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Geotechnical Drilling Program Support
Box Cut Design
Factual Summary Report
Great Atlantic Salt Deposit

St. George's, NL

GEMTEC Project: 101556.003

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Submitted to:

Atlas Salt Inc.
333 Duckworth Street
St. John's, NL
A1C 1G9

Geotechnical Drilling Program Support
Box Cut Design
Factual Summary Report
Great Atlantic Salt Deposit
St. George's, NL

May 18, 2023
GEMTEC Project: 101556.003

experience • knowledge • integrity

GEMTEC Consulting Engineers and Scientists Limited
19 Dundee Avenue
Mount Pearl, NL, Canada
A1N 4R6

May 18, 2023

File: 100556.003– R00

Atlas Salt Inc.
333 Duckworth Street
St. John's, NL
A1C 1G9

Attention: Mr. Patrick Laracy, LL.B., P.Geo, CEO & Director

Re: Geotechnical Drilling Program Support, Boxcut Design Factual Summary Report
Great Atlantic Salt Deposit, St. George's, NL

Enclosed is our geotechnical investigation report for the above noted project. A summary of the site and soil conditions are included herein. This report was prepared Leanne Stein, P.Eng., and reviewed by Shawn Russell, P.Eng.

Please do not hesitate to contact the undersigned if you have any questions or require additional information.

Leanne Stein

Leanne Stein, P.Eng.

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1.0 INTRODUCTION

Atlas Salt Inc. (Atlas) retained GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) to witness the drilling of three (3) boreholes in support of a geotechnical investigation for the proposed box cut location for Atlas Salt's Great Atlantic Salt deposit, in St. George's, NL.

This report presents a summary of the applied methods associated with this program, the data collected by GEMTEC during the program, and the results of the particle size distribution, hydrometer, and Atterberg limits testing of soil samples performed by GEMTEC. This report does not include any design recommendations for mine development based on the collected data.

2.0 SCOPE AND METHODS

Atlas coordinated a drilling program in April 2023 with input provided by SLR Consulting Canada Ltd. (SLR), consisting of four (4) boreholes drilled through the overburden soil to identify the localized depth of bedrock and to help characterize overburden soil conditions. GEMTEC was retained to oversee the drilling based on direction from SLR and Atlas. Drilling direction was summarized in a DRAFT memorandum provided to GEMTEC by SLR on March 29, 2023, titled Yard and Decline Geotechnical Investigation, dated February 28, 2022, which describes the requested work, including sampling requirements and frequency (SLR, 2022).

Drilling began on April 6th, 2023 and ended on April 9th, 2023. Drilling was carried out by Atlas' drilling sub-contractor, Logan Geotech Inc., under direction from Atlas and SLR.

SLR recommended standard penetration tests (SPT) with split spoon sampling to be completed at 1.5 m intervals extending down from the ground surface at each borehole location, and undisturbed Shelby tube samples were to be collected at similar intervals within clay soils during drilling. GEMTEC carried out geotechnical logging of the overburden soil and the upper 3.0 m of bedrock, and the collection of soil samples. Borehole locations were provided by Atlas to GEMTEC for inclusion on the logs.

At the time of drilling, GEMTEC received direction SLR with regards to actual borehole drilling methods, soil and rock sampling, and borehole termination depths. Based on direction received from SLR, proposed borehole TH3 was cancelled and not drilled. No Shelby tubes were collected as clay conditions were not encountered at the borehole locations.

3.0 SUBSURFACE CONDITIONS

The information provided indicates the subsurface conditions at the specific borehole locations only. Contacts between soil zones show on the individual borehole logs are often not distinct, but rather are transitional and have been interpreted or inferred. Subsurface conditions at locations other than the specific borehole locations may vary from the conditions encountered in the field during this investigation.

The lithological descriptions presented in this report are based on commonly accepted methods of classification and identification employed in standard geotechnical practice. The classification and identification of organics, overburden soil, and bedrock involves judgement, and GEMTEC considers that they reasonably represent site subsurface conditions to the extent that is common in current geotechnical practice.

Subsurface conditions are summarized in Table 3.1 below and detailed in the following sections. Borehole logs, along with symbols and terms sheets and photos, are provided in Appendix A.

Table 3.1 Summary of Subsurface Conditions

Borehole ID (Surface Elevation)	Organics Material Thickness (m)	Glacial Till Thickness (m)	Top of Glacial Till Elevation (MASL)	Top of Bedrock Elevation (MASL)	Groundwater Seepage Elevation[1] (MASL)
TH1 (50.97 MASL)	1.0	8.4	50.0	41.5	50.6
TH2 (46.73 MASL)	0.25	8.4	46.5	37.9	45.2
TH4 (54.67 MASL)	0.40	12.0	54.3	42.3[2]	53.2

Notes:
1. Inferred during drilling on April 7th, 2023
2. Top of inferred bedrock interval.

3.1 Organics

Organics consisting of a thin layer of rootmat followed by peat and topsoil was encountered at all borehole locations, with total thicknesses ranging from 0.25 m to 1.0 m from ground surface.

Rootmat was described as brown, coarse fibrous and ranged from 0.05 m to 0.1 m thick. A thin layer of peat and topsoil was found underlying the rootmat ranging from 0.20 m to 0.92 m thick, and was described as a black organic peat followed by an orange brown organic silty topsoil.

3.2 Till

Glacial till was encountered underlying the organic layers at all borehole locations, extending to depths ranging from 8.8 to 12.4 m below existing ground surface. The till was generally observed to consist of a grey brown, silty sand with gravel and trace clay overlying a layer of red brown, sandy silt to silty sand with trace clay and gravel.

The till was described as compact to very dense based on SPT N-values.

3.3 Bedrock

Bedrock was encountered at depths ranging from 8.8 m to 12.4 m below surface.

Inferred bedrock, described as a very poor quality, reddish brown, highly weathered, disintegrated, very weak coarse-grained sandstone, was encountered from 12.4 m to 34.6 m depth in TH4. The inferred disintegrated bedrock is based on minimal drill returns consisting of gravel and cobbles, however very dense composition that would not allow SPT sampling. This interval could alternatively be a cobbly, very dense base of till.

A fair quality, reddish brown to grey mudstone containing thick clay infills in fractures was encountered beneath the till in TH1 and TH2 and beneath the inferred disintegrated bedrock interval identified in TH4. A good to excellent quality, reddish grey, slightly weathered, moderate to strong, coarse-grained sandstone was encountered beneath the mudstone interval in all three boreholes and continued to termination in all three boreholes.

3.4 Groundwater Observations

Groundwater seepage was observed during drilling at all borehole locations at depths ranging from 0.35 to 1.52 m below existing ground surface.

Note that groundwater conditions vary seasonally due to precipitation and run-off. Observed seepage levels are only an indication of a possible groundwater level at the specific date and time of the investigation and may be affected by drilling activities.

4.0 LABORATORY TEST RESULTS

Selected soil samples were sent to GEMTEC's Moncton, New Brunswick laboratory for particle size distribution, moisture content determination, and Atterberg limits testing based on email direction from Murray Dunn of SLR dated April 13, 2023. Results of laboratory analysis are provided below and in Appendix B.

4.1 Moisture Content

Moisture content determination laboratory testing, performed as per ASTM International (ASTM) specification D2216-19 (ASTM, 2019), was completed on a total of 18 overburden soil samples. The results of moisture content testing are included in Appendix C and summarized in Table 4.1 below. Moisture contents range from 6.84% to 20% for till samples and 20.7% to 40.7% for organic samples.

Table 4.1 Moisture Content

Sample ID	Top Depth (m)	Moisture Content (%)
TH1 (SS1)	0.00	27.00
TH1 (SS2)	1.52	15.53
TH1 (SS3)	3.05	9.38
TH1 (SS4)	4.57	12.44
TH1 (SS5)	6.10	10.15
TH1 (SS6)	7.62	20.00
TH1 (SS7)	9.14	17.00
TH2 (SS1)	0.00	20.70
TH2 (SS2)	1.52	6.84
TH2 (SS3)	3.05	15.57
TH2 (SS4)	4.57	13.87
TH2 (SS5)	6.10	14.39
TH4 (SS1)	0.00	40.70
TH4 (SS2)	1.52	10.00
TH4 (SS4)	4.57	10.14
TH4 (SS5)	6.10	14.56
TH4 (SS8)	10.67	15.85
TH4 (SS9)	12.19	15.85
TH4 (SS1)	0.00	27.00

4.2 Particle Size Distribution

Gradation (Particle Size Distribution) analysis tests were completed on 18 selected soil samples as per ASTM specification D6913M-17 (ASTM, 2017b). The results were classified in accordance with the United Soil Classification System (USC) (ASTM, 2017a) and descriptions were also provided as per guidelines from the current edition of the CFEM (CGS, 2006). The results of the particle size distribution analyses are presented on the Soils Grading Chart Report included in Appendix C and summarized in Table 4.2, below.

Table 4.2 Particle Size Distribution

Sample ID	Depth (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
TH1 (SS1)	0.00	14.8	46.3	32	6.4
TH1 (SS2)	1.52	9.8	39.5	39	12
TH1 (SS3)	3.05	30.8	45.4	14	9.5
TH1 (SS4)	4.57	26.4	31	32	10
TH1 (SS5)	6.10	4	71.2	18	7
TH1 (SS6)	7.62	2.1	33.6	32	32
TH1 (SS7)	9.14	0	32.6	53	15
TH2 (SS1)	0.00	5.3	66.3	28	0.4
TH2 (SS2)	1.52	9.3	54.6	33	3.5
TH2 (SS3)	3.05	4	63.4	24	8.6
TH2 (SS4)	4.57	13.6	67.4	14	5
TH2 (SS5)	6.10	4.6	43.3	41	11
TH4 (SS1)	0.00	2.1	66.7	26	4.8
TH4 (SS2)	1.52	33.4	41.1	24	1.3
TH4 (SS4)	4.57	7.8	44.3	33	15
TH4 (SS5)	6.10	4.9	64.3	26	5
TH4 (SS8)	10.67	0	65.3	26	8.7
TH4 (SS9)	12.19	8.3	32.5	42	17

As shown, gravel contents range from 0% to 33.4%, sand content ranges from 31% to 71.2%, silt content ranges from 14% to 53%, and clay content ranges from 0.4% to 31.9%.

4.3 Soils Plasticity

Atterberg limit laboratory testing (ASTM , 2017d) was completed on 8 selected soil samples. The results are presented in Table 4.3 below. Testing was carried out per ASTM specification D4318-17e1 (ASTM , 2017d).

Table 4.3 Atterberg Limits

Sample ID	Top Depth (m)	Liquid Limit (%)	Plastic Limit (%)
TH1 (SS1)	0.00	13.5	12.2
TH1 (SS2)	1.52	Non-Plastic	
TH1 (SS3)	3.05	28.4	15.7
TH1 (SS4)	4.57	Non-Plastic	
TH1 (SS5)	6.09	Non-Plastic	
TH1 (SS6)	7.62	25.7	16.2
TH1 (SS7)	9.14	26.8	22.5
TH2 (SS1)	0.00	Non-Plastic	
TH2 (SS2)	1.52	Non-Plastic	
TH2 (SS3)	3.05	Non-Plastic	
TH2 (SS4)	4.57	Non-Plastic	
TH2 (SS5)	6.10	24.6	24.5
TH4 (SS1)	0.00	Non-Plastic	
TH4 (SS2)	1.52	Non-Plastic	
TH4 (SS4)	4.57	15.6	12.7
TH4 (SS5)	6.10	13.5	13.4
TH4 (SS8)	10.67	Non-Plastic	
TH4 (SS9)	12.19	14.1	12.9

As shown, plastic limits range from 12.2 in TH1 SS1 to 24.5 in TH2 SS5 and liquid limits range from 13.5 inTH1 SS1 to 24.6 in TH2 SS5. More than half of the tested samples were found to be non-plastic.

5.0 CLOSURE

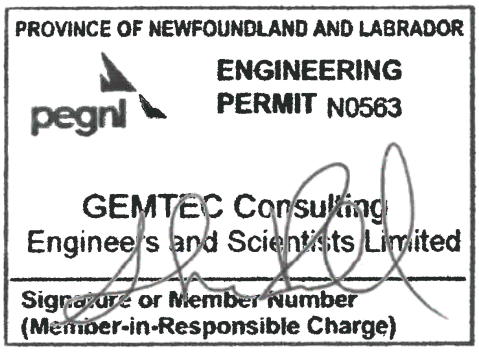
The soil and groundwater information described in this report details the information collected at the specific test locations only; soil and groundwater conditions may vary from those determined at the test locations. This report is subject to GEMTECs statement of conditions and limitations presented in Appendix C.

