
			MEDIAN	13.7	24.4	10.6	9.9	#NUM!	100.0	100.0	97.6	93.5	87.3	78.3	73.4	69.1	65.5	56.7	44.3	#NUM!	2109.0				99.9	2.63			
			MAXIMUM (*)	14.0	24.5	10.8	11.4	0.0	100.0	100.0	100.0	97.2	91.7	88.0	84.8	80.0	74.7	69.0	62.1	50.0	0.0	2190.0				104.5	2.87		
			MINIMUM (*)	13.4	22.5	8.8	8.0	0.0	100.0	89.3	87.4	83.9	78.9	73.2	65.8	63.6	60.8	54.2	43.5	39.6	0.0	2018.0				97.4	1.64		

Note: These are 100% limits.  
Values for Standard Proctor maximum dry density and optimum moisture content include oversize correction.

- IP - In progress
- 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)

**TABLE C2**

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY**

**STAGE 3 CONSTRUCTION**  
**ZONE CS RECORD TESTS - SUMMARY SHEET**

Date Printed: 02-Oct-01

Rev'd:02-Oct-01

M:\1162\14\Report\3\Figures\R-ZCS-summ.xls]Record Summary

Date Sampled	Sample No.	Location	R3 (Particle Size Distribution)			
			% <#200 (0.075 mm)	% <#400 (0.037 mm)	d <sub>85</sub> (mm)	d <sub>15</sub> (mm)
24-Oct-00	R/ZCS-3-1	U/S Berm - Ch. 34+00, top of berm	21.5	10.7	0.238	0.052
24-Oct-00	R/ZCS-3-2	U/S Berm - Ch. 38+00, toe of berm	24.9	12.9	0.212	0.043
24-Oct-00	R/ZCS-3-3	U/S Berm - Ch. 41+00, mid berm	21.6	11.2	0.278	0.051
24-Oct-00	R/ZCS-3-4	U/S Berm - 43+50, top of berm	21.7	10.8	0.257	0.051
24-Oct-00	R/ZCS-3-5	U/S Berm - 43+50, toe of berm	28.1	14.0	0.212	0.040
		MEAN	23.5	11.9	0.239	0.047
		MEDIAN	21.7	11.2	0.238	0.051
		MAXIMUM	28.1	14.0	0.278	0.052
		MINIMUM	21.5	10.7	0.212	0.040

Notes:

1. C3 (Particle Size Distribution) - ASTM D422





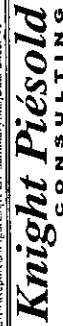


TABLE C4

MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE  
 TAILINGS STORAGE FACILITY - STAGE 3 CONSTRUCTION  
 ZONE T RECORD TEST SUMMARY SHEET

Rev'd: 02-Oct-01  
 Printed: 02-Oct-01

M:\1162\14\Report\13\Figures\R2T\_summary.xls>Data Sheet\_00



Sample No.	Date Sampled	Location	El. (m)	R1 Atterberg Limits		R2 Field m/c %	LI %	R3 (Particle Size Distribution)											R4		R5 Specific Gravity								
				PL %	LL %			PI %	152.4	76.2	38.1	19.05	9.525	4.75	2.36	1.18	0.6	0.3	0.14986	0.07366		0.0022	Max Dry Density kg/m <sup>3</sup>	Standard Proctor Optimum m/c %					
6								6	3	1.5	0.75	0.375	0.187	0.0937	0.0469	0.0234	0.0165	0.0059	0.0029	0.0022									
6								6	3	1.12	3/4	3/8	#4	#8	#16	#30	#50	#100	#200	Clay									

PROJECT: MOUNT POLLEY - TAILINGS STORAGE FACILITY - STAGE 3 CONSTRUCTION

MATERIAL: Zone T - Transition Zone

PERIOD: June 2000 to August 2001  
 PROJECT NO.: 11162/14  
 AREA: TSF

- R2 Moisture Content (ASTM D2216)
- R3 Particle Size Distribution (ASTM D422)
- R4 Laboratory Compaction (ASTM D1557)
- R6 Specific Gravity (ASTM D854)

**TABLE C5**

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE - TAILINGS STORAGE FACILITY**

**STAGE 3 CONSTRUCTION**  
**ZONE C RECORD TESTS - SUMMARY SHEET**

Rev'd: 02-Oct-01  
Printed: 02-Oct-01

M:\1162\14\Report\3\Figures\R-ZC-summ.xls\Record Summary\_r0

Date Sampled	Sample No.	Location	R3 (Particle Size Distribution)			
			Cobbles % > 3 inch	Gravel % 3 inch to #4	Sand % #4 to #200	Silt/Clay % < #200
2-Aug-00	R/ZC-3-1	Zone C Fill	56.4	34.7	8.4	0.5
21-Aug-00	R/ZC-3-2	Zone C Fill, Chainage: 22+55, Elevation 928.3	50.6	36.3	12.8	0.3
24-Aug-00	R/ZC-3-3	Zone C Fill, Chainage: 22+40, Elevation 929m	48.6	35.5	15.3	0.5
17-Sep-00	R/ZC-3-4	Zone C Fill, Chainage: 17+00, Elevation 938m	50.0	35.8	13.7	0.5
23-Sep-00	R/ZC-3-5	Zone C Fill, Chainage: 16+00, Elevation 941m	50.0	32.6	16.7	0.7
MEAN			51.1	35.0	13.4	0.5
MEDIAN			50.0	35.5	13.7	0.5
MAXIMUM			56.4	36.3	16.7	0.7
MINIMUM			48.6	32.6	8.4	0.3

Notes:

1. R3 (Particle Size Distribution) - ASTM D422



**APPENDIX D**

STAGE 3 CONSTRUCTION PHOTOS



August 2000 - Downstream buttress construction - Main Embankment



August 2000 - Rock Borrow





September 2000 - Main Embankment construction



September 2000 - Perimeter Embankment Zone CS construction





January 2001 - Perimeter Embankment Zone S construction



June 2001 - Perimeter Embankment Zone F construction





June 2001 - Perimeter Embankment Zone T construction



July 2001 - Perimeter Embankment at El. 942.5 m

**APPENDIX E**

STAGE 3 DESIGN MODIFICATIONS

\\116213\Reports\Rev\0-APPENDIX\Design\Chg.dwg\Sheet

June 19, 2000

FILE NO.:

11162/13.01

DATE:

June 29/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

DC-1

PROJECT:

Mt. Polley Stage 3 Construction

PROJECT NO.:

11162/13

AREA OF WORK:

Main Embankment

GENERAL DESCRIPTION OF PROPOSED WORK:

Where Stage 3 geotextile is to be tied into existing geotextile at the downstream edge of the existing zone 1 road, the Contractor may overlap the existing and Stage 3 geotextile as shown on the attached sketch

Please review the proposed change / substitution as per the attached sheets.

