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

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SECTION 1.0 - INTRODUCTION

1.1 PROJECT DESCRIPTION

The Mt. Polley project site is located in central British Columbia approximately 56 kilometres north-west of Williams Lake, as shown on Figure 1.1. The site is situated on a topographic ridge located between Polley Lake and Bootjack Lake.

The Mt. Polley project involves open pit mining of an estimated 48.8 million tonnes of copper and gold ore contained in three adjacent ore bodies. The ore will be hauled from the open pit to the primary and secondary crushers where it will be crushed and transported to the nearby concentrator for processing. The ore will be processed by select flotation to produce a copper-gold concentrate at a production rate of approximately 13,425 tonnes per day. An additional 26.2 million tonnes of low grade ore will be stockpiled during operations for processing in the later stages of the mine life.

After processing of the ore to produce the copper/gold concentrate, the tailings will be discharged as a slurry into the tailings storage facility which has been designed to provide environmentally secure storage of the solids waste. As the solids settle out of the slurry, the solution is collected and recycled back to the mill for re-use in the milling process. No surface discharge of any process solution from the tailings facility is required or anticipated.

1.2 SCOPE OF WORK

A geotechnical site investigation program was carried out by Knight Piésold Ltd. between January 11 and 17, 1995. The program comprised excavating a total of thirty-nine (39) test pits to investigate the geotechnical characteristics and foundation conditions at each of the proposed project component sites and to evaluate the geologic factors affecting the design of these components. The following project components were investigated:

- Mill site

- Main access road
- Tailings storage facility, including the tailings basin and embankment foundations, tailings/reclaim pipeline route, and potential borrow areas
- Polley Lake dam site (no longer included in mine plan)

The scope of work for the investigation program included the following:

- Pioneering of access trails with a Cat D5 dozer.
- Excavation of the test pits with a Hitachi X200 backhoe.
- Detailed geotechnical logging of each test pit, including photographs.
- Bulk sampling of the various strata.
- Backfilling and reclamation work for all of the disturbed areas.

The test pit locations and the overall site plan are shown on Drawing 1623.100. Geological logs of each test pit are included in Appendix A, and detailed laboratory test work results on select bulk test pit samples are included in Appendix B.

This report addresses the outstanding geotechnical issues from previous work carried out at the Mt. Polley project site. The results of the previous geotechnical program are presented in the following documents:

- 1989 tailings area test pits (also included in Appendix A)
- 1990 mill site test pits (also included in Appendix A)
- Knight Piésold Ltd. "Report on Geotechnical Investigations and Design of Open Pit, Waste Dumps and Tailings Storage Facility (Ref. No. 1621/1)", dated February 19, 1990.

Test pit logs from the 1989 and 1990 geotechnical investigation programs have been included in Appendix A. In addition, applicable laboratory test work results from the 1989 tailings storage facility investigation program have also been included.

SECTION 2.0 - GEOTECHNICAL RESULTS

2.1 GENERAL

A total of thirty-nine (39) test pits were excavated during the geotechnical site investigation program to evaluate the type and distribution of surficial materials and the near surface foundation conditions at the mill site, along access roads and pipeline routes, at potential borrow areas, within the tailings basin and at the Polley Lake dam site.

2.2 MILL SITE AND ACCESS ROADS

2.2.1 Mill Site

Eight test pits (TP95-1 to 8) were excavated in select locations at the proposed mill site to provide additional information from the February, 1990 test pit program (TPMS90-1 to 4). Dense, brown glacial till comprising silty sand with some gravel and clay was encountered overlying lapilli tuff bedrock throughout the mill site area. The bedrock was typically heavily fractured for approximately 0.5 to 1.0 meters depth before becoming more competent, which precluded excavation with the backhoe.

TP95-1, located at the fine ore stockpile site, encountered 5.5 metres of glacial till overlying bedrock. Similar ground conditions were encountered to the north and south in test pits TPMS90-1 to 3.

Test pits TP95-2,3,4,7 and 8 were located in the vicinity of the concentrator site and encountered a variable thickness (1.2 to 3.6 metres) of glacial till overlying bedrock. Bedrock was typically encountered at shallow depths except in test pit TP95-7 where bedrock was not encountered.

TP95-5, located at the crusher site, revealed a thin, 0.5 meter thick layer of glacial till overlying bedrock. Test pit TPMS90-4, located to the north, encountered a thick, 6.1+ metre layer of till at a higher elevation.

TP95-6 was located at the coarse ore stockpile site and encountered 5.0+ metres of glacial till. Although bedrock was not exposed during excavation, angular rock fragments were present at the bottom of the pit which typically indicate a close proximity to bedrock.

2.2.2 Bootjack Lake Road

Five test pits (TP95-9 to 13) were excavated along the side slope of an existing access road above the west shore of Bootjack Lake. Test pits TP95-9, 10 and 11 encountered coarser-grained, sand and gravel glacial till at lower elevations, which became more silty and less gravel with increasing elevation. The till encountered in TP95-12 and 13 was similar to the material identified at the mill site. TP95-9 also encountered softer till, due to a higher in-situ moisture content, at 2.5 metres depth. TP95-12 encountered a thin, 1.2 metre thick layer of till overlying bedrock.

2.2.3 Main access road

Two test pits (TP95-14 and 15) were excavated to examine the regional ground conditions along the existing Main access road and to identify potential sand and gravel deposits. Test pit TP95-14 encountered 4.1 metres of sandy silt glacial till adjacent to Morehead Creek at kilometre 7.1. Test pit TP95-15, located on top of a narrow ridge at kilometre 4.3, did not encounter sand and gravel deposits as anticipated, rather 4.5 metres of sandy, gravelly silt glacial till to depth.

2.3 TAILINGS STORAGE FACILITY

2.3.1 Tailings and Reclaim Pipeline Route

Four test pits (TP95-16 to 19) were located north of the proposed tailings storage facility and partially along the proposed tailings and reclaim pipeline route. All four test pits encountered glacial till comprising silty sand to

gravel and sand. TP95-17 encountered the water table at 3 metres depth. TP95-19, located along the steep hill slope, encountered angular rock fragments at the bottom of the pit (6.4 metres), indicating a close proximity to bedrock, and indicates that a thinner covering of till exists at higher elevations.

2.3.2 Borrow Areas

Three test pits (TP95-29 to 31) were located on the ridge east of the tailings facility to investigate potential borrow sources for future embankment construction. All three pits encountered glacial till comprising silty sandy gravel with trace clay to depths of 5.7, 5.5 and 5.8 metres, respectively. The till in TP95-29 was drier than typically encountered in the other two pits, and the water table was not encountered in any of the pits.

2.3.3 Embankment and Basin Foundations

Eleven test pits (TP95-26 to 29, 32 to 39) were excavated within the proposed tailings storage facility. Glacial till was typically encountered in the northern portion of the facility, whereas glaciofluvial/glaciolacustrine deposits of silt, sand and clay were encountered in the south.

Test pits TP95-26, 27, 28 and 32, located in the northern portion of the tailings basin and in the Perimeter Embankment footprint, encountered very stiff to hard, low permeability glacial till to depths of over 6.2 metres. TP95-28, excavated in a swamp, encountered dry till below 1.9 metres of soft, saturated organics and silt/clay layers. Only localized, very low flow seeps were encountered in TP95-27, and a perched water table was observed in the lacustrine deposits overlying the till in TP95-28.

Test pits TP95-33 to 39 were excavated in the southern portion of the tailings basin and in the Main Embankment footprint. TP95-33, 34 and 35 encountered a 3 to 4 metre thick layer of low permeability, sandy silt glacial till overlying layered silt and very fine-grained sand glaciofluvial/

glaciolacustrine deposits. Localized, very low flow seeps were visible at the contact between these deposits. TP95-33 also encountered 0.9 metres of soft organics and silt/clay deposits at surface due to the close proximity to a pond. A similar glacial till cap overlying very stiff to hard, low permeability silt deposits interbedded with fine-grained sand was identified in test pits TP95-36 and 38. A 0.6 metre thick layer of clean, saturated, coarse-grained sand was encountered between the glacial till and the interbedded silts and sands in TP95-36. TP95-39, located in close proximity to TP95-36 and 38, encountered a 2.2 meter thick cap of low permeability glacial till overlying a more permeable silt and fine-grained sand deposit to 7.5+ meters depth. The water table was encountered at the contact of these two deposits, and the silt and sand displayed very limited cohesion due to a high moisture content. TP95-37, located up slope from TP95-39, encountered 1.5 meters of glacial till overlying bedrock. Geological sections through the tailings basin and along the Main Embankment alignment are shown on Drawing No. 1623.103.

2.4 POLLEY LAKE DAM

Six test pits (TP95-20 to 25) were excavated along the south shore of Polley Lake to investigate the foundation conditions for a potential dam site. Typical materials encountered in these test pits were soft, saturated organics overlying lacustrine deposits of fine-grained sand, silt and clays. Fresh water shells were typically found in the silt layers. TP95-20 and 25, located at the east and west ends of the lake, encountered hard, low permeability silty, clayey glacial till at 2.5 and 5 metre depths, respectively. A geological section along the proposed Polley Lake Dam alignment is shown on Drawing No. 1623.103.

3

SECTION 3.0 - LABORATORY TEST WORK

3.1 GENERAL

Overburden materials comprising glacial till and glaciofluvial/glaciolacustrine deposits were sampled at the mill site, along access roads, along the tailings and reclaim pipeline route, in the tailings basin and borrow areas, and at the Polley Lake dam site. Index testing was performed to characterize these materials, followed by specialized testing to evaluate the various materials for suitability in specific end uses. All test work was carried out by Golder Associates' Testing Laboratory using ASTM standard procedures for routine tests and procedures specified by Knight Piésold Ltd.

A total of twelve (12) representative samples were selected from the various project areas and were submitted for the following Index test work:

- Natural Moisture Content
- Atterberg Limits
- Specific Gravity
- Grain Size Distribution

Of these samples, eight (8) were selected for additional effective strength, compaction and permeability test work as follows:

- C-U Triaxial Tests
- Modified Proctor Tests
- Falling Head Permeameter Tests

This section describes the test work performed and summarizes the results obtained. Index test results are summarized in Table 3.1, and effective strength parameters, compaction and permeability test results are summarized in Table 3.2. Detailed test results are included in Appendix B.

3.2 MILL SITE AND ACCESS ROADS

3.2.1 Mill Site

Two representative samples (TP95-1 and 7) of glacial till were selected from the mill site test pits for Index test work. The tills varied between a silty sand with some gravel and clay to a coarser silty, gravelly sand with trace clay. The moisture content ranged from 10.4 to 10.9 percent, and the specific gravity test on the fine fraction was 2.78.

Laboratory compaction tests performed on a sample of glacial till from TP95-7 yielded a Modified Proctor maximum dry density of 2192 kg/m^3 at an optimum moisture content of 8.9 percent. The Modified Proctor optimum moisture content is 2.5 percent below the natural moisture content of the till.

3.2.2 Bootjack Lake Road

One sample of glacial till (TP95-10) was selected from the Bootjack Lake access road test pit for Index test work. The till comprised sand and gravel with some silt and trace clay, and was representative of the coarser-grained tills encountered along the road alignment. A natural moisture content of 12.6 percent was measured, which is slightly greater than measured in the finer-grained tills encountered at higher elevations at the mill site.

3.2.3 Main access road

Due to the similarity of materials identified during the test pit program, no samples from the Main access road were selected for Index test work.

3.3 TAILINGS STORAGE FACILITY

3.3.1 Tailings and Reclaim Pipeline Route

One representative sample (TP95-18) of glacial till was selected from the tailings and reclaim pipeline route test pits for Index test work. The till comprised sand and gravel with some silt and trace clay, and was similar to the coarser-grained tills encountered at similar elevations along the Bootjack Lake road alignment. However, the natural moisture content of 13.8 percent was slightly greater.

Laboratory compaction tests performed on this sample yielded a Modified Proctor maximum dry density of 2130 kg/m^3 at an optimum moisture content of 10.1 percent. The optimum moisture content is approximately 3.7 percent below the natural moisture content of the till. The maximum dry density was the lowest of all the till samples tested from the various project areas.

3.3.2 Borrow Areas

One sample of glacial till (TP95-31) was selected from the potential borrow area on the ridge east of the tailings facility for Index test work. The till comprised silty, sandy gravel with trace clay, with a moisture content of 11.0 percent.

Laboratory compaction tests performed on this sample yielded a Modified Proctor maximum dry density of 2200 kg/m^3 at an optimum moisture content of 7.6 percent. The optimum moisture content is approximately 3.4 percent below the natural moisture content of the till. The overall compaction characteristics are very similar to the tills encountered in the Perimeter Embankment foundation (TP95-27) and at the mill site (TP95-7).

3.3.3 Embankment and Basin Foundations

(i) Glacial Till Samples

Two representative samples of glacial till (TP95-27 and 37) were selected from test pits located in the Perimeter Embankment foundation footprint and within the tailings basin for Index test work. The tills comprised sand and silt with some gravel and clay, with moisture contents ranging from 11.1 to 18.8 percent. The higher moisture content in TP95-37 may be attributed to the close proximity to fractured bedrock where seeps were identified. The moisture content of the till in TP95-27 is typical of the fine-grained tills encountered at the mill site and the potential borrow area. Specific gravity tests on the fine fraction of TP95-27 yielded 2.73.

Laboratory compaction tests performed on the till sample from TP95-27 yielded a Modified Proctor maximum dry density of 2200 kg/m^3 at an optimum moisture content of 8.0 percent. The optimum moisture content is approximately 3.1 percent below the natural moisture content of the till. The overall compaction characteristics are very similar to the till encountered in the potential borrow area (TP95-31).

Laboratory derived effective strength parameters were determined on glacial till samples from TP95-27 and 37 using consolidated-undrained (C-U) triaxial test work. The samples were compacted to a minimum 95 percent Modified Proctor maximum dry density at the natural moisture content, and confining pressures of 250 and 750 kPa for TP95-27 and 500 and 1000 kPa for TP95-37 were applied in stages until failure developed. The triaxial test was done on both samples and the results were combined to obtain a more representative result of the shear strength properties of the glacial till. The tests resulted in the following shear strength parameters:

- $\varnothing' = 35°$
- $c' = 0$ kPa

The effective strength parameters were determined from the maximum deviator stresses and principal stress ratios at failure, and are shown as p' vs. q plots on Figure 3.3.

A detailed summary of the consolidated-undrained triaxial test results is shown in Table 3.3.

Falling head permeameter test work was performed on sample TP95-27 and yielded a permeability of 4×10^{-8} cm/sec. The permeability was similar to the measured permeabilities on glacial till samples from test pits TP95-31 ($k=6 \times 10^{-8}$ cm/sec) and TPB-13, 14 and 16 ($k=2 \times 10^{-8}$ cm/sec).

(ii) Glaciofluvial/Glaciolacustrine Samples

Three representative samples of glaciofluvial/glaciolacustrine materials (TP95-35, 38 and 39) were selected from test pits located within the southern tailings basin for Index test work. The materials varied from interbedded sandy silt to very stiff silt with some clay to saturated silt and fine-grained sand. Moisture contents ranged from 16.5 percent for the interbedded sandy silt to 28.5 percent for the dense silt and the saturated silt and sand. Specific gravity ranged between 2.76 and 2.79.

Laboratory derived effective strength parameters were determined on the silt and fine-grained sand sample from TP95-39 using consolidated-undrained (C-U) triaxial test work.. The sample was compacted to a minimum 95 percent Modified Proctor maximum dry density at the natural moisture content, and confining pressures of 300, 600 and 1000 kPa were applied in stages until failure

developed. The tests resulted in the following shear strength parameters:

- $\varnothing' = 33°$
- $c' = 0$ kPa

The effective strength parameters are determined from the maximum deviator stresses and principal stress ratios at failure, and are shown as p' vs. q on Figure 3.4.

A detailed summary of the consolidated-undrained triaxial test results is shown in Table 3.4.

Falling head permeameter test work was performed on samples TP95-35, 38 and 39 and yielded permeabilities of 7×10^{-7}, 3×10^{-7} and 2×10^{-6} cm/sec, respectively.

3.4 POLLEY LAKE DAM

Two samples (TP95-20 and 25) were selected from test pits located at the south end of Polley Lake for Index test work. The dense glacial till sample from TP95-20 comprised silty, clayey sand with a trace to some gravel and a moisture content of 14.5 percent. This till sample has a higher clay content than typically encountered tills, and the higher moisture content is attributed to the close proximity to Polley Lake. TP95-25 encountered lacustrine layers comprising sand and silt with some clay and gravel, with a natural moisture content of 17.1 percent.

4

SECTION 4.0 - GEOLOGICAL FACTORS AFFECTING DESIGN

4.1 GENERAL

The results of the investigation program were used to evaluate the geotechnical factors which may affect the design of the various project components. A summary of results, conclusions and recommendations is provided below with respect to each project component.

4.2 MILL SITE AND ACCESS ROADS

4.2.1 Mill Site

Glacial till was encountered in all eight test pits (TP95-1 to 8) at the proposed mill site location. The glacial till ranges in thickness from 0.5 to 5.8+ metres and overlies lapilli tuff bedrock. The top 1 metre of bedrock is typically very fractured and weathered near surface, however, it becomes fresh and increasingly competent with depth.

An allowable bearing capacity pressure (q_a) of 250 kPa has been estimated for the basal till, based on an assumed Standard Penetration Test (SPT) value of $(N_1)_{60}$ = 25. The SPT value was estimated from excavation conditions in the dense to hard glacial till. Therefore, the glacial till will provide a suitable dense foundation material for footings supporting general buildings and less settlement sensitive components. However, heavy structures with dynamic loads should be founded on competent bedrock. The allowable bearing pressure for competent rock (RQD > 25 or as approved by the Engineer) is 1500 kPa. For both cases, the allowable bearing pressure will result in less than 25 mm (1 inch) of settlement in the foundation, assuming the groundwater table is located below the base of the footings.

The foundation must be stripped and grubbed and all organic material removed prior to footing excavation. The exposed till surface must be

inspected to ensure the material is competent and will support the design loads. Any soft soils or saturated areas must be excavated to expose either competent till or bedrock.

Foundations for heavy and/or vibratory structures such as at the crusher and concentrator must be excavated to competent bedrock to support the loads. The investigation program revealed a thin, 0.5 metre thick layer of glacial till covering most of the proposed crusher site location, and a thicker, up to 3.6 metres thick, layer of till over the majority of the concentrator site. This till cover and the upper fractured bedrock must be removed to expose competent bedrock. Nearby drill holes indicate that competent bedrock is present below the upper fractured rock. Any anchor systems that are required for the mills or crusher can be designed to suit the projected dynamic loadings.

Foundations for the crusher and concentrator must include provisions to accommodate seasonal freeze/thaw while minimizing potential differential settlement. Based on meteorological data, the depth of freeze is estimated to be 1.25 metres (4 feet). Consequently, the foundations for all structures must be covered with a 1.25 metre thick layer of free-draining, non-frost susceptible (NFS) material such as clean gravel or coarse sand, as required, to enhance drainage and prevent frost heave from occurring. The NFS material required for frost protection will provide drainage around foundation footings thereby depressing the water table and greatly reducing the potential for the development of ice lenses which cause frost heaving. It is recommended that 100 mm diameter corrugated polyethylene tubing (CPT) be included to further enhance foundation drainage.

The crusher and concentrator sites must be well drained during construction and operations to prevent standing water from ponding in the vicinity of the foundations. The NFS drainage material and CPT pipework will provide post-construction drainage at the sites. Surface runoff from building roofs and access roads, etc. must also be diverted or directed well away from the foundations to minimize seepage and infiltration into the foundation soils.

Foundation conditions at the proposed coarse and fine ore stockpile locations encountered 5.0+ and 5.5 metres of till overlying bedrock, respectively. This till will provide competent foundation support for the stockpiles as the amount of allowable settlement will be much higher than for the crusher and concentrator.

4.2.2 Bootjack Lake Road

Glacial till was encountered in all five test pits (TP95-9 to 13) along the proposed Bootjack Lake access road alignment. The glacial till ranges in thickness from 1.2 to 6.3+ metres and overlies bedrock. Due to the high water encountered in TP95-9 and 11, the softer material encountered at 2.5 metres depth in TP95-9, and the shallow depth to bedrock in TP95-12, it is recommended that the road excavation does not exceed 1 metre, otherwise difficulties may be encountered during construction. The surficial, coarse-grained till will be suitable for both excavation and use as fill for widening the existing road.

4.2.3 Main Access Road

Glacial till was encountered in both test pits (TP95-14 and 15) along the existing Main access road. This material will be suitable for both excavation and use as fill for widening the existing road. The entire road alignment should be inspected to identify any problem areas such as exposed bedrock outcrops, seeps, etc. prior to construction.

4.3 TAILINGS STORAGE FACILITY

4.3.1 Tailings and Reclaim Pipeline Route

Glacial till was encountered in all four test pits (TP95-16 to 19) near and along the proposed tailings and reclaim pipeline route. The till will be suitable for use as fill in access roads and will provide a competent

foundation for the pipelines. Excavations at lower elevations should not exceed 3 metres depth due to the high water table near Bootjack Creek.

4.3.2 Borrow Areas

Laboratory test work on the glacial till sample from test pit TP95-31 confirmed that the till encountered along the ridge east of the tailings storage facility will be suitable for use as embankment fill. Delineation of the borrow area extents and calculation of the available quantities of material is required.

4.3.3 Embankment and Basin Foundations

A 5 metre minimum thick cover of dense, low permeability glacial till blankets the majority of the tailings basin and the Perimeter Embankment footprint as encountered in test pits TP95-26 to 28, 32 and in existing test pits. However, in the southern portion of the basin, the till becomes thinner (3 to 4 metres thick) and is non-existent over a portion of the Main Embankment footprint. A low permeability glacial till liner will be required in the tailings basin where the in-situ glacial till is less than approximately 3 metres thick. The till liner will act as a seepage barrier to prevent the migration of water out of the tailings facility and into the foundation. In addition, this liner will be thick enough to provide frost protection for the glacial till. The till liner will tie into the low permeability glacial till core of the Main Embankment, thereby providing a continuous seepage barrier for the facility.

4.4 POLLEY LAKE DAM

The foundation conditions at the south end of Polley Lake comprise saturated, soft organics and lacustrine deposits overlying low permeability, very stiff glacial till as encountered in test pits TP95-20 to 25. At the south-east and south-west ends of the lake, the soft organics and lacustrine deposits vary in thickness between 2.5 and 5 metres, respectively. In between these pits, the deposits increased to more than 6.5

metres thick. During the excavation of the test pits, significant seepage was observed from the organics and the sandy layers of the lacustrine deposits, due to the close proximity to Polley Lake.

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TABLE 3.1

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SUMMARY OF LABORATORY TESTS
INDEX TEST RESULTS

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Test Pit Sample No.	Location	Specific Gravity	Natural Moisture Content (%)	Atterberg Limits (%)				Grain Size Distribution				Soil Description
				LL	PL	PI	LI	+#4 % Gravel	#4 - #200 % Sand	#200 - 0.002mm % Silt	-0.002mm %Clay	
TP95-1	Mill Site	-	10.4	21	13	8	-0.3	21	46	27	6	Silty, gravelly SAND, trace clay
TP95-7	Mill Site	2.78	10.9	24	14	11	-0.2	16	39	35	10	Silty SAND, some gravel and clay
TP95-10	Bootjack Lake Road	-	12.6	25	17	9	-0.4	38	36	19	7	GRAVEL and SAND, some silt, trace clay
TP95-18	Tailings/Reclaim Pipeline Route	-	13.8	27	13	14	0.0	38	36	19	7	GRAVEL and SAND, some silt, trace clay
TP95-20	Polley Lake	-	14.5	26	13	13	0.1	10	39	25	26	Silty, clayey SAND, trace to some gravel
TP95-25	Polley Lake	-	17.1	24	12	13	0.4	15	37	33	15	SAND and SILT, some gravel and clay
TP95-27	Perimeter Embankment Foundation	2.73	11.1	22	14	9	-0.3	19	37	33	11	SAND and SILT, some gravel and clay
TP95-31	East Ridge Borrow Area	-	11.0	22	14	8	-0.4	41	27	25	7	Silty, sandy GRAVEL, trace clay
TP95-35	South Basin	2.78	16.5	21	14	7	0.4	2	22	65	11	Sandy SILT, some clay, trace gravel
TP95-37	South Basin	-	18.8	27	16	11	0.2	14	40	35	11	SAND and SILT, some gravel and clay
TP95-38	Main Embankment Foundation	2.79	28.4	33	19	14	0.7	3	6	73	18	SILT, some clay, trace sand and gravel
TP95-39	Main Embankment Foundation	2.76	28.5	-	-	-	-	0	40	46	14	SILT and fine SAND, some clay
TPB-1	Main Embankment Foundation	-	13.7	29	19	10	-0.5	3	14	67	16	SILT, some clay and sand, trace gravel
TPB-13,14,16	Embankment & Pond Foundations	2.76	25.1	30	16	14	0.6	1	17	61	21	Clayey SILT, some sand, trace gravel

Note: 1. Samples TPB-1 and TPB-13,14,16 were selected for laboratory testwork in 1989 and have been reported for comparison.

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TABLE 3.2

IMPERIAL METALS CORPORATION
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SUMMARY OF LABORATORY TESTS
EFFECTIVE STRENGTH PARAMETERS, COMPACTION AND PERMEABILITY TEST RESULTS

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Mar 13 '95 2:07 pm

Test Pit Sample No.	Location	EFFECTIVE STRENGTH PARAMETERS		COMPACTION			PERMEABILITY	Soil Description
		Friction Angle, Ø' (degrees)	Cohesion, c' (kPa)	Natural Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (kg/m^3)	Permeameter Falling Head Test (cm/sec)	
TP95-7	Mill Site	-	-	10.9	8.4	2192	-	Silty SAND, some gravel and clay
TP95-18	Tailings/Reclaim Pipeline Route	-	-	13.8	10.1	2130	-	GRAVEL and SAND, some silt, trace clay
TP95-27	Perimeter Embankment Foundation	35	0	11.1	8.0	2200	4×10^{-8}	SAND and SILT, some gravel and clay
TP95-31	East Ridge Borrow Area	-	-	11.0	7.6	2200	6×10^{-8}	Silty, sandy GRAVEL, trace clay
TP95-35	South Basin	-	-	-	-	-	7×10^{-7}	Sandy SILT, some clay, trace gravel
TP95-37	South Basin	35	0	-	-	-	-	SAND and SILT, some gravel and clay
TP95-38	Main Embankment Foundation	-	-	-	-	-	3×10^{-7}	SILT, some clay, trace sand and gravel
TP95-39	Main Embankment Foundation	33	0	-	-	-	2×10^{-6}	SILT and fine SAND, some clay
TPB-13,14,16	Embankment & Pond Foundations	-	-	25.1	13.3	1935	2×10^{-8}	Clayey SILT, some sand, trace gravel

Notes:

1. Triaxial tests results from samples TP95-27 and 37 were combined to determine average strength pearameters for the glacial till material.
2. Compaction tests performed as per ASTM D1557 Modified Proctor tests.
3. Permeability tests carried out on samples compacted with standard proctor energy and at natural moisture content.
4. Sample TPB-13,14,16 was selected for laboratory testwork in 1989 and has been reported for comparison.

TABLE 3.3

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT
TAILINGS STORAGE FACILITY

RESULTS OF CONSOLIDATED-UNDRAINED TRIAXIAL TESTS ON GLACIAL TILL SAMPLES

Triaxial Testing Stages and Soil Parameters	Units	Sample No. TP95-27 (Test 1)	TP95-37 (Test 2)	TP95-27 (Test 3)	TP95-37 (Test 4)
Initial Parameters					
Sample diameter	(cm)	3.77	3.72	3.75	3.72
Sample length	(cm)	14.68	15.35	15.21	15.35
Moisture content, w	(%)	7.9	9.3	7.6	9.1
Dry density, γ_{dry}	(kg/m^3)	2168	2072	2079	2063
Bulk density, γ_{bulk}	(kg/m^3)	2339	2265	2237	2251
Void ratio, e		0.259	0.342	0.313	0.348
B-value		0.965	0.985	0.954	0.997
Consolidation Stage					
Cell pressure	(kPa)	772	979	1220	1374
Back Pressure	(kPa)	484	481	476	412
Final effective consolidation pressure, σ_{3c}'	(kPa)	287	498	745	962
Final moisture content, w	(%)	9.7	9.8	9.8	9.9
Final dry density, γ_{dry}	(kg/m^3)	2207	2183	2161	2180
Final bulk density, γ_{bulk}	(kg/m^3)	2421	2397	2373	2396
Final void ratio, e		0.237	0.274	0.264	0.275
Coefficient of consolidation, c_v	(cm^2/s)	$2.7x10^{-2}$	$7.4x10^{-4}$	$2.3x10^{-2}$	$1.1x10^{-3}$
Shearing Stage					
Effective consolidation pressure, σ_{3c}'	(kPa)	287	498	745	962
Principal stress ratio, P.S.R. $(\sigma_1'/\sigma_3')_{max}$		4.25	3.74	3.60	3.38
Strain at maximum P.S.R.	(%)	1.85	2.09	11.67	7.42
σ_1' at maximum P.S.R.	(kPa)	823	1202	1012	2216
σ_3' at maximum P.S.R.	(kPa)	194	321	282	657
ΔU at maximum P.S.R.	(kPa)	94	177	463	305
A_f at maximum P.S.R.		0.15	0.20	0.63	0.20
Maximum deviator stress, $(\sigma_d')_{max}$	(kPa)	1416	1268	812	1624
Strain at $(\sigma_d')_{max}$	(%)	17.66	21.14	21.04	20.02
σ_1' at $(\sigma_d')_{max}$	(kPa)	1946	1843	1135	2354
σ_3' at $(\sigma_d')_{max}$	(kPa)	531	575	323	730
ΔU at $(\sigma_d')_{max}$	(kPa)	-243	-77	422	232
A_f at $(\sigma_d')_{max}$		-0.17	-0.06	0.52	0.14

TABLE 3.4

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT
TAILINGS STORAGE FACILITY

RESULTS OF CONSOLIDATED-UNDRAINED TRIAXIAL TESTS ON SILT AND FINE-GRAINED SAND SAMPLES

Triaxial Testing Stages and Soil Parameters	Units	Sample No. TP95-39 (Test 1)	(Test 2)	(Test 3)
Initial Parameters				
Sample diameter	(cm)	3.75	3.72	3.69
Sample length	(cm)	14.81	14.94	14.86
Moisture content, w	(%)	16.3	16.6	16.7
Dry density, γ_{dry}	(kg/m^3)	1693	1639	1558
Bulk density, γ_{bulk}	(kg/m^3)	1969	1911	1818
Void ratio, e		0.630	0.684	0.772
B-value		0.955	0.953	0.963
Consolidation Stage				
Cell pressure	(kPa)	779	1077	1306
Back Pressure	(kPa)	483	482	415
Final effective consolidation pressure, σ_{3c}'	(kPa)	296	595	891
Final moisture content, w	(%)	19.2	18.6	19.9
Final dry density, γ_{dry}	(kg/m^3)	1803	1807	1756
Final bulk density, γ_{bulk}	(kg/m^3)	2149	2143	2105
Final void ratio, e		0.531	0.528	0.571
Coefficient of consolidation, c_v	(cm^2/s)	$2.2x10^{-2}$	$5.9x10^{-2}$	$3.8x10^{-2}$
Shearing Stage				
Effective consolidation pressure, σ_{3c}'	(kPa)	296	595	891
Principal stress ratio, P.S.R. $(\sigma_1'/\sigma_3')_{max}$		4.06	3.60	3.43
Strain at maximum P.S.R.	(%)	9.62	7.72	11.95
σ_1' at maximum P.S.R.	(kPa)	293	502	858
σ_3' at maximum P.S.R.	(kPa)	72	140	250
ΔU at maximum P.S.R.	(kPa)	224	455	641
A_f at maximum P.S.R.		1.01	1.25	1.06
Maximum deviator stress, $(\sigma_d')_{max}$	(kPa)	228	364	615
Strain at $(\sigma_d')_{max}$	(%)	6.63	12.10	3.96
σ_1' at $(\sigma_d')_{max}$	(kPa)	303	507	1008
σ_3' at $(\sigma_d')_{max}$	(kPa)	75	143	393
ΔU at $(\sigma_d')_{max}$	(kPa)	221	452	498
A_f at $(\sigma_d')_{max}$		0.97	1.24	0.81

FIGURES

1623.A1

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT
PROJECT LOCATION MAP

0 100 200 MILES
0 100 200 300 KILOMETRES

Jan. 31, 1995

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

FIGURE 1.1

CAD FILE: \PROJECT\1623\FIG\A1 Plot scale 1=1

CAD FILE: \PROJECT\1623\FIG\A3 Plot scale 1=1

KNIGHT PIESOLD LTD.
CONSULTING ENGINEERS

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT No. 1623
SAMPLE No. As Shown
DATE Feb. 9-11, 1995

PROJECT: *Imperial Metals Corporation – Mt. Polley Project – Geotechnical Investigation*

Glacial Till – Particle Size Distributions

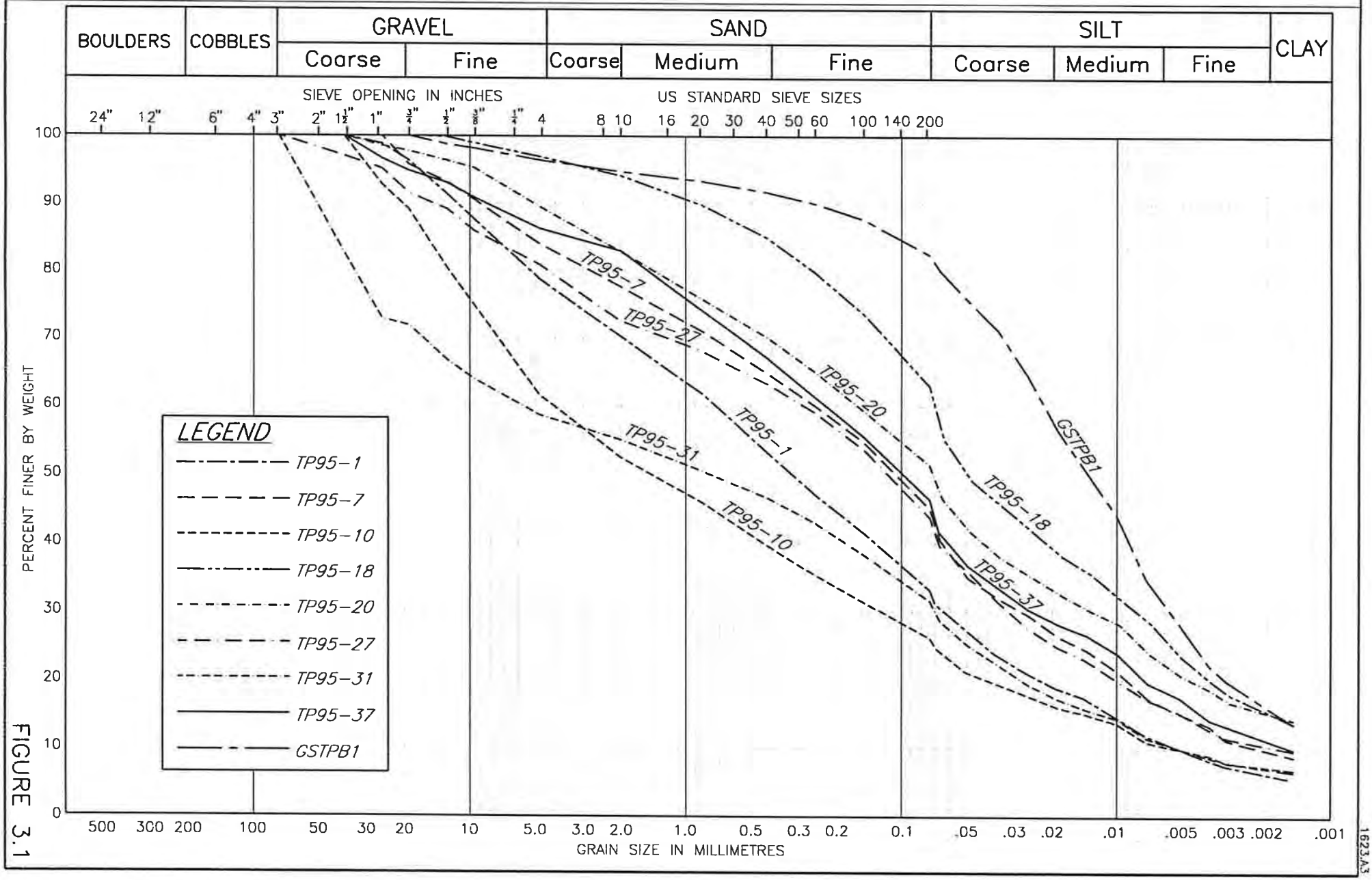


FIGURE 3.1

1623.A3

KNIGHT PIESOLD LTD.
CONSULTING ENGINEERS

UNIFIED SOIL CLASSIFICATION SYSTEM

PROJECT No. 1o23
SAMPLE No. As Shown
DATE March 2, 1995

PROJECT: *Imperial Metals Corporation – Mt. Polley Project – Geotechnical Investigation*

Glaciofluvial / Glaciolacustrine Deposits – Particle Size Distributions

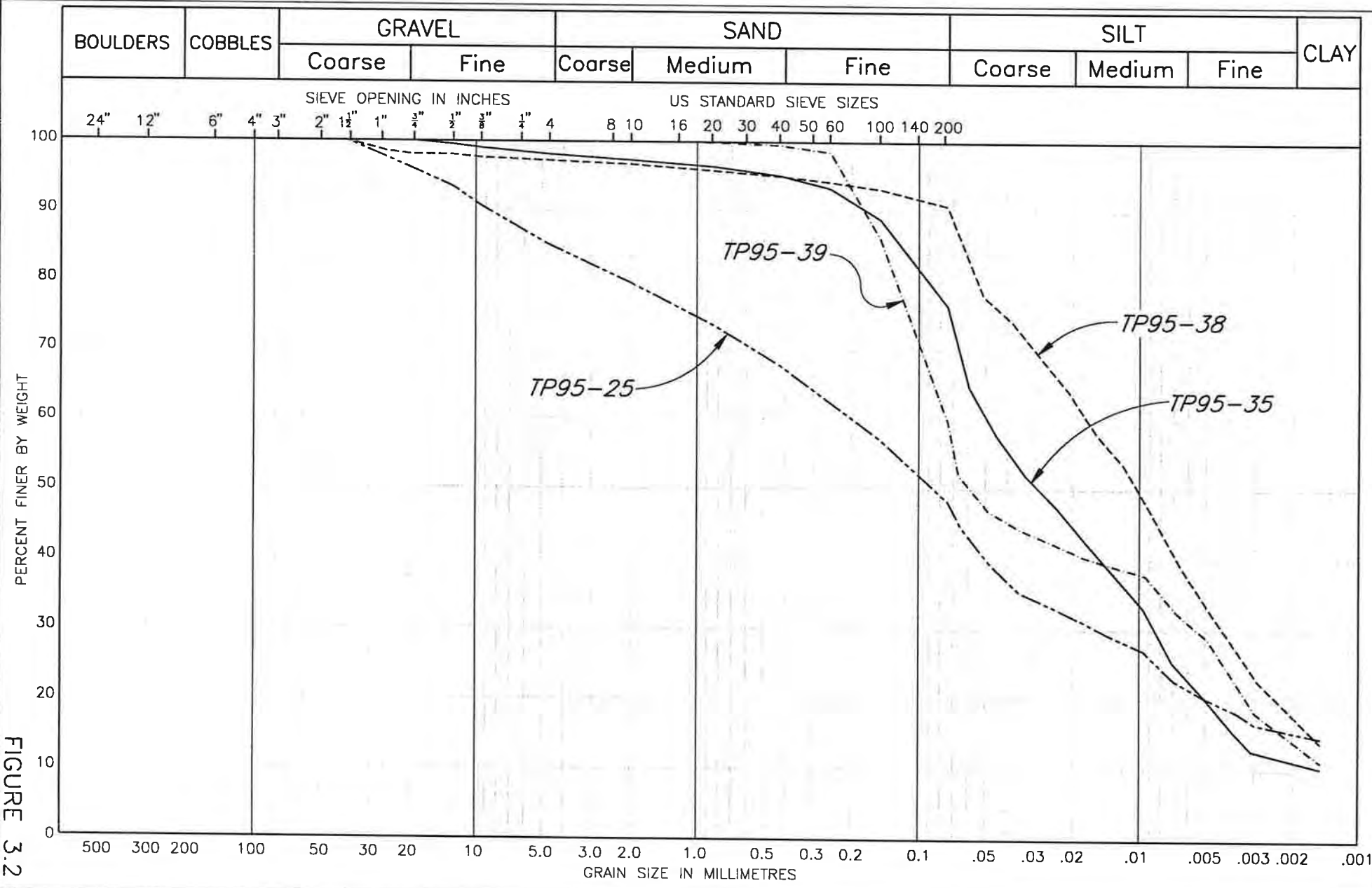


FIGURE 3.2

1623.A2

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT
STRESS PATH PLOTS FROM SINGLE STAGE CONSOLIDATED-UNDRAINED TRIAXIAL TESTS ON GLACIAL TILL SAMPLES

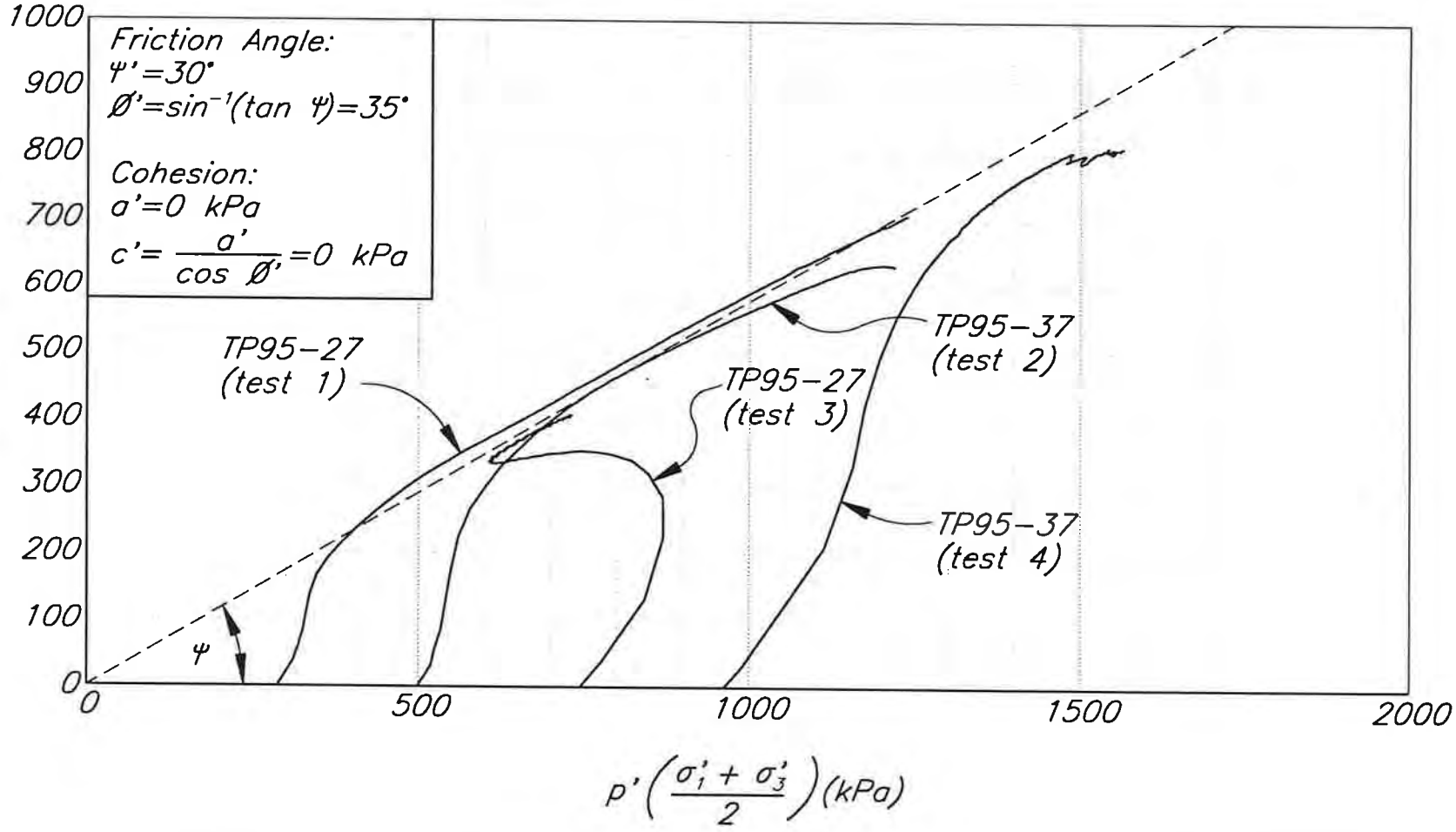


FIGURE 3.3

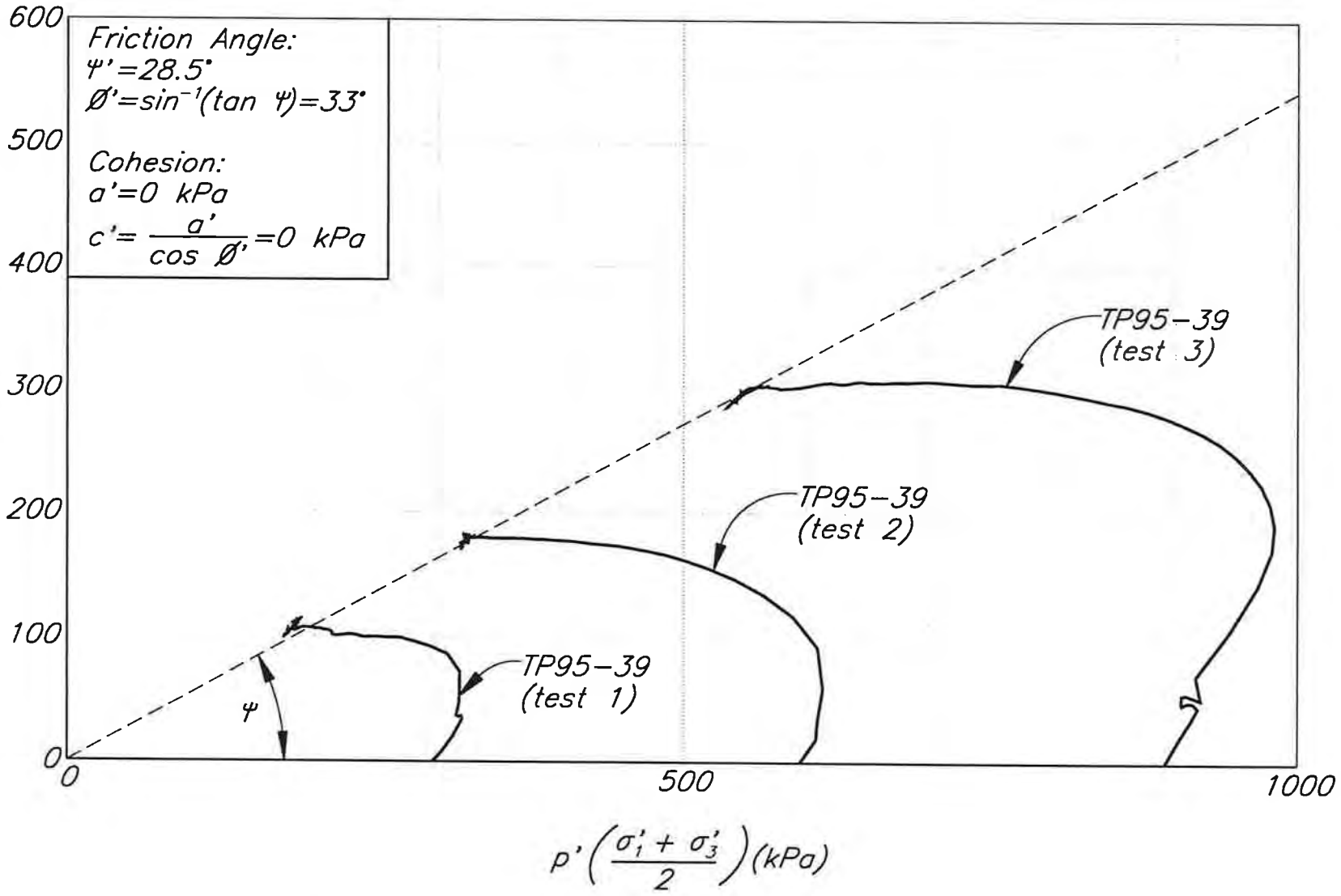
KNIGHT PIESOLD LTD.
CONSULTING ENGINEERS

Mar. 2, 1995

1623.A4

CAD FILE: \PROJECT\1623\FIG\A5 Plot scale 1=1

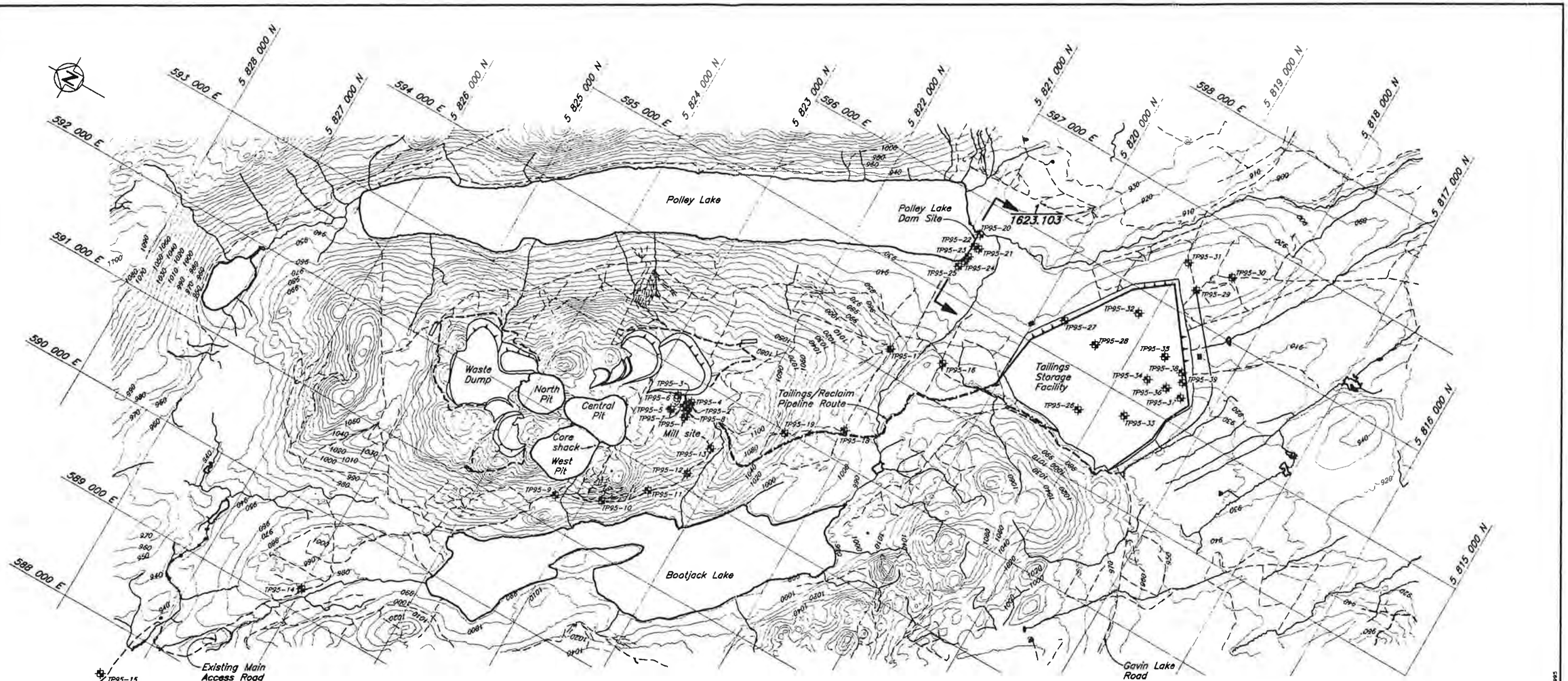
IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT
STRESS PATH PLOTS FROM MULTI-STAGE CONSOLIDATED-UNDRAINED TRIAXIAL TESTS ON SILT AND FINE-GRAINED SAND SAMPLES



Mar. 13, 1995
KNIGHT PIESOLD LTD.
CONSULTING ENGINEERS

FIGURE 3.4

1623.A5



LEGEND:

TP95-1 — *1995 Test Pit*

NOTES:

1. *Mill site layout as per CSFM Engineering (Jan. 6/95).*
2. *Test pit locations are field located and have not been surveyed. Test pits TP95-1 to TP95-8 have been surveyed for relative positions but have not been tied into the site grid.*

Scale 1000 500 0 1000 2000 Metres

DRG. NO.	DESCRIPTION	APPROVED
REFERENCE DRAWINGS		

REV.	DATE	DESCRIPTION	APPROVED
REVISIONS			

REV.	DATE	DESCRIPTION	APPROVED
0	MAR. 14/95	ISSUED FOR REPORT	KJB
REVISIONS			

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

PROVINCE OF BRITISH COLUMBIA — R. D. BROUWER — ENGINEER

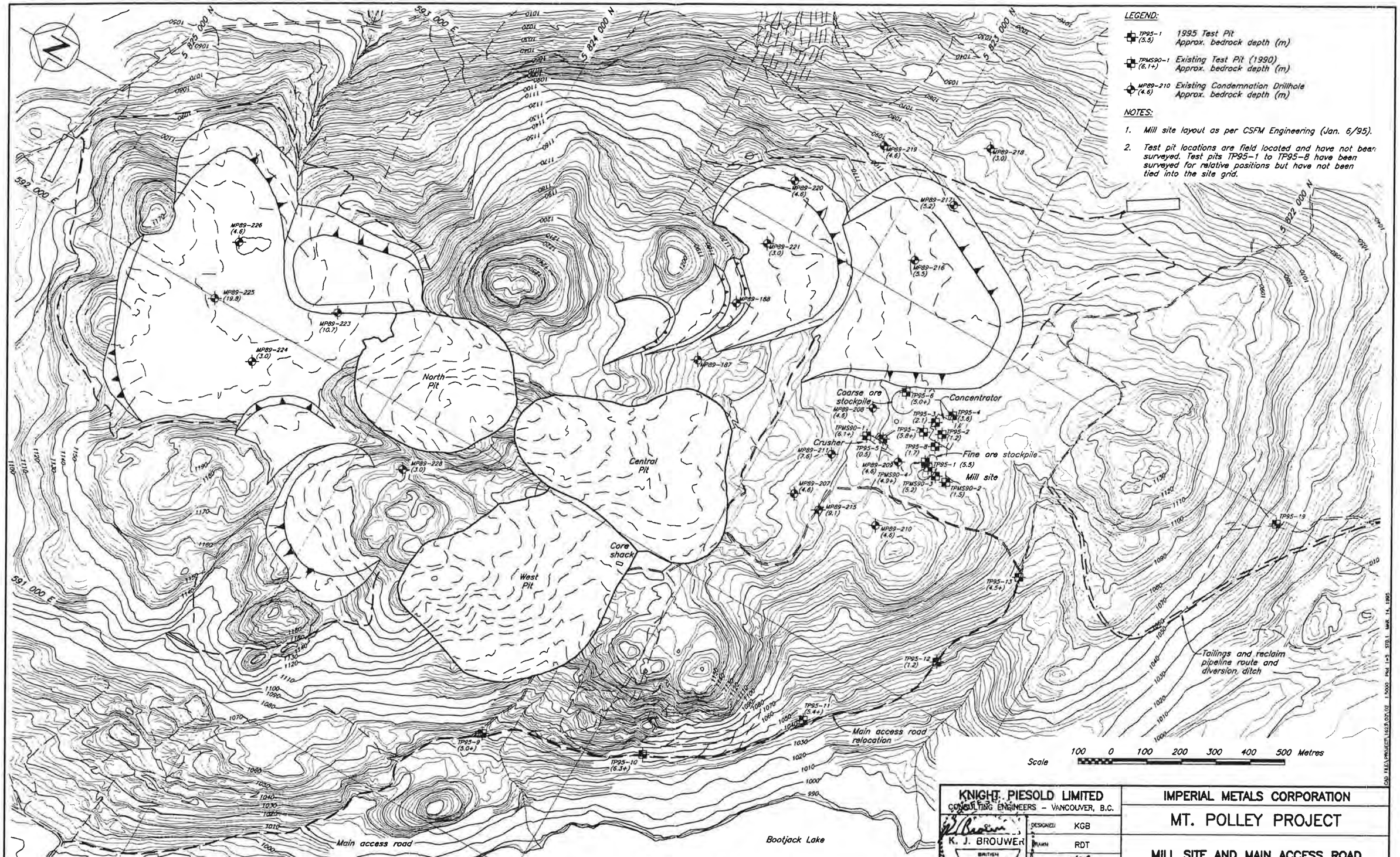
IMPERIAL METALS CORPORATION

MT. POLLEY PROJECT

OVERALL SITE PLAN
GEOTECHNICAL INVESTIGATION PROGRAM

DESIGNED	KGB
DRAWN	RDT
CHECKED	KGB
APPROVED	KJB

DATE MARCH 14, 1995 | SCALE AS SHOWN | DRG. NO. 1623.100 | REV. 0



DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	APPROVED
REVISIONS			

REV.	DATE	DESCRIPTION	APPROVED
0	MAR. 14/95	ISSUED FOR REPORT	KJB
REVISIONS			

KNIGHT PIESOLD LIMITED
CONSULTING ENGINEERS – VANCOUVER, B.C.
K. J. BROUWER BRITISH COLUMBIA ENGINEER

DESIGNED	KGB
DRAWN	RDT
CHECKED	KGB.
APPROVED	KJB

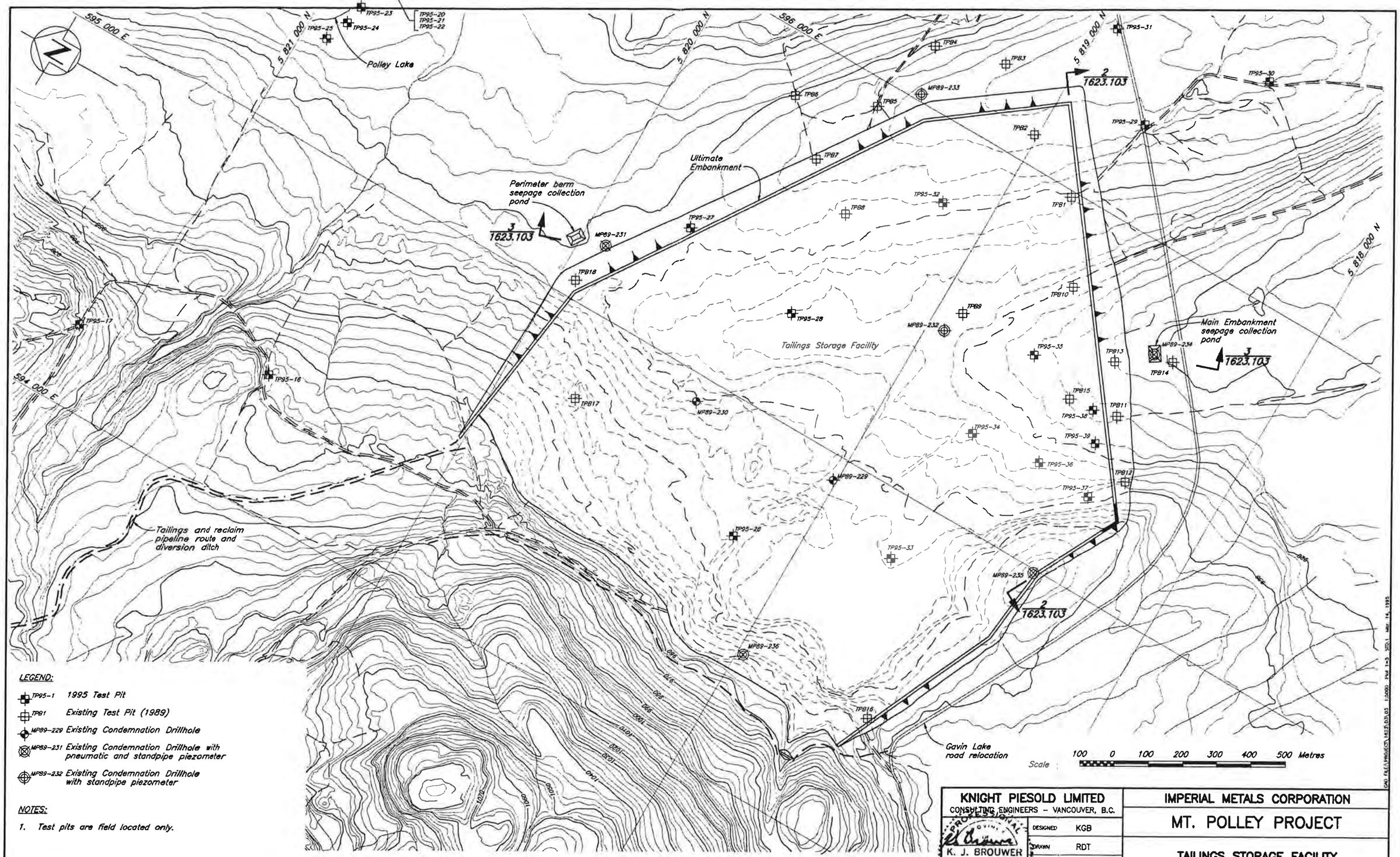
IMPERIAL METALS CORPORATION

MT. POLLEY PROJECT

MILL SITE AND MAIN ACCESS ROAD SITE INVESTIGATION PLAN

DATE MARCH 14, 1995 | SCALE AS SHOWN | DRG. NO. 1623.101 | REV. 0

C:\SD FILES\PROJECT\1623.001\02 1:5000 Plot 1=5 STD.1 MAR. 14, 1995



LEGEND:

- TP95-1 1995 Test Pit
- TPB1 Existing Test Pit (1989)
- MP89-229 Existing Condemnation Drillhole
- MP89-231 Existing Condemnation Drillhole with pneumatic and standpipe piezometer
- MP89-232 Existing Condemnation Drillhole with standpipe piezometer

NOTES:

1. Test pits are field located only.

DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	APPROVED
REVISIONS			

REV.	DATE	DESCRIPTION	APPROVED
0	MAR. 14/95	ISSUED FOR REPORT	KJB
REVISIONS			

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

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

DESIGNED	KGB
DRAWN	RDT
CHECKED	KGB.
APPROVED:	KJB

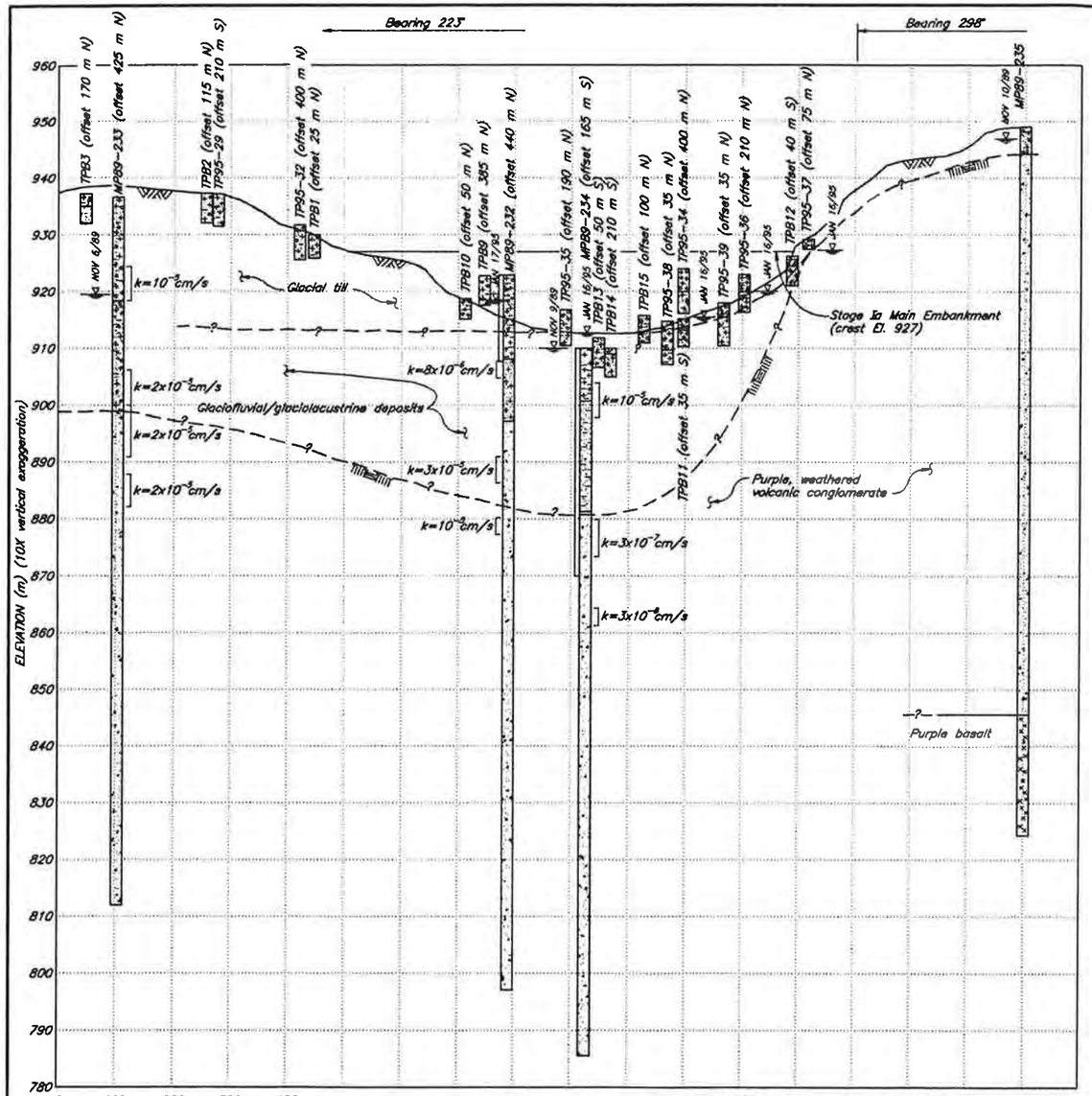
IMPERIAL METALS CORPORATION

MT. POLLEY PROJECT

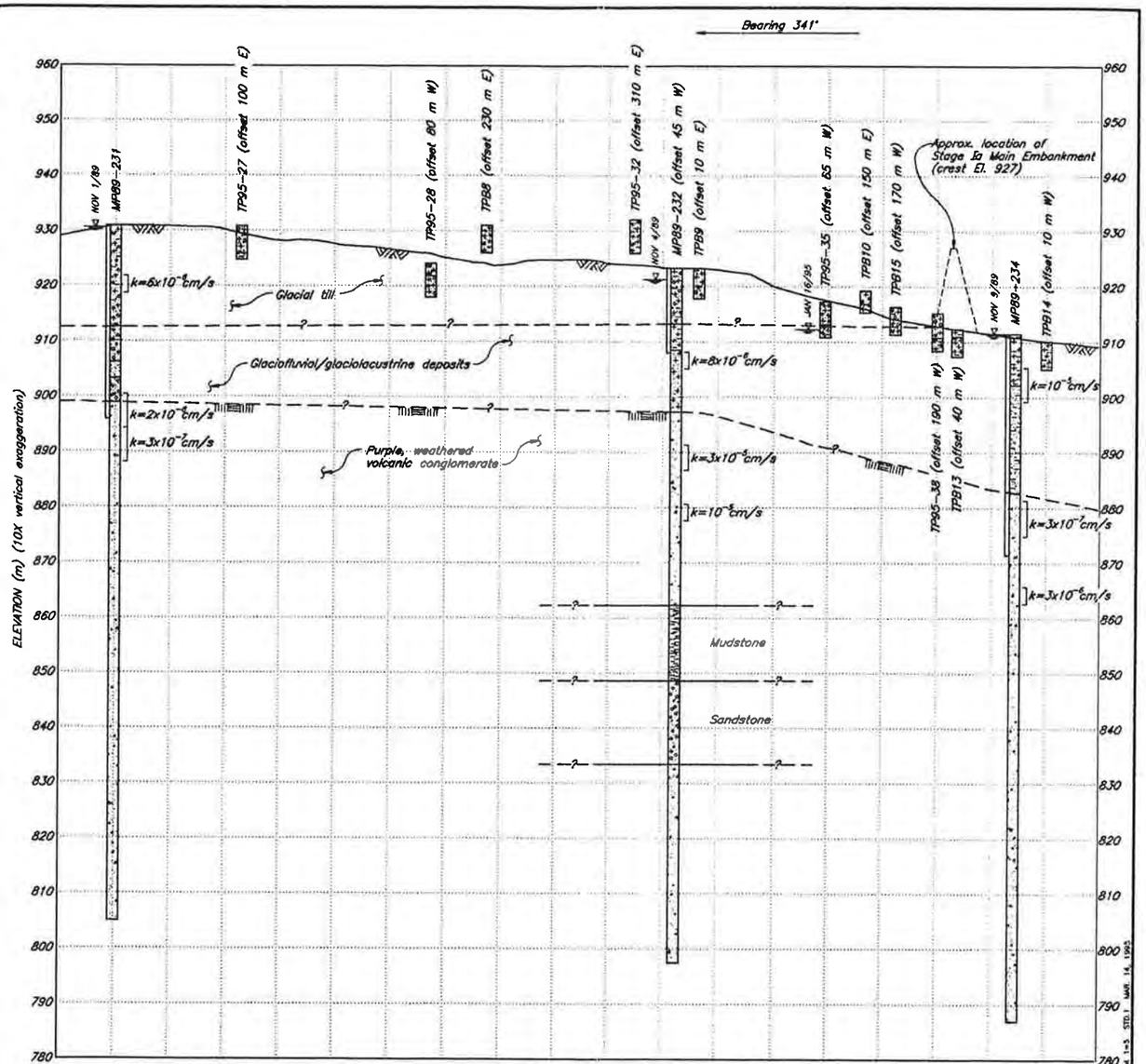
TAILINGS STORAGE FACILITY SITE INVESTIGATION PLAN

DATE MARCH 14, 1995 | SCALE AS SHOWN | DRG. NO. 1623.102 | REV. 0

DWG FILE/PROJECT/1623/03/03 1:5000 Plot 1x2 STD.1 MAR. 14, 1995

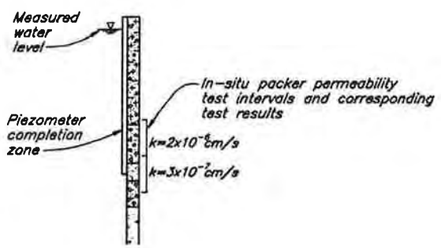


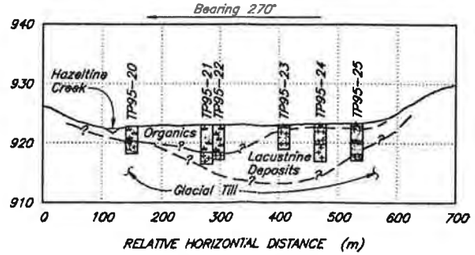
2
SECTION 1623.102
MAIN EMBANKMENT



3
SECTION 1623.102
TAILINGS BASIN

LEGEND:





1
SECTION 1623.100
POLLEY LAKE DAM SITE

Scale 100 0 100 200 300 400 500 Metres

DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	APPROVED
REVISIONS			

REV.	DATE	DESCRIPTION	APPROVED
0	MAR. 14/95	ISSUED FOR REPORT	KJB
REVISIONS			

K. J. BROUWER — PROFESSIONAL ENGINEER — BRITISH COLUMBIA

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

IMPERIAL METALS CORPORATION

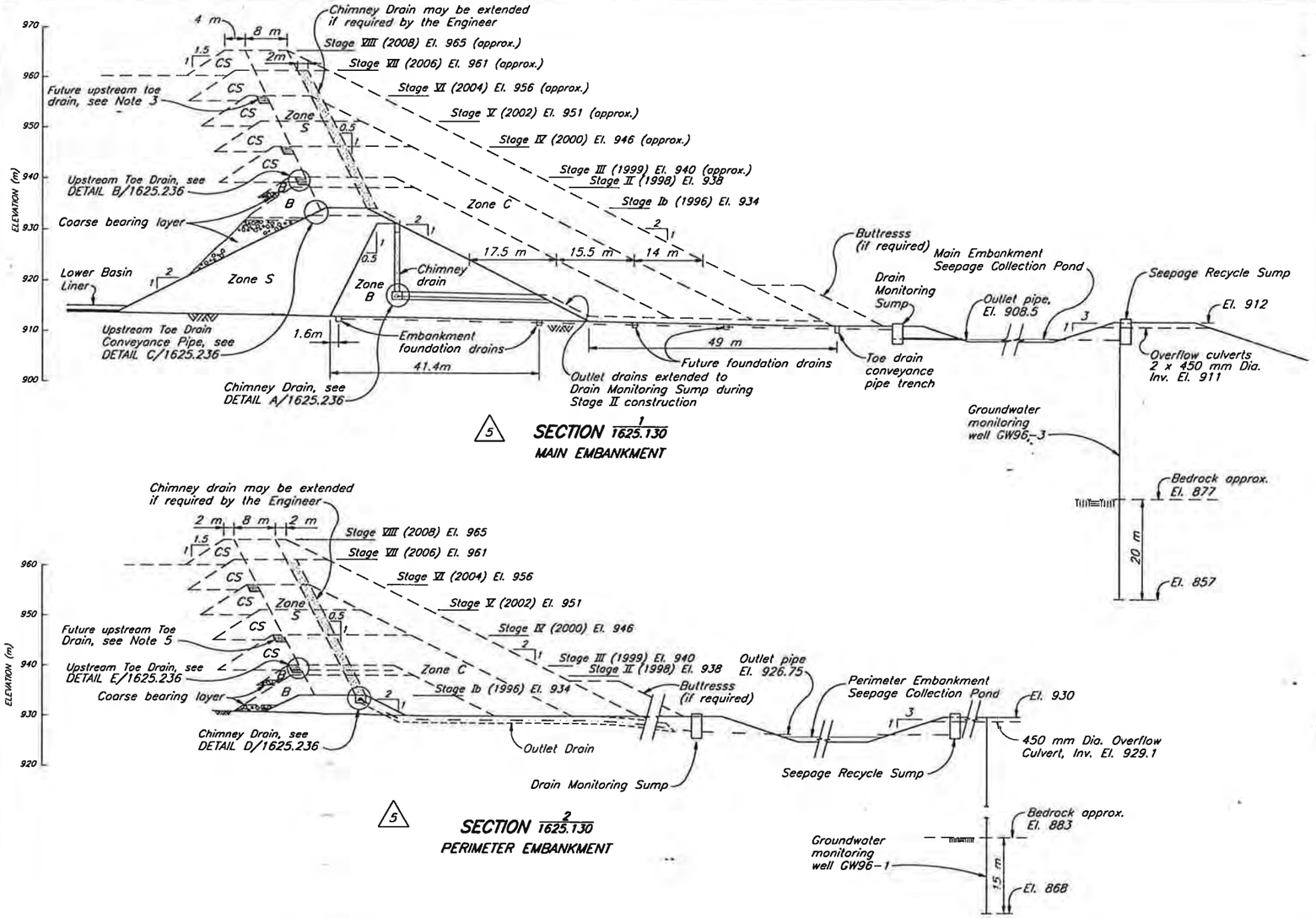
MT. POLLEY PROJECT

TAILINGS STORAGE FACILITY
GEOLOGICAL CROSS-SECTIONS

DESIGNED:	KGB
DRAWN:	NAR/RDT
CHECKED:	KGB.
APPROVED:	KJB

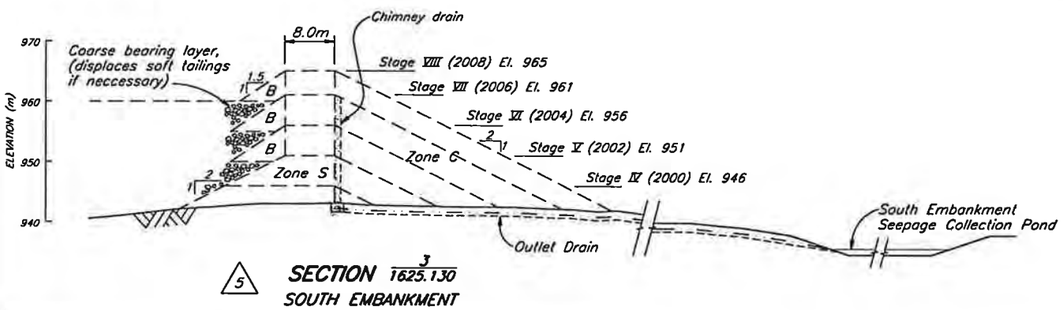
DATE MARCH 14, 1995 | SCALE AS SHOWN | DRG. NO. 1623.103 | REV. 0

CAD FILE: PROJECT\1623\CAD\04 1:2500 Plot: 1:1 STD — MAR. 14, 1995



5 **SECTION 1/1625.130**
MAIN EMBANKMENT

5 **SECTION 2/1625.130**
PERIMETER EMBANKMENT



5 **SECTION 3/1625.130**
SOUTH EMBANKMENT

ZONE	MATERIAL TYPE	PLACEMENT AND COMPACTION REQUIREMENTS
Coarse Bearing Layer	Free draining durable waste rock fill or coarse sandy gravel	Placed and spread in maximum 1000 mm thick layers. Compaction as directed by the Engineer.
Chimney/Toe Drain	Filter sand	Placed and spread in maximum 1000 mm thick layers. Vibratory compaction as directed by the Engineer.
Foundation Drain	Drain Gravel	Placed and compacted as shown on the Drawings
S	Glacial till	Placed, moisture conditioned and spread in maximum 300 mm thick layers (after compaction). Compaction to 98% of std. proctor maximum dry density.
B	Glacial till	Placed, moisture conditioned and spread in maximum 600 mm thick layers (after compaction). Compaction to 98% of std. proctor maximum dry density.
C	Random fill (See Note 7)	Glacial till or other approved material placed in maximum 600 mm thick layers (after compaction). Vibratory compaction as required by the Engineer.
CS	Cycloned sand or sandy gravel alluvium	Placed and spread in maximum 1000 mm thick layers. Vibratory compaction as directed by the Engineer.

NOTES

1. Additional outlet pipework to seepage ponds will be included if required.
2. Upstream Toe Drains to be installed during Stage III constructon. Conveyance pipework for Main Embankment to be installed prior to Stage II Construction, with pipe invert El. 932.5 at abutments.
3. Future toe drains, shown for Stages IV and VI will be added if required.
4. Dashed lines imply preliminary design. Ongoing design and crest elevations will be modified as required based on filling records and monitoring information.
5. Tailings elevations include provision for 2.5 million cubic metres of reclaim water.
6. Chimney Drain to be extended to El. 940 for Main and Perimeter Embankments, with contingency for on-going extension. Elevation of Longitudinal Drain varies for Main Embankment, see Drg. No. 1625.207.
7. A transition zone may be required if rockfill is incorporated in Zone C.

NOT FOR CONSTRUCTION

Scale 10 5 0 10 20 30 40 50 m

CAD FILE:\PROJECT\1625\DWG\1 1:500 Plot 1=0.5 May 30, 1997

DRG. NO.	DESCRIPTION
1625.202	TSF – FOUNDATION PREPARATION AND BASIN LINER
1625.236	TSF – TAILINGS EMBANKMENT – SECTIONS AND DETAILS – SHEET 2 OF 2
1625.207	TSF – TAILINGS DAM CHIMNEY DRAIN
1625.130	TSF – FINAL ARRANGEMENT

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	APPROVED
5	MAY 30/97	REVISED DRAIN DETAILS – DETAILS NOW ON SHEET 2 OF 2 (1625.236)	KDB
4	SEP 4/96	REVISED DRAINAGE DETAILS	
3	JUN 12/96	REVISED EMBANKMENT AND TOE DRAIN	
2	APR 10/96	REVISED EMBANKMENT STAGES	
1	MAY 26/95	ISSUED FOR DESIGN REPORT	
0	APR 6/95	ISSUED FOR REVIEW	

REVISIONS

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA K. J. BROUWER

DESIGNED	KJB/KDE
DRAWN	WAL/VY
CHECKED	KDE
APPROVED	KDB
DATE	APRIL 6, 1995

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY PROJECT

TAILINGS STORAGE FACILITY TAILINGS EMBANKMENT SECTIONS AND DETAILS SHEET 1 OF 2

SCALE AS SHOWN | DRG. NO. 1625.111 | REV. 5

APPENDIX A

APPENDIX A

TEST PIT LOGS

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

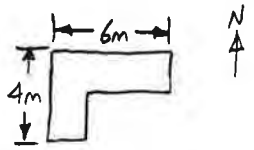
TEST PIT LOG

TEST PIT No. TP95-2
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,822,560 N, 592,730 E
GROUND ELEVATION ~1110 m
DATE Jan 11/95 Concentrator
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (Metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe	0		Dark brown/black, saturated, ORGANICS.
			Orange brown/brown, dense, moist to very moist, fine-grained sandy SILT with some gravel and clay. Organics sometimes encountered to 1m depth. Sandy SILT Glacial Till
Water table encountered at 1.2m	1		
No samples taken.		E.O.P.	Bedrock encountered at 1.2m depth. Angular fragments, typically 10cm dia. Wet due to water table.
	2		

Note: This trench was excavated approx. 10m long:



- The north-south portion typically had 1m of organics, a thin layer of till overlying bedrock.
- The east-west portion is described above.
- Both limbs encountered bedrock at shallow depths.

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-3
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,872,560 N, 592,765 E
GROUND ELEVATION ~1110 m
DATE Jan 11/95 Concentrator
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe Moderate digging conditions No samples taken!	0 1		Brown, dense, fine-grained sandy SILT with some gravel and clay. Slightly moist to moist. Similar to material encountered in TP95-1 Sandy Silt Glacial Till
Water table encountered at 2.1 m Water ponded in pit to 2m depth after 18hrs.	▽ 2 3 4		Bedrock encountered at 2.1 m. Angular fragments 10 to 20 cm dia. typically. Very broken at surface, and becomes more competant with depth. Backhoe rips through 1m of bedrock, and could continue, indicating the contact is very fractured. E.O.P.

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-4
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,822,510N, 592,765E South end of Concentrator
GROUND ELEVATION ~ 1109 m
DATE Jan 11/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe	0		Orange-brown (near surface) to brown, dense fine-grained sandy SILT with some gravel and clay (similar to TP95-1). slightly moist. Cohesive in-situ, especially at depth where chunks of material is ripped from pit. Fine to moderate-grained gravel.
Moderate digging conditions.	1		
	2		Sandy Silt Glacial Till
Sample TP95-4 taken 2 to 3.6m			
	3		↓ Basal till
Water table encountered at 3.6m. water ponded to approx 2 to 2.5m depth after 18hrs			Bedrock encountered at 3.6m depth. Angular fragments encountered.
	4	E.O.P.	

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-5
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,822,720 N, 592,600 E Crusher
GROUND ELEVATION ~1120 m
DATE Jan 12/95
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Oxidized silty SAND with some gravel, trace clay. Coarser grained than tills in TP95-1, 3 and 4. Lots of roots throughout. Silty Sand Glacial Till
No seeps encountered.	1		Bedrock encountered at 0.5m. Lapilli Tuff (volcanics). Oxidized (iron stained) on exposed outcrop. Fractured.
No samples taken.		E.O.P.	Note: Test pit is 10 m long, and varies in depth up to 1.4m.
	2		

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-6
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,822,720 N; 592,740 E
GROUND ELEVATION ~1117 m.
DATE Jan 12/95 Coarse ore stockpile.
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		ORGANICS
	1		Brown, dense, fine-grained sandy SILT with some fine-grained gravel, trace to some clay. Slightly moist.
Moderate digging conditions.			Becomes very dense (hard) near bottom of pit as backhoe rips cobbles & till (very cohesive, looks like gravelly clay with some sand and silt. Probably a basal till layer).
Sample TP95-6 from 0 to 4m ←	2		
	3		Sandy Silt Glacial Till
Digging becomes more difficult.			
	4		Till becomes oxidized at 4 m.
No seeps encountered.	5		Oxidized coarse-grained sand and angular rock fragments encountered. No large rock fragments or visible outcrop encountered.
			E.O.P.
	6		

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-7
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,822,810N; 552,730E.
GROUND ELEVATION ~1112m
DATE Jan 12/95 Concentrator
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Organics
	1		Brown, dense, slightly moist, fine-grained sandy SILT with some gravel, clay. Similar to material encountered in surrounding test pits. Hard, gray coloured till encountered at depth (~4.4m). Pits in extremely erosive, remote from pit. Gravel is round and fine to medium sized. Typically, this once drive till is encountered near the till/bedrock contact in previous test pits.
Moderate digging conditions.	2		
	3		
	4		
Seep encountered at 4.4m.	▽		
Sample TP95-7 (4.4 to 5.8m)	5		Sandy Silt Glacial Till
Difficult digging conditions	6	E.O.P.	

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TEST PIT LOG

TEST PIT No. TP95-8
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5,822,560 N ; 592,690 E. Concentrator
DATE Jan 12/95

PROJECT No. 1623
GROUND ELEVATION ~1110m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Organics, black + brown colour.
Moderate digging conditions.	1		Dense, brown, fine-grained sandy SILT with some fine-grained gravel and clay. Loose once excavated. similar till as majority of Millsite pits. No hard basal till encountered. Sandy Silt Glacial Till
Water quickly ponding at bottom of hole.	▽ ? 2		Bedrock encountered at 1.7m. Lapilli Tuff (volcanics). Angular fragments up to 30cm dia. Backhoe tears through approx 1.1m with difficulty. Becomes extremely difficult to excavate at 2.8m depth.
No samples taken.	3	E.O.P	

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TEST PIT LOG

TEST PIT No. TP95-9
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,823,280 N; 591,300 E
East side Bootjack Lake
GROUND ELEVATION ~1052m
DATE Jan 12/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Organics.
Moderate digging conditions	1		Brown, dense, moist, sandy gravelly SILT with trace to some clay. Medium sized gravel. Poorly sorted, well graded. Coarser than till at mill site.
Sample TP95-9A (0.2 to 2.5m) ←	2		Sandy Gravelly Silt Glacial Till
Sample TP95-9B (2.5 to 5.0m) ←	3		Grey, slight to moderately dense (firm), very moist → sat'd, (sticky and cohesive) sandy SILT with some clay, trace to some gravel, trace cobbles. Gravel is fine to coarse grained. Moderate resistance when indented with finger. Very plastic. Backhoe creates suction when excavating material. This is very wet material!
Seep @ 4m. ▽?	4		Sandy Silt Glacial Till
	5	E.O.P.	

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-10
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,822,850N; 591,480E (East side Bootjack Lake)
GROUND ELEVATION ~1048m
DATE Jan 12/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Organics.
Moderate digging conditions.	1		Oxidized, dense sandy SILT with some gravel and clay. Slightly moist. Same material as encountered at mill site. Loose once excavated.
	2		Sandy Silt Glacial Till
	3		Brown, dense, moist, silty gravelly SAND with trace cobbles and clay. Non-plastic. Loose once excavated. Moderate to coarse gravel. Denser material at bottom of pit. Coarser than till encountered in TP95-9.
Sample TP95-10 ←	4		
More difficult digging (due to coarse rocks)	5		Silty Gravelly Sand Glacial Till
No seeps encountered.	6		Rock fragments encounted (up to 20cm dia.) at base of pit -- possible bedrock ?
			E.O.P.
	7		

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TEST PIT LOG

TEST PIT No. TP95-11
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5,822,500 N; 591,800 E (East side of Bootjack Lake)
GROUND ELEVATION ~1040 m
DATE Jan 12/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		
Moderate digging conditions	1		Brown, dense, slightly moist (near surface) to very moist (to 2.8m depth), gravelly SAND with some silt. Non-plastic. Poorly sorted, moderately graded. Slightly oxidized near surface.
Sample TP95-11 ←	2		Gravelly Sand Glacial Till
Seep encountered @ 2.8m. ▽	3		Saturated sandy GRAVEL with some cobbles, trace to some silt. Moderately dense. Angular cobbles and gravel. Very coarse material. Noticable water in material when excavated.
Difficult digging due to coarse material.	4		Sandy Gravel Glacial Till
	5		E.O.P.
	6		

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TEST PIT LOG

TEST PIT No. TP95-12
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5 822 250 N ; 592 140 E (East side of Bootjack Lake)
GROUND ELEVATION ~1050m
DATE Jan 13/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe. Sample TP95-12 ← Moderate digging to 2m.	0		Organics Brown, moderately oxidized, moist to very moist, moderately dense, fine-grained sandy SILT with some fine-grained gravel and clay, trace organics. Poorly sorted, moderately graded. Slightly plastic. Sandy Silt Glacial Till
	1		
	2	E.O.P.	Bedrock encountered at 1.3m depth. Fractured, typically 20 cm dia sizes. Slightly wet at contact.
	3		

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TEST PIT LOG

TEST PIT No. TP95-13
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5 822 170 N; 592 470 E (East side of Bootjack Lake)
GROUND ELEVATION ~1076 m
DATE Jan 13/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		
Moderate digging conditions	1		Brown, dense, moist, silty SAND with some gravel, trace to some clay. Gravel is typically medium sized. well graded, poorly sorted. Slightly plastic. Coarser than material encountered at millsite. Good construction material.
Sample TP95-13 (0 to 3.5m) ←	2		Silty Sand Glacial Till
	3		
Difficult digging conditions	4		Till becomes denser and more difficult to excavate. Grey-brown, hard, slightly moist sandy SILT with some gravel and clay. Rounded gravel; variable sizes. Extremely cohesive (rips in chunks from pit). Looks like a basal till.
No seeps.		E.O.P.	Sandy Silt Basal Till
	5		
	6		

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TEST PIT LOG

TEST PIT No. TP95-14
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5 825 000 N; 589 230 E (7.1 km along Main Access Road)
GROUND ELEVATION ~ 975m
DATE Jan 13/95
LOGGED BY KG/B.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe	0		Organics
Moderate digging conditions	1		Oxidized - brown near surface (becoming grey-brown coloured with depth), dense, slightly moist, sandy SILT and CLAY with some gravel and trace cobbles. Gravel and cobbles are rounded. Material becomes denser below 1m: Hard, slightly moist, sandy SILT with some gravel and clay. Moderate to well graded, poorly sorted. Plastic when wet. Good construction material.
Sample TP95-14. ←	2		
No seeps.	3		Sandy Silt Glacial Till
Difficult digging with depth.	4	E.O.P.	
	5		

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-15
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5826 300 N; 587 500 E (4.35km along Main Access Road)
GROUND ELEVATION ~930 m
DATE Jan 13/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe	0		No organics (on top of clear-cut hill).
Moderate digging conditions.	1		Brown, dense, slightly moist, sandy gravelly SILT with trace to some clay, trace cobbles. Poorly sorted, well graded. Rounded cobbles and gravel. Dense basal-till like appearance when excavated in hard chunks, although majority of material is loose once excavated. Good construction material. (Similar till as TP95-14, only coarser.)
Sample TP95-15 ←	2		Sandy Gravelly Silt Glacial Till
No seeps.	3		
	4		E.O.P.
	5		

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-16
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5820 580N; 594 370E
DATE Jan 13/95 (TSF Access Road)

PROJECT No. 1623
GROUND ELEVATION ~980m
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Organics
Easy to moderate digging conditions.	1		Brown, dense, slightly moist, sandy SILT with trace to some gravel and clay. Occasional rounded cobble or boulder. Moderately graded, poorly sorted. Plastic. No oxidation evident. In-situ material is 'very stiff'.
Sample TP95-16 (0 to 5m) ←	2		Sandy Silt Glacial Till
	3		
	4		
Seep at 5.0m. ▽	5		Grey, hard, slightly moist sandy SILT with some gravel and clay, trace cobbles. Material is ripped from ground in extremely cohesive chunks. Slightly moist.
Very difficult digging conditions.	6		Note: Some local coarse areas of gravel and sand exist and water seeps through.
			E.O.P.
	7		

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-16
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5820 580N; 594 370E
DATE Jan 13/95 (TSF Access Road)

PROJECT No. 1623
GROUND ELEVATION ~980m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Organics
Easy to moderate digging conditions.	1		Brown, dense, slightly moist, sandy SILT with trace to some gravel and clay. Occasional rounded cobble or boulder. Moderately graded, poorly sorted. Plastic. No oxidation evident. In-situ material is 'very stiff'.
Sample TP95-16 (0 to 5m) ←	2		Sandy Silt Glacial Till
	3		
	4		
Seep at 5.0m. ▽	5		Grey, hard, slightly moist sandy SILT with some gravel and clay, trace cobbles. Material is ripped from ground in extremely cohesive chunks. Slightly moist.
Very difficult digging conditions.	6		Note: Some local coarse areas of gravel and sand exist and water seeps through.
		E.O.P.	
	7		

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TEST PIT LOG

TEST PIT No. TP95-17
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5 821 110 N; 594 230 E (TSF Access Road).
DATE Jan 13/95

PROJECT No. 1623
GROUND ELEVATION ~980 m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		
	1		Brown, moderately dense, moist, GRAVEL and SAND with some fine cobbles and silt. Poorly sorted, moderately graded. Non-plastic. Sub-angular gravel and cobbles.
Moderate digging conditions.	2		Gravel and Sand Glacial Till
Sample TP95-17 ←			
Water level rises to 3m depth after 15 hrs.	3		
Water table encountered at 4.3 m.	4		Material is saturated below 4.3 m.
	5		
	6	E.O.P.	

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TEST PIT LOG

TEST PIT No. TP95-18
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5821100 N; 593 295 E
GROUND ELEVATION ~992m
DATE Jan 14/95 (Along tailings/reclaim pipeline route)
LOGGED BY KLB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Organics
Moderate digging conditions.	1		Brown, dense, slightly moist sandy SILT with some gravel and trace clay. Occasional rounded cobble. Plastic. Poorly sorted, moderately graded. Approx. top 20cm is oxidized; the remainder is fresh.
Sample TP95-18 ←			Sandy Silt Glacial Till
	2		
Difficult digging conditions.	3		Grey-brown, hard, slightly moist sandy SILT with some gravel and clay, and trace cobbles. Very dense and cohesive (rips out of pit in chunks). Poorly sorted, well graded. Gravel and cobbles are round to sub-rounded.
No seeps encountered.		E.O.P.	
	4		

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-19
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5821 600 N; 592 980 E (Along tailings / reclaim pipeline route)
DATE Jan 14/95

PROJECT No. 1623
GROUND ELEVATION ~1042 m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe. *Seepage from 0.2 to 0.8m only.	0		Organics.
	1		Brown, dense, moist gravelly SAND and SILT with trace cobbles and clay. Oxidized near surface. Plastic. Very well graded, poorly sorted. Sub-angular to sub-rounded particles. Visible seepage. Gravelly Sand and Silt Till (Note: This may be a layer of material developed from road construction.)
Moderate digging conditions	2		
Sample TP95-19 (0.8 to 6.0m)	3		Brown, dense, slightly moist, silty fine-grained SAND with some gravel, trace cobbles (with depth). Plastic. Poorly sorted, moderately graded. Becomes moister with depth. Material becomes sandy SILT with some gravel and clay, trace cobbles. All gravel is sub-round to sub-angular. Silty Sand / Sandy Silt Glacial Till
	4		
	5		
	6		approximate depth. Becomes grey and hard. Rounded gravel and cobbles.
Difficult digging conditions.			E.O.P.
	7		Note: Angular rock fragments encountered at bottom of hole. Fine-grained, mafic with white (>1mm) flecs. (Possible bedrock contact?)

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TEST PIT LOG

TEST PIT No. TP95-20
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5 820 900 N; 595 670 E (South-east corner of Polley Lake)
GROUND ELEVATION ~922 m
DATE Jan 14/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0 ▽*		Black/brown ORGANICS. Completely saturated. Side walls continuously slough into pit. Very smelly! Very soft. Water continuously seeps into pit.
*Perched water table above dense till.	1		
Very easy digging (0-2.5m)	2		
More difficult digging conditions.	3		Grey, very stiff → hard, slightly moist → moist, sandy SILT with some gravel and clay. Plastic. Poorly sorted, moderately graded. Very cohesive. Looks like basal till encountered in local pits, only more in-situ moisture.
Sample TP95-20 ←	4		Sandy Silt Basal Till
		E.O.P.	Approximate depth. Difficult to measure due to pit constantly collapsing and filling with water.
	5		

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TEST PIT LOG

TEST PIT No. TP95-21
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5 820 840N; 595 540E (50m south of Polley Lake)
GROUND ELEVATION ~922m
DATE Jan 14/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		
Visible seeps from peat from 0 to 1m depth. Pit is saturated.	1		Black/brown, saturated, very soft ORGANICS. Very strong odour. Minimal strength.
Very soft digging throughout.	2		Layer of gray, saturated, very soft, silty fine-grained SAND. Varves of grey and brown colours. Easily indented with finger.
No samples taken.	3		
	4		
	5		Tan and grey, saturated, very soft SILT and ORGANICS. Varved silt layers. Tan layers contain yellow grass and small (up to 1cm, ave 0.5cm long) white fresh water shells. Well sorted, poorly graded. Very plastic and cohesive. Strong odour. SILT and ORGANICS
	6		
	7	E.O.P.	

Note: Depths are approximate only, due to pit constantly collapsing and filling with water.

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TEST PIT LOG

TEST PIT No. TP95-22
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5820 890 N; 595 540 E (South end of Polley Lake)
GROUND ELEVATION ~922m
DATE Jan 14/95
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe	0		
Visible seeps from peat layer. Pit is saturated	1		Black/brown, saturated, very soft ORGANICS. Side walls continuously collapse into pit. Very strong odour. Minimal strength.
Very easy digging throughout test pit.	2		
No samples taken.	3		
	4		
	5		Tan/grey, saturated, very soft SILT and ORGANICS. Varved layers. Some material as encountered in TP95-21. SILT and ORGANICS
	6	E.O.P.	

Note: Depths are approximate only due to pit walls continuously collapsing and pit filling with water.

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TEST PIT LOG

TEST PIT No. TP95-23
SHEET 1 of 1

PROJECT Mt Polley
LOCATION OF TEST PIT Approx 5820 890 N; 595 420 E (South west corner of Polley Lake)
DATE Jan 14/95

PROJECT No. 1623
GROUND ELEVATION ~922m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	▽ 3 0		Black/brown, saturated, very soft ORGANICS.
Soft digging conditions.	1		Grey, saturated, very soft CLAY and SILT. Well sorted, poorly graded. Varved. Very plastic. Strong odour. Very cohesive.
Pit is saturated.	2		
No samples taken.	3		Layers of dark grey/black, saturated, very soft fine-grained SAND and SILT. Some sand is coarse grained and of quartz composition. Cohesive.
			LACUSTRINE LAYERS
	4	? E.O.P.	

Note: Depths are approximate only due to pit walls continuously collapsing and the pit filling with water.

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TEST PIT LOG

TEST PIT No. TP95-24
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5 820 900 N; 595 360 E (south-west corner of Polley Lake)
GROUND ELEVATION ~922 m
DATE Jan 14/95
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Black-brown, saturated, very soft ORGANICS.
Very soft digging conditions.	1		Lacustrine sequences of the following: • Dark grey, very soft, saturated CLAY and SILT with some organics. Varved. Well sorted, poorly graded. • Dark grey, very soft, saturated silty fine-grained SAND. Both are plastic due to high silt/clay content. Strong odour. LACUSTRINE LAYERS
Pit walls are more competent than in earlier test pits (TP95-20 to 23)	2		
	3		
No samples taken.	4		Tan/grey, saturated, very soft SILT and ORGANICS. Varved layers containing white fresh-water shells and yellow grass. Well sorted, poorly graded. Very plastic and cohesive. Strong odour. SILT and ORGANICS.
	5		
	6		
			E.O.P.
	7		

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TEST PIT LOG

TEST PIT No. TP95-25
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5 820 930 N; 595 250 E
DATE Jan 14/95 (On access road to Polley Lake)

PROJECT No. 1623
GROUND ELEVATION ~922
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe	▽ 0		Black/brown, saturated, very soft ORGANICS.
Very soft digging conditions.	1		Dark grey, saturated, very soft (and sticky) CLAY and SILT with some sand, coarsening with depth to sandy CLAY and SILT with trace gravel. Very plastic. Strong odour. Moderate to well sorted, poorly graded. Layers of sand and gravel at local intervals.
Sample TP95-25 (0.4 to 5m) ←	2		
	3		LACUSTRINE LAYERS
	4		
	5		Brown, hard, slightly moist, sandy SILT with some gravel and clay, trace cobbles. Very dense chunks are ripped from pit. Poorly sorted, well graded. Plastic (when wet). Looks similar to basal till encountered locally, only brown in colour.
Difficult digging conditions at 5 to 5.8m	6	E.O.P.	Sandy Silt Basal Till

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TEST PIT LOG

TEST PIT No. TP95-26
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5819 180 N; 594 645 E (Tailings Basin)
DATE Jan 15/95

PROJECT No. 1623
GROUND ELEVATION ~938m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		ORGANICS
	1		Brown, dense, slightly moist → moist, sandy SILT with some fine gravel and clay, trace cobbles. Very plastic. Poorly sorted, well graded. With depth, material becomes grey coloured and increases in gravel content. Looks very much like a typical basal till.
Moderate digging conditions	2		Very cohesive, hard chunks of material is ripped out of pit. This material is more moist than usually encountered.
No seeps encountered.	3		Sandy Silt Glacial Till
Sample TP95-26 ←	4		
	5		Material at approx 5.5m becomes very plastic due to higher moisture content (behaves like plasticene when remoulded). Material remains the same well graded nature, only more moist.
	6		
			E.O.P.
	7		

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TEST PIT LOG

TEST PIT No. TP95-27
SHEET 1 of 1

PROJECT Mt Polley
LOCATION OF TEST PIT Approx 5 819 740 N; 595 350E
DATE Jan 15/95 (North embankment alignment)

PROJECT No. 1623
GROUND ELEVATION ~530 m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe * Local seeps at 2.7m and 4m only. The remainder of the pit is dry. Sample TP95-27 ← Moderate to difficult digging conditions.	0 1 2 3 4 5 6 7	E.O.P.	ORGANICS Brown (gray at depth), hard, slightly moist sandy SILT with some gravel and clay, trace cobbles. Poorly sorted, well graded. Very cohesive (rips in dense chunks from pit). Gravel and cobbles are sub-rounded. Cobble content increases with depth to "some cobbles". Top 0.5m of material is oxidized. Plastic when wetted. Sandy Silt Basal Till

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TEST PIT LOG

TEST PIT No. TP95-28
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5819 360 N; 595 285 E
DATE Jan 15/95 (Tailings Basin)

PROJECT No. 1623
GROUND ELEVATION ~923.4m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe Ponded water at surface. Easy digging conditions (0 to 1.5m)	0 1 2 3 4 5 6 E.O.P. 7		Brown, soft, saturated ORGANICS. Grey-green, soft, very moist layers of CLAY and SILT and silty SAND. Well sorted, poorly graded layers. Clay and silt are very plastic due to high moisture. Sand layer is visibly wet on pit walls. Brown-grey, hard, slightly moist, sandy SILT with some gravel and clay, trace cobbles. Very cohesive, dense chunks of material. Plastic when wet. Poorly sorted, well graded. Sandy Silt Glacial Till Material becomes moist at 5m depth. Clay and silt matrix materials become sticky and are easily remoulded (like plasticene). Bedrock and possible water table nearby.
Moderate to difficult digging conditions (1.5 to 6.2m). Sample TP95-28 (1.5 to 6.2m) ←			

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TEST PIT LOG

TEST PIT No. TP95-29
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5818 745 N; 596 270 E (Potential East Ridge Borrow Area)
DATE Jan 15/95

PROJECT No. 1623
GROUND ELEVATION ~ 936m
LOGGED BY KAB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe. Dry soil to 1m depth! Moderate digging conditions No seeps. Sample TP95-29 ←	0 1 2 3 4 5 6	E.O.P.	ORGANICS. Brown, dense (firm to hard), dry to slightly moist, sandy SILT with some gravel, trace clay and cobbles. Material is drier than usually encountered. Poorly sorted, well graded. Plastic when wet, otherwise at plastic limit with natural moisture content. Becomes very hard with depth, and excavates in dense, cohesive chunks. Good construction material. Sandy Silt Glacial Till

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-30
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5818 495 N; 596 560 E (Potential East Ridge Borrow Area)
DATE Jan 15/95

PROJECT No. 1623
GROUND ELEVATION ~938m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe. No seeps encountered. Moderate digging conditions	0 1 2 3 4 5 6	E.O.P.	Bright orange ORGANICS (rotten wood). Brown, dense (firm to hard), slightly moist, sandy SILT with some gravel, trace clay and cobbles. Poorly sorted, well graded. Becomes more cohesive, grey coloured and hard with depth as material is ripped out of pit in chunks. Gravel and cobbles are sub-rounded to round. Good construction material (similar to TP95-29). Sandy Silt Glacial Till
Sample TP95-30 ←			

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-31
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Appox 5 816 955 N; 596 470 E
GROUND ELEVATION ~ 939 m.
DATE Jan 15/95 (Potential East Ridge Borrow Area)
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe No seeps encountered. Moderate digging conditions Sample TP95-31 ←	0 1 2 3 4 5 6	E.O.P.	ORGANICS. Brown, dense (firm to hard), slightly moist, sandy SILT with some gravel, trace clay and cobbles. Occasional boulder at depth. Poorly sorted, well graded. Same material as encountered in TP95-29 and 30 (same natural moisture content as TP95-30). Good construction material. Sandy Silt Glacial Till

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-32
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5 819 140 N; 595 780 E
GROUND ELEVATION ~932m
DATE Jan 16/95 (East Tailings Basin)
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe Moderate to difficult digging. NO seeps encountered Sample TP95-32 ←	0 1 2 3 4 5 6	⩛ ⩛ ⩛ E.O.P.	ORGANICS, black/brown/orange Brown, dense (very stiff), slightly moist, sandy SILT with some gravel and clay, trace cobbles. Becomes grey in colour and increases in density to 'hard' with depth. Poorly sorted, well graded. No oxidized zone near surface. Gravel and cobbles are sub-round to round. Becomes very basal-like with depth. Very low permeability. Sandy Silt Glacial Till

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TEST PIT LOG

TEST PIT No. TP95-33
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1673
LOCATION OF TEST PIT Approx 5818750N; 594820E
GROUND ELEVATION ~932m
DATE Jan 16/95 (SW Tailings Basin)
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe Ponded water at surface (perched water table). Smooth, easy digging (0 to 0.9m). Moderate digging (0.9 to 4.1m) Smooth, easy digging (4.1 to 7.7m) Sample TP95-33 (4.1 to 7.7m) ←	0 1 2 3 4 5 6 7 8	E.O.P.	Black, soft, saturated ORGANICS. Swamp. Willows + swamp spruce. Grey-black, oxidized, stiff, moist SILT and CLAY with some organics (grass and roots). Very plastic. Well sorted, poorly graded. Low permeability SILT and CLAY Brown, dense (v. stiff), slightly moist sandy SILT with some gravel and clay, trace cobbles. Poorly sorted, well graded. Oxidized at contact with overlying silt + clay. Slightly plastic. Low permeability Sandy Silt Glacial Till Grey, stiff to very stiff, moist, SILT and fine-grained SAND. Very thin laminated layers (<<1mm) which can be carefully peeled apart by hand. Plastic. Well sorted, poorly graded. No varves evident. Low permeability. Cohesive. SILT and SAND

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-34
SHEET 1 of 1

PROJECT Mt. Polley
PROJECT No. 1623
LOCATION OF TEST PIT Approx 5818730N; 595250E
GROUND ELEVATION ~924 m.
DATE Jan 16/95 (South Basin)
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe Moderate digging conditions. Sample TP95-34A (0.2 to 4.1m) * Only local, low flow seeps visible at contact. Smooth, easy digging (4.1 to 6.4m) Sample TP95-34B (4.1 to 6.4m)	0 1 2 3 4 5 6 7	E.O.P.	Black, soft ORGANICS. Brown, dense (hard), slightly moist, sandy SILT with some gravel and clay, trace cobbles. Top 30cm is oxidized. Rounded gravel and cobbles. Material is just below plastic limit. Poorly sorted, well graded. Similar material as encountered in TP95-33. Low permeability. Sandy Silt Glacial Till. Dark grey / black, stiff → very stiff, slightly moist, SILT and fine-grained SAND. Well sorted, poorly graded. Does not have layering like TP95-33 did. At plastic limit. Cohesive. Low permeability. Drier than TP95-33 silt and sand layers. SILT and SAND

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-35
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5818 690 N; 595 535 E. (South Basin).
DATE Jan 16/95

PROJECT No. 1623
GROUND ELEVATION ~917m
LOGGED BY KGB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe Moderate digging conditions. (0.2 to 4.0m).	0 1 2 3 4		ORGANICS, black / orange. Brown, dense (v. stiff → hard), slightly moist sandy SILT with some gravel and clay, trace cobbles. Poorly sorted, well graded. Slightly plastic (at P.L.). Rounded gravel + cobbles. Dense, very cohesive chunks of material encountered with depth when ripped out of pit. Becomes grey-colour with depth. Very low permeability. Sandy Silt Glacial Till
* Seep at contact. Very localized and low flow rate.	▽* 3		
Smooth, easy digging (4.0 to 6.6m)	4 5 6		Dark grey, slightly moist, stiff, SILT and fine-grained SAND. Sand is visible as white qtz. flecks in silt. Well sorted, poorly graded. Below plastic limit. Cohesive chunks when excavated, and cohesive overall. Low permeability. Same material as encountered in TP95-34 pit. Silt and Sand.
Sample TP95-35 (4.0 to 6.6m) ←	7	E.O.P.	

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TEST PIT LOG

TEST PIT No. TP95-36
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5818 520 N; 595 275 E (South Basin)
DATE Jan 16/95

PROJECT No. 1623
GROUND ELEVATION ~924 m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		ORGANICS.
Moderate digging. Sides slough into pit.	1		Brown to grey, very stiff → hard, moist, silty SAND with trace to some gravel and clay. No coarse gravel or cobbles in this material. Poorly sorted, moderately graded. Moister than most tills. Rounded gravel. Cohesive. Coarser than most tills, also. **Silty Sand Glacial Till**
Sample TP95-36A (0.2 to 3.2m)	2		
Moderate flow from sand layer.	3		Black, medium to coarse-grained SAND with trace (to none) of silt. Not cohesive. Well sorted, poorly graded. Saturated. Approx 60 cm thick. **SAND**
Smooth digging (3.2 to 6.3m)	4		Creamy brown, very stiff → hard, slightly moist SILT and CLAY. No coarse material. Layered. Well sorted, poorly graded. Very cohesive. Low permeability. **SILT and CLAY**
Sample TP95-36B (3.8 to 6.3m)	5		
	6		Brown, soft, moist to very moist SILT and fine-grained SAND. Well sorted, poorly graded. Slightly cohesive (probably due to high moisture content). Sides of pit continuously cave-in. Difficult to tell where this layer exists due to instability of test pit walls. **SILT and SAND**
	7		E.O.P.

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-37
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5818 345 N; 595 260 E (SW Tailings Basin).
DATE Jan 16/95

PROJECT No. 1623
GROUND ELEVATION ~938m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe Moderate digging (0 to 1.5m) Sample TP95-37 ←	0 1		ORGANICS. Brown, very stiff, moist sandy SILT with some gravel and clay. Poorly sorted, well graded. Plastic. Contains more moisture than usual (probably due to close proximity to surface and bedrock). Sandy Silt Glacial Till
Seep below till/ bedrock contact. Difficult digging rock.	2 3		Bedrock encountered at 1.5m depth. Very fractured, purple volcanic conglomerate (friable). Fragments are typically 30cm size. and very angular. E.O.P.

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TP95-38
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5 818 460 N; 585 485 E
DATE Jan 16/95

PROJECT No. 1623
GROUND ELEVATION ~915m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		ORGANICS.
Moderate digging (0 to 4.7m)	1		Brown to grey, hard, slightly moist sandy SILT with some gravel and clay. Poorly sorted, well graded. Rounded gravel. Very dense, cohesive chunks ripped out of pit. Plastic. Grey colour on face of some chunks (along cracks in till?). Occasional cobble near surface and becoming "trace cobbles" with depth. Low permeability.
No seepage encountered.	2		Sandy Silt Glacial Till
	3		Dark gray, stiff to very stiff, moist SILT with some clay, trace to some sand, trace gravel. Very plastic. Looks like above till, although some material is layered (and peels apart on layers). (Probable transition where till has been mixed with underlying layers)
	4		
Moderate, yet smooth digging (~4.3 to 6.7m)	5		Creamy brown to grey, very stiff → hard, slightly moist SILT with some clay. Very cohesive and dense. Well sorted, poorly graded. Obvious layers in grey silt. Till-like feel for density of this material. Similar to silt/clay encountered in TP95-36. Low permeability.
Sample TP95-38 ←	6		
	7		E.O.P.
			SILT and CLAY

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TEST PIT LOG

TEST PIT No. TP95-39
SHEET 1 of 1

PROJECT Mt. Polley
LOCATION OF TEST PIT Approx 5818405 N; 595405 E (South tailings basin)
DATE Jan 16/95

PROJECT No. 1623
GROUND ELEVATION ~918m
LOGGED BY KGB.

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (metres)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
Hitachi 200 hoe.	0		Black, saturated, soft ORGANICS.
Moderate digging (0 to 2.5m)	1		Brown to grey, hard, slightly moist → moist, sandy SILT with some gravel and clay. Poorly sorted, well graded. More moist on surface of dense, cohesive chunks of till (from surface inflow?). Typical till. **Sandy Silt Glacial Till**
Water table at (act.	2 ▽ 3		
Easy digging (2.5 to 7.5m)	3		Brown, soft, saturated, fine-grained SAND and SILT. No cohesion (pit walls continuously cave-in). Very well sorted, poorly graded. Becomes more dense with depth. **Sand and Silt**
Sides of pit continuously slough.	4		
	5		
	6		
Sample TP95-39 ← (at bottom of pit).	7		
	E.O.P. 8		

Note: Bottom of pit is estimated only as continuous sloughing of side walls made accurate measurements impossible.

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TEST PIT LOG

TEST PIT No. TPMS90-1
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1621
LOCATION OF TEST PIT Primary Crusher
5822755 N
592600 E
GROUND ELEVATION
DATE Feb 21, 1990
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225 Backhoe - moderately hard digging ▽	1 2 3 4 5 6 7	EOH	SANDY SILT, some gravel, trace clay, trace cobbles and boulders, very well graded, medium dense, brown, moist glacial till. - slightly more cobbles for last 1 meter.