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Prepared by

Leanne Stein P.Eng.
Mining and Geotechnical Engineering

Reviewed by,



Shawn Russell, P.Eng.
Senior Engineer (Civil/Geotechnical)

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ASTM. (2019). *D2216-19 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.* West Conshohocken, PA, USA.

CGS. (2006). Canadian Foundation Engineering Manual, 4th Edition. Richmond, British Columbia: BiTech Publisher Ltd.

SLR, 2023. Yard and Decline Geotechnical Investigation, DRAFT memorandum. February 28, 2022.

APPENDIX A

Record of Borehole Sheets

ABBREVIATIONS AND TERMINOLOGY USED ON RECORDS OF BOREHOLES AND TEST PITS

SAMPLE TYPES	
AS	Auger sample
CA	Casing sample
CS	Chunk sample
BS	Borros piston sample
GS	Grab sample
MS	Manual sample
RC	Rock core
SS	Split spoon sampler
ST	Slotted tube
TO	Thin-walled open shelby tube
TP	Thin-walled piston shelby tube
WS	Wash sample

SOIL TESTS	
w	Water content
PL, w_p	Plastic limit
LL, w_L	Liquid limit
C	Consolidation (oedometer) test
D_R	Relative density
DS	Direct shear test
G_S	Specific gravity
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	Organic content test
UC	Unconfined compression test
γ	Unit weight

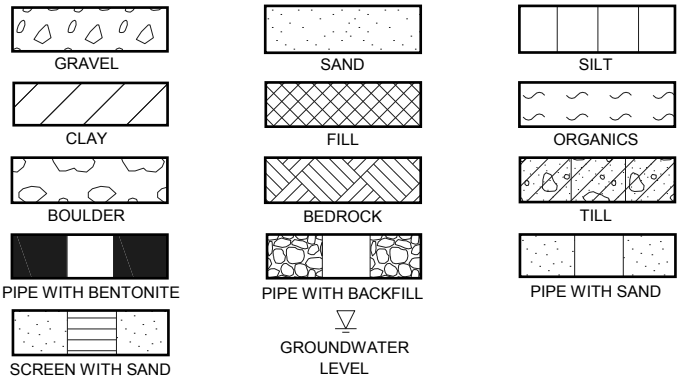
PENETRATION RESISTANCE

Standard Penetration Resistance, N
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 millimetres (30 in.) required to drive a 50 mm split spoon sampler for a distance of 300 mm (12 in.). For split spoon samples where less than 300 mm of penetration was achieved, the number of blows is reported over the sampler penetration in mm.

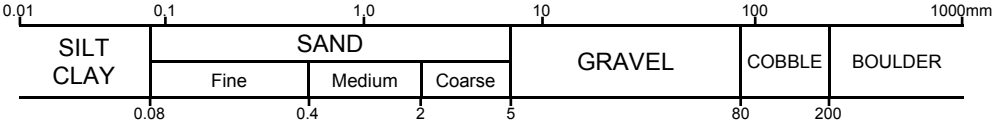
Dynamic Penetration Resistance
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive a 50 mm (2 in.) diameter 60° cone attached to 'A' size drill rods for a distance of 300 mm (12 in.).

WH	Sampler advanced by static weight of hammer and drill rods
WR	Sampler advanced by static weight of drill rods
PH	Sampler advanced by hydraulic pressure from drill rig
PM	Sampler advanced by manual pressure

COHESIONLESS SOIL Compactness		COHESIVE SOIL Consistency	
SPT N-Values	**Description**	**Cu, kPa**	**Description**
0-4	Very Loose	0-12	Very Soft
4-10	Loose	12-25	Soft
10-30	Compact	25-50	Firm
30-50	Dense	50-100	Stiff
>50	Very Dense	100-200	Very Stiff
		>200	Hard

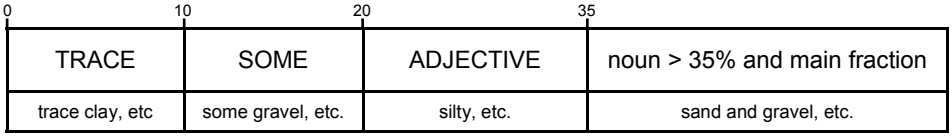


GRAIN SIZE



DESCRIPTIVE TERMINOLOGY

(Based on the CANFEM 4th Edition)



LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

WEATHERING STATE	
Fresh	No visible sign of rock material weathering
Faintly weathered	Weathering limited to the surface of major discontinuities
Slightly weathered	Penetrative weathering developed on open discontinuity surfaces but only slight weathering of rock material
Moderately weathered	Weathering extends throughout the rock mass but the rock material is not friable
Completely weathered	Rock is wholly decomposed and in a friable condition but the rock and structure are preserved

CORE CONDITION
Total Core Recovery (TCR) The percentage of solid drill core recovered regardless of quality or length, measured relative to the length of the total core run
Solid Core Recovery (SCR) The percentage of solid drill core, regardless of length, recovered at full diameter, measured relative to the length of the total core run.
Rock Quality Designation (RQD) The percentage of solid drill core, greater than 100 mm length, as measured along the centerline axis of the core, relative to the length of the total core run. RQD varies from 0% for completed broken core to 100% for core in solid segments.

BEDDING THICKNESS	
Description	**Thickness**
Thinly laminated	< 6 mm
Laminated	6 - 20 mm
Very thinly bedded	20 - 60 mm
Thinly bedded	60 - 200 mm
Medium bedded	200 - 600 mm
Thickly bedded	600 - 2000 mm
Very thickly bedded	2000 - 6000 mm

DISCONTINUITY SPACING	
Description	**Spacing**
Very close	20 - 60 mm
Close	60 - 200 mm
Moderate	200 - 600 mm
Wide	600 -2000 mm
Very wide	2000 - 6000 mm

ROCK QUALITY	
RQD	**Overall Quality**
0 - 25	Very poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

ROCK COMPRESSIVE STRENGTH	
Comp. Strength, MPa	**Description**
1 - 5	Very weak
5 - 25	Weak
25 - 50	Moderate
50 - 100	Strong
100 - 250	Very strong

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 6 2023
TOTAL DEPTH: 12.19m
ELEVATION: 50.97m (CGVD2013)
COORDINATES: N 5363916.042 E 389640.09 (NAD83 CSRS UTM Zone 21)
SHEET: 1 OF 6

BOREHOLE ID: TH1
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

DEPTH SCALE METRES	BORING METHOD	LITHOLOGY DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE ID	TYPE	RECOVERY (%) or TCR (%)	SPT N VALUE or RQD (%)	LAB. TESTING	INSTALLATION DETAIL COMMENTS	INSTALLATION PLOT
		Ground Surface		50.97							
0		ORGANICS: Brown, coarse fiberous ROOTMAT *-SS1 PSD: Gravel = 14.8% Sand = 46.3%, Silt = 32.4%, Clay = 6.4%*		0.00	SS1	SS	49%	2	W, MH, PL,LL		
		ORGANICS: Black organic PEAT to orange brown, organic, silty TOPSOIL		49.97							
1		TILL: Greyish brown, compact to very dense, silty SAND with gravel (SM), trace clay, damp to wet		1.00							
		-SS2 PSD: Gravel = 9.8% Sand = 39.5%, Silt = 38.6%, Clay = 12%			SS2	SS	59%	17	W, MH		
2											
3		*-SS3 PSD: Gravel = 30.8% Sand = 45.4%, Silt = 14.3%, Clay = 9.5%*			SS3	SS	75%	60	W, MH, PL,LL		
4											
		-SS4 PSD: Gravel = 26.4% Sand = 31%, Silt = 32.2%, Clay = 10.4%			SS4	SS	78%	82	W, MH		
5											
	Diamond Rotary Core HQ (89mm OD)	*-Boulder and cobble layer encountered from approximately 3.5 m to 6.5 m*									
6		*-SS5 PSD: Gravel = 4% Sand = 71.2%, Silt = 17.7%, Clay = 7%*			SS5	SS	59%	108	W, MH		
7											
		-SS6 PSD: Gravel = 2.1% Sand = 33.6%, Silt = 32.4%, Clay = 31.9%			SS6	SS	49%	21	W, MH, PL,LL		
8				42.74							
		TILL: Red-brown, very dense, sandy SILT, some clay (CL-ML), damp to wet		8.23							
9											
		-SS7 PSD: Gravel = 0% Sand = 32.6%, Silt = 52.9%, Clay = 14.5%			SS7	SS	0%	110	W, MH, PL,LL		
				41.50							
		BEDROCK: Fair quality, reddish brown to grey, slightly weathered, weak, MUDSTONE, thick clay infill		9.47							
10											

SAMPLES: PENETRATION RESISTANCE (N), BLOWS/0.3m; DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m; RMR76; UCS PEAK STRENGTH (MPa); YOUNG'S MODULUS (GPa)

SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED

WATER CONTENT, %: W_P, W, W_L

10 20 30 40 50 60 70 80 90

INSTALLATION DETAIL

GROUNDWATER OBSERVATIONS

DATE	4/7/2023				
DEPTH (m)	0.35 ▽	▼			
ELEV. (m)	50.62				

NOTES

GEMTEC Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 6 2023
TOTAL DEPTH: 12.19m
ELEVATION: 50.97m (CGVD2013)
COORDINATES: N 5363916.042 E 389640.09 (NAD83 CSRS UTM Zone 21)
SHEET: 2 OF 6

BOREHOLE ID: TH1
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

DEPTH SCALE METRES	BORING METHOD	LITHOLOGY DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: SAMPLE ID	SAMPLES: TYPE	SAMPLES: RECOVERY (%) or TCR (%)	SAMPLES: SPT N VALUE or RQD (%)	LAB. TESTING	INSTALLATION DETAIL: COMMENTS	INSTALLATION DETAIL: INSTALLATION PLOT
10		(>5mm) in fractures		40.30	RC8	RC	100%	93%			
11		BEDROCK: Good to excellent quality, reddish grey, slightly weathered, moderate to strong, coarse grained SANDSTONE		10.67	RC9	RC	100%	100%			
12				38.78							
		End of Borehole, terminated 12.19m below existing ground surface. Water level measured at approximately 0.35m below existing ground surface after drilling. Terminated as directed by client.		12.19							
13											
14											
15											
16											
17											
18											
19											
20											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
RMR76
UCS PEAK STRENGTH (MPa)
YOUNG'S MODULUS (GPa)

SHEAR STRENGTH (Cu), kPA
NATURAL ⊕ REMOULDED

WATER CONTENT, %
W_P — W — W_L

10 20 30 40 50 60 70 80 90

GROUNDWATER OBSERVATIONS

DATE	4/7/2023				
DEPTH (m)	0.35 ▽	▼			
ELEV. (m)	50.62				

NOTES

GEMTEC Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 6 2023
TOTAL DEPTH: 12.19m
ELEVATION: 50.97m (CGVD2013)
COORDINATES: N 5363916.042 E 389640.09 (NAD83 CSRS UTM Zone 21)
SHEET: 3 OF 6

BOREHOLE ID: TH1
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH1.1
TH1 split spoon sample SS1 from 0 m to 0.61 m

Figure TH1.2
TH1 split spoon sample SS2 from 1.52 m to 2.13 m

GROUNDWATER OBSERVATIONS							NOTES
DATE	4/7/2023						
DEPTH (m)	0.35 ▽	▼					
ELEV. (m)	50.62						

GEMTEC
Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 6 2023
TOTAL DEPTH: 12.19m
ELEVATION: 50.97m (CGVD2013)
COORDINATES: N 5363916.042 E 389640.09 (NAD83 CSRS UTM Zone 21)
SHEET: 4 OF 6

BOREHOLE ID: TH1
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH1.3
TH1 split spoon sample SS3 from 3.05 m to 3.66 m

Figure TH1.4
TH1 split spoon sample SS4 from 4.57 to 4.93 m

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/7/2023					
	DEPTH (m)	0.35 ▽	▼				
	ELEV. (m)	50.62					

GEMTEC
Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 6 2023
TOTAL DEPTH: 12.19m
ELEVATION: 50.97m (CGVD2013)
COORDINATES: N 5363916.042 E 389640.09 (NAD83 CSRS UTM Zone 21)
SHEET: 5 OF 6