No. of Sheets:

1

Reference Drawings / Clauses:

Technical Specs, clause 7.3-3(iii)

Signed:

\*

Originator:

\*

**FOR VANCOUVER OFFICE USE**

Date Received:

June 29/00

Proposed change / substitution not approved:

approved as submitted:

DB

approved as amended:

No. of sheets attached:

(amendments only)

Signed:

Engineer:

K Brown

Director:

K Brown

Date Returned:

June 29/00

**Knight Piosold Ltd.**  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Tel: (604) 685-0543  
Fax: (604) 685-0147

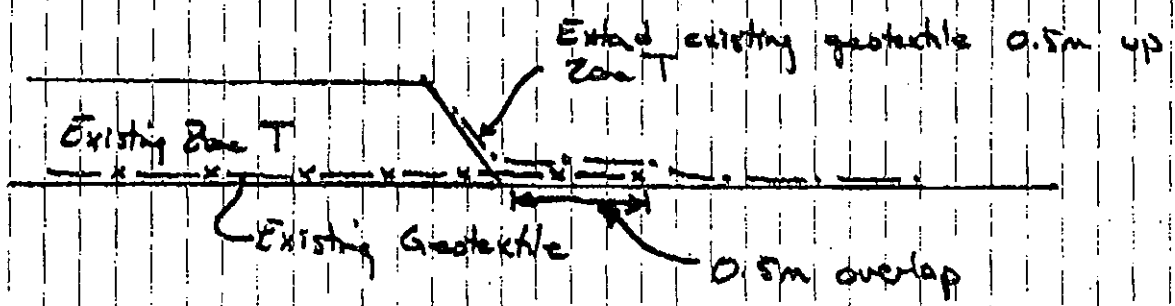
**Notes:**

1. Originator to keep a copy of all submissions and attachments.
2. Vancouver office to keep a file copy of completed request form with attachments, marked up as described above.

E1

# Knight Piésold Ltd. CONSULTING ENGINEERS

Project: <u>Mt. Pelley</u>	Project No.: <u>11162/13</u>
Calculations for: <u>Existing / Stage 3 Geotextile overlap</u>	Date: <u>June 28/00</u>
Calculations by: <u>AAW</u>	Sheet: <u>1</u> of <u>1</u>
Checked by: _____	Date: _____



E2



M:\116213\13\00067\APPENDIX D\Design C\june\sheet1

June 18, 2000

FILE NO.: 11162/13

DATE: June 29/00  
DC-2

REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION

PROJECT: Mt. Pelley Stage 3 Construction

PROJECT NO.: 11162/13

AREA OF WORK: Main Embankment

GENERAL DESCRIPTION OF PROPOSED WORK:  
Routing of piezometer leads across Zone C and Zone T

Please review the proposed change / substitution as per the attached sheets.

No. of Sheets: 2

Reference Drawings / Clauses: 11162-13-256

Signed: [Signature]

Originator: A. Wallace

FOR VANCOUVER OFFICE USE

Date Received: June 29/00

Proposed change / substitution not approved: \_\_\_\_\_  
approved as submitted: KJB  
approved as amended: \_\_\_\_\_

No. of sheets attached: \_\_\_\_\_ (amendments only)

Signed: Engineer: [Signature]

Director: [Signature]

Date Returned: June 29/00

Knight Piesold Ltd.  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Phone: (604) 685-0543  
Fax: (604) 685-0147

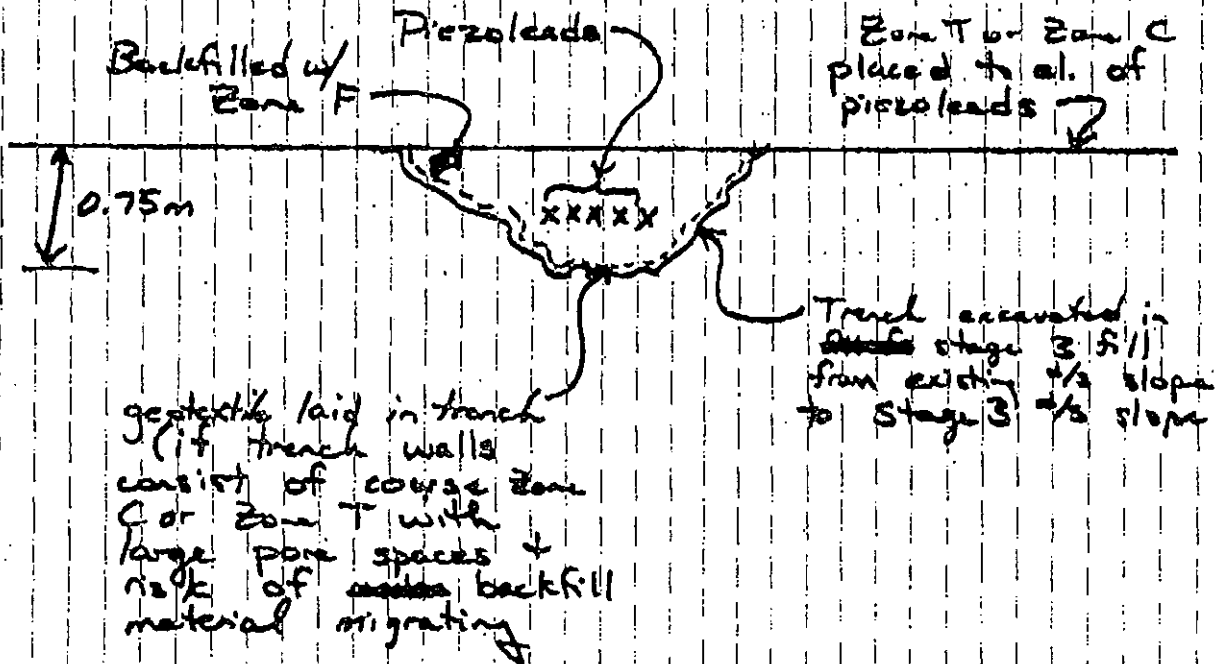
- Notes:
1. Originator to keep a copy of all submissions and attachments.
  2. Vancouver office to keep a file copy of completed request form with attachments, marked up as described above.

E3

# Knight Piésold Ltd. CONSULTING ENGINEERS

Project: <u>Mt. Palley</u>	Project No: <u>11162/13</u>
Calculations for: <u>Pico trench Detail</u>	Date: <u>Jun 28/00</u>
Calculations by: <u>ABW</u>	Sheet <u>1</u> of <u>2</u>
Checked by: _____	Date: _____

Option #1



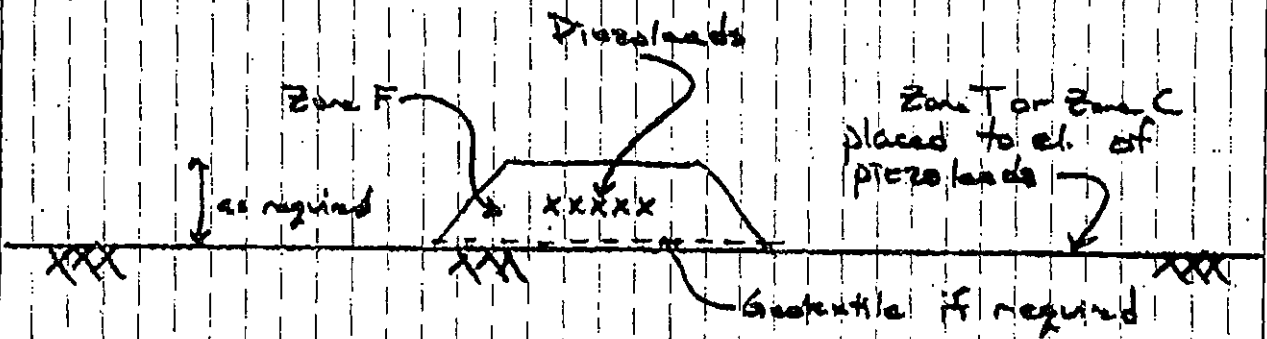
Note: If there is a risk of Zone F (crushed rock) damaging the piezoleads, they could be wrapped in geotextile for protection