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TPMS90-2
SHEET 1 of 1

PROJECT Mt Polley
PROJECT No. 1621
LOCATION OF TEST PIT NEAR Ball Mills
5822490 N
592600 E
GROUND ELEVATION
DATE Feb 21, 1990
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225 Backhoe	1		Sandy Silt, some gravel, trace cobbles, trace clay, very well graded, medium dense, brown, glacial till.
		1.5m	
	2		Bedrock, highly fractured, iron staining, groundwater inflow.
▽ Approx. 50gpm inflow.	3		
	4		
		4.3m	
		EOH	
	5		

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TEST PIT LOG

TEST PIT No. TPMS90-3
SHEET 1 of 1

PROJECT Mount Polley
PROJECT No. 1621
LOCATION OF TEST PIT Near SAG Mill
5822 525 N
592 600 E
GROUND ELEVATION
DATE Feb 21, 1990
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225 BACKHOE			TOPSOIL AND ORGANICS, black
	1		SANDY SILT, some gravel, trace to some clay, wet, medium soft, green grey, glacial till.
-moderate to hard digging.	2		
	3		SANDY SILT, some gravel, trace clay, moist, medium dense, very well graded, brown, glacial till.
	4		
▽	5		
-broken rock can be excavated with backhoe	6		BEDROCK, highly fractured, groundwater inflow

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TEST PIT LOG

TEST PIT No. TPMS90-4
SHEET 1 of 1

PROJECT Mt Polley
LOCATION OF TEST PIT Near Pebble Crusher
5822 570 N
592 620 E
DATE Feb 21, 1990

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225 BACKHOE	0		
	1		
- hard digging	2		SILTY SAND, some gravel, trace clay, moist, dense to very dense, very well graded, brown, glacial till
	3		
	4		
- no groundwater encountered.	5	EOH	
	6		

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TEST PIT LOG

TEST PIT No. TPB12
SHEET 1 of

PROJECT Mount Polley
PROJECT No. 1621
LOCATION OF TEST PIT Area B, main embankment west abutment
GROUND ELEVATION
DATE Aug 27, 1989
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		ORGANICS and forest litter, reddish brown.
	1		SILTY SAND, some gravel, trace cobbles and boulders, well graded, dark green-brown, glacial till
	2		SAND, trace silt, fine, uniform, trace gravel, pale reddish brown, cross bedding, moist
	3		
	4		SAND, medium to fine, clean, uniform, brown
GSTPB12	5	EOH @ 4.9m	

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TEST PIT LOG

TEST PIT No. TPB13
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, main embankment center line
DATE Aug 28, 1989

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		PEAT, organics, dark reddish brown to black
	1		CLAYEY SILT, fissured, moist, pale green-brown, firm, moist
GSTPB13	2		SILT, trace to some sand, fine, dense, trace gravel, trace clay, pale brown, fissured with fine sand in fissures, moist, low permeability, appears to be reworked.
	3		
	4		
	5	EOH @ 4.9m	Ponded water on surface

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TEST PIT LOG

TEST PIT No. TPB14
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, downstream of main embankment
DATE Aug 28 1997

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJR

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		PEAT, and organics, dark reddish-brown to black
	1		CLAYEY SILT, pale green brown, firm, fissured, wet for top 60 cm.
SSTPB 14	2		SILT, some sand to Sandy, fine dense, fissured, fine sand laminations, moist
	3		
	4		
	5		ponded water on surface

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TEST PIT LOG

TEST PIT No. TPB15
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, upstream of main dam
DATE Aug 28, 1989

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		
	1		
	2		SILTY SAND, some gravel, trace clay, trace cobbles and boulders to 55 cm, very well graded, dense, brown, low permeability, glacial till
STPB15	3		
	4		
	5	EOH @ 4.9m	

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TEST PIT LOG

TEST PIT No. TPB16
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, northwest corner by road
DATE Aug 28, 1999

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0 – 1		GRAVELLY SAND, some cobbles, trace boulders, poorly sorted, reddish brown, colluvium and road fill
~STPB16	1 – 4		SILTY SAND, some gravel, trace cobbles, trace clay, very well graded, dense, low permeability, glacial till
	EOH @ 4.3 m		NB - Some water running in at top of glacial till
	5		

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TEST PIT LOG

TEST PIT No. TPB17
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B north central basin
DATE Aug 22 1997

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		SILTY SAND, some gravel, trace cobbles, and boulders to 35 cm, trace clay, very well graded, dense, brown, low permeability, glacial till
GSTPB17	1		
	2		
	3		
	4		
	5	EOH @ 4.9m	

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TEST PIT LOG

TEST PIT No. TPB18
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, low point of north berm
DATE Aug. 29, 1999

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		PEAT, organics and forest litter, reddish brown to black
	1		SILTY SAND, some gravel, trace cobbles and boulders, trace clay, brown, very wet, graded, dense, [illegible]
USTPB18	2		
	3		
	4		
	5	EOH @ 4.9m	NB Pond level at [illegible]

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TEST PIT LOG

TEST PIT No. TPB1
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, east abutment new road
DATE Aug 27, 1999

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		
	1		SANDY SILT, trace gravel, trace clay, green-brown, well graded, fissured, dense, low permeability, glacial till
GSTPC1	2		
	3		
	4	EOH @ 4.1 m	
	5		

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TEST PIT LOG

TEST PIT No. TPB2
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area C - ridge - north east ridge
DATE Aug 27, 1990

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJC

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
ET 225	1		SILTY SAND, trace to some gravel, trace clay, trace cobbles and boulders to 60 cm, green-brown, well graded, moist, dense, non-cohesive, glaciofluvial.
ITEC	2		
	3		
	4		
	5	EOH @ 4.9 m	

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TEST PIT LOG

TEST PIT No. TPB3
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, northeast ridge
DATE Aug 27, 1993

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		TOPSOIL, forest litter, black to dark brown
	1		SILTY SAND, some gravel, trace cobbles and boulders to 45cm, brown, very well grad., dense, glacial till
	2		
SPT	3		SAND, trace gravel, clean, medium to fine, moderately sorted, brown, uniform clean SAND with depth
	4		
	5		
	6	EOH @ 5.5m	

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TEST PIT LOG

TEST PIT No. TPB 4
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B [illegible] ridge
DATE Aug. 27 1993

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		
	1		SILTY SAND, some gravel, trace [illegible], occasional boulders, brown, [illegible]
	2		
SSTPB4	3		
	4		
	5	EOH @ 5.2 m	
	6		

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TEST PIT LOG

TEST PIT No. TPB5
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, northeast ridge
DATE Aug 27, 1987

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		
	1		SILTY SAND, some gravel, trace cobbles and boulders, rounded, trace clay, loose, brown, [illegible]
FB5	2		
	3		
	4	EOH @ 4.0 m	
	5		

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TEST PIT LOG

TEST PIT No. TPB6
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT AREA B, north east ridge
DATE Aug. 27/1989

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	1		SILTY SAND, trace gravel, brown, well graded, non plastic; glacial till
	2		SAND, trace silt, trace gravel, [illegible]
	3		
SS TPB6	4		SAND, trace silt, trace gravel, [illegible] water [illegible]. [illegible] to GRAVELLY SAND at bottom clean, coarse subrounded, gravel.
	5		
		EOH @ 5.2m	
	6		

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CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TPB7
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, centerline of NE dam
DATE Aug 27, 1989

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		TOPSOIL, clayey, brown
	1		SAND, some silt some gravel, trace cobbles, very dense, very well graded glacial till
	2		
	3		
	4	EOH @ 3.4 m	

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TEST PIT LOG

TEST PIT No. TPB8
SHEET 1 of

PROJECT Mount Polley
PROJECT No. 1621
LOCATION OF TEST PIT Area B, northeast ridge at timber
GROUND ELEVATION
DATE Aug 27 1997
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 22E	0		ORGANICS and forest litter.
SSTPB3	1		SILTY SAND, some gravel, trace cobbles, green brown, low wet gravel, low permeability, dense, glacial till, slightly wet.
	2		
	3		
	4		
	5	EOH @ 4.9m	

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TPB9
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT AREA B, south east basin
DATE Aug 27, 1989

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJG

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		
	1		SILTY SAND, some gravel, trace cobbles, green-brown, very well graded, low permeability, dense, colour changes to pale brown below 2 m, glacial till
BOTTOM?	2		
	3		
	4		
	5		
		EOH @ 5.2 m	
	6		

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TPB10
SHEET 1 of

PROJECT Mount Polley
PROJECT No. 1621
LOCATION OF TEST PIT Area B, main embankment centre line.
GROUND ELEVATION
DATE Aug 27, 1989
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		SILTY SAND, some gravel, trace cobbles and boulders to 45 cm, green-brown, dense to very dense, well graded, fissured, glacial till
GSTPB10	1		
	2		
	3		
	4	EOH @ 3.7m	

KNIGHT AND PIESOLD LTD.
CONSULTING ENGINEERS

TEST PIT LOG

TEST PIT No. TPB11
SHEET 1 of

PROJECT Mount Polley
LOCATION OF TEST PIT Area B, main embankment center line
DATE Aug 27, 1989

PROJECT No. 1621
GROUND ELEVATION
LOGGED BY KJB

NOTES Groundwater level, difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
CAT 225	0		ORGANICS and forest litter, reddish brown
	1		SILTY SAND, some gravel, trace cobbles, green-brown, firm to dense, very well graded, low permeability, glacial till!
	2		SILT, some sand, pale brown, dense, fissured, well sorted, low permeability
	3		
GSTPB11	4		SAND, medium to fine, moderately sorted, clean, moist, pale brown, some silt layers.
	5		
		EOH @ 5.2 m	
	6		

APPENDIX B

APPENDIX B

DETAILED LABORATORY TEST WORK RESULTS

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

Project No. 9521018

Date : 1/26/95

Laboratory Determination of Water Content of Soil and Rock
ASTM D 2216-92

BOREHOLE NUMBER	TP95-1	TP95-7	TP95-10	TP95-18	TP95-20	TP95-25
SAMPLE NUMBER						
DEPTH OF SAMPLE (m)						
CONTAINER NUMBER						
MASS WET SOIL + TARE	8547.7	9217.5	6633.9	3836.5	8948.7	7546.4
MASS DRY SOIL + TARE	7876.2	8452.1	6049.8	3537.7	7961.0	6650.8
MASS OF WATER	671.5	765.4	584.1	298.8	987.7	895.6
MASS OF CONTAINER	1426.5	1414.0	1427.8	1378.4	1130.6	1414.3
MASS OF DRY SOIL	6449.7	7038.1	4622.0	2159.3	6830.4	5236.5
WATER CONTENT W (%)	10.4	10.9 ✓	12.6	13.8	14.5	17.1

BOREHOLE NUMBER	TP95-27	TP95-31	TP95-35	TP95-37	TP95-38	TP95-39
SAMPLE NUMBER						
DEPTH OF SAMPLE (m)						
CONTAINER NUMBER						
MASS WET SOIL + TARE	5937.6	8386.3	7978.9	7623.2	8130.7	7168.1
MASS DRY SOIL + TARE	5481.6	7669.7	7036.9	6654.4	6637.4	5794.5
MASS OF WATER	456.0	716.6	942.0	968.8	1493.3	1373.6
MASS OF CONTAINER	1380.1	1177.8	1344.6	1494.2	1383.6	974.9
MASS OF DRY SOIL	4101.5	6491.9	5692.3	5160.2	5253.8	4819.6
WATER CONTENT W (%)	11.1	11.0	16.5	18.8 ✓	28.4	28.5

BOREHOLE NUMBER						
SAMPLE NUMBER						
DEPTH OF SAMPLE (m)						
CONTAINER NUMBER						
MASS WET SOIL + TARE						
MASS DRY SOIL + TARE						
MASS OF WATER						
MASS OF CONTAINER						
MASS OF DRY SOIL						
WATER CONTENT W (%)						

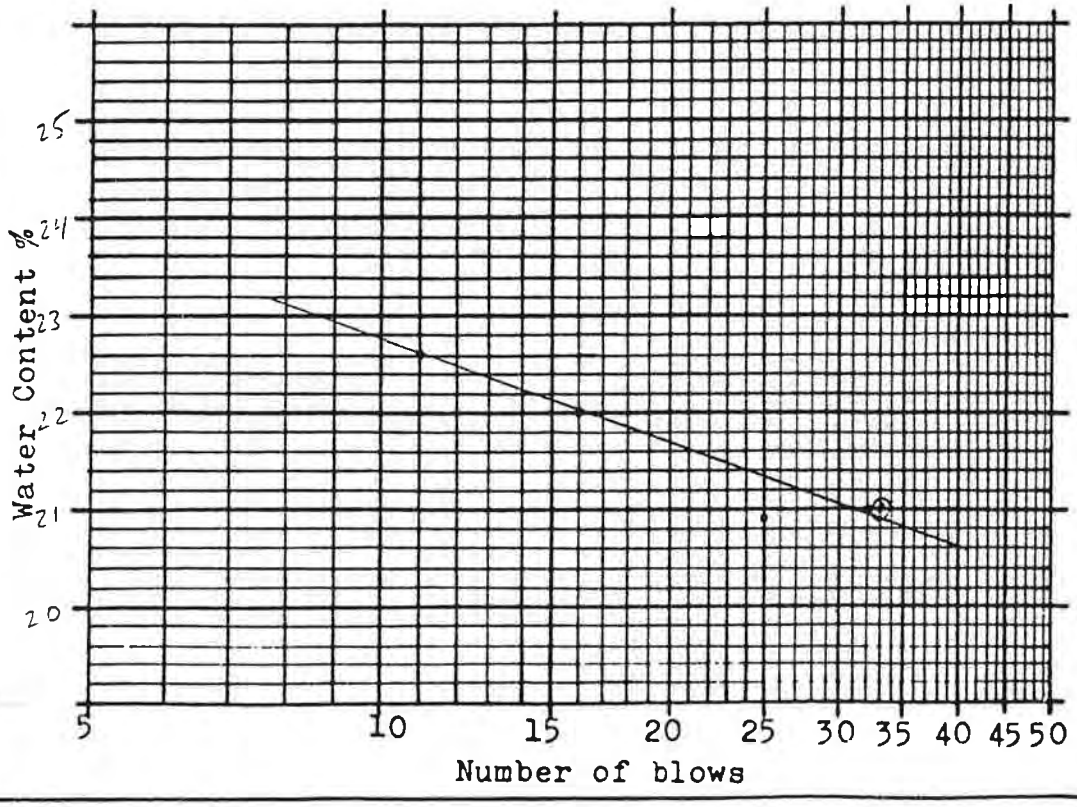
LABORATORY TEST SHEET – ATTERBERG LIMITS

Lab Work 172.0 Project # 952/018 Date Jan. 31-95

✓ MAB Feb 14/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	#15	#3	#82	#27		
Number of blows	25	16	11	33		
Wt.sample wet + tare	31.68	30.60	34.29	31.47		
Wt.sample dry + tare	28 70	27.57	30 70	28.57		
Weight of water	2 98	3.03	3.59	2.9		
Tare	14.44	13.74	14.81	14.72		
Wt. of dry soil	14 26	13 83	15 89	13.85		
Water content %	20.9 ✓	22.0 ✓	22.6 ✓	21 0 ✓		

Type of Test	PL	PL	Borehole #	TP95-1
Container #	#2	#51	Sample #	—
Wt.sample wet + tare	27.55	27.00	Depth	—
Wt.sample dry + tare	26 07	25.52	Liquid Limit	~~21.3~~ 21.4
Wt. of water	1 48	1 48	Plastic Limit	13.0
Tare	14.54	14.29	Plasticity index	~~8.3~~ 8.4
ight of dry soil	11 53	11 23	Moisture content	10 4
Water content	12 8 ✓	13 2 ✓	Liquidity Index	-0.31



SAMPLE DESCRIPTION

CL

Golder Associates

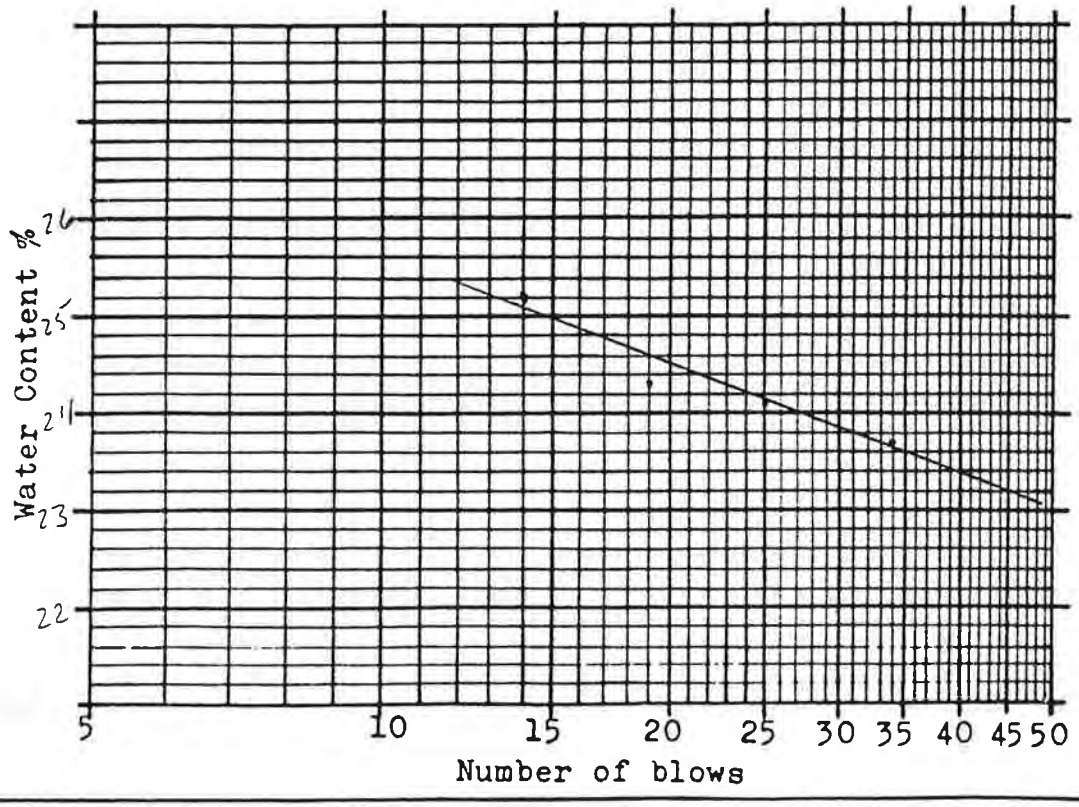
LABORATORY TEST SHEET – ATTERBERG LIMITS

Lab Work M.O Project # 9521018 Date Jan. 31-95

JKAS Feb 1/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	#5	#18	#26	#3		
Number of blows	14	19	25	34		
Wt.sample wet + tare	31.76	31.83	31.38	34.23		
Wt.sample dry + tare	28.26	28.42	28.09	30.41		
Weight of water	3.5	3.41	3.29	3.82		
Tare	14.35	14.40	14.42	14.32		
Wt. of dry soil	13.91	14.02	13.67	16.09		
Water content %	25.2 ✓	24.3 ✓	24.1 ✓	23.7 ✓		

Type of Test	PL	PL	Borehole #	TP 95-7
Container #	#14	#12	Sample #	—
Wt.sample wet + tare	28.53	25.50	Depth	—
Wt.sample dry + tare	26.75	24.19	Liquid Limit	24.1 ✓
Wt. of water	1.78	1.31	Plastic Limit	13.5 ✓
Tare	13.23	14.72	Plasticity index	10.6 ✓
Weight of dry soil	13.52	9.47	Moisture content	10.9
Water content	13.2 ✓	13.8 ✓	Liquidity Index	-0.25 ✓



SAMPLE DESCRIPTION

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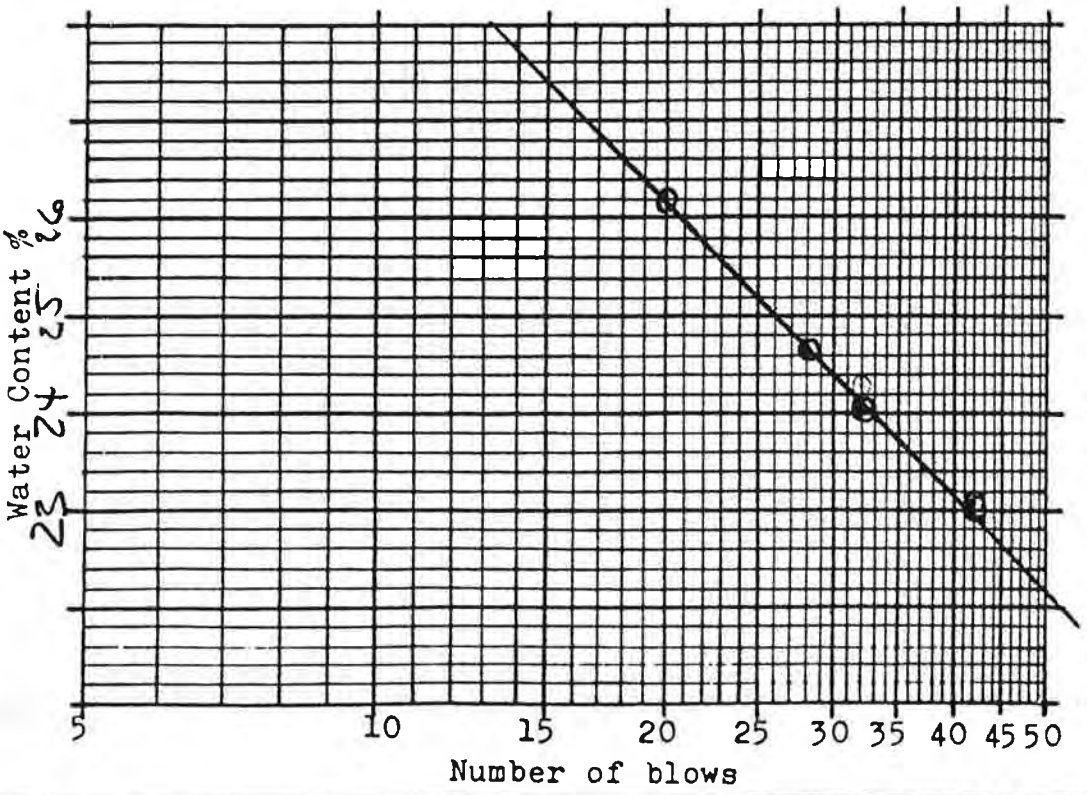
LABORATORY TEST SHEET – ATTERBERG LIMITS

ab Work _____ Project # 952-1018 Date FEB 3/95

JKB Feb 14/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	49	9	B22	E2		
Number of blows	42	32	28	20		
Wt.sample wet + tare	37.30	36.36	35.87	42.76		
Wt.sample dry + tare	31.04	29.92	29.47	34.60		
Weight of water	6.26	6.44	6.40	8.16		
Tare	3.90	3.38	3.56	3.50		
Wt. of dry soil	27.14	26.54	25.91	31.10		
Water content %	23.1 ✓	24.3 ✓	24.7 ✓	26.2 ✓		12.6

Type of Test	PL	PL	Borehole #	TP 95-10
Container #	C4	87	Sample #	
Wt.sample wet + tare	11.47	13.14	Depth	
Wt.sample dry + tare	10.38	11.80	Liquid Limit	25.2 → 25.3 ✓
Wt. of water	1.09	1.34	Plastic Limit	16.5 ✓
Tare	3.60	3.85	Plasticity index	~~8.7~~ → 8.8 ✓
ght of dry soil	6.78	7.95	Moisture content	12.6
Water content	16.1 ✓	16.9 ✓	Liquidity Index	~~-0.45~~ → -0.44 ✓



SAMPLE DESCRIPTION

BROWN CLAYEY SILT

CITTCE

LABORATORY TEST SHEET – ATTERBERG LIMITS

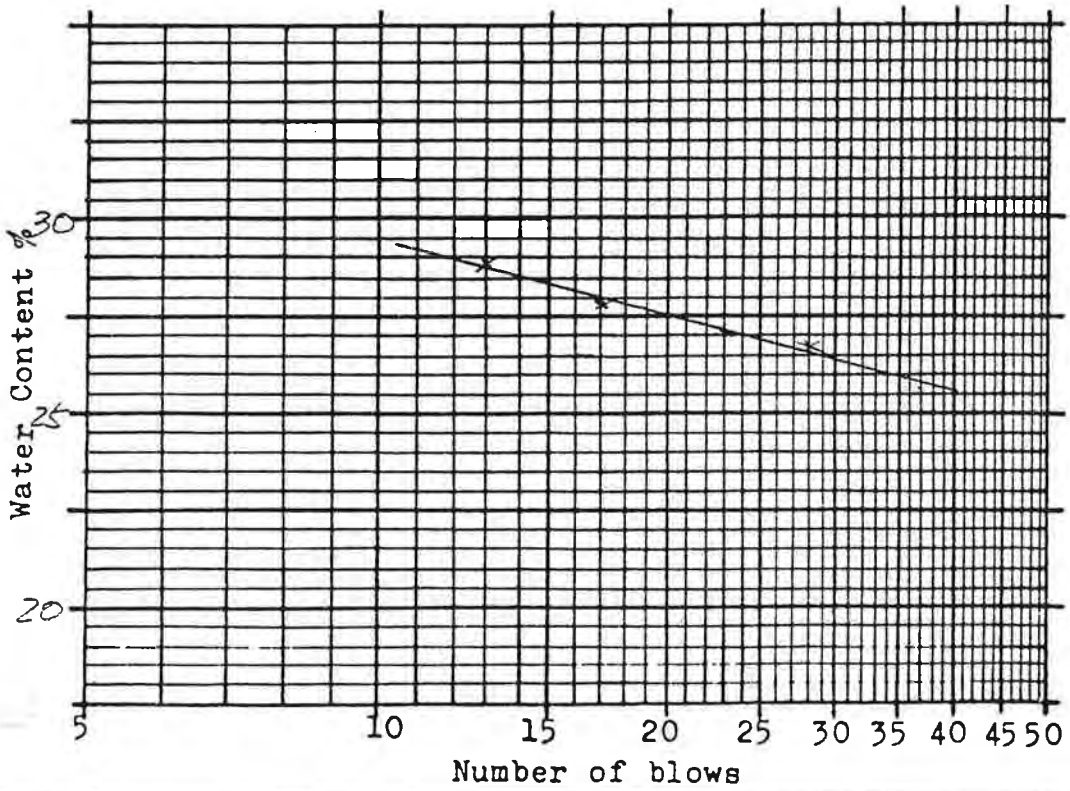
Lab Work M.O Project # 9521018 Date Jan. 30-94

1/140 Feb 14/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	#24	#1	#16	#21		
Number of blows	28	17	23	13		
Wt.sample wet + tare	28.39	30.13	34.05	29.66		
Wt.sample dry + tare	25.38	26.54	29.85	26.24		
Weight of water	3.01	3.59	4.20	3.42		
Tare	13.67	13.67	14.36	14.41		
Wt. of dry soil	11.71	12.87	15.49	11.83		
Water content %	25.7 ✓	27.9 ✓	27.1 ✓	28.9 ✓		

Type of Test	PL	PL	Borehole #	TP95-13
Container #	#29	#22	Sample #	—
Wt.sample wet + tare	24.11	25.75	Depth	—
Wt.sample dry + tare	22.97	24.38 ✓	Liquid Limit	26.9 ✓
Wt. of water	1.14	1.37	Plastic Limit	13.3 ✓
Tare	14.55	13.86	Plasticity index	13.6 ✓
Weight of dry soil	8.42	10.52	Moisture content	13.8 ✓
Water content	13.5 ✓	13.0 ✓	Liquidity Index	0.04 ✓

$\frac{13.8 - 13.3}{13.6}$



SAMPLE DESCRIPTION

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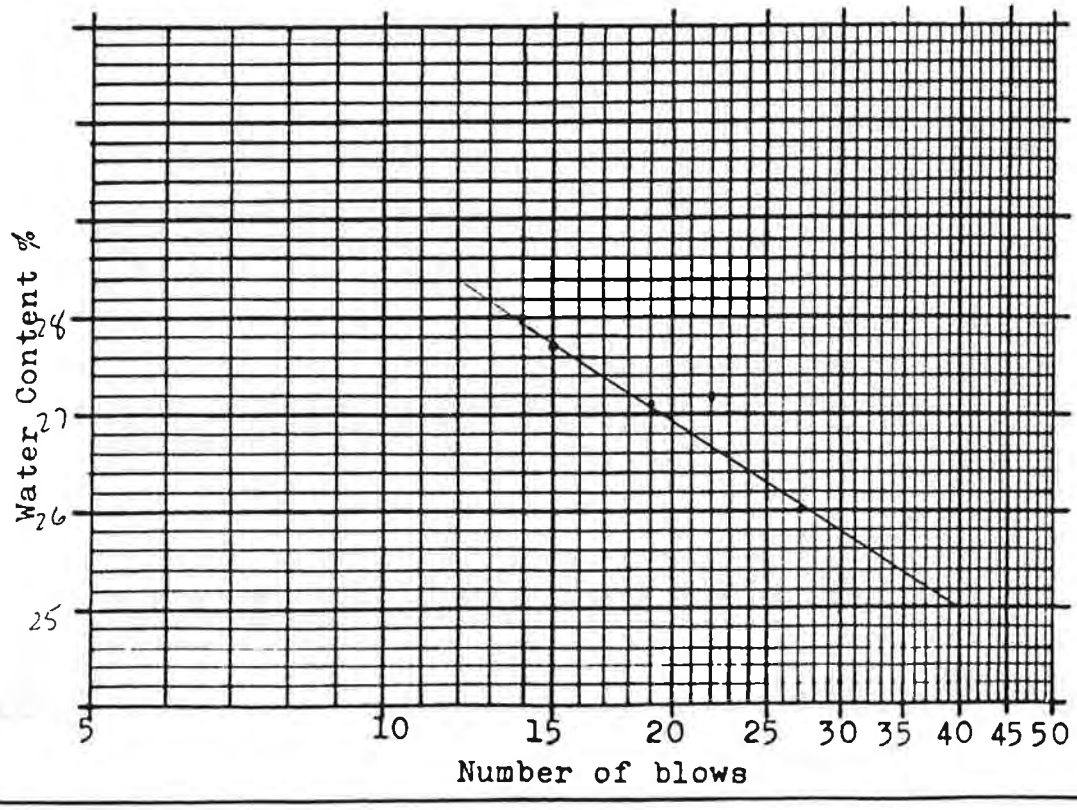
LABORATORY TEST SHEET – ATTERBERG LIMITS

ab Work M.O Project # 152/017 Date Dec 31-95

JLMS Feb 14/96

Type of Test	LL	LL	LL	LL		Nat MC
Container #	#11A	#10	#33	#35		
Number of blows	15	19	22	27		
Wt.sample wet + tare	28.78	30.94	30.51	31.77		
Wt.sample dry + tare	25.62	27.39	27.04	28.16		
Weight of water	3.16	3.55	3.47	3.61		
Tare	14.22	14.31	14.27	14.26		
Wt. of dry soil	11.4	13.08	12.76	13.9		
Water content %	27.7 ✓	27.1 ✓	27.2 ✓	26.0 ✓		

Type of Test	PL	PL	Borehole #	TP95-20
Container #	#70	#30	Sample #	—
Wt.sample wet + tare	35.36	23.44	Depth	—
Wt.sample dry + tare	34.53	22.35	Liquid Limit	26.3 ✓
Wt. of water	1.83	1.09	Plastic Limit	13.1 ✓
Tare	20.60	14.04	Plasticity index	13.2 ✓
Weight of dry soil	13.93	8.31	Moisture content	14.5 ✓
Water content	13.1 ✓	13.1 ✓	Liquidity Index	0.11 ✓



SAMPLE DESCRIPTION

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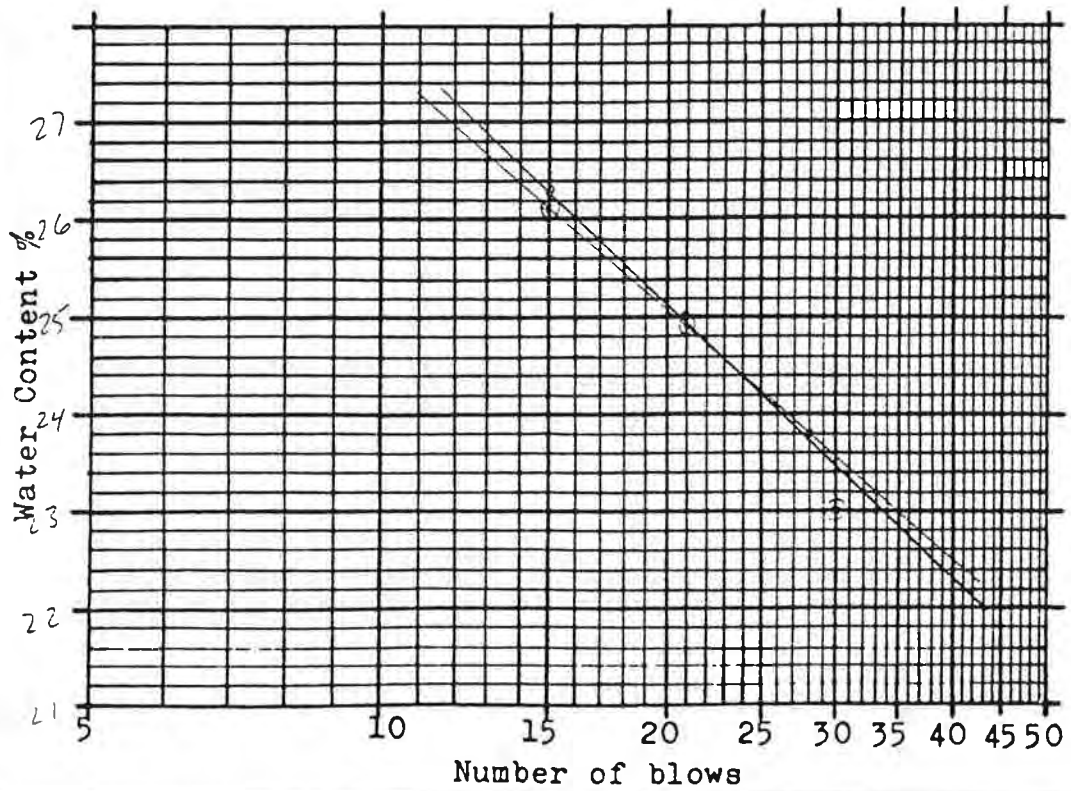
LABORATORY TEST SHEET – ATTERBERG LIMITS

Lab Work MO Project # 952/018 Date Jan. 31-95

✓ MAB Feb 14/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	#22	#21	#16	#24		
Number of blows	30	28	21	15		
Wt.sample wet + tare	27.58	31.20	32.45	34.24		
Wt.sample dry + tare	26.64	27.97	28.83	29.98		
Weight of water	2.94	3.23	3.62	4.3		
Tare	13.84	14.39	14.33	13.64		
Wt. of dry soil	12.8	13.58	14.5	16.34		
Water content %	23.0 ✓	23.8 ✓	24.9 ✓	~~26.3~~ 26.1		

Type of Test	PL	PL	Borehole #	TP 95-25
Container #	#29	#1	Sample #	—
Wt.sample wet + tare	27.08	23.30	Depth	—
Wt.sample dry + tare	25.80	22.30	Liquid Limit	24 2 ✓
Wt. of water	1.28	1.0	Plastic Limit	~~11.3~~ 11.5
Tare	14.53	13.67	Plasticity index	~~12.9~~ 12.7
Weight of dry soil	11.28	9.63	Moisture content	17.1 ✓
Water content	~~11.3~~ 11.4	~~11.6~~ 11.2	Liquidity Index	~~0.45~~ 0.44



SAMPLE DESCRIPTION

CL

Golder Associates

LABORATORY TEST SHEET – ATTERBERG LIMITS

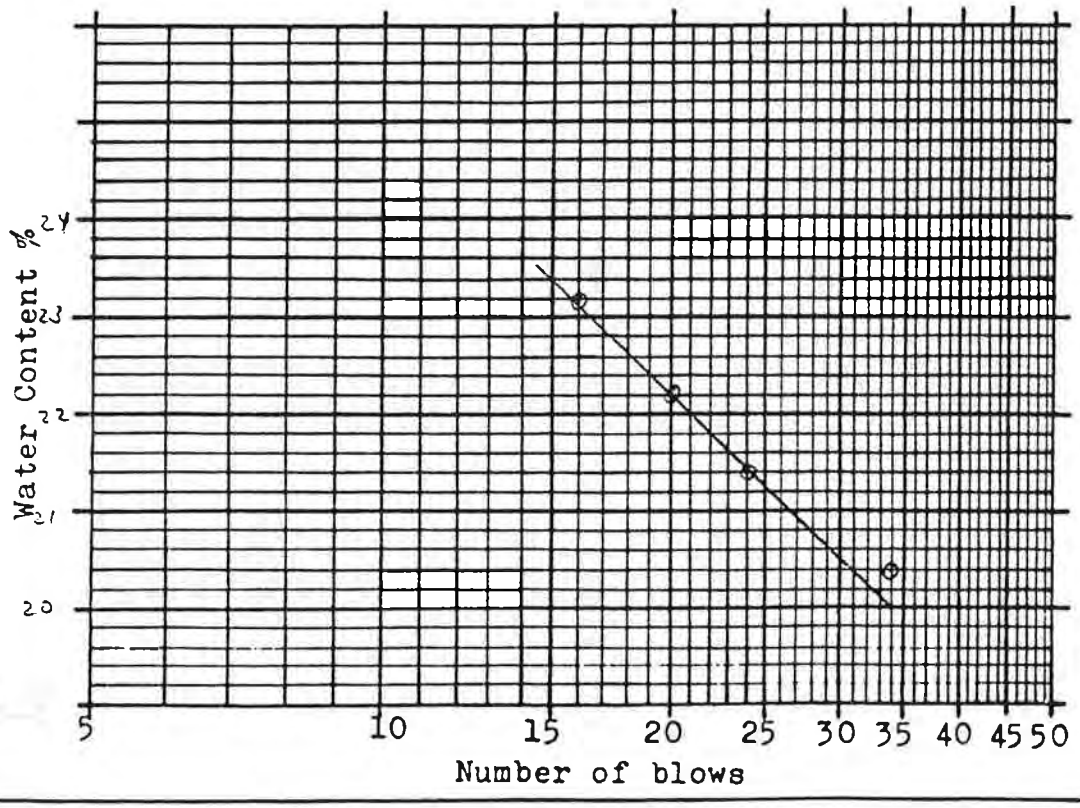
ab Work 19 Project # 952-1018 Date Jan. 26/95

VAB Feb 14/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	B2	2	8	12		
Number of blows	34	24	20	16		
Wt.sample wet + tare	51.86	52.86	52.51	53.77		
Wt.sample dry + tare	45.57	50.22	49.55	50.31		
Weight of water	6.29	7.64	7.96	8.46		
Tare	14.75	14.50	13.62	13.89		
Wt. of dry soil	30.82	35.72	35.93	36.42		
Water content %	20.4 ✓	21.4 ✓	22.2 ✓	23.2 ✓		

Type of Test	PL	PL	Borehole #	TP 95-27
Container #	15	51	Sample #	
Wt.sample wet + tare	24.90	25.53	Depth	
Wt.sample dry + tare	23.70	24.25	Liquid Limit	21.20 ✓
Wt. of water	1.20	1.28	Plastic Limit	~~12.87~~ 12.9 ✓
Tare	14.41	14.26	Plasticity index	8.3 ✓
ght of dry soil	9.29	9.99	Moisture content	11.1
Water content	12.92 ✓	12.81 ✓	Liquidity Index	~~-0.21~~ -0.22

$\frac{11.1 - 12.87}{8.33}$



SAMPLE DESCRIPTION

TILL-LIKE SOILS
SAMPLE - MINUS 3/4" SIEVE, BROWN CLAYEY SILT, TRACE → LITTLE SAND
CL

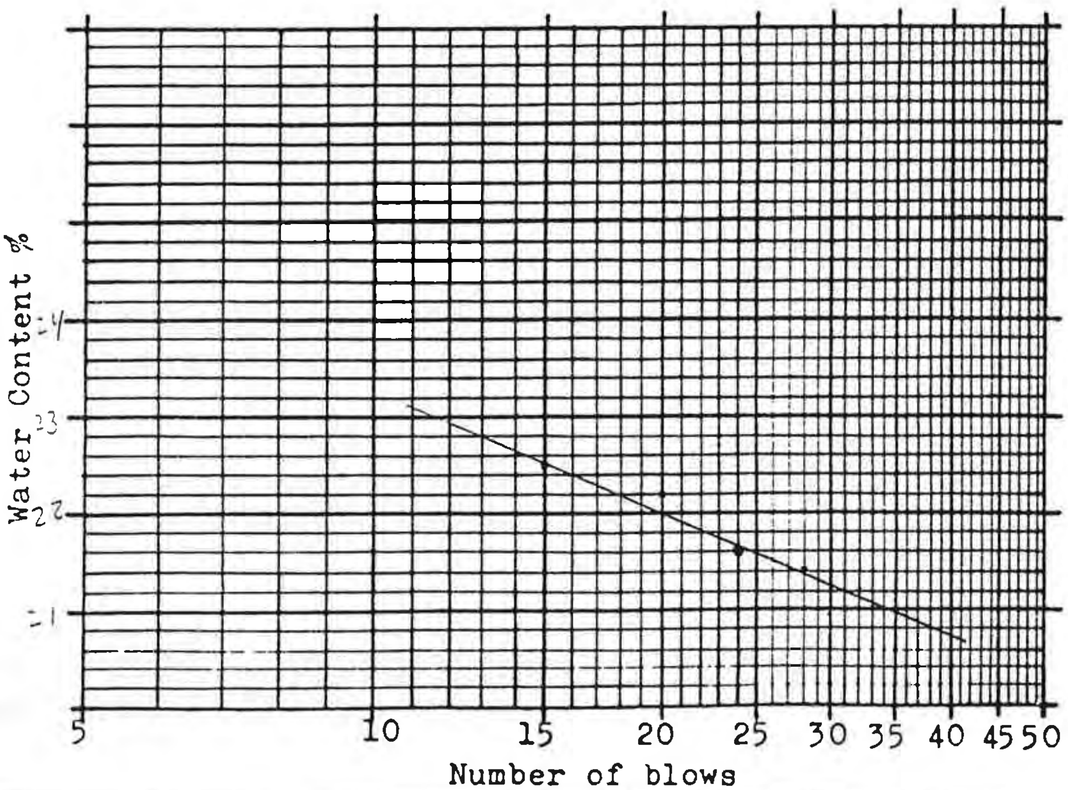
LABORATORY TEST SHEET – ATTERBERG LIMITS

ab Work M.O Project # 951013 Date Jan. 31-95

✓ 133 Feb/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	#102	#30	#42	#74		
Number of blows	15	20	24	28		
Wt.sample wet + tare	30.63	32.90	40.59	40.41		
Wt.sample dry + tare	27.58	29.54	37.00	36.93		
Weight of water	3.05	3.36	3.59	3.48		
Tare	14.05	14.40	20.37	20.69		
Wt. of dry soil	13.53	15.14	16.63	16.24		
Water content %	22.5 ✓	22.2 ✓	21.6 ✓	21.4 ✓		

Type of Test	PL	PL	Borehole #	TP95-31
Container #	#82	#51	Sample #	----
Wt.sample wet + tare	34.07	37.00	Depth	----
Wt.sample dry + tare	32.45	35.04	Liquid Limit	21.6 ✓
Wt. of water	1.62	1.96	Plastic Limit	14.0 ✓
Tare	20.92	20.83	Plasticity index	7.6 ✓
Weight of dry soil	11.53	14.21	Moisture content	11.0 ✓
Water content	14.1 ✓	13.8 ✓	Liquidity Index	-0.40 ✓



SAMPLE DESCRIPTION

CL/ML

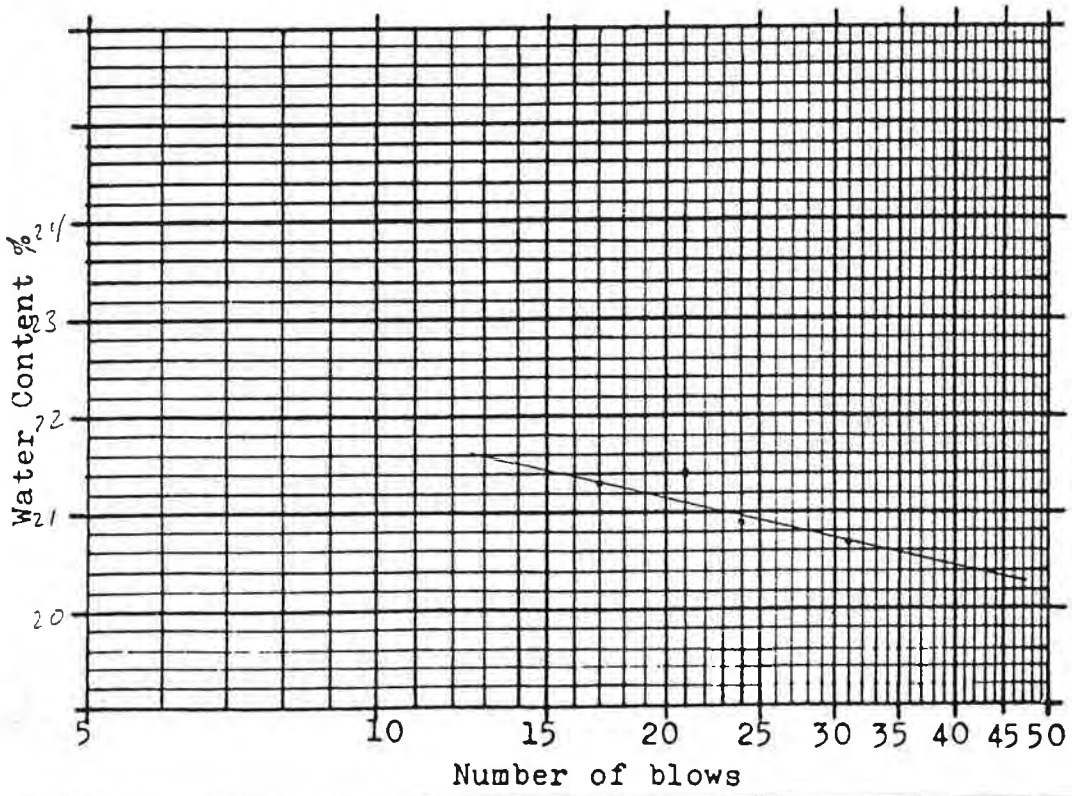
LABORATORY TEST SHEET – ATTERBERG LIMITS

ab Work M.O. Project # 952-1018 Date Jan. 21-95

✓ KAB Feb 14/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	#31	#14	#129	#3		
Number of blows	17	24	21	31		
Wt.sample wet + tare	31.74	31.10	32.26	32.24		
Wt.sample dry + tare	28.73	28.24	29.06	29.21		
Weight of water	3.01	2.86	3.2	3.03		
Tare	14.59	14.55	14.11	14.59		
Wt. of dry soil	14.14	13.69	14.95	14.62		
Water content %	21.3 ✓	20.9 ✓	21.4 ✓	20.7 ✓		

Type of Test	PL	PL	Borehole #	TP95-35
Container #	#12	#9	Sample #	—
Wt.sample wet + tare	25.83	23.80	Depth	—
Wt.sample dry + tare	24.35	22.61	Liquid Limit	20.9 ✓
Wt. of water	1.48	1.19	Plastic Limit	14.1 ✓
Tare	13.91	14.08	Plasticity index	6.8 ✓
ight of dry soil	10.44	8.53	Moisture content	16.5 ✓
Water content	14.2 ✓	14.0 ✓	Liquidity Index	0.35 ✓



SAMPLE DESCRIPTION

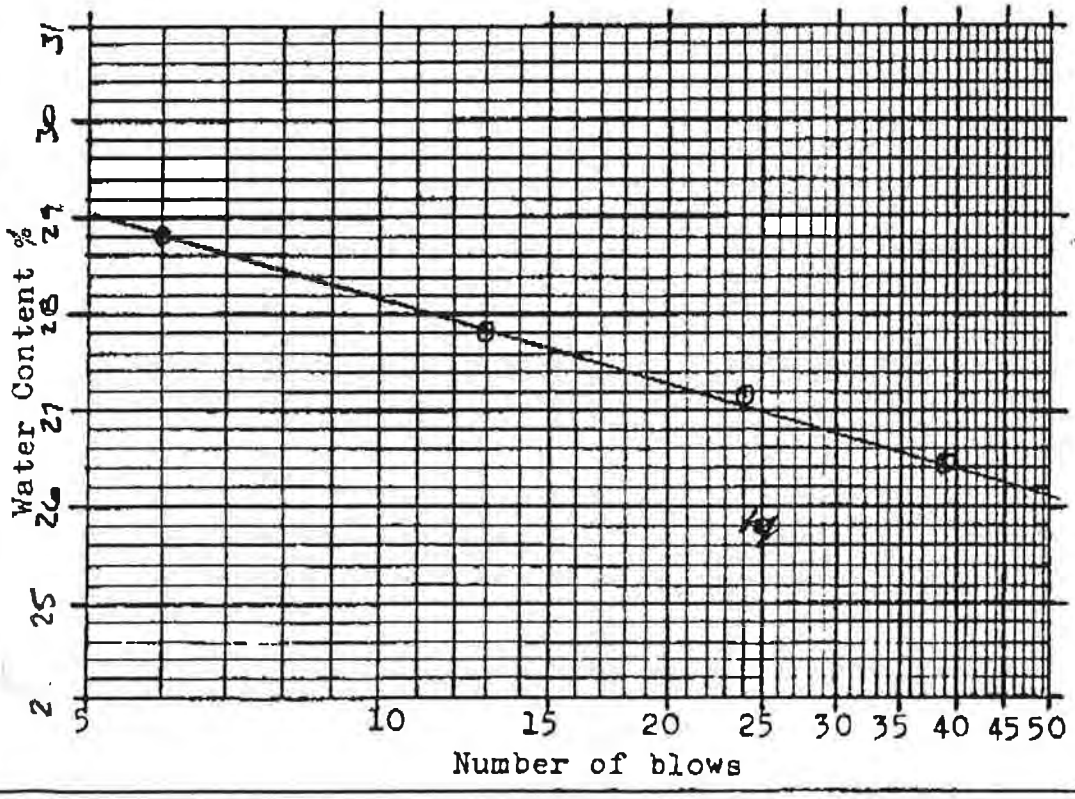
CL/CI

LABORATORY TEST SHEET – ATTERBERG LIMITS

Lab Work _____ Project # 952-1018 Date FEB 3 /95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	36	4	91	CC	4	
Number of blows	13	25	24	6	39	
Wt.sample wet + tare	22.69	18.83	31.27	20.33	35.20	
Wt.sample dry + tare	18.75	15.70	25.39	16.57	30.88	
Weight of water	3.94	3.13	5.88	3.76	4.32	
Tare	4.55	3.57	3.76	3.50	14.57	
Wt. of dry soil	14.20	12.13	21.63	13.07	16.31	
Water content %	27.8	25.8	27.2	28.8	26.5	18.8%

Type of Test	PL	PL	Borehole #	TP 95-37
Container #	A8	B13	Sample #	
Wt.sample wet + tare	17.80	17.14	Depth	
Wt.sample dry + tare	15.81	15.26	Liquid Limit	27.0 %
Wt. of water	1.99	1.88	Plastic Limit	16.3 %
Tare	3.59	3.67	Plasticity index	10.7 %
Weight of dry soil	12.22	11.59	Moisture content	18.8 %
Water content	16.3	16.2	Liquidity Index	0.23



SAMPLE DESCRIPTION

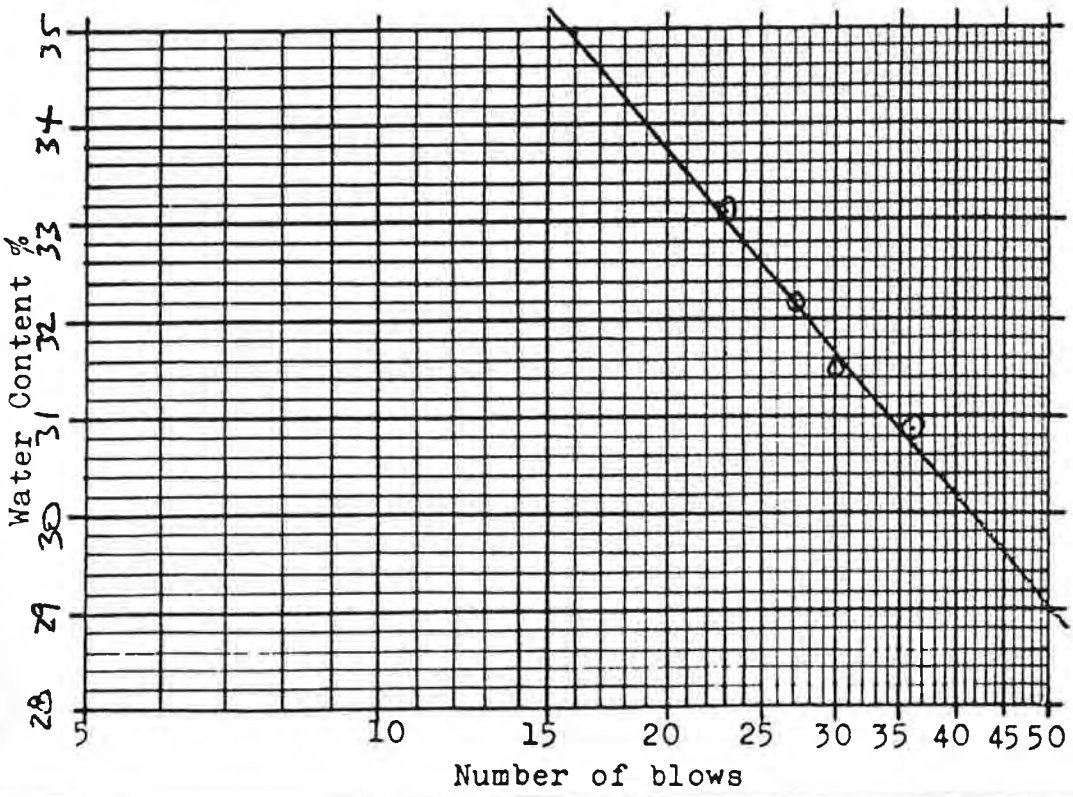
CL

LABORATORY TEST SHEET – ATTERBERG LIMITS

Lab Work _____ Project # 952 1018 Date Feb 3 /95 VGB Feb 14/95

Type of Test	LL	LL	LL	LL		Nat MC
Container #	61	78	65	69		
Number of blows	36	30	27	23		
Wt.sample wet + tare	49.50	50.11	51.16	61.30		
Wt.sample dry + tare	42.74	43.08	43.70	51.05		
Weight of water	6.76	7.03	7.46	10.25		
Tare	20.84	20.75	20.53	20.05		
Wt. of dry soil	21.90	22.33	23.17	31.00		
Water content %	30.9 ✓	31.5 ✓	32.2 ✓	33.1 ✓		28.4

Type of Test	PL	PL	Borehole #	TP 95-38
Container #	6	25	Sample #	
Wt.sample wet + tare	25.14	30.91	Depth	
Wt.sample dry + tare	23.97	29.81	Liquid Limit	32.6 ✓
Wt. of water	1.17	1.10	Plastic Limit	18.7 ✓
Tare	17.77	23.84	Plasticity index	13.9 ✓
ight of dry soil	6.20	5.97	Moisture content	28.4 ✓
Water content	18.9 ✓	18.4 ✓	Liquidity Index	0.70 ✓



SAMPLE DESCRIPTION

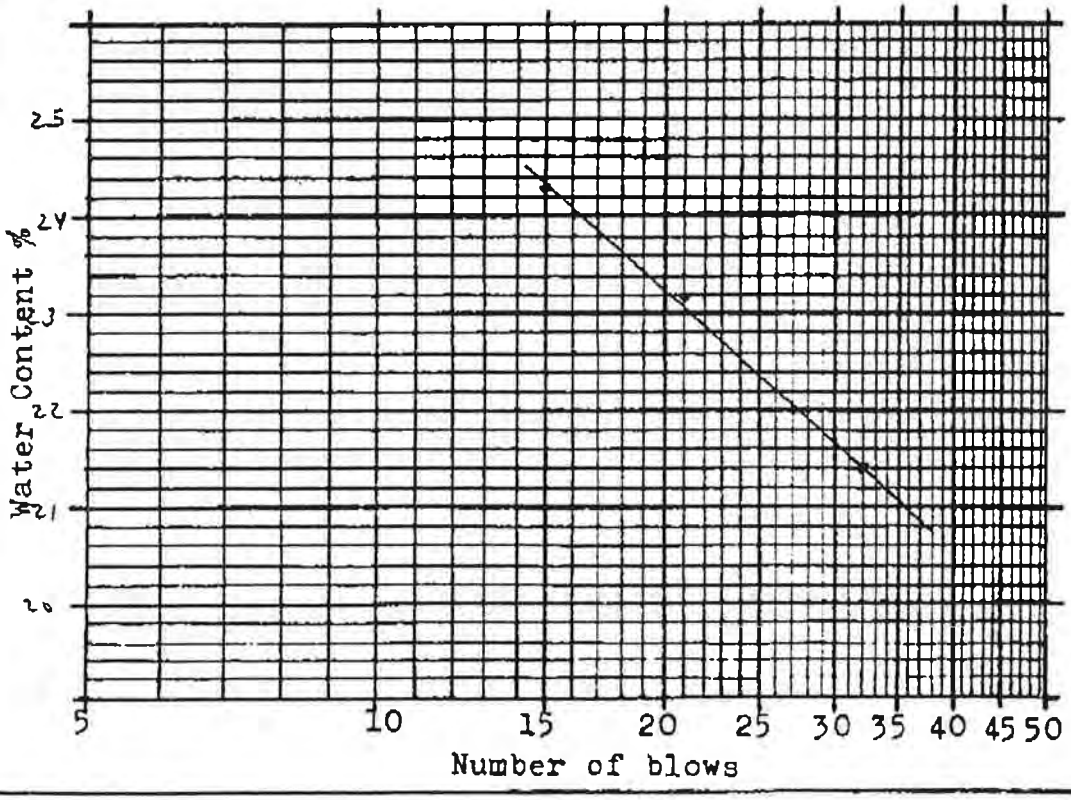
Brown CLAYEY SILT
TRACE SAND

LABORATORY TEST SHEET – ATTERBERG LIMITS

Lab Work _____ Project # 952-1018 Date Feb 14/95

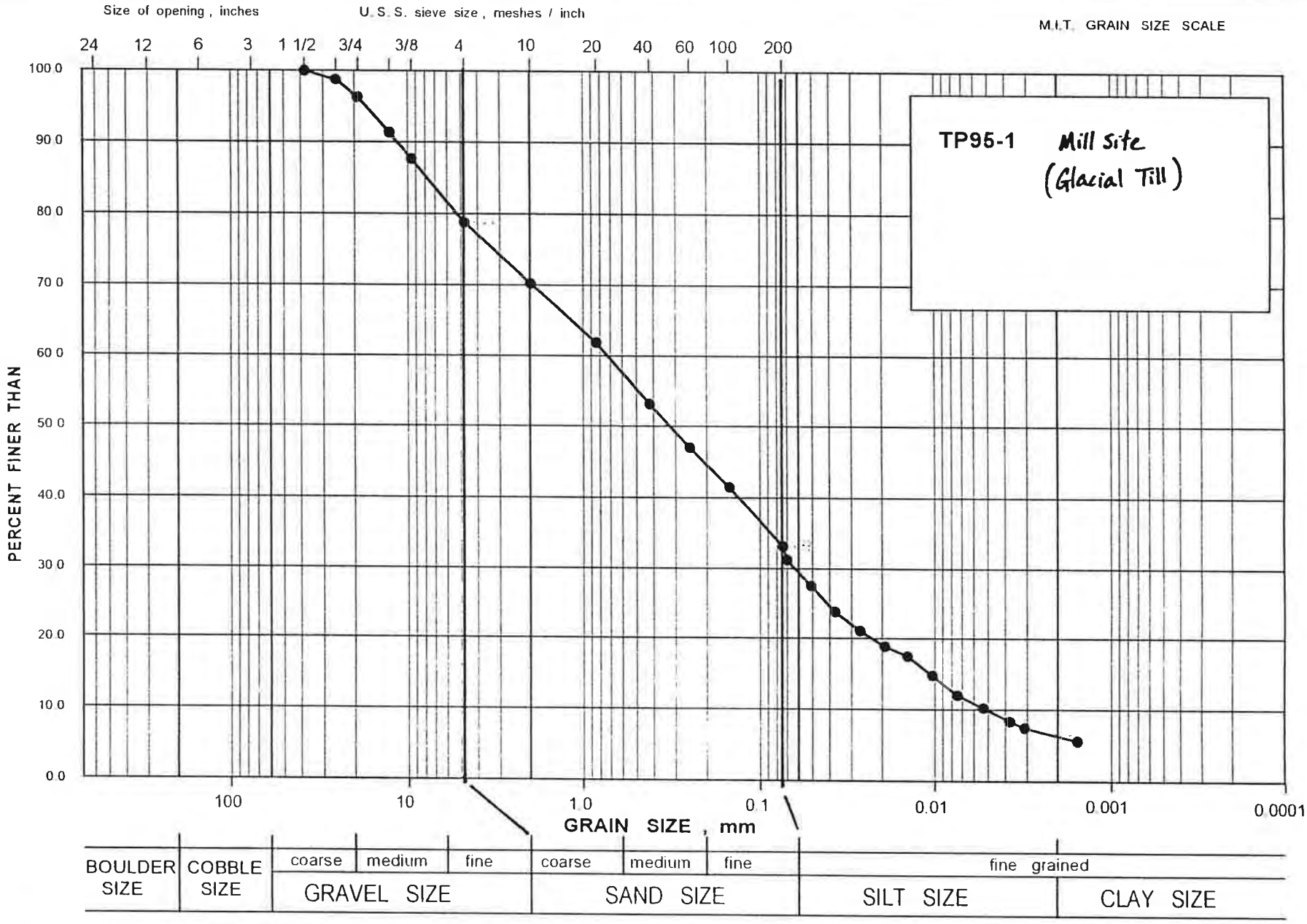
Type of Test	LL	LL	LL	LL		Nat MC
Container #	B2	12	12A	14		
Number of blows	32	27	21	15		
Wt.sample wet + tare	46.53	49.52	48.06	51.84		
Wt.sample dry + tare	40.93	43.09	41.78	44.47		
Weight of water	5.60	6.43	6.28	7.37		
Tare	14.79	13.89	14.73	14.19		
Wt. of dry soil	26.14	29.20	27.05	30.28		
Water content %	21.4	22.0	23.2	24.3		11.1

Type of Test	PL	PL	Borehole #	TP 95-27
Container #	30	102	Sample #	
Wt.sample wet + tare	25.60	24.04	Depth	
Wt.sample dry + tare	24.24	22.80	Liquid Limit	22.4
Wt. of water	1.36	1.24	Plastic Limit	13.9
Tare	14.39	13.95	Plasticity index	8.5
Weight of dry soil	9.85	8.85	Moisture content	11.1
Water content	13.8	14.0	Liquidity Index	-0.33



SAMPLE DESCRIPTION

BROWN CLAYEY SILT
TRACE SAND
CL



Project No. ..9521018.....
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Reviewed .....
Date .....02/09/95.....

