

December 5, 2018

Government of Yukon
Department of Community Services
Rural Land Development - Land Development Branch
Box 2703
Whitehorse, YT Y1A 2C6

ISSUED FOR REVIEW
FILE: ENG.WARC03386-21
Via Email: kevin.fisher@gov.yk.ca

Attention: Mr. Kevin Fisher, Program Manager

Subject: Industrial Site Development Suitability
Watson Lake, Yukon

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kevin Fisher, Program Manager for the Government of Yukon (YG), Community Services, Rural Land Development, Land Development Branch to provide a geotechnical overview of the proposed Industrial Subdivision Expansion in Watson Lake, Yukon.

To meet the objectives of this project, the following tasks have been completed:

- All Tetra Tech (formerly EBA Engineering Consultants) geotechnical reports for this Industrial Area within Watson Lake have been reviewed, including the 1994 Geotechnical Site Investigation – Industrial Subdivision Phase II (EBA File 0201-11293). This project not only included the current study area but extended west from Canyon Boulevard (previously called Clayton Road) to the fire break and from the Alaska Highway south to the fire break. Also reviewed was the 1997 Geotechnical Evaluation – Industrial Subdivision Expansion (EBA File 0201-97-12720). This area included the portion of the industrial area located south from Block 44 and the Alaska Highway to the Fire Break and from the old sewage lagoon site east to 9th Avenue. Both projects included the excavation of testpits and laboratory testing to confirm soil index properties. The 1994 site plan showing testpit locations, along with testpit logs and accompanying laboratory test results are attached to this report.
- A site reconnaissance was completed on October 18, 2018 to assess current conditions throughout the current site boundaries.
- Based on the conditions noted in the existing reports and the current site reconnaissance, a summary of terrain and soil conditions is presented.
- Potential for industrial site development, including roadway construction, conventional foundation construction and issues associated with on-site sewage disposal system design and construction is discussed.

2.0 SITE CONDITIONS

2.1 Location and Development To Date

The subject site is a 16 ha parcel located west of the current industrial subdivision boundary (defined by the back of lots around the west side of Canyon Boulevard) and extending south from what will be an extension of Centennial Avenue south to the fire break.

This parcel of land is currently uncleared and undeveloped. However, “fire-smart” partial clearing along the slope up from the fire break was noted during the site reconnaissance.

2.2 Terrain Conditions

Based on the current and previous work completed the slopes noted throughout the study area range from gentle (west of Centennial Boulevard) becoming moderate from the south leg of Canyon Boulevard down to the fire break. The contours are even and parallel with very little localized surface expression.

2.3 Vegetation

Vegetation throughout the area consists of mature lodgepole pine along the slope overlooking the fire break and transitioning into white spruce as you proceed north towards Centennial Avenue. Poplar and willow undergrowth was also noted.

2.4 Soil Conditions

According to the Yukon Geological Survey Map File 2005-7 - Watson Lake Area, deposition history within the industrial area includes morainal blanket soils comprising a heterogeneous mixture of sand, gravel and silt transported by glacial ice without any modification. In general, the morainal till soils are compact near the surface and become dense with depth.

Based on the testpits excavated during the 1994, the soil conditions described on the surficial geology map were confirmed as the area was underlain with SILT TILL – sandy, some gravel with cobbles and boulders throughout were encountered in all three testpits surrounding the study area. Over the till soils, 0.3 to 0.8 m of silt sediments were noted (considered to be very frost susceptible).

No bedrock or groundwater was encountered during the 1994 testpitting program.

The current site reconnaissance including access along the slope overlooking the firebreak and the transition to glaciofluvial gravel was noted but as you proceed up-slope, it likely transitions into the underlying till soils.

2.5 Site Grades and Drainage

The area is well drained along the slope overlooking the fire break but the level area defining the north half of the site will not be as well drained since there isn’t much positive drainage until the crest of the slope is reached.

3.0 DEVELOPMENT POTENTIAL AND RECOMMENDATIONS

Based on similar existing land use throughout this area of Watson Lake and geotechnical conditions noted throughout in the 1994 geotechnical evaluation and the current site reconnaissance, the study area is considered acceptable for industrial subdivision development. Pertinent design and construction recommendations are presented below.

3.1 Minimum Lot Size

To date, there has been a lot of variation in lot size within the various phases of development extending from Canyon Boulevard east to 9th Avenue. Market demand dictating lot size seems appropriate for the level portion of the site (north half) but any lots developed along the slope overlooking the fire break should be larger so that significant lot grading can be completed to facilitate level yard construction.

3.2 Roadway Construction

Until conceptual level planning has been completed, it is unclear how the proposed lots within the study area will be accessed. However, since the geotechnical conditions are consistent throughout the entire study area, the following recommendations apply.

The surficial silts are considered very frost susceptible, so it is recommended that they be subcut from the access road corridors, exposing the underlying till surface.

The till soils are a good subgrade soil if they are not allowed to become wet or saturated. If they become saturated, the soil strength decreases significantly and the potential for frost heave damage increases significantly. Therefore, it is important that proper ditch lines be constructed, and culvert locations ensure drainage away from the roadway embankments.

It is anticipated that access roads will either be a gravel or BST surfaced roadway so the recommended structure over the till subgrade surface should be 150 mm of Gran A (20 mm crushed basecourse gravel) over 300 mm of Gran D (80 mm pit run sub-base gravel). Imported gravel should meet the gradation specifications presented in Table 1.

Table 1: Recommended Granular Material Specifications

80 mm Pit Run Gravel		20 mm Crushed Basecourse Gravel	
Particle Size (mm)	% Passing by Mass	Particle Size (mm)	% Passing by Mass
80.000	100	-	-
25.000	55-100	20.000	100
12.500	42-84	12.500	64-100
5.000	26-65	5.000	36-72
1.250	11-47	1.250	12-42
0.315	3-30	0.315	4-22
0.080	0-8	0.080	3-6

All imported gravel is to be placed in lifts no thicker than 200 mm, moisture conditioned, and compacted to at least 98% of Standard Proctor Maximum Dry Density (as per ASTM D698).

3.2.1 Borrow Sources

It is anticipated that imported gravel used on this project will come from a Government of Yukon gravel source. If unavailable at the time of construction, there are local contractors who can supply.

3.3 Foundations

Till soils, in an unsaturated state, are considered appropriate for supporting conventional shallow foundation systems including strip & spread footing and thickened monolithic slab-on-grade construction. Helical pile foundations are gaining popularity throughout the Yukon but the presence of cobbles and boulders within the till matrix will limit potential for this foundation option.

Tetra Tech can provide bearing resistances (ULS and SLS) and appropriate seismic site classification for structures built in this area.

3.3.1 Frost Penetration & Seasonal Frost Heave Potential

As mentioned above, the surficial silt and the till soils underlying the subject site are considered frost-susceptible. Seasonal frost depths in the Watson Lake area exceed 4.5 m in areas cleared of snow; therefore, the potential for frost heave damage to foundations is a definite concern.

3.3.2 Foundation Insulation Recommendations

Current local codes typically dictate the use of insulation around all foundations. However, the minimum insulation thickness and distance out from the foundation elements are often considered to be insufficient when dealing with frost susceptible soils. Tetra Tech always recommends insulating foundations constructed on frost susceptible soils to mitigate potential for seasonal frost-heave damage and it should be noted that Tetra Tech recommendations for insulation thickness and distance out from the perimeter foundation system are not generic. The frost susceptibility of soils supporting building foundations must be considered along with footing burial depth and the amount of protective soil cover over the footings. Tetra Tech or qualified geotechnical personnel should be contacted to provide site specific insulation recommendations.

4.0 ON-SITE SEWAGE DISPOSAL SYSTEM POTENTIAL

The silt till soils are not ideal for on-site sewage disposal system design and construction. However, since there are numerous sites developed in the industrial area of Watson Lake, it can be assumed that solutions for on-site sewage treatment and disposal have been developed. That being said, the following should be considered:

- The underlying till soils become very dense with depth (percolation rates in till soils at 2.0 m can be greater than 45 minutes/25mm). Therefore, shallow absorption beds should be considered to take advantage of quicker near surface percolation rates in the weathered till soils.
- Minimum lot size should ensure sufficient space to establish a back-up absorption field in case the original field fails.
- Absorption field, shallow absorption trench, and chamber systems are all considered appropriate for the subject site.
- All systems must be designed and installed in accordance with the Yukon Government's Environmental Health Guidelines. This includes site specific permitting, percolation testing, design and construction, as well as the as-built documentation to support approval.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Government of Yukon and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Government of Yukon, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Tetra Tech's General Conditions are provided in Appendix A of this report.

6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectively Submitted,
Tetra Tech Canada Inc.



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Attachments: Site Plan, Testpit Logs and Laboratory Test Result Report Forms From 1994 Report
Appendix A: Tetra Tech's Limitations on the Use of This Document



ATTACHMENT

1994 Geotechnical Investigation (Project Number 0102-11293) Site Plan, Testpit Logs and Lab Results



PROJECT	WATSON LAKE INDUSTRIAL SUBDIVISION SITE 4: PHASE 2		
TITLE	SITE PLAN SHOWING TESTPIT LOCATIONS		
CLIENT	EBA Engineering Consultants Ltd.		
DATE	93-09-29	DWN	MCP
DWG NO.	11293-A-01	CHKD	0201-11293

INDUSTRIAL SUBDIVISION		CLIENT: YTG - MUNICIPAL ENGINEERING		TEST PIT NO: 11293-06					
SITE 4; PHASE 2		HOE: JOHN DEERE RUBBER-TIRED BACKHOE		Project No: 0201-11293					
WATSON LAKE, YUKON		UTM ZONE: 9 N6658050 E514360		ELEVATION: 0.00 (m)					
SAMPLE TYPE		<input type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> BULK SAMPLE <input checked="" type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/>					
DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION		▲ GROUND TEMPERATURE (C) ▲ -1.0 0.0 1.0 2.0		■ PERCENT GRAVEL ■ 20 40 60 80		DEPTH (ft)
					PLASTIC M.C. LIQUID ----- ----- 10 20 30 40		● PERCENT SAND ● 20 40 60 80		
0.0			MOSS AND TEA GROUND COVER with organic root mat						0.0
			SILT--some sand, trace of gravel, trace of clay, rootlets throughout, damp, firm(est.), light brown to light olive brown						2.0
1.0			SILT(TILL)--sandy, some gravel, trace of clay, occasional cobbles and boulders throughout, damp becoming moist with depth, compact(est.), medium olive						4.0
			-siltier lenses noted						6.0
2.0			-becomes dense to very dense below 2.0 m						8.0
3.0									10.0
4.0			END OF TESTPIT 3.5 m						12.0
			NOTES: Testpit excavated along edge of firebreak at west end of proposed roadway.						14.0
			-Predominantly pine trees with some small spruce, poplar and birch trees in area.						16.0
5.0									

EBA Engineering Consultants Ltd.
Whitehorse, Yukon

LOGGED BY: MCP

REVIEWED BY: JRT

Fig. No:

COMPLETION DEPTH: 3.5 m

COMPLETE: 93/09/10

Page 1 of 1

EBA Engineering Consultants Ltd.

PARTICLE - SIZE ANALYSIS OF SOILS

Project: Industrial Subdivision
Site 4; Phase 2, Watson Lake, YT

Project Number: 0201-11293

Date Tested: 93-09-22

Borehole Number: 11293-06

Depth: 1.0 m

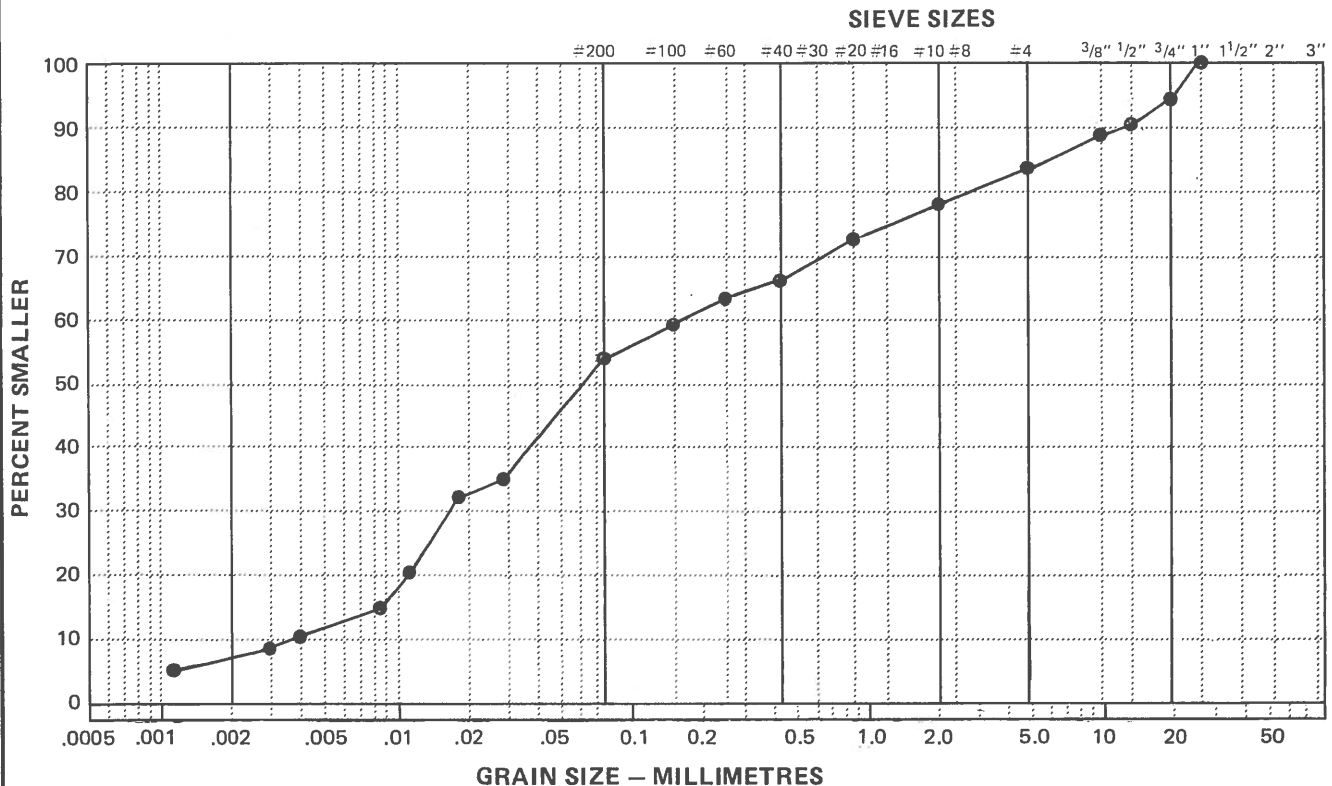
Soil Description: SILT(TILL)(ML)- sandy, some gravel, trace
Cu: _____ of clay
Cc: _____

Natural Moisture Content: _____ %

Remarks: Gravel 16.1%
Sand 29.0%
Silt 54.9%

SIEVE	PERCENTAGE PASSING
3"	
2"	
1 1/2"	
1"	100.0
3/4"	94.2
3/8"	89.1
No. 4	83.9
No. 10	78.3
No. 20	72.5
No. 40	67.4
No. 60	63.1
No. 100	59.8
No. 200	54.9

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

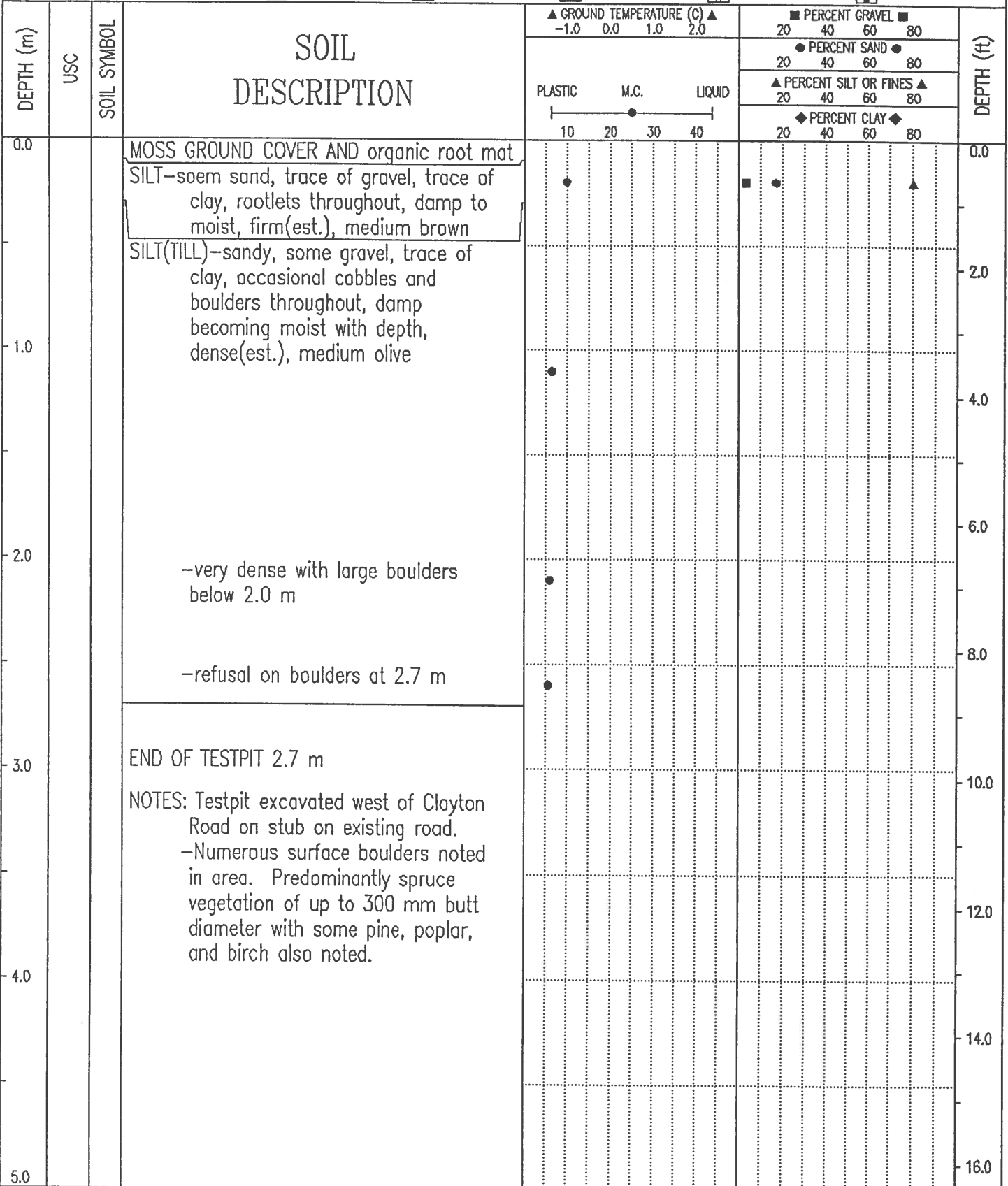


Data presented hereon is for the sole use of the stipulated client. EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA.

The testing services reported herein have been performed by an EBA technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.



INDUSTRIAL SUBDIVISION	CLIENT: YTG - MUNICIPAL ENGINEERING	TEST PIT NO: 11293-07
SITE 4; PHASE 2	HOE: JOHN DEERE RUBBER-TIRED BACKHOE	Project No: 0201-11293
WATSON LAKE, YUKON	UTM ZONE: 9 N6658000 E515000	ELEVATION: 0.00 (m)
SAMPLE TYPE	<input type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> BULK SAMPLE <input type="checkbox"/>	<input type="checkbox"/>



EBA Engineering Consultants Ltd.
Whitehorse, Yukon

LOGGED BY: MCP	COMPLETION DEPTH: 2.7 m
REVIEWED BY: JRT	COMPLETE: 93/09/10
Fig. No:	Page 1 of 1

EBA Engineering Consultants Ltd.

PARTICLE - SIZE ANALYSIS OF SOILS

Project: Industrial Subdivision
Site 4; Phase2, Watson Lake, YT

Project Number: 0201-11293

Date Tested: 93-09-22

Borehole Number: 11293-07

Depth: 0.2 m

Soil Description: SILT (ML) - some sand, trace of gravel,
trace of clay

Cu: _____

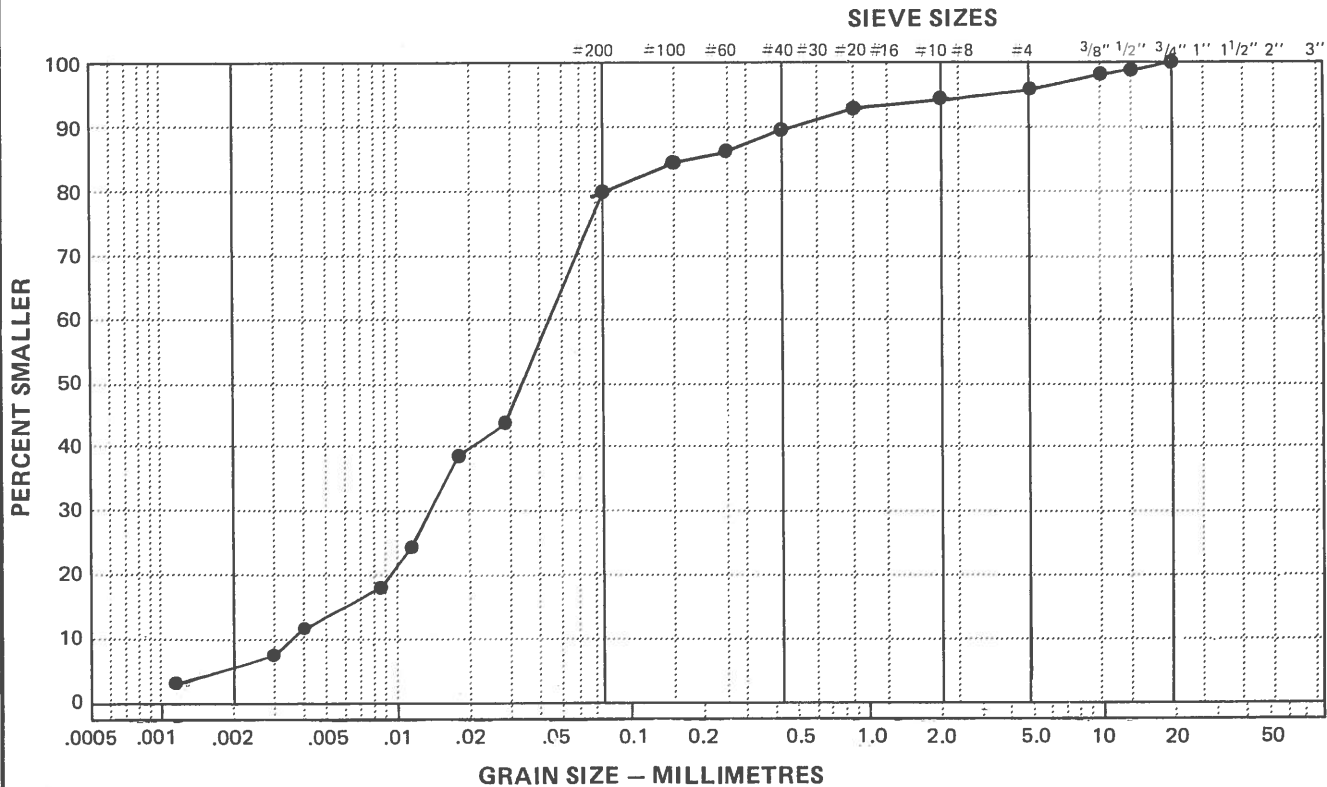
Cc: _____

Natural Moisture Content: _____ %

Remarks: Gravel 3.2%
Sand 16.8%
Silt 80.0%

SIEVE	PERCENTAGE PASSING
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.0
No. 4	96.8
No. 10	95.7
No. 20	93.0
No. 40	89.9
No. 60	87.0
No. 100	84.6
No. 200	80.0

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



INDUSTRIAL SUBDIVISION	CLIENT: YTG - MUNICIPAL ENGINEERING	TEST PIT NO: 11293-08
SITE 4; PHASE 2	HOE: JOHN DEERE RUBBER-TIRED BACKHOE	Project No: 0201-11293
WATSON LAKE, YUKON	UTM ZONE: 9 N6658220 E514840	ELEVATION: 0.00 (m)

SAMPLE TYPE GRAB SAMPLE BULK SAMPLE

DEPTH (m)	USC	SOIL SYMBOL	SOIL DESCRIPTION	▲ GROUND TEMPERATURE (C) ▲ -1.0 0.0 1.0 2.0		■ PERCENT GRAVEL ■ 20 40 60 80		● PERCENT SAND ● 20 40 60 80		▲ PERCENT SILT OR FINES ▲ 20 40 60 80		◆ PERCENT CLAY ◆ 20 40 60 80		DEPTH (ft)
				PLASTIC M.C. LIQUID 10 20 30 40										
0.0			SILT—some sand, trace of gravel, trace of clay, rootlets throughout, damp, firm(est.), light olive brown										0.0	
1.0			SILT(TILL)—sandy, some gravel, trace of clay, occasional cobbles and boulders up to 300 mm maximum size, damp, becoming moist with depth, dense(est.), medium olive										2.0	
2.0													4.0	
3.0			—becomes very dense and difficult to excavate below 2.5 m —refusal on boulder at 3.0 m										6.0	
4.0			END OF TESTPIT 3.0 m										8.0	
5.0			NOTES: Testpit excavated along edge of White Pass property at proposed subdivision access road —Predominantly pine vegetation with poplar and spruce. Some surface boulders noted in area.										10.0	
													12.0	
													14.0	
													16.0	

EBA Engineering Consultants Ltd. Whitehorse, Yukon	LOGGED BY: MCP REVIEWED BY: JRT Fig. No:	COMPLETION DEPTH: 3.0 m COMPLETE: 93/09/10
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APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL – YUKON GOVERNMENT

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The Professional Document is intended for the sole use of TETRA TECH's Client (**Yukon Government**) as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

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Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this document, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to explore, address or consider and has not explored, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems, methods and standards employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historical environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional exploration and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

Construction activity can impact structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques, and construction sequence are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, and the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued satisfactory performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

1.16 DESIGN PARAMETERS

Bearing capacities for Limit States or Allowable Stress Design, strength/stiffness properties and similar geotechnical design parameters quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition used in this report. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions considered in this report in fact exist at the site.

1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

1.18 APPLICABLE CODES, STANDARDS, GUIDELINES & BEST PRACTICE

This document has been prepared based on the applicable codes, standards, guidelines or best practice as identified in the report. Some mandated codes, standards and guidelines (such as ASTM, AASHTO Bridge Design/Construction Codes, Canadian Highway Bridge Design Code, National/Provincial Building Codes) are routinely updated and corrections made. TETRA TECH cannot predict nor be held liable for any such future changes, amendments, errors or omissions in these documents that may have a bearing on the assessment, design or analyses included in this report.