E4

# Knight Piésold Ltd. CONSULTING ENGINEERS

Project: <u>At. Polley</u>	Project No.: <u>11162/13</u>
Calculations for: <u>Piezo Transducer Detail</u>	Date: <u>Jun 28/00</u>
Calculations by: <u>ABW</u>	Sheet <u>2</u> of <u>2</u>
Checked by: _____	Date: _____

## OPTION #2



Note: wrap piezo leads in geotextile if there is a risk of zone F damaging the piezo leads

ES

J:\311821\311821\Report\7\Rev\0\API\END\X\Design Cha.xls\Sheet1

June 19, 2000

FILE NO.: 11162/13.P01 DATE: June 30/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

DC-3

PROJECT: MT. Polley PROJECT NO.: 11162/13

AREA OF WORK: Main Embankment

GENERAL DESCRIPTION OF PROPOSED WORK:  
Change # Stage 3 Main Embankment Piezometers from  
high pressure to low pressure. Piezometers to be re-named  
as follows & will allow use of piezos currently on site (range 0-50 psi)  
A2-PE2-09 changes to A2-PE1-09  
B2-PE2-07 changes to B2-PE1-07  
C2-PE2-09 changes to ~~C2-PE2-09~~ C2-PE1-09

Please review the proposed change / substitution as per the attached sheets.

No. of Sheets: 0

Reference Drawings / Clauses: 11162-13-256 Rev. 0  
11162-13-258 Rev. 0

Signed: Al Wallace

Originator: A. Wallace

**FOR VANCOUVER OFFICE USE**

Date Received: July 4/00

Proposed change / substitution not approved: \_\_\_\_\_

approved as submitted: JRK

approved as amended: \_\_\_\_\_

No. of sheets attached: \_\_\_\_\_ (amendments only)

Signed: \_\_\_\_\_ Engineer: Jin

Director: K Brown

Date Returned: July 5/00

**Knight Plesold Ltd.**  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Phone: (604) 685-0543  
Fax: (604) 685-0147

- Notes:
- 1. Originator to keep a copy of all submissions and attachments.
  - 2. Vancouver office to keep a file copy of completed request form with attachments, marked up as described above.

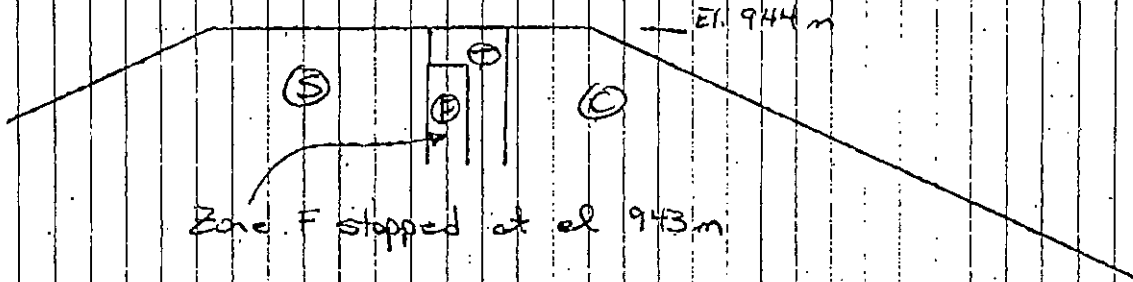
EG



# Knight Piésold Ltd.

CONSULTING ENGINEERS

Project: <u>Mt Polley Stage 3 Constr.</u>	Project No.: <u>11162/13</u>
Calculations for: <u>Requested CDW</u>	Date: <u>Jun 30/00</u>
Calculations by: <u>ARW</u>	Sheet <u>1</u> of <u>1</u>
Checked by: _____	Date: _____



Zone F stopped at el 943m

Stage 3 Typical Section

Note: Zone T placed directly on Zone F between el. 943m and el. 944m to be excavated prior to or as part of Stage 4 construction & replaced with Zone F

ES

FILE NO.: 11162/13.F01

DATE: July 5/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

OBJECT: Mt. Polley Stage 3 Const.

PROJECT NO.: 11162/13

AREA OF WORK: Main Embankment

**GENERAL DESCRIPTION OF PROPOSED WORK:**

Change downstream slope of Main Embankment buttress from  
2H:1V to 1.5H:1V in order to move buttress toe inside  
toe drain conveyance pipe

Please review the proposed change / substitution as per the attached sheets.

No. of Sheets: 1

Reference Drawings / Clauses: 11162-13-215 Rev. 2

Signed: [Signature]

Originator: A. Wallace

**FOR VANCOUVER OFFICE USE**

Date Received: July 5/00

Proposed change / substitution not approved: \_\_\_\_\_

approved as submitted: \_\_\_\_\_

approved as amended: JK

No. of sheets attached: 1 (amendments only)

Signed: \_\_\_\_\_ Engineer: [Signature]

Director: [Signature]

Date Returned: July 7/00

**Knight Piesold Ltd.**  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Phone: (604) 685-0543  
Fax: (604) 685-0147

- Notes:**
1. Originator to keep a copy of all submissions and attachments.
  2. Vancouver office to keep a file copy of completed request form with attachments, marked up as described above.