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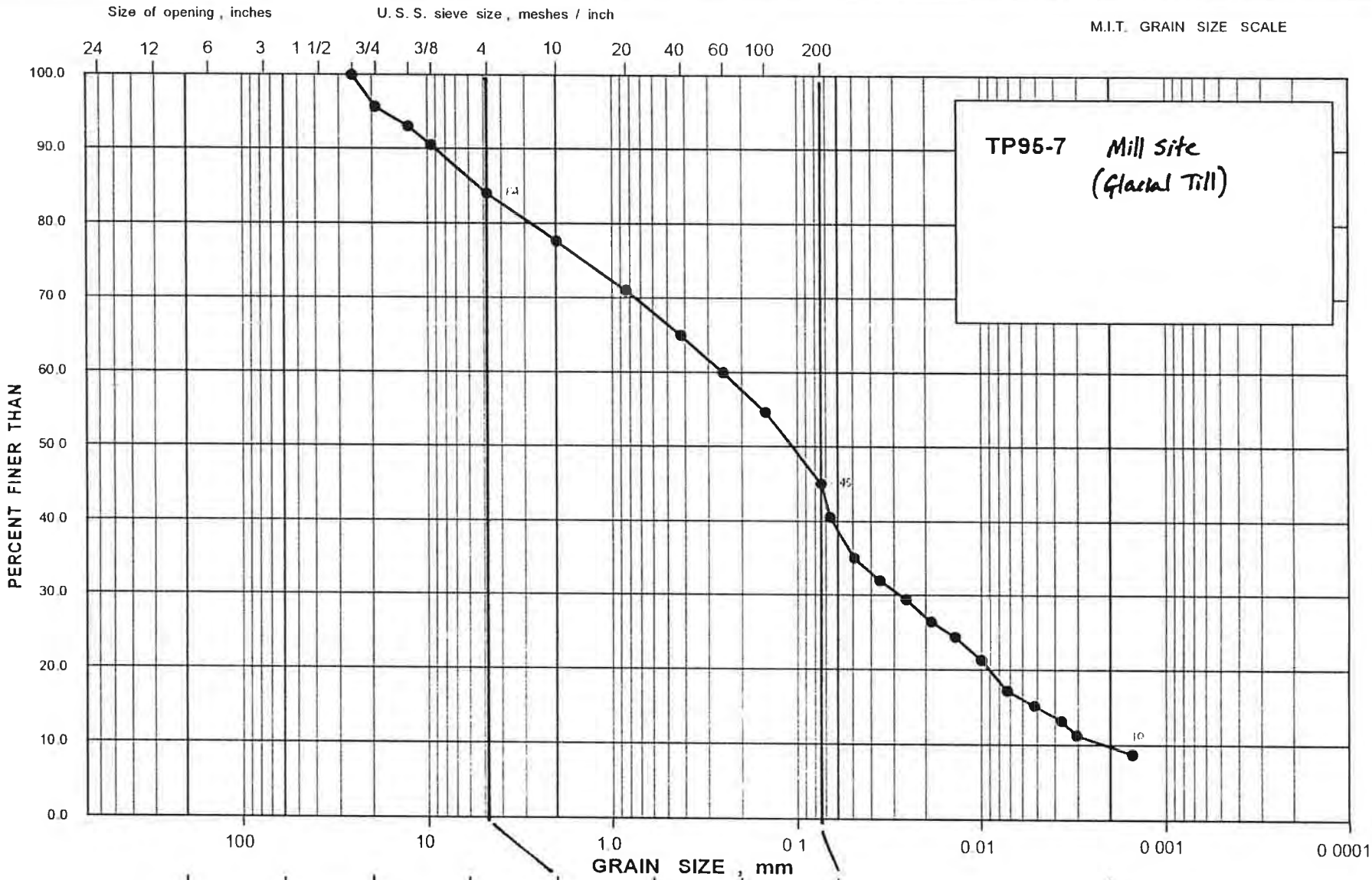
GRAIN SIZE DISTRIBUTION

Figure



Project No. ..9521018.....
Drawn .....LL.....
Reviewed .....
Date .....02/09/95.....

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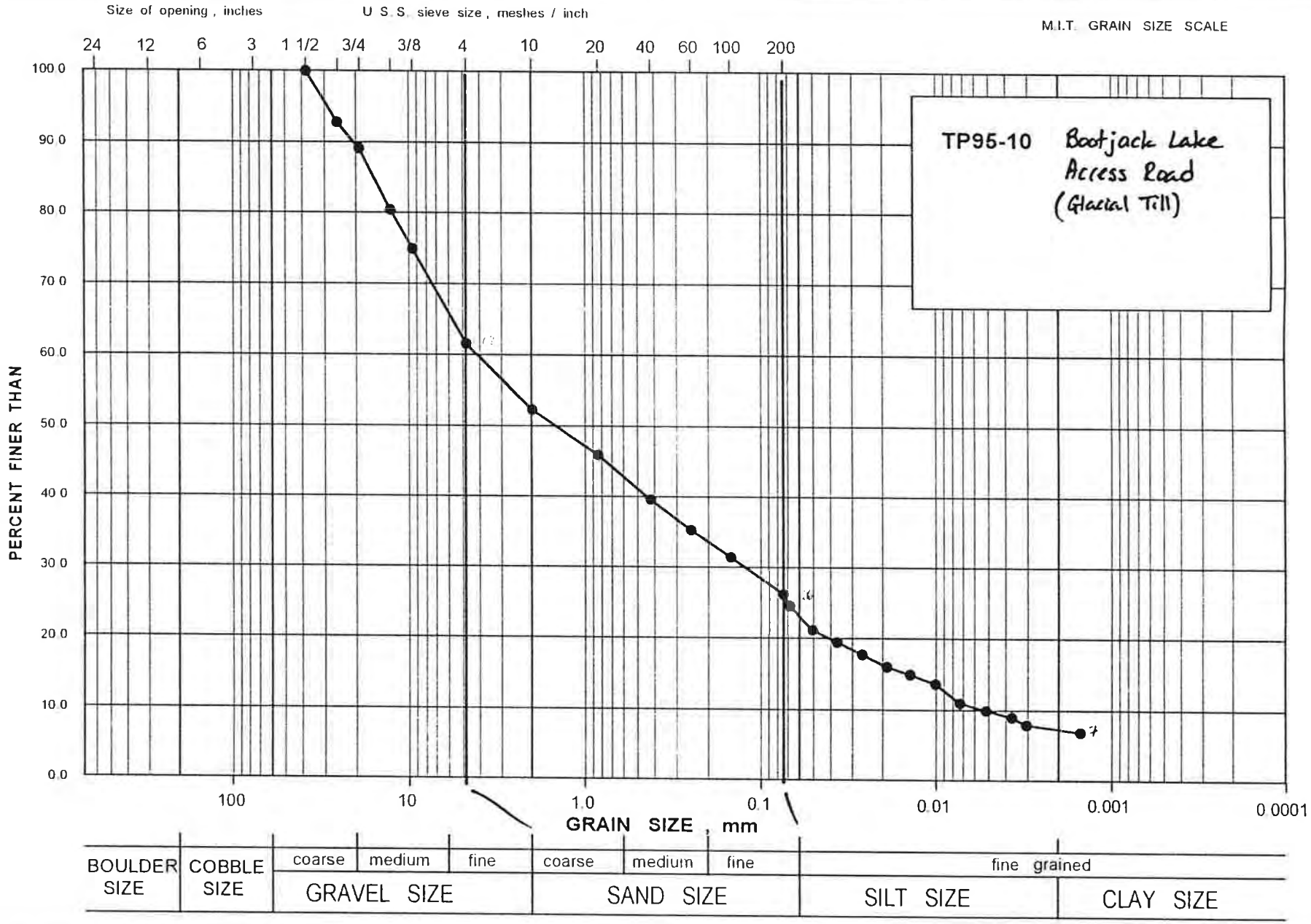
GRAIN SIZE DISTRIBUTION

Figure



Project No. ..9521018.....
Drawn .....LL.....
Reviewed .....
Date .....02/09/95.....

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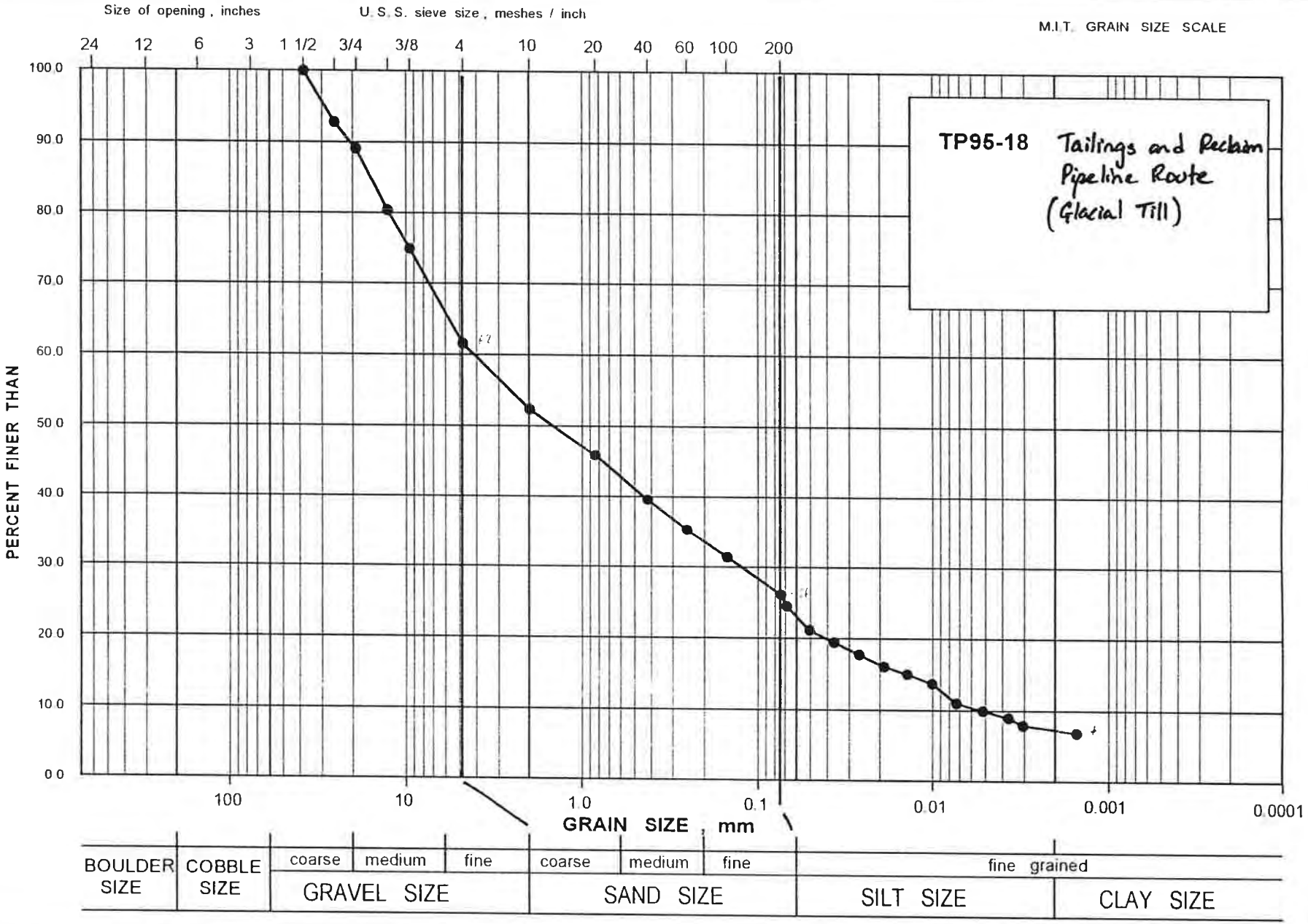
GRAIN SIZE DISTRIBUTION

Figure



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Reviewed .....
Date .....02/09/95.....

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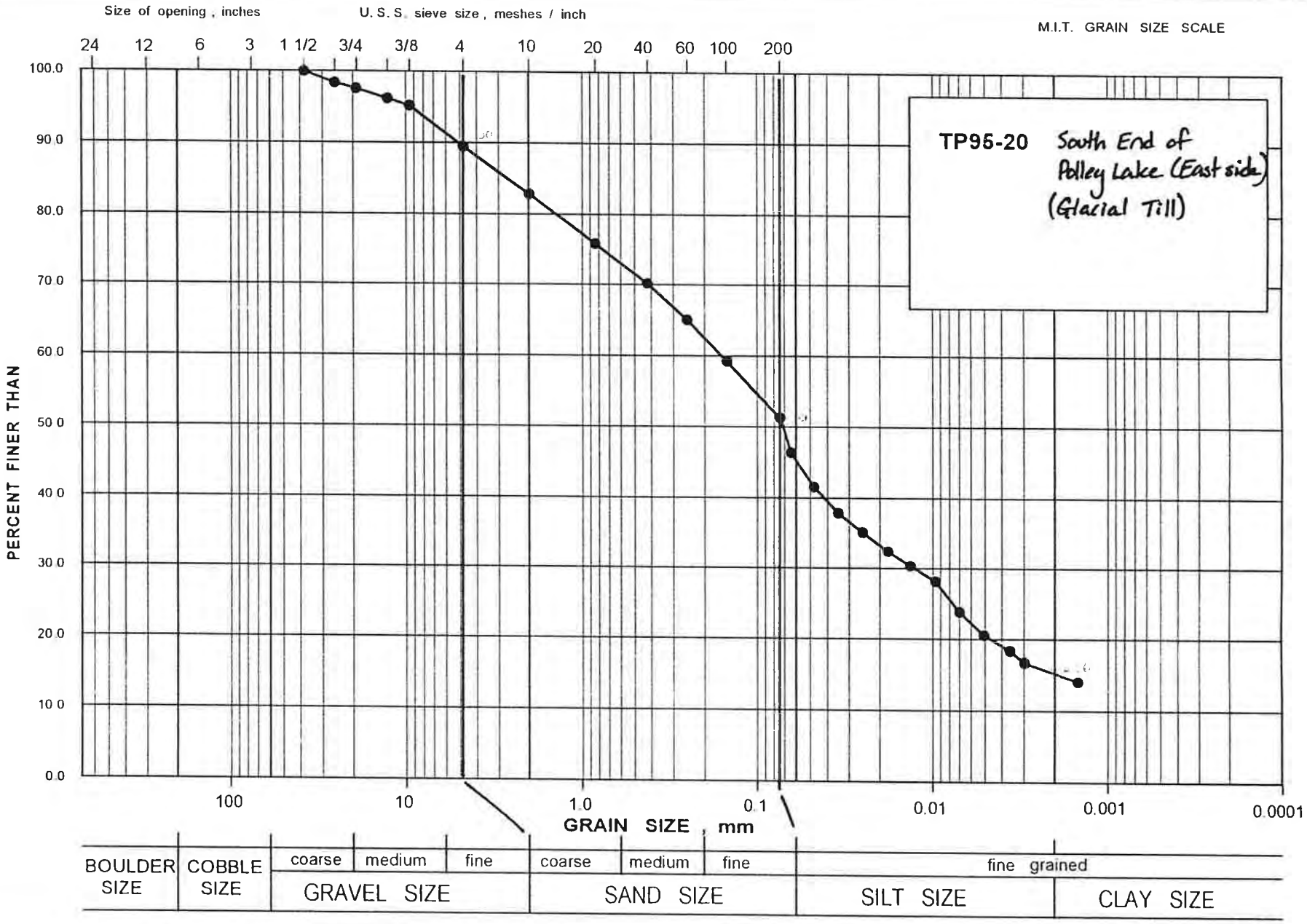
GRAIN SIZE DISTRIBUTION

Figure



Project No. ..9521018.....
Drawn .....LL.....
Reviewed .....
Date .....02/09/95.....

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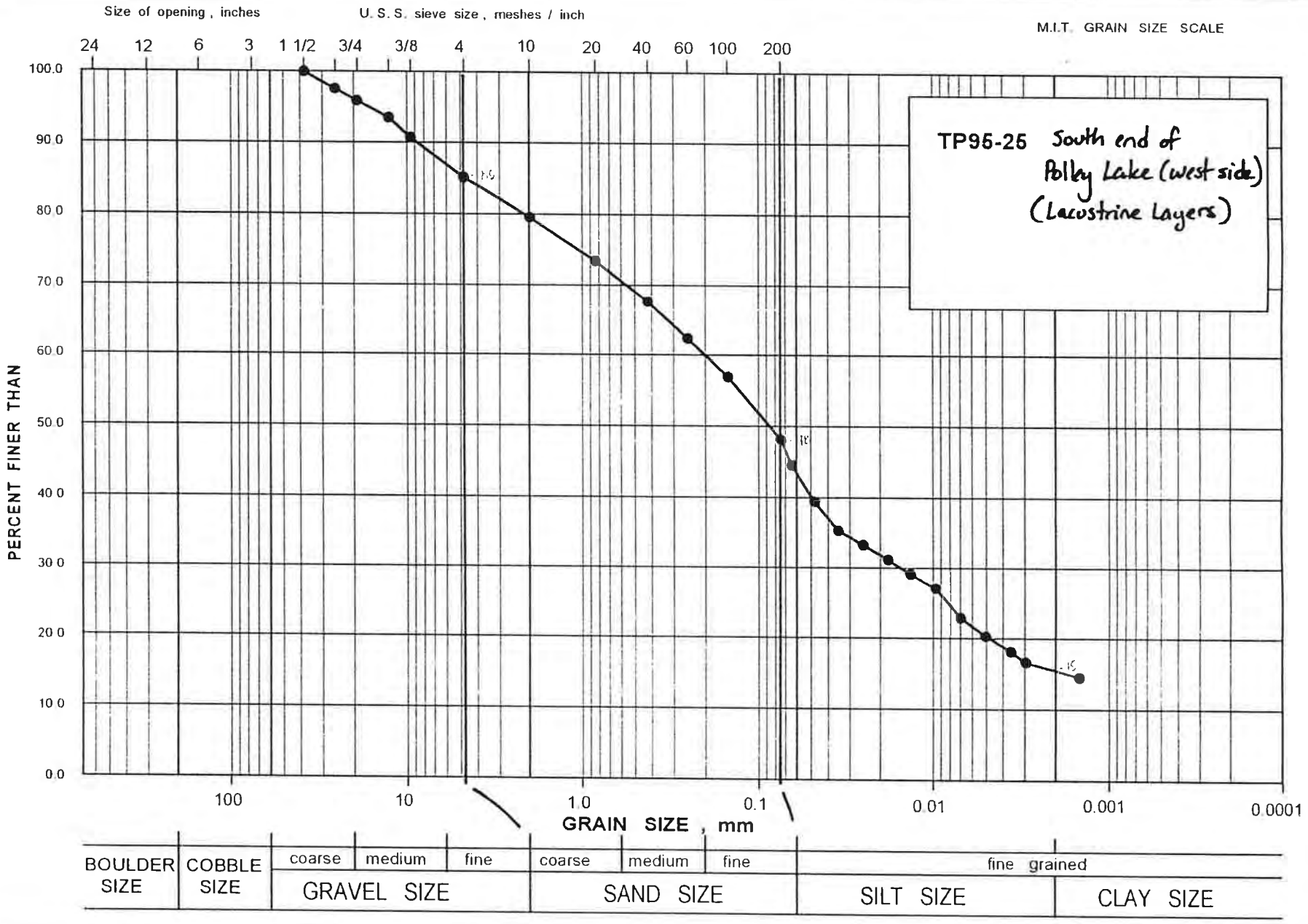
GRAIN SIZE DISTRIBUTION

Figure



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Drawn .....LL.....
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Date .....02/09/95.....

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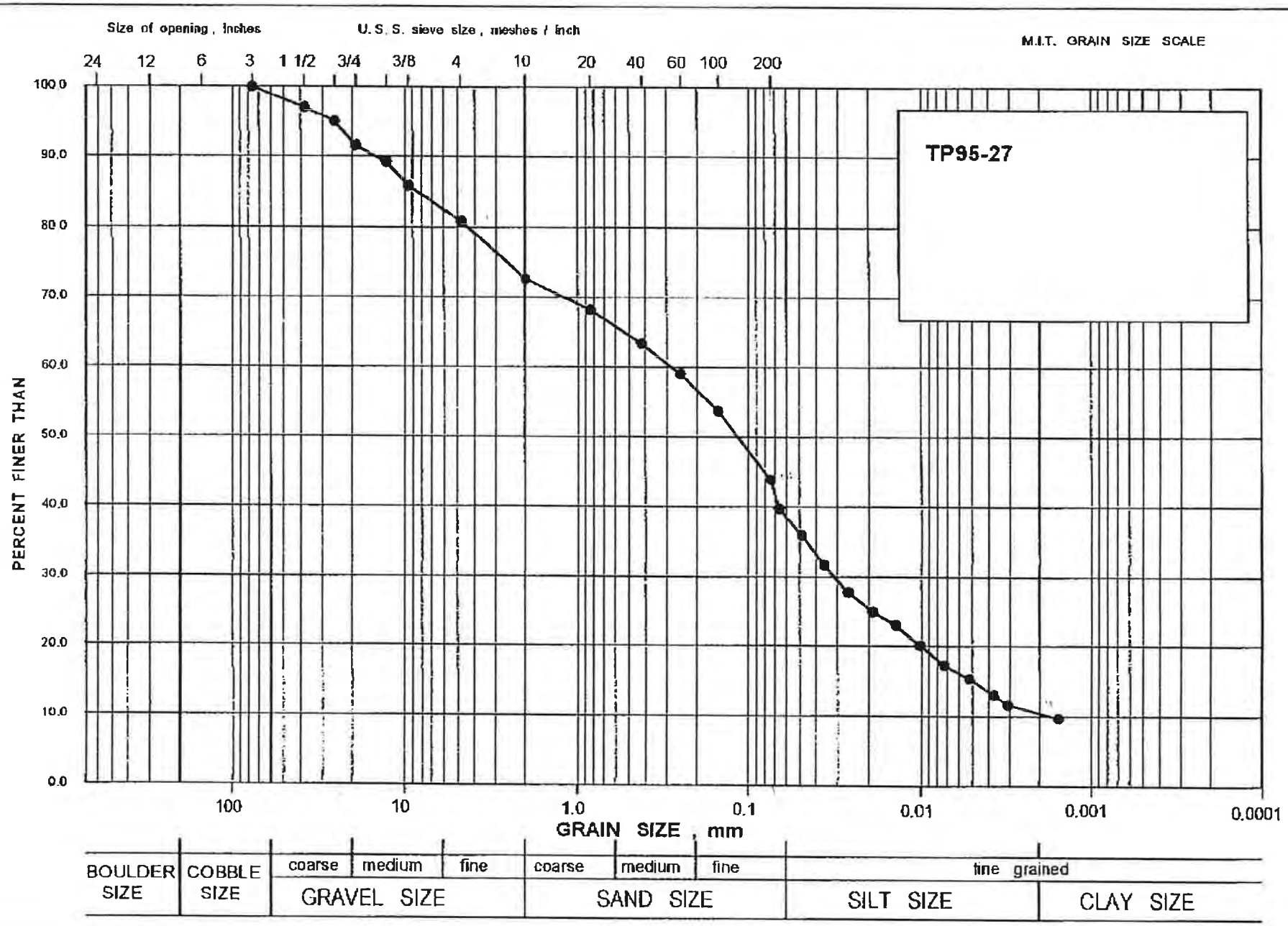
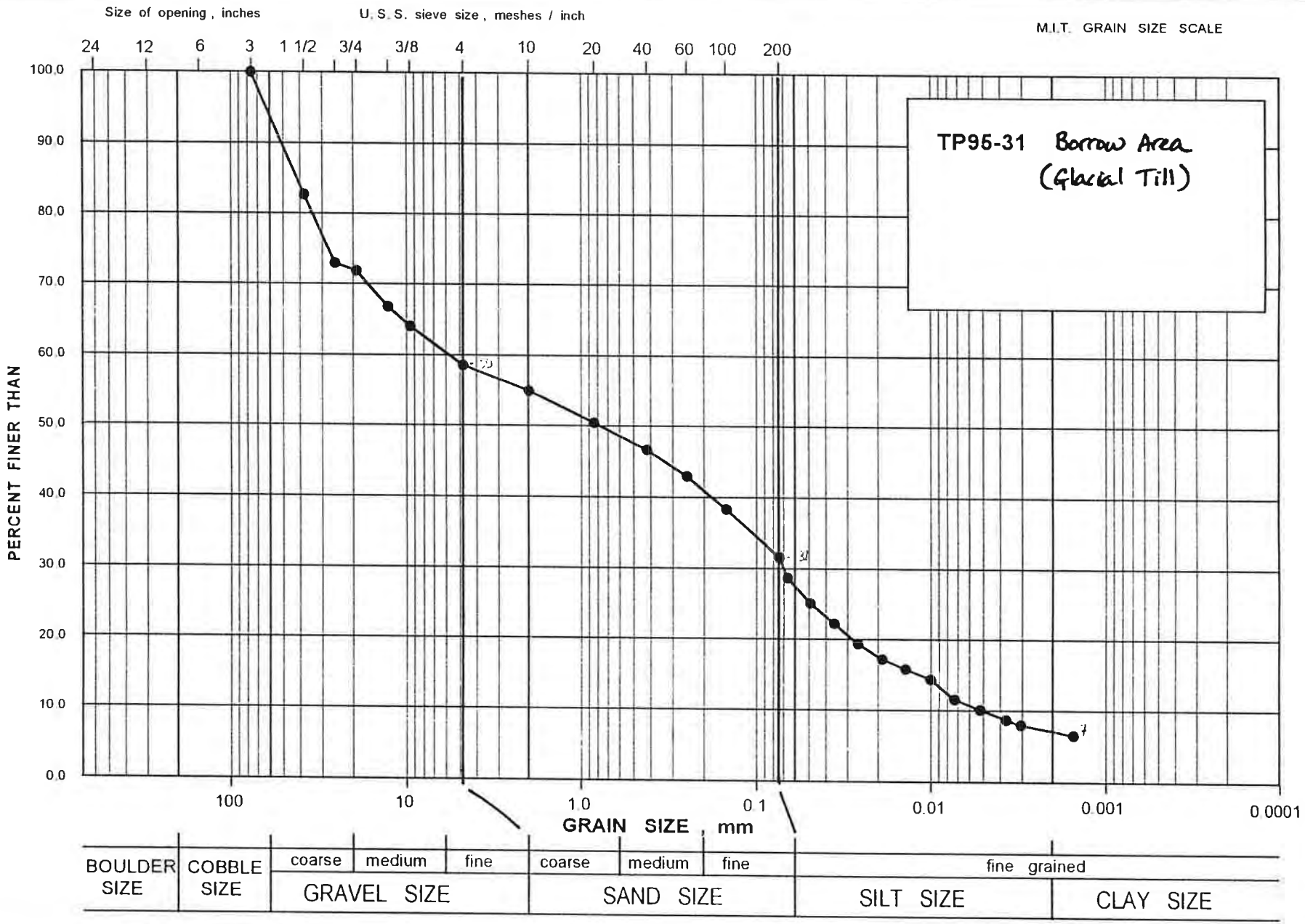
GRAIN SIZE DISTRIBUTION

Figure



Project No. 9521018 Drawn LL Reviewed Date 02/11/95	Golder Associates	GRAIN SIZE DISTRIBUTION	Figure

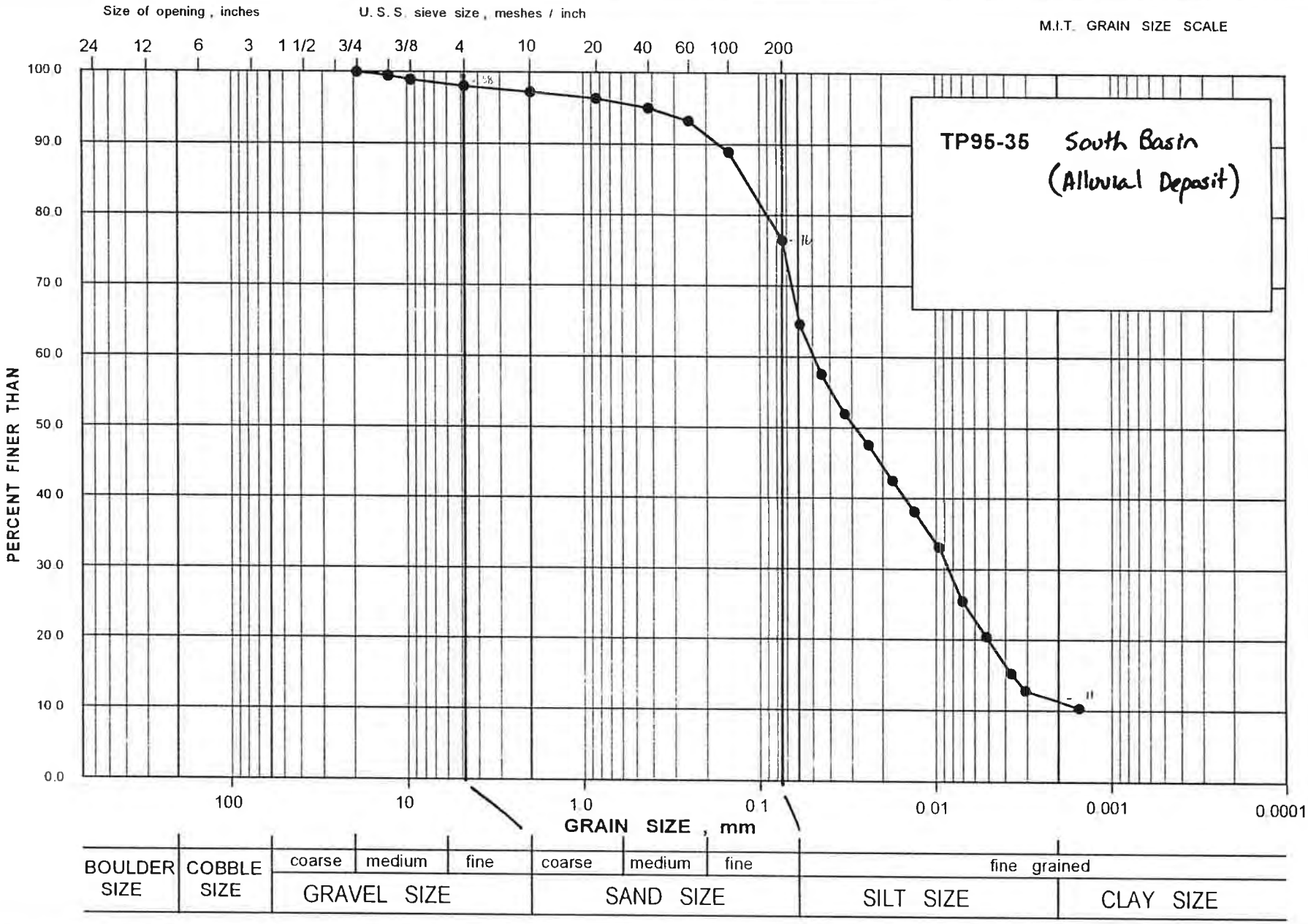


Project No. ..9521018.....
Drawn .....LL.....
Reviewed .....
Date .....02/09/95.....

Golder Associates

GRAIN SIZE DISTRIBUTION

Figure



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Date .....02/09/95.....

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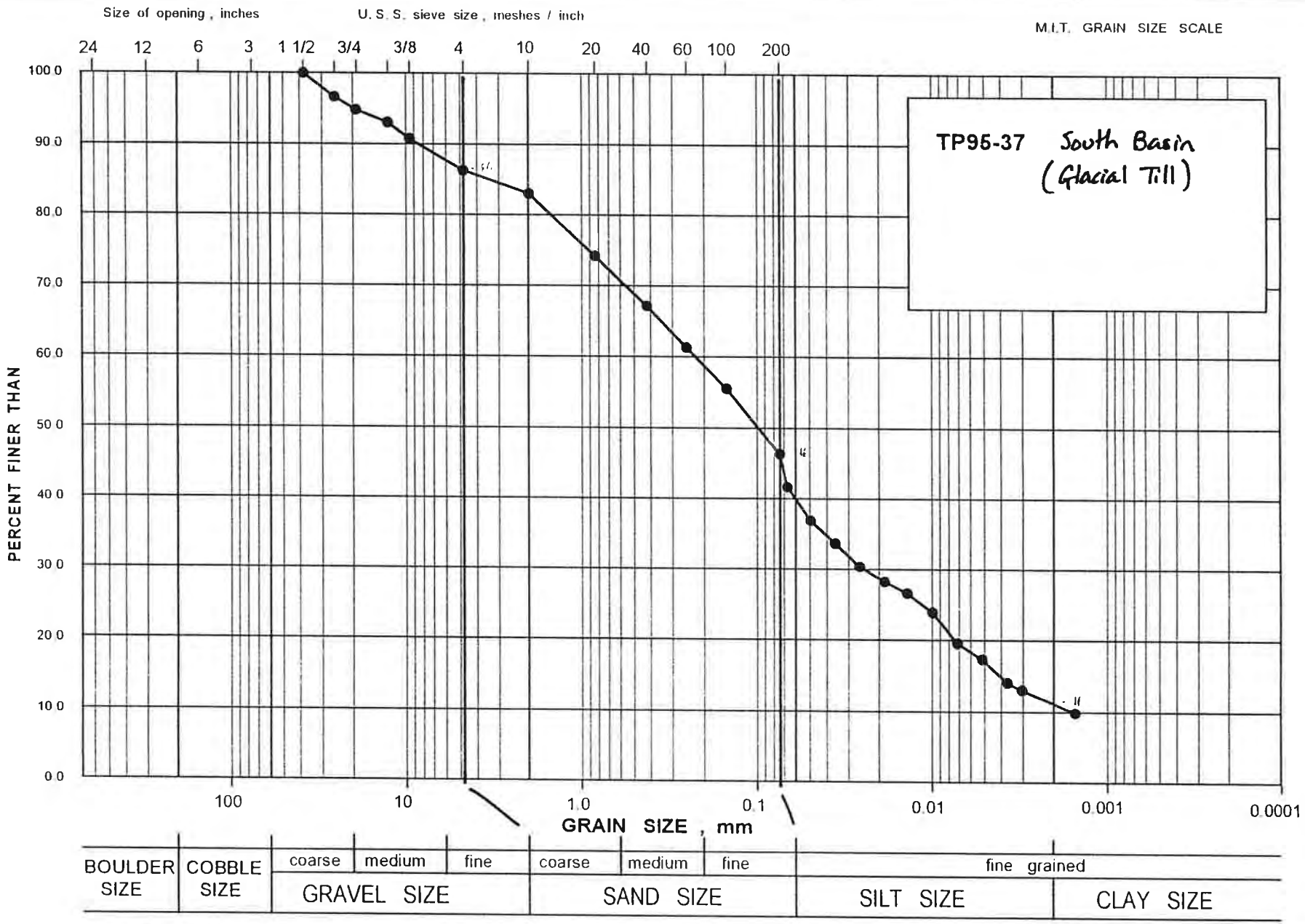
GRAIN SIZE DISTRIBUTION

Figure



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Drawn .....LL.....
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Date .....02/09/95.....

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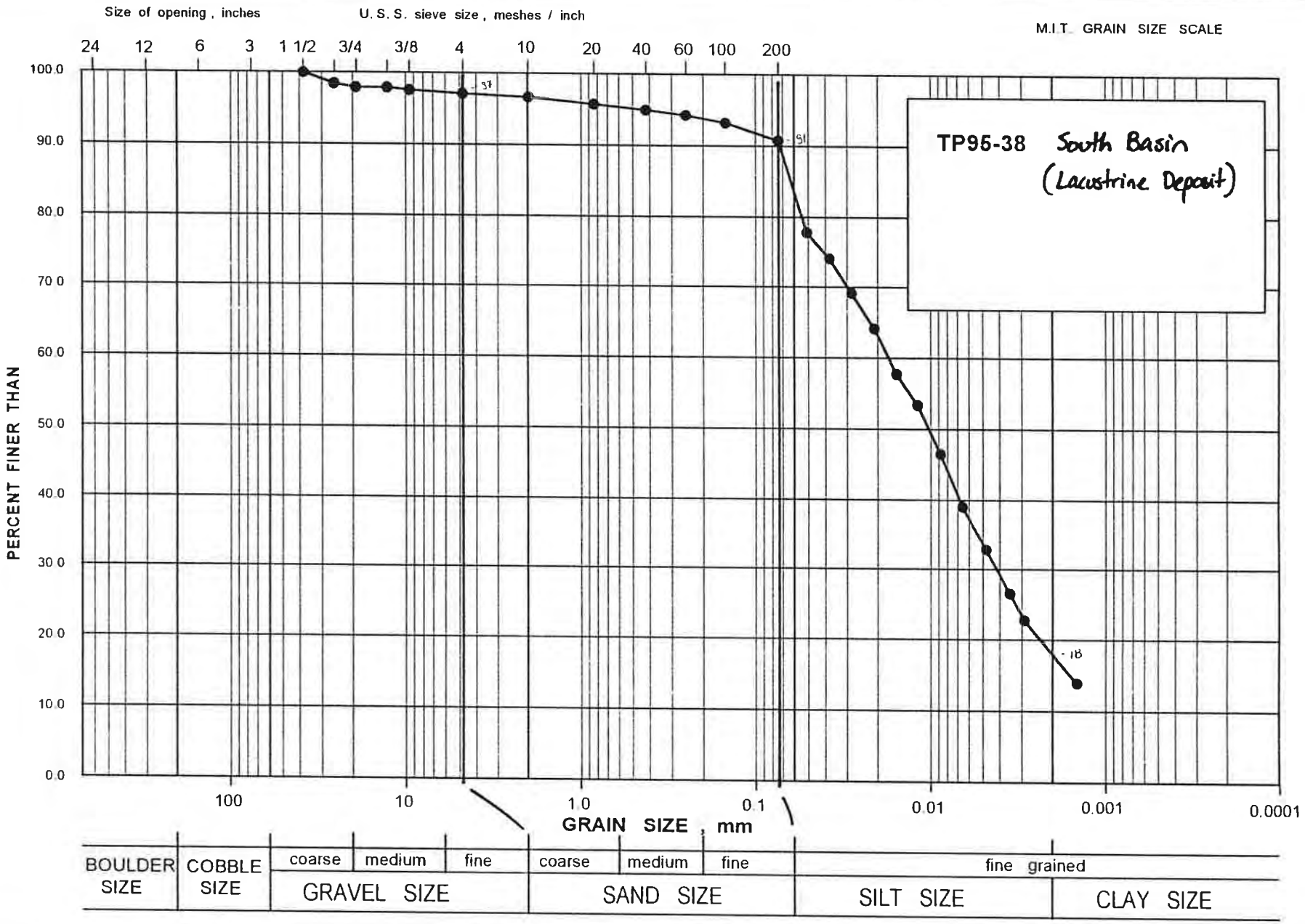
GRAIN SIZE DISTRIBUTION

Figure



Project No. ..9521018.....
Drawn .....LL.....
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Date .....02/09/95.....

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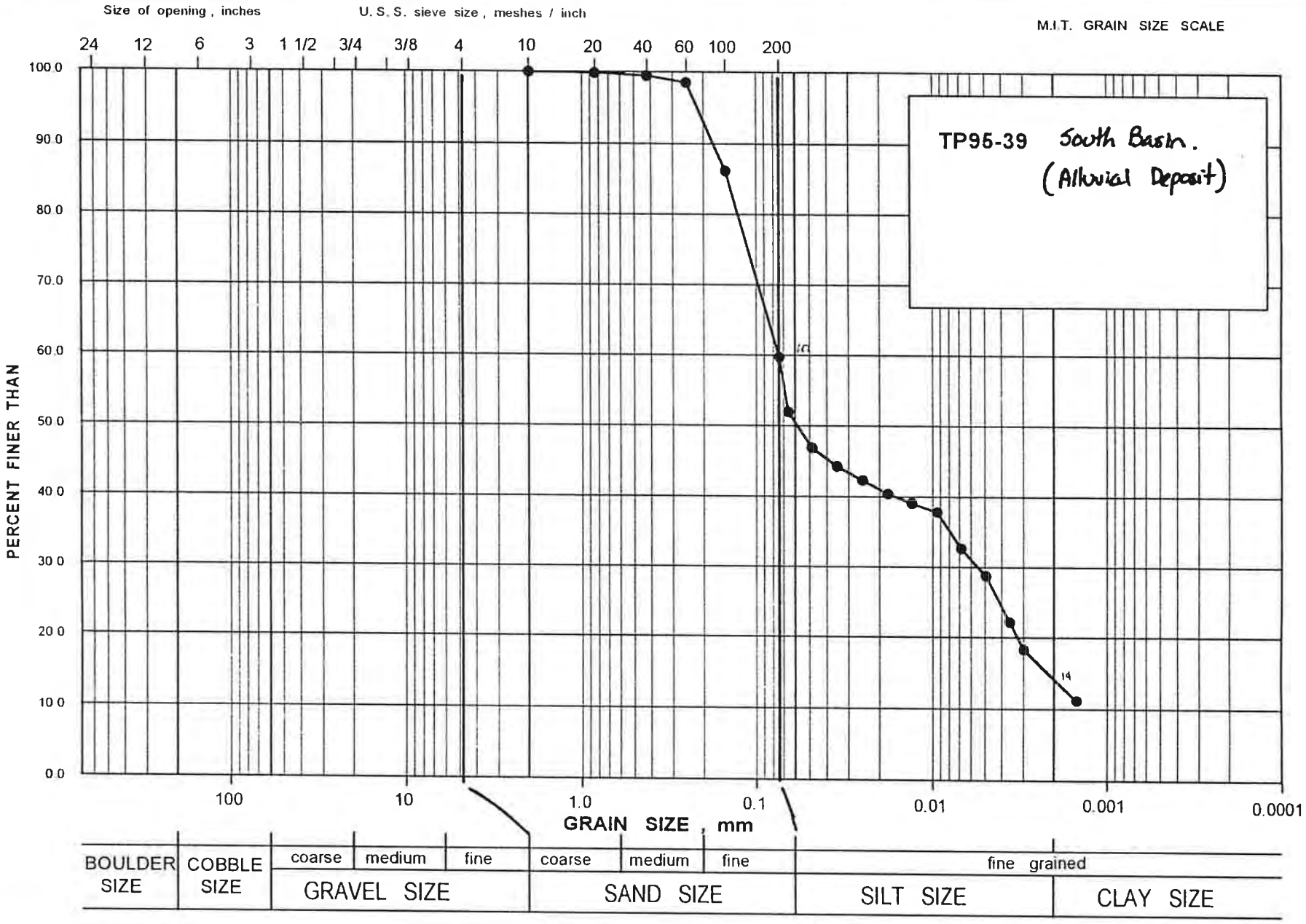
GRAIN SIZE DISTRIBUTION

Figure



Project No. ..9521018.....
Drawn .....LL.....
Reviewed .....
Date .....02/09/95.....

Golder Associates

GRAIN SIZE DISTRIBUTION

Figure

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd.	Test Pit :	TP95-1
Date :	02/09/95	Project :	Job No. 1623/1	Sample :	
Lab Work:	LL	Location:	Burnaby	Depth :	

	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.7	
	Total Weight	3468.7	Before Wash	75.0	Total -200	38.0	
			After Wash	37.7	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	41.8	1.2			1.2	25.4	98.8
3/4"	87.4	2.5			2.5	19.1	96.3
1/2"	172.3	5.0			5.0	12.7	91.3
3/8"	127.0	3.7			3.7	9.52	87.6
#4	308.0	8.9			8.9	4.76	78.8
#10	294.9	8.5			8.5	2.00	70.3
#20			8.9	11.9	8.3	0.840	61.9
#40			9.3	12.4	8.7	0.420	53.2
#60			6.6	8.8	6.2	0.250	47.0
#100			5.9	7.9	5.5	0.149	41.5
#200			8.9	11.9	8.3	0.074	33.2
Pan			38.0	50.7	35.6		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	38.0	20.1		-3.76	34.2	0.0700	31.2
1	34.0	20.1		-3.76	30.2	0.0511	27.6
2	30.0	20.1		-3.76	26.2	0.0372	23.9
4	27.0	20.1		-3.76	23.2	0.0269	21.2
8	24.5	20.1		-3.76	20.7	0.0194	18.9
15	23.0	20.0		-3.77	19.2	0.0143	17.5
30	20.0	20.0		-3.77	16.2	0.0103	14.8
60	17.0	20.0		-3.77	13.2	0.0074	12.0
120	15.0	20.0		-3.77	11.2	0.0053	10.2
240	13.0	20.0		-3.77	9.2	0.0038	8.4
360	12.0	20.0		-3.77	8.2	0.0031	7.5
1440	10.0	19.9		-3.77	6.2	0.0016	5.7

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	**Client :**	Knight Piesold Ltd.	**Test Pit :**	TP95-7
Date :	02/09/95	**Project :**	Job No. 1623/1	**Sample :**	
Lab Work:	LL	**Location:**	Burnaby	**Depth :**	

	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.1	
	Total Weight	2807.3	Before Wash	75.0	Total -200	43.3	
			After Wash	31.8	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	0.0					25.4	100.0
3/4"	120.2	4.3			4.3	19.1	95.7
1/2"	74.8	2.7			2.7	12.7	93.1
3/8"	71.4	2.5			2.5	9.52	90.5
#4	182.0	6.5			6.5	4.76	84.0
#10	177.5	6.3			6.3	2.00	77.7
#20			6.4	8.5	6.6	0.840	71.1
#40			5.9	7.9	6.1	0.420	65.0
#60			4.8	6.4	5.0	0.250	60.0
#100			5.1	6.8	5.3	0.149	54.7
#200			9.3	12.4	9.6	0.074	45.1
Pan			43.3	57.7	44.9		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	44.0	20.1		-3.76	40.2	0.0664	40.5
1	38.5	20.1		-3.76	34.7	0.0493	35.0
2	35.5	20.1		-3.76	31.7	0.0357	32.0
4	33.0	20.1		-3.76	29.2	0.0257	29.5
8	30.0	20.1		-3.76	26.2	0.0186	26.4
15	28.0	20.0		-3.77	24.2	0.0138	24.4
30	25.0	20.0		-3.77	21.2	0.0100	21.4
60	21.0	20.0		-3.77	17.2	0.0072	17.4
120	19.0	20.0		-3.77	15.2	0.0052	15.3
240	17.0	20.0		-3.77	13.2	0.0037	13.3
360	15.0	20.0		-3.77	11.2	0.0031	11.3
1440	12.5	19.9		-3.77	8.7	0.0015	8.8

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd.	Test Pit :	TP95-10
Date :	02/09/95	Project :	Job No. 1623/1	Sample :	
Lab Work:	LL	Location:	Burnaby	Depth :	

	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.1	
	Total Weight	2183.6	Before Wash	75.0	Total -200	37.2	
			After Wash	37.9	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	158.4	7.3			7.3	25.4	92.7
3/4"	79.7	3.6			3.6	19.1	89.1
1/2"	190.4	8.7			8.7	12.7	80.4
3/8"	119.2	5.5			5.5	9.52	74.9
#4	290.9	13.3			13.3	4.76	61.6
#10	201.3	9.2			9.2	2.00	52.4
#20			9.3	12.4	6.5	0.840	45.9
#40			9.0	12.0	6.3	0.420	39.6
#60			6.2	8.3	4.3	0.250	35.3
#100			5.5	7.3	3.8	0.149	31.4
#200			7.5	10.0	5.2	0.074	26.2
Pan			37.2	49.6	26.0		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	40.0	20.1		-3.76	36.2	0.0688	24.6
1	35.0	20.1		-3.76	31.2	0.0507	21.2
2	32.5	20.1		-3.76	28.7	0.0366	19.5
4	30.0	20.1		-3.76	26.2	0.0263	17.8
8	27.5	20.1		-3.76	23.7	0.0190	16.1
15	26.0	20.0		-3.77	22.2	0.0140	15.1
30	24.0	20.0		-3.77	20.2	0.0100	13.7
60	20.0	20.0		-3.77	16.2	0.0073	11.0
120	18.5	20.0		-3.77	14.7	0.0052	10.0
240	17.0	20.0		-3.77	13.2	0.0037	9.0
360	15.5	20.0		-3.77	11.7	0.0031	8.0
1440	14.0	19.9		-3.77	10.2	0.0015	6.9

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd		Test Pit :	TP95-18	
Date :	02/09/95	Project :	Job No. 1623/1		Sample :		
Lab Work:	LL	Location:	Burnaby		Depth :		
	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.2	
	Total Weight	2189.2	Before Wash	75.0	Total -200	50.0	
			After Wash	25.2	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	0.0					25.4	100.0
3/4"	0.0					19.1	100.0
1/2"	5.1	0.2			0.2	12.7	99.8
3/8"	19.5	0.9			0.9	9.52	98.9
#4	44.0	2.0			2.0	4.76	96.9
#10	59.5	2.7			2.7	2.00	94.1
#20			3.5	4.7	4.4	0.840	89.8
#40			3.8	5.1	4.8	0.420	85.0
#60			4.1	5.5	5.1	0.250	79.8
#100			4.9	6.5	6.2	0.149	73.7
#200			8.4	11.2	10.5	0.074	63.1
Pan			50.0	66.7	62.8		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	49.0	20.1		-3.76	45.2	0.0633	55.2
1	44.0	20.1		-3.76	40.2	0.0470	49.1
2	41.0	20.1		-3.76	37.2	0.0341	45.5
4	38.0	20.1		-3.76	34.2	0.0247	41.8
8	35.0	20.1		-3.76	31.2	0.0179	38.1
15	33.0	20.0		-3.77	29.2	0.0133	35.7
30	30.0	20.0		-3.77	26.2	0.0096	32.0
60	27.0	20.0		-3.77	23.2	0.0069	28.4
120	23.0	20.0		-3.77	19.2	0.0050	23.5
240	20.0	20.0		-3.77	16.2	0.0036	19.8
360	18.5	20.0		-3.77	14.7	0.0030	18.0
1440	15.0	19.9		-3.77	11.2	0.0015	13.7

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	**Client :**	Knight Piesold Ltd.	**Test Pit :**	TP95-20
Date :	02/09/95	**Project :**	Job No. 1623/1	**Sample :**	
Lab Work:	LL	**Location:**	Burnaby	**Depth :**	

	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.2	
	Total Weight	3344.7	Before Wash	75.0	Total -200	46.6	
			After Wash	28.6	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	51.7	1.5			1.5	25.4	98.5
3/4"	26.8	0.8			0.8	19.1	97.7
1/2"	46.0	1.4			1.4	12.7	96.3
3/8"	34.6	1.0			1.0	9.52	95.2
#4	192.4	5.8			5.8	4.76	89.5
#10	221.1	6.6			6.6	2.00	82.9
#20			6.3	8.4	7.0	0.840	75.9
#40			5.2	6.9	5.7	0.420	70.2
#60			4.6	6.1	5.1	0.250	65.1
#100			5.2	6.9	5.7	0.149	59.3
#200			7.2	9.6	8.0	0.074	51.4
Pan			46.6	62.1	51.5		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	47.0	20.1		-3.76	43.2	0.0645	46.5
1	42.5	20.1		-3.76	38.7	0.0476	41.6
2	39.0	20.1		-3.76	35.2	0.0347	37.9
4	36.5	20.1		-3.76	32.7	0.0250	35.2
8	34.0	20.1		-3.76	30.2	0.0181	32.5
15	32.0	20.0		-3.77	28.2	0.0134	30.3
30	30.0	20.0		-3.77	26.2	0.0096	28.2
60	26.0	20.0		-3.77	22.2	0.0070	23.9
120	23.0	20.0		-3.77	19.2	0.0050	20.7
240	21.0	20.0		-3.77	17.2	0.0036	18.5
360	19.5	20.0		-3.77	15.7	0.0030	16.9
1440	17.0	19.9		-3.77	13.2	0.0015	14.2

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd.		Test Pit :	TP95-25	
Date :	02/09/95	Project :	Job No. 1623/1		Sample :		
Lab Work:	LL	Location:	Burnaby		Depth :		
	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.1	
	Total Weight	2733.1	Before Wash	75.0	Total -200	45.4	
			After Wash	29.7	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	66.5	2.4			2.4	25.4	97.6
3/4"	46.3	1.7			1.7	19.1	95.9
1/2"	66.4	2.4			2.4	12.7	93.4
3/8"	74.6	2.7			2.7	9.52	90.7
#4	151.9	5.6			5.6	4.76	85.2
#10	152.9	5.6			5.6	2.00	79.6
#20			5.7	7.6	6.0	0.840	73.5
#40			5.5	7.3	5.8	0.420	67.7
#60			5.0	6.7	5.3	0.250	62.4
#100			5.1	6.8	5.4	0.149	57.0
#200			8.3	11.1	8.8	0.074	48.2
Pan			45.4	60.5	48.2		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	47.0	20.1		-3.76	43.2	0.0645	44.6
1	42.0	20.1		-3.76	38.2	0.0478	39.4
2	38.0	20.1		-3.76	34.2	0.0350	35.3
4	36.0	20.1		-3.76	32.2	0.0251	33.3
8	34.0	20.1		-3.76	30.2	0.0181	31.2
15	32.0	20.0		-3.77	28.2	0.0134	29.1
30	30.0	20.0		-3.77	26.2	0.0096	27.1
60	26.0	20.0		-3.77	22.2	0.0070	22.9
120	23.5	20.0		-3.77	19.7	0.0050	20.3
240	21.5	20.0		-3.77	17.7	0.0036	18.3
360	20.0	20.0		-3.77	16.2	0.0030	16.7
1440	18.0	19.9		-3.77	14.2	0.0015	14.7