BOREHOLE ID: TH1
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH1.5
TH1 split spoon sample SS5 from 6.10 m to 6.32 m

Figure TH1.6
TH1 split spoon sample SS6 from 7.62 m to 8.23 m

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/7/2023					
	DEPTH (m)	0.35 ▽	▼				
	ELEV. (m)	50.62					

GEMTEC Consulting Engineers and Scientists

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 6 2023
TOTAL DEPTH: 12.19m
ELEVATION: 50.97m (CGVD2013)
COORDINATES: N 5363916.042 E 389640.09 (NAD83 CSRS UTM Zone 21)
SHEET: 6 OF 6

BOREHOLE ID: TH1
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH1.7
TH1 split spoon sample SS7 from 9.14 m to 9.47 m

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

GROUNDWATER OBSERVATIONS							NOTES
DATE	4/7/2023						
DEPTH (m)	0.35 ▽	▼					
ELEV. (m)	50.62						

GEMTEC
Consulting Engineers and Scientists

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 7 2023
TOTAL DEPTH: 12.19m
ELEVATION: 46.73m (CGVD2013)
COORDINATES: N 5364048.482 E 389602.27 (NAD83 CSRS UTM Zone 21)
SHEET: 1 OF 5

BOREHOLE ID: TH2
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

DEPTH SCALE METRES	BORING METHOD	LITHOLOGY: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: SAMPLE ID	TYPE	RECOVERY (%) or TCR (%)	SPT N VALUE or RQD (%)	LAB. TESTING	INSTALLATION DETAIL: COMMENTS	INSTALLATION PLOT
0		Ground Surface		46.73 / 0.00							
		ORGANICS: Brown, coarse fiberous ROOTMAT *-SS1 PSD: Gravel = 5.3%* *Sand = 66.3%, Silt = 28.0%,* *Clay = 0.4%*			SS1	SS	51%	10	W, MH		
		ORGANICS: Black organic PEAT to orange brown, organic, silty TOPSOIL									
1		TILL: Greyish brown, loose, silty SAND (SM), trace gravel, trace clay, damp to dry									
		-SS2 PSD: Gravel = 9.3% *Sand = 54.6%, Silt = 32.6%,* *Clay = 3.5%*			SS2	SS	70%	40	W, MH		
2											
3				43.68 / 3.05							
		TILL: Reddish brown, compact to dense, silty SAND (SM), trace gravel, trace clay, damp to wet *-SS3 PSD: Gravel = 4%* *Sand = 63.4%, Silt = 24.1%,* *Clay = 8.6%*			SS3	SS	75%	41	W, MH		
4											
		-SS4 PSD: Gravel = 13.6% *Sand = 67.4%, Silt = 14%, Clay = 5%*			SS4	SS	80%	118	>>W, MH		
5											
6	Diamond Rotary Core HQ (89mm OD)	*-SS5 PSD: Gravel = 4.6%* *Sand = 43.3%, Silt = 40.7%,* *Clay = 11.4%*			SS5	SS	75%	92	W, MH, PL,LL		
7					SS6	SS	0%				
8					RC7	RC	100%	81%			
				37.89 / 8.84							
9		BEDROCK: Fair quality, reddish brown to grey, slightly weathered, weak, MUDSTONE, thick clay infill (>5mm) in fractures									
10					RC8	RC	100%	%			

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
RMR76
UCS PEAK STRENGTH (MPa)
YOUNG'S MODULUS (GPa)

SHEAR STRENGTH (Cu), kPA
NATURAL ⊕ REMOULDED

WATER CONTENT, %
W_P — W — W_L

10 20 30 40 50 60 70 80 90

GROUNDWATER OBSERVATIONS

DATE	4/7/2023				
DEPTH (m)	1.524 ▽	▼			
ELEV. (m)	45.206				

NOTES

GEMTEC Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 7 2023
TOTAL DEPTH: 12.19m
ELEVATION: 46.73m (CGVD2013)
COORDINATES: N 5364048.482 E 389602.27 (NAD83 CSRS UTM Zone 21)
SHEET: 2 OF 5

BOREHOLE ID: TH2
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

DEPTH SCALE METRES	BORING METHOD	LITHOLOGY DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: SAMPLE ID	SAMPLES: TYPE	SAMPLES: RECOVERY (%) or TCR (%)	SAMPLES: SPT N VALUE or RQD (%)	LAB. TESTING	INSTALLATION DETAIL: COMMENTS	INSTALLATION DETAIL: INSTALLATION PLOT
10				36.06							
11		BEDROCK: Good to excellent quality, reddish grey, slightly weathered, moderate to strong, coarse grained SANDSTONE		10.67	RC9	RC	100%	%			
12				34.54							
		End of Borehole, terminated 12.19m below existing ground surface. Water level inferred from geology at approximately 3.048m below existing ground surface at time of drilling. Terminated as directed by client.		12.19							
13											
14											
15											
16											
17											
18											
19											
20											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
RMR76
UCS PEAK STRENGTH (MPa)
YOUNG'S MODULUS (GPa)

SHEAR STRENGTH (Cu), kPA
NATURAL ⊕ REMOULDED

WATER CONTENT, %
W_P — W — W_L

10 20 30 40 50 60 70 80 90

GROUNDWATER OBSERVATIONS

DATE	4/7/2023				
DEPTH (m)	1.524 ▽	▼			
ELEV. (m)	45.206				

NOTES

GEMTEC Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 7 2023
TOTAL DEPTH: 12.19m
ELEVATION: 46.73m (CGVD2013)
COORDINATES: N 5364048.482 E 389602.27 (NAD83 CSRS UTM Zone 21)
SHEET: 3 OF 5

BOREHOLE ID: TH2
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH2.1
TH2 split spoon sample SS1 from 0 m to 0.61 m

Figure TH2.2
TH2 split spoon sample SS2 from 1.52 m to 2.13 m

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/7/2023					
	DEPTH (m)	1.524 ▽	▼				
	ELEV. (m)	45.206					

GEMTEC Consulting Engineers and Scientists

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 7 2023
TOTAL DEPTH: 12.19m
ELEVATION: 46.73m (CGVD2013)
COORDINATES: N 5364048.482 E 389602.27 (NAD83 CSRS UTM Zone 21)
SHEET: 4 OF 5

BOREHOLE ID: TH2
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH2.3
TH2 split spoon sample SS3 from 3.05 m to 3.66 m

Figure TH2.4
TH2 split spoon sample SS4 from 4.57 m to 5.08 m

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/7/2023					
	DEPTH (m)	1.524 ▽	▼				
	ELEV. (m)	45.206					

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

GEMTEC
Consulting Engineers and Scientists

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 7 2023
TOTAL DEPTH: 12.19m
ELEVATION: 46.73m (CGVD2013)
COORDINATES: N 5364048.482 E 389602.27 (NAD83 CSRS UTM Zone 21)
SHEET: 5 OF 5

BOREHOLE ID: TH2
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH2.5
TH2 split spoon sample SS5 from 6.10 m to 6.71 m

GROUNDWATER OBSERVATIONS

DATE	4/7/2023					NOTES
DEPTH (m)	1.524 ▽	▼				
ELEV. (m)	45.206					

GEMTEC Consulting Engineers and Scientists

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 1 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

DEPTH SCALE METRES	BORING METHOD	LITHOLOGY: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: SAMPLE ID	TYPE	RECOVERY (%) or TCR (%)	SPT N VALUE or RQD (%)	LAB. TESTING	INSTALLATION DETAIL: COMMENTS	INSTALLATION PLOT
0		Ground Surface		54.67							
		ORGANICS: Dark brown, coarse, fibrous ROOTMAT *-SS1 PSD: Gravel = 2.1%* *Sand = 66.7%, Silt = 26.3%,* *Clay = 4.8%*		0.00 54.27 0.40	SS1	SS	79%	2	W, MH		
		ORGANICS: Black organic PEAT to orange brown, organic, silty TOPSOIL									
1		TILL: Brown, loose to very dense, silty SAND with gravel (SM), trace clay, damp to dry									
		-SS2 PSD: Gravel = 33.4% *Sand = 41.1%, Silt = 24.3%,* *Clay = 1.3%*			SS2	SS	46%	64	W, MH		
2											
3					SS3	SS	0%	133	>>		
		TILL: Brown to grey, compact, sandy GRAVEL with silt (GM), trace clay, frequent cobbles, damp		51.39 3.28							
4		*-Lithology inferred based on drill returns*									
		TILL: Reddish brown, very dense, silty SAND with some to trace clay (SC-SM), trace gravel, wet		50.10 4.57	SS4	SS	75%	106	>> W, MH, PL,LL		
5		*-SS4 PSD: Gravel = 7.8%* *Sand = 44.3%, Silt = 32.7%,* *Clay = 15.2%*									
6		*-SS5 PSD: Gravel = 4.9%* *Sand = 64.3%, Silt = 25.8%,* *Clay = 5%*			SS5	SS	96%	83	W, MH, PL,LL		
7											
					SS6	SS	0%	188	>>		
8											
9					SS7	SS	0%	300	>>		
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
RMR76
UCS PEAK STRENGTH (MPa)
YOUNG'S MODULUS (GPa)

SHEAR STRENGTH (Cu), kPA
NATURAL REMOULDED

WATER CONTENT, %
W_P W W_L

10 20 30 40 50 60 70 80 90

GROUNDWATER OBSERVATIONS

DATE	4/8/2023				
DEPTH (m)	1.524 ▽	▼			
ELEV. (m)	53.146				

NOTES

GEMTEC Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 2 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

DEPTH SCALE METRES	BORING METHOD	LITHOLOGY DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: SAMPLE ID	TYPE	RECOVERY (%) or TCR (%)	SPT N VALUE or RQD (%)	PENETRATION RESISTANCE (N), BLOWS/0.3m; DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m; RMR76; UCS PEAK STRENGTH (MPa); YOUNG'S MODULUS (GPa)	SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED; WATER CONTENT, %	LAB. TESTING	INSTALLATION DETAIL: COMMENTS	INSTALLATION PLOT
10	Diamond Rotary Core HQ (89mm OD)												
11		*-SS8 PSD: Gravel = 0% Sand = 65.3%, Silt = 25.9%, Clay = 8.7%*			SS8	SS	70%	105			W, MH		
12		*-SS9 PSD: Gravel = 8.3% Sand = 32.5%, Silt = 42.3%, Clay = 16.9%*			SS9	SS	100%	158			W, MH, PL,LL		
13				42.30 / 12.37									
14		INFERRED BEDROCK: Very poor quality, reddish brown, highly weathered, disintegrated, very weak, coarse grained SANDSTONE *-Lithology inferred based on drill returns* *-Recovered crushed mudstone gravel and brecciate mudstone, sand particles observed*											
15													
16													
17		*-Recovered gravel fragments of varying composition, some coarse sand*			SS10	SS	0%	188					
18													
19		*-Recovered rounded gravel fragments of varying composition, some coarse sandstone*											
20				34.55									

GROUNDWATER OBSERVATIONS

DATE	4/8/2023				
DEPTH (m)	1.524 ▽	▼			
ELEV. (m)	53.146				

NOTES

GEMTEC Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 3 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

DEPTH SCALE METRES	BORING METHOD	LITHOLOGY DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: SAMPLE ID	TYPE	RECOVERY (%) or TCR (%)	SPT N VALUE or RQD (%)	LAB. TESTING	INSTALLATION DETAIL: COMMENTS	INSTALLATION PLOT
21		BEDROCK: Fair quality, reddish brown to grey, slightly weathered, weak, MUDSTONE, thick clay infill (>5mm) in fractures		20.12	RC11	RC	63%	56%			
22					RC12	RC	100%	83%			
23					RC13	RC	100%	100%			
24				30.72							
24		BEDROCK: Good to excellent quality, reddish grey, slightly weathered, moderate to strong, coarse grained SANDSTONE		23.95							
25					RC14	RC	100%	100%			
26											
27					RC15	RC	100%	83%			
28					RC16	RC	100%	88%			
29				25.71							
29		End of Borehole, terminated 28.96m below existing ground surface. Water level inferred from geology at approximately 1.524m below existing ground surface at time of drilling. Terminated as directed by client.		28.96							
30											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
RMR76
UCS PEAK STRENGTH (MPa)
YOUNG'S MODULUS (GPa)