Project: Mt. Palley

Project No.: 11162/13

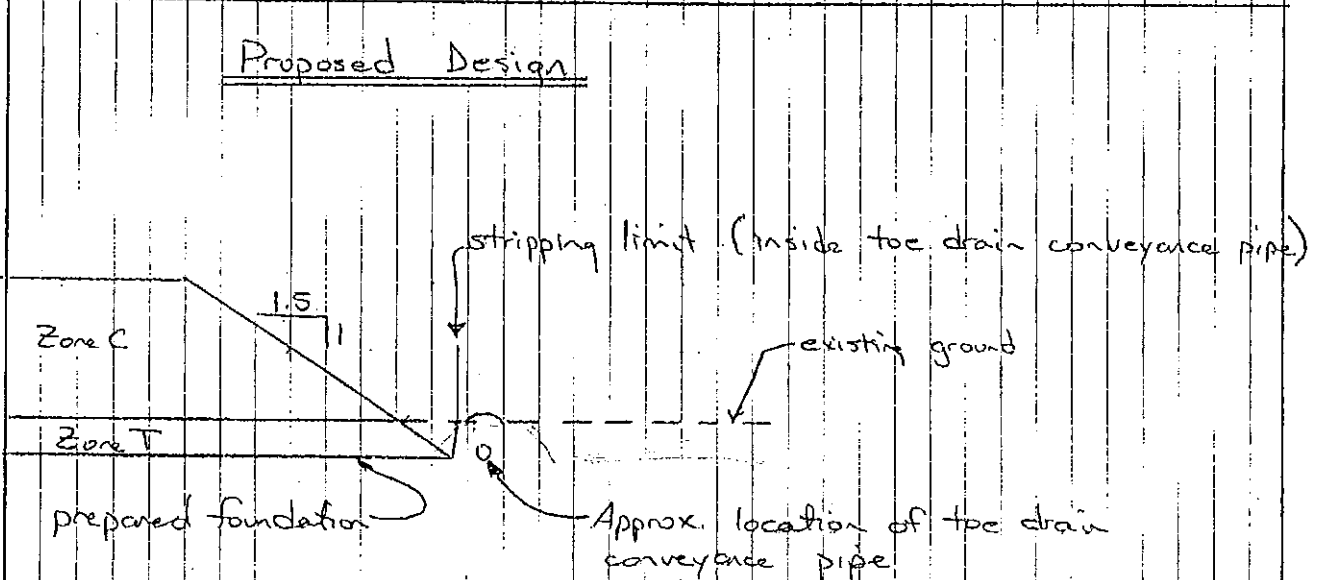
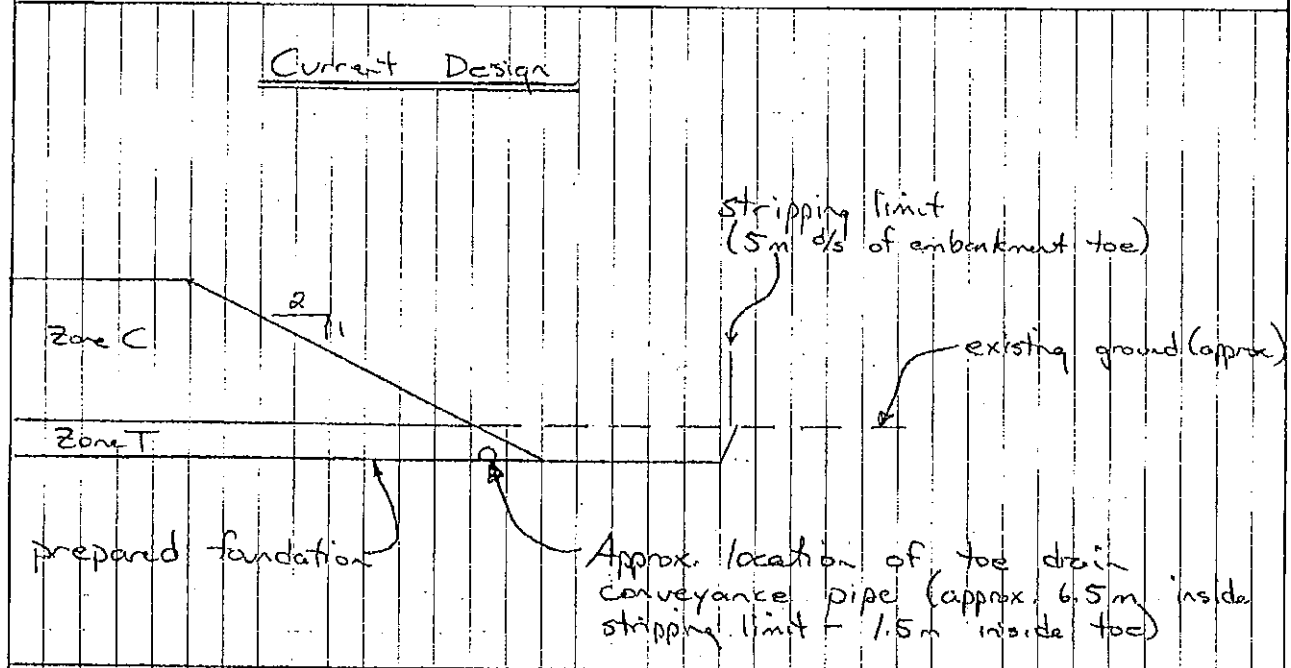
Calculations for: Design Change for d/s slope of M. Emb buttress.

Date: July 5/00

Calculations by: ABW

Sheet 1 of 1

Checked by: \_\_\_\_\_ Date: \_\_\_\_\_





MS116213-001-APPENDIX(D) Detail Chg. Mat Sheet 1

June 18, 2000

FILE NO.: 11162/13.

DATE: July 17/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

PROJECT: Mt. Pelley Stage 3 Const.

PROJECT NO.: 11162/13. ~~5~~

AREA OF WORK: Main Embankment & Foundation

**GENERAL DESCRIPTION OF PROPOSED WORK:**

Geotextile to be installed as per attached typical sections

Please review the proposed change / substitution as per the attached sheets,

No. of Sheets: 3

Reference Drawings / Clauses: 11162-13-215 Rev. 2

Signed: [Signature]

Originator: Andrew Wallace

**FOR VANCOUVER OFFICE USE**

Date Received: July 17/00

Proposed change / substitution not approved: \_\_\_\_\_

approved as submitted: KJB

approved as amended: \_\_\_\_\_

No. of sheets attached: \_\_\_\_\_ (amendments only)

Signed: \_\_\_\_\_ Engineer: KJB

Director: [Signature]

Date Returned: July 20, 2000

**Knight Piesold Ltd.**  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Phone: (604) 685-0543  
Fax: (604) 685-0147

- Notes:**
1. Originator to keep a copy of all submissions and attachments.
  2. Vancouver office to keep a file copy of completed request form with attachments, marked up as described above.

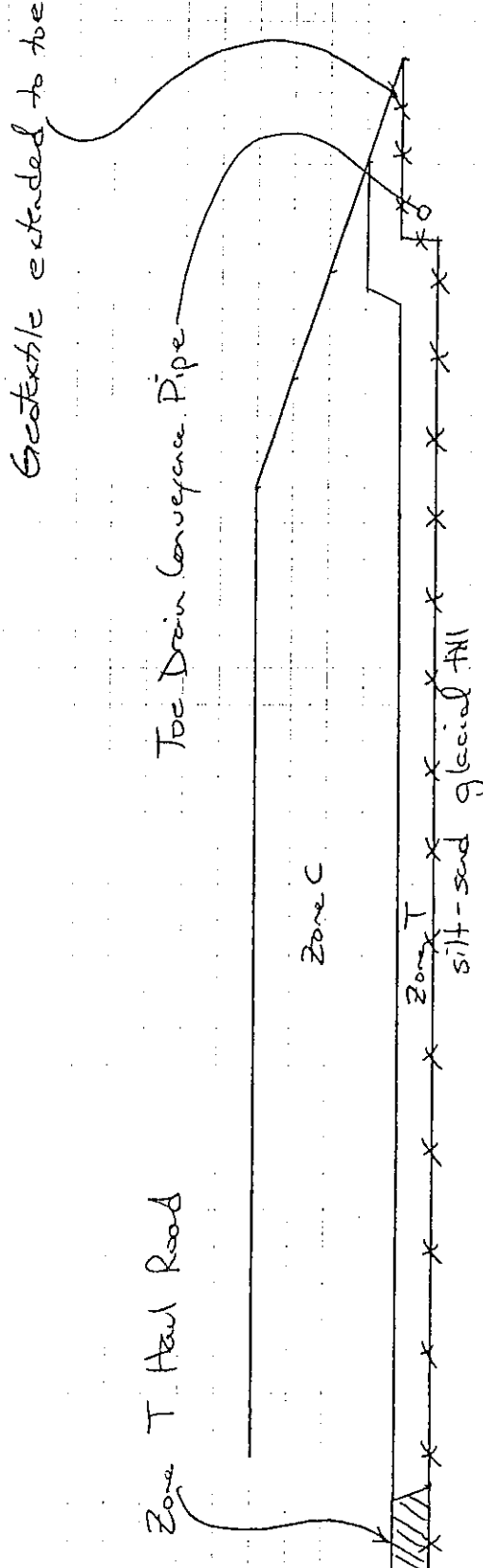
E11

# Knight Piésold Ltd.

CONSULTING ENGINEERS

Project: ME. Polky  
Calculations for: Geotextile design change  
Calculations by: ABW  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

Project No.: 11162/13  
Date: July 17/00  
Sheet 1 of 3



Note: Foundation materials subject to artesian pressures.