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd		Test Pit :	TP95-27	
Date :	02/11/95	Project :	Job No. 1623/1		Sample :		
Lab Work:	LL	Location:	Burnaby		Depth :		
	1ST SIEVING		Hydrometer (Minus #10)		Residual #200	1.5	
	Total Weight	4128.7	Before Wash	75.0	Total -200	45.3	
			After Wash	31.2	Gs	2.73	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	122.4	3.0			3.0	38.1	97.0
1"	81.1	2.0			2.0	25.4	95.1
3/4"	146.7	3.6			3.6	19.1	91.5
1/2"	97.9	2.4			2.4	12.7	89.1
3/8"	134.4	3.3			3.3	9.52	85.9
#4	204.6	5.0			5.0	4.76	80.9
#10	344.3	8.3			8.3	2.00	72.6
#20			4.5	6.0	4.4	0.840	68.2
#40			5.0	6.7	4.8	0.420	63.4
#60			4.5	6.0	4.4	0.250	59.0
#100			5.6	7.5	5.4	0.149	53.6
#200			10.1	13.5	9.8	0.074	43.8
Pan			45.3	60.4	43.8		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	45.5	19.5		-3.84	41.7	0.0665	39.6
1	41.5	19.5		-3.84	37.7	0.0488	35.8
2	37.0	19.5		-3.84	33.2	0.0358	31.5
4	33.0	19.5		-3.84	29.2	0.0261	27.7
8	30.0	19.5		-3.84	26.2	0.0189	24.9
15	28.0	19.5		-3.84	24.2	0.0140	23.0
30	25.0	19.5		-3.84	21.2	0.0101	20.1
60	22.0	19.6		-3.83	18.2	0.0073	17.3
120	20.0	19.8		-3.80	16.2	0.0052	15.4
240	17.5	19.8		-3.80	13.7	0.0038	13.0
360	16.0	19.8		-3.80	12.2	0.0031	11.6
1440	14.0	20.0		-3.80	10.2	0.0015	9.7

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd.		Test Pit :	TP95-31	
Date :	02/09/95	Project :	Job No. 1623/1		Sample :		
Lab Work:	LL	Location:	Burnaby		Depth :		
	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.5	
	Total Weight	2916.2	Before Wash	75.0	Total -200	42.9	
			After Wash	32.6	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	505.7	17.3			17.3	38.1	82.7
1"	284.0	9.7			9.7	25.4	72.9
3/4"	31.2	1.1			1.1	19.1	71.9
1/2"	148.2	5.1			5.1	12.7	66.8
3/8"	79.5	2.7			2.7	9.52	64.0
#4	158.8	5.4			5.4	4.76	58.6
#10	105.9	3.6			3.6	2.00	55.0
#20			6.1	8.1	4.5	0.840	50.5
#40			5.3	7.1	3.9	0.420	46.6
#60			5.0	6.7	3.7	0.250	42.9
#100			6.3	8.4	4.6	0.149	38.3
#200			9.2	12.3	6.7	0.074	31.6
Pan			42.9	57.2	31.4		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	44.0	20.1		-3.76	40.2	0.0664	28.7
1	39.0	20.1		-3.76	35.2	0.0491	25.1
2	35.0	20.1		-3.76	31.2	0.0359	22.3
4	31.0	20.1		-3.76	27.2	0.0261	19.4
8	28.0	20.1		-3.76	24.2	0.0189	17.3
15	26.0	20.0		-3.77	22.2	0.0140	15.8
30	24.0	20.0		-3.77	20.2	0.0100	14.4
60	20.0	20.0		-3.77	16.2	0.0073	11.6
120	18.0	20.0		-3.77	14.2	0.0052	10.1
240	16.0	20.0		-3.77	12.2	0.0037	8.7
360	15.0	20.0		-3.77	11.2	0.0031	8.0
1440	13.0	19.9		-3.77	9.2	0.0015	6.6

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd.		Test Pit :	TP95-35	
Date :	02/09/95	Project :	Job No. 1623/1		Sample :		
Lab Work:	LL	Location:	Burnaby		Depth :		
	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.5	
	Total Weight	2546.3	Before Wash	75.0	Total -200	59.3	
			After Wash	16.2	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	0.0					25.4	100.0
3/4"	0.0					19.1	100.0
1/2"	12.9	0.5			0.5	12.7	99.5
3/8"	13.2	0.5			0.5	9.52	99.0
#4	22.7	0.9			0.9	4.76	98.1
#10	19.2	0.8			0.8	2.00	97.3
#20			0.7	0.9	0.9	0.840	96.4
#40			1.0	1.3	1.3	0.420	95.1
#60			1.4	1.9	1.8	0.250	93.3
#100			3.4	4.5	4.4	0.149	88.9
#200			9.6	12.8	12.5	0.074	76.4
Pan			59.3	79.1	77.0		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	55.0	20.1		-3.76	51.2	0.0593	64.7
1	49.5	20.1		-3.76	45.7	0.0445	57.7
2	45.0	20.1		-3.76	41.2	0.0329	52.0
4	41.5	20.1		-3.76	37.7	0.0240	47.6
8	37.5	20.1		-3.76	33.7	0.0176	42.6
15	34.0	20.0		-3.77	30.2	0.0132	38.1
30	30.0	20.0		-3.77	26.2	0.0096	33.1
60	24.0	20.0		-3.77	20.2	0.0071	25.5
120	20.0	20.0		-3.77	16.2	0.0051	20.5
240	16.0	20.0		-3.77	12.2	0.0037	15.4
360	14.0	20.0		-3.77	10.2	0.0031	12.9
1440	12.0	19.9		-3.77	8.2	0.0015	10.4

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	Client :	Knight Piesold Ltd.		Test Pit :	TP95-37	
Date :	02/09/95	Project :	Job No. 1623/1		Sample :		
Lab Work:	LL	Location:	Burnaby		Depth :		
	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.2	
	Total Weight	1926.0	Before Wash	75.0	Total -200	41.9	
			After Wash	33.3	Gs	2.78	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	65.0	3.4			3.4	25.4	96.6
3/4"	35.1	1.8			1.8	19.1	94.8
1/2"	34.7	1.8			1.8	12.7	93.0
3/8"	43.1	2.2			2.2	9.52	90.8
#4	86.5	4.5			4.5	4.76	86.3
#10	63.2	3.3			3.3	2.00	83.0
#20			7.9	10.5	8.7	0.840	74.2
#40			6.4	8.5	7.1	0.420	67.2
#60			5.3	7.1	5.9	0.250	61.3
#100			5.2	6.9	5.8	0.149	55.5
#200			8.3	11.1	9.2	0.074	46.4
Pan			41.9	55.9	46.4		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	42.5	20.1		-3.76	38.7	0.0673	41.7
1	38.0	20.1		-3.76	34.2	0.0495	36.8
2	35.0	20.1		-3.76	31.2	0.0359	33.6
4	32.0	20.1		-3.76	28.2	0.0259	30.4
8	30.0	20.1		-3.76	26.2	0.0186	28.2
15	28.5	20.0		-3.77	24.7	0.0137	26.6
30	26.0	20.0		-3.77	22.2	0.0099	23.9
60	22.0	20.0		-3.77	18.2	0.0072	19.6
120	20.0	20.0		-3.77	16.2	0.0051	17.5
240	17.0	20.0		-3.77	13.2	0.0037	14.2
360	16.0	20.0		-3.77	12.2	0.0030	13.2
1440	13.0	19.9		-3.77	9.2	0.0015	9.9

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	**Client :**	Knight Piesold Ltd	**Test Pit :**	TP95-38
Date :	02/09/95	**Project :**	Job No. 1623/1	**Sample :**	
Lab Work:	LL	**Location:**	Burnaby	**Depth :**	

	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.1	
	Total Weight	2160.0	Before Wash	75.0	Total -200	70.3	
			After Wash	4.8	Gs	2.79	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	32.3	1.5			1.5	25.4	98.5
3/4"	11.4	0.5			0.5	19.1	98.0
1/2"	0.0					12.7	98.0
3/8"	7.4	0.3			0.3	9.52	97.6
#4	9.4	0.4			0.4	4.76	97.2
#10	11.0	0.5			0.5	2.00	96.7
#20			0.7	0.9	0.9	0.840	95.8
#40			0.6	0.8	0.8	0.420	95.0
#60			0.6	0.8	0.8	0.250	94.2
#100			0.8	1.1	1.0	0.149	93.2
#200			1.9	2.5	2.4	0.074	90.8
Pan			70.3	93.7	90.6		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	66.0	20.1		-3.76	62.2	0.0511	77.9
1	63.0	20.1		-3.76	59.2	0.0377	74.1
2	59.0	20.1		-3.76	55.2	0.0282	69.1
4	55.0	20.1		-3.76	51.2	0.0209	64.1
8	50.0	20.1		-3.76	46.2	0.0156	57.9
15	46.5	20.0		-3.77	42.7	0.0118	53.5
30	41.0	20.0		-3.77	37.2	0.0088	46.6
60	35.0	20.0		-3.77	31.2	0.0065	39.1
120	30.0	20.0		-3.77	26.2	0.0048	32.8
240	25.0	20.0		-3.77	21.2	0.0035	26.6
360	22.0	20.0		-3.77	18.2	0.0029	22.8
1440	15.0	19.9		-3.77	11.2	0.0015	14.0

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

PARTICLE SIZE ANALYSIS OF SOILS ASTM D 422-63

Project No. :	9521018	**Client :**	Knight Piesold Ltd.	**Test Pit :**	TP95-39
Date :	02/09/95	**Project :**	Job No. 1623/1	**Sample :**	
Lab Work:	LL	**Location:**	Burnaby	**Depth :**	

	1ST SIEVING		Hydrometer: (Minus #10)		Residual #200	0.7	
	Total Weight	1001.4	Before Wash	75.0	Total -200	44.3	
			After Wash	31.4	Gs	2.79	

Size (USS)	Weight Retained	% Retained	Weight Retained	% Retained	% Retained Total	Diameter (mm)	% Passing
							100.0
6"	0.0					152.4	100.0
3"	0.0					76.2	100.0
1 1/2"	0.0					38.1	100.0
1"	0.0					25.4	100.0
3/4"	0.0					19.1	100.0
1/2"	0.0					12.7	100.0
3/8"	0.0					9.52	100.0
#4	0.0					4.76	100.0
#10	0.0					2.00	100.0
#20			0.1	0.1	0.1	0.840	99.9
#40			0.3	0.4	0.4	0.420	99.5
#60			0.7	0.9	0.9	0.250	98.5
#100			9.3	12.4	12.4	0.149	86.1
#200			19.8	26.4	26.4	0.074	59.7
Pan			44.3	59.1	59.1		

HYDROMETER ANALYSIS

Time (min)	Hydrometer Reading	Temperature (C)		Composite Correction	Hydrometer Corrected	Diameter (mm)	% Passing
0.5	44.0	20.1		-3.76	40.2	0.0662	52.1
1	40.0	20.1		-3.76	36.2	0.0485	46.9
2	38.0	20.1		-3.76	34.2	0.0349	44.3
4	36.5	20.1		-3.76	32.7	0.0250	42.4
8	35.0	20.1		-3.76	31.2	0.0179	40.4
15	34.0	20.0		-3.77	30.2	0.0132	39.1
30	33.0	20.0		-3.77	29.2	0.0094	37.8
60	29.0	20.0		-3.77	25.2	0.0068	32.6
120	26.0	20.0		-3.77	22.2	0.0049	28.8
240	21.0	20.0		-3.77	17.2	0.0036	22.3
360	18.0	20.0		-3.77	14.2	0.0030	18.4
1440	12.5	19.9		-3.77	8.7	0.0015	11.3

GOLDER ASSOCIATES Ltd.
CONSULTING ENGINEERS

Project No. 9521018
Date : 2/9/95

SPECIFIC GRAVITY OF SOILS
ASTM D 854-92

DETERMINATION NUMBER		1	2	3	4
BOTTLE NUMBER		1	3		
AIR REMOVAL METHOD		Vacuum	Vacuum		
WEIGHT OF BOTTLE , gm.		179.54	173.97		
INITIAL WEIGHT OF BOTTLE + SOIL, gm.		279.54	273.94		
INITIAL WEIGHT OF SOIL, gm		100.00	99.97		
WEIGHT OF BOTTLE + SOIL + WATER, gm.	W_1	741.29	735.22		
TEMPERATURE, °C	T	19.6	19.5		
WEIGHT OF BOTTLE + WATER, gm.	W_2	678.08	672.43		
EVAPORATING DISH NUMBER		7	17		
WEIGHT OF DISH + DRY SOIL, gm.		468.58	457.71		
WEIGHT OF DISH, gm.		370.20	359.46		
WEIGHT OF SOIL, gm.	W_S	98.38	98.25		
SPECIFIC GRAVITY OF WATER	G_T	0.9994	0.9994		
$G_T W_S$		98.32	98.19		
$W_1 - W_2$		63.21	62.80		
$W_S-(W_1-W_2)$		35.17	35.45		
SPECIFIC GRAVITY OF SOIL	**G_S**	**2.796**	**2.769**		

$$G_S = (G_T \cdot W_S)/((W_S-(W_1-W_2)) = \underline{2.78} \text{ (average value)}$$

REMARKS :
(1) Method A - Oven Dried Procedure
(2) Passing the #10 sieve (2.00 mm)

Test Pit: 95-7
Sample :
Depth :

Tested By : LL
Calculated By : LL
Checked By : LL

GOLDER ASSOCIATES Ltd.
CONSULTING ENGINEERS

Project No. 9521018
Date : 2/14/95

SPECIFIC GRAVITY OF SOILS
ASTM D 854-92

DETERMINATION NUMBER		1	2	3	4
BOTTLE NUMBER		1	3		
AIR REMOVAL METHOD		Vacuum	Vacuum		
WEIGHT OF BOTTLE , gm.		179.54	173.97		
INITIAL WEIGHT OF BOTTLE + SOIL, gm.		279.54	273.97		
INITIAL WEIGHT OF SOIL, gm		100.00	100.00		
WEIGHT OF BOTTLE + SOIL + WATER, gm.	W_1	741.35	735.58		
TEMPERATURE, °C	T	19.9	19.4		
WEIGHT OF BOTTLE + WATER, gm.	W_2	678.06	672.43		
EVAPORATING DISH NUMBER		9	38		
WEIGHT OF DISH + DRY SOIL, gm.		470.84	457.10		
WEIGHT OF DISH, gm.		371.13	357.40		
WEIGHT OF SOIL, gm.	W_S	99.71	99.70		
SPECIFIC GRAVITY OF WATER	G_T	0.99825	0.99835		
$G_T W_S$		99.54	99.54		
$W_1 - W_2$		63.29	63.16		
$W_S-(W_1-W_2)$		36.42	36.55		
SPECIFIC GRAVITY OF SOIL	G_S	2.733	2.724		

$$G_S = (G_T \cdot W_S)/((W_S-(W_1-W_2)) = \underline{2.73}$$ (average value)

REMARKS :
(1) Method A - Oven Dried Procedure
(2) Passing the #10 sieve (2.00 mm)

Test Pit : TP95-27
Sample :
Depth :

Tested By : LL
Calculated By : LL
Checked By : LL

GOLDER ASSOCIATES Ltd.
CONSULTING ENGINEERS

Project No. 9521018
Date : 2/9/95

SPECIFIC GRAVITY OF SOILS
ASTM D 854-92

DETERMINATION NUMBER		1	2	3	4
BOTTLE NUMBER		1	3		
AIR REMOVAL METHOD		Vacuum	Vacuum		
WEIGHT OF BOTTLE , gm.		179.54	173.97		
INITIAL WEIGHT OF BOTTLE + SOIL, gm.		279.54	273.97		
INITIAL WEIGHT OF SOIL, gm		100.00	100.00		
WEIGHT OF BOTTLE + SOIL + WATER, gm.	W_1	741.45	735.71		
TEMPERATURE, °C	T	20.3	20.4		
WEIGHT OF BOTTLE + WATER, gm.	W_2	678.02	672.33		
EVAPORATING DISH NUMBER		18	27		
WEIGHT OF DISH + DRY SOIL, gm.		464.33	451.53		
WEIGHT OF DISH, gm.		365.41	352.61		
WEIGHT OF SOIL, gm.	W_S	98.92	98.92		
SPECIFIC GRAVITY OF WATER	G_T	0.9994	0.9994		
$G_T W_S$		98.86	98.86		
$W_1 - W_2$		63.43	63.38		
$W_S-(W_1-W_2)$		35.49	35.54		
SPECIFIC GRAVITY OF SOIL	**G_S**	**2.786**	**2.782**		

$$G_S = (G_T \cdot W_S)/((W_S-(W_1-W_2)) = \underline{2.78} \text{ (average value)}$$

REMARKS :
(1) Method A - Oven Dried Procedure
(2) Passing the #10 sieve (2.00 mm)

Test Pit: 95-35
Sample :
Depth :

Tested By : LL
Calculated By : LL
Checked By : LL

GOLDER ASSOCIATES Ltd.
CONSULTING ENGINEERS

Project No. 9521018
Date : 2/9/95

SPECIFIC GRAVITY OF SOILS
ASTM D 854-92

DETERMINATION NUMBER		1	2	3	4
BOTTLE NUMBER		1	3		
AIR REMOVAL METHOD		Vacuum	Vacuum		
WEIGHT OF BOTTLE , gm.		179.54	173.97		
INITIAL WEIGHT OF BOTTLE + SOIL, gm.		279.54	273.97		
INITIAL WEIGHT OF SOIL, gm		100.00	100.00		
WEIGHT OF BOTTLE + SOIL + WATER, gm.	W_1	740.95	735.26		
TEMPERATURE, °C	T	20.3	20.0		
WEIGHT OF BOTTLE + WATER, gm.	W_2	678.01	672.38		
EVAPORATING DISH NUMBER		C	23		
WEIGHT OF DISH + DRY SOIL, gm.		292.50	458.26		
WEIGHT OF DISH, gm.		194.42	360.28		
WEIGHT OF SOIL, gm.	W_s	98.08	97.98		
SPECIFIC GRAVITY OF WATER	G_T	0.9994	0.9994		
$G_T W_s$		98.02	97.92		
$W_1 - W_2$		62.94	62.88		
$W_s-(W_1-W_2)$		35.14	35.10		
SPECIFIC GRAVITY OF SOIL	**G_s**	**2.789**	**2.790**		

$$G_S = (G_T \cdot W_S)/((W_S-(W_1-W_2)) = \underline{2.79} \text{ (average value)}$$

REMARKS :
(1) Method A - Oven Dried Procedure
(2) Passing the #10 sieve (2.00 mm)

Test Pit: 95-38
Sample :
Depth :

Tested By : LL
Calculated By : LL
Checked By : LL

GOLDER ASSOCIATES Ltd.
CONSULTING ENGINEERS

Project No. 9521018
Date : 2/9/95

SPECIFIC GRAVITY OF SOILS
ASTM D 854-92

DETERMINATION NUMBER		1	2	3	4
BOTTLE NUMBER		1	3		
AIR REMOVAL METHOD		Vacuum	Vacuum		
WEIGHT OF BOTTLE , gm.		179.54	173.97		
INITIAL WEIGHT OF BOTTLE + SOIL, gm.		279.54	273.97		
INITIAL WEIGHT OF SOIL, gm		100.00	100.00		
WEIGHT OF BOTTLE + SOIL + WATER, gm.	W_1	740.86	735.04		
TEMPERATURE, °C	T	20.0	20.0		
WEIGHT OF BOTTLE + WATER, gm.	W_2	678.05	672.38		
EVAPORATING DISH NUMBER		5	31		
WEIGHT OF DISH + DRY SOIL, gm.		220.97	209.10		
WEIGHT OF DISH, gm.		122.61	110.71		
WEIGHT OF SOIL, gm.	W_s	98.36	98.39		
SPECIFIC GRAVITY OF WATER	G_T	0.9994	0.9994		
$G_T W_s$		98.30	98.33		
$W_1 - W_2$		62.82	62.66		
$W_s-(W_1-W_2)$		35.54	35.73		
SPECIFIC GRAVITY OF SOIL	**G_s**	**2.766**	**2.752**		

$$G_S = (G_T \cdot W_S)/((W_S-(W_1-W_2)) = \underline{2.76} \text{ (average value)}$$

REMARKS :
(1) Method A - Oven Dried Procedure
(2) Passing the #10 sieve (2.00 mm)

Test Pit: 95-39
Sample :
Depth :

Tested By : LL
Calculated By : LL
Checked By : LL

Golder Associates

PROJECT No. 9521018 LAB No. 19

SITE LOCATION: TP95-7

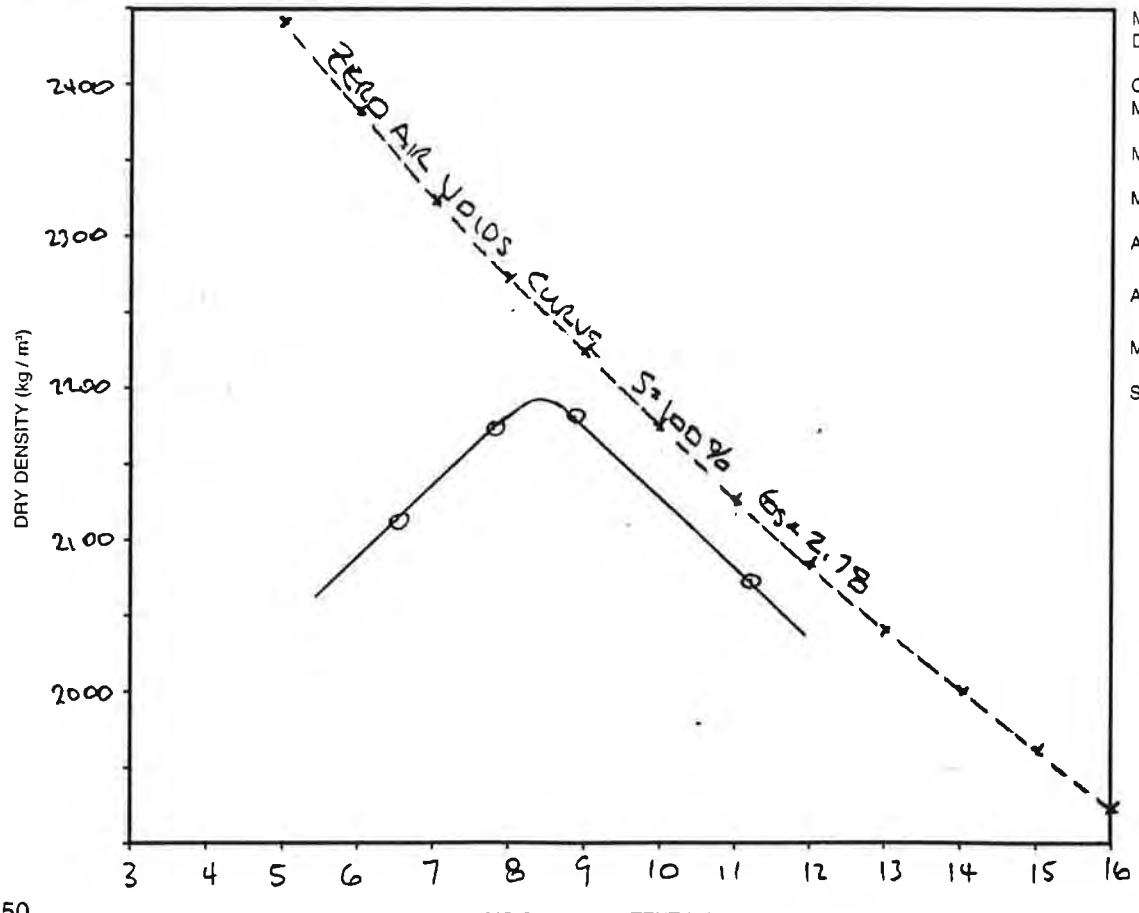
SOURCE:

DATE TESTED: JAN-25-95 BY: LC

MOISTURE DENSITY RELATIONSHIP (Modified)

	TRIAL NO.	1	2	3	4	5		
DENSITY	WT. OF SAMPLE WET + MOLD	10,517.7	10,394.6	10,598.0	10,660.7			
	WEIGHT OF MOLD	5618.4	5618.4	5618.4	5618.4	5618.4		
	WT. OF SAMPLE WET	4899.3	4776.2	4979.6	5042.3			
	WET DENSITY (kg / m³)	2306.6	2248.7	2344.4	2373.9			
	DRY DENSITY (kg / m³)	2074.3 ✓	2112.0 ✓	2175.2 ✓	2180.8 ✓			

	MOISTURE ADDED	NAT	-	+	+			
MOISTURE CONTENT	CONTAINER No.	23	17	7	23			
	WT. OF WET SOIL + TARE	1531.9	1093.4	1433.6	1710.3			
	WT. OF DRY SOIL + TARE	1414.4	1039.4	1356.9	1600.4			
	WEIGHT OF WATER	117.5	44.0	76.8	109.9			
	TARE WEIGHT	360.3	359.7	370.2	360.2			
	WEIGHT OF DRY SOIL	1054.1	679.7	986.6	1240.2			
	MOISTURE CONTENT (%)	11.2 ✓	6.47 ✓	7.78 ✓	8.86 ✓			



MAX. DRY DENSITY 2192 kg / m³

OPTIMUM MOISTURE 8.4 %

MOLD DIA. 15.24 cm

MOLD VOL. .002124 m³

ASTM D 698 ☐

ASTM D1557 ☑

METHOD C

SAMPLE DESCRIPTION:

% +19 mm = 4.3%

Gs = 2.78

Golder Associates

JKG Feb 19/95

PROJECT No. 9521018 LAB No. 19

SITE LOCATION: TP95-18

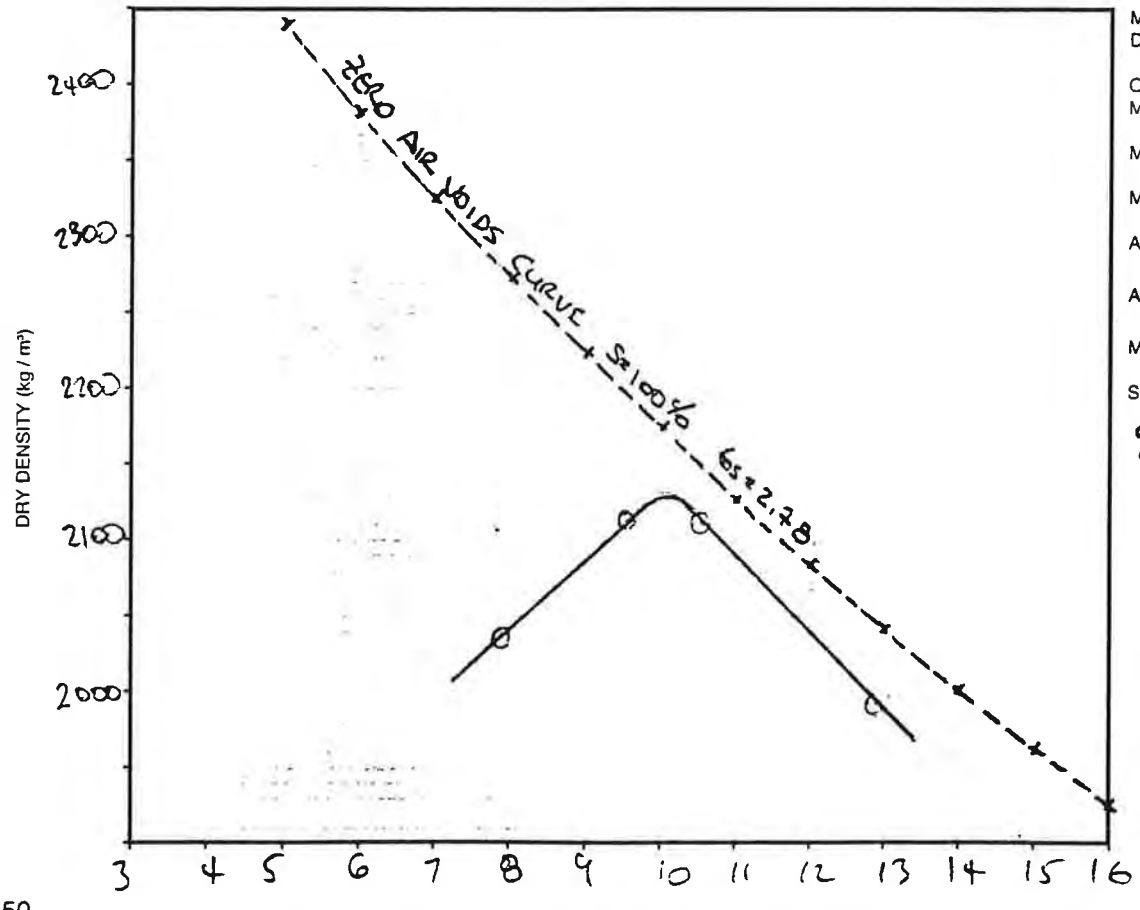
SOURCE:

DATE TESTED: Feb-01-95 BY: L. Lee

MOISTURE DENSITY RELATIONSHIP (MODIFIED)

	TRIAL NO.	1	2	3	4			
DENSITY	WT. OF SAMPLE WET + MOLD	10,396.7	10,281.3	10,539.5	10,578.3			
	WEIGHT OF MOLD	5618.4	5618.4	5618.4	5618.4			
	WT. OF SAMPLE WET	4778.3	4662.9	4921.1	4959.9			
	WET DENSITY (kg / m³)	2249.7	2195.3	2316.9	2335.2			
	DRY DENSITY (kg / m³)	1992.6 ✓	2036.3 ✓	2114.5 ✓	2112.4 ✓			

	MOISTURE ADDED	NAT	—					
MOISTURE CONTENT	CONTAINER No.	148	191	232	110			
	WT. OF WET SOIL + TARE	412.4	312.1	376.6	400.7			
	WT. OF DRY SOIL + TARE	367.5	290.8	345.3	364.2			
	WEIGHT OF WATER	44.9	21.3	31.3	36.5			
	TARE WEIGHT	18.2	18.1	18.4	18.2			
	WEIGHT OF DRY SOIL	349.3	272.7	326.9	346.0			
	MOISTURE CONTENT (%)	12.9 ✓	7.81 ✓	9.57 ✓	10.55 ✓			



MAX. DRY DENSITY 2130 kg / m³

OPTIMUM MOISTURE 10.1 %

MOLD DIA. 15.24 cm

MOLD VOL. .002124 m³

ASTM D 698 =

ASTM D1557 ✓

METHOD C

SAMPLE DESCRIPTION:

% +19 mm = 0 %

Golder Associates

✓ 1144 Feb 14/95

PROJECT No. 9521018 LAB No. 19

SITE LOCATION: TP95-27

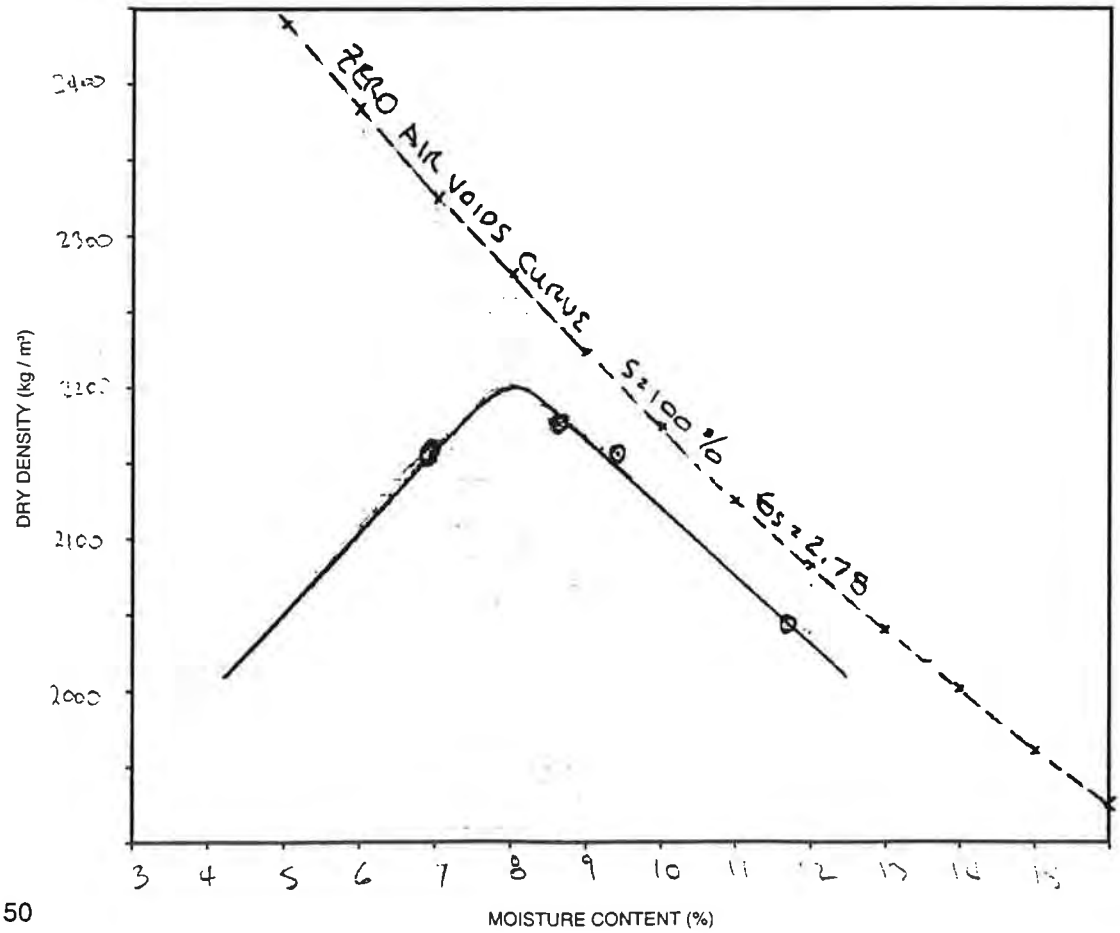
SOURCE:

DATE TESTED: ~~JAN~~-23/95 BY: LL

MOISTURE DENSITY RELATIONSHIP (MODIFIED)

	TRIAL NO.	1	2	3	4	5		
DENSITY	WT. OF SAMPLE WET + MOLD	10,473.6	10,637.8	10,633.3	10,520.4			
	WEIGHT OF MOLD	5618.4	5618.4	5618.4	5618.4			
	WT. OF SAMPLE WET	4855.2	5019.4	5014.9	4902.0			
	WET DENSITY (kg / m³)	2285.9	2363.2	2361.1	2307.9			
	DRY DENSITY (kg / m³)	2046.4 ✓	2176.1 ✓	2158.2 ✓	2158.9 ✓			

	MOISTURE ADDED	NAT	- -	-				
MOISTURE CONTENT	CONTAINER No.	13	25	34	7			
	WT. OF WET SOIL + TARE	1483.3	1312.2	1295.4	1287.2			
	WT. OF DRY SOIL + TARE	1366.1	1237.0	1216.7	1228.0			
	WEIGHT OF WATER	117.2	75.2	80.7	59.2			
	TARE WEIGHT	364.7	362.4	353.5	370.1			
	WEIGHT OF DRY SOIL	1001.4	874.6	862.2	857.9			
	MOISTURE CONTENT (%)	11.7 ✓	8.60 ✓	9.4 ✓	6.9 ✓			



MAX. DRY DENSITY 2200 kg / m³

OPTIMUM MOISTURE 8.0 %

MOLD DIA. 15.24 cm

MOLD VOL. .002124 m³

ASTM D 698 ☐

ASTM D1557 ☑

METHOD C

SAMPLE DESCRIPTION:

% + 19mm = ____

Golder Associates

Typed Feb 14/95

PROJECT No. 9521018 LAB No. _____

SITE LOCATION: _____

TP95-31

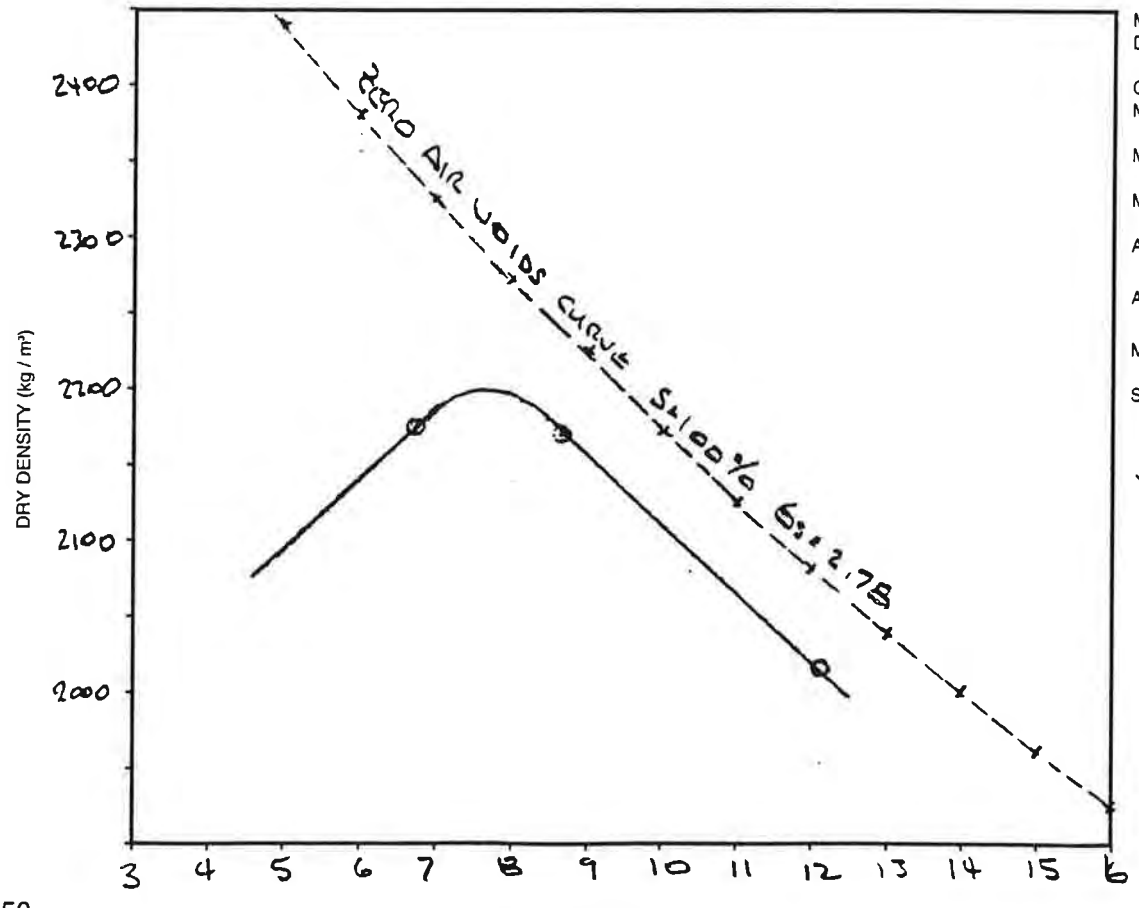
SOURCE: _____

DATE TESTED: Feb-02-95 BY: LC

MOISTURE DENSITY RELATIONSHIP (Modified)

	TRIAL NO.	1	2	3	4			
DENSITY	WT. OF SAMPLE WET + MOLD	10,424.6	10,631.1	10,551.5				
	WEIGHT OF MOLD	5618.4	5618.4	5618.4	5618.4			
	WT. OF SAMPLE WET	4806.2	5012.7	4933.1				
	WET DENSITY (kg / m³)	2262.8	2360.0	2322.6				
	DRY DENSITY (kg / m³)	2018.6	2172.7	2178.1				

	MOISTURE ADDED	NAT	-	- -				
MOISTURE CONTENT	CONTAINER No.	399	250	250				
	WT. OF WET SOIL + TARE	595.9	768.3	1075.8				
	WT. OF DRY SOIL + TARE	533.4	715.6	1015.4				
	WEIGHT OF WATER	62.5	52.7	60.4				
	TARE WEIGHT	17.6	104.1	104.1				
	WEIGHT OF DRY SOIL	515.8	611.5	911.3				
	MOISTURE CONTENT (%)	12.1 ✓	8.62 ✓	6.63 ✓				



MAX. DRY DENSITY 2200 kg / m³

OPTIMUM MOISTURE 7.6 %

MOLD DIA. 15.24 cm

MOLD VOL. .002124 m³

ASTM D 698 ☐

ASTM D1557 ☑

METHOD C

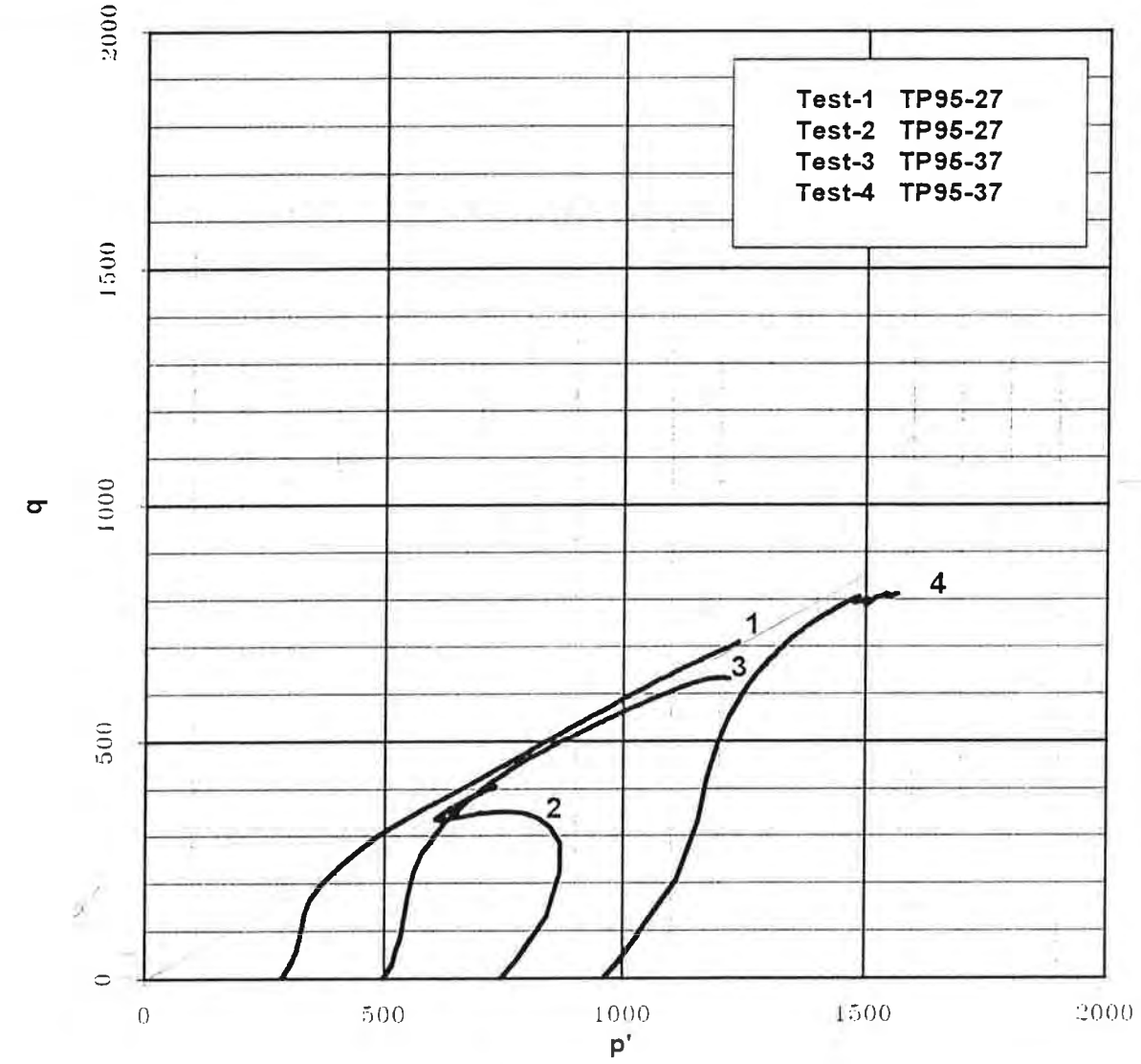
SAMPLE DESCRIPTION:

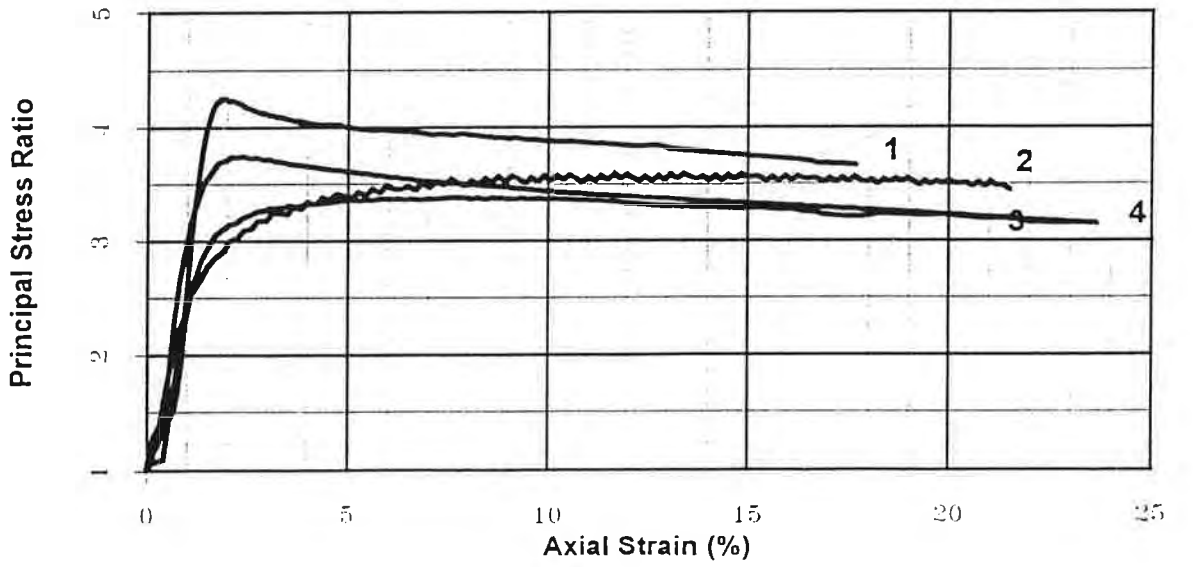
% + 19 mm = 28.1 %

% dry corrected: 2337 kg

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

Figure



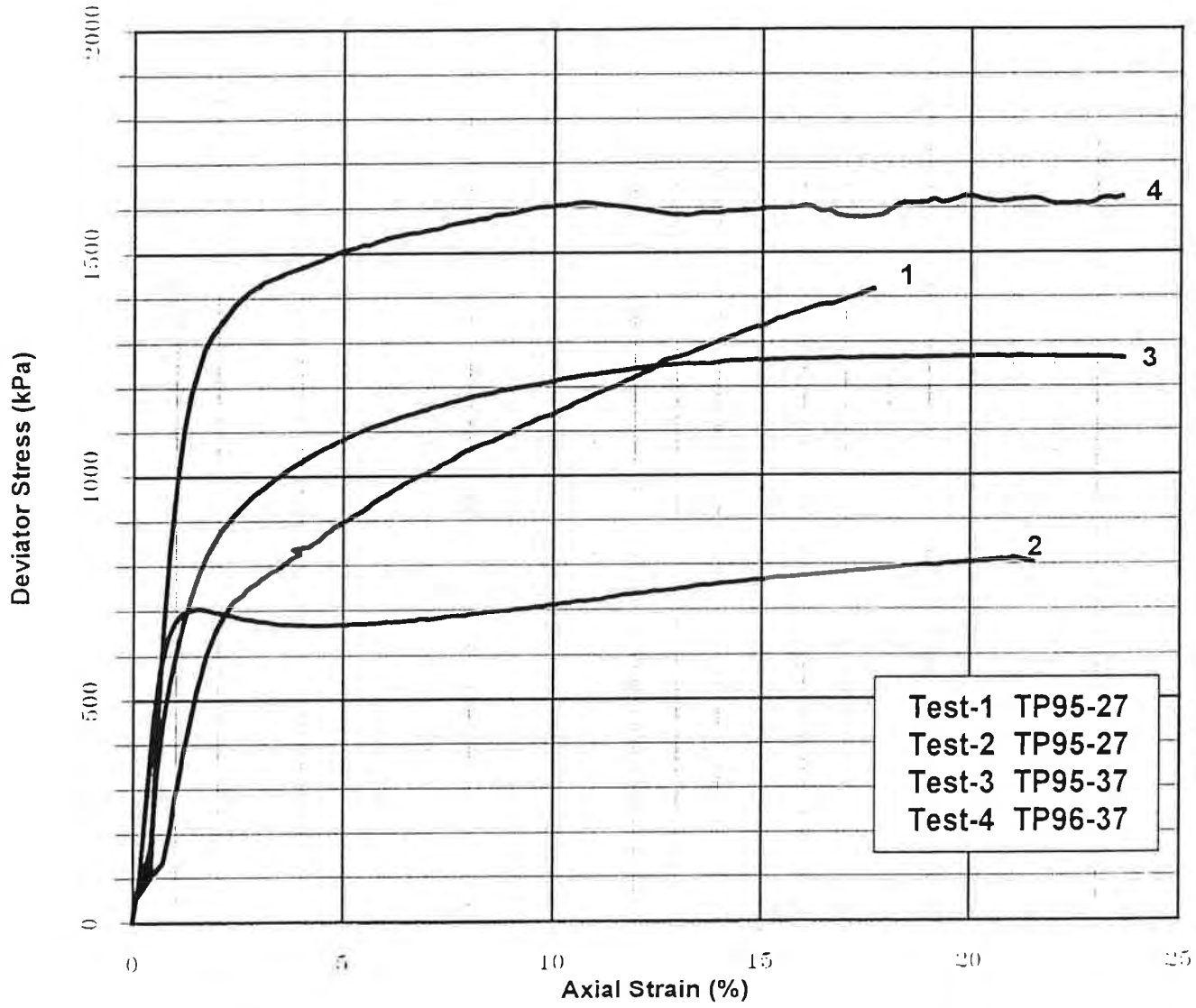


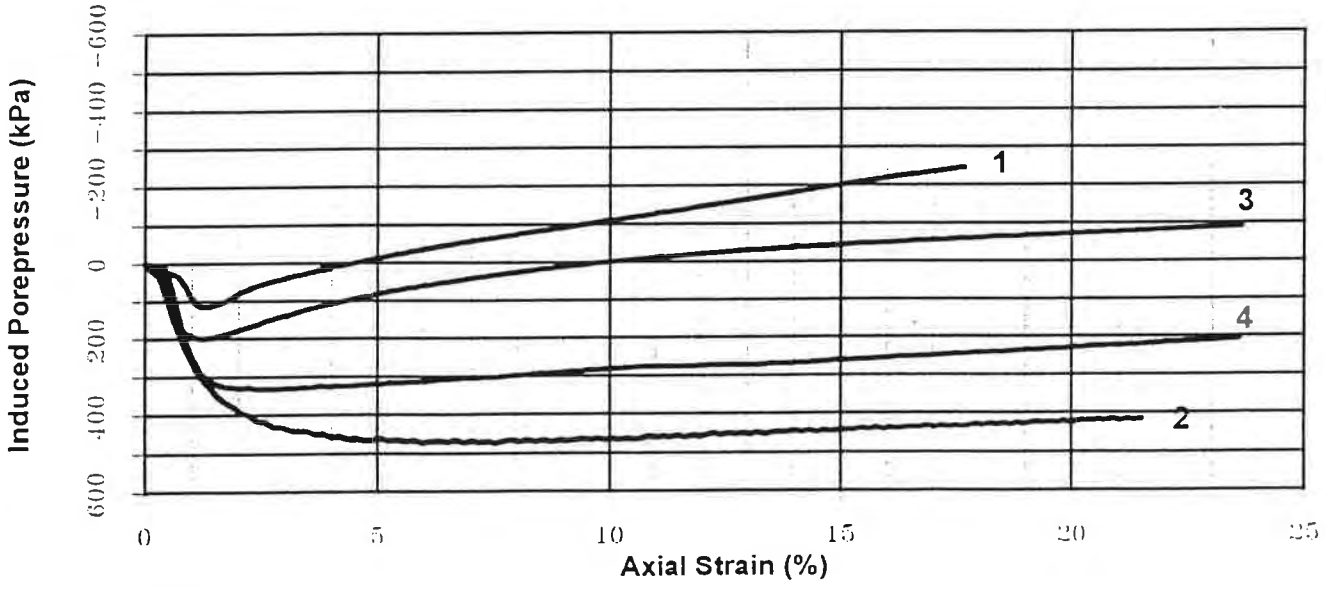
PROJECT No 95210 DRAWN LL REVIEWED DATE 02/27/95

Golder Associates

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

Figure





PROJECT No. 95210 DRAWN LL REVIEWED DATE 02/27/95

Golder Associates

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

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

PROJECT#	9421897-5040		L_c =	14.68	cm	DATE :	20-Feb-95		Strength Results :			Density:	(Kg/M³)
Test Pit	TP95-27		A_c =	44.76	cm²	FILE :	3x-250.XLS		Max.σ_D' =	1415.6	kPa	γ_t =	2168
Sample			V_c =	657.1	cm³	TEST#	CIU-1		Strain @ =	17.66	%	γ_d =	2207
Depth									Max. PSR =	4.25		E_i =	0.259
REMARKS :			Consolidation Pressure :			CALIBRATIONS :			Strain @ =	1.85	%	E_f =	0.237
- Failure Mode : Bulging			CP =	771.8	kPa	LOAD =	0.0036	kN/mV	Consolidation Results:			Water Contents:	
- Minus 19.5 mm material			BP =	484.4	kPa	PORE =	0.6895	kPa/mV	δV_c =	11.8	cc	W_i =	7.9
- Corrections applied for membrane			σ_{3c}' =	287.4	kPa	LVDT =	0.0285	mm/mV	T_{100} =	26.0	min	W_f =	9.7
			B_{VALUE} =	0.965		Feed Rate =	0.010	mm/min	C_v =	2.7E-02	cm²/s		

δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm²)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
139.4	108.7	-702.2	0.00	0.00	44.76	0.0	0.0	287.4	287.4	1.00		287.4	0.0
143.2	169.1	-715.2	0.07	0.22	44.79	48.6	9.0	278.4	327.0	1.17	0.18	302.7	24.3
147.9	205.0	-723.3	0.16	0.35	44.83	77.3	14.5	272.9	350.1	1.28	0.19	311.5	38.6
153.4	231.1	-733.1	0.27	0.44	44.88	98.1	21.3	266.1	364.2	1.37	0.22	315.1	49.0
158.9	242.6	-738.3	0.38	0.48	44.93	107.1	24.9	262.5	369.6	1.41	0.23	316.1	53.6
164.1	244.8	-737.8	0.48	0.49	44.97	108.8	24.5	262.9	371.6	1.41	0.23	317.2	54.4
169.2	258.4	-742.0	0.58	0.54	45.02	115.4	27.4	260.0	379.4	1.46	0.23	319.7	59.7
175.4	276.8	-750.8	0.70	0.61	45.07	124.0	33.5	253.9	387.9	1.53	0.25	320.9	67.0
179.6	315.2	-765.7	0.78	0.74	45.11	164.5	43.8	243.6	408.1	1.68	0.27	325.9	82.2
185.3	378.8	-796.2	0.89	0.97	45.16	214.9	64.6	222.6	437.5	1.97	0.30	330.1	107.5
189.2	452.9	-830.2	0.97	1.24	45.19	273.8	88.3	199.1	472.9	2.37	0.32	336.0	136.9
195.7	526.6	-857.8	1.09	1.50	45.25	332.0	107.3	180.1	512.1	2.84	0.32	346.1	166.0
200.4	590.0	-869.3	1.18	1.73	45.29	382.1	115.2	172.2	554.2	3.22	0.30	363.2	191.0
206.1	650.8	-872.6	1.29	1.95	45.34	429.8	117.5	169.9	599.7	3.53	0.27	384.8	214.9
211.5	708.5	-871.7	1.40	2.16	45.39	475.1	116.9	170.5	645.6	3.79	0.25	408.1	237.6
216.7	764.5	-866.0	1.50	2.36	45.44	518.9	112.9	174.5	693.4	3.97	0.22	433.9	259.5
223.1	820.1	-858.4	1.62	2.56	45.50	562.2	107.7	179.7	741.9	4.13	0.19	460.8	281.1
228.3	868.5	-848.1	1.72	2.74	45.54	599.9	100.6	186.8	786.7	4.21	0.17	486.7	299.9
234.7	907.3	-838.0	1.85	2.88	45.60	629.7	93.6	193.8	823.4	4.25	0.15	508.6	314.8
240.0	938.8	-826.7	1.96	2.99	45.65	653.8	85.8	201.6	855.4	4.24	0.13	528.5	326.9
245.2	964.9	-816.2	2.06	3.08	45.69	673.7	78.6	208.8	882.5	4.23	0.12	545.6	336.8
251.1	989.1	-807.9	2.17	3.17	45.75	691.8	72.9	214.5	906.4	4.23	0.11	560.4	345.9
256.3	1009.3	-799.5	2.27	3.24	45.80	707.0	67.2	220.2	927.2	4.21	0.09	573.7	353.5
261.3	1023.9	-793.4	2.37	3.29	45.84	717.7	62.9	224.5	942.2	4.20	0.09	583.4	358.8
267.2	1036.0	-786.6	2.48	3.34	45.89	726.2	58.2	229.2	955.5	4.17	0.08	592.4	363.1
272.9	1047.3	-781.4	2.58	3.38	45.95	734.3	54.6	232.8	967.1	4.15	0.07	599.9	367.1
277.5	1060.3	-775.8	2.68	3.43	45.99	742.7	50.7	236.7	980.4	4.14	0.07	608.5	371.9
283.6	1071.5	-770.5	2.80	3.47	46.05	751.5	47.1	240.3	991.8	4.13	0.06	616.1	375.8
289.6	1081.3	-766.1	2.91	3.50	46.10	758.2	44.1	243.3	1001.6	4.12	0.06	622.5	379.1
294.6	1093.0	-761.0	3.01	3.54	46.15	766.5	40.5	246.9	1013.4	4.11	0.05	630.1	383.3
300.8	1103.7	-757.2	3.13	3.58	46.20	773.9	37.9	249.5	1023.3	4.10	0.05	636.4	386.9
304.9	1113.5	-752.4	3.21	3.62	46.24	780.8	34.6	252.8	1033.6	4.09	0.04	643.2	390.4
312.7	1123.4	-749.0	3.36	3.65	46.31	787.2	32.3	255.1	1042.4	4.09	0.04	648.7	393.6
317.3	1132.3	-744.3	3.45	3.69	46.36	793.4	29.0	258.4	1051.7	4.07	0.04	655.1	396.7
322.6	1144.0	-739.8	3.56	3.73	46.41	801.6	25.9	261.5	1063.0	4.07	0.03	662.3	400.8
327.6	1152.3	-736.3	3.65	3.76	46.45	807.1	23.5	263.9	1071.0	4.06	0.03	667.5	403.6
332.7	1162.4	-731.8	3.75	3.79	46.50	814.1	20.4	267.0	1081.1	4.05	0.03	674.0	407.0
339.6	1172.6	-728.5	3.89	3.83	46.57	820.8	18.1	269.3	1090.0	4.05	0.02	679.7	410.4
344.0	1180.9	-723.8	3.97	3.86	46.61	826.4	14.9	272.5	1098.9	4.03	0.02	685.7	413.2
335.6	1190.0	-720.6	3.81	3.89	46.53	834.9	12.7	274.7	1109.6	4.04	0.02	692.2	417.5
353.8	1201.4	-716.2	4.16	3.93	46.70	840.5	9.7	277.7	1118.2	4.03	0.01	698.0	420.2
359.7	1212.6	-711.8	4.28	3.97	46.76	848.1	6.6	280.8	1128.8	4.02	0.01	704.8	424.0
365.1	1222.0	-708.5	4.38	4.01	46.81	854.3	4.3	283.1	1137.4	4.02	0.01	710.2	427.2
370.7	1235.0	-704.5	4.49	4.05	46.86	863.3	1.6	285.8	1149.1	4.02	0.00	717.4	431.6
375.9	1247.1	-701.1	4.59	4.10	46.91	871.6	-0.8	288.2	1159.8	4.02	0.00	724.0	435.8
380.7	1255.8	-697.0	4.68	4.12	46.96	877.4	-3.6	291.0	1168.4	4.02	0.00	729.7	438.7
385.5	1268.1	-693.7	4.78	4.17	47.00	885.8	-5.9	293.3	1179.1	4.02	-0.01	736.2	442.9
390.7	1276.0	-689.4	4.88	4.20	47.05	890.5	-8.8	296.2	1187.2	4.01	-0.01	741.7	445.5
395.7	1284.5	-685.5	4.97	4.23	47.10	896.5	-11.5	298.9	1195.4	4.00	-0.01	747.2	448.2
403.0	1293.0	-682.6	5.12	4.26	47.17	901.8	-13.5	300.9	1202.5	4.00	-0.01	751.7	450.8
407.6	1302.6	-678.5	5.21	4.30	47.21	908.0	-16.3	303.7	1211.7	3.99	-0.02	757.7	454.0
412.3	1309.8	-675.4	5.30	4.32	47.26	912.6	-18.5	305.9	1218.4	3.98	-0.02	762.2	456.3
418.3	1318.7	-671.7	5.41	4.36	47.32	918.2	-21.0	308.4	1226.6	3.98	-0.02	767.5	459.1
423.2	1328.5	-669.0	5.51	4.39	47.37	924.6	-22.9	310.3	1234.9	3.98	-0.02	772.6	462.3
428.4	1338.4	-665.0	5.61	4.43	47.42	931.1	-25.6	313.0	1244.2	3.97	-0.03	778.6	465.6
432.2	1348.4	-661.1	5.68	4.46	47.45	937.9	-28.2	315.7	1253.7	3.97	-0.03	784.7	469.0
437.9	1359.3	-658.4	5.79	4.50	47.51	945.0	-30.2	317.6	1262.6	3.98	-0.03	790.1	472.5
443.9	1368.2	-654.8	5.91	4.53	47.57	950.6	-32.7	320.1	1270.6	3.97	-0.03	795.4	475.3
449.2	1376.8	-652.1	6.01	4.57	47.62	955.0	-34.5	321.9	1277.9	3.97	-0.04	799.9	478.0
454.5	1386.8	-648.6	6.12	4.60	47.67	962.4	-37.0	324.4	1286.8	3.97	-0.04	805.6	481.2
459.5	1395.4	-646.1	6.21	4.63	47.72	967.9	-38.7	326.1	1294.0	3.97	-0.04	810.0	483.9
464.9	1404.3	-642.5	6.32	4.66	47.78	973.4	-41.2	328.6	1302.0	3.96	-0.04	815.3	486.7
469.7	1414.7	-639.1	6.41	4.70	47.82	980.3	-43.5	330.9	1311.2	3.96	-0.04	821.0	490.1
475.3	1422.9	-636.8	6.52	4.73	47.88	985.2	-45.1	332.5	1317.7	3.96	-0.05	825.1	492.6
479.7	1428.8	-633.4	6.61	4.75	47.92	988.7	-47.4	334.8	1323.6	3.95	-0.05	829.2	494.4
484.1	1438.1	-630.9	6.69	4.79	47.97	994.8	-49.2	336.6	1331.3	3.96	-0.05	833.9	497.4
489.8	1445.4	-627.7	6.80	4.81	48.02	999.0	-51.4	338.8	1337.8	3.95	-0.05	838.3	499.5
495.3	1450.2	-625.5	6.91	4.83	48.08	1001.4	-52.9	340.3	1341.7	3.94	-0.05	841.0	500.7
500.2	1459.1	-622.2	7.00	4.86	48.13	1007.0	-55.2	342.6	1349.5	3.94	-0.05	846.1	503.5

δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
505.7	1466.6	-619.0	7.11	4.89	48.18	1011.4	-57.4	344.8	1356.1	3.93	-0.06	850.5	505.7
510.6	1475.2	-616.8	7.21	4.92	48.23	1016.7	-58.9	346.3	1363.0	3.94	-0.06	854.6	508.4
515.7	1484.7	-613.8	7.30	4.95	48.28	1022.7	-61.0	348.4	1371.0	3.94	-0.06	859.7	511.3
521.0	1492.2	-611.9	7.41	4.98	48.34	1027.1	-62.3	349.7	1376.7	3.94	-0.06	863.2	513.5
526.6	1500.2	-608.9	7.52	5.01	48.39	1031.8	-64.3	351.7	1383.5	3.93	-0.06	867.6	515.9
531.1	1507.7	-605.8	7.60	5.04	48.44	1035.3	-66.5	353.9	1389.2	3.93	-0.06	872.0	518.2
536.7	1517.7	-603.9	7.71	5.07	48.50	1042.5	-67.8	355.2	1397.6	3.94	-0.07	876.4	521.2
541.2	1527.9	-600.9	7.80	5.11	48.54	1049.0	-69.8	357.2	1406.2	3.94	-0.07	881.7	524.5
546.2	1536.6	-598.5	7.90	5.14	48.59	1054.2	-71.5	358.9	1413.2	3.94	-0.07	886.0	527.1
551.8	1541.8	-595.9	8.01	5.16	48.65	1056.8	-73.3	360.7	1417.5	3.93	-0.07	885.1	528.4
556.5	1550.5	-592.5	8.10	5.19	48.70	1062.2	-75.6	363.0	1425.2	3.93	-0.07	894.1	531.7
562.1	1557.2	-590.8	8.21	5.21	48.76	1065.8	-76.8	364.2	1430.0	3.93	-0.07	897.1	532.9
567.5	1564.1	-587.7	8.31	5.24	48.81	1069.6	-78.9	366.3	1436.0	3.92	-0.07	901.2	534.8
572.1	1568.5	-585.6	8.40	5.26	48.86	1071.8	-80.4	367.5	1439.5	3.91	-0.08	903.7	535.5
577.9	1575.5	-582.6	8.51	5.28	48.92	1075.6	-82.5	369.9	1445.4	3.91	-0.08	907.8	537.8
583.1	1583.4	-580.7	8.61	5.31	48.97	1080.1	-83.8	371.2	1451.3	3.91	-0.08	911.2	540.1
588.4	1591.4	-577.5	8.72	5.34	49.03	1084.8	-86.0	373.4	1458.1	3.91	-0.08	915.8	542.4
592.4	1599.6	-574.7	8.79	5.37	49.07	1089.8	-87.9	375.2	1465.1	3.90	-0.08	920.2	544.9
599.2	1607.3	-572.7	8.93	5.40	49.14	1093.8	-89.2	376.7	1470.5	3.90	-0.08	923.6	546.9
603.8	1615.3	-569.5	9.01	5.42	49.19	1098.5	-91.5	378.9	1477.4	3.90	-0.08	928.2	549.3
609.0	1623.5	-567.8	9.12	5.45	49.25	1103.3	-92.7	380.1	1483.3	3.90	-0.08	931.7	551.6
614.4	1633.0	-564.8	9.22	5.49	49.30	1108.9	-94.7	382.1	1491.0	3.90	-0.09	936.6	554.4
619.2	1639.9	-562.3	9.31	5.51	49.35	1112.7	-96.5	383.9	1496.6	3.90	-0.09	940.2	556.4
624.2	1645.7	-559.7	9.41	5.53	49.41	1115.7	-98.3	385.7	1501.4	3.89	-0.09	943.5	557.9
629.4	1653.6	-556.7	9.51	5.56	49.46	1120.2	-100.3	387.7	1507.9	3.89	-0.09	947.8	560.1
634.0	1662.6	-554.6	9.60	5.59	49.51	1125.6	-101.8	389.2	1514.7	3.89	-0.09	952.0	562.8
639.9	1669.0	-551.7	9.72	5.62	49.57	1128.7	-103.8	391.2	1519.9	3.89	-0.09	955.5	564.4
651.1	1681.5	-546.5	9.93	5.66	49.69	1135.0	-107.4	394.8	1529.7	3.88	-0.09	962.2	567.5
661.8	1697.2	-542.3	10.14	5.72	49.81	1143.6	-110.3	397.7	1541.2	3.88	-0.10	969.4	571.8
671.7	1711.4	-536.8	10.33	5.77	49.91	1151.3	-114.0	401.4	1552.7	3.87	-0.10	977.1	575.6
682.5	1729.6	-532.7	10.54	5.84	50.03	1161.6	-116.9	404.3	1565.5	3.87	-0.10	985.1	580.8
692.9	1745.4	-527.1	10.74	5.89	50.14	1170.2	-120.7	408.1	1578.3	3.87	-0.10	993.2	585.1
702.6	1761.2	-522.4	10.93	5.95	50.25	1179.0	-124.0	411.4	1590.3	3.87	-0.11	1000.9	589.5
712.6	1775.5	-516.5	11.13	6.00	50.36	1186.5	-128.0	415.4	1602.0	3.86	-0.11	1008.7	593.3
723.2	1791.0	-512.5	11.33	6.06	50.48	1194.7	-130.9	418.2	1612.9	3.86	-0.11	1015.6	597.4
733.0	1804.8	-507.0	11.52	6.11	50.59	1201.9	-134.6	422.0	1623.9	3.85	-0.11	1022.9	600.9
743.5	1821.0	-502.4	11.72	6.16	50.70	1210.5	-137.8	425.2	1635.7	3.85	-0.11	1030.4	605.3
753.4	1834.5	-497.0	11.92	6.21	50.81	1217.3	-141.5	428.9	1646.2	3.84	-0.12	1037.6	608.7
762.4	1849.7	-492.0	12.09	6.27	50.91	1225.6	-144.9	432.3	1657.5	3.83	-0.12	1045.1	612.8
773.4	1866.0	-486.6	12.31	6.33	51.04	1234.0	-148.7	436.1	1670.0	3.83	-0.12	1053.1	617.0
782.6	1884.2	-482.1	12.49	6.39	51.14	1244.2	-151.8	439.2	1683.4	3.83	-0.12	1061.3	622.1
792.0	1909.3	-476.7	12.67	6.48	51.25	1259.1	-155.5	442.9	1702.0	3.84	-0.12	1072.5	629.6
802.3	1917.8	-471.7	12.87	6.51	51.37	1262.1	-158.9	446.3	1708.4	3.83	-0.13	1077.4	631.1
811.5	1928.0	-466.0	13.05	6.55	51.47	1266.6	-162.9	450.3	1716.8	3.81	-0.13	1083.5	633.2
822.1	1940.4	-461.7	13.26	6.59	51.59	1272.1	-165.8	453.2	1725.3	3.81	-0.13	1089.3	635.1
831.6	1955.0	-455.8	13.44	6.65	51.70	1279.5	-169.9	457.3	1736.8	3.80	-0.13	1097.0	638.7
841.6	1968.8	-451.5	13.63	6.70	51.82	1286.1	-172.9	460.3	1746.4	3.79	-0.13	1103.3	643.0
850.9	1983.2	-445.9	13.81	6.75	51.93	1293.3	-176.7	464.1	1757.4	3.79	-0.14	1110.8	646.8
860.7	1998.8	-441.3	14.00	6.80	52.04	1301.1	-179.9	467.3	1766.4	3.78	-0.14	1117.9	650.6
870.6	2014.3	-436.0	14.19	6.86	52.16	1308.8	-183.5	470.9	1779.8	3.78	-0.14	1125.4	654.4
880.5	2027.8	-431.1	14.39	6.91	52.28	1315.1	-186.9	474.3	1789.4	3.77	-0.14	1131.9	657.6
889.9	2042.4	-425.5	14.57	6.96	52.39	1322.2	-190.8	478.2	1800.4	3.77	-0.14	1139.2	661.1
899.9	2056.9	-420.6	14.76	7.01	52.51	1329.1	-194.2	481.6	1810.6	3.76	-0.15	1146.1	664.5
909.7	2070.0	-415.3	14.95	7.06	52.63	1334.9	-197.8	485.2	1820.2	3.75	-0.15	1152.7	667.5
918.8	2080.5	-410.5	15.13	7.10	52.74	1339.2	-201.1	488.5	1827.8	3.74	-0.15	1158.2	669.6
928.5	2098.8	-405.4	15.32	7.16	52.85	1348.6	-204.6	492.0	1840.7	3.74	-0.15	1166.4	674.3
939.1	2112.4	-400.4	15.52	7.21	52.98	1354.5	-208.1	495.5	1850.0	3.73	-0.15	1172.7	677.2
948.9	2127.4	-395.8	15.71	7.27	53.10	1361.5	-211.3	498.7	1860.2	3.73	-0.16	1179.4	680.8
958.5	2139.1	-390.6	15.90	7.31	53.22	1366.3	-214.8	502.2	1868.6	3.72	-0.16	1185.4	683.2
968.1	2151.4	-386.2	16.09	7.35	53.34	1371.5	-217.9	505.3	1876.8	3.71	-0.16	1191.0	685.7
978.4	2167.3	-381.2	16.29	7.41	53.46	1378.8	-221.3	508.7	1887.5	3.71	-0.16	1198.1	689.4
988.6	2177.6	-376.8	16.48	7.45	53.59	1382.4	-224.4	511.8	1894.1	3.70	-0.16	1202.9	691.2
998.8	2183.5	-372.1	16.68	7.47	53.72	1382.9	-227.6	515.0	1897.9	3.69	-0.16	1206.5	691.5
1008.4	2196.8	-366.7	16.87	7.52	53.84	1388.6	-231.3	518.7	1907.4	3.68	-0.17	1213.0	694.3
1018.7	2213.1	-363.0	17.07	7.58	53.97	1396.1	-233.9	521.3	1917.3	3.68	-0.17	1219.3	698.0
1028.9	2228.8	-357.9	17.27	7.63	54.10	1403.1	-237.4	524.8	1927.9	3.67	-0.17	1226.3	701.5
1038.7	2243.9	-354.1	17.46	7.69	54.22	1409.8	-240.0	527.4	1937.2	3.67	-0.17	1232.3	704.9
1049.0	2258.1	-349.4	17.66	7.74	54.35	1415.9	-243.3	530.7	1946.3	3.67	-0.17	1238.5	707.8

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

Consolidated Undrained Triaxial Compression Test on Cohesive Soils

ASTM D 4767 - 88

PROJECT# 9421897-5040			L_c = 15.21 cm			DATE : 27-Feb-95			Strength Results :			Density (Kg/M³)	
Test Pit TP95-27			A_c = 44.20 cm²			FILE : 3s-750.XLS			Max.σ_D' = 812.3 kPa			γ_i = 2079	
Sample			V_c = 672.4 cm³			TEST# CIU-2			Strain @ = 4.60 %			γ_s = 2161	
Depth									Max. PSR = 3.60			E_i = 0.313	
REMARKS :			Consolidation Pressure :			CALIBRATIONS :			Strain @ = 3.68 %			E_f = 0.264	
- Failure Mode Bulging			CP = 1220.2 kPa			LOAD = 0.0423 kN/mV			Consolidation Results:			Water Contents:	
- Minus 19.5 mm material			BP = 475.5 kPa			PORE = 0.6895 kPa/mV			δV_c = 26.5 cc			W_i = 7.6	
- Corrections applied for membrane			σ_{3c}' = 744.7 kPa			LVDT = 0.0285 mm/mV			T_{100} = 1.32 min			W_f = 9.8	
- Corrections applied for filter paper			B_{VALUE} = 0.954			Feed Rate = 0.024 mm/min			C_v = 2.3E-02 cm²/s				

δL (mV)	LOAD (mV)	δU (mV)	E (%)	LOAD (kN)	A_c (cm²)	σ_D (kPa)	δU (kPa)	σ_3' (kPa)	σ_1' (kPa)	PSR	A	p' (kPa)	q (kPa)
-174.3	14.3	-689.8	0.00	0.00	44.20	0.0	0.0	744.7	744.7	1.00		744.7	0.0
-166.5	22.4	-698.0	0.15	0.34	44.26	77.1	5.7	739.0	816.2	1.10	0.07	777.6	38.6
-157.6	41.9	-728.7	0.31	1.17	44.34	283.1	33.7	711.0	994.1	1.37	0.13	842.5	131.5
-148.8	61.3	-831.3	0.48	1.99	44.41	446.9	97.6	647.1	1094.0	1.69	0.22	870.6	223.4
-140.7	73.9	-918.5	0.63	2.52	44.48	566.1	157.7	587.0	1153.1	1.96	0.28	870.1	283.1
-130.9	81.6	-1003.1	0.81	2.84	44.56	637.5	216.0	528.7	1166.3	2.21	0.34	847.5	318.8
-121.4	85.6	-1064.9	0.99	3.01	44.64	674.5	258.6	486.1	1160.9	2.39	0.38	823.5	337.4
-112.5	87.7	-1123.2	1.16	3.10	44.72	693.5	298.6	445.9	1139.4	2.56	0.43	792.6	346.8
-102.3	88.6	-1160.3	1.35	3.14	44.80	700.4	324.4	420.3	1120.7	2.67	0.46	770.5	350.2
-93.1	89.1	-1197.7	1.52	3.16	44.88	703.4	350.2	394.5	1097.9	2.78	0.50	746.2	351.7
-83.8	88.9	-1222.2	1.69	3.15	44.96	700.5	367.1	377.6	1078.2	2.86	0.52	727.9	350.3
-73.7	88.5	-1239.8	1.88	3.14	45.05	695.7	379.2	365.5	1061.2	2.90	0.55	713.5	347.9
-64.9	88.5	-1264.6	2.05	3.13	45.12	693.7	396.3	348.4	1042.1	2.99	0.57	695.2	346.9
-54.7	88.1	-1274.8	2.24	3.12	45.21	689.2	403.2	341.5	1030.7	3.02	0.59	686.1	344.6
-46.1	87.8	-1294.8	2.40	3.11	45.28	685.1	417.1	327.6	1012.6	3.09	0.61	670.1	342.5
-36.0	87.5	-1300.4	2.59	3.09	45.37	680.5	421.0	323.7	1004.2	3.10	0.62	663.9	340.3
-27.5	87.5	-1317.4	2.75	3.09	45.45	679.3	432.7	312.0	991.3	3.18	0.64	651.6	339.7
-17.1	87.2	-1320.2	2.94	3.08	45.54	675.0	434.7	310.0	985.0	3.18	0.64	647.5	337.5
-7.4	87.2	-1333.0	3.13	3.08	45.62	674.4	443.5	301.2	975.6	3.24	0.66	638.4	337.2
1.2	87.0	-1335.2	3.29	3.07	45.70	671.1	445.0	299.7	970.7	3.24	0.66	635.2	335.5
11.5	86.8	-1335.6	3.48	3.07	45.79	668.0	445.3	299.4	967.4	3.23	0.67	633.4	334.0
20.3	87.0	-1347.1	3.65	3.07	45.87	668.5	453.2	291.5	960.0	3.29	0.68	625.7	334.2
30.5	86.9	-1345.5	3.84	3.07	45.96	666.3	452.1	292.6	958.9	3.28	0.68	625.7	333.1
39.4	87.1	-1356.7	4.00	3.08	46.04	665.9	459.8	284.9	951.7	3.34	0.69	618.3	333.4
49.5	87.0	-1354.1	4.19	3.07	46.13	664.4	458.0	286.7	951.0	3.32	0.69	618.8	332.2
58.7	87.4	-1364.6	4.36	3.09	46.21	665.2	465.3	279.4	945.6	3.38	0.70	612.5	333.1
67.2	87.4	-1361.0	4.52	3.09	46.29	665.0	462.8	281.9	946.9	3.36	0.70	614.4	332.5
77.8	87.6	-1369.0	4.72	3.10	46.39	666.2	468.3	276.4	942.6	3.41	0.70	609.5	333.1
87.4	87.8	-1366.9	4.90	3.11	46.48	668.0	466.8	277.9	943.9	3.40	0.70	610.9	333.0
96.8	87.8	-1362.3	5.08	3.11	46.56	665.3	464.0	280.7	945.0	3.37	0.70	613.3	332.7
105.4	88.3	-1371.4	5.24	3.13	46.64	667.8	470.0	274.7	942.6	3.43	0.70	608.7	333.9
115.8	88.3	-1366.6	5.43	3.13	46.74	667.0	466.7	278.0	945.0	3.40	0.70	611.5	333.5
124.9	88.7	-1374.8	5.60	3.14	46.82	668.7	472.3	272.4	941.1	3.45	0.71	606.7	334.4
134.5	88.8	-1369.8	5.78	3.15	46.91	668.5	468.9	275.8	944.4	3.42	0.70	610.1	334.3
143.5	89.3	-1378.4	5.95	3.17	47.00	671.7	474.8	269.9	941.6	3.49	0.71	605.8	335.9
153.5	89.4	-1373.0	6.14	3.18	47.09	671.6	471.1	273.6	945.3	3.45	0.70	609.5	335.8
162.4	89.7	-1372.4	6.31	3.19	47.17	672.5	470.7	274.0	946.6	3.45	0.70	610.3	336.3
172.3	90.0	-1375.8	6.49	3.20	47.27	674.2	473.0	271.7	945.9	3.48	0.70	608.8	337.1
181.9	90.2	-1370.0	6.67	3.21	47.36	674.2	469.0	275.7	949.9	3.45	0.70	612.8	337.1
191.0	90.8	-1378.0	6.84	3.23	47.44	676.6	474.5	270.2	948.8	3.51	0.70	609.5	339.3
200.3	90.8	-1371.8	7.02	3.23	47.53	677.0	470.2	274.5	951.4	3.47	0.69	612.9	338.5
209.6	91.2	-1379.6	7.19	3.25	47.62	679.6	475.6	269.1	948.7	3.53	0.70	608.9	339.8
218.8	91.5	-1373.6	7.36	3.26	47.71	680.9	471.5	273.2	954.1	3.49	0.69	613.7	340.5
228.5	92.0	-1380.4	7.55	3.29	47.81	684.0	476.2	268.5	952.5	3.55	0.70	610.5	342.0
237.2	92.2	-1374.6	7.71	3.29	47.89	684.0	472.3	272.4	956.3	3.51	0.69	614.4	342.0
247.0	92.4	-1368.8	7.89	3.30	47.98	684.8	468.2	276.5	961.3	3.48	0.68	618.9	342.4
256.4	93.1	-1375.6	8.07	3.33	48.08	688.8	472.9	271.8	960.6	3.53	0.69	616.2	344.4
265.1	93.3	-1369.2	8.23	3.34	48.16	689.4	468.4	276.3	965.6	3.50	0.68	621.0	344.7
274.6	93.8	-1376.4	8.41	3.36	48.26	692.7	473.4	271.3	964.0	3.55	0.68	617.6	346.3
282.7	94.0	-1369.8	8.56	3.37	48.34	692.7	468.9	275.8	968.5	3.51	0.68	622.2	346.3
292.5	94.6	-1376.6	8.74	3.39	48.43	696.5	473.5	271.2	967.6	3.57	0.68	619.4	348.2
301.4	94.7	-1370.0	8.91	3.40	48.52	696.4	469.0	275.7	972.1	3.53	0.67	623.9	348.2
310.4	95.3	-1375.2	9.08	3.42	48.61	700.1	472.6	272.1	972.2	3.57	0.68	622.2	350.0
318.8	95.5	-1370.4	9.24	3.43	48.70	701.0	469.3	275.4	976.5	3.55	0.67	625.9	350.5
328.7	95.8	-1364.2	9.42	3.44	48.80	701.7	465.0	279.7	981.4	3.51	0.66	630.5	350.8
337.0	96.3	-1370.4	9.58	3.47	48.88	704.9	469.3	275.4	980.3	3.56	0.67	627.9	352.4
345.5	96.5	-1363.4	9.74	3.48	48.97	705.6	464.4	280.3	985.8	3.52	0.66	633.0	352.8
354.2	97.1	-1370.2	9.90	3.50	49.05	709.0	469.1	275.6	984.6	3.57	0.66	630.1	354.5
363.0	97.4	-1363.4	10.07	3.51	49.14	709.8	464.4	280.2	990.1	3.53	0.65	635.2	354.9
371.0	97.9	-1369.8	10.22	3.53	49.23	712.8	468.9	275.8	988.7	3.58	0.66	632.3	356.4
380.1	98.0	-1363.2	10.39	3.54	49.32	712.9	464.3	280.4	993.2	3.54	0.65	636.8	356.4
388.4	98.7	-1368.2	10.54	3.57	49.41	717.2	467.8	276.9	994.1	3.59	0.65	635.5	358.6
397.1	98.8	-1363.2	10.70	3.57	49.50	718.8	464.3	280.4	997.2	3.56	0.65	638.8	358.4
405.2	99.1	-1356.7	10.86	3.59	49.58	718.3	459.8	284.9	1003.2	3.52	0.64	644.0	359.2
414.3	99.6	-1362.8	11.03	3.61	49.68	720.9	464.0	280.7	1001.6	3.57	0.64	641.1	360.4
422.7	100.0	-1355.7	11.18	3.62	49.76	722.6	459.1	285.6	1008.2	3.53	0.64	646.9	361.3
430.9	100.5	-1362.2	11.34	3.64	49.85	725.7	463.6	281.1	1006.8	3.58	0.64	643.9	362.8
439.2	100.7	-1355.1	11.49	3.65	49.94	725.4	458.7	286.0	1012.4	3.54	0.63	649.2	363.2
448.4	101.4	-1361.6	11.67	3.68	50.03	730.6	463.2	281.5	1012.1	3.60	0.63	646.8	365.3

δL	LOAD	δU	E	LOAD	A_c	σ_3'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
456.7	101.6	-1354.9	11.82	3.69	50.12	730.8	458.6	286.1	1016.9	3.55	0.63	651.5	365.4
465.2	102.1	-1359.9	11.98	3.71	50.21	733.5	462.0	282.7	1016.1	3.59	0.63	649.4	366.7
472.6	102.3	-1354.5	12.12	3.72	50.29	734.3	458.3	286.4	1020.7	3.56	0.62	653.6	367.2
482.1	102.7	-1347.9	12.30	3.74	50.39	735.7	453.8	290.9	1026.6	3.53	0.62	658.8	367.9
490.1	103.3	-1353.7	12.45	3.76	50.48	739.6	457.8	286.5	1026.5	3.58	0.62	656.7	369.8
498.5	103.4	-1346.9	12.60	3.77	50.57	738.8	453.1	291.6	1030.5	3.53	0.61	661.0	369.4
507.3	103.9	-1353.1	12.77	3.79	50.67	741.5	457.3	287.4	1028.9	3.58	0.62	658.1	370.8
514.7	104.1	-1346.3	12.91	3.80	50.75	742.0	452.7	292.0	1034.1	3.54	0.61	663.0	371.0
523.9	104.6	-1352.7	13.08	3.82	50.85	745.1	457.1	287.6	1032.7	3.59	0.61	660.2	372.6
532.1	105.0	-1345.9	13.23	3.83	50.94	746.7	452.4	292.3	1039.0	3.55	0.61	665.7	373.4
540.7	105.5	-1351.1	13.39	3.86	51.03	749.7	456.0	288.7	1038.4	3.60	0.61	663.6	374.9
548.8	105.9	-1345.5	13.55	3.87	51.12	751.5	452.1	292.6	1044.1	3.57	0.60	668.4	375.8
557.2	106.2	-1341.4	13.70	3.89	51.22	752.6	449.3	295.4	1048.1	3.55	0.60	671.7	376.3
566.0	106.6	-1344.9	13.87	3.90	51.31	753.9	451.7	293.0	1046.9	3.57	0.60	670.0	377.0
574.3	107.0	-1338.0	14.02	3.92	51.41	755.5	446.9	297.8	1053.3	3.54	0.59	675.5	377.8
582.7	107.4	-1344.2	14.18	3.93	51.50	757.6	451.2	293.5	1051.1	3.58	0.60	672.3	378.8
591.3	107.5	-1337.2	14.34	3.94	51.60	756.7	446.4	298.3	1055.1	3.54	0.59	676.7	378.4
599.4	108.1	-1343.6	14.49	3.96	51.69	760.1	450.8	293.9	1054.0	3.59	0.59	674.0	380.1
608.3	108.3	-1337.0	14.66	3.96	51.79	760.9	446.2	298.5	1059.3	3.55	0.59	678.9	380.4
616.6	108.8	-1342.6	14.82	4.00	51.89	763.5	450.1	294.6	1059.1	3.59	0.59	676.3	381.7
624.9	109.1	-1336.4	14.97	4.01	51.98	764.1	445.8	298.9	1063.0	3.56	0.58	680.9	382.1
633.9	109.4	-1336.8	15.14	4.02	52.08	764.8	446.1	298.6	1063.4	3.56	0.58	681.0	382.4
642.2	109.9	-1335.8	15.30	4.04	52.18	767.4	445.4	299.3	1066.7	3.56	0.58	683.0	383.7
650.6	110.0	-1329.0	15.45	4.05	52.28	767.0	440.7	304.0	1070.9	3.52	0.57	687.5	383.5
659.3	110.5	-1335.2	15.62	4.07	52.38	769.1	445.0	299.7	1068.8	3.57	0.58	684.2	384.6
667.3	110.7	-1328.0	15.77	4.07	52.47	769.4	440.0	304.7	1074.1	3.53	0.57	689.4	384.7
676.2	111.2	-1334.4	15.93	4.10	52.57	771.8	444.5	300.2	1072.0	3.57	0.58	686.1	385.9
684.3	111.4	-1327.4	16.08	4.10	52.67	772.0	439.6	305.1	1077.2	3.53	0.57	691.1	386.0
691.9	111.8	-1333.2	16.23	4.12	52.76	773.9	443.6	301.1	1074.9	3.57	0.57	688.0	386.9
701.2	112.2	-1327.4	16.40	4.14	52.87	775.0	439.6	305.1	1080.0	3.54	0.57	692.6	387.5
709.6	112.5	-1327.8	16.56	4.15	52.97	776.3	439.9	304.8	1081.1	3.55	0.57	692.9	388.1
717.7	112.9	-1327.2	16.71	4.17	53.07	778.0	439.5	305.2	1083.2	3.55	0.56	694.2	389.0
725.7	113.1	-1320.2	16.86	4.18	53.16	778.3	434.7	310.0	1088.3	3.51	0.56	699.2	389.1
734.4	113.6	-1326.2	17.02	4.20	53.27	780.4	438.8	305.9	1086.4	3.55	0.56	696.1	390.2
742.4	113.9	-1319.4	17.17	4.21	53.36	781.4	434.1	310.6	1092.0	3.52	0.56	701.3	390.7
750.4	114.5	-1325.6	17.32	4.24	53.46	784.4	438.4	306.3	1090.7	3.56	0.56	698.5	392.2
758.1	114.5	-1319.2	17.47	4.24	53.55	783.0	434.0	310.7	1093.7	3.52	0.55	702.2	391.5
766.7	115.1	-1324.6	17.63	4.26	53.66	786.3	437.7	307.0	1093.3	3.56	0.56	700.2	393.2
774.6	115.4	-1319.2	17.78	4.27	53.75	786.8	434.0	310.7	1097.5	3.53	0.55	704.1	393.4
782.5	115.7	-1315.5	17.92	4.29	53.85	787.6	431.4	313.3	1100.9	3.51	0.55	707.1	393.8
790.4	116.1	-1318.8	18.07	4.30	53.95	789.2	433.7	311.0	1100.2	3.54	0.55	705.6	394.6
798.7	116.3	-1311.9	18.23	4.31	54.05	789.3	428.9	315.8	1105.1	3.50	0.54	710.4	394.7
806.0	116.8	-1318.2	18.36	4.33	54.14	792.2	433.3	311.4	1103.6	3.54	0.55	707.5	396.1
814.3	117.1	-1311.7	18.52	4.35	54.24	793.0	428.8	315.5	1108.5	3.51	0.54	712.4	396.5
822.0	117.7	-1317.4	18.66	4.37	54.34	795.7	432.7	312.0	1107.7	3.55	0.54	709.8	397.9
829.5	117.9	-1311.3	18.80	4.38	54.43	795.8	428.5	316.2	1112.0	3.52	0.54	714.1	397.9
837.7	118.3	-1315.5	18.96	4.39	54.54	797.2	431.4	313.3	1113.9	3.54	0.54	711.9	398.6
845.8	118.4	-1311.1	19.11	4.40	54.64	796.8	428.4	316.3	1113.1	3.52	0.54	714.7	398.4
853.5	118.6	-1304.7	19.25	4.41	54.74	797.0	424.0	320.7	1117.7	3.49	0.53	719.2	398.5
861.1	119.3	-1310.5	19.40	4.44	54.83	800.3	426.0	316.7	1117.0	3.53	0.53	716.9	400.2
869.1	119.4	-1304.1	19.55	4.44	54.94	800.0	423.6	321.1	1121.1	3.49	0.53	721.1	400.0
876.6	119.7	-1310.1	19.69	4.46	55.03	801.0	427.7	317.0	1118.0	3.53	0.53	717.5	400.5
884.8	120.0	-1303.7	19.84	4.47	55.14	801.4	423.3	321.4	1122.8	3.49	0.53	722.1	400.7
893.0	120.5	-1309.3	19.99	4.49	55.24	803.7	427.1	317.5	1121.2	3.53	0.53	719.4	401.8
900.7	120.7	-1303.5	20.14	4.50	55.34	803.5	423.1	321.6	1125.0	3.50	0.53	723.3	401.7
908.7	121.1	-1302.2	20.29	4.52	55.45	805.3	422.2	322.5	1127.7	3.50	0.52	725.1	402.6
916.7	121.6	-1303.1	20.44	4.54	55.55	807.4	422.9	321.8	1129.2	3.51	0.52	725.5	403.7
924.2	121.7	-1296.8	20.58	4.54	55.65	806.6	418.5	326.2	1132.8	3.47	0.52	729.5	403.3
932.6	122.3	-1302.9	20.74	4.57	55.76	809.3	422.7	322.0	1131.3	3.51	0.52	726.6	404.7
940.8	122.4	-1296.4	20.89	4.57	55.87	808.3	418.3	326.4	1134.8	3.48	0.52	730.6	404.2
948.6	123.1	-1302.0	21.04	4.60	55.97	812.3	422.1	322.6	1134.9	3.52	0.52	728.8	406.2
956.8	123.0	-1296.0	21.19	4.59	56.08	809.4	418.0	326.7	1136.1	3.48	0.52	731.4	404.7
964.9	122.7	-1298.8	21.34	4.58	56.19	805.9	420.6	324.1	1130.0	3.49	0.52	727.0	402.9
972.9	122.5	-1295.4	21.49	4.57	56.30	802.4	417.5	327.1	1129.6	3.45	0.52	728.4	401.2

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

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

								Strength Results :				Density: (Kg/M³)	
PROJECT#	9421897-5040	L_c =	15.35	cm	DATE :	27-Feb-95		Max.σ_D' =	1267.6	kPa		γ_i =	2072
Test Pit	TP95-37	A_c =	43.57	cm²	FILE :	3x-500.XLS		Strain @ =	21.14	%		γ_f =	2183
Sample		V_c =	669.0	cm³	TEST#	CIU-3		Max. PSR =	3.74			E_i =	0.342
Depth								Strain @ =	2.09	%		E_f =	0.274
REMARKS :		Consolidation Pressure :			CALIBRATIONS :			Consolidation Results:				Water Contents:	
- Failure Mode Bulging		CP =	979.0	kPa	LOAD =	0.0423	kN/mV	δV_c =	35.9	cc		W_i =	9.3
- Minus 19.5 mm material		BP =	480.6	kPa	PORE =	0.6895	kPa/mV	T_{100} =	40.3	min		W_f =	9.8
- Corrections applied for membrane		σ_{3c}' =	498.4	kPa	LVDT =	0.0285	mm/mV	C_v =	7.4E-04	cm²/s			
- Corrections applied for filter paper		B_{VALUE} =	0.985		Feed Rate =	0.024	mm/min						

δL	LOAD	δU	E	LOAD	A_c	σ_D	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm²)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
-1225.0	11.2	-697.0	0.00	0.00	43.57	0.0	0.0	498.4	498.4	1.00		498.4	0.0
-1219.4	17.6	-713.6	0.10	0.27	43.62	82.2	11.4	487.0	569.2	1.13	0.18	518.1	31.1
-1210.5	22.4	-738.9	0.27	0.47	43.69	136.4	28.9	469.5	577.9	1.23	0.27	523.7	54.2
-1202.5	28.7	-768.9	0.42	0.74	43.76	189.3	49.6	448.8	638.1	1.38	0.29	533.5	84.6
-1194.8	46.6	-872.9	0.56	1.50	43.82	341.4	121.3	377.1	718.5	1.91	0.36	547.8	170.7
-1187.2	57.4	-930.5	0.70	1.95	43.88	445.0	161.0	337.4	782.4	2.32	0.36	559.9	222.5
-1179.2	66.2	-965.7	0.85	2.32	43.95	528.4	185.3	313.1	841.5	2.69	0.35	577.3	264.2
-1170.8	73.6	-980.6	1.01	2.64	44.02	598.8	195.5	302.9	901.7	2.98	0.33	602.3	299.4
-1162.5	79.8	-990.1	1.16	2.90	44.08	657.5	202.1	296.3	953.8	3.22	0.31	625.1	328.8
-1154.4	85.5	-987.9	1.31	3.14	44.15	710.5	200.6	297.8	1008.4	3.39	0.28	653.1	355.3
-1146.0	90.3	-986.2	1.47	3.35	44.22	756.0	199.4	299.0	1055.0	3.53	0.26	677.0	378.0
-1137.5	94.7	-977.2	1.62	3.53	44.29	796.4	193.2	305.2	1101.6	3.61	0.24	703.4	398.2
-1129.6	98.3	-971.7	1.77	3.68	44.36	829.7	189.4	309.0	1138.7	3.69	0.23	723.8	414.8
-1120.2	101.4	-960.6	1.95	3.81	44.44	857.0	181.8	316.6	1173.6	3.71	0.21	745.1	428.5
-1112.3	104.0	-953.8	2.09	3.92	44.50	880.5	177.1	321.3	1201.9	3.74	0.20	761.6	440.3
-1103.5	106.2	-942.3	2.26	4.02	44.58	899.6	169.1	329.3	1228.9	3.73	0.19	779.1	449.8
-1095.2	108.1	-935.5	2.41	4.10	44.65	916.2	164.4	334.0	1250.1	3.74	0.18	792.0	458.1
-1086.7	109.8	-923.9	2.57	4.17	44.72	931.0	156.4	342.0	1273.0	3.72	0.17	807.5	465.5
-1078.4	111.6	-917.7	2.72	4.24	44.79	946.1	152.2	346.2	1292.3	3.73	0.16	819.3	473.1
-1069.8	113.1	-906.9	2.88	4.31	44.87	959.1	144.7	353.7	1312.8	3.71	0.15	833.2	479.5
-1060.2	114.6	-900.9	3.06	4.37	44.95	971.2	140.6	357.8	1329.0	3.71	0.14	842.4	485.6
-1051.9	115.9	-890.8	3.21	4.43	45.02	982.2	133.6	364.8	1347.0	3.69	0.14	855.9	491.1
-1043.3	117.4	-884.8	3.37	4.49	45.09	994.0	129.5	368.9	1363.0	3.69	0.13	865.9	497.0
-1034.8	118.6	-875.9	3.53	4.54	45.17	1004.1	123.4	375.0	1379.1	3.68	0.12	877.1	502.0
-1026.2	119.9	-869.4	3.69	4.60	45.24	1014.1	118.9	379.5	1393.6	3.67	0.12	886.6	507.0
-1017.4	121.2	-862.0	3.85	4.65	45.32	1024.5	113.8	384.6	1409.1	3.66	0.11	896.9	512.3
-1008.6	122.4	-854.6	4.02	4.70	45.40	1034.0	108.7	389.7	1423.7	3.65	0.11	906.7	517.0
-1000.1	123.6	-849.1	4.17	4.75	45.47	1042.8	104.9	393.5	1436.3	3.65	0.10	914.9	521.4
-991.2	124.7	-841.4	4.34	4.80	45.55	1051.6	99.6	398.8	1450.4	3.64	0.09	924.6	525.8
-982.5	125.7	-836.6	4.50	4.84	45.63	1059.8	96.3	402.1	1461.4	3.63	0.09	931.8	529.6
-973.6	126.7	-829.2	4.67	4.88	45.71	1066.5	91.2	407.2	1473.8	3.62	0.09	940.5	533.3
-964.5	127.8	-824.8	4.84	4.93	45.79	1074.4	88.1	410.3	1484.7	3.62	0.08	947.5	537.2
-955.9	128.8	-817.6	4.99	4.97	45.86	1081.5	83.2	415.2	1496.8	3.60	0.08	956.0	540.8
-947.0	129.7	-813.7	5.16	5.01	45.94	1088.3	80.5	417.9	1506.2	3.60	0.07	962.1	544.1
-938.0	130.7	-806.7	5.33	5.05	46.02	1095.9	75.6	422.8	1518.5	3.59	0.07	970.6	547.9
-929.2	131.7	-803.0	5.49	5.09	46.10	1102.3	73.1	425.3	1527.6	3.59	0.07	976.5	551.2
-920.0	132.6	-796.2	5.66	5.13	46.19	1108.5	68.4	430.0	1538.5	3.58	0.06	984.2	554.2
-911.0	133.4	-792.7	5.83	5.17	46.27	1114.0	66.0	432.4	1546.4	3.58	0.06	989.4	557.0
-901.8	134.2	-785.8	6.00	5.20	46.35	1119.6	61.2	437.2	1556.8	3.56	0.05	997.0	559.8
-892.3	135.2	-783.1	6.18	5.24	46.44	1125.9	59.4	439.0	1564.8	3.56	0.05	1001.9	562.9
-883.7	135.9	-776.7	6.33	5.27	46.52	1130.6	55.0	443.4	1574.0	3.55	0.05	1008.7	565.3
-874.6	136.7	-774.0	6.50	5.31	46.60	1135.8	53.1	445.3	1581.1	3.55	0.05	1013.2	567.9
-865.3	137.4	-767.6	6.68	5.34	46.69	1140.1	48.7	449.7	1589.8	3.54	0.04	1019.8	570.0
-856.4	138.2	-764.1	6.84	5.37	46.77	1145.3	46.3	452.1	1597.4	3.53	0.04	1024.8	572.6
-847.7	139.0	-759.4	7.00	5.40	46.85	1149.7	43.0	455.4	1605.1	3.52	0.04	1030.2	574.9
-838.4	139.9	-754.3	7.18	5.44	46.94	1155.7	39.5	458.9	1614.6	3.52	0.03	1036.7	577.9
-829.4	140.5	-751.4	7.34	5.47	47.03	1159.0	37.5	460.9	1619.9	3.51	0.03	1040.4	579.5
-820.6	141.2	-746.2	7.51	5.50	47.11	1163.2	33.9	464.5	1627.7	3.50	0.03	1046.1	581.6
-811.8	141.9	-744.0	7.67	5.53	47.19	1167.6	32.4	466.0	1633.6	3.51	0.03	1049.8	583.8
-802.5	142.6	-738.6	7.84	5.56	47.28	1171.5	28.7	469.7	1641.2	3.49	0.02	1055.5	585.7
-793.8	143.4	-736.9	8.00	5.59	47.36	1176.1	27.5	470.9	1647.0	3.50	0.02	1059.0	588.1
-784.3	144.1	-731.7	8.18	5.62	47.45	1180.2	23.9	474.5	1654.7	3.49	0.02	1064.6	590.1
-775.8	144.7	-729.9	8.34	5.64	47.54	1183.4	22.7	475.7	1659.1	3.49	0.02	1067.4	591.7
-766.5	145.2	-724.6	8.51	5.66	47.63	1185.5	19.0	479.4	1664.9	3.47	0.02	1072.1	592.7
-757.8	146.0	-723.4	8.67	5.70	47.71	1190.7	18.2	480.2	1670.9	3.48	0.02	1075.5	595.3
-748.7	146.6	-718.5	8.84	5.72	47.80	1193.2	14.8	483.6	1676.8	3.47	0.01	1080.2	596.6
-739.3	147.2	-716.7	9.02	5.75	47.89	1196.7	13.6	484.8	1681.5	3.47	0.01	1082.2	598.4
-730.8	147.7	-712.4	9.17	5.77	47.97	1198.8	10.6	487.8	1686.6	3.46	0.01	1087.2	599.4
-721.7	148.3	-710.0	9.34	5.80	48.06	1201.8	9.0	489.4	1691.3	3.46	0.01	1090.4	600.9
-712.9	148.9	-706.6	9.51	5.82	48.15	1204.5	6.8	491.6	1696.3	3.45	0.01	1094.0	602.3
-703.9	149.4	-703.3	9.67	5.84	48.24	1207.2	4.3	494.1	1701.2	3.44	0.00	1097.7	603.6
-695.0	150.0	-700.8	9.84	5.87	48.33	1209.8	2.6	495.8	1705.6	3.44	0.00	1100.7	604.9
-686.1	150.6	-696.7	10.00	5.90	48.42	1213.0	-0.2	498.6	1711.6	3.42	0.00	1105.1	606.5
-677.1	151.2	-695.4	10.17	5.92	48.51	1215.8	-1.1	499.5	1715.3	3.43	0.00	1107.4	607.9
-668.5	151.8	-691.4	10.33	5.94	48.59	1218.5	-3.9	502.3	1720.8	3.43	0.00	1111.5	609.3
-659.0	152.4	-690.2	10.51	5.97	48.69	1221.7	-4.7	503.1	1724.8	3.43	0.00	1113.9	610.8
-650.2	153.0	-686.4	10.67	5.99	48.78	1224.0	-7.3	505.7	1729.8	3.42	-0.01	1117.7	612.0
-641.0	153.5	-685.3	10.84	6.02	48.87	1225.2	-8.1	506.5	1732.7	3.42	-0.01	1119.6	613.1
-631.8	153.9	-681.4	11.01	6.03	48.96	1227.0	-10.8	509.2	1736.1	3.41	-0.01	1122.6	613.5

δL	LOAD	δU	E	LOAD	A_c	σ_0'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
-622.4	154.5	-680.5	11.19	6.06	49.06	1229.7	-11.4	509.8	1739.5	3.41	-0.01	1124.6	614.9
-613.5	155.0	-676.8	11.35	6.08	49.15	1231.7	-13.9	512.3	1744.1	3.40	-0.01	1128.2	615.9
-604.3	155.6	-675.9	11.52	6.10	49.25	1234.3	-14.5	512.9	1747.2	3.41	-0.01	1130.1	617.1
-595.2	156.0	-672.1	11.69	6.12	49.34	1235.8	-17.2	515.6	1751.3	3.40	-0.01	1133.4	617.9
-585.9	156.6	-671.2	11.86	6.15	49.44	1237.9	-17.8	516.2	1754.1	3.40	-0.01	1135.1	618.9
-576.5	157.1	-667.8	12.04	6.17	49.54	1239.5	-20.1	518.5	1758.2	3.39	-0.02	1138.4	619.9
-566.9	157.7	-666.0	12.22	6.19	49.64	1242.1	-21.4	519.8	1761.9	3.39	-0.02	1140.8	621.1
-557.6	158.2	-663.5	12.39	6.21	49.73	1243.7	-23.1	521.5	1765.2	3.38	-0.02	1143.4	621.9
-547.9	158.7	-661.0	12.57	6.24	49.84	1245.4	-24.8	523.2	1768.6	3.38	-0.02	1145.9	622.7
-538.4	159.2	-659.2	12.74	6.26	49.94	1247.1	-26.1	524.5	1771.6	3.38	-0.02	1148.0	623.6
-528.8	159.7	-656.1	12.92	6.28	50.04	1248.8	-28.2	526.6	1775.4	3.37	-0.02	1151.0	624.4
-519.0	160.1	-655.4	13.10	6.30	50.14	1249.6	-28.7	527.1	1776.6	3.37	-0.02	1151.9	624.8
-509.0	160.5	-652.2	13.29	6.31	50.25	1249.7	-30.9	529.3	1779.0	3.36	-0.02	1154.2	624.9
-499.2	160.8	-651.5	13.47	6.33	50.36	1249.9	-31.4	529.8	1779.5	3.36	-0.03	1154.7	624.9
-489.2	161.1	-648.3	13.66	6.34	50.47	1249.4	-33.6	532.0	1781.4	3.35	-0.03	1156.7	624.7
-479.2	161.5	-647.9	13.84	6.36	50.57	1250.6	-33.9	532.3	1782.8	3.35	-0.03	1157.5	625.3
-469.2	162.2	-644.7	14.03	6.38	50.68	1253.0	-36.1	534.5	1787.5	3.34	-0.03	1161.0	626.5
-458.8	162.9	-644.2	14.22	6.41	50.80	1256.1	-36.4	534.8	1790.9	3.35	-0.03	1162.9	628.1
-448.7	163.3	-641.3	14.41	6.43	50.91	1256.8	-38.4	536.8	1793.6	3.34	-0.03	1165.2	628.4
-438.6	163.8	-640.4	14.60	6.45	51.02	1257.6	-39.0	537.4	1795.1	3.34	-0.03	1166.2	628.8
-428.6	164.2	-637.6	14.78	6.47	51.13	1258.1	-41.0	539.4	1797.5	3.33	-0.03	1168.4	629.1
-417.8	164.6	-636.7	14.98	6.49	51.25	1258.6	-41.6	540.0	1798.6	3.33	-0.03	1169.3	629.3
-407.5	165.1	-634.3	15.17	6.51	51.37	1259.9	-43.2	541.6	1801.5	3.33	-0.03	1171.6	629.9
-397.0	165.5	-632.0	15.37	6.52	51.49	1259.8	-44.8	543.2	1803.0	3.32	-0.04	1173.1	629.9
-387.4	166.0	-631.0	15.55	6.54	51.59	1261.2	-45.5	543.9	1805.1	3.32	-0.04	1174.5	630.6
-376.0	166.3	-628.5	15.76	6.56	51.72	1261.0	-47.2	545.6	1806.6	3.31	-0.04	1176.1	630.5
-365.9	166.8	-627.9	15.95	6.58	51.84	1262.2	-47.6	546.0	1808.2	3.31	-0.04	1177.1	631.1
-355.0	167.2	-625.3	16.15	6.60	51.96	1261.8	-49.4	547.8	1809.6	3.30	-0.04	1178.7	630.9
-344.8	167.6	-625.1	16.34	6.61	52.08	1262.5	-49.6	548.0	1810.5	3.30	-0.04	1179.2	631.2
-334.3	168.0	-622.2	16.53	6.63	52.20	1262.4	-51.6	550.0	1812.4	3.30	-0.04	1181.2	631.2
-323.4	168.5	-621.9	16.73	6.65	52.33	1263.4	-51.8	550.2	1813.6	3.30	-0.04	1181.9	631.7
-313.5	168.9	-619.0	16.92	6.67	52.45	1263.2	-53.8	552.2	1815.4	3.29	-0.04	1183.8	631.6
-303.2	169.2	-618.5	17.11	6.68	52.57	1263.1	-54.1	552.5	1815.6	3.29	-0.04	1184.1	631.6
-293.0	169.8	-616.4	17.30	6.70	52.69	1264.6	-55.6	554.0	1818.6	3.28	-0.04	1186.3	632.3
-282.1	170.1	-614.9	17.50	6.72	52.82	1264.2	-56.6	555.0	1819.3	3.28	-0.04	1187.2	632.2
-272.0	170.6	-613.4	17.69	6.74	52.94	1264.9	-57.6	556.0	1821.0	3.27	-0.05	1188.5	632.5
-262.7	170.9	-610.7	17.86	6.75	53.05	1264.5	-59.5	557.9	1822.4	3.27	-0.05	1190.1	632.2
-252.0	171.4	-610.7	18.06	6.77	53.18	1265.6	-59.5	557.9	1823.5	3.27	-0.05	1190.7	632.8
-241.5	171.7	-607.8	18.26	6.79	53.30	1264.5	-61.5	559.9	1824.5	3.26	-0.05	1192.2	632.3
-231.7	172.3	-607.8	18.44	6.81	53.42	1266.5	-61.5	559.9	1826.4	3.26	-0.05	1193.2	633.3
-221.3	172.4	-605.2	18.63	6.82	53.55	1264.6	-63.3	561.7	1826.2	3.25	-0.05	1194.0	632.3
-211.8	173.0	-605.0	18.81	6.84	53.67	1265.8	-63.4	561.8	1827.6	3.25	-0.05	1194.7	632.9
-202.7	173.3	-602.3	18.98	6.85	53.78	1265.4	-65.3	563.7	1829.1	3.24	-0.05	1196.4	632.7
-191.4	173.8	-602.2	19.16	6.86	53.92	1266.5	-65.4	563.8	1830.3	3.25	-0.05	1197.0	633.3
-182.1	174.1	-599.5	19.36	6.88	54.03	1265.6	-67.2	565.6	1831.3	3.24	-0.05	1198.4	632.8
-171.2	174.6	-598.6	19.56	6.91	54.17	1266.7	-67.8	566.2	1833.0	3.24	-0.05	1199.6	633.4
-163.1	174.9	-596.8	19.71	6.92	54.27	1266.7	-69.1	567.5	1834.2	3.23	-0.05	1200.8	633.4
-151.5	175.3	-595.1	19.93	6.94	54.42	1265.9	-70.3	568.7	1834.6	3.23	-0.06	1201.6	633.0
-142.3	175.8	-594.2	20.10	6.96	54.53	1266.8	-70.9	569.3	1836.0	3.23	-0.06	1202.7	633.4
-132.8	176.0	-591.7	20.27	6.97	54.65	1266.0	-72.6	571.0	1837.0	3.22	-0.06	1204.0	633.0
-123.7	176.5	-591.3	20.44	6.99	54.77	1266.6	-72.9	571.3	1837.9	3.22	-0.06	1204.6	633.3
-113.5	176.9	-589.2	20.63	7.00	54.90	1266.4	-74.3	572.7	1839.1	3.21	-0.06	1205.9	633.2
-103.8	177.2	-589.0	20.81	7.02	55.02	1265.9	-74.5	572.9	1838.8	3.21	-0.06	1205.8	633.0
-93.8	177.5	-586.6	21.00	7.03	55.15	1265.6	-76.1	574.5	1840.1	3.20	-0.06	1207.3	632.8
-86.0	178.1	-585.9	21.14	7.06	55.25	1267.6	-76.6	575.0	1842.6	3.20	-0.06	1208.8	633.8
-74.6	178.2	-583.9	21.35	7.06	55.40	1265.0	-78.0	576.4	1841.4	3.19	-0.06	1208.9	632.5
-65.4	178.8	-583.0	21.52	7.09	55.52	1266.5	-78.6	577.0	1843.5	3.19	-0.06	1210.3	633.3
-55.1	179.0	-581.3	21.72	7.10	55.66	1264.8	-79.8	578.2	1842.9	3.19	-0.06	1210.6	632.4
-47.6	179.4	-579.9	21.86	7.11	55.76	1265.9	-80.7	579.1	1844.9	3.19	-0.06	1212.0	632.9
-36.4	179.9	-578.8	22.06	7.13	55.91	1265.4	-81.5	579.9	1845.3	3.18	-0.06	1212.6	632.7
-27.4	180.0	-576.3	22.23	7.14	56.03	1263.6	-83.2	581.6	1845.3	3.17	-0.07	1213.4	631.8
-17.1	180.5	-576.2	22.42	7.16	56.17	1264.0	-83.3	581.7	1845.7	3.17	-0.07	1213.7	632.0
-8.7	180.8	-573.7	22.58	7.17	56.28	1263.7	-85.0	583.4	1847.2	3.17	-0.07	1215.3	631.9
1.7	181.4	-573.6	22.77	7.20	56.42	1264.9	-84.9	583.3	1848.2	3.17	-0.07	1215.8	632.4
9.7	181.7	-571.2	22.92	7.21	56.52	1264.5	-86.7	585.1	1849.6	3.16	-0.07	1217.4	632.2
21.4	182.1	-571.2	23.14	7.22	56.69	1263.8	-86.7	585.1	1849.0	3.16	-0.07	1217.1	631.9
31.1	182.4	-569.1	23.32	7.24	56.82	1263.2	-88.2	586.6	1849.8	3.15	-0.07	1218.2	631.6
40.2	182.7	-568.5	23.48	7.25	56.95	1262.7	-88.6	587.0	1849.7	3.15	-0.07	1218.4	631.4
48.5	183.0	-566.2	23.64	7.26	57.06	1261.8	-90.2	588.6	1850.4	3.14	-0.07	1219.5	630.9

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

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

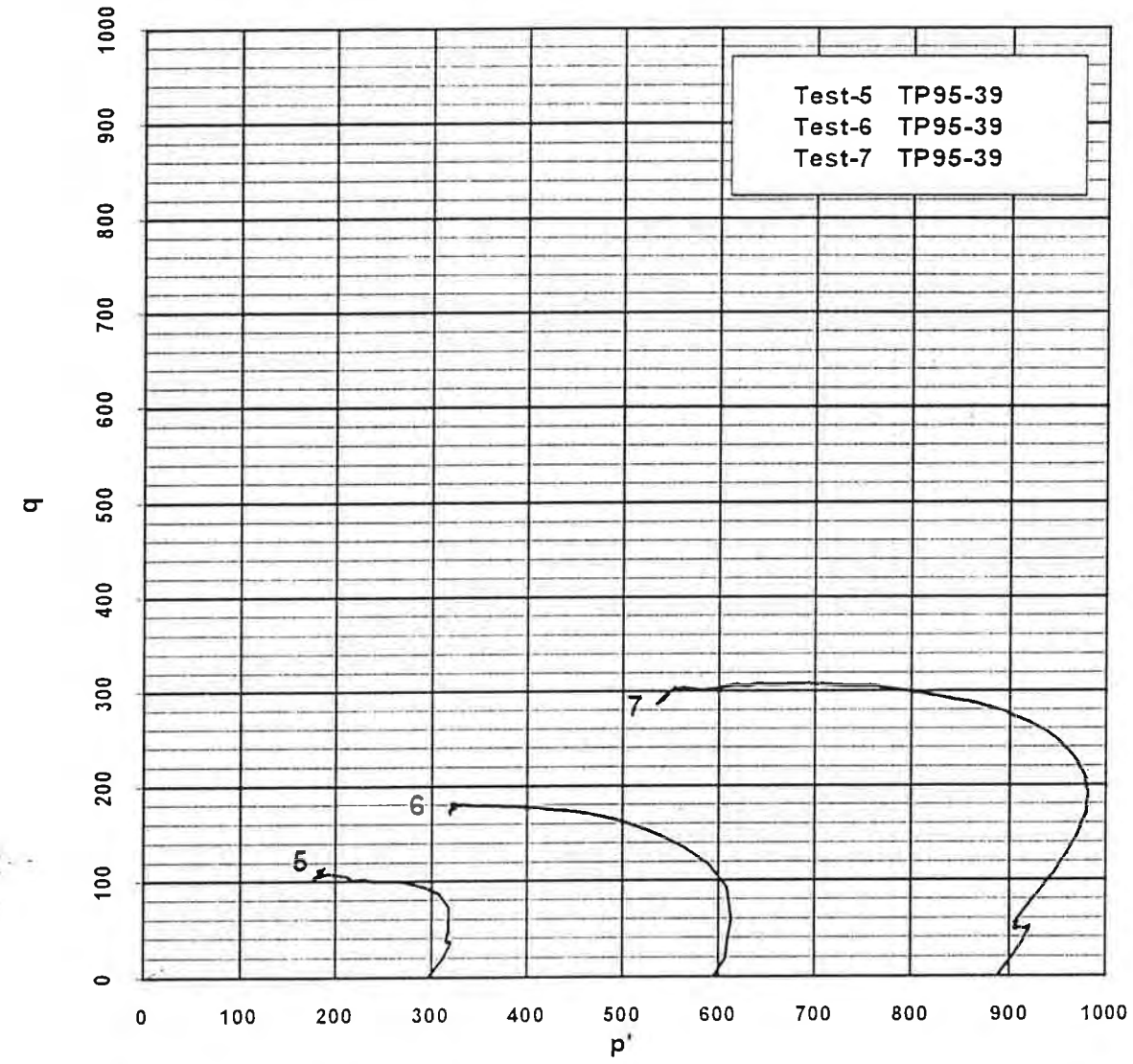
PROJECT#	9421897-5040	L_c =	15.35	cm	DATE :	27-Feb-95	Strength Results :			Density: (Kg/M³)			
Test Pit	TP95-37	A_c =	43.46	cm²	FILE :	3x-950.XLS	Max.σ_D' =	1624.3	kPa	γ_t =	2063		
Sample		V_c =	667.1	cm³	TEST#	CIU-4	Strain @ =	8.88	%	γ_f =	2180		
Depth							Max. PSR =	3.38		E_i =	0.348		
REMARKS :		Consolidation Pressure :			CALIBRATIONS :		Strain @ =	7.34	%	E_f =	0.275		
- Failure Mode Bulging		CP =	1373.8	kPa	LOAD =	0.0423 kN/mV	Consolidation Results:			Water Contents:			
- Minus 19.5 mm material		BP =	412.2	kPa	PORE =	0.6895 kPa/mV	δV_c =	37.9	cc	W_i =	9.1		
- Corrections applied for membrane		σ_{3c}' =	961.6	kPa	LVDT =	0.0285 mm/mV	T_{100} =	27.0	min	W_f =	9.9		
- Corrections applied for filter paper		B_{VALUE} =	0.997		Feed Rate =	0.026 mm/min	C_v =	1.1E-03	cm²/s				

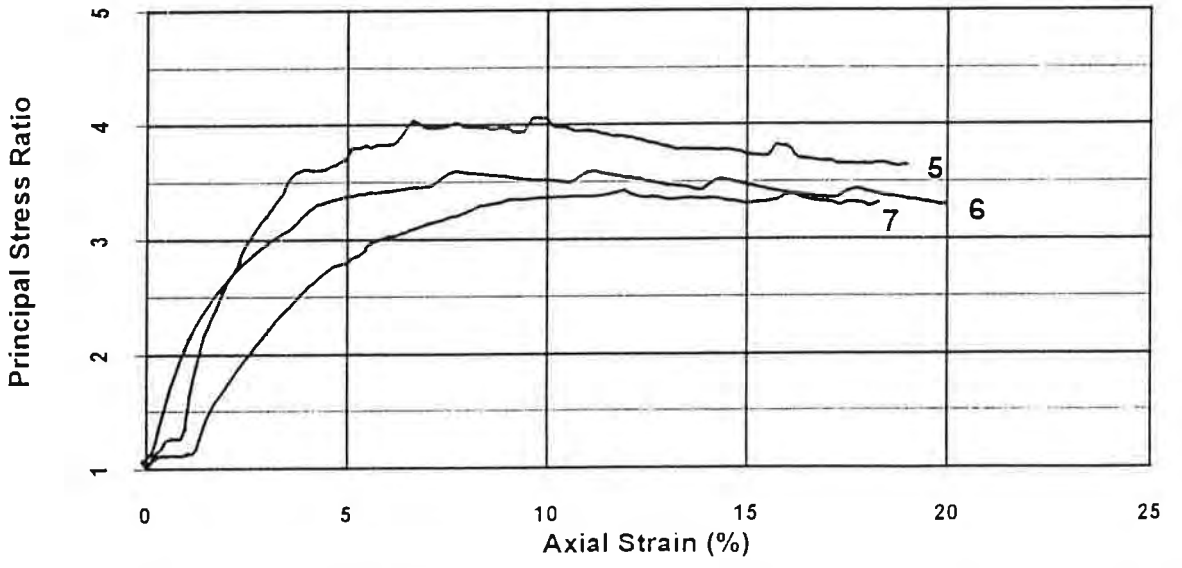
δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm²)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
510.0	16.3	-597.8	0.00	0.00	43.46	0.0	0.0	961.6	961.6	1.00		961.6	0.0
513.9	21.7	-601.4	0.07	0.23	43.49	52.2	2.5	959.1	1011.4	1.05	0.05	985.2	26.1
523.8	24.2	-605.3	0.26	0.33	43.57	75.8	5.2	956.4	1032.2	1.08	0.07	994.3	37.9
533.1	26.8	-611.7	0.43	0.44	43.65	101.6	9.6	952.0	1053.6	1.11	0.09	1002.8	50.8
540.1	59.6	-681.2	0.56	1.83	43.70	418.5	57.5	904.1	1322.6	1.46	0.14	1113.4	209.3
548.5	84.8	-794.0	0.71	2.89	43.77	660.7	135.3	826.3	1487.0	1.80	0.20	1156.6	330.3
557.3	103.7	-899.5	0.88	3.69	43.84	842.1	208.0	753.6	1595.7	2.12	0.25	1174.7	421.1
566.1	119.0	-971.6	1.04	4.34	43.92	987.4	257.7	703.9	1691.3	2.40	0.26	1197.6	493.7
574.9	131.5	-1022.6	1.21	4.87	43.99	1106.3	292.9	668.7	1775.0	2.65	0.26	1221.9	553.2
583.4	140.4	-1049.0	1.36	5.24	44.06	1189.6	311.1	650.5	1840.1	2.83	0.26	1245.3	594.8
593.2	146.8	-1066.2	1.54	5.51	44.14	1248.7	323.0	638.6	1887.3	2.96	0.26	1263.0	624.3
600.8	151.4	-1072.9	1.69	5.71	44.20	1290.9	327.6	634.0	1924.9	3.04	0.25	1279.5	645.4
610.4	154.9	-1076.6	1.86	5.86	44.29	1321.6	330.1	631.5	1953.1	3.09	0.25	1292.3	660.8
620.0	157.5	-1080.4	2.04	5.97	44.37	1344.0	332.8	628.8	1972.8	3.14	0.25	1300.8	672.0
629.3	159.8	-1075.8	2.22	6.07	44.44	1364.1	329.6	632.0	1996.1	3.16	0.24	1314.1	682.0
637.8	162.1	-1082.1	2.37	6.16	44.52	1383.4	333.9	627.7	2011.1	3.20	0.24	1319.4	691.7
647.3	164.1	-1079.4	2.55	6.25	44.60	1399.9	332.1	629.5	2029.5	3.22	0.24	1329.5	700.0
657.0	166.1	-1081.9	2.73	6.33	44.68	1415.5	333.8	627.8	2043.4	3.25	0.24	1335.6	707.8
666.3	167.4	-1079.8	2.90	6.39	44.76	1425.7	332.3	629.3	2055.0	3.27	0.23	1342.1	712.9
674.2	168.6	-1080.2	3.05	6.44	44.83	1434.4	332.6	629.0	2063.4	3.28	0.23	1346.2	717.2
684.2	169.5	-1079.3	3.23	6.48	44.91	1440.8	332.0	629.6	2070.4	3.29	0.23	1350.0	720.4
694.1	170.5	-1076.6	3.42	6.52	45.00	1447.2	330.1	631.5	2078.7	3.29	0.23	1355.1	723.6
702.1	171.7	-1077.3	3.57	6.57	45.07	1455.6	330.6	631.0	2086.6	3.31	0.23	1358.8	727.8
712.3	172.5	-1071.7	3.76	6.60	45.16	1460.9	326.8	634.8	2095.7	3.30	0.22	1365.3	730.4
721.9	173.5	-1074.9	3.93	6.64	45.24	1467.0	329.0	632.6	2099.6	3.32	0.22	1366.1	733.5
731.2	174.4	-1071.5	4.11	6.68	45.32	1472.5	326.6	635.0	2107.5	3.32	0.22	1371.2	736.2
740.0	175.3	-1072.3	4.27	6.72	45.40	1478.3	327.2	634.4	2112.7	3.33	0.22	1373.6	739.1
749.1	176.2	-1069.8	4.44	6.76	45.48	1484.2	325.4	636.2	2120.4	3.33	0.22	1378.3	742.1
758.6	177.2	-1068.8	4.62	6.80	45.56	1490.2	324.8	636.8	2127.1	3.34	0.22	1382.0	745.1
766.5	178.3	-1067.1	4.76	6.85	45.63	1498.5	323.6	638.0	2136.5	3.35	0.22	1387.3	749.3
776.2	179.2	-1063.1	4.94	6.89	45.72	1504.3	320.8	640.8	2145.1	3.35	0.21	1392.9	752.1
785.6	180.0	-1064.8	5.12	6.92	45.80	1508.4	322.0	639.6	2148.0	3.36	0.21	1393.8	754.2
794.2	180.6	-1058.9	5.28	6.95	45.88	1511.6	317.9	643.7	2155.3	3.35	0.21	1399.5	755.8
803.5	181.6	-1061.2	5.45	6.99	45.96	1517.7	319.5	642.1	2159.8	3.36	0.21	1400.9	758.9
812.6	182.0	-1057.6	5.62	7.00	46.05	1518.7	317.0	644.6	2163.3	3.36	0.21	1403.9	759.3
820.7	182.9	-1057.6	5.77	7.04	46.12	1524.2	317.0	644.6	2168.7	3.36	0.21	1406.7	762.1
829.8	183.6	-1055.0	5.94	7.08	46.20	1530.1	315.2	646.4	2176.5	3.37	0.21	1411.4	765.1
837.5	184.4	-1052.7	6.08	7.11	46.27	1532.9	313.7	647.9	2180.8	3.37	0.20	1414.4	766.4
847.1	185.3	-1051.7	6.26	7.14	46.36	1538.1	313.0	648.6	2186.7	3.37	0.20	1417.7	769.0
855.2	185.8	-1045.8	6.41	7.17	46.44	1540.5	308.9	652.7	2193.2	3.36	0.20	1422.9	770.2
864.4	186.5	-1046.1	6.58	7.20	46.52	1543.8	310.5	651.1	2195.0	3.37	0.20	1423.0	771.9
874.3	187.0	-1042.9	6.76	7.22	46.61	1544.9	308.9	654.7	2199.6	3.36	0.20	1427.1	772.4
886.1	188.0	-1044.3	6.98	7.26	46.72	1550.6	307.9	653.7	2204.4	3.37	0.20	1429.1	775.3
899.7	188.8	-1040.8	7.24	7.29	46.85	1553.2	305.4	656.2	2209.3	3.37	0.20	1432.7	776.6
909.4	189.9	-1040.3	7.42	7.34	46.94	1559.6	305.1	656.5	2216.1	3.38	0.20	1436.3	779.8
917.8	190.6	-1037.6	7.57	7.37	47.02	1563.7	303.2	658.4	2222.0	3.38	0.19	1440.2	781.8
927.2	191.3	-1035.9	7.75	7.40	47.11	1566.5	302.1	659.5	2226.1	3.38	0.19	1442.8	783.3
935.5	191.8	-1034.2	7.90	7.42	47.19	1568.9	300.9	660.7	2229.6	3.37	0.19	1445.1	784.4
945.3	192.5	-1030.2	8.08	7.45	47.28	1571.8	298.1	663.5	2235.2	3.37	0.19	1449.3	785.9
953.9	193.2	-1030.6	8.24	7.48	47.36	1574.7	298.4	663.2	2237.9	3.37	0.19	1450.6	787.4
963.4	193.7	-1025.4	8.42	7.50	47.45	1576.1	294.8	666.8	2242.9	3.36	0.19	1454.8	788.0
972.1	194.7	-1027.0	8.58	7.54	47.54	1582.6	295.9	665.7	2248.2	3.38	0.19	1456.9	791.3
980.9	195.2	-1022.9	8.74	7.56	47.62	1583.9	293.1	668.5	2252.4	3.37	0.19	1460.5	792.0
990.6	195.7	-1023.1	8.92	7.58	47.72	1585.3	293.2	668.4	2253.7	3.37	0.18	1461.0	792.7
998.9	196.3	-1019.8	9.08	7.61	47.80	1588.1	291.0	670.6	2258.7	3.37	0.18	1464.7	794.1
1008.6	197.2	-1018.7	9.26	7.65	47.89	1592.5	290.2	671.4	2263.9	3.37	0.18	1467.6	796.2
1016.6	198.0	-1016.6	9.41	7.68	47.97	1596.5	288.8	672.8	2269.3	3.37	0.18	1471.1	798.2
1026.1	198.7	-1012.6	9.58	7.71	48.07	1599.6	286.0	675.6	2275.2	3.37	0.18	1475.4	799.8
1036.0	199.2	-1013.4	9.77	7.73	48.16	1601.2	286.8	675.0	2276.2	3.37	0.18	1475.6	800.6
1045.6	199.6	-1008.5	9.94	7.75	48.26	1601.3	283.2	678.4	2279.7	3.36	0.18	1479.1	800.6
1054.9	200.5	-1009.8	10.12	7.79	48.35	1605.5	284.1	677.5	2283.1	3.37	0.18	1480.3	802.8
1063.8	200.9	-1006.0	10.28	7.80	48.44	1606.4	281.5	680.1	2286.5	3.36	0.18	1483.3	803.2
1073.5	201.5	-1005.8	10.46	7.83	48.54	1608.4	281.3	680.3	2288.7	3.36	0.17	1484.5	804.2
1083.8	202.2	-1003.1	10.65	7.86	48.64	1611.1	279.5	682.1	2293.2	3.36	0.17	1487.7	805.5
1106.0	202.8	-1001.3	11.07	7.88	48.87	1608.5	278.2	683.4	2291.8	3.35	0.17	1487.6	804.2
1152.6	203.5	-999.7	11.93	7.91	49.35	1598.2	277.1	684.5	2282.7	3.33	0.17	1483.6	799.1
1200.5	203.9	-994.6	12.82	7.93	49.85	1584.6	273.6	688.0	2272.6	3.30	0.17	1480.3	792.3
1225.0	204.6	-996.3	13.28	7.96	50.11	1582.2	274.8	686.9	2269.0	3.30	0.17	1477.9	791.1
1234.2	205.4	-992.6	13.45	8.00	50.21	1586.2	272.2	689.4	2275.5	3.30	0.17	1482.5	793.1

δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
1244.7	206.1	-992.7	13.64	8.02	50.32	1588.3	272.3	689.3	2277.6	3.30	0.17	1483.5	794.1
1263.4	206.8	-990.1	13.99	8.05	50.53	1587.2	270.5	691.1	2278.3	3.30	0.17	1484.7	793.6
1272.7	207.7	-988.5	14.16	8.09	50.63	1591.3	269.4	692.2	2283.5	3.30	0.17	1487.9	795.6
1283.1	208.0	-987.0	14.35	8.10	50.74	1590.4	268.4	693.2	2283.6	3.29	0.17	1488.4	795.2
1292.8	208.5	-983.4	14.53	8.13	50.85	1591.4	265.9	695.7	2287.1	3.29	0.17	1491.4	795.7
1302.4	209.2	-983.6	14.71	8.16	50.96	1592.9	266.0	695.6	2289.5	3.29	0.17	1492.5	796.9
1311.7	209.7	-978.5	14.89	8.18	51.06	1594.3	262.5	699.1	2293.4	3.28	0.16	1496.3	797.1
1321.7	210.4	-980.4	15.07	8.21	51.17	1596.9	263.8	697.8	2294.7	3.29	0.17	1496.3	798.5
1332.5	210.9	-977.2	15.27	8.23	51.29	1597.0	261.6	700.0	2297.0	3.28	0.16	1498.5	798.5
1342.4	211.5	-976.0	15.46	8.25	51.40	1598.0	260.8	700.8	2298.9	3.28	0.16	1499.8	799.0
1352.6	212.0	-974.5	15.64	8.27	51.52	1598.8	259.7	701.9	2300.6	3.28	0.16	1501.3	799.4
1362.6	212.5	-971.7	15.83	8.30	51.63	1599.4	257.8	703.8	2303.2	3.27	0.16	1503.5	799.7
1372.8	213.5	-971.5	16.02	8.33	51.75	1603.2	257.7	703.9	2307.1	3.28	0.16	1505.5	801.6
1382.4	213.6	-966.8	16.20	8.34	51.86	1600.8	254.4	707.2	2308.0	3.26	0.16	1507.6	800.4
1393.5	212.7	-967.9	16.40	8.30	51.99	1589.1	255.2	706.4	2295.5	3.25	0.16	1501.0	794.6
1404.3	213.5	-964.9	16.60	8.34	52.11	1591.8	253.1	708.5	2300.3	3.25	0.16	1504.4	795.9
1414.4	212.6	-964.4	16.79	8.30	52.23	1581.4	252.8	708.8	2290.3	3.23	0.16	1499.5	790.7
1423.8	212.8	-962.1	16.97	8.31	52.34	1579.1	251.2	710.4	2289.5	3.22	0.16	1499.9	789.5
1433.7	213.0	-960.6	17.15	8.31	52.46	1577.0	250.2	711.4	2288.5	3.22	0.16	1500.0	788.5
1443.2	213.2	-959.1	17.33	8.33	52.57	1575.8	249.1	712.5	2288.3	3.21	0.16	1500.4	787.9
1452.1	213.9	-955.5	17.49	8.35	52.67	1578.0	246.6	715.0	2293.0	3.21	0.16	1504.0	789.0
1462.1	214.5	-956.3	17.68	8.38	52.79	1575.2	247.2	714.4	2289.7	3.21	0.16	1504.1	789.7
1471.7	215.3	-951.7	17.86	8.41	52.91	1582.2	244.0	717.6	2299.9	3.20	0.15	1508.7	791.1
1480.7	216.9	-952.8	18.02	8.48	53.01	1591.5	244.8	716.8	2308.3	3.22	0.15	1512.6	795.7
1490.8	219.0	-950.2	18.21	8.57	53.14	1604.1	243.0	718.6	2322.7	3.23	0.15	1520.6	802.0
1500.1	220.0	-949.2	18.38	8.61	53.25	1609.0	242.3	719.3	2328.3	3.24	0.15	1523.8	804.5
1510.3	220.5	-947.5	18.57	8.63	53.37	1608.6	241.1	720.5	2329.0	3.23	0.15	1524.8	804.3
1520.0	221.0	-944.2	18.75	8.65	53.49	1609.3	238.8	722.8	2332.1	3.23	0.15	1527.4	804.7
1530.0	221.7	-944.0	18.94	8.68	53.61	1610.8	238.7	722.9	2333.7	3.23	0.15	1528.3	805.4
1538.9	222.8	-939.5	19.10	8.73	53.72	1616.4	235.6	726.0	2342.4	3.23	0.15	1534.2	808.2
1549.3	222.4	-941.3	19.30	8.71	53.85	1608.5	236.8	724.8	2333.7	3.22	0.15	1529.2	804.5
1558.3	223.3	-937.8	19.46	8.75	53.96	1612.3	234.4	727.2	2339.5	3.22	0.15	1533.3	806.2
1568.4	224.3	-937.8	19.65	8.79	54.09	1616.7	234.4	727.2	2343.9	3.22	0.15	1535.5	808.4
1578.4	225.7	-935.3	19.84	8.85	54.21	1622.4	232.7	728.9	2352.3	3.23	0.14	1540.6	811.7
1588.0	226.3	-933.7	20.02	8.88	54.34	1624.3	231.6	730.0	2354.3	3.23	0.14	1542.1	812.2
1598.1	226.0	-932.5	20.20	8.87	54.46	1618.8	230.8	730.8	2349.6	3.21	0.14	1540.2	809.4
1607.6	226.1	-929.2	20.38	8.87	54.58	1615.7	228.5	733.1	2348.8	3.20	0.14	1540.9	807.8
1617.6	226.3	-929.2	20.57	8.88	54.71	1612.8	228.5	733.1	2345.9	3.20	0.14	1539.5	806.4
1627.1	226.6	-924.3	20.74	8.89	54.83	1612.2	225.1	736.5	2348.6	3.19	0.14	1542.6	806.1
1637.4	227.5	-926.0	20.93	8.93	54.97	1614.5	226.3	735.3	2349.8	3.20	0.14	1542.6	807.3
1646.7	228.2	-922.8	21.11	8.96	55.09	1616.8	224.1	737.5	2354.3	3.19	0.14	1545.9	808.4
1656.9	228.8	-922.3	21.30	8.99	55.22	1617.4	223.7	737.9	2355.3	3.19	0.14	1546.6	808.7
1666.2	229.6	-920.2	21.47	9.02	55.34	1619.7	222.3	739.3	2359.0	3.19	0.14	1549.1	809.8
1676.2	229.7	-918.8	21.65	9.02	55.47	1616.7	221.3	740.3	2357.0	3.18	0.14	1548.6	808.4
1686.0	229.4	-917.3	21.84	9.01	55.60	1610.3	220.3	741.3	2351.6	3.17	0.14	1546.4	805.1
1695.0	229.3	-913.6	22.00	9.01	55.72	1606.0	217.7	743.9	2349.9	3.16	0.14	1546.9	803.0
1705.1	229.9	-914.5	22.19	9.03	55.85	1606.2	218.4	743.2	2349.5	3.16	0.14	1546.4	803.1
1714.8	230.4	-910.2	22.37	9.05	55.98	1606.7	215.4	746.2	2352.9	3.15	0.13	1549.6	803.4
1724.4	231.3	-911.3	22.55	9.09	56.11	1609.7	216.2	745.4	2355.1	3.16	0.13	1550.3	804.9
1734.1	231.4	-908.3	22.73	9.09	56.24	1606.3	214.1	747.5	2353.5	3.15	0.13	1550.7	803.2
1743.6	232.4	-908.0	22.90	9.13	56.37	1609.8	213.9	747.7	2357.5	3.15	0.13	1552.6	804.9
1752.5	234.0	-905.7	23.07	9.20	56.49	1618.6	212.3	749.3	2367.9	3.16	0.13	1558.6	809.3
1762.3	234.9	-903.9	23.25	9.24	56.61	1621.2	211.1	750.5	2371.8	3.16	0.13	1561.2	810.6
1772.2	234.8	-902.9	23.44	9.24	56.76	1616.6	210.4	751.2	2367.8	3.15	0.13	1559.5	808.3
1780.7	236.1	-898.8	23.59	9.29	56.88	1622.6	207.5	754.1	2376.7	3.15	0.13	1565.4	811.3

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

Figure



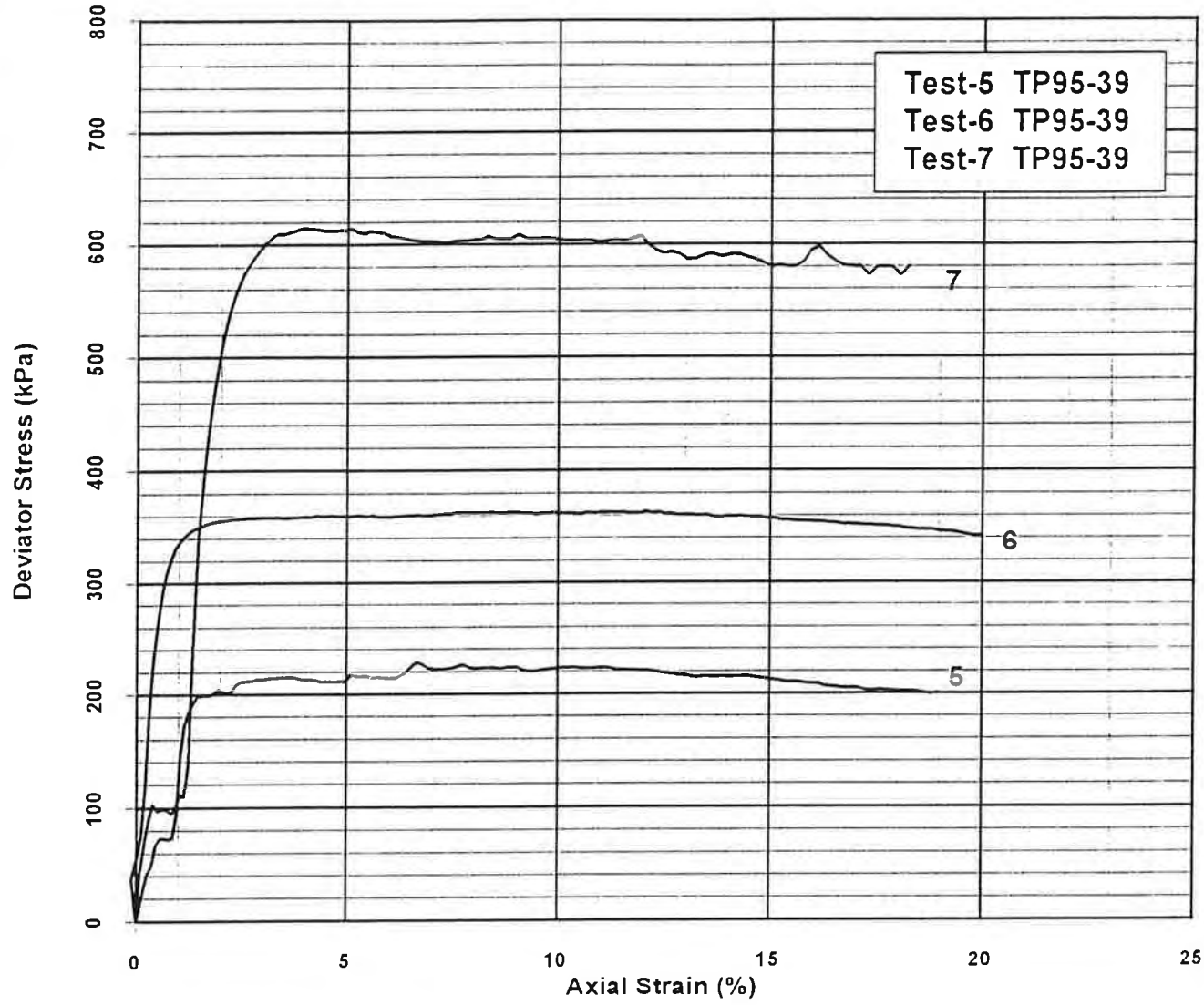


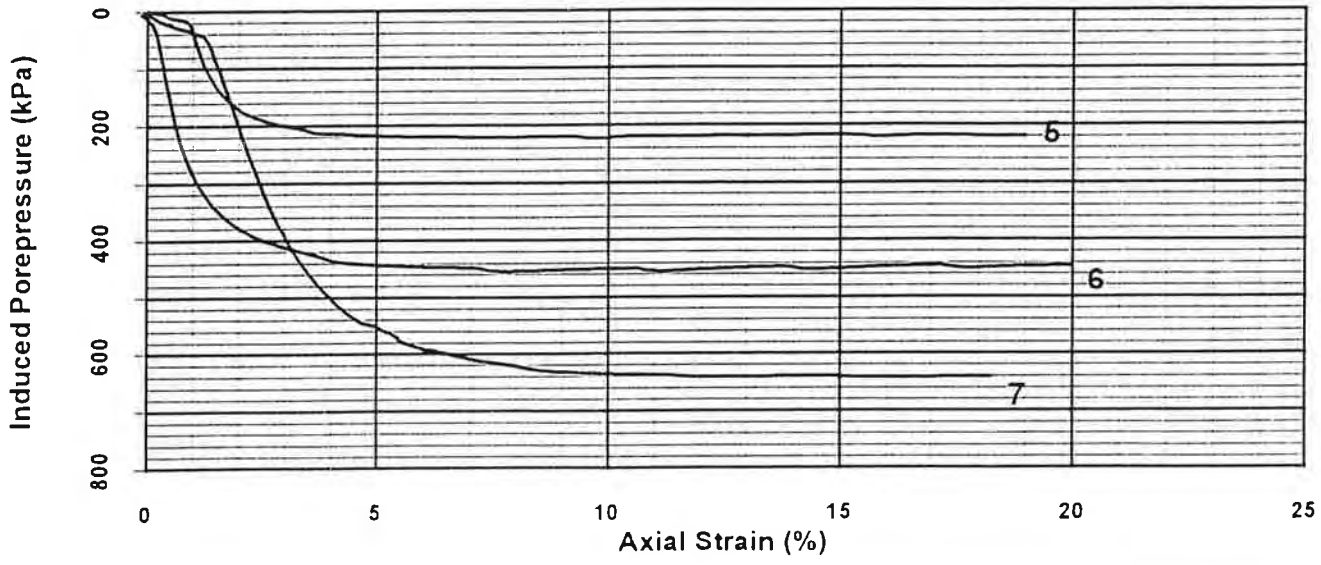
Golder Associates

PROJECT No 95 A DRAWN LL REVIEWED DATE 03/13/95

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

Figure





PROJECT No 95210 DRAWN LL REVIEWED DATE 03/13/95

Golder Associates

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

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

PROJECT#	9521018		L_c =	14.81	cm	DATE	13-Mar-95		Strength Results:			Density: (Kg/M³)	
Test Pit	TP95-39		A_c =	44.09	cm²	FILE	3x-300.xls		Max. σ_D' =	228.2	kPa	γ_t =	1693
Sample			V_c =	653.1	cm³	TEST#	CIU-5		Strain @ =	8.83	%	γ_s =	1803
Depth									Max. PSR =	4.06		E_s =	2.630
REMARKS:			Consolidation Pressure:			CALIBRATIONS			Strain @ =	9.82	%	E_r =	2.521
- Failure Mode Bulging			CP =	779.1	kPa	LOAD =	0.0036	kN/mV	Consolidation Results:			Water Contents:	
- Minus 19.5 mm material			BP =	483.1	kPa	PORE =	0.6895	kPa/mV	δV_c =	42.2	cc	W =	16.2
- Corrections applied for membrane			σ_{3c}' =	295.9	kPa	LVDT =	0.0285	mm/mV	T_{50} =	33.1	min	W_f =	16.2
			B_{VALUE} =	0.955		Feed Rate =	0.300	mm/min	C_v =	3.2E-02	cm²/s		

δL	LOAD	δU	E	LOAD	A_c	σ_D	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm²)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
509.7	104.7	-700.8	0.00	0.00	44.09	0.0	0.0	295.9	295.9	1.00		295.9	0.0
513.2	117.2	-700.9	0.07	0.05	44.12	10.2	0.1	295.9	306.1	1.03	0.01	301.0	5.1
518.2	139.2	-703.6	0.16	0.12	44.16	28.1	1.8	294.0	322.1	1.10	0.07	308.1	14.0
523.3	156.2	-706.4	0.26	0.19	44.20	41.9	2.9	292.1	333.9	1.14	0.09	313.0	20.9
528.5	165.2	-709.1	0.36	0.22	44.25	49.1	5.7	290.2	339.3	1.17	0.12	314.8	24.6
533.5	188.4	-715.3	0.46	0.30	44.29	67.8	10.0	285.9	353.8	1.24	0.15	319.9	33.9
538.7	194.8	-718.6	0.56	0.32	44.34	72.9	12.3	283.7	356.6	1.26	0.17	320.1	36.5
544.1	194.9	-719.9	0.66	0.32	44.38	72.9	13.2	282.8	355.7	1.26	0.18	319.2	36.4
549.4	193.7	-722.4	0.75	0.32	44.43	71.8	14.9	281.0	352.8	1.26	0.21	316.9	35.9
554.6	195.7	-726.0	0.86	0.33	44.47	73.3	17.4	278.6	351.9	1.26	0.24	315.2	36.7
559.5	222.8	-738.3	0.96	0.43	44.51	95.1	25.9	270.1	365.1	1.35	0.27	317.6	47.5
564.2	283.4	-772.8	1.05	0.64	44.56	143.9	49.6	246.3	390.2	1.58	0.34	318.2	71.9
569.4	318.7	-807.9	1.15	0.77	44.60	172.2	73.8	222.1	394.3	1.78	0.43	308.2	86.1
574.5	324.5	-837.9	1.25	0.82	44.65	184.8	94.5	201.5	386.2	1.92	0.51	293.9	92.4
579.7	344.2	-863.0	1.35	0.95	44.69	192.3	111.8	184.1	376.4	2.04	0.58	280.3	96.2
585.1	352.1	-883.2	1.45	0.99	44.74	198.5	125.9	170.2	368.6	2.17	0.63	269.4	99.2
590.5	352.3	-900.2	1.55	0.99	44.78	198.4	137.5	158.5	356.9	2.25	0.69	257.6	99.2
595.8	354.4	-914.2	1.66	0.99	44.83	199.8	147.1	148.8	348.6	2.34	0.74	248.7	99.9
601.1	353.5	-926.1	1.76	0.99	44.88	198.8	155.3	140.6	339.4	2.41	0.78	240.0	99.4
606.5	357.8	-936.2	1.86	0.97	44.93	202.0	162.3	133.6	335.6	2.51	0.80	234.6	101.0
611.8	360.0	-945.0	1.96	0.92	44.97	203.5	168.4	127.6	331.1	2.60	0.83	229.3	101.8
616.9	358.7	-952.5	2.06	0.91	45.02	202.2	173.5	122.4	324.6	2.65	0.86	223.5	101.1
622.2	357.6	-959.2	2.16	0.91	45.06	201.1	178.2	117.8	318.9	2.71	0.89	218.3	100.5
627.7	359.6	-965.0	2.27	0.92	45.11	202.4	182.2	113.8	316.2	2.78	0.90	215.0	101.2
633.2	366.4	-970.1	2.38	0.94	45.15	207.6	185.7	110.3	317.8	2.88	0.89	214.0	103.8
638.4	369.4	-974.6	2.48	0.95	45.21	209.7	188.8	107.2	316.9	2.96	0.90	212.0	104.8
643.7	370.3	-978.6	2.58	0.96	45.25	210.1	191.5	104.4	314.5	3.01	0.91	209.5	105.1
649.2	371.7	-982.2	2.68	0.96	45.30	211.0	194.0	101.9	312.9	3.07	0.92	207.4	105.5
654.5	372.8	-985.6	2.79	0.96	45.35	211.4	196.4	99.6	311.0	3.12	0.93	205.3	105.7
659.7	374.4	-988.4	2.89	0.97	45.40	212.6	198.3	97.6	310.2	3.18	0.93	203.9	106.3
665.3	374.4	-991.3	2.99	0.97	45.45	212.5	200.3	95.6	307.9	3.22	0.94	201.8	106.1
670.7	375.7	-993.8	3.10	0.98	45.50	213.0	202.0	93.9	307.0	3.27	0.95	200.4	106.5
676.0	376.9	-996.4	3.20	0.98	45.55	213.7	203.8	92.1	305.8	3.32	0.95	199.0	106.9
681.4	377.3	-998.6	3.30	0.98	45.59	213.8	205.5	90.4	304.2	3.36	0.96	197.3	106.9
686.7	377.9	-1001.3	3.41	0.98	45.64	214.0	207.2	88.7	302.7	3.41	0.97	195.7	107.0
691.9	378.5	-1006.1	3.51	0.99	45.69	214.2	210.5	85.4	299.6	3.51	0.98	192.5	107.1
697.3	378.8	-1008.4	3.61	0.99	45.74	214.1	212.1	83.8	298.0	3.55	0.99	190.9	107.1
702.7	380.0	-1009.5	3.71	0.99	45.79	214.8	212.8	83.1	297.9	3.58	0.99	190.5	107.4
707.8	379.1	-1010.8	3.81	0.99	45.84	213.8	213.7	82.2	296.0	3.60	1.00	189.1	106.9
713.2	378.1	-1012.0	3.92	0.98	45.89	212.7	214.6	81.4	294.1	3.61	1.01	187.7	106.4
718.3	377.3	-1012.7	4.01	0.98	45.93	211.9	215.1	80.9	292.7	3.62	1.02	186.8	105.9
723.6	377.9	-1012.0	4.12	0.98	45.98	212.1	214.6	81.4	293.4	3.61	1.01	187.4	106.0
728.8	378.1	-1012.0	4.22	0.98	46.03	211.9	214.6	81.4	293.3	3.60	1.01	187.3	106.0
734.0	377.1	-1012.7	4.32	0.98	46.08	210.9	215.1	80.9	291.8	3.61	1.02	186.3	105.4
739.1	376.0	-1013.5	4.41	0.98	46.12	209.8	215.6	80.3	290.1	3.61	1.03	185.2	104.9
744.3	376.3	-1014.2	4.51	0.98	46.17	209.7	216.1	79.9	289.6	3.63	1.03	184.7	104.9
749.3	376.9	-1014.8	4.61	0.98	46.22	209.9	216.5	79.4	289.4	3.64	1.03	184.4	105.0
754.5	377.1	-1015.4	4.71	0.98	46.27	209.8	216.9	79.0	288.9	3.66	1.03	183.9	104.9
759.7	378.4	-1016.0	4.81	0.99	46.32	210.6	217.3	78.6	289.2	3.68	1.03	183.9	105.3
764.7	379.3	-1016.5	4.91	0.99	46.36	211.0	217.7	78.3	289.3	3.70	1.03	183.8	105.5
769.9	381.8	-1016.9	5.01	1.00	46.41	212.7	218.0	78.0	290.7	3.73	1.02	184.3	106.3
774.6	387.7	-1017.3	5.10	1.02	46.46	217.0	218.2	77.7	294.7	3.79	1.01	186.2	108.5
779.7	387.5	-1017.9	5.20	1.02	46.50	216.5	218.6	77.3	293.9	3.80	1.01	185.6	108.3
784.7	386.8	-1018.0	5.29	1.02	46.55	215.8	218.7	77.2	293.0	3.79	1.01	185.1	107.9
789.7	387.5	-1018.6	5.39	1.02	46.60	216.1	219.1	76.8	292.9	3.81	1.01	184.8	108.0
794.7	388.0	-1019.0	5.48	1.02	46.65	216.2	219.4	76.5	292.7	3.82	1.01	184.6	108.1
799.7	386.3	-1019.0	5.58	1.01	46.69	214.6	219.4	76.5	291.1	3.80	1.02	183.8	107.3
804.7	387.2	-1019.4	5.68	1.02	46.74	215.0	219.7	76.3	291.3	3.82	1.02	183.8	107.5
809.7	388.0	-1019.6	5.77	1.02	46.79	215.4	219.8	76.1	291.5	3.83	1.02	183.8	107.7
814.7	387.5	-1019.8	5.87	1.02	46.84	214.7	220.0	76.0	290.7	3.83	1.02	183.4	107.4
819.6	387.1	-1020.1	5.96	1.02	46.88	214.2	220.2	75.8	289.9	3.83	1.03	182.9	107.1
824.5	387.2	-1020.3	6.06	1.02	46.93	214.0	220.3	75.6	289.6	3.83	1.03	182.6	107.0
829.6	387.5	-1020.3	6.16	1.02	46.98	213.9	220.3	75.6	289.6	3.83	1.03	182.6	107.0
834.5	390.5	-1020.5	6.25	1.03	47.03	216.0	220.4	75.5	291.5	3.86	1.02	183.5	108.0
839.5	394.0	-1020.7	6.35	1.04	47.08	218.4	220.6	75.4	293.7	3.90	1.01	184.6	109.2
844.4	398.2	-1020.9	6.44	1.06	47.12	221.3	220.7	75.2	296.5	3.94	1.00	185.9	110.7
849.4	403.5	-1021.1	6.54	1.08	47.17	225.1	220.8	75.1	300.2	4.00	0.98	187.6	112.5
854.5	408.0	-1021.1	6.63	1.09	47.22	228.2	220.8	75.1	303.3	4.04	0.97	189.2	114.1
859.4	407.1	-1021.1	6.73	1.09	47.27	227.3	220.8	75.1	302.4	4.03	0.97	188.7	113.6

δL	LOAD	δU	E	LOAD	A_c	σ_o'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
864.4	404.8	-1021.3	6.82	1.08	47.32	225.2	221.0	75.0	300.2	4.01	0.98	187.6	112.6
869.3	402.3	-1021.3	6.92	1.07	47.37	223.9	221.0	75.0	298.0	3.98	0.99	186.5	111.5
874.3	401.3	-1021.5	7.02	1.07	47.41	222.9	221.1	74.8	296.8	3.97	1.00	185.8	111.0
879.4	401.4	-1021.5	7.11	1.07	47.46	221.8	221.1	74.8	296.6	3.96	1.00	185.7	110.9
884.3	401.7	-1021.5	7.21	1.07	47.51	221.8	221.1	74.8	296.6	3.96	1.00	185.7	110.9
889.3	402.6	-1021.5	7.30	1.07	47.56	222.2	221.1	74.8	297.0	3.97	1.00	185.9	111.1
894.4	403.8	-1021.5	7.40	1.08	47.61	222.8	221.1	74.8	297.6	3.98	0.99	186.2	111.4
899.2	404.5	-1021.3	7.49	1.08	47.66	223.1	221.0	75.0	298.0	3.98	0.99	186.5	111.5
904.0	406.7	-1021.5	7.59	1.09	47.71	224.5	221.1	74.8	299.2	4.00	0.99	187.0	112.2
908.9	408.5	-1021.5	7.68	1.09	47.75	225.5	221.1	74.8	300.4	4.01	0.98	187.6	112.8
913.9	408.9	-1021.3	7.78	1.10	47.81	225.8	221.0	75.0	300.5	4.01	0.98	187.7	112.8
918.8	406.4	-1021.3	7.87	1.09	47.86	223.4	221.0	75.0	298.4	3.98	0.99	186.7	111.7
923.8	406.0	-1021.3	7.97	1.08	47.91	222.8	221.0	75.0	297.8	3.97	0.99	186.4	111.4
928.7	406.1	-1021.3	8.06	1.09	47.95	222.6	221.0	75.0	297.6	3.97	0.99	186.3	111.3
933.5	407.0	-1021.1	8.15	1.09	48.00	223.0	220.8	75.1	298.1	3.97	0.99	186.6	111.5
938.5	407.9	-1021.1	8.25	1.09	48.05	223.4	220.8	75.1	298.5	3.98	0.99	186.8	111.7
943.6	407.7	-1020.9	8.35	1.09	48.10	223.0	220.7	75.2	298.2	3.96	0.99	186.7	111.5
948.6	408.8	-1021.1	8.44	1.09	48.15	223.5	220.8	75.1	298.6	3.98	0.99	186.9	111.8
953.7	408.3	-1020.9	8.54	1.09	48.21	223.2	220.7	75.2	298.1	3.96	0.99	186.7	111.4
958.8	408.2	-1020.9	8.64	1.09	48.26	223.5	220.7	75.2	297.8	3.96	0.99	186.9	111.2
963.9	409.1	-1020.9	8.74	1.10	48.31	223.8	220.7	75.2	298.1	3.96	0.99	186.7	111.4
968.8	410.8	-1020.7	8.83	1.10	48.36	223.9	220.6	75.4	299.2	3.97	0.99	187.3	111.9
973.9	410.8	-1020.5	8.93	1.10	48.41	223.6	220.4	75.5	299.1	3.96	0.99	187.3	111.8
979.0	411.4	-1020.5	9.03	1.10	48.46	223.7	220.4	75.5	299.2	3.96	0.99	187.4	111.9
984.2	409.4	-1020.5	9.13	1.10	48.52	222.0	220.4	75.5	297.5	3.94	0.99	186.5	111.0
989.3	408.2	-1020.7	9.23	1.09	48.57	220.8	220.6	75.4	296.1	3.93	1.00	185.8	110.4
994.4	407.7	-1021.1	9.33	1.09	48.62	220.1	220.8	75.1	295.2	3.93	1.00	185.2	110.1
999.6	407.6	-1021.5	9.43	1.09	48.68	219.8	221.1	74.8	294.6	3.94	1.01	184.7	109.9
1004.7	408.6	-1023.5	9.52	1.09	48.73	220.2	222.5	73.4	293.6	4.00	1.01	183.5	110.1
1009.8	410.2	-1025.2	9.62	1.10	48.78	221.1	223.7	72.3	293.4	4.06	1.01	182.8	110.5
1015.0	411.5	-1025.0	9.72	1.10	48.84	221.8	223.5	72.4	294.2	4.06	1.01	183.3	110.9
1020.1	412.3	-1024.8	9.82	1.11	48.89	222.1	223.4	72.5	294.6	4.06	1.01	183.6	111.0
1025.3	413.0	-1024.6	9.92	1.11	48.94	222.3	223.3	72.7	295.0	4.06	1.00	183.8	111.1
1030.7	414.5	-1023.8	10.02	1.12	49.00	223.1	222.7	73.2	296.3	4.05	1.00	184.6	111.5
1035.8	414.9	-1021.8	10.12	1.12	49.05	223.1	221.3	74.6	297.7	3.99	0.99	186.1	111.5
1041.1	415.1	-1021.3	10.22	1.12	49.11	223.6	221.0	75.0	297.9	3.97	0.99	186.4	111.5
1046.2	416.4	-1021.1	10.32	1.12	49.16	223.8	220.8	75.1	298.7	3.98	0.99	186.9	111.8
1051.5	416.7	-1020.7	10.42	1.12	49.22	223.5	220.6	75.4	298.9	3.97	0.99	187.1	111.7
1056.3	416.4	-1020.9	10.52	1.12	49.27	223.0	220.7	75.2	298.2	3.96	0.99	186.7	111.5
1061.8	416.2	-1020.5	10.62	1.12	49.33	223.5	220.4	75.5	298.0	3.95	0.99	186.8	111.3
1067.0	416.4	-1020.3	10.72	1.12	49.38	223.4	220.3	75.6	298.0	3.94	0.99	186.8	111.2
1072.2	416.7	-1020.5	10.82	1.12	49.44	223.8	220.4	75.5	297.8	3.94	0.99	186.5	111.1
1077.5	417.7	-1020.3	10.92	1.13	49.50	224.7	220.3	75.6	298.4	3.94	0.99	187.0	111.4
1082.7	418.6	-1020.3	11.02	1.13	49.55	225.1	220.3	75.6	298.7	3.95	0.99	187.2	111.5
1087.9	418.7	-1020.1	11.13	1.13	49.61	225.2	220.2	75.8	298.6	3.94	0.99	187.2	111.4
1093.2	419.0	-1020.1	11.23	1.13	49.66	225.7	220.2	75.8	298.5	3.94	0.99	187.2	111.4
1098.5	418.4	-1019.9	11.33	1.13	49.72	225.0	220.0	75.9	297.9	3.92	0.99	186.9	111.0
1103.7	418.0	-1019.9	11.43	1.13	49.78	224.4	220.0	75.9	297.3	3.92	0.99	186.6	110.7
1109.0	418.6	-1019.8	11.52	1.13	49.83	224.5	220.0	76.0	297.5	3.92	0.99	186.8	110.8
1114.4	417.8	-1019.6	11.62	1.13	49.89	223.6	219.8	76.1	296.8	3.90	1.00	186.4	110.3
1119.5	418.3	-1019.6	11.72	1.13	49.95	224.1	219.8	76.1	296.8	3.90	1.00	186.5	110.4
1124.7	419.0	-1019.4	11.82	1.13	50.01	224.9	219.7	76.3	297.2	3.90	0.99	186.7	110.5
1129.9	419.5	-1019.4	11.93	1.13	50.06	225.0	219.7	76.3	297.2	3.90	0.99	186.7	110.5
1135.2	419.2	-1019.2	12.04	1.13	50.12	224.4	219.5	76.4	296.8	3.89	1.00	186.6	110.2
1140.5	419.9	-1019.4	12.14	1.13	50.18	225.0	219.7	76.3	296.9	3.89	1.00	186.6	110.3
1145.7	418.9	-1019.0	12.24	1.13	50.24	223.6	219.4	76.5	296.2	3.87	1.00	186.3	109.8
1150.8	419.7	-1019.0	12.34	1.13	50.29	224.0	219.4	76.5	296.4	3.87	1.00	186.5	109.9
1156.2	418.4	-1019.0	12.44	1.13	50.35	222.6	219.4	76.5	295.2	3.86	1.00	185.9	109.3
1161.3	418.0	-1019.0	12.54	1.13	50.41	222.1	219.4	76.5	294.6	3.85	1.01	185.6	109.0
1166.6	417.7	-1018.8	12.64	1.13	50.47	221.5	219.3	76.7	294.2	3.84	1.01	185.5	108.8
1171.8	417.8	-1018.8	12.74	1.13	50.52	221.3	219.3	76.7	294.0	3.83	1.01	185.3	108.7
1177.1	417.0	-1018.6	12.84	1.12	50.58	220.4	219.1	76.8	293.3	3.82	1.01	185.0	108.2
1182.3	417.1	-1018.6	12.94	1.12	50.64	220.2	219.1	76.8	293.0	3.81	1.01	184.9	108.1
1187.6	417.4	-1018.4	13.04	1.13	50.70	220.1	219.0	77.0	293.1	3.81	1.01	185.0	108.1
1192.7	416.7	-1018.4	13.14	1.12	50.76	219.3	219.0	77.0	292.3	3.80	1.02	184.6	107.7
1198.0	415.8	-1018.2	13.24	1.12	50.82	218.4	218.8	77.1	291.5	3.78	1.02	184.2	107.2
1203.1	416.1	-1018.4	13.34	1.12	50.88	218.6	219.0	77.0	291.5	3.78	1.02	184.1	107.1
1208.4	417.7	-1018.0	13.44	1.13	50.94	219.1	218.7	77.2	292.4	3.79	1.02	184.8	107.6
1213.6	417.7	-1018.0	13.54	1.13	50.99	219.0	218.7	77.2	292.1	3.78	1.02	184.6	107.4
1218.7	418.0	-1018.0	13.64	1.13	51.05	219.2	218.7	77.2	292.0	3.78	1.02	184.5	107.4
1224.0	418.3	-1017.9	13.74	1.13	51.11	219.6	218.6	77.3	291.9	3.78	1.02	184.6	107.3
1229.2	419.3	-1017.9	13.84	1.13	51.17	220.0	218.6	77.3	292.3	3.78	1.02	184.8	107.5
1234.4	419.6	-1017.5	13.94	1.13	51.23	220.0	218.6	77.3	292.3	3.78	1.02	184.8	107.5
1239.6	419.7	-1017.9	14.04	1.13	51.29	219.7	218.6	77.3	292.0	3.78	1.02	184.7	107.4
1244.7	420.9	-1017.7	14.14	1.14	51.35	219.3	218.5	77.4	292.7	3.78	1.02	185.1	107.6
1249.9	420.5	-1017.7	14.24	1.14	51.41	219.1	218.5	77.4	292.1	3.77	1.02	184.8	107.3
1255.1	421.2	-1017.7	14.34	1.14	51.47	219.6	218.5	77.4	292.3	3.77	1.02	184.9	107.4
1260.2	422.2	-1017.7	14.44	1.14	51.53	219.9	218.5	77.4	292.7	3.78	1.02	185.1	107.6
1265.5	422.5	-1017.7	14.54	1.14	51.59	219.7	218.5	77.4	292.6	3.78	1.02	185.0	107.6
1270.6	422.4	-1017.5	14.64	1.14	51.65	219.8	218.4	77.6	292.4	3.77	1.02	185.0	107.4
1275.8	422.1	-1017.7	14.74	1.14	51.71	219.3	218.5	77.4	291.7	3.77	1.02	184.6	107.1
1280.9	421.8	-1017.7	14.84	1.14	51.77	218.8	218.5	77.4	291.2	3.76	1.02	184.3	106.9
1286.0	421.0	-1017.5	14.94	1.14	51.83	218.9	218.4	77.6	290.5	3.74	1.03	184.0	106.5
1291.2	420.2	-1017.5	15.04	1.14	51.89	218.1	218.4	77.6	289.8	3.73	1.03	183.6	106.0
1296.3	420.5	-1017.5	15.13	1.14	51.95	218.0	218.4	77.6	289.5	3.73	1.03	183.6	106.0
1301.4	420.2	-1017.5	15.23	1.14	52.01	217.5	218.4	77.6	289.0	3.73	1.03	183.3	105.7
1306.6	419.6	-1017.9	15.33	1.13	52.07	216.7	218.6	77.3	288.0	3.73	1.04	182.7	105.4
1311.7	419.0	-1018.2	15.43	1.13	52.13	216.0	218.8	77.1	287.1	3.72	1.04	182.1	105.0

δL	LOAD	δU	E	LOAD	A_c	σ_0'	δU	σ_3	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
1316.9	419.5	-1018.4	15.53	1.13	52.19	210.1	219.0	77.0	287.0	3.73	1.04	182.0	105.0
1322.1	419.6	-1019.9	15.63	1.13	52.26	209.8	220.0	75.9	285.6	3.76	1.05	180.8	104.9
1327.3	419.9	-1022.2	15.73	1.13	52.32	209.7	221.6	74.3	284.1	3.82	1.06	179.2	104.9
1332.4	418.9	-1022.6	15.83	1.13	52.38	208.8	221.9	74.1	282.9	3.82	1.06	178.4	104.4
1337.5	419.2	-1022.4	15.93	1.13	52.44	208.7	221.7	74.2	282.9	3.81	1.06	178.5	104.3
1342.5	419.0	-1022.4	16.02	1.13	52.50	208.2	221.7	74.2	282.4	3.81	1.06	178.3	104.1
1347.8	420.8	-1021.1	16.13	1.14	52.56	208.2	220.8	75.1	284.3	3.79	1.06	179.7	104.6
1352.9	419.0	-1019.6	16.22	1.13	52.63	207.6	219.8	76.1	283.9	3.73	1.06	179.9	103.8
1358.5	417.3	-1019.4	16.33	1.13	52.69	206.2	219.7	76.3	282.4	3.70	1.07	179.3	103.1
1363.6	418.0	-1019.4	16.43	1.13	52.76	206.3	219.7	76.3	282.6	3.71	1.06	179.4	103.2
1368.5	417.8	-1019.2	16.52	1.13	52.82	205.9	219.5	76.4	282.3	3.70	1.07	179.4	103.0
1373.8	418.0	-1019.2	16.63	1.13	52.88	205.7	219.5	76.4	282.1	3.69	1.07	179.3	102.9
1378.6	417.1	-1019.2	16.72	1.12	52.94	204.9	219.5	76.4	281.3	3.68	1.07	178.8	102.4
1383.8	418.1	-1019.2	16.82	1.13	53.00	205.2	219.5	76.4	281.6	3.69	1.07	179.0	102.6
1389.2	418.1	-1019.0	16.92	1.13	53.07	204.9	219.4	76.5	281.5	3.68	1.07	179.0	102.5
1395.2	418.7	-1019.2	17.04	1.13	53.14	205.0	219.5	76.4	281.4	3.68	1.07	178.9	102.5
1400.4	418.7	-1019.2	17.14	1.13	53.21	204.7	219.5	76.4	281.1	3.68	1.07	178.7	102.3
1405.1	417.3	-1019.0	17.23	1.13	53.26	203.5	219.4	76.5	280.0	3.66	1.08	178.3	101.7
1410.8	417.1	-1019.2	17.34	1.12	53.34	203.0	219.5	76.4	279.4	3.66	1.08	177.9	101.5
1416.2	417.3	-1019.2	17.44	1.13	53.40	202.8	219.5	76.4	279.2	3.65	1.08	177.8	101.4
1421.2	418.6	-1019.0	17.54	1.13	53.47	203.4	219.4	76.5	279.9	3.66	1.08	178.2	101.7
1425.8	418.9	-1019.2	17.63	1.13	53.52	203.3	219.5	76.4	279.7	3.66	1.08	178.1	101.7
1432.0	418.9	-1019.2	17.75	1.13	53.60	203.0	219.5	76.4	279.4	3.66	1.08	177.9	101.5
1437.3	418.7	-1019.2	17.85	1.13	53.67	202.5	219.5	76.4	278.9	3.65	1.08	177.7	101.3
1442.6	419.6	-1019.4	17.95	1.13	53.73	202.8	219.7	76.3	279.1	3.66	1.08	177.7	101.4
1448.0	418.7	-1019.6	18.05	1.13	53.80	201.9	219.9	76.1	278.0	3.65	1.09	177.1	101.0
1453.3	419.7	-1019.6	18.16	1.13	53.87	202.3	219.8	76.1	278.4	3.66	1.09	177.3	101.1
1458.5	420.5	-1019.8	18.26	1.14	53.93	202.5	220.0	76.0	278.5	3.66	1.09	177.2	101.2
1464.0	420.5	-1019.8	18.36	1.14	54.00	202.2	220.0	76.0	278.2	3.66	1.09	177.1	101.1
1469.3	420.5	-1019.9	18.46	1.14	54.07	201.9	220.0	75.9	277.8	3.66	1.09	176.9	100.9
1474.7	419.5	-1019.9	18.57	1.13	54.14	200.9	220.0	75.9	276.8	3.65	1.10	176.4	100.4
1480.0	419.7	-1019.9	18.67	1.13	54.21	200.7	220.0	75.9	276.6	3.64	1.10	176.3	100.4
1485.5	418.7	-1020.1	18.78	1.13	54.28	199.7	220.2	75.8	275.5	3.64	1.10	175.6	99.9
1490.7	419.9	-1020.1	18.88	1.13	54.35	200.2	220.2	75.8	276.0	3.64	1.10	175.9	100.1
1496.2	420.0	-1020.3	18.98	1.14	54.42	200.0	220.3	75.6	275.6	3.64	1.10	175.6	100.0

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

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

PROJECT#	9521018		L_c =	14.54	cm	DATE :	7-Mar-95		Strength Results :				Density: (Kg/M³)
Test Pit	TP95-39		A_c =	43.49	cm²	FILE :	3x-600.XLS		Max.σ_D' =	363.5	kPa		γ_s = 1639
Sample			V_c =	549.6	cm³	TEST#	CIU-6		Strain @ =	12.10	%		γ_t = 1807
Depth									Max. PSR =	3.60			E_i = 0.684
REMARKS :			Consolidation Pressure :			CALIBRATIONS :			Strain @ =	7.72	%		E_f = 0.528
- Failure Mode Bulging			CP =	1076.7	kPa	LOAD =	0.0036	kN/mV	Consolidation Results:				Water Contents:
- Corrections applied for membrane			BP =	482.2	kPa	PORE =	0.6895	kPa/mV	δV_c =	66.3	cc		W_i = 16.6
			σ_{3c}' =	594.5	kPa	LVDT =	0.0285	mm/mV	T_{100} =	13.0	min		W_f = 18.6
			B_{VALUE} =	0.953		Feed Rate =	0.30	mm/min	C_v =	5.9E-02	cm²/s		

δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm²)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
163.0	145.6	-699.9	0.00	0.00	43.49	0.0	0.0	594.5	594.5	1.00		594.5	0.0
157.0	190.4	-707.6	0.12	0.16	43.44	37.1	5.3	589.2	626.3	1.06	0.14	607.8	18.6
162.9	210.5	-719.0	0.00	0.23	43.49	53.7	13.2	581.3	635.0	1.09	0.25	608.2	26.8
168.7	235.9	-732.3	0.11	0.32	43.54	74.6	22.3	572.2	646.8	1.13	0.30	609.5	37.3
174.2	288.2	-758.1	0.21	0.51	43.58	117.7	40.1	554.4	672.0	1.21	0.34	613.2	58.8
179.2	369.8	-812.7	0.31	0.81	43.62	184.6	77.8	516.7	701.6	1.36	0.42	609.1	92.4
184.6	429.1	-876.9	0.41	1.02	43.67	233.5	122.0	472.5	705.9	1.49	0.52	589.2	116.7
190.2	471.4	-936.6	0.52	1.17	43.72	268.0	163.2	431.3	699.3	1.62	0.61	565.3	134.0
195.6	501.8	-988.0	0.62	1.28	43.76	292.7	198.6	395.9	688.6	1.74	0.68	542.2	146.4
201.1	523.3	-1031.0	0.73	1.36	43.81	310.0	228.3	366.2	676.2	1.85	0.74	521.2	155.0
206.6	539.4	-1067.2	0.83	1.42	43.86	322.9	253.3	341.2	664.1	1.95	0.78	502.7	161.4
212.1	551.2	-1098.0	0.94	1.46	43.90	332.1	274.5	320.0	652.1	2.04	0.83	486.1	166.1
217.9	559.1	-1124.0	1.05	1.49	43.95	338.2	292.4	302.1	640.3	2.12	0.86	471.2	169.1
223.5	565.4	-1146.5	1.15	1.51	44.00	342.9	307.9	286.6	629.5	2.20	0.90	458.0	171.5
229.3	570.4	-1165.9	1.26	1.52	44.05	346.6	321.3	273.2	619.8	2.27	0.93	446.5	173.3
234.9	573.4	-1182.6	1.37	1.54	44.09	348.8	332.8	261.7	610.3	2.33	0.95	436.0	174.3
240.6	575.5	-1197.4	1.48	1.55	44.14	349.9	342.0	251.5	601.4	2.39	0.98	426.4	174.9
246.3	578.3	-1210.2	1.59	1.56	44.19	351.7	351.9	242.6	594.4	2.45	1.00	418.5	175.9
252.1	580.9	-1221.8	1.70	1.57	44.24	353.4	359.9	234.6	588.0	2.51	1.02	411.3	176.7
257.9	582.4	-1232.1	1.81	1.57	44.29	354.2	367.0	227.5	581.7	2.56	1.04	404.6	177.1
263.6	584.1	-1241.4	1.92	1.58	44.34	355.1	373.4	221.1	576.2	2.61	1.05	398.7	177.5
269.4	585.1	-1249.8	2.03	1.58	44.39	355.5	379.2	215.3	570.8	2.65	1.07	393.1	177.7
275.0	586.5	-1257.1	2.14	1.59	44.44	356.2	384.2	210.3	566.5	2.69	1.08	388.4	178.1
280.8	587.8	-1263.8	2.25	1.59	44.49	356.7	388.8	205.7	562.4	2.73	1.09	384.1	178.4
286.5	588.6	-1269.9	2.35	1.59	44.54	357.0	393.0	201.5	558.4	2.77	1.10	380.0	178.5
292.1	589.5	-1275.6	2.46	1.60	44.59	357.2	396.9	197.6	554.8	2.81	1.11	376.2	178.6
297.8	590.5	-1280.8	2.57	1.60	44.64	357.6	400.5	194.0	551.6	2.84	1.12	372.8	178.8
303.4	591.9	-1285.7	2.68	1.61	44.69	358.3	403.9	190.6	548.9	2.88	1.13	369.7	179.1
309.1	592.2	-1290.1	2.79	1.61	44.74	358.1	406.9	187.6	545.6	2.91	1.14	366.6	179.0
314.8	592.9	-1294.2	2.90	1.61	44.79	358.2	409.6	184.7	542.9	2.94	1.14	363.8	179.1
320.3	594.1	-1298.0	3.00	1.61	44.84	358.7	412.4	182.1	540.8	2.97	1.15	361.5	179.4
325.8	594.2	-1301.4	3.11	1.61	44.88	358.9	414.7	179.8	538.1	2.99	1.16	358.9	179.2
331.4	594.9	-1304.7	3.21	1.62	44.93	359.5	417.0	177.5	536.0	3.02	1.16	356.7	179.2
336.9	595.9	-1307.7	3.32	1.62	44.98	359.8	419.1	175.4	534.2	3.05	1.17	354.8	179.4
342.4	595.8	-1310.5	3.42	1.62	45.03	359.3	421.0	173.5	531.6	3.07	1.17	352.6	179.2
347.9	595.9	-1313.1	3.53	1.62	45.08	357.9	422.8	171.7	529.6	3.08	1.18	350.7	179.0
353.5	597.0	-1315.8	3.63	1.62	45.13	358.4	424.7	169.8	528.2	3.11	1.18	349.0	179.2
359.0	597.6	-1320.2	3.74	1.63	45.18	358.4	427.7	166.8	525.2	3.15	1.19	346.0	179.2
364.5	598.7	-1324.4	3.84	1.63	45.23	358.8	430.6	163.9	522.8	3.19	1.20	343.3	179.4
369.8	599.4	-1328.4	3.94	1.63	45.28	359.0	433.4	161.1	520.1	3.23	1.21	340.6	179.5
375.3	600.3	-1331.4	4.05	1.64	45.33	359.3	435.4	159.1	518.3	3.26	1.21	338.7	179.6
380.7	600.8	-1334.0	4.15	1.64	45.37	359.2	437.2	157.3	516.5	3.28	1.22	336.9	179.6
386.0	602.3	-1335.8	4.25	1.64	45.42	360.0	438.5	156.0	516.0	3.31	1.22	336.0	180.0
391.5	602.7	-1336.8	4.36	1.65	45.47	359.8	439.1	155.4	515.2	3.32	1.22	335.3	179.9
396.9	603.0	-1337.8	4.46	1.65	45.52	359.6	439.8	154.7	514.3	3.33	1.22	334.5	179.8
402.3	604.2	-1338.8	4.56	1.65	45.57	360.2	440.5	154.0	514.1	3.34	1.22	334.1	180.1
407.7	604.4	-1340.0	4.67	1.65	45.62	359.9	441.3	153.2	513.0	3.35	1.23	333.1	179.9
413.2	604.4	-1340.6	4.77	1.65	45.67	359.4	441.8	152.7	512.2	3.35	1.23	332.5	179.7
418.6	605.1	-1341.6	4.88	1.65	45.72	359.5	442.5	152.0	511.6	3.36	1.23	331.8	179.8
424.0	606.1	-1342.4	4.98	1.66	45.77	359.9	443.0	151.5	511.4	3.38	1.23	331.4	179.9
429.3	606.2	-1343.0	5.08	1.66	45.82	359.5	443.4	151.1	510.6	3.38	1.23	330.9	179.8
434.7	607.3	-1343.6	5.18	1.66	45.87	360.0	443.8	150.7	510.6	3.39	1.23	330.6	180.0
440.1	608.2	-1344.4	5.29	1.67	45.92	360.2	444.4	150.1	510.3	3.40	1.23	330.2	180.1
445.5	607.9	-1344.8	5.39	1.66	45.97	359.5	444.7	149.8	509.4	3.40	1.24	329.6	179.8
450.7	608.6	-1345.3	5.49	1.67	46.02	359.7	445.0	149.5	509.2	3.41	1.24	329.3	179.8
456.0	610.2	-1345.9	5.59	1.67	46.07	360.5	445.4	149.1	509.6	3.42	1.24	329.3	180.2
461.5	609.0	-1346.1	5.69	1.67	46.12	359.1	445.6	148.9	508.0	3.41	1.24	328.5	179.5
466.8	609.0	-1346.7	5.80	1.67	46.17	359.7	446.0	148.5	507.2	3.41	1.24	327.9	179.3
472.1	610.6	-1347.1	5.90	1.67	46.22	359.5	446.2	148.3	507.7	3.42	1.24	328.0	179.7
477.5	610.3	-1347.3	6.00	1.67	46.27	359.3	446.4	148.1	506.9	3.42	1.24	327.5	179.4
482.7	611.7	-1347.7	6.10	1.68	46.32	359.5	446.7	147.8	507.3	3.43	1.24	327.6	179.7
488.2	612.4	-1348.1	6.20	1.68	46.37	359.6	446.9	147.6	507.1	3.44	1.24	327.3	179.8
493.4	613.4	-1348.3	6.30	1.68	46.42	359.9	447.1	147.4	507.3	3.44	1.24	327.4	179.9
498.9	614.0	-1348.7	6.41	1.69	46.47	359.9	447.3	147.2	507.1	3.45	1.24	327.1	180.0
504.2	614.9	-1348.9	6.51	1.69	46.52	360.2	447.5	147.0	507.2	3.45	1.24	327.1	180.1
509.4	616.1	-1349.3	6.61	1.69	46.57	360.7	447.8	146.7	507.4	3.46	1.24	327.1	180.3
514.7	616.2	-1349.3	6.71	1.69	46.62	360.3	447.8	146.7	507.0	3.46	1.24	326.9	180.2
520.2	616.2	-1349.7	6.81	1.69	46.67	359.8	448.0	146.5	506.3	3.46	1.25	326.4	179.9
525.3	617.0	-1349.9	6.91	1.70	46.72	360.0	448.2	146.3	506.4	3.46	1.24	326.3	180.0

δL	LOAD	δU	E	LOAD	A_c	σ_D	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
530.6	618.3	-1349.9	7.01	1.70	46.77	360.6	448.2	146.3	506.9	3.46	1.24	326.6	180.3
536.1	619.6	-1350.3	7.12	1.71	46.82	361.1	448.5	146.0	507.2	3.47	1.24	326.6	180.6
541.4	620.7	-1352.1	7.22	1.71	46.87	361.5	449.7	144.8	506.3	3.50	1.24	325.6	180.8
546.5	621.1	-1354.5	7.32	1.71	46.92	361.4	451.3	143.2	504.6	3.52	1.25	323.9	180.7
551.9	622.1	-1356.5	7.42	1.72	46.98	361.7	452.7	141.8	503.5	3.55	1.25	322.6	180.9
557.2	623.8	-1357.9	7.52	1.72	47.03	362.6	453.7	140.8	503.4	3.58	1.25	322.1	181.3
562.5	624.2	-1358.9	7.62	1.72	47.08	362.4	454.4	140.1	502.6	3.59	1.25	321.3	181.2
567.8	625.0	-1359.7	7.72	1.73	47.13	362.6	454.9	139.6	502.2	3.60	1.25	320.9	181.3
573.1	625.5	-1359.3	7.82	1.73	47.18	362.5	454.7	139.8	502.4	3.59	1.25	321.1	181.3
578.5	626.3	-1358.7	7.93	1.73	47.23	362.7	454.2	140.3	503.0	3.59	1.25	321.6	181.3
583.8	626.9	-1358.5	8.03	1.73	47.29	362.7	454.1	140.4	503.1	3.58	1.25	321.7	181.4
589.1	627.3	-1358.1	8.13	1.73	47.34	362.6	453.8	140.7	503.2	3.58	1.25	322.0	181.3
594.5	627.9	-1357.9	8.23	1.74	47.39	362.6	453.7	140.8	503.4	3.57	1.25	322.1	181.3
599.7	628.3	-1357.5	8.33	1.74	47.44	362.4	453.4	141.1	503.5	3.57	1.25	322.3	181.2
605.1	629.8	-1357.3	8.43	1.74	47.50	363.1	453.3	141.2	504.3	3.57	1.25	322.8	181.5
610.4	629.7	-1356.9	8.54	1.74	47.55	362.6	453.0	141.5	504.1	3.56	1.25	322.8	181.3
615.9	629.8	-1356.7	8.64	1.74	47.60	362.2	452.9	141.6	503.8	3.56	1.25	322.7	181.1
621.3	630.8	-1356.5	8.74	1.75	47.66	362.5	452.7	141.8	504.2	3.56	1.25	323.0	181.2
626.6	631.9	-1356.1	8.84	1.75	47.71	362.9	452.4	142.1	504.9	3.55	1.25	323.5	181.4
631.9	632.4	-1355.9	8.95	1.75	47.76	362.8	452.3	142.2	505.0	3.55	1.25	323.6	181.4
637.1	633.1	-1355.5	9.04	1.75	47.82	362.9	452.0	142.5	505.3	3.55	1.25	323.9	181.4
642.5	632.9	-1355.3	9.15	1.75	47.87	362.2	451.9	142.6	504.8	3.54	1.25	323.7	181.1
647.9	633.2	-1355.1	9.25	1.76	47.92	362.0	451.8	142.7	504.7	3.54	1.25	323.7	181.0
653.2	634.3	-1354.7	9.35	1.76	47.98	362.4	451.5	143.0	505.4	3.53	1.25	324.2	181.2
658.5	634.0	-1354.3	9.45	1.76	48.03	361.7	451.2	143.3	505.0	3.52	1.25	324.1	180.8
663.9	635.0	-1354.3	9.56	1.76	48.09	362.0	451.2	143.3	505.3	3.53	1.25	324.3	181.0
669.2	635.7	-1353.9	9.66	1.76	48.14	362.0	450.9	143.6	505.6	3.52	1.25	324.6	181.0
674.5	635.9	-1353.9	9.76	1.76	48.19	361.7	450.9	143.6	505.3	3.52	1.25	324.4	180.9
679.6	637.4	-1353.7	9.86	1.77	48.25	362.4	450.8	143.7	506.1	3.52	1.24	324.9	181.2
684.8	638.0	-1353.5	9.95	1.77	48.30	362.4	450.7	143.8	506.3	3.52	1.24	325.1	181.2
690.1	638.3	-1353.1	10.06	1.77	48.35	362.2	450.4	144.1	506.3	3.51	1.24	325.2	181.1
695.3	639.0	-1353.1	10.16	1.78	48.41	362.3	450.4	144.1	506.4	3.51	1.24	325.2	181.1
700.5	639.0	-1352.7	10.25	1.78	48.46	361.8	450.1	144.4	506.2	3.51	1.24	325.3	180.9
705.6	640.2	-1352.5	10.35	1.78	48.51	362.3	450.0	144.5	506.8	3.51	1.24	325.7	181.1
710.8	640.1	-1352.5	10.45	1.78	48.57	361.7	450.0	144.5	506.3	3.50	1.24	325.4	180.9
716.1	640.6	-1352.1	10.55	1.78	48.62	361.6	449.7	144.8	506.4	3.50	1.24	325.6	180.8
721.2	642.3	-1352.3	10.65	1.79	48.67	362.5	449.8	144.7	507.1	3.51	1.24	325.9	181.2
726.4	643.2	-1354.5	10.75	1.79	48.73	362.7	451.3	143.2	505.8	3.53	1.24	324.5	181.3
731.5	643.4	-1356.3	10.85	1.79	48.78	362.4	452.6	141.9	504.3	3.55	1.25	323.1	181.2
736.6	644.1	-1357.9	10.94	1.79	48.83	362.4	453.7	140.8	503.2	3.57	1.25	322.0	181.2
741.8	645.2	-1358.9	11.04	1.80	48.89	362.8	454.4	140.1	502.9	3.59	1.25	321.5	181.4
746.9	645.4	-1359.5	11.14	1.80	48.94	362.5	454.8	139.7	502.2	3.59	1.25	321.0	181.2
752.1	646.5	-1359.3	11.24	1.80	49.00	362.8	454.7	139.8	502.7	3.59	1.25	321.3	181.4
757.0	646.5	-1358.7	11.33	1.80	49.05	362.4	454.2	140.3	502.7	3.58	1.25	321.5	181.2
762.0	647.2	-1358.1	11.43	1.81	49.10	362.5	453.8	140.7	503.2	3.58	1.25	321.9	181.2
767.1	646.3	-1357.5	11.53	1.81	49.16	362.8	453.4	141.1	503.9	3.57	1.25	322.5	181.4
772.3	648.2	-1357.1	11.62	1.81	49.21	362.3	453.1	141.4	503.7	3.56	1.25	322.5	181.2
777.2	648.5	-1356.3	11.72	1.81	49.26	362.1	452.6	141.9	504.0	3.55	1.25	323.0	181.0
782.2	649.6	-1356.1	11.81	1.81	49.32	362.5	452.4	142.1	504.5	3.55	1.25	323.3	181.2
787.1	649.7	-1355.7	11.91	1.81	49.37	362.1	452.2	142.3	504.4	3.54	1.25	323.4	181.1
792.2	650.7	-1354.9	12.00	1.82	49.42	362.4	451.6	142.9	505.3	3.54	1.25	324.1	181.2
797.1	652.8	-1354.7	12.10	1.83	49.48	363.5	451.5	143.0	506.5	3.54	1.24	324.8	181.7
802.2	652.5	-1354.3	12.19	1.82	49.53	362.8	451.2	143.3	506.1	3.53	1.24	324.7	181.4
807.0	652.2	-1353.9	12.29	1.82	49.58	362.2	450.9	143.6	505.7	3.52	1.25	324.6	181.1
812.2	654.2	-1353.5	12.39	1.83	49.64	363.1	450.7	143.8	507.0	3.52	1.24	325.4	181.6
816.9	653.3	-1352.9	12.48	1.83	49.69	362.1	450.2	144.3	506.3	3.51	1.24	325.3	181.0
822.0	653.3	-1352.5	12.57	1.83	49.74	361.6	450.0	144.5	506.2	3.50	1.24	325.3	180.8
826.9	654.7	-1352.1	12.67	1.83	49.80	362.2	449.7	144.8	507.0	3.50	1.24	325.9	181.1
831.9	653.9	-1351.7	12.76	1.83	49.85	361.2	449.4	145.1	506.3	3.49	1.24	325.7	180.6
836.9	653.9	-1351.5	12.86	1.83	49.91	360.7	449.3	145.2	506.0	3.48	1.25	325.6	180.4
841.8	654.6	-1351.1	12.95	1.83	49.96	360.8	449.0	145.5	506.3	3.48	1.24	325.9	180.4
846.7	655.0	-1350.7	13.04	1.83	50.01	360.7	448.7	145.8	506.4	3.47	1.24	326.1	180.3
851.8	655.1	-1350.5	13.14	1.83	50.07	360.3	448.6	145.9	506.2	3.47	1.25	326.0	180.1
856.6	656.3	-1350.1	13.23	1.84	50.12	360.7	448.3	146.2	506.9	3.47	1.24	326.5	180.4
861.5	656.1	-1349.9	13.33	1.84	50.18	360.1	448.2	146.3	506.4	3.46	1.24	326.4	180.1
866.3	657.4	-1349.7	13.42	1.84	50.23	360.6	448.0	146.5	507.1	3.46	1.24	326.8	180.3
871.3	657.7	-1349.5	13.51	1.84	50.29	360.4	447.9	146.6	507.0	3.46	1.24	326.8	180.2
876.3	657.0	-1349.1	13.61	1.84	50.34	359.4	447.6	146.9	506.3	3.45	1.25	326.6	179.7
881.2	656.3	-1349.1	13.70	1.84	50.40	358.5	447.6	146.9	505.4	3.44	1.25	326.1	179.3
886.2	656.1	-1348.7	13.80	1.84	50.45	357.9	447.3	147.2	505.1	3.43	1.25	326.1	179.0
891.2	657.1	-1348.5	13.89	1.84	50.51	358.2	447.2	147.3	505.5	3.43	1.25	326.4	179.1
895.9	659.6	-1350.5	13.98	1.85	50.56	359.5	448.6	145.9	505.4	3.46	1.25	325.7	179.8
900.9	659.7	-1352.3	14.08	1.85	50.62	359.2	449.8	144.7	503.8	3.48	1.25	324.2	179.6
906.0	660.2	-1354.1	14.18	1.85	50.67	359.1	451.1	143.4	502.5	3.50	1.26	323.0	179.5
911.0	661.5	-1355.1	14.27	1.86	50.73	359.5	451.8	142.7	502.3	3.52	1.26	322.5	179.6
915.9	662.0	-1355.7	14.36	1.86	50.79	359.4	452.2	142.3	501.8	3.53	1.26	322.0	179.7
921.0	661.8	-1355.7	14.46	1.86	50.84	358.8	452.2	142.3	501.2	3.52	1.26	321.7	179.4
926.0	662.1	-1355.1	14.56	1.86	50.90	358.6	451.8	142.7	501.3	3.51	1.26	322.0	179.3
931.0	662.5	-1354.5	14.65	1.86	50.96	358.4	451.3	143.2	501.6	3.50	1.26	322.4	179.2
936.0	663.3	-1353.9	14.75	1.86	51.01	358.5	450.9	143.6	502.1	3.50	1.26	322.8	179.3
941.0	662.7	-1353.5	14.84	1.86	51.07	357.7	450.7	143.8	501.5	3.49	1.26	322.7	178.8
946.1	662.9	-1352.9	14.94	1.86	51.13	357.3	450.2	144.3	501.6	3.48	1.26	322.9	178.7
951.1	663.9	-1352.5	15.04	1.87	51.19	357.6	450.0	144.5	502.1	3.47	1.26	323.3	178.8
956.2	663.9	-1352.1	15.13	1.87	51.25	357.1	449.7	144.8	501.9	3.47	1.26	323.4	178.6
961.3	663.3	-1351.7	15.23	1.86	51.30	356.3	449.4	145.1	501.3	3.46	1.26	323.2	178.1
966.5	663.1	-1351.1	15.33	1.86	51.36	355.6	449.0	145.5	501.1	3.44	1.26	323.3	177.8
971.5	664.6	-1350.9	15.42	1.87	51.42	356.2	448.9	145.6	501.9	3.45	1.26	323.8	178.1
976.5	663.9	-1350.5	15.52	1.87	51.48	355.3	448.6	145.9	501.2	3.44	1.26	323.6	177.6

δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
981.7	664.3	-1349.9	15.62	1.87	51.54	355.1	448.2	146.3	501.4	3.43	1.26	323.9	177.6
986.7	664.6	-1349.7	15.71	1.87	51.60	354.9	448.0	146.5	501.3	3.42	1.26	323.9	177.4
991.8	665.3	-1349.3	15.81	1.87	51.66	354.9	447.8	146.7	501.6	3.42	1.26	324.2	177.4
997.0	665.6	-1348.9	15.91	1.87	51.72	354.6	447.5	147.0	501.6	3.41	1.26	324.3	177.3
1002.3	666.4	-1348.5	16.01	1.87	51.78	354.7	447.2	147.3	502.0	3.41	1.26	324.6	177.3
1007.3	666.1	-1348.1	16.11	1.87	51.84	354.0	446.9	147.6	501.6	3.40	1.26	324.6	177.0
1012.5	666.7	-1347.9	16.21	1.88	51.90	354.0	446.8	147.7	501.7	3.40	1.26	324.7	177.0
1017.8	667.7	-1347.7	16.31	1.88	51.97	354.2	446.7	147.8	502.0	3.40	1.26	324.9	177.1
1022.8	666.7	-1347.5	16.40	1.88	52.02	353.0	446.5	148.0	501.0	3.39	1.26	324.5	176.5
1028.0	667.5	-1347.1	16.50	1.88	52.09	353.1	446.2	148.3	501.4	3.38	1.26	324.8	176.6
1033.1	668.1	-1347.1	16.60	1.88	52.15	353.1	446.2	148.3	501.3	3.38	1.26	324.8	176.5
1038.3	668.0	-1346.7	16.70	1.88	52.21	352.5	446.0	148.5	501.1	3.37	1.27	324.8	176.3
1043.4	667.7	-1346.3	16.80	1.88	52.27	351.9	445.7	148.8	500.7	3.36	1.27	324.7	175.9
1048.5	669.3	-1346.5	16.89	1.89	52.33	352.5	445.8	148.7	501.2	3.37	1.26	324.9	176.2
1053.6	669.1	-1346.1	16.99	1.88	52.39	351.9	445.6	148.9	500.8	3.36	1.27	324.9	175.9
1058.7	670.0	-1345.9	17.09	1.89	52.45	352.0	445.4	149.1	501.1	3.36	1.27	325.1	176.0
1063.9	670.2	-1345.9	17.19	1.89	52.52	351.7	445.4	149.1	500.8	3.36	1.27	324.9	175.8
1069.0	669.9	-1346.9	17.29	1.89	52.58	351.0	446.1	148.4	499.4	3.37	1.27	323.9	175.5
1074.2	670.9	-1348.9	17.38	1.89	52.64	351.2	447.5	147.0	498.2	3.39	1.27	322.6	175.6
1079.4	671.2	-1350.9	17.48	1.89	52.71	351.0	448.9	145.8	496.6	3.41	1.28	321.1	175.5
1084.5	671.4	-1352.1	17.58	1.89	52.77	350.6	449.7	144.9	495.4	3.42	1.28	320.1	175.3
1089.8	672.0	-1353.1	17.68	1.89	52.83	350.6	450.4	144.1	494.7	3.43	1.28	319.4	175.3
1095.0	672.4	-1353.7	17.78	1.90	52.90	350.3	450.8	143.7	494.0	3.44	1.29	318.9	175.2
1100.1	672.5	-1353.1	17.88	1.90	52.96	349.9	450.4	144.1	494.1	3.43	1.29	319.1	175.0
1105.4	672.7	-1352.5	17.98	1.90	53.02	349.6	450.0	144.5	494.1	3.42	1.29	319.3	174.8
1110.6	673.0	-1352.1	18.08	1.90	53.09	349.3	449.7	144.8	494.1	3.41	1.29	319.5	174.7
1115.4	672.5	-1351.5	18.17	1.90	53.15	348.5	449.3	145.2	493.8	3.40	1.29	319.5	174.3
1120.8	672.5	-1351.1	18.27	1.90	53.21	348.0	449.0	145.5	493.5	3.39	1.29	319.5	174.0
1126.2	673.0	-1350.5	18.38	1.90	53.28	347.9	448.6	145.9	493.8	3.38	1.29	319.9	173.9
1131.4	673.1	-1350.1	18.48	1.90	53.35	347.5	448.3	146.2	493.7	3.38	1.29	319.9	173.7
1136.6	673.4	-1349.9	18.57	1.90	53.41	347.2	448.2	146.3	493.5	3.37	1.29	319.9	173.6
1141.8	674.4	-1349.5	18.67	1.90	53.48	347.4	447.9	146.6	494.0	3.37	1.29	320.3	173.7
1147.1	674.2	-1349.1	18.78	1.90	53.54	346.8	447.5	146.9	493.6	3.36	1.29	320.3	173.4
1152.3	675.2	-1348.9	18.87	1.91	53.61	347.0	447.5	147.0	494.0	3.36	1.29	320.5	173.5
1157.6	674.4	-1348.7	18.98	1.90	53.68	345.9	447.3	147.2	493.1	3.35	1.29	320.1	173.0
1162.8	674.4	-1348.5	19.07	1.90	53.74	345.5	447.2	147.3	492.7	3.35	1.29	320.0	172.7
1168.0	674.8	-1348.3	19.17	1.90	53.81	345.2	447.1	147.4	492.7	3.34	1.29	320.0	172.6
1173.3	675.6	-1348.1	19.27	1.91	53.88	345.3	446.9	147.6	492.8	3.34	1.29	320.2	172.6
1178.6	675.3	-1347.5	19.38	1.91	53.94	344.6	446.5	148.0	492.6	3.33	1.30	320.3	172.3
1183.8	675.3	-1347.3	19.48	1.91	54.01	344.1	446.4	148.1	492.2	3.32	1.30	320.2	172.1
1189.0	675.1	-1347.3	19.57	1.91	54.08	343.5	446.4	148.1	491.6	3.32	1.30	319.9	171.7
1194.3	674.4	-1346.9	19.68	1.90	54.14	342.5	446.1	148.4	490.9	3.31	1.30	319.7	171.3
1199.4	674.6	-1346.9	19.77	1.90	54.21	342.2	446.1	148.4	490.6	3.31	1.30	319.5	171.1
1204.7	674.4	-1346.7	19.87	1.90	54.28	341.6	446.0	148.5	490.1	3.30	1.31	319.3	170.8
1210.1	675.3	-1346.5	19.98	1.91	54.35	341.7	445.8	148.7	490.4	3.30	1.30	319.5	170.8

GOLDER ASSOCIATES Ltd.

CONSULTING ENGINEERS

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

PROJECT#	9521018		L_c =	14.86	cm	DATE :	7-Mar-95	Strength Results :			Density: (Kg/M³)		
Test Pit	TP95-39		A_c =	42.86	cm²	FILE :	3x-900.XLS	Max.σ_D' =	614.5	kPa	γ_t =	1558	
Sample			V_c =	537.1	cm³	TEST#	CIU-7	Strain @ =	3.96	%	γ_f =	1756	
Depth								Max. PSR =	3.43		E_i =	0.772	
REMARKS :			Consolidation Pressure :			CALIBRATIONS :		Strain @ =	11.95	%	E_f =	0.571	
- Failure Mode Bulging			CP =	1306.4	kPa	LOAD =	0.0036 kN/mV	Consolidation Results:			Water Contents:		
- Corrections applied for membrane			BP =	414.9	kPa	PORE =	0.6895 kPa/mV	δV_c =	81.2	cc	W_i =	16.7	
			σ_{3c}' =	891.5	kPa	LVDT =	0.0285 mm/mV	T_{100} =	20.3	min	W_f =	19.9	
			B_{VALUE} =	0.963		Feed Rate =	0.30 mm/min	C_v =	3.8E-02	cm²/s			

δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm²)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
242.4	192.0	-602.3	0.00	0.00	42.86	0.0	0.0	891.5	891.5	1.00		891.5	0.0
242.5	196.8	-608.0	0.00	0.02	42.86	4.1	3.9	887.6	891.6	1.00	0.97	889.6	2.0
246.9	241.2	-614.4	0.09	0.18	42.90	41.3	8.3	883.2	924.4	1.05	0.20	903.8	20.6
252.3	274.8	-621.6	0.19	0.30	42.94	69.3	13.3	878.2	947.5	1.08	0.19	912.9	34.7
257.7	298.9	-628.0	0.29	0.38	42.99	89.4	17.7	873.8	963.2	1.10	0.20	918.5	44.7
263.1	314.6	-634.1	0.40	0.44	43.03	102.4	21.9	869.6	972.0	1.12	0.21	920.8	51.2
268.9	308.3	-638.6	0.51	0.42	43.08	96.9	25.0	866.5	963.4	1.11	0.26	914.9	48.5
274.4	310.4	-643.0	0.61	0.43	43.13	98.6	28.1	863.4	962.0	1.11	0.28	912.7	49.3
280.0	310.4	-646.8	0.72	0.43	43.17	98.4	30.7	860.8	959.2	1.11	0.31	910.0	49.2
285.5	305.9	-650.3	0.83	0.41	43.22	94.5	33.1	858.4	952.9	1.11	0.35	905.7	47.2
290.9	311.0	-653.9	0.93	0.43	43.26	98.6	35.6	855.9	954.5	1.12	0.36	905.2	49.3
296.3	326.6	-658.2	1.03	0.48	43.31	111.4	38.5	853.0	964.4	1.13	0.35	908.7	55.7
301.9	324.3	-661.4	1.14	0.48	43.36	109.3	40.7	850.8	960.1	1.13	0.37	905.4	54.7
307.0	361.4	-666.6	1.24	0.61	43.40	139.6	44.3	847.2	987.1	1.17	0.32	917.1	70.0
311.0	452.0	-679.9	1.32	0.94	43.43	214.5	53.5	838.0	1052.9	1.26	0.25	945.4	107.4
314.9	537.1	-699.1	1.39	1.24	43.47	285.2	66.7	824.8	1109.9	1.35	0.23	967.3	142.6
319.1	605.1	-722.9	1.47	1.49	43.50	341.2	83.2	808.3	1149.5	1.42	0.24	978.9	170.6
323.6	655.8	-750.1	1.56	1.67	43.54	382.8	101.9	789.6	1172.4	1.48	0.27	981.0	191.4
328.5	697.3	-779.8	1.65	1.82	43.58	416.6	122.4	769.1	1185.7	1.54	0.29	977.4	208.3
333.6	733.5	-811.0	1.75	1.95	43.63	446.0	143.9	747.6	1193.6	1.60	0.32	970.6	223.0
338.8	764.9	-843.7	1.85	2.06	43.67	471.4	166.4	725.1	1196.5	1.65	0.35	960.8	235.7
344.0	793.1	-876.5	1.95	2.16	43.71	494.1	189.1	702.4	1196.6	1.70	0.38	949.5	247.1
349.1	818.2	-909.8	2.05	2.25	43.76	514.2	212.0	679.5	1193.7	1.76	0.41	936.6	257.1
354.4	838.5	-942.4	2.15	2.33	43.80	530.3	234.5	657.0	1187.3	1.81	0.44	922.2	265.2
359.6	858.1	-974.6	2.25	2.39	43.85	544.2	256.7	634.8	1179.0	1.86	0.47	906.9	272.1
364.9	872.3	-1005.7	2.35	2.45	43.89	556.9	278.1	613.4	1170.2	1.91	0.50	891.8	278.4
370.3	885.5	-1035.6	2.45	2.50	43.94	567.1	298.8	592.7	1159.8	1.96	0.53	876.3	283.5
375.4	896.3	-1064.1	2.55	2.54	43.98	575.3	318.4	573.1	1148.4	2.00	0.55	860.7	287.6
380.7	904.0	-1091.2	2.65	2.56	44.03	580.9	337.1	554.4	1135.3	2.05	0.58	844.9	290.5
386.0	912.4	-1116.8	2.75	2.59	44.08	587.1	354.7	536.8	1123.9	2.09	0.60	830.3	293.6
391.2	915.7	-1140.9	2.85	2.62	44.12	592.4	371.4	520.1	1112.6	2.14	0.63	816.4	296.2
396.6	926.6	-1163.3	2.96	2.64	44.17	597.4	386.8	504.7	1102.1	2.18	0.65	803.4	298.7
402.0	932.7	-1184.5	3.06	2.67	44.22	601.7	401.4	490.1	1091.7	2.22	0.67	790.9	300.8
407.1	937.5	-1204.4	3.16	2.69	44.26	604.9	415.1	476.4	1081.3	2.27	0.69	778.8	302.5
412.4	942.2	-1223.0	3.26	2.70	44.31	608.0	428.0	463.5	1071.6	2.31	0.70	767.8	304.0
417.6	945.6	-1240.4	3.36	2.71	44.35	610.1	440.0	451.5	1061.7	2.35	0.72	756.6	305.1
422.7	946.0	-1256.5	3.46	2.71	44.40	609.8	451.1	440.4	1050.2	2.38	0.74	745.3	304.9
427.9	947.2	-1271.9	3.56	2.72	44.44	610.1	461.7	429.8	1039.9	2.42	0.76	734.9	305.0
433.2	949.3	-1286.1	3.66	2.73	44.49	611.1	471.5	420.0	1031.1	2.45	0.77	725.6	305.5
438.3	951.6	-1299.6	3.76	2.73	44.54	612.3	480.8	410.7	1023.0	2.49	0.79	716.9	306.1
443.6	954.2	-1312.3	3.86	2.74	44.58	613.7	489.5	402.0	1015.6	2.53	0.80	708.8	306.8
448.8	956.1	-1324.8	3.96	2.75	44.63	614.5	498.2	393.3	1007.9	2.56	0.81	700.6	307.3
454.0	956.5	-1337.0	4.06	2.75	44.67	614.2	506.6	384.9	999.1	2.60	0.82	692.0	307.1
459.3	956.6	-1348.1	4.16	2.75	44.72	613.6	514.2	377.3	990.8	2.63	0.84	684.0	306.8
464.7	957.5	-1358.7	4.26	2.75	44.77	613.6	521.5	370.0	983.5	2.66	0.85	676.7	306.8
470.0	957.6	-1368.6	4.36	2.76	44.82	612.9	528.4	363.1	976.1	2.69	0.86	669.6	306.5
475.3	957.4	-1377.6	4.47	2.76	44.87	612.1	534.6	356.9	969.0	2.71	0.87	662.9	306.0
480.7	958.5	-1385.8	4.57	2.76	44.91	612.3	540.2	351.3	963.5	2.74	0.88	657.4	306.1
486.2	959.4	-1393.7	4.67	2.76	44.96	612.2	545.7	345.8	958.1	2.77	0.89	652.0	306.1
502.2	963.0	-1400.7	4.98	2.78	45.11	613.0	550.5	341.0	954.0	2.80	0.90	647.5	306.5
507.4	965.3	-1407.4	5.08	2.78	45.16	614.1	555.1	336.4	950.5	2.83	0.90	643.5	307.1
512.7	964.6	-1414.1	5.18	2.78	45.21	612.9	559.7	331.8	944.6	2.85	0.91	638.2	306.4
517.9	962.3	-1419.9	5.28	2.77	45.25	610.4	563.7	327.8	938.1	2.86	0.92	632.9	305.2
522.6	962.7	-1425.6	5.37	2.77	45.30	610.1	567.7	323.8	933.9	2.88	0.93	628.9	305.0
527.6	964.3	-1430.9	5.47	2.78	45.34	610.7	571.3	320.2	930.8	2.91	0.94	625.5	305.3
526.8	964.9	-1436.0	5.45	2.78	45.33	611.2	574.8	316.7	927.9	2.93	0.94	622.3	305.6
530.2	966.6	-1440.9	5.52	2.79	45.37	612.1	578.2	313.3	925.4	2.95	0.94	619.4	306.1
535.5	966.9	-1445.3	5.62	2.79	45.41	611.7	581.2	310.3	921.9	2.97	0.95	616.1	305.8
540.8	967.2	-1449.6	5.72	2.79	45.46	611.2	584.2	307.3	918.5	2.99	0.96	612.9	305.6
546.7	966.5	-1453.6	5.83	2.79	45.52	609.9	587.0	304.5	914.4	3.00	0.96	609.5	304.9
551.6	965.9	-1457.5	5.93	2.79	45.56	608.7	589.7	301.8	910.6	3.02	0.97	606.2	304.4
555.6	965.0	-1460.9	6.01	2.78	45.60	607.5	592.0	299.5	907.0	3.03	0.97	603.2	303.7
568.7	965.3	-1464.4	6.26	2.78	45.72	606.0	594.4	297.1	903.0	3.04	0.98	600.1	303.0
573.8	965.4	-1467.7	6.35	2.78	45.77	605.4	596.7	294.8	900.2	3.05	0.99	597.5	302.7
579.9	964.8	-1470.6	6.45	2.78	45.82	604.2	598.7	292.8	897.0	3.06	0.99	594.9	302.1
583.8	965.0	-1473.7	6.55	2.78	45.86	603.7	600.8	290.7	894.4	3.08	1.00	592.5	301.9
588.9	965.6	-1476.5	6.64	2.78	45.91	603.5	602.8	288.7	892.2	3.09	1.00	590.5	301.8
593.8	965.9	-1479.0	6.74	2.79	45.96	603.1	604.5	287.0	890.1	3.10	1.00	588.6	301.5
606.2	967.4	-1484.9	6.98	2.79	46.05	602.6	608.6	282.9	885.6	3.13	1.01	584.3	301.3

δL	LOAD	δU	E	LOAD	A_c	σ_D'	δU	σ_3'	σ_1'	PSR	A	p'	q
(mV)	(mV)	(mV)	(%)	(kN)	(cm^2)	(kPa)	(kPa)	(kPa)	(kPa)			(kPa)	(kPa)
616.5	968.4	-1489.1	7.17	2.80	46.17	602.0	611.4	280.1	882.1	3.15	1.02	581.1	301.0
626.4	969.7	-1493.0	7.36	2.80	46.27	601.7	614.1	277.4	879.1	3.17	1.02	578.2	300.8
636.6	973.9	-1496.5	7.56	2.81	46.37	603.6	616.6	274.9	878.5	3.20	1.02	576.7	301.8
646.6	975.5	-1499.4	7.75	2.82	46.46	603.5	618.6	272.9	876.4	3.21	1.02	574.7	301.7
656.4	978.6	-1503.1	7.94	2.83	46.56	604.6	621.1	270.4	875.0	3.24	1.03	572.7	302.3
666.0	980.4	-1507.5	8.12	2.84	46.65	604.6	624.1	267.4	872.0	3.26	1.03	569.7	302.3
675.3	985.4	-1511.2	8.30	2.86	46.74	607.2	626.7	264.8	872.0	3.29	1.03	568.4	303.6
684.8	984.3	-1513.6	8.48	2.85	46.84	605.1	628.3	263.2	868.2	3.30	1.04	565.7	302.5
694.0	985.5	-1515.3	8.66	2.86	46.93	604.8	629.5	262.0	866.7	3.31	1.04	564.4	302.4
703.8	987.6	-1517.1	8.85	2.86	47.02	605.0	630.8	260.7	865.8	3.32	1.04	563.3	302.5
713.6	994.3	-1518.5	9.03	2.89	47.12	608.8	631.7	259.8	868.6	3.34	1.04	564.2	304.4
723.4	992.5	-1519.8	9.22	2.88	47.22	606.1	632.6	258.9	865.0	3.34	1.04	561.9	303.0
733.2	993.4	-1521.0	9.41	2.89	47.31	605.4	633.4	258.1	863.5	3.35	1.05	560.8	302.7
743.1	996.0	-1522.0	9.60	2.89	47.41	606.0	634.1	257.4	863.4	3.35	1.05	560.4	303.0
752.6	997.6	-1523.0	9.78	2.90	47.51	605.9	634.8	256.7	862.6	3.36	1.05	559.6	303.0
762.3	997.8	-1524.1	9.97	2.90	47.61	604.7	635.6	255.9	860.6	3.36	1.05	558.3	302.4
771.8	999.3	-1524.7	10.15	2.91	47.70	604.5	636.0	255.5	860.0	3.37	1.05	557.8	302.3
781.3	1000.0	-1525.5	10.33	2.91	47.80	603.7	636.5	255.0	858.7	3.37	1.05	556.8	301.9
790.9	1002.7	-1525.9	10.51	2.92	47.90	604.5	636.8	254.7	859.1	3.37	1.05	556.9	302.2
800.0	1003.9	-1526.3	10.69	2.92	47.99	604.1	637.1	254.4	858.5	3.37	1.05	556.4	302.0
809.5	1004.3	-1526.5	10.87	2.92	48.09	603.0	637.2	254.3	857.3	3.37	1.06	555.8	301.5
818.8	1005.2	-1526.9	11.05	2.93	48.19	602.4	637.5	254.0	856.4	3.37	1.06	555.2	301.2
828.0	1009.3	-1527.1	11.23	2.94	48.28	604.2	637.6	253.9	858.0	3.38	1.06	555.9	302.1
837.3	1011.0	-1527.8	11.41	2.95	48.38	604.1	638.1	253.4	857.5	3.38	1.06	555.4	302.1
846.7	1012.2	-1530.0	11.59	2.95	48.48	603.7	639.6	251.9	855.6	3.40	1.06	553.7	301.9
855.9	1016.5	-1531.5	11.76	2.97	48.58	605.6	640.7	250.8	856.4	3.41	1.06	553.6	302.8
865.4	1021.2	-1532.3	11.95	2.99	48.68	607.7	641.2	250.3	858.0	3.43	1.06	554.1	303.9
874.6	1011.4	-1532.1	12.12	2.95	48.77	599.2	641.1	250.4	849.6	3.39	1.07	550.0	299.6
884.0	1006.7	-1532.1	12.30	2.93	48.87	594.4	641.1	250.4	844.8	3.37	1.08	547.6	297.2
893.4	1004.7	-1532.1	12.48	2.93	48.98	591.6	641.1	250.4	842.0	3.36	1.08	546.2	295.8
902.7	1008.8	-1532.3	12.66	2.94	49.08	593.3	641.2	250.3	843.6	3.37	1.08	546.9	296.7
912.1	1008.0	-1532.3	12.84	2.94	49.18	591.4	641.2	250.3	841.7	3.36	1.08	546.0	295.7
921.6	1003.4	-1532.1	13.02	2.92	49.28	586.7	641.1	250.4	837.1	3.34	1.09	543.8	293.4
930.9	1004.7	-1532.1	13.20	2.93	49.38	586.4	641.1	250.4	836.8	3.34	1.09	543.6	293.2
940.5	1010.9	-1531.9	13.39	2.95	49.49	589.5	641.0	250.5	840.1	3.35	1.09	545.3	294.8
950.5	1016.3	-1531.7	13.58	2.97	49.60	592.1	640.8	250.7	842.7	3.36	1.08	546.7	296.0
964.3	1014.6	-1531.5	13.84	2.96	49.75	588.5	640.7	250.8	839.7	3.35	1.09	545.3	294.4
974.5	1019.5	-1531.5	14.04	2.98	49.86	591.0	640.7	250.8	841.8	3.36	1.08	546.3	295.5
985.1	1022.2	-1531.0	14.24	2.99	49.98	591.4	640.3	251.2	842.6	3.35	1.08	546.9	295.7
995.2	1020.1	-1530.6	14.43	2.98	50.09	588.5	640.1	251.4	839.9	3.34	1.09	545.7	294.2
1005.0	1019.2	-1530.6	14.62	2.98	50.20	586.4	640.1	251.4	837.9	3.33	1.09	544.6	293.2
1015.0	1016.9	-1530.4	14.81	2.97	50.32	583.4	639.9	251.6	834.9	3.32	1.10	543.3	291.7
1025.2	1014.2	-1530.2	15.01	2.96	50.43	580.0	639.8	251.7	831.7	3.30	1.10	541.7	290.0
1035.0	1018.0	-1532.1	15.20	2.97	50.54	581.3	641.1	250.4	831.7	3.32	1.10	541.1	290.7
1045.2	1017.8	-1533.3	15.39	2.97	50.66	579.7	641.9	249.6	829.3	3.32	1.11	539.4	289.9
1055.3	1020.8	-1534.3	15.59	2.98	50.78	580.4	642.6	248.9	829.3	3.33	1.11	539.1	290.2
1065.1	1028.4	-1533.9	15.77	3.01	50.89	584.4	642.3	249.2	833.6	3.35	1.10	541.4	292.2
1075.0	1045.1	-1533.7	15.96	3.07	51.00	594.8	642.2	249.3	844.1	3.39	1.08	546.7	297.4
1085.0	1051.0	-1533.7	16.16	3.09	51.12	597.4	642.2	249.3	846.7	3.40	1.07	548.0	298.7
1095.4	1042.1	-1533.5	16.36	3.06	51.24	589.7	642.1	249.4	839.1	3.36	1.09	544.3	294.8
1105.5	1037.0	-1533.5	16.55	3.04	51.36	584.6	642.1	249.4	834.1	3.34	1.10	541.7	292.3
1115.8	1033.5	-1533.3	16.75	3.03	51.48	580.7	641.9	249.6	830.3	3.33	1.11	539.9	290.3
1125.9	1034.7	-1533.3	16.94	3.03	51.60	580.1	641.9	249.6	829.6	3.32	1.11	539.6	290.0
1136.1	1036.9	-1533.1	17.14	3.04	51.73	580.1	641.8	249.7	829.8	3.32	1.11	539.8	290.1
1146.0	1027.1	-1533.1	17.33	3.01	51.84	571.9	641.8	249.7	821.6	3.29	1.12	535.7	285.9
1155.6	1040.1	-1532.9	17.51	3.05	51.96	579.5	641.6	249.9	829.4	3.32	1.11	539.6	289.8
1165.1	1042.0	-1532.9	17.69	3.06	52.08	579.4	641.6	249.9	829.3	3.32	1.11	539.6	289.7
1175.0	1044.2	-1532.7	17.88	3.07	52.20	579.5	641.5	250.0	829.5	3.32	1.11	539.7	289.8
1185.1	1035.3	-1532.5	18.08	3.04	52.32	571.9	641.4	250.1	822.0	3.29	1.12	536.1	286.0
1195.0	1048.1	-1532.5	18.26	3.08	52.44	579.3	641.4	250.1	829.4	3.32	1.11	539.8	289.6

← max PSR

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (ASTM D 5084-90)

Project#	9521018A			Test No.	CIU-250			Date	2/20/95	
Client	Knight Piesold Ltd.			Test Pit	TP95-27			System #	2	
Project	Job# 1623/1			Sample				Method	B	
Location	Burnaby			Depth				Falling Head Test		

INITIAL :			Do	7.62	cm		Cell Pressure		771.8	kPa
Wet Wt	1564.6	g	Lo	14.69	cm		Back Pressure		484.4	kPa
Dry Wt	1449.9	g	Ao	45.56	cm^2		Confining Pressure		287.4	kPa
W initial	7.9	%	Vo	669.0	cm^3		B - Value		0.965	
Dry Density	2167	Kg/M^3	Vf	657.1	cm^3					
Mod. Proctor	98.5	%					Burette Area :			
FINAL :			Gs	2.73			a (in)	1.037	cm^2	
Wet Wt	1590.1	g	Eo	0.260			a (out)	0.877	cm^2	
Dry Wt	1449.9	g	Ef	0.237						
W final	9.7	%	So	83.2	%	Remarks :				
Dry Density	2207	Kg/M^3				Compacted Sample : Minus 19.5 mm material				
Mod. Proctor	100.3	%								

Read #	Date	Time	Elapsed Time	Head Loss h1	Head Loss h2	Volumes of Flow Vin	Volumes of Flow Vout	Temperature	Temp. Corr. Rt	Permeability k
	m/d/y	h:mm	min	cm	cm	cc	cc	C		cm/s
1	2/14/95	9:35	0	131.4		0.00	0.00	19.1	1.0002	
2	2/14/95	13:15	220	131.4	131.1	0.10	0.15	19.7	1.0001	5.2E-08
3	2/14/95	16:50	435	131.4	130.8	0.10	0.20	20.0	1.0000	5.8E-08
4	2/15/95	9:00	1405	131.4	129.8	0.50	0.45	19.5	1.0169	4.9E-08
5	2/15/95	16:10	1835	131.4	129.4	0.20	0.25	20.4	0.9999	4.8E-08
6	2/16/95	8:55	2840	131.4	128.4	0.50	0.40	19.5	1.0001	4.5E-08
7	2/16/95	17:10	3335	131.4	128.0	0.20	0.20	20.1	1.0000	4.4E-08
8	2/17/95	9:30	4315	131.4	127.0	0.50	0.45	19.4	1.0001	4.4E-08
					Total Flow =	2.10	2.10			

FALLING-HEAD PERMEABILITY TEST

DATE: MAR-06-95

PROJECT: 952018

IDENTIFICATION:

LE NUMBER: TP95-31 GLACIAL TILL

TARE PLUS DRY SOIL, g							
TARE, g							
DRY SOIL, g	W_s	1118.2					
DIAMETER OF SPECIMEN, cm	D	10.247					
AREA OF SPECIMEN, sq. cm	A	82.4676					
INITIAL HEIGHT OF SPECIMEN, cm	L	6.3005					
INITIAL VOL. OF SPEC. CC = AL	V	519.59					
INITIAL VOID RATIO = (V - Vs) / Vs	e	0.292					
SPECIFIC GRAVITY	Gs	2.78 (assumed)					
VOL. OF SOLIDS, CC = Ws / Gs	Vs	402.2					
AREA OF STANDPIPE, sq. cm	a	0.291					
TEST NO.		1a	1b	1c	1d	1e	1f
HEIGHT OF SPECIMEN, cm	L	6.2795	6.2795	6.2795	6.2795	6.2795	6.2795
VOID RATIO = (AL - Vs) / Vs	e	0.292	0.292	0.292	0.292	0.292	0.292
AL TIME	t_o	0	0	0	0	0	0
FINAL TIME	t_f	50	130	185	265	330	425
ELAPSED TIME, sec. = $t_f - t_o$	t	3000	7800	11,100	15,000	19,800	25,500
INITIAL HEAD, cm	h_o	474.4	474.4	474.4	474.4	474.4	474.4
FINAL HEAD, cm	h_f	469.2	465.1	460.65	455.0	450.45	444.0
Log (h_o / h_f)		0.004787	0.008598	0.012774	0.018133	0.022498	0.028762
WATER TEMPERATURE °C	T	21.3	21.1	21.0	21.0	21.0	21.2
VISCOSITY CORRECTION FACTOR (1)	R_T	.9997	.9998	.9998	.9998	.9998	.9998
COEFFICIENT OF PERMEABILITY (2)	k_{20}	8.14×10^{-8}	5.62×10^{-8}	5.87×10^{-8}	6.46×10^{-8}	5.80×10^{-8}	5.75×10^{-8}
cm / sec.	Avg.	6.2×10^{-8} cm/s					

(1) CORRECTION FACTOR FOR VISCOSITY OF WATER AT 20 °C

(2) $k_{20} = 2.303 (aL) / (At) \log h_o / h_f * R_T$

REMARKS:

TECHNICIAN: LL COMPUTED BY: CHECKED BY: