ALSTON GEOTECHNICAL CONSULTANTS INC.

Geotechnical Investigation
Proposed Site Development
822 - 838 Richmond Street West,
Toronto, Ontario

Project No. 21.012
3 June, 2022

Prepared For:

Watters Environmental Group Inc.
9135 Keele Street
Unit A1
Vaughan, Ontario
L4K 0J4

1 Copy - Watters Environmental Group Inc.
1 Copy - Alston Geotechnical Consultants Inc.

102 Senator Reesor's Drive, Markham, Ontario, L3P 3E5 ○ Tel. 905 209 9993 ○ Email: colin_agc@bellnet.ca

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1.0 INTRODUCTION

Alston Geotechnical Consultants Inc. has been retained by Watters Environmental Group Inc. to carry out a geotechnical review of subsurface data developed for the site located at 822 - 838 Richmond Street West, Toronto. Authorization to proceed with this investigation was given by Basil Wong P.Eng. of Watters Environmental Group.

The purpose of this study was to determine the subsurface information at the site in order to prepare geotechnical design recommendations pertaining to building foundations and building substructure.

2.0 FIELDWORK

The fieldwork for this study was carried out in two phases. The initial phase of work was undertaken on 21 and 22 June, 2021 and consisted of advancing six boreholes (BH101 through MW106) on the site. The second phase involved advancing two boreholes (BH210 and BH211) on 4, 5 and 6 May 2022. The boreholes were advanced at the locations shown on the Site Plan, Watters Environmental Group Figure 1.

Standard penetration tests were carried out at frequent intervals of depth in the course of advancing the boreholes to take representative soil samples, and to measure penetration index values (N-values) in the contacted soils. The index values are used to provide an interpretation of the consistency of the cohesive soil strata and the compactness condition of the non-cohesive soils encountered in the explored depth of the boreholes. In situ vane tests were carried out to measure the undrained shear strength of the somewhat weaker zones of the cohesive (clayey) soil materials. In the second phase of fieldwork the boreholes were advanced to the depth of auger refusal, and extended beyond that depth using diamond tipped core drilling tools.

Observations were made of groundwater conditions apparent in the course of advancing boreholes. Monitoring wells were installed in five boreholes for the purpose of assessing the stabilized groundwater level at the site.

The fieldwork for this study was effected by an experienced geotechnical technician who

laid out the positions of the boreholes in the field; supervised the drilling, sampling and in situ testing: observed groundwater conditions in the course of borehole advancement; and prepared field borehole log sheets.

3.0 SITE AND SUBSURFACE CONDITIONS

Full details of the subsurface conditions at each of the borehole locations are shown on the Borehole Log Sheets for Boreholes BH101 through MW106, and BH210 and BH211. The results of laboratory testing are attached in Appendix 'B'.

The following paragraphs present a commentary on the engineering properties on the various soil materials and the bedrock stratum contacted in the boreholes.

3.1 Site Description

The study site is bordered by Richmond Street West to the south, and Walnut Avenue to the east. A lane-way lies immediately north of the site, there are existing buildings to the west. The study site is presently occupied by a three storey building with a single story addition in the eastern portion of the site and an asphalt surfaced parking lot in the west. The site is sensibly level.

It is understood that the parking lot area of the site was previously occupied by a building which has been demolished, and the prior basement excavation backfilled to provide a level site area.

3.2 Fill Materials

The parking lot area of the site is presently surfaced with a layer of asphaltic concrete which ranges in thickness from about 50 mm to 70 mm. This lies on a layer of fill material which extends to depths ranging from about 1.5 m to 3.8 m. The 3.8 m depth extent is consistent with an infilled prior single basement level.

The fill material consists of mixed silt, sand, gravel, cinders, brick fragments, and lumps and seams of clay soil. Standard penetration tests carried out in the near surface zone of the fill measured N-values of 4 to 34 blows/300 mm; below a depth of about 0.5 m the N-

values range from 1 to 7 blows/300 mm, indicating loose to very loose compactness conditions. Inspection of the fill soil samples and the results of in situ testing indicate that the fill materials were not selected to provide consistent material, nor was systematic compaction applied in the course of fill placement.

The water content of sampled fill was found to range from 17% to 21%, which is consistent with soil description.

3.3 Silty Clay

The native soil layer which underlies the fill consists of silty clay material, the soil is typically coloured brown to grey. The layer is fissured with oxidation being exhibited on some fissure faces and a grey colouration on other faces.

Standard penetration tests carried out in the silty clay measured N-values ranging from 3 to 27 blows/300 mm which indicates a range of consistency from soft to firm, up to very stiff. In situ vane tests were carried out immediately following taking of samples which recorded a low N-value and in each such case, a vane shear strength of more than 100 kPa was measured in the soil. The test results indicate significantly variable shear strength and compressibility characteristics of the soil across the site area.

Water content tests were carried out on samples of the silty clay and these measured values ranging from 18% to 45% in the upper sub-unit of the deposit which reflects the wide range of undrained shear strength. The range of measured values in the lower sub-unit ranges from18% to 22%. Atterberg Limits tests were carried out on representative samples which indicate a soil of low to intermediate plasticity (CL/CI designation).

Based on the conditions encountered at locations MW104 and MW 106, and BH210 and BH211, the silty clay stratum occupies the full depth of the soil profile to the underlying bedrock stratum.

3.4 Shale Bedrock

Below a depth of about 10 m to 11 m, the boreholes contacted shale bedrock. The upper

subunit of the stratum exhibits the characteristics of a hard shaly clay with the characteristic transitioning to a clayey shale material. In the first phase of drilling, the boreholes were extended into the transition zone and then into the upper, weathered zone of the shale bedrock stratum to the depth of refusal to auger advancement. The second phase of borehole exploration advanced the boreholes into the relatively unweathered bedrock with diamond tipped drilling tools. The drilling records show the following sub-units:

- *Transition Zone, which comprises frequent shale pieces embedded in hard silty clay, approximate depth range 10 m to 12 m;*
- *Weathered Shale bedrock, which consists of flags and large pieces of shale with hard silty clay matrix material, approximate depth range 12 m to 15 m;*
- *Sound Shale Bedrock, which includes occasional limestone seams below 15 m.*

The water content of samples of the clayey and weathered portions of the shale bedrock range from 4% to 13%.

3.5 Groundwater

A detailed review of the groundwater conditions at the site has been carried out by the Hydrogeological Specialist, Palmer Environmental Group, who have assessed the matters of representative ground water level and annual variation in water level. At the time of advancing the boreholes, the groundwater level was found to be present within a depth range of 3.5 m to 8 m below the ground surface.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 General

It is understood that the proposed site development will be carried out in the westerly, open area of the site that is currently used for car parking. It is envisaged that an eight storey high building will be constructed in the development area, the building will be underlain by a single basement level substructure. At the time of preparing this report, no details were available regarding anticipated structural loads.

4.2 Foundation Design

It is anticipated that the basement floor level will be positioned at a depth of about 3 m below the existing ground surface which will correspond to the prior basement level, approximately. Parts of the base of excavation may encounter a thin layer of fill however, the native silty clay layer is expected to either closely underlie the excavation base or be exposed in the base. The site Borehole Log sheets show that the subgrade support for the floor slab will consist of the native silty clay soil layer, which exhibits a wide variation in shear strength and consolidation properties.

Consideration may be given to support of the structural loads by use of conventional spread foundations, by deep (piled) foundations, or by ground improvement. These alternatives are discussed below. The native silty clay soil exhibits a "Soft to Firm, toFirm" consistency at BH103 and is "Firm to Stiff, to Very Stiff" at other borehole locations, the more adverse soil properties will govern foundation design.

4.2.1 Spread Foundations

The relatively wide range of engineering properties of the silty clay soil has been noted. The design bearing pressure for foundations is controlled by the more adverse zones of the layer. Assuming that the foundation bearing surface will be located at a depth of about 4 m below the existing site grades and that the bearing surface will consist of undisturbed native silty clay, foundation design may be based on an allowable bearing pressure at serviceability limit states (SLS) of 200 kPa and a factored bearing resistance at ultimate limit states (ULS) of 300 kPa, on the presumption that any zones of softer soil encountered in the excavation base are sub-excavated and replaced with densely compacted (100% SPMDD), high quality granular fill (OPSS Granular 'A'). Determination of such zones would be made on the basis of a detailed examination of the excavation base, including in situ testing, by qualified geotechnical personnel at the time of construction.

The Site Classification for Seismic Site Response for a foundation supported by the silty clay soil is Class 'D'.

4.2.2 Deep Foundations

It is recommended that consideration be given to selection of a deep foundation system, comprising drilled piers ("Caissons") or CFA ("Continuous Flight Auger", "Augercast") piles. Such foundations will by-pass the variable silty clay layer and directly transfer loads to the dense basal stratum.

The subsurface conditions illustrated by the borehole explorations indicate that drilled shaft foundations can be advanced to the surface of the bedrock layer using conventional equipment. In the course of exploratory drilling, advancement of the boreholes from the surface of the highly weathered shale to the sound shale bedrock was effected by conventional geotechnical drilling equipment without undue difficulty. The geotechnical properties of the near surface, highly weathered to weathered zones of the bedrock are akin to that of a hard silty clay soil with embedded slabs of shale. Below a depth ranging from about 14.5 m to 15 m, the boreholes were advanced using diamond tip rock coring equipment. Examination of the rock cores indicates that this zone of the bedrock is sound; it was noted that thin seams of hard limestone lie within the shale. Appropriate drilling equipment will be required to advance the shafts into the sound shale.

The design of drilled shaft foundations may be based on an allowable end bearing pressure at Serviceability Limit States (SLS) of 2.5 MPa and 3.75 MPa at Ultimate Limit States (ULS) for shafts which are founded in the weathered bedrock zone, at a depth of more than 13 m below the existing ground surface. If the shafts were to be further advanced into the sound zone of the bedrock for an embedment of not less than 1 m, the drilled shafts may be designed on the basis of end bearing pressures at SLS and ULS of 6 MPa and 9 MPa, respectively). No unusual difficulty is anticipated in pile construction.

Drilled foundations should be constructed under full time geotechnical supervision. Adoption of the given design values of applied bearing pressure presume that the base of shafts will be clean and will comprise undisturbed material.

The Site Classification for Seismic Site Response for foundations transferring loads to the basal stratum is Class 'C'.

4.2.3 Ground Improvement

The alternatives of stone columns or a proprietary system such as "Geopiers" may be considered. Designs for such systems are generally carried out by the Specialist Contractors. The possible suitability of such may be evaluated when structural details become available.

4.3 Basement Substructure

It is understood that the footprint of the basement will likely extend to close to the property limits. Thus, shoring will be required to support the adjacent properties, associated structural elements and near by buried utilities. This will include adjacent pavement and underground utilities along the south, west and north property limits, and the existing on-site building. Assuming that the on-site boreholes may be taken to represent the subsurface conditions on the adjacent properties, the shoring will be required to retain an upper fill soil unit overlying native silty clay. In view of the proximity of various structural elements to the site perimeter, it is recommended that shoring be designed on the basis of an 'at-rest' soil coefficient in order to limit ground movement. The selection of shoring system will be made by the Designer, in regard to its appropriate stiffness.

The following soil parameters are recommended for shoring design:

- *lateral (at-rest) soil coefficient, K_0, 0.5*
- *unit weight of retained soil, γ, 20.5 kN/m^3*
- *Adjacent surcharge load (q) as appropriate for roadways (12 kPa), and buildings (data to be acquired).*

The lateral earth pressure (P) at depth z will be evaluated using the expression

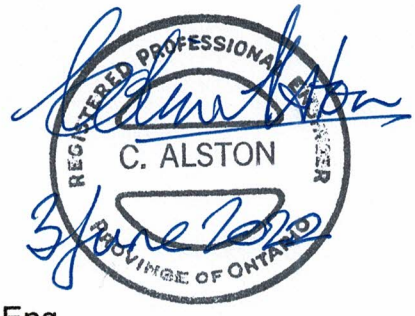
$$P = K_0(\gamma z + q)$$

Available groundwater level information suggests that the groundwater level will lie below the basement floor however, the advice of the Hydrogeological Specialist must be elicited in this regard. It is not known whether the selected construction design will feature a conventional temporary shoring wall to protect workers constructing an independent permanent basement wall, or if a secant pile basement wall will be selected to carry out both temporary and permanent functions.

From the geotechnical perspective, the basement floor should be underlain by a 200 mm thick densely compacted sub-slab fill consisting of OPSS Granular 'A' material. The Specialist Hydrogeologist will specify if additional drainage layers are required, or full waterproofing.

5.0 Limitations of Report

A description of the limitations which are inherent in carrying our conventional geotechnical investigations is attached in Appendix 'A', which is an integral part of this report. At the time of preparing this report no structural details were available, and other details had not been finalized. All relevant design information should be provided to the Geotechnical Engineer prior to finalizing design in order that recommendations may be appropriately updated.



Colin Alston P.Eng.

/ld

APPENDIX 'A'

Appendix 'A'

LIMITATIONS OF REPORT

The conclusions and recommendations in this report are based on information determined at the test hole locations. Soil and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction which could not be detected or anticipated at the time of the soil investigation.

The design recommendations given in this report are applicable only to the project described in the text, and then only if constructed substantially in accordance with details of alignment and elevations stated in the report. Since all details of the design may not be known to us, in our analysis certain assumptions had to be made as set out in this report. The actual conditions may, however, vary from those assumed, in which case changes and modifications may be required to our recommendations.

This report was prepared for Watters Environmental group Inc. and their Client by Alston Geotechnical Consultants Inc. The material in it reflects Alston Geotechnical Consultants Inc. judgement in light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, or any reliance on decisions which the Third Party may make based on it, are the sole responsibility of such Third Parties.

We recommend, therefore, that we be retained during the final design stage to review the design drawings and to verify that they are consistent with our recommendations or the assumptions made in our analysis. We recommend also that we be retained during construction to confirm that the subsurface conditions throughout the site do not deviate materially from those encountered in the test holes. In cases where these recommendations are not followed, the company's responsibility is limited to accurately interpreting the conditions encountered at the test holes, only.

The comments given in this report on potential construction problems and possible methods are intended for the guidance of the design engineer, only. The number of test holes may not be sufficient to determine all the factors that may affect construction methods and costs. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work.

APPENDIX 'B'

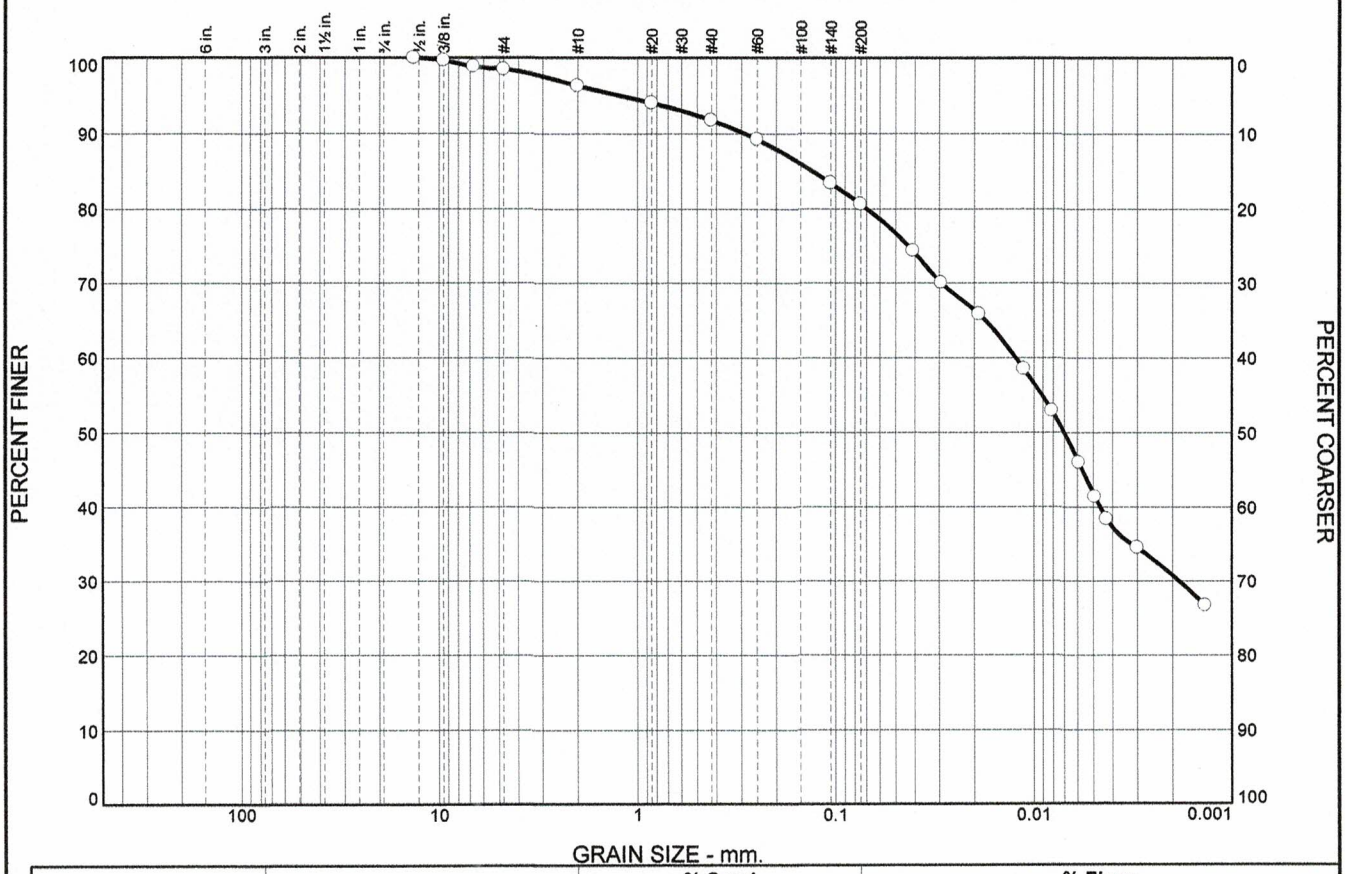
WATER CONTENT RECORD

Project: 21-035	Client: AGC	
Ref. No.:	Watters # 21-0082.03	30-Jun-21

Borehole	Sample No.	Container No.	Wet Soil +Tare (g)	Dry Soil + Tare (g)	Tare (g)	Water Content (%)
BH103	Auger	505	88.67	78.16	13.7	16.3%
	1	620	49.15	43.10	13.5	20.4%
	2	609	68.31	59.90	13.3	18.1%
	3	613	74.06	65.75	13.2	15.8%
	4	625	66.81	53.91	13.9	32.2%
	5	510	73.16	55.05	13.6	43.7%
	6	544	73.77	60.29	13.7	29.0%
	7	611	79.92	70.84	14.0	16.0%
	8	633	98.59	85.76	14.3	18.0%
	9A	501	80.62	70.55	13.7	17.7%
	9B	519	83.83	73.98	13.8	16.4%
	10	642	86.89	74.01	13.5	21.3%
	11	602	73.49	71.56	14.1	3.4%
	12	545	88.12	79.59	13.8	13.0%
	13	623	68.97	62.98	13.3	12.1%

WATER CONTENT RECORD

Particle Size Distribution Report



	% +3"	% Gravel	% Sand		% Fines	
			Coarse	Fine	Silt	Clay
○	0.0	3.7	4.5	11.1	49.9	30.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	30	17	0.1301	0.0124	0.0070	0.0019				

Material Description	USCS	AASHTO
○ SILTY CLAY some sand trace gravel	CL	A-6(9)

Project No. CA21-035 **Client:** Alston Geotechnical Consultants Inc (AGC)

Project: Watters # 21-0082.03 822 Richmond St W

○ **Sample Number:** BH 103, Sample 10

Remarks:

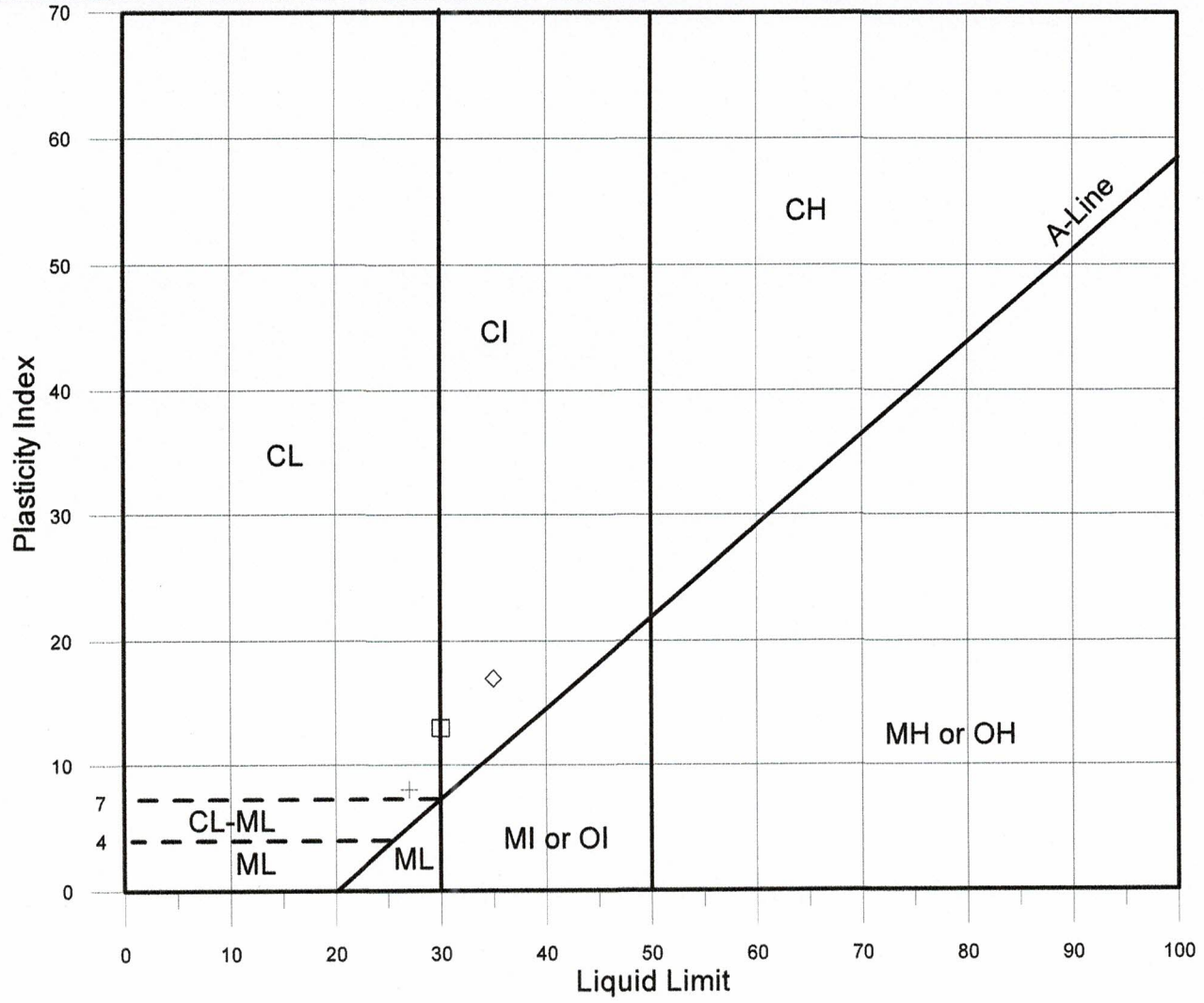
○Tested on July 2, 2021

Terrapex

Figure 101

Tested By: AM

PLASTICITY CHART



Client: Alston Geotechnical Consultants Inc.
Project: Lab Testing Prj No 21-0082.03
Ref. No.: CA21-035

Sample	Symbol
BH103, Sample 8	◇
BH103, Sample 10	□
BH103, Sample 12	+

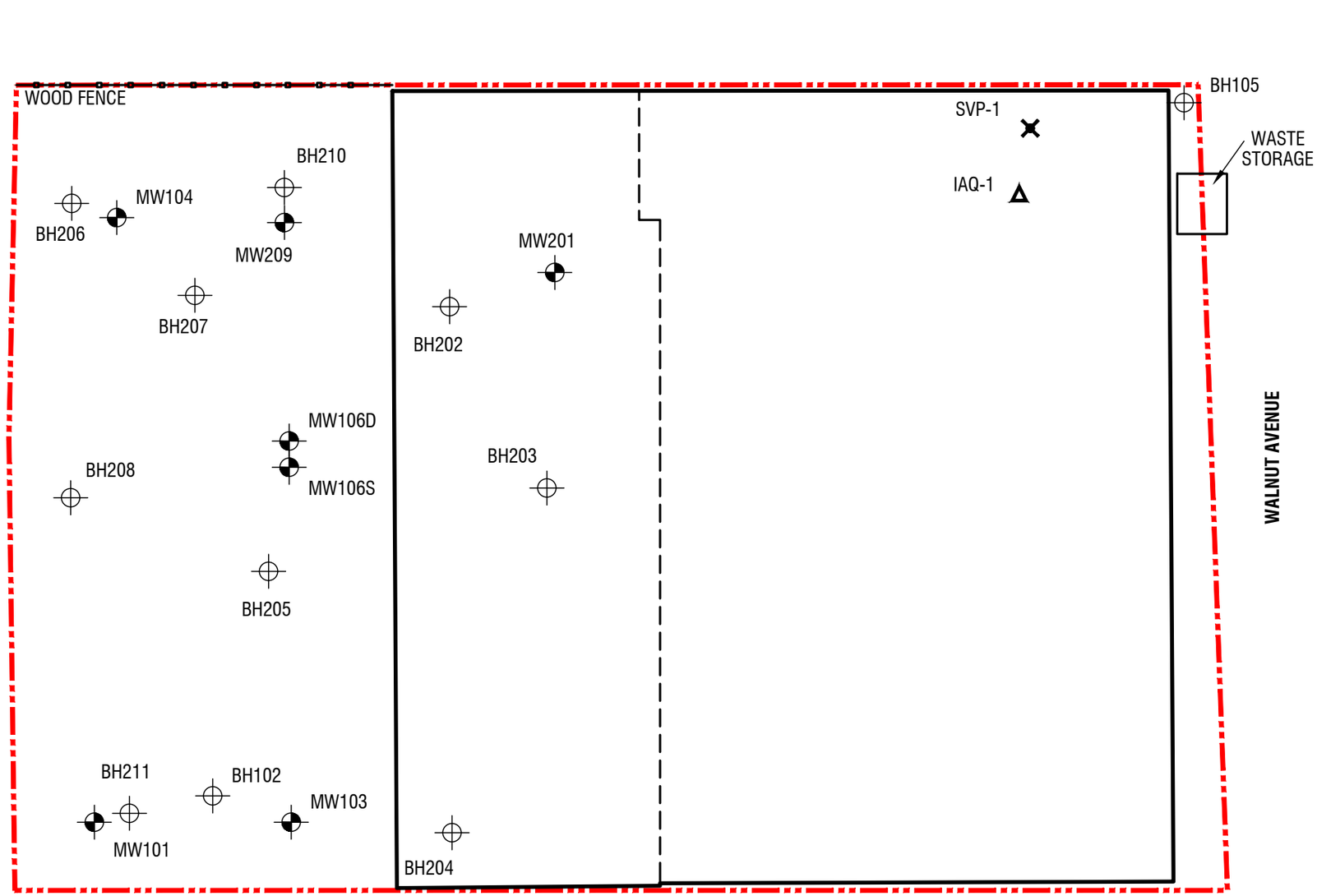
Remarks:

TERRAPEX

Figure No. 102

ENCLOSURES

SITE PLAN



LEGEND:

- APPROXIMATE EXTENT OF THE PHASE TWO PROPERTY
- MONITORING WELL LOCATION
- BOREHOLE WELL LOCATION
- INDOOR AIR QUALITY SAMPLE LOCATION
- SOIL VAPOUR PROBE LOCATION

CONFIDENTIAL

0m 10m

APPROXIMATE SCALE

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T 416 361 2407
F 416 361 2410

DRAWN: B. CALDERONE CHECKED: B. WONG DATE: JUNE 2022	CLIENT: HM PF (822-838 RICHMOND) LP SITE ADDRESS: 822, 828, 834, 836 AND 838 RICHMOND STREET WEST, TORONTO	REPORT NAME: GEOTECHNICAL INVESTIGATION	FIGURE NAME: SITE LAYOUT PLAN PROJECT No: 21-0082.06	FIGURE No: 1

BOREHOLE LOG SHEETS

WATTERS ENVIRONMENTAL GROUP INC.®
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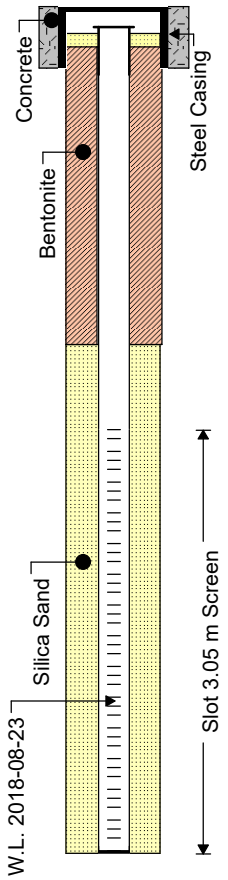
416-361-2407

Borehole No: MW101

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 6.71 m
Logged By: TA & AW
Ground Elevation: 0

Depth (ft / m)	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)
0 / 0	Ground Surface	0.00							
	60 mm Asphalt		1	SS	9	30	0,0	X	
2	damp to moist silt, sand, gravel, cinder brick, silty clay FILL		2	SS	5	30	0,0		
4	loose								
6 / 2	very loose		3	SS	3	30	0,0		
8		-2.60	4A	SS	1	50	0,0		
	very soft to soft grey SILTY CLAY, organic inclusions		4B	SS			0,0		
10		-3.51	5	SS	3	100	0,0		
12	SILTY CLAY trace sand, trace gravel								
14 / 4	stiff blocky structure brown to grey		6	SS	18	100	0,0	X	
	very stiff brown with rust brown patches faintly layered		7	SS	19	100	0,0		
16									
18			8	SS	16	100	0,0		
20 / 6	grey fissured with oxidized faces	-6.71	9	SS	13	100	0,0		
22	End of Borehole								
24									
26 / 8									
28									

Well Completion Data



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 1

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Borehole No: BH102

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 5.18 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							Well Completion Data
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	
0 / 0		Ground Surface	0.00								
		60 mm Asphalt 60 mm Sandy Silt, some gravel		1	SS	34	50	0,0			
2				2	SS	4	50	0,0			
4		loose to very loose moist silt, fine sand, trace gravel, trace cinder trace brick, frequent clay lumps FILL		3	SS	7	30	0,0			
6 / 2				4	SS	2	25	0,0	X		
8				5	SS	1	25	0,0			
10											
12			-3.81								
4		SILTY CLAY, trace sand, trace gravel brownish grey		6	SS	5	100	0,0			
14		brownfissured grey fissured faces firm to stiff									
16		very stiff	-5.18	7	SS	17	100	0,0	X		
18		End of Borehole									
6 / 20											
22											
24											
26 / 8											
28											

Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 1

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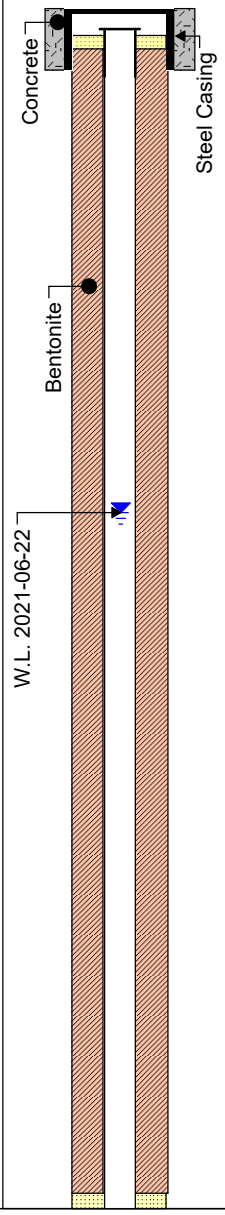
Borehole No: MW103

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 12.25 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
0 / 0		Ground Surface	0.00								
		70 mm Asphalt 70 mm Silty Sand some gravel		1	SS	12	75	0,0	X		
2				2	SS	7	100	0,0			
4		loose to very loose damp to moist silt, sand, trace gravel, trace cinders trace brick, trace clay lumps and seams FILL		3	SS	3	40	0,0			
6 / 2				4	SS	4	100	0,0			
8											
10				5	SS	2	75	0,0			
12 / 4			-4.11								
14		grey mottled brown blocky structure		6	SS	4	75	0,0	X		
		firm to stiff									
16		brown fissured fissure faces grey		7	SS	21	40	0,0			
18		very stiff		8	SS	20	100	0,0			
20 / 6		SILTY CLAY trace sand, trace gravel	-6.40	9A	SS	18	100	0,0			
				9B	SS			0,0			
22		grey SILTY CLAY trace sand trace gravel faintly layered									
24											
26 / 8				10	SS	4	100	0,0			
28					SV	150 +kPa					



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Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 2

WATTERS ENVIRONMENTAL GROUP INC.®
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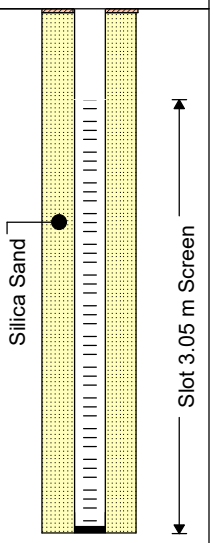
Borehole No: MW103

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 12.25 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							Well Completion Data
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	
		firm									
		very stiff		11	SS	20	100	0,0			
		grey SILTY CLAY trace sand, trace gravel faintly layered	-10.67								
		weatherd grey SHALY CLAY		12	SS	92 for 250 mm	75	0,0			
			-11.58								
		hard grey CLAYEY SHALE	-12.25	13	SS	50 for 50 mm	75	0,0			
		End of Borehole									



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 2 of 2

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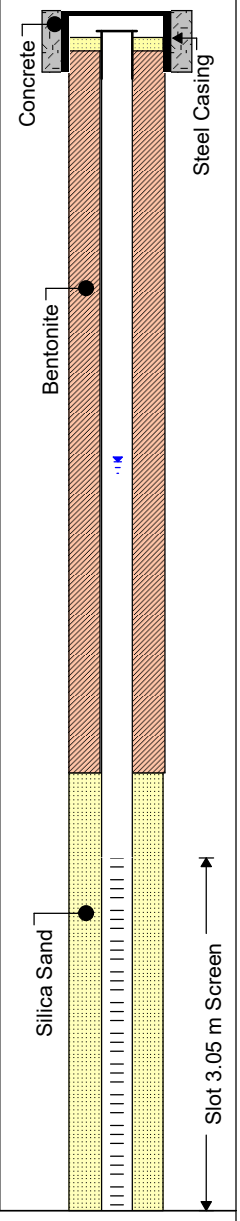
Borehole No: MW104

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 12.25 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
0 / 0		Ground Surface	0.00								
		70 mm Asphalt 70 mm Sand and Gravel 40 mm Asphalt 40 mm Sandy Silt and Gravel		1	SS	4	60	0,0	X		
4		loose brown silty clay trace brick, trace gravel FILL	-1.52	2	SS	5	30	0,0			
6 / 2		brown veined grey blocky structure		3	SS	4	100	0,0			
		firm									
8		firm to stiff		4	SS	19	100	0,0			
10		brown fissured									
		very stiff		5	SS	22	75	0,0			
12 / 4		brownish grey oxidized fissure faces		6	SS	27	75	0,0			
14		SILTY CLAY trace sand, trace gravel									
16				7	SS	20	100	15,0	X		
18				8	SS	18	100	0,0			
20 / 6		brown veined grey		9	SS	13	100	25,0			
22		stiff									
24			-7.62						X		
26 / 8		stiff grey SILTY CLAY trace sand, trace gravel faintly layered		10	SS	10	100	0,0			
28											



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 2

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Borehole No: MW104

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 12.25 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
30		stiff grey SILTY CLAY trace sand, trace gravel faintly layered									
				11	SS	12	100	0,0	X		
32	10										
34			-10.67								
36		weatherd grey SHALY CLAY		12	SS	58	80	0,0			
38			-11.58								
	12	hard grey CLAYEY SHALE									
40			-12.25	13	SS	50 for 70 mm	75	0,0			
42		End of Borehole									
44											
46	14										
48											
50											
52	16										
54											

Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 2 of 2

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Borehole No: BH105

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 3.81 m
Logged By: TA & MW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
0 / 0		Ground Surface	0.00								
0 / 0		60 mm Asphalt 300 mm Sand and Gravel		1	SS		75	0,0			
2		loose, moist silt, clay, trace gravel, trace brick FILL		2	SS		90	0,0			
4				3	SS		75	0,0			
6 / 2			-1.83								
6 / 2		brown to grey, silt and clay trace gravel FILL		4	SS		75	0,0			
8				5	SS		75	0,0	X		
10				6	SS		75	5,0	X		
12 / 4		equipment refusal at 3.81 m	-3.81								
12 / 4		End of Borehole									
14											
16											
18											
20 / 6											
22											
24											
26 / 8											
28											

Drilled By: TriPhase Group, Hilti TE1500-AVR
Drill Method: Split Spoon Sampling
Drill Date: 2021-07-09
Hole Size: 64 mm
Screening Tool: Eagle II
Sheet: 1 of 1

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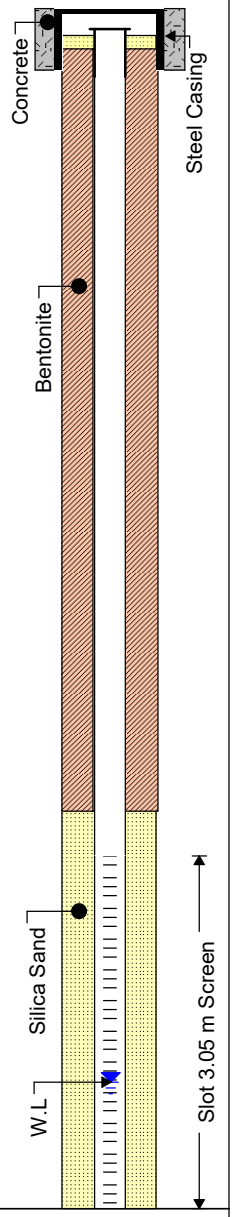
Borehole No: MW106D

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 9.75 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
0 / 0		Ground Surface	0.00								
0 / 0		50 mm Asphalt 50 mm Sand and Gravel		1	SS	12	50	0,0	X		
2		loose damp sand, silt trace gravel, trace brick FILL		2	SS	4	10	0,0			
4			-1.37								
6 / 2		lightly compacted brown silty clay trace sand, trace gravel, trace cinder FILL		3	SS	7	100	0,0			
8			-2.29								
8		loose sand, silt gravel trace cinders, trace asphalt, trace wood fragments frequent clay lumps FILL		4	SS	4	30	0,0			
10				5	SS	3	60	0,0			
12			-3.81								
12 / 4		brown veined grey		6	SS	11	75	0,0			
14		stiff									
16		brown with rust brown patches		7	SS	23	75	15,0	X		
16		very stiff									
18		brown veined grey		8	SS	21	100	0,0			
20 / 6		SILTY CLAY trace sand, trace gravel		9	SS	20	100	0,0			
22				10	SS	7	100	0,0	X		
24		grey to brown occasional closed fissure			SV	110 kPa R - 50 kPa					
24		firm									
26 / 8				11	SS	6	100	0,0			
28		grey									



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-22
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 2

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Borehole No: MW106D

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 9.75 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
		grey SILTY CLAY trace sand, trace gravel		12	SS	18	60	0,0			
				13	SS	12	50	0,0	X		
			-9.75								
		End of Borehole									

30 32 10 34 36 38 12 40 42 44 46 14 48 50 52 16 54

Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-22
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 2 of 2

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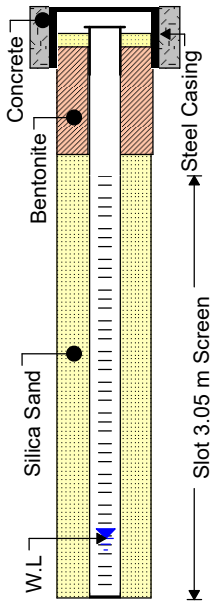
Borehole No: MW106S

Project No.: 21-0082.03
Client: Community
Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON
Project Manager: JR
Total Depth: 9.75 m
Logged By: TA & AW
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							Well Completion Data
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	
0 / 0		Ground Surface	0.00								
		50 mm Asphalt 50 mm Sand and Gravel loose damp sand, silt trace gravel, trace brick FILL	-1.37								
6 / 2		lightly compacted brown silty clay trace sand, trace gravel, trace cinder FILL	-2.29								
10 / 3		loose sand, silt gravel trace cinders, trace asphalt, trace wood fragments frequent clay lumps FILL	-3.81								
12 / 4		SILTY CLAY trace sand trave gravel	-4.27								
14 / 4		End of Borehole									



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-22
Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 1

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Borehole No: BH210

Project No.: 21-0082.06
Client: HM PF (822-838) LP
Location: 822-838 Richmond Street West, Toronto, Ontario
Project Manager: CA
Total Depth: 17.1 m
Logged By: TA
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
0 / 0		Ground Surface									
		50 mm Asphalt	0.00								
		loose, moist, dark grey silt, some clay, some sand trace gravel, trace cinders trace brick fragments FILL		1	SS	8	70				
4				2	SS	4	60				
			1.52								
6 / 2				3	SS	5	70				
8		SILTY CLAY trace sand, trace gravel faintly layered		4	SS	19	60				
10				5	SS	56	40				
12 / 4				6	SS	25	60				
14											
16				7	SS	22	75				
18		brown veined grey occasional fissures oxidized faces		8	SS	17	60				
20 / 6											
		very stiff		9	SS	15	60				
22		grey									
		stiff		10	SS	8	100				
24											
26 / 8				11	SS	12	100				
28											

Drilled By: Pontil Drilling Services Inc.
Drill Method: CME 75, Split Spoon Sampling, Hollow Augers and Rock Coring
Drill Date: 2022-04-04 & 05

Hole Size: 200 mm
Screening Tool:
Sheet: 1 of 2

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Borehole No: BH210

Project No.: 21-0082.06
Client: HM PF (822-838) LP
Location: 822-838 Richmond Street West, Toronto, Ontario
Project Manager: CA
Total Depth: 17.1 m
Logged By: TA
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
30		grey very stiff SILTY CLAY trace sand, trace gravel									
32	10			12	SS	17	60				
34			10.36								
36		hard weathered grey SHALY CLAY		13	SS	65	100				
38			11.75								
40	12	hard grey CLAYEY SHALE		14	SS	50 for 50 mm	75				
42											
44											
46	14			15	SS	50 for 50 mm	25				
48											
50				16	SS	50 for 50 mm	0				
			15.24		C						
52	16	grey SHALEBEDROCK limestone layers TCR 100% RQD 85%									
54					C						
56											
		End of Borehole	17.10								
58											

Drilled By: Pontil Drilling Services Inc.
Drill Method: CME 75, Split Spoon Sampling, Hollow Augers and Rock Coring
Drill Date: 2022-04-04 & 05
Hole Size: 200 mm
Screening Tool:
Sheet: 2 of 2

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Borehole No: BH211

Project No.: 21-0082.06
Client: HM PF (822-838) LP
Location: 822-838 Richmond Street West, Toronto, Ontario
Project Manager: CA
Total Depth: 17.3 m
Logged By: TA
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							Well Completion Data
Depth (ft / m)	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	
0 / 0		Ground Surface									
		60 mm Asphalt	0.00								
2 / 0		loose, moist, dark grey silt, some clay, some sand trace gravel, trace cinders trace brick fragments FILL									
8 / 2		SILTY CLAY trace sand, trace gravel faintly layered	2.60								
18 / 6		brown veined grey									
20 / 6		very stiff									
22 / 6		grey									
		stiff									
26 / 8				1	SS	9	60				
28 / 8											

Drilled By: Pontil Drilling Services Inc.
Drill Method: CME 75, Split Spoon Sampling, Hollow Augers and Rock Coring
Drill Date: 2022-04-05 & 06
Hole Size: 200 mm
Screening Tool:
Sheet: 1 of 2

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Borehole No: BH211

Project No.: 21-0082.06
Client: HM PF (822-838) LP
Location: 822-838 Richmond Street West, Toronto, Ontario
Project Manager: CA
Total Depth: 17.3 m
Logged By: TA
Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE							
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	Moisture (%)	Well Completion Data
30		grey very stiff SILTY CLAY trace sand, trace gravel									
32				2	SS	29	75				
10			10.00								
34		hard weathered grey SHALY CLAY									
36				3	SS	73 for 275 mm	100				
38											
12			11.80								
40		hard grey CLAYEY SHALE		4	SS	50 for 75 mm	50				
42											
44											
46				5	SS	50 for 50 mm	0				
14											
48			14.60								
50					C						
52		grey SHALEBEDROCK limestone layers TCR 100 % RQD 70%									
16											
54					C						
56											
58		End of Borehole	17.30								

Drilled By: Pontil Drilling Services Inc.
Drill Method: CME 75, Split Spoon Sampling, Hollow Augers and Rock Coring
Drill Date: 2022-04-05 & 06
Hole Size: 200 mm
Screening Tool:
Sheet: 2 of 2