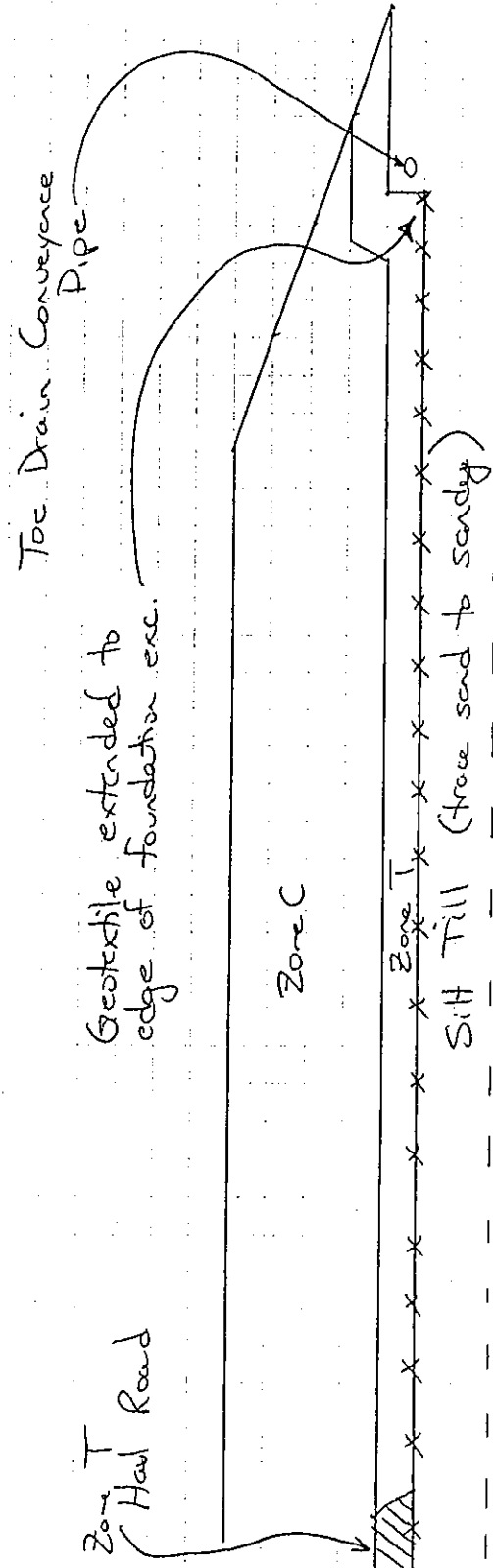
Typical Section Sta. 17+00 to 19+00

# Knight Piésold Ltd.

CONSULTING ENGINEERS

Project: ME Polky  
Calculations for: Geotextile design change  
Calculations by: ABW  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

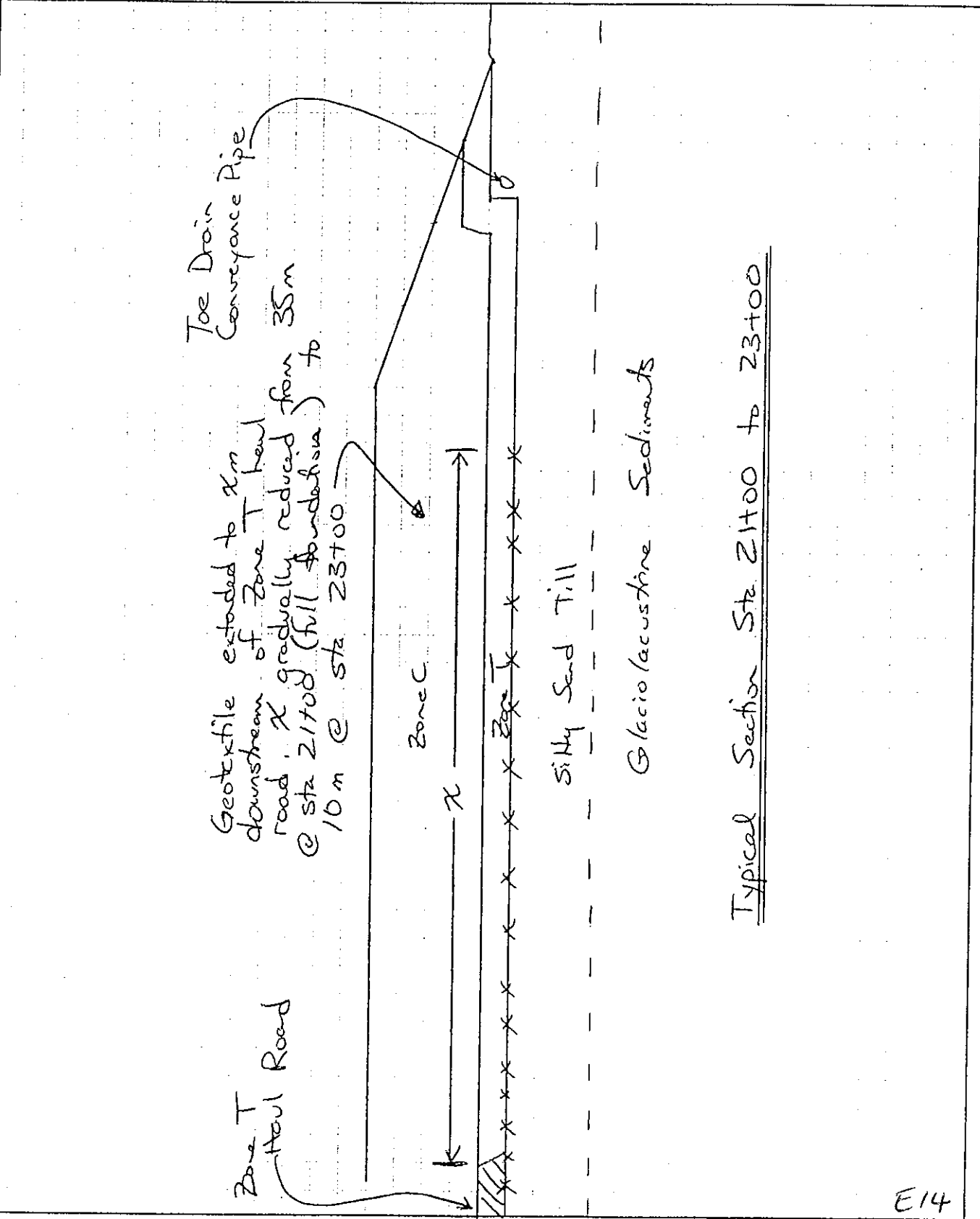
Project No.: 11162/13  
Date: July 13/17/00  
Sheet 2 of 3



Typical Section Sta 19400 to 21700

Project: Mt. Polky  
 Calculations for: Geotextile Design Change  
 Calculations by: ABW  
 Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

Project No.: 11162/13  
 Date: July 17/00  
 Sheet 3 of 3



FILE NO.: 11162/13, Fol. P&S - FIT DC-10 DATE: OCT. 16/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

PROJECT: MT. POLLEY - STAGE 3 CONSTRUCTION PROJECT NO.: 11162/13

AREA OF WORK: UPSTREAM TIE DRAIN OUTLET / CONVEYANCE PIPE AT RIGHT  
ABUTMENT MAIN EMBANKMENT

GENERAL DESCRIPTION OF PROPOSED WORK:  
REPAIR TO 200mm HDPE PIPE WHERE IT HAS BEEN BROKEN + 'PUNCHED UP'  
BY UNRESTRICTED TRAFFIC EXCEEDING AND REPAIR DAMAGED SECTION, REPLACE  
WITH 200mm HDPE, AND COMPLETE USING VICTALINE STYLE 995 COMPLETE  
ASSEMBLY (AS OPPOSED TO EXISTING PIPE TO THE WEST). BACKFILL WITH COMPACTED  
FINE SAND TO MAX 200mm LIFTS.