SHEAR STRENGTH (Cu), kPA
NATURAL ⊕ REMOULDED
WATER CONTENT, %
W_P — W — W_L
10 20 30 40 50 60 70 80 90

GROUNDWATER OBSERVATIONS

DATE	4/8/2023				
DEPTH (m)	1.524 ▽	▼			
ELEV. (m)	53.146				

NOTES

GEMTEC Consulting Engineers and Scientists

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 4 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH4.1
TH4 split spoon sample SS1 from 0 m to 0.61 m

Figure TH4.2
TH4 split spoon sample SS2 from 1.52 m to 2.06 m

GROUNDWATER OBSERVATIONS							NOTES
DATE	4/8/2023						
DEPTH (m)	1.524 ▽	▼					
ELEV. (m)	53.146						

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

GEMTEC
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RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 5 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH4.3
TH4 split spoon sample SS4 from 4.57 m to 5.05 m

Figure TH4.4
TH4 split spoon sample SS5 from 6.10 m to 6.58 m

GROUNDWATER OBSERVATIONS							NOTES
DATE	4/8/2023						
DEPTH (m)	1.524 ▽	▼					
ELEV. (m)	53.146						

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

GEMTEC
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RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 6 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH4.5
TH4 split spoon sample SS8 from 10.67 m to 11.10 m

Figure TH4.6
TH4 split spoon from 40' to 40'7"

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/8/2023					
	DEPTH (m)	1.524 ▽	▼				
	ELEV. (m)	53.146					

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NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 7 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH4.7
Recovered material in core tube from 18.3 m to 19.8 m

Figure TH4.8
Rock core from 19.81 m to 21.34 m

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/8/2023					
	DEPTH (m)	1.524 ▽	▼				
	ELEV. (m)	53.146					

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RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 8 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH4.9
Rock core from 21.34 m to 22.86 m

Figure TH4.10
Rock core from 22.86 m to 24.38 m

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/8/2023					
	DEPTH (m)	1.524 ▽	▼				
	ELEV. (m)	53.146					

GEMTEC Consulting Engineers and Scientists

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 9 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH4.11
Rock core from 24.38 m to 25.91 m

Figure TH4.12
Rock core from 25.91 m to 27.43 m

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/8/2023					
	DEPTH (m)	1.524 ▽	▼				
	ELEV. (m)	53.146					

GEMTEC Consulting Engineers and Scientists

RECORD OF BOREHOLE

DRAFT

CLIENT: Atlas Salt Inc.
PROJECT: Geotechnical Drilling Program Support - Boxcut Design
JOB#: 101556.003
LOCATION: St.Georges NL

BORING DATE: Apr 8 2023
TOTAL DEPTH: 28.96m
ELEVATION: 54.67m (CGVD2013)
COORDINATES: N 5363815.105 E 389646.476 (NAD83 CSRS UTM Zone 21)
SHEET: 10 OF 10

BOREHOLE ID: TH4
LOG STATUS: DRAFT
LOGGED: DR
CHECKED: LS

BOREHOLE PHOTOS

Figure TH4.13
Rock core from 27.43 m to 28.96 m

NL BH 101556.003 BOREHOLE.GPJ GEMTEC 2018.GDT 5/18/23

GROUNDWATER OBSERVATIONS							NOTES
	DATE	4/8/2023					
	DEPTH (m)	1.524 ▽	▼				
	ELEV. (m)	53.146					

GEMTEC
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APPENDIX B

Laboratory Test Results

GEMTEC
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Client	Atlas Salt Inc.
Project:	Geotechnical Rock Drilling Program 2023, Proposed Salt
Project #:	101556003

Moisture Content and Density

Borehole:	TH-1	Date/Time Sampled:	23/05/05 9:00:00 AM	Mass of Cont. + Wet Soil, g:	56.20
Depth:	0-0.61m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	46.40
Sample:	SS-01			Mass of Container, g:	10.10
Description:	TH-1 SS-01 0-0.61m			Moisture Content, %:	27.00
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-1	Date/Time Sampled:	23/05/05 9:01:00 AM	Mass of Cont. + Wet Soil, g:	64.30
Depth:	1.52-2.13m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	57.70
Sample:	SS-02			Mass of Container, g:	15.20
Description:	TH-1 SS-02 1.52-2.13m			Moisture Content, %:	15.53
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-1	Date/Time Sampled:	23/05/05 9:03:00 AM	Mass of Cont. + Wet Soil, g:	48.40
Depth:	3.05-3.65m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	45.40
Sample:	SS-03			Mass of Container, g:	13.40
Description:	TH-1 SS-03 3.05-3.65m			Moisture Content, %:	9.38
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

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Project:	Geotechnical Rock Drilling Program 2023, Proposed Salt
Project #:	101556003

Moisture Content and Density

Borehole:	TH-1	Date/Time Sampled:	23/05/05 9:04:00 AM	Mass of Cont. + Wet Soil, g:	57.40
Depth:	4.57-4.92	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	52.30
Sample:	SS-04			Mass of Container, g:	11.30
Description:	TH-1 SS-04 4.57-4.92m			Moisture Content, %:	12.44
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-1	Date/Time Sampled:	23/05/05 9:05:00 AM	Mass of Cont. + Wet Soil, g:	47.10
Depth:	6.09-6.19	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	43.80
Sample:	SS-05			Mass of Container, g:	11.30
Description:	TH-1 SS-05 6.09-6.19			Moisture Content, %:	10.15
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-1	Date/Time Sampled:	23/05/05 9:06:00 AM	Mass of Cont. + Wet Soil, g:	28.30
Depth:	7.62-8.22m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	25.30
Sample:	SS-06			Mass of Container, g:	10.30
Description:	TH-1 SS-06 7.62-8.22m			Moisture Content, %:	20.00
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

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Project:	Geotechnical Rock Drilling Program 2023, Proposed Salt
Project #:	101556003

Moisture Content and Density

Borehole:	TH-1	Date/Time Sampled:	23/05/05 9:07:00 AM	Mass of Cont. + Wet Soil, g:	46.00
Depth:	9.14-9.48m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	40.90
Sample:	SS-07			Mass of Container, g:	10.90
Description:	TH-1 SS-07 9.14-9.48m			Moisture Content, %:	17.00
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-2	Date/Time Sampled:	23/05/05 10:01:00 AM	Mass of Cont. + Wet Soil, g:	39.50
Depth:	0-0.61m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	34.80
Sample:	SS-01			Mass of Container, g:	12.10
Description:	TH-2 SS-01 0-0.61m			Moisture Content, %:	20.70
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-2	Date/Time Sampled:	23/05/05 10:02:00 AM	Mass of Cont. + Wet Soil, g:	90.70
Depth:	1.52-2.13m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	85.80
Sample:	SS-02			Mass of Container, g:	14.20
Description:	TH-2 SS-02 1.52-2.13m			Moisture Content, %:	6.84
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

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Project #:	101556003

Moisture Content and Density

Borehole:	TH-2	Date/Time Sampled:	23/05/05 10:03:00 AM	Mass of Cont. + Wet Soil, g:	49.70
Depth:	3.05-3.65m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	44.50
Sample:	SS-03			Mass of Container, g:	11.10
Description:	TH-2 SS-03 3.05-3.65m			Moisture Content, %:	15.57
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-2	Date/Time Sampled:	23/05/05 10:04:00 AM	Mass of Cont. + Wet Soil, g:	57.30
Depth:	4.57-5.07m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	51.60
Sample:	SS-04			Mass of Container, g:	10.50
Description:	TH-2 SS-04 4.57-5.07m			Moisture Content, %:	13.87
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-2	Date/Time Sampled:	23/05/05 10:05:00 AM	Mass of Cont. + Wet Soil, g:	42.50
Depth:	6.09-6.71m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	38.70
Sample:	SS-05			Mass of Container, g:	12.30
Description:	TH-2 SS-05 6.09-6.71m			Moisture Content, %:	14.39
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

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Project:	Geotechnical Rock Drilling Program 2023, Proposed Salt
Project #:	101556003

Moisture Content and Density

Borehole:	TH-4	Date/Time Sampled:	23/05/05 11:01:00 AM	Mass of Cont. + Wet Soil, g:	35.20
Depth:	0-0.61m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	28.20
Sample:	SS-01			Mass of Container, g:	11.00
Description:	TH-4 SS-01 0-0.61m			Moisture Content, %:	40.70
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-4	Date/Time Sampled:	23/05/05 11:02:00 AM	Mass of Cont. + Wet Soil, g:	48.80
Depth:	1.52-1.93m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	45.60
Sample:	SS-02			Mass of Container, g:	13.60
Description:	TH-4 SS-02 1.52-1.93m			Moisture Content, %:	10.00
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-4	Date/Time Sampled:	23/05/05 11:04:00 AM	Mass of Cont. + Wet Soil, g:	47.60
Depth:	4.57-5.05m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	44.60
Sample:	SS-04			Mass of Container, g:	15.00
Description:	TH-4 SS-04 4.57-5.05m			Moisture Content, %:	10.14
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

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Project:	Geotechnical Rock Drilling Program 2023, Proposed Salt
Project #:	101556003

Moisture Content and Density

Borehole:	TH-4	Date/Time Sampled:	23/05/05 11:05:00 AM	Mass of Cont. + Wet Soil, g:	51.90
Depth:	6.09-6.57m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	46.50
Sample:	SS-05			Mass of Container, g:	9.40
Description:	TH-4 SS-05 6.09-6.57m			Moisture Content, %:	14.56
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-4	Date/Time Sampled:	23/05/05 11:08:00 AM	Mass of Cont. + Wet Soil, g:	32.50
Depth:	10.67-11.09m	Date/Time Tested:	23/05/05 1:40:31 PM	Mass of Cont. + Dry Soil, g:	29.60
Sample:	SS-08			Mass of Container, g:	11.30
Description:	TH-4 SS-08 10.67-11.09m			Moisture Content, %:	15.85
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

Borehole:	TH-4	Date/Time Sampled:	23/05/12 11:01:00 AM	Mass of Cont. + Wet Soil, g:	31.90
Depth:	12.2-12.4m	Date/Time Tested:	23/05/12 11:05:39 AM	Mass of Cont. + Dry Soil, g:	29.30
Sample:	SS-09			Mass of Container, g:	12.90
Description:	TH-4 SS-09 12.2-12.4m			Moisture Content, %:	15.85
				Sample Length, mm:	
				Sample Diameter, mm:	
				Sample Mass, g:	
				Sample Volume, mm³	
				Wet Density, kg/m³	
				Dry Density, kg/m³	

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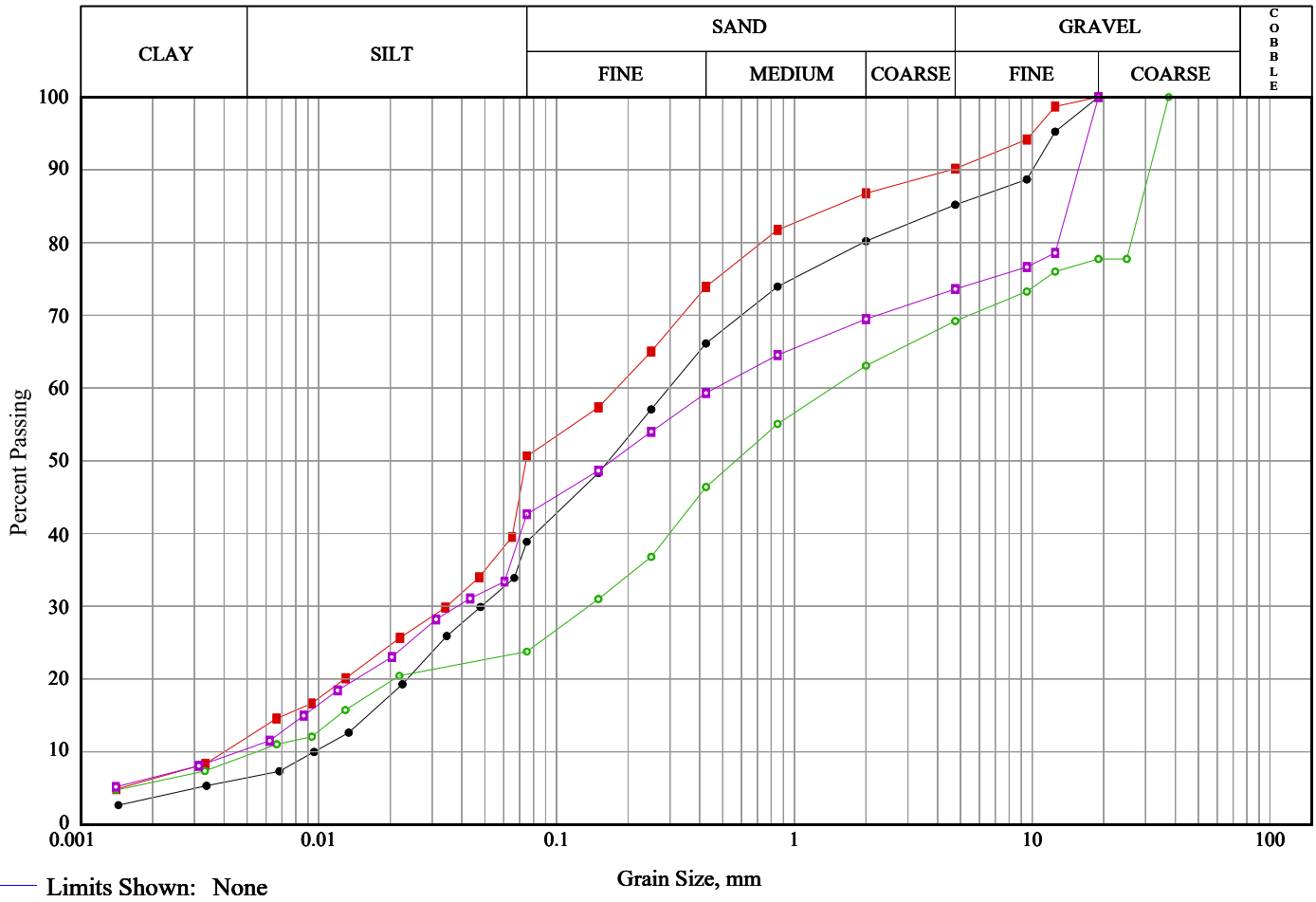
Project #:	101556003