Please review the proposed change / substitution as per the attached sheets.

No. of Sheets: 3 DWG. #10 SHOWING LOCATION OF REPAIR  
SPECS. FOR STYLE 995 COMPOUND

Reference Drawings / Clauses: 11162-10-125  
S10-15-01-1625-202

Signed: [Signature] Originator: JEFF CLARKE

Date Received: OCT 16/00

Proposed change / substitution not approved: \_\_\_\_\_

approved as submitted: [Signature]

approved as amended: \_\_\_\_\_

No. of sheets attached: \_\_\_\_\_ (amendments only)

Signed: \_\_\_\_\_ Engineer: [Signature]

Director: [Signature]

Date Returned: OCT 16/00

**Knight Pieroid Ltd**  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Phone: (604) 685-0543  
Fax: (604) 685-0147

- Notes:**
- 1. Originator to keep a copy of all submissions and attachments.
  - 2. Vancouver office to keep a file copy of completed request form with attachments, marked up as described above.

1 of 3  
E 15

FILE NO.:

11162/13. F01. F05. F12

DC-11

DATE:

OCT. 16/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

PROJECT:

MT. PLEAZER - STN 3 CONSTRUCTION

PROJECT NO.:

11162/13

AREA OF WORK:

PERIMETER EMBANKMENT - MECHANICAL PLACEMENT OF  
UPSTREAM CYCLONE SAND BEAM

GENERAL DESCRIPTION OF PROPOSED WORK:

CONCRETE SAND BEAM TO DIMENSIONS SHOWN ON ATTACHED SKETCH,  
BETWEEN SF 4 & SF 5. SAND TO COME FROM EXCESS MATERIAL FROM  
DOWNSTREAM TRAIL BEAM OR SAND STOCKPILE IN BAY 4. COARSE REBAR  
LAYER TO BE PLACED AS NECESSARY, SAND TO BE PLACED IN MAX.  
1000 mm LIFTS & COMPACTED TO 95% S.P.D. IS UPSTREAM STABILITY  
A CONCERN, OR CAN REBAR BE NECESSARY?  
IT BE

Please review the proposed change / substitution as per the attached sheets

No. of Sheets:

2 / SETS OF PROPOSED BEAM

Reference Drawings / Clauses:

Signed:

JEFF CLARK

Originator:

[Signature]

Date Received:

Oct 16/00

Proposed change / substitution not approved:

approved as submitted:

[Signature]

approved as amended:

No. of sheets attached:

(amendments only)

Signed:

Engineer:

[Signature]

Director:

[Signature]

Date Returned:

OCT 17/00

**Knight Piusold Ltd.**

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Fax: (604) 685-0147

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1 of 2  
E16

FILE NO.: 11162/13.0700

DC-12

DATE: SEPT 10/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

PROJECT: MT. POUXY - STAGE 3 CONSTRUCTION

PROJECT NO.: 11162/13

AREA OF WORK: TAKEING STORAGE FACILITY - MEN ENGAGEMENT ZONE F

**GENERAL DESCRIPTION OF PROPOSED WORK:**

CHANGE FROM STAGE 3 ZONE F COARSE LEAST DIA OF 0.7mm TO STAGE 1  
AND 2 VALUE OF L.P.M.

Please review the proposed change / substitution as per the attached sheets.

No. of Sheets: 2 LETTER - FAX 00-035, SEPT. 10/00  
ATTACHED FIGURE 1

Reference Drawings / Classes: DRAWING 11162 - 13 - 104

Signed: [Signature]

Originator: JEFF CLARKE



Date Received: Sept 10/00

Proposed change / substitution not approved: \_\_\_\_\_  
approved as submitted: \_\_\_\_\_  
approved as amended: JRC

No. of sheets attached: 1 (amendments only)

Signed: \_\_\_\_\_ Engineer: [Signature]

Director: [Signature]

Date Returned: Oct 17/00

**Knights Piesold Ltd.**  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Tel: (604) 685-0543  
Fax: (604) 685-0147

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E17

# Knight Piésold

CONSULTING

Project/Assignment Name: Mount Polley P/A No.: 11162/13  
 Area: \_\_\_\_\_ Task No.: 0600  
 Calculations for: \_\_\_\_\_ Date: Oct 16/00  
 Calculations by: JEL. Reviewed by: \_\_\_\_\_ Calculation File No.: \_\_\_\_\_  
 Input from: \_\_\_\_\_ Date of review: \_\_\_\_\_ Sheet: \_\_\_\_\_ of \_\_\_\_\_

REVIEW FILTER RELATIONSHIP BETWEEN FILTER SAND AND GLACIAL TILL (ZONE S) PLACED DURING STAGE 1 & 2 CONSTRUCTION.

ZONE S (FROM RECORD SAMPLES)

MIN  $d_{85}$  = 0.43 mm  
 MAX  $d_{15}$  = 0.002 mm

PROPOSED CHANGE TO ZONE F COMPRISES CHANGING THE COARSE LIMIT  $D_{15}$  FROM 0.7 mm TO 1.0 mm.

CHECK RELATIONSHIP TO PREVENT PIPING.

$$\frac{D_{15}}{d_{85}} = \frac{1.0 \text{ mm}}{0.43 \text{ mm}} = 2.3 < 4 \quad \therefore \text{OK}$$

CHECK PERMEABILITY CONTRAST.

$$\frac{D_{15}}{d_{15}} = \frac{1.0 \text{ mm}}{0.002 \text{ mm}} = 500 >> 5 \quad \therefore \text{OK}$$

NOTE: NEED TO DETERMINE GRADATION OF UNDERFLOW FROM LINATOR SEPARATORS. THE CHANGE MAY NOT BE SUITABLE FOR A FILTER AGAINST CYCLOPED SAND.

E18



FILE NO.: 11162/13, F12

DC-13

DATE: OCT. 23/00

**REQUEST FOR APPROVAL BY DESIGN OFFICE  
OF CHANGE / SUBSTITUTION**

PROJECT: MT. POLLEY - STAGE 3 CONSTRUCTION

PROJECT NO.: 11162/13, 070


AREA OF WORK: PREPARED EMBANKMENT NORTH ASSESSMENT

GENERAL DESCRIPTION OF PROPOSED WORK: (SHORT)  
CONSTRUCTION OF UPSTREAM BEAM USING FINE AGGREGATE INSTEAD OF GILLNETS  
SAND TO PROVIDE 1M WAVE RUN-UP - BARRAGE TO BE CONSTRUCTED TO  
CONFIGURATION SHOWN ON ATTACHED SKETCH ALONG APPROX. 75M LONG SECTION.  
GILLNETS CURRENTLY NOT ABLE TO REACH THIS AREA, & EXCESSIVE HAS  
TRAPPED WATER & SLUDGES ALONG ASSESSMENT. FOUNDATION TO BE PREPARED BY  
REMOVING UNDESIRABLE / SPOIL MAT'L DOWN TO G.S. / TAILINGS.

Please review the proposed change / substitution as per the attached sheets.

No. of Sheets: 1 SKETCH

Reference Drawings / Clauses: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signed: 

Originator: JEFF CLARK




Date Received: OCT 23/00

Proposed change / substitution not approved: \_\_\_\_\_

approved as submitted: JCC

approved as amended: \_\_\_\_\_

No. of sheets attached: \_\_\_\_\_ (amendments only)

Signed: \_\_\_\_\_ Engineer: 

Director: KIB

Date Returned: OCT 23/00

**Knight Plesold Ltd.**  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Phone: (604) 685-0543  
Fax: (604) 685-0147

- Notes:
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# Knight Piésold Ltd.

CONSULTING ENGINEERS

Project: MT. PRIDEY - STAGE 3 CONSTRUCTION

Project No.: 11162/13

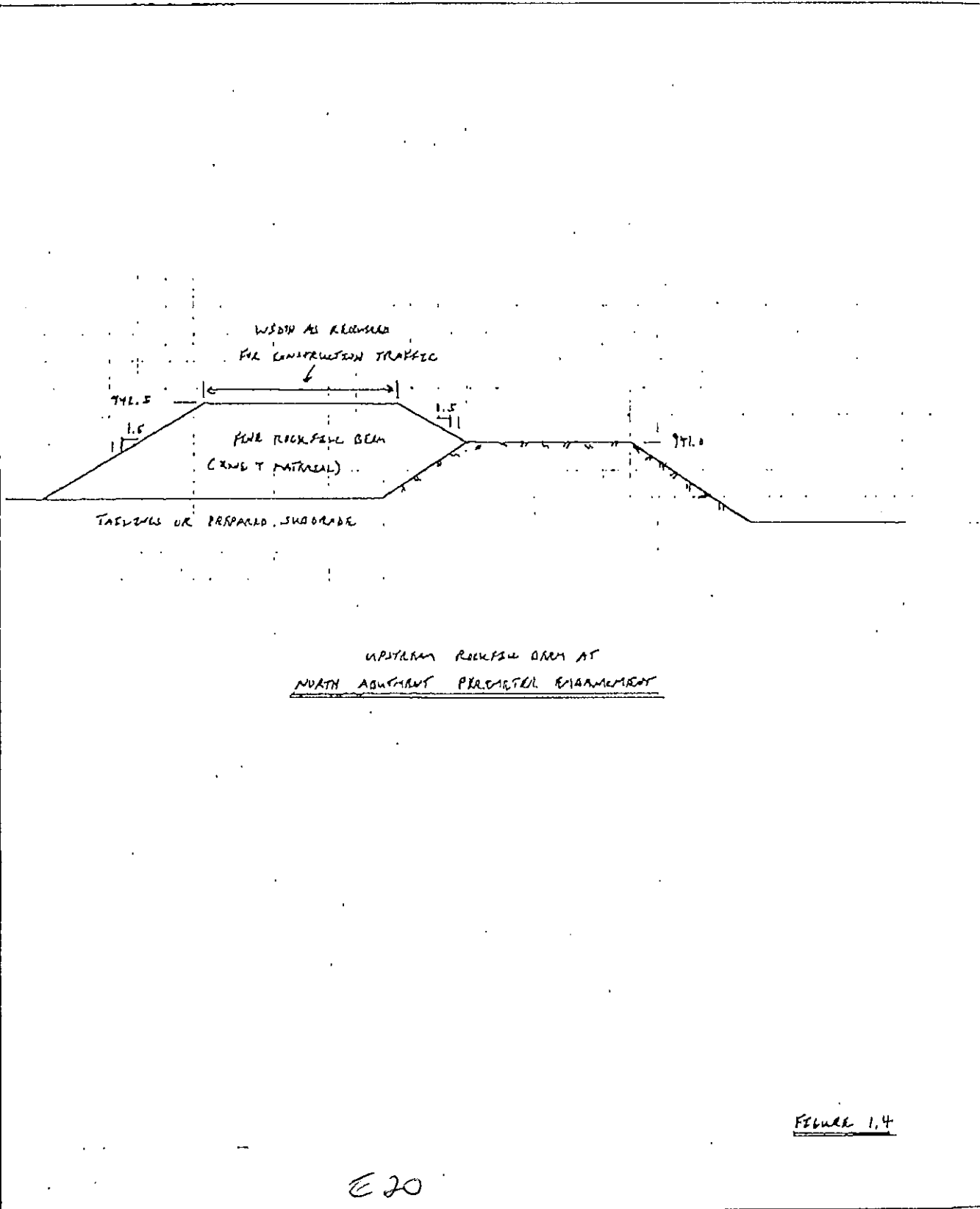
Calculations for: \_\_\_\_\_

Date: OCT. 20/08

Calculations by: J.C.

Sheet \_\_\_\_\_ of \_\_\_\_\_

Checked by: \_\_\_\_\_ Date: \_\_\_\_\_



File No.: 11162/14.F01.F05

Date: July 10, 2001

**REQUEST FOR APPROVAL BY DESIGN OFFICE**  
**OF CHANGE/SUBSTITUTION**

PROJECT: Mount Polley Mine PROJECT NO.: 11162/14.0600

AREA OF WORK: Tailings Storage Facility, Perimeter Embankment

GENERAL DESCRIPTION OF WORK: Construct Perimeter Embankment to the lines and grades shown on the attached sketches (Sections 11162-13-125 1/120 and 2/120). Minimum elevation of Zone C to be 935 m in all areas except on downstream cycloned sand trial berm.

Please review the proposed change/substitution as per the attached sheets.

No. of Sheets: 2

Signed: \_\_\_\_\_  
(originator)

Reference Drawings/Clauses: Drawing 11162-13-125, Section 1/120 and Section 2/120

**FOR VANCOUVER OFFICE USE**

Date Received: July 10/01

Proposed change/substitution not approved: \_\_\_\_\_

approved as submitted: \_\_\_\_\_

approved as amended: KIB : 2H:1V slope instead of 1.5H:1V !

No. of sheets attached: 2 (amendments only)

Signed Engineer: J Brown

Director: J Brown

Date Returned: July 11/01

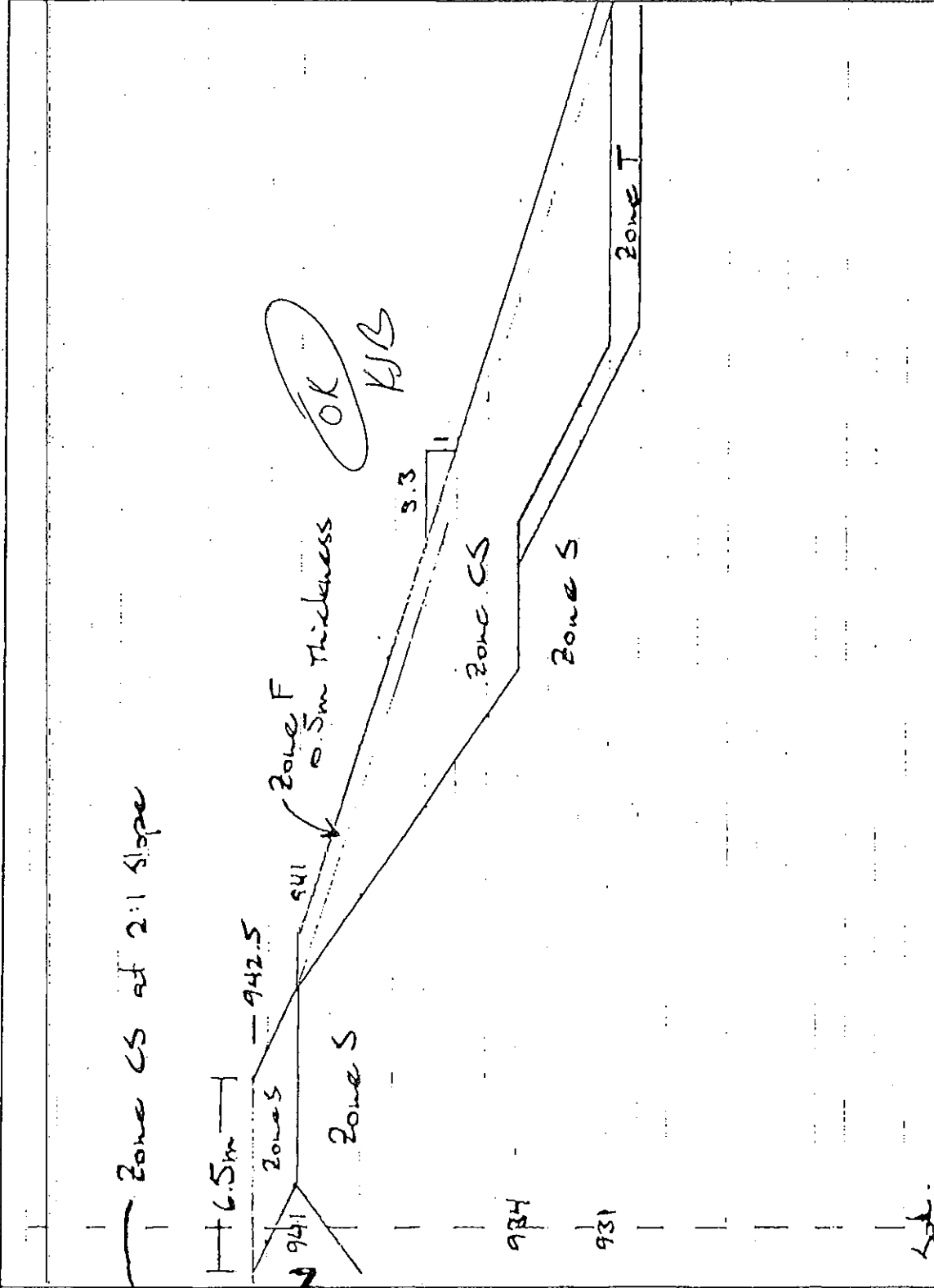
***Knight Piesold Ltd***  
1400 - 750 West Pender Street  
Vancouver, B.C. V6C 2T8  
Phone: (604) 685-0543  
Fax: (604) 685-0147

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E21

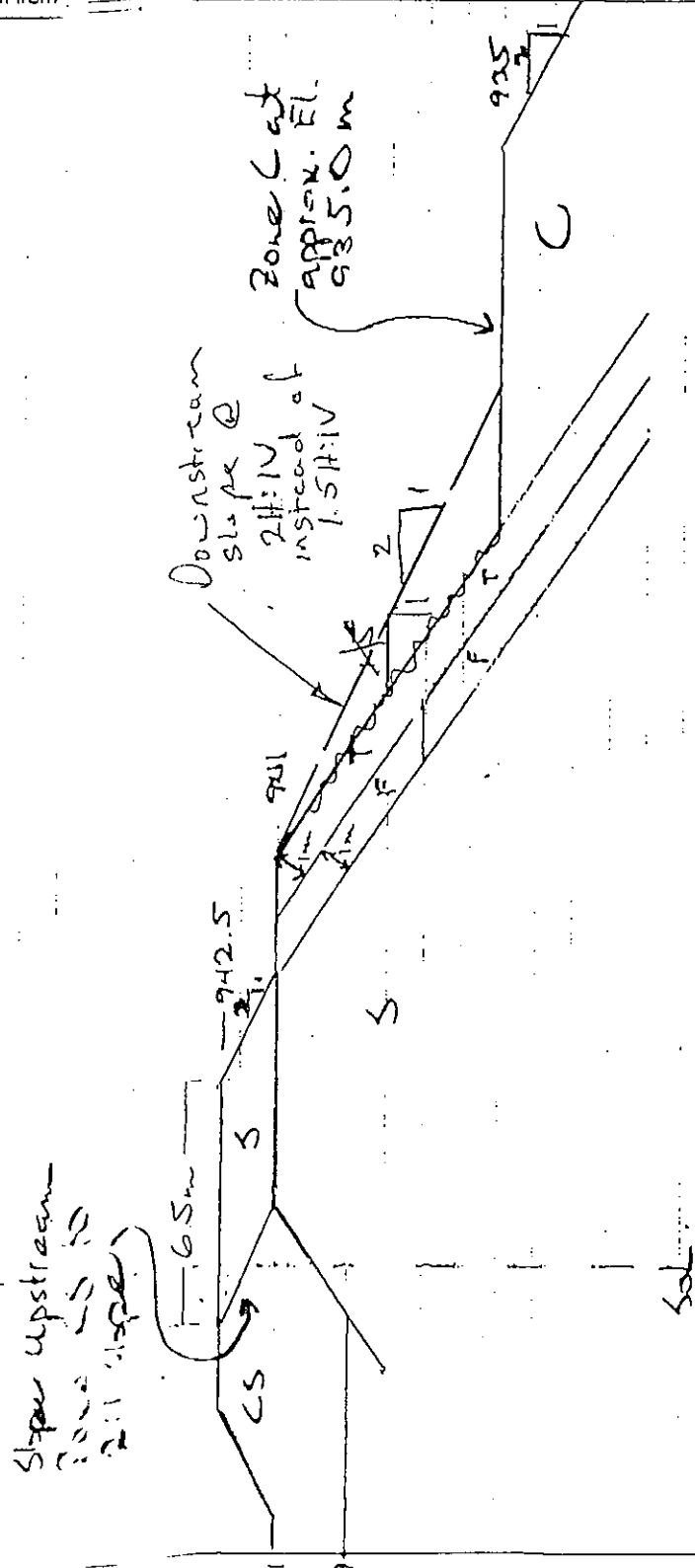
Project/Assignment Name: _____	P/A No.: _____
Area: _____	Task No.: _____
Calculations for: _____	Date: _____
Calculations by: _____	Reviewed by: _____
Input from: _____	Date of review: _____
	Calculation File No.: _____
	Sheet: _____ of _____



Section 1/120

E22

Project/Assignment Name: _____	P/A No.: _____
Area: _____	Task No.: _____
Calculations for: _____	Date: _____
Calculations by: _____	Reviewed by: _____
Input from: _____	Date of review: _____
	Calculation File No.: _____
	Sheet: _____ of _____



Section 2/20

E 23