Soils Grading Chart (T88)



Limits Shown: None

Line Symbol	Sample	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay
	TH-1 SS-01 0-0.61m	TH-1	SS-01	0-0.61m	14.8	46.3	32.4	6.4
	TH-1 SS-02 1.52-2.13m	TH-1	SS-02	1.52-2.13m	9.8	39.5	38.6	12.0
	TH-1 SS-03 3.05-3.65m	TH-1	SS-03	3.05-3.65m	30.8	45.4	14.3	9.5
	TH-1 SS-04 4.57-4.92m	TH-1	SS-04	4.57-4.92	26.4	31.0	32.2	10.4

Line Symbol	CanFEM Classification	USCS Symbol	D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	% 5-75µm
	Silty sand , some gravel , trace clay	SM	0.01	0.02	0.05	0.17	0.30	4.60	32.4
	Sand and silt , some clay , trace gravel	SM	0.00	0.01	0.03	0.07	0.18	1.48	38.6
	Gravelly sand , some silt , trace clay	SC-SM	0.01	0.01	0.14	0.57	1.44	28.53	14.3
	Gravel and sand and silt , some clay	SC-SM	0.00	0.01	0.04	0.17	0.46	14.17	32.2

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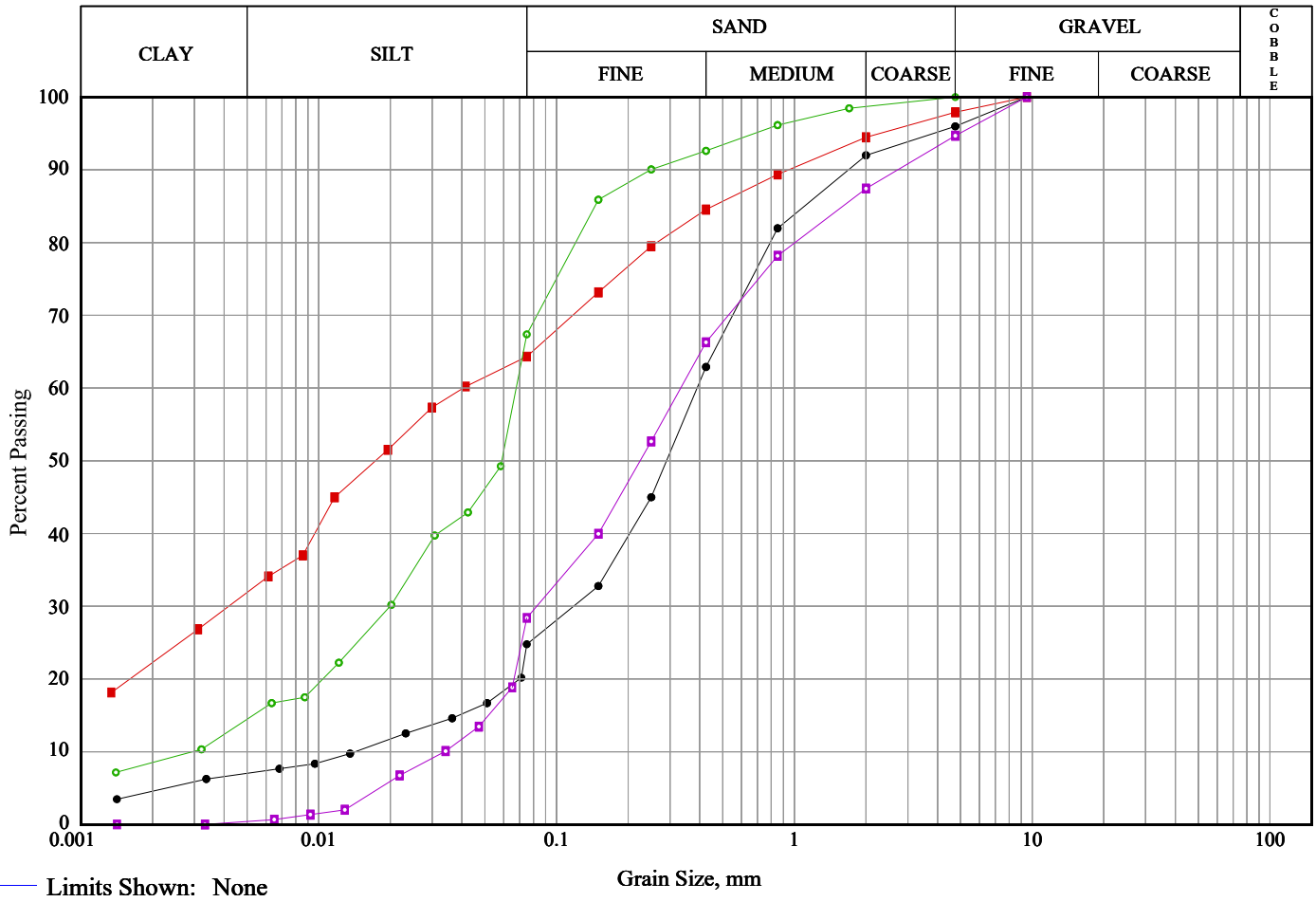
Project #:	101556003

Soils Grading Chart (T88)



Limits Shown: None

Line Symbol	Sample	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay
●	TH-1 SS-05 6.09-6.19	TH-1	SS-05	6.09-6.19	4.0	71.2	17.7	7.0
■	TH-1 SS-06 7.62-8.22m	TH-1	SS-06	7.62-8.22m	2.1	33.6	32.4	31.9
○	TH-1 SS-07 9.14-9.48m	TH-1	SS-07	9.14-9.48m	0.0	32.6	52.9	14.5
□	TH-2 SS-01 0-0.61m	TH-2	SS-01	0-0.61m	5.3	66.3	28.0	0.4

Line Symbol	CanFEM Classification	USCS Symbol	D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	% 5-75µm
●	Sand , some silt , trace gravel, trace clay	SC-SM	0.01	0.04	0.12	0.29	0.39	1.10	17.7
■	Clayey sand and silt , trace gravel	CL	---	---	0.00	0.02	0.04	0.45	32.4
○	Sandy silt , some clay	CL-ML	0.00	0.01	0.02	0.06	0.07	0.15	52.9
□	Silty sand , trace gravel, trace clay	SM	0.03	0.05	0.08	0.22	0.33	1.60	28.0

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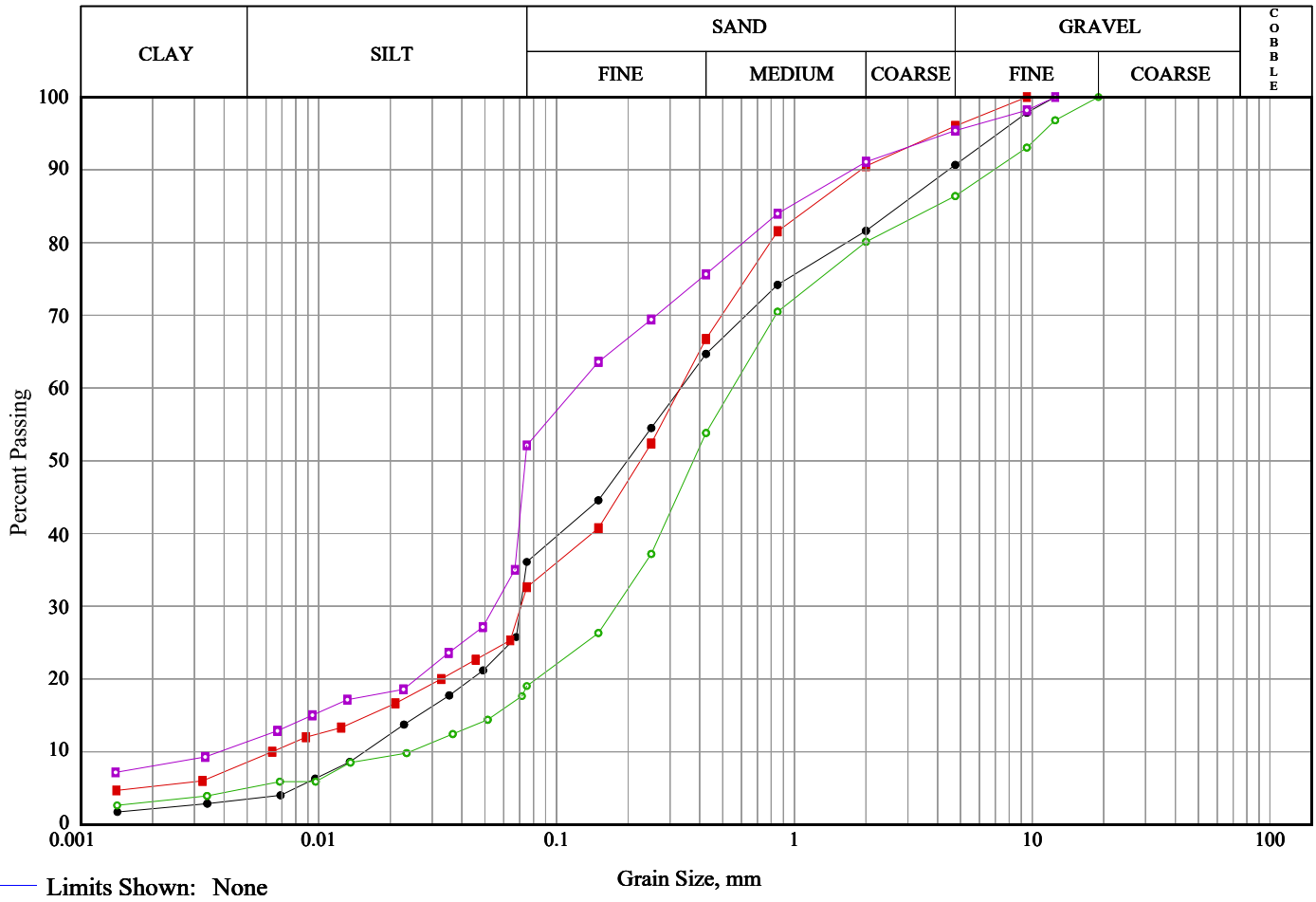
Soils Grading Chart (T88)



Limits Shown: None

Line Symbol	Sample	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay
	TH-2 SS-02 1.52-2.13m	TH-2	SS-02	1.52-2.13m	9.3	54.6	32.6	3.5
	TH-2 SS-03 3.05-3.65m	TH-2	SS-03	3.05-3.65m	4.0	63.4	24.1	8.6
	TH-2 SS-04 4.57-5.07m	TH-2	SS-04	4.57-5.07m	13.6	67.4	14.0	5.0
	TH-2 SS-05 6.09-6.71m	TH-2	SS-05	6.09-6.71m	4.6	43.3	40.7	11.4

Line Symbol	CanFEM Classification	USCS Symbol	D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	% 5-75µm
	Silty sand , trace gravel, trace clay	SM	0.02	0.03	0.07	0.20	0.33	2.76	32.6
	Silty sand , trace gravel, trace clay	SM	0.01	0.02	0.07	0.23	0.33	1.18	24.1
	Sand , some gravel, some silt , trace clay	SM	0.02	0.05	0.18	0.38	0.55	3.93	14.0
	Sand and silt , some clay , trace gravel	ML	0.00	0.01	0.05	0.07	0.12	0.96	40.7

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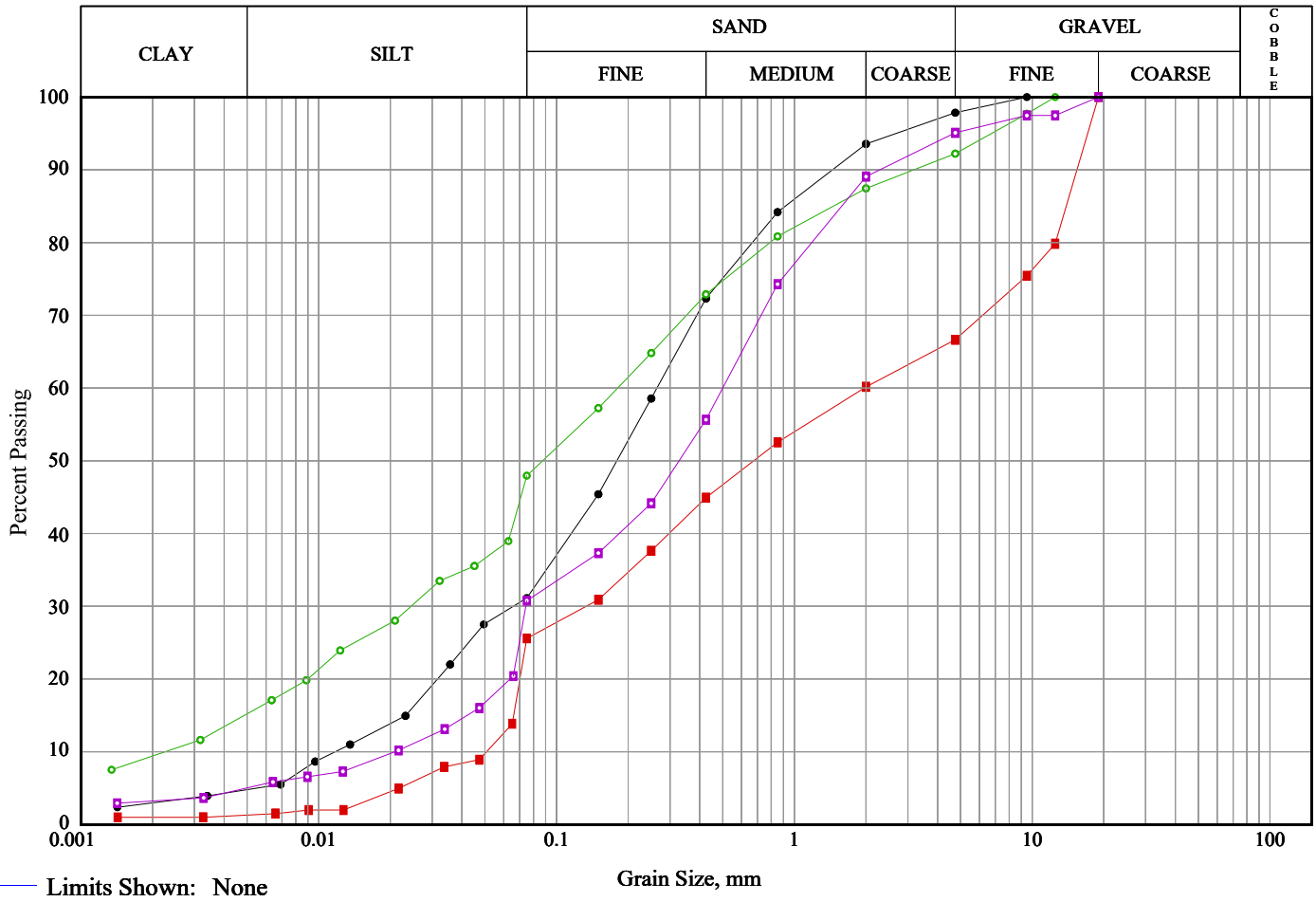
Project #:	101556003

Soils Grading Chart (T88)



Limits Shown: None

Line Symbol	Sample	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay
	TH-4 SS-01 0-0.61m	TH-4	SS-01	0-0.61m	2.1	66.7	26.3	4.8
	TH-4 SS-02 1.52-1.93m	TH-4	SS-02	1.52-1.93m	33.4	41.1	24.3	1.3
	TH-4 SS-04 4.57-5.05m	TH-4	SS-04	4.57-5.05m	7.8	44.3	32.7	15.2
	TH-4 SS-05 6.09-6.57m	TH-4	SS-05	6.09-6.57m	4.9	64.3	25.8	5.0

Line Symbol	CanFEM Classification	USCS Symbol	D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	% 5-75µm
	Silty sand , trace gravel, trace clay	SM	0.01	0.02	0.06	0.18	0.26	0.92	26.3
	Gravelly silty sand , trace clay	SM	0.05	0.07	0.13	0.67	1.96	13.91	24.3
	Silty sand , some clay , trace gravel	SM	0.00	0.00	0.02	0.09	0.18	1.45	32.7
	Silty sand , trace gravel, trace clay	SC-SM	0.02	0.04	0.07	0.33	0.50	1.58	25.8

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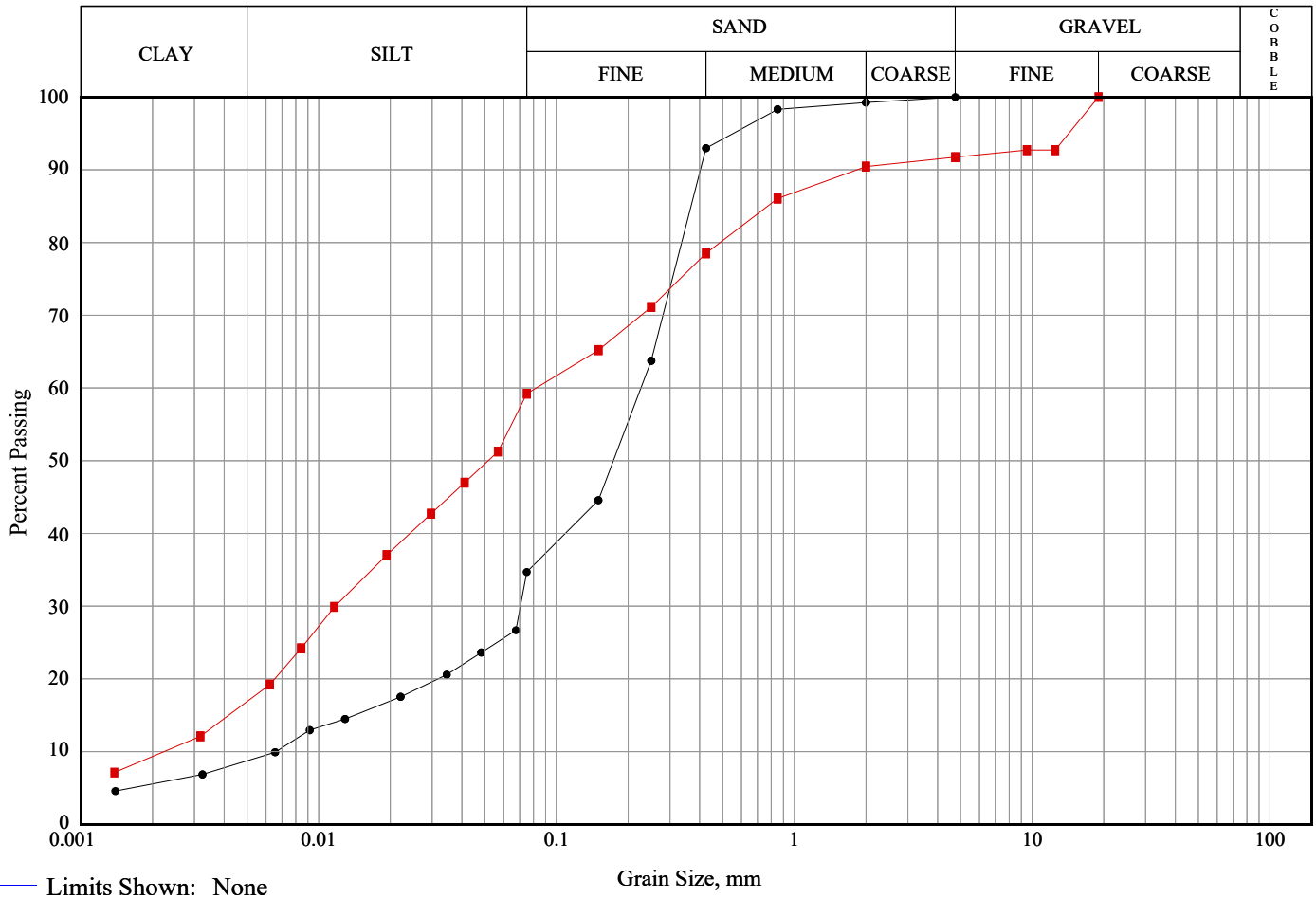
Project #: 101556003

Soils Grading Chart (T88)

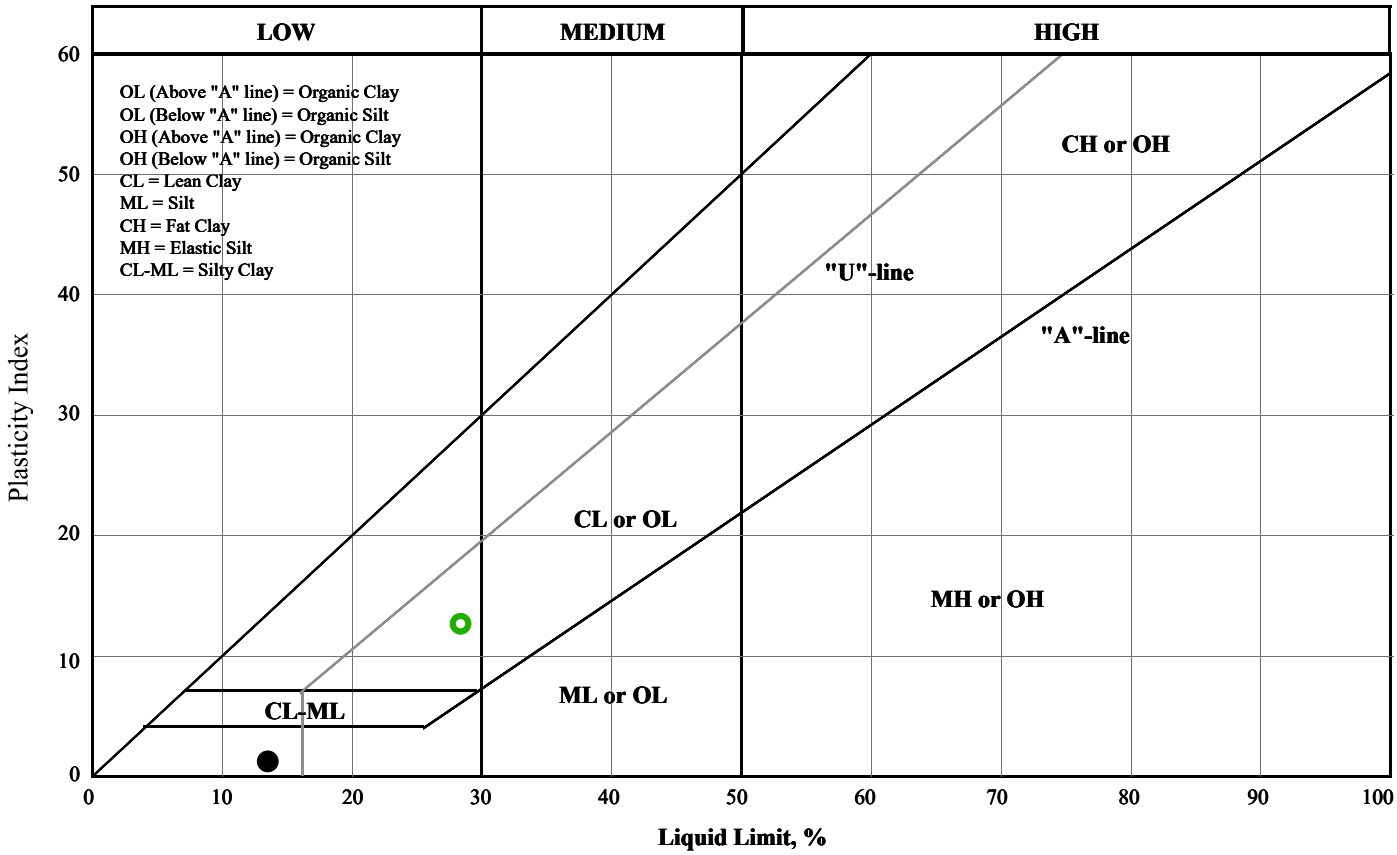


Limits Shown: None

Line Symbol	Sample	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay
●	TH-4 SS-08 10.67-11.09m	TH-4	SS-08	10.67-11.09m	0.0	65.3	25.9	8.7
■	TH-4 SS-09 12.2-12.4m	TH-4	SS-09	12.2-12.4m	8.3	32.5	42.3	16.9

Line Symbol	CanFEM Classification	USCS Symbol	D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	% 5-75µm
●	Silty sand , trace clay	SM	0.01	0.01	0.07	0.17	0.23	0.37	25.9
■	Sandy silt , some clay , trace gravel	ML	0.00	0.00	0.01	0.05	0.08	0.77	42.3

GEMTEC Consulting Engineers and Scientists	Client: Atlas Salt Inc.	Plasticity Chart (D4318)
	Project: Geotechnical Rock Drilling Program 2023, Proposed Salt	
	Project #: 101556003	



Symbol	Description	Sample Number	Depth	Date Sampled	Liquid Limit	Plastic Limit	Plasticity Index	Non-Plastic	Moisture Content, %
●	TH-1 SS-01 0-0.61m	SS-01	0-0.61m	May 5, 2023	13.5	12.2	1.3	☐	27.00
■	TH-1 SS-02 1.52-2.13m	SS-02	1.52-2.13m	May 5, 2023				☑	15.53
○	TH-1 SS-03 3.05-3.65m	SS-03	3.05-3.65m	May 5, 2023	28.4	15.7	12.7	☐	9.38
◘	TH-1 SS-04 4.57-4.92m	SS-04	4.57-4.92	May 5, 2023				☑	12.44

Note: More information available upon request

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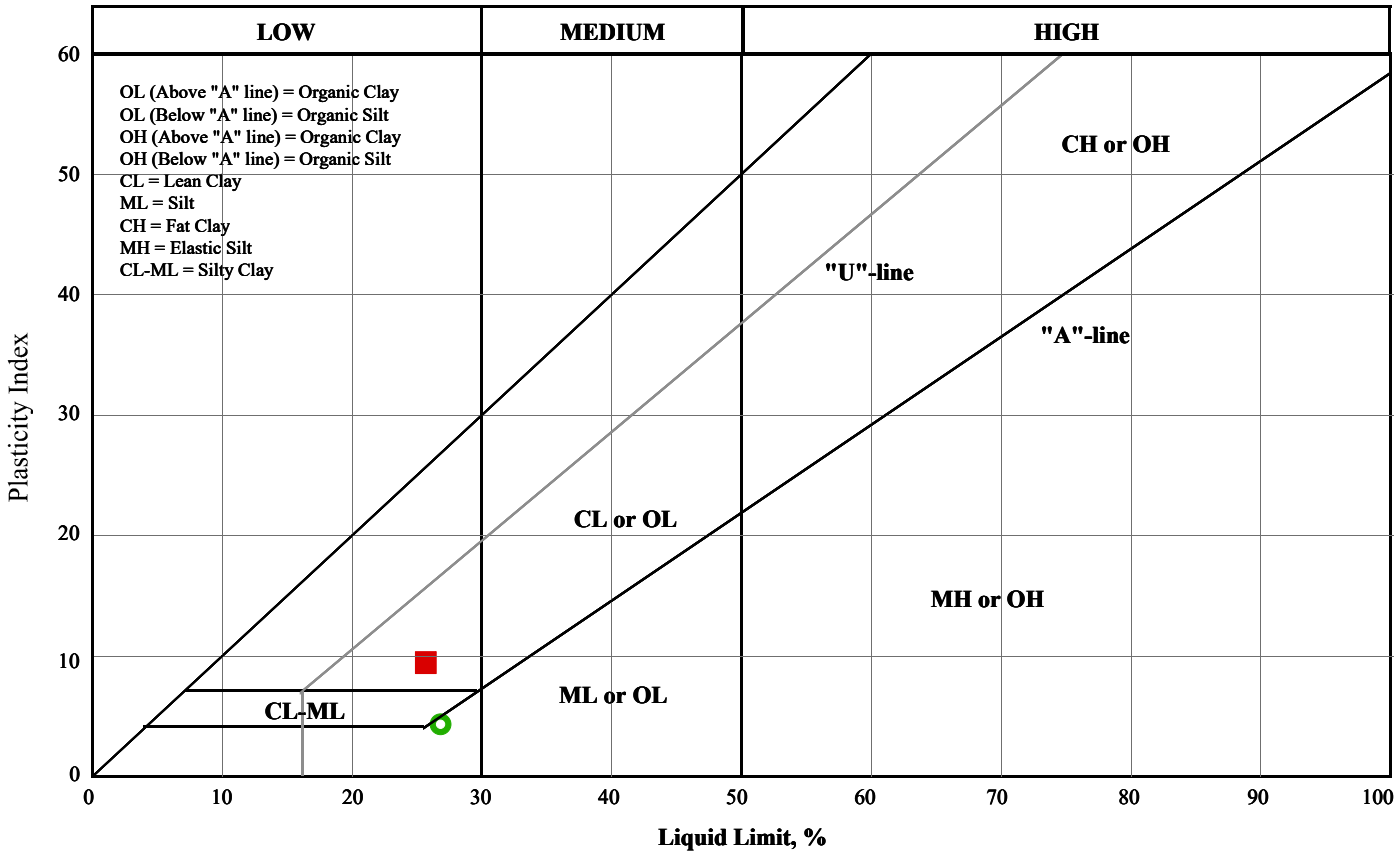
Client:	Atlas Salt Inc.
Project:	Geotechnical Rock Drilling Program 2023, Proposed Salt
Project #:	101556003

Plasticity Chart (D4318)



Symbol	Description	Sample Number	Depth	Date Sampled	Liquid Limit	Plastic Limit	Plasticity Index	Non-Plastic	Moisture Content, %
●	TH-1 SS-05 6.09-6.19	SS-05	6.09-6.19	May 5, 2023				☑	10.15
■	TH-1 SS-06 7.62-8.22m	SS-06	7.62-8.22m	May 5, 2023	25.7	16.2	9.5	☐	20.00
○	TH-1 SS-07 9.14-9.48m	SS-07	9.14-9.48m	May 5, 2023	26.8	22.5	4.3	☐	17.00
◘	TH-2 SS-01 0-0.61m	SS-01	0-0.61m	May 5, 2023				☑	20.70

Note: More information available upon request

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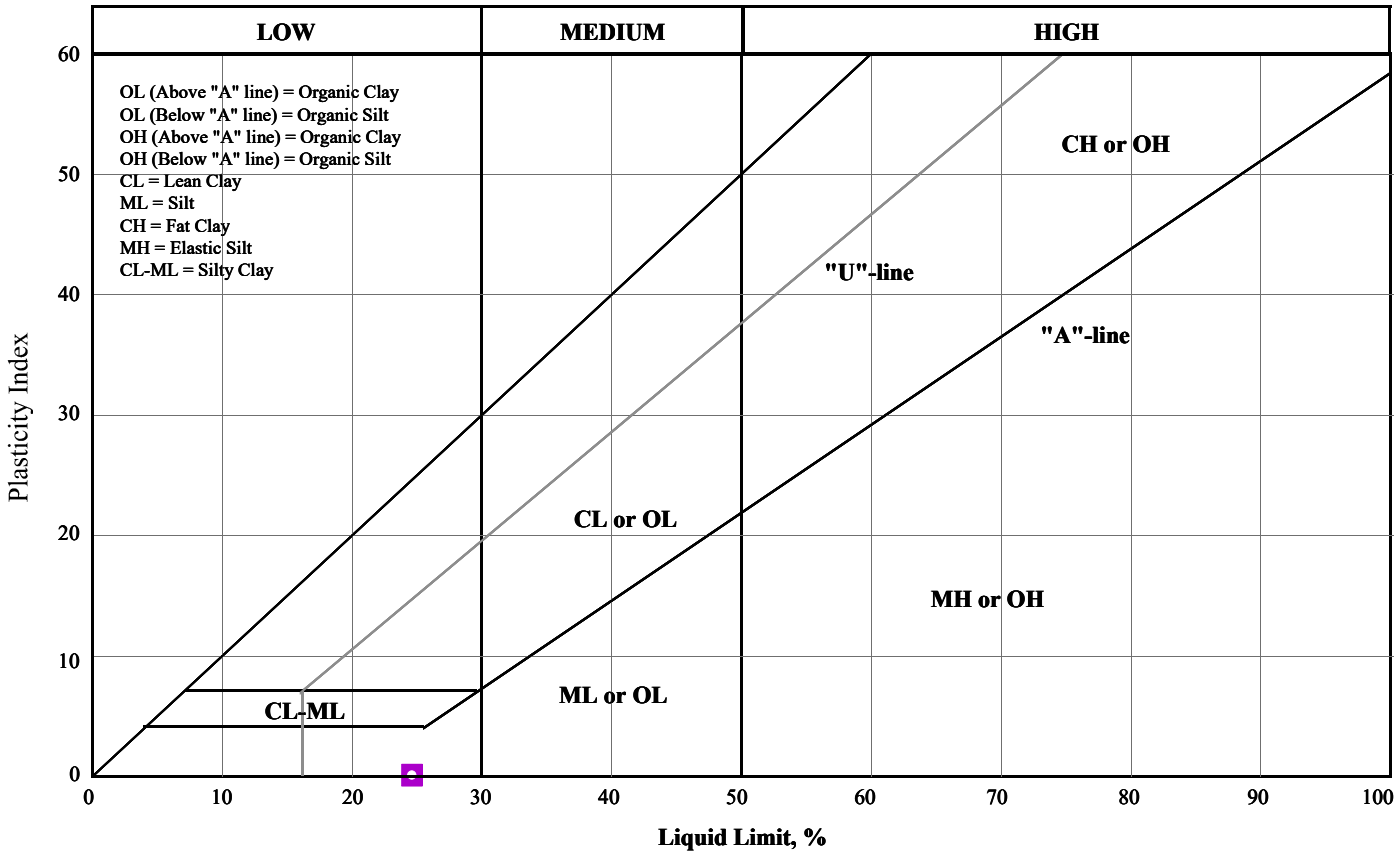
GEMTEC Consulting Engineers and Scientists	Client: Atlas Salt Inc.	Plasticity Chart (D4318)
	Project: Geotechnical Rock Drilling Program 2023, Proposed Salt	
	Project #: 101556003	



Symbol	Description	Sample Number	Depth	Date Sampled	Liquid Limit	Plastic Limit	Plasticity Index	Non-Plastic	Moisture Content, %
●	TH-2 SS-02 1.52-2.13m	SS-02	1.52-2.13m	May 5, 2023				☑	6.84
■	TH-2 SS-03 3.05-3.65m	SS-03	3.05-3.65m	May 5, 2023				☑	15.57
◎	TH-2 SS-04 4.57-5.07m	SS-04	4.57-5.07m	May 5, 2023				☑	13.87
◘	TH-2 SS-05 6.09-6.71m	SS-05	6.09-6.71m	May 5, 2023	24.6	24.5	0.1	☐	14.39

Note: More information available upon request

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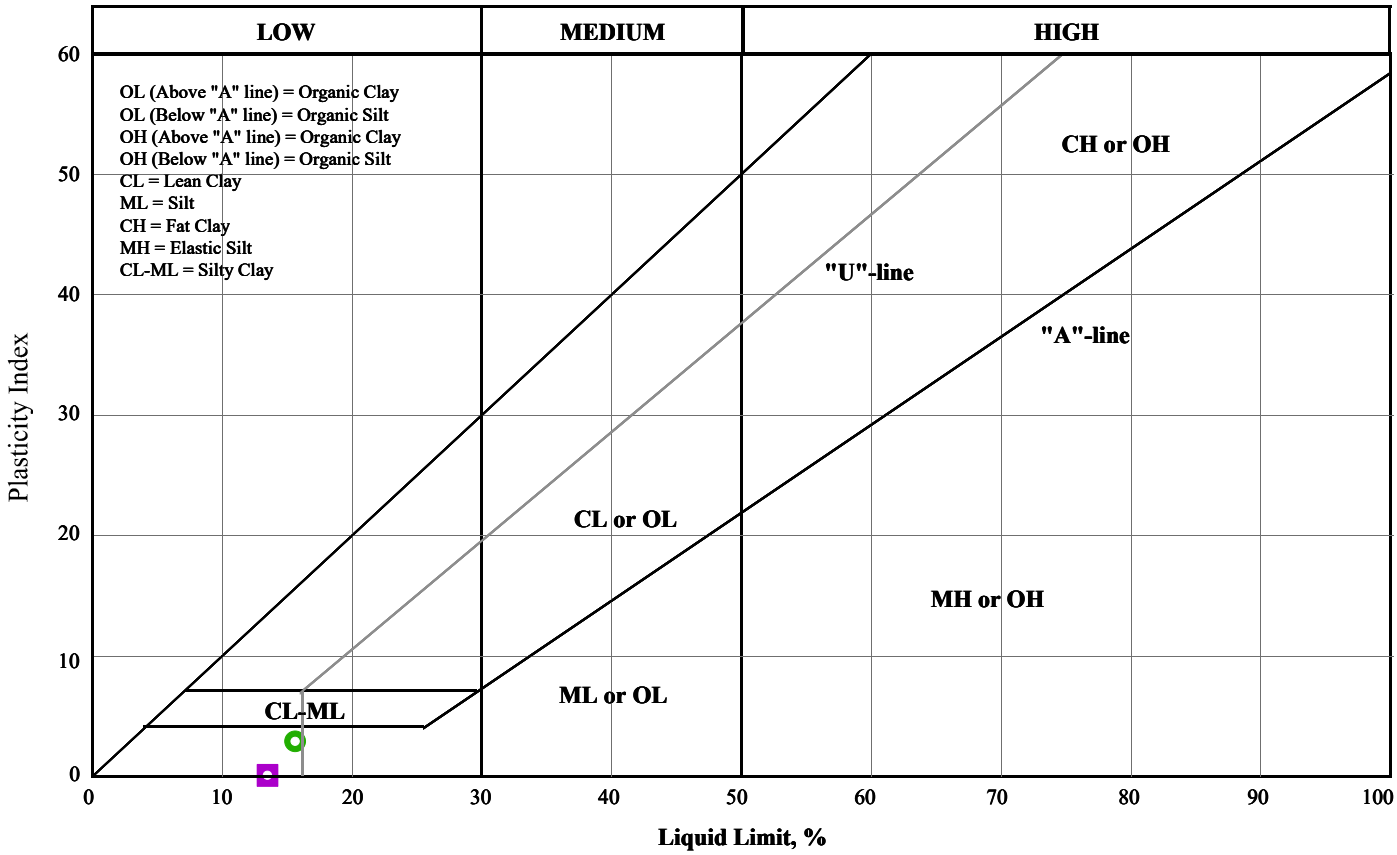
GEMTEC Consulting Engineers and Scientists	Client: Atlas Salt Inc.	Plasticity Chart (D4318)
	Project: Geotechnical Rock Drilling Program 2023, Proposed Salt	
	Project #: 101556003	



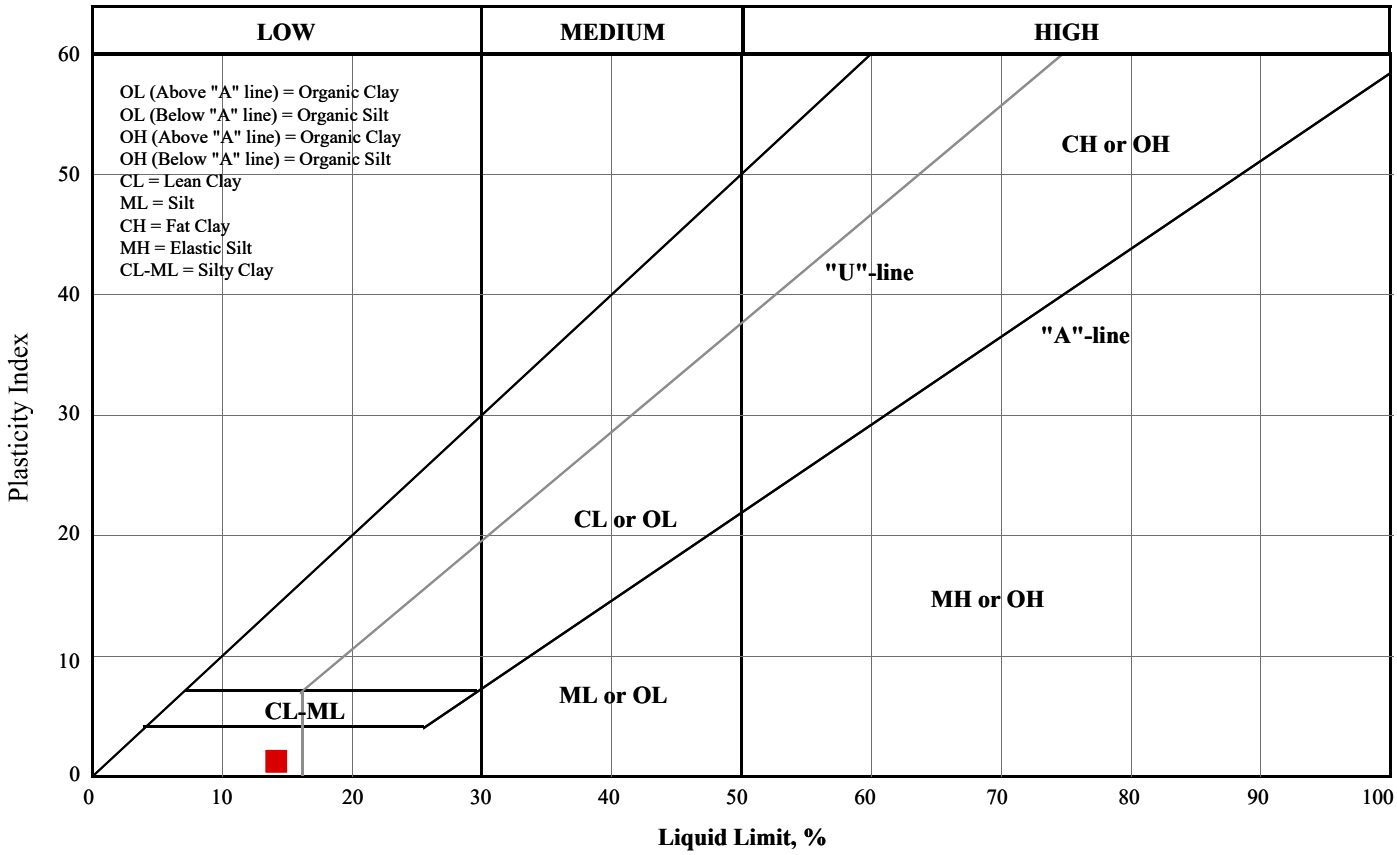
Symbol	Description	Sample Number	Depth	Date Sampled	Liquid Limit	Plastic Limit	Plasticity Index	Non-Plastic	Moisture Content, %
●	TH-4 SS-01 0-0.61m	SS-01	0-0.61m	May 5, 2023				☑	40.70
■	TH-4 SS-02 1.52-1.93m	SS-02	1.52-1.93m	May 5, 2023				☑	10.00
○	TH-4 SS-04 4.57-5.05m	SS-04	4.57-5.05m	May 5, 2023	15.6	12.7	2.9	☐	10.14
◘	TH-4 SS-05 6.09-6.57m	SS-05	6.09-6.57m	May 5, 2023	13.5	13.4	0.1	☐	14.56

Note: More information available upon request

GEMTEC
Consulting Engineers and Scientists

Client:	Atlas Salt Inc.
Project:	Geotechnical Rock Drilling Program 2023, Proposed Salt
Project #:	101556003

Plasticity Chart (D4318)



Symbol	Description	Sample Number	Depth	Date Sampled	Liquid Limit	Plastic Limit	Plasticity Index	Non-Plastic	Moisture Content, %
●	TH-4 SS-08 10.67-11.09m	SS-08	10.67-11.09m	May 5, 2023				☑	15.85
■	TH-4 SS-09 12.2-12.4m	SS-09	12.2-12.4m	May 12, 2023	14.1	12.9	1.3	☐	15.85

Note: More information available upon request

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APPENDIX C

GEMTEC Standard Terms and Conditions

CONDITIONS AND LIMITATIONS OF THIS REPORT

1. **Standard of Care:** GEMTEC has prepared this report in a manner consistent with generally accepted engineering or environmental consulting practice in the jurisdiction in which the services are provided at the time of the report. No other warranty, expressed or implied is made.
2. **Copyright:** The contents of this report are subject to copyright owned by GEMTEC, save to the extent that copyright has been legally assigned by us to another party or is used by GEMTEC under license. To the extent that GEMTEC owns the copyright in this report, it may not be copied without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to the Client in confidence and must not be disclosed or copied to third parties without the prior written agreement of GEMTEC. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests.
3. **Complete Report:** This report is of a summary nature and is not intended to stand alone without reference to the instructions given to GEMTEC by the Client, communications between GEMTEC and the Client and to any other reports prepared by GEMTEC for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. GEMTEC cannot be responsible for use of portions of the report without reference to the entire report.
4. **Basis of Report:** This Report has been prepared for the specific site, development, design objectives and purposes that were described to GEMTEC by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document, subject to the limitations provided herein, are only valid to the extent that this report expressly addresses the proposed development, design objectives and purposes. Any change of site conditions, purpose or development plans may alter the validity of the report and GEMTEC cannot be responsible for use of this report, or portions thereof, unless GEMTEC is requested to review any changes and, if necessary, revise the report.
5. **Time Dependence:** If the proposed project is not undertaken by the Client within 18 months following the issuance of this report, or within the timeframe understood by GEMTEC to be contemplated by the Client, the guidance and recommendations within the report should not be considered valid unless reviewed and amended or validated by GEMTEC in writing.
6. **Use of This Report:** The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without GEMTEC's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, GEMTEC may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process.

   Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.
7. **No Legal Representations:** GEMTEC makes no representations whatsoever concerning the legal significance of its findings, or as to other legal matters touched on in this report, including but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.
8. **Decrease in Property Value:** GEMTEC shall not be responsible for any decrease, real or perceived, of the property or site's value or failure to complete a transaction, as a consequence of the information contained in this report.
9. **Reliance on Provided Information:** The evaluation and conclusions contained in this report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations. information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of misstatements, omissions,

misrepresentations. or fraudulent acts of the Client or other persons providing information relied on by us. We are entitled to rely on such representations, information and instructions and are not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.

10. **Investigation Limitations:** Site investigation programs are a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions but even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions.

    The data derived from the site investigation program and subsequent laboratory testing are interpreted by trained personnel and extrapolated across the site to form an inferred geological representation and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Conditions between and beyond the borehole/test hole locations may differ from those encountered at the borehole/test hole locations and the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. Accordingly, GEMTEC does not warrant or guarantee the exactness of of the subsurface descriptions.

    Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

    In addition, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

11. **Sample Disposal:** GEMTEC will dispose of all uncontaminated soil and/or rock samples 60 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fill materials or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

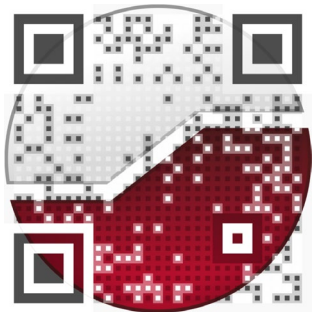
12. **Follow-Up and Construction Services:** All details of the design were not known at the time of submission of GEMTEC's report. GEMTEC should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of GEMTEC's report.

    During construction, GEMTEC should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of GEMTEC's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in GEMTEC's report. Adequate field review, observation and testing during construction are necessary for GEMTEC to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, GEMTEC's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

13. **Changed Conditions:** Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that GEMTEC be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that GEMTEC be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

14. **Drainage:** Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. GEMTEC takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

experience • knowledge • integrity



civil	civil
geotechnical	géotechnique
environmental	environnement
structural	structures
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité