

# **ALSTON GEOTECHNICAL CONSULTANTS INC.**

**Geotechnical Investigation  
Proposed Building Development  
1140 Yonge Street  
Toronto, Ontario**

Project No. 19.008  
22 August 2019

Prepared For:

1140 Yonge Inc.  
c/o 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.

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## **1.0 INTRODUCTION**

Alston Geotechnical Consultants Inc. has been retained by Watters Environmental Group Inc. on behalf of 1140 Yonge Inc. to carry out a geotechnical review of subsurface data pertaining to a site located at 1140 Yonge Street, Toronto. Authorization to proceed with this study was given by Renan Orquiza, P.Eng., PMP, of Watters Environmental Group.

The purpose of this study was to review subsurface information developed at the site and, based on those data, to prepare geotechnical recommendations pertaining to the preliminary design of foundations and substructure for the proposed building development.

## **2.0 FIELDWORK**

The fieldwork for this study was carried out on 25 and 26 April, 2019. This work consisted of advancing three sampled boreholes in the parking lot area of the study site, which area lies on the west side of an existing building which occupies the proposed development site. The borehole locations are shown on Figure 1 by Watters Environmental Group. Borehole 101 was advanced to a depth of 22 m below the existing ground surface. Boreholes 102 and 103 were advanced to a depth of 12.4 m below the existing ground surface.

Standard penetration tests were carried out at frequent intervals of depths in the course of advancing the boreholes to take representative soil samples and to measure penetration index values (N-values) of the in situ soils. The index values have been used to interpret the consistency of the sampled soil materials.

Observations were made of groundwater conditions present in the course of advancing the boreholes. A detailed evaluation of groundwater conditions has been carried out by EXP Consultants, the results of that work has been reported separately.

The geotechnical aspects of the fieldwork for the site development were effected by an experienced soils technician who laid out the positions of the boreholes in the field; arranged for locates of buried surfaces; effected the drilling, sampling and in situ testing;

and prepared the field Borehole Log Sheets.

### **3.0 SITE AND SUBSURFACE CONDITIONS**

Full details of the subsurface conditions contacted in the boreholes are given on the Log Sheets for Boreholes 101, 102 and 103. The following paragraphs provide a commentary on the engineering characteristics of the soil layers which underlie the site.

#### **3.1 Site Description**

The site lies in the southwest quadrant in the intersection of Marlborough and Yonge Street, in Toronto, Ontario. The plan area of the site is approximately 70 m in an east west direction and 35 m in a north south direction. The easterly portion of the site is occupied by an existing low-rise building and an approximately 18 m wide asphalt parking lot occupies the westerly limit of the parking lot area. The site is sensibly level.

#### **3.2 Fill**

The borehole explorations were advanced from the parking lot. The lot is surfaced with a layer of asphaltic concrete which ranges in thickness from about 50 mm (Borehole 103) to 103 mm (Borehole 102). The paved surface lies on granular fill which extends to a depth ranging from about 0.2 m at Borehole 103 to 3 m at Borehole 102.

Standard penetration tests carried out in the granular fill materials recorded N-values ranging from 3 to 28 blows/300 mm. The low N-value was recorded at the base of the fill layer in Borehole 102. The balance of the N-values generally indicate a loose to compact or compact condition. The water content of the fill was found to range from 10% to 17%. Individual water content test results are reported in Table 1.

#### **3.3 Layered Silty Clay**

The fill is underlain by a thick stratum of layered silty clay which extends to a depth beyond the toe of the borehole explorations put down at the site. Typically the near surface sub-unit of the stratum is coloured brown or brown to grey below a depth of about 2.5 m to 3.0

m below which depth the soil is coloured grey. The soil includes frequent seams of weakly plastic silt to sand which generally range in thickness from 50 mm to 100 mm; however, occasional thicker seams which are up to 400 mm thick were contacted in the Boreholes. The thicker sand seams yielded groundwater into the advancing boreholes.

Standard penetration tests carried out in the layered silty clay stratum recorded N-values ranging from 3 to 32 blows/300 mm. The low recorded N-values were confined to the near surface sub-unit of the stratum contacted in Borehole 103; otherwise, the measured N-values were in the range 20 to 24 blows/300 mm. Thus, except for the shallow soil material the soil consistency is described as very stiff.

The water content of the silty clay soil was found to range between 13% and 25% which is consistent with soil description. The results of three grain size tests carried out on samples of the silty clay are shown in Figure 2. A Grain Size Distribution test was carried out on a sample of the silt and fine sand interbed contacted in Borehole 102, the results of that test are shown on Figure 3. The test results show a significant difference in permeability between the two materials. Atterberg Limit tests were carried out on two samples of the silty clay material and the test results are reported on the plasticity chart, Figure 3. These test results show that the soil materials are of low to intermediate plasticity (CL to CL/CI designation).

### **3.4 Groundwater Conditions**

In the course of advancing the boreholes it was observed that groundwater was perched within the granular fill materials above the low permeability silty clay at the location of Borehole 102. Water strike was observed within the thicker seams of silt and fine sand which are included within the layered silty clay soil stratum. Water levels at a depth of about 5 m were measured on completion of the well installations. Measures of the stabilized water tables at the site and predictions of variable variations in the water table are given in the hydrogeological report prepared by EXP Consultants.

## **4.0 DISCUSSION AND RECOMMENDATIONS**

### **4.1 General**

It is currently proposed that the building development will be twelve storeys high and will feature three underground levels. It is anticipated that the building development will be constructed on a reinforced concrete frame.

### **4.2 Foundation Design**

Selection of a building development which includes three basement levels will position the foundations at a depth of approximately 9 m below the existing ground surface. At this level the borehole data indicate that the soil materials will consist of very stiff layered silty clay. Based on the results of in situ testing, preliminary design of building foundations may be carried out on the basis of an allowable bearing pressure at Serviceability Limit States of 350 kPa and a factored bearing pressure at Ultimate Limit States of 525 kPa. The site class for seismic site response is Class 'C'.

### **4.3 Excavation Design**

The native soil stratum which underlies the site consists of a layered silty clay soil which includes frequent included seams of silt to fine sand which are mostly about 50 to 100 mm thick, but occasionally up to about 400 mm thick. These seams are water bearing and where the seams underlie the base of the excavation they will apply an upward hydraulic pressure equal to the pressure head. In order to secure the base of the excavation from uplift (heave), it will be necessary to depressurize these layers such that the hydraulic head does not exceed the soil load applied to the surface of such seams after excavation. It is anticipated that depressurization will involve either pumping from a series of depressurizing wells or advancing a set of sand drains to allow depressurization. Depressurization requirements are addressed in the hydrogeological report by EXP Consultants.

It is anticipated that the excavation for the basement substructure will extend over a footprint which is close to the entire development area. Thus, shoring will be required to support the buildings which lie on the south side of the development area and the west

side, and will be required to support the adjacent Yonge Street and Marlborough Avenue, as well as underground utilities which underlie those roadways. In order to minimize ground movements, it is recommended that shoring be designed on the basis of a coefficient of lateral earth pressure of 0.5. The unit weight of the supported soil should be taken to be 21 kN/m<sup>3</sup>. Allowance should be made for surcharge loadings. The depth to the water table should be as recommended by EXP Consultants.

## **5.0 LIMITATIONS OF REPORT**

This report presents preliminary recommendations regarding foundation design. Additional subsurface explorations will be carried out after the existing site occupancy buildings have been demolished. At that time, consolidation tests will be carried out to better define the settlement of building foundations. At that time it is anticipated that column loads will be available to enable geotechnical design to be based on specific loads, elevations and structural information.

A description of the limitations which are inherent in carrying out conventional Geotechnical Investigations is given in Appendix 'A' which is an integral part of this report.

Alston Geotechnical Consultants Inc.

Colin Alston, P.Eng.

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## **APPENDIX 'A'**

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## **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, 1140 Yonge Inc. 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.

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**ENCLOSURES**

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### WATER CONTENT RECORD

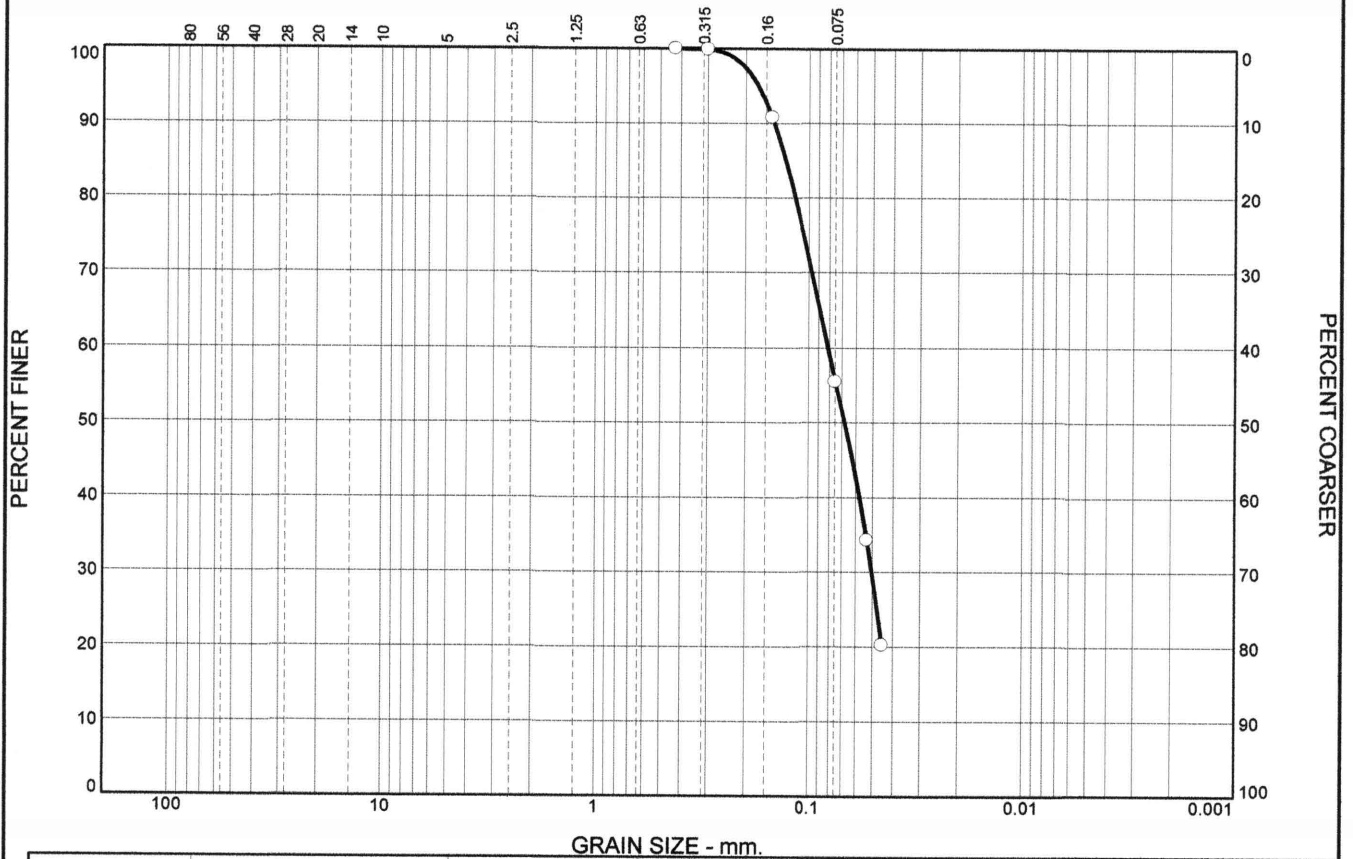
Project: Lab Testing	Client: AGC	By: PG
Ref. No.: 19-046	Location: Watter's Prj. No. 19-0016.01	Date: 7 May 2019

[illegible]

## WATER CONTENT RECORD



# Grain Size Distribution Report

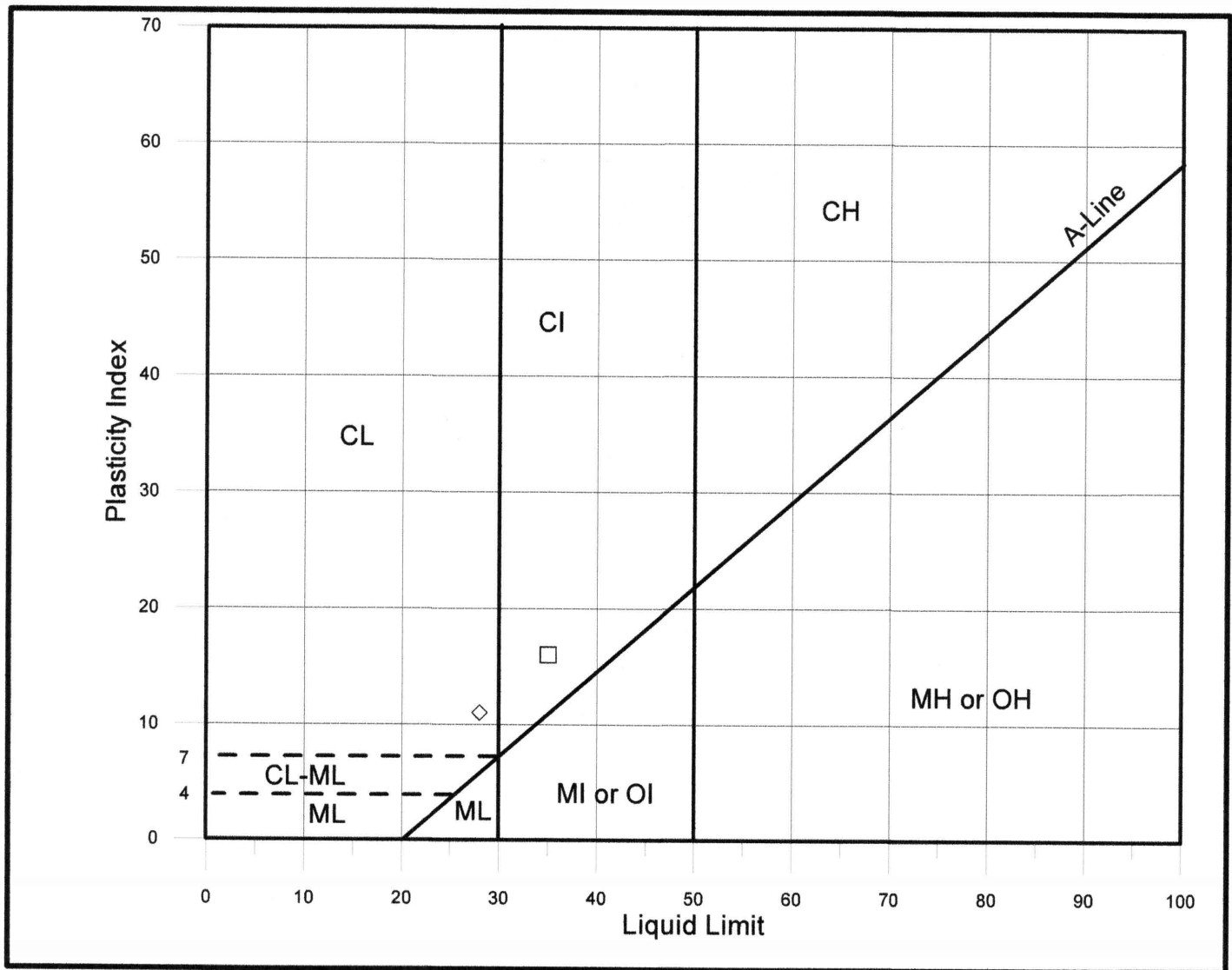


GRAIN SIZE - mm.										
% +3"	% Gravel		% Sand			% Fines				
	Coarse	Fine	Coarse	Medium	Fine	Silt		Clay		
0	0	0	0	0	44	56				
Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
			0.1297	0.0812	0.0678	0.0503				

Material Description						USCS	AASHTO
SILT and fine SAND							

<b>Project No.</b> 19-047 <b>Client:</b> Alston Geotechnical Consultants Inc. <b>Project:</b> Laboratory Testing Watter's Prj No. 19-0016.01 <input type="radio"/> <b>Sample Number:</b> BH101, Sample 10B  <b>Date:</b> <input type="radio"/>	<b>Remarks:</b>    
Terrapex	

# PLASTICITY CHART



Client: Alston Geotechnical Consultants Inc.  
 Project: Laboratory Testing, Watter's Prj No. 19-0016.01  
 Ref. No.: 19-047  
 Sample BH101, Sample 9  
 Sample BH101, Sample 12

Symbol  
 ◇  
 □

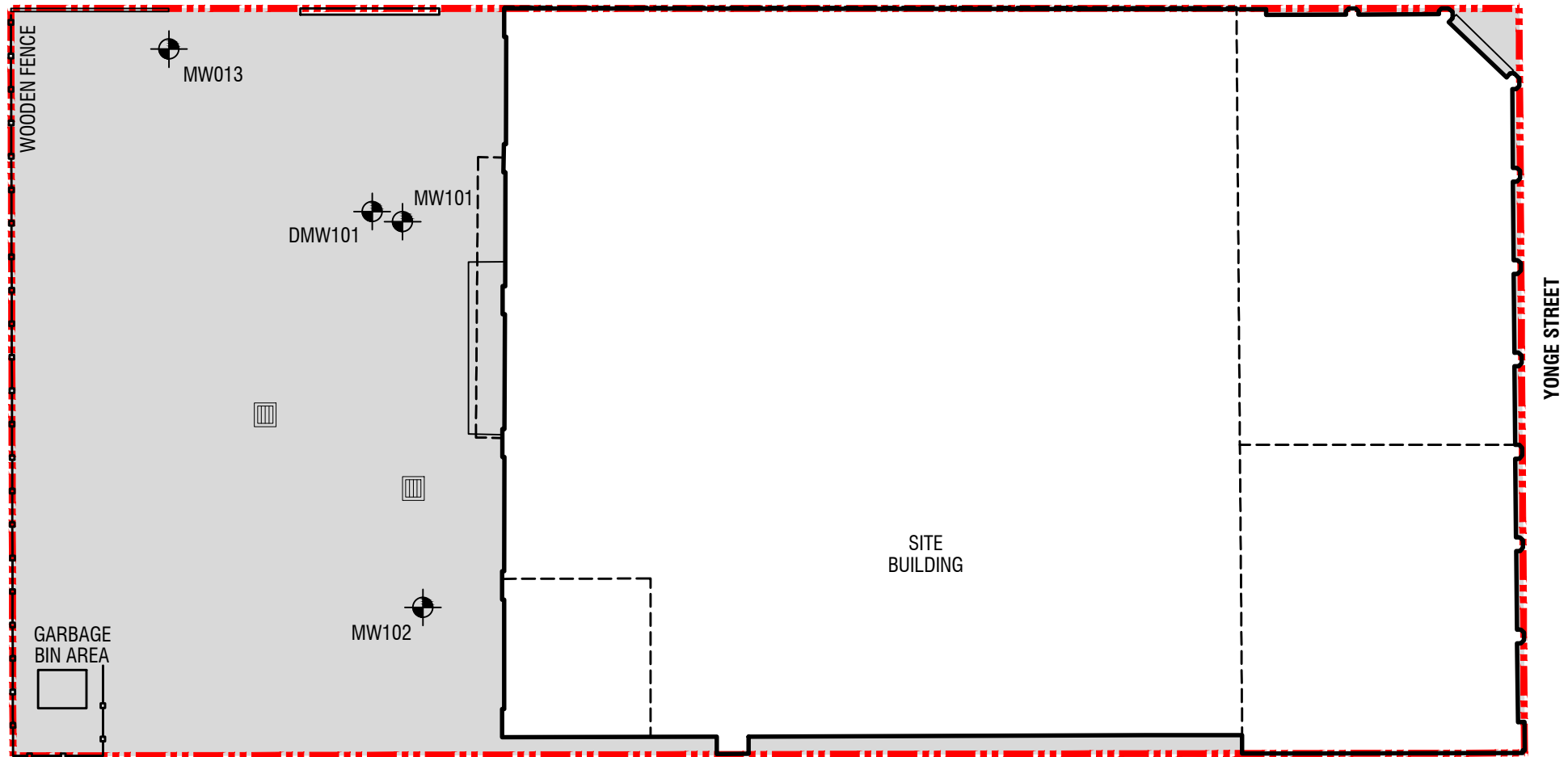
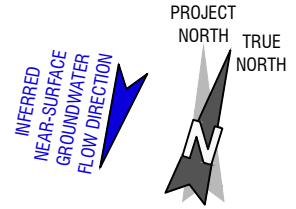
Remarks:



Figure No. 3

**SITE PLAN DRAWING**

MARLBOROUGH AVENUE



LEGEND:

EXTENT OF THE PHASE  
ONE PROPERTY

BOREHOLE LOCATION

PAVED AREA

STORM WATER  
CATCH BASIN

0m 5m 10m

SCALE

**WATTERS ENVIRONMENTAL GROUP INC®**



9135 Keele St. Unit A1  
Concord, ON. L4K 0J4  
T 416 361 2407  
F 416 361 2410

DRAWN:  
**B. CALDERONE**  
CHECKED:  
**B. WALLACE**  
DATE:  
**AUGUST 2019**

CLIENT:  
**1140 YONGE INC.**  
SITE ADDRESS:  
**1140 YONGE STREET,  
TORONTO, ONTARIO**

REPORT NAME:  
**PRELIMINARY  
GEOTECHNICAL  
INVESTIGATION**

FIGURE NAME:  
**BOREHOLE LOCATION PLAN**  
PROJECT No:  
**19-0016.05**  
FIGURE No:  
**1**



## **BOREHOLES**



**WATTERS  
ENVIRONMENTAL  
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9135 Keele Street, Unit A1  
Concord, Ontario L4K 0J4  
www.wattersenvironmental.com  
416-361-2407

**Borehole No: MW101**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario

**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.33

**Total Depth:** 12.19 m

**Water Level:** 4.95 m

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 (%)	
0		Ground Surface	100.31								
0		95 mm Asphalt									
2		compact sand and gravel, brick fragments, concrete fragments FILL		1	SS	17	92			10.3	
4				2	SS	28	43			17.2	
6			98.64	3A	SS					13.4	
6				3B	SS	27	100			16.1	
8		brown									
8		grey		4	SS	25	100			18.2	
10		layered SILTY CLAY and weakly plastic SILT occasional sand lens occasional wet sand seam up to 80 mm thick		5	SS	20	100			19.4	
12											
14				6	SS	16	100		X	19.1	
16		stiff to very stiff		7	SS	14	100			20.4	
18		very stiff to hard		8	SS	32	100			19.8	
20				9	SS	28	100			20.3	
22											
24				10A	SS					17.5	
26		400 mm thick wet grey SILT and fine SAND seam		10B	SS	27	100			17.6	
				10C	SS					18.8	

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-25

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 1 of 2



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Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	
28		layered SILTY CLAY and weakly plastic SILT occasional sand lens occasional wet sand seam up to 80 mm thick	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div><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**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-25

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 2 of 2



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**Borehole No: DMW101**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario

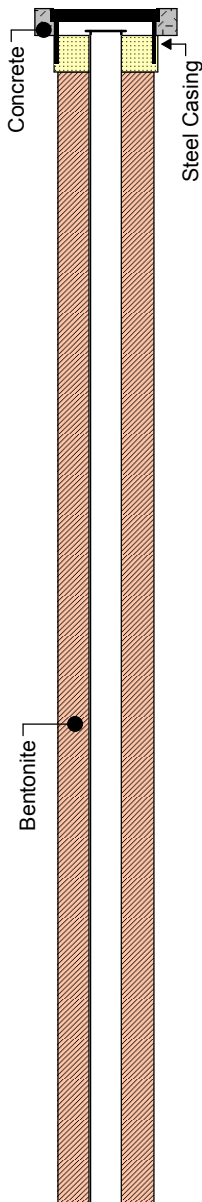
**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.33

**Total Depth:** 21.94 m

**Water Level:** 18.235 m

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 (%)	
0		Ground Surface	100.33								
0		95 mm Asphalt									
2		compact sand and gravel, brick fragments, concrete fragments FILL		1	SS	17	92			10.3	
4				2	SS	28	43			17.2	
6			98.66	3A	SS					13.4	
6				3B	SS	27	100			16.1	
8		brown									
8		grey		4	SS	25	100			18.2	
10		layered SILTY CLAY and weakly plastic SILT occasional sand lens occasional wet sand seam up to 80 mm thick		5	SS	20	100			19.4	
14				6	SS	16	100		X	19.1	
16		stiff to very stiff		7	SS	14	100			20.4	
18		very stiff to hard		8	SS	32	100			19.8	
20				9	SS	28	100			20.3	
22											
24											
26		400 mm thick wet grey SILT and fine SAND seam		10A	SS					17.5	
				10B	SS	27	100			17.6	
				10C	SS					18.8	

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-24

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 1 of 3



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**Borehole No: DMW101**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario


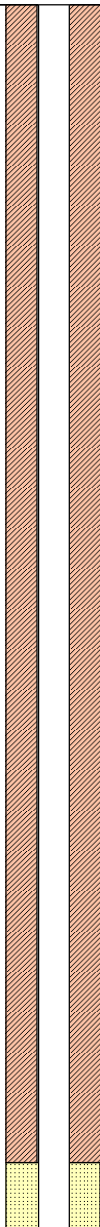
**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.33

**Total Depth:** 21.94 m

**Water Level:** 18.235 m

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 (%)		
28		layered SILTY CLAY and weakly plastic SILT occasional sand lens occasional wet sand seam up to 80 mm thick	<div><div></div><div>very stiff</div></div>									
30				11	SS	28	100			19.5		
32												
34				10								
36						12	SS	26	100			20.2
38												
40				12		13	SS	23	100			18.5
42												
44												
46				14		14	SS	27	100			18.6
48												
50												
52	16			15	SS	23	100		21.1			
54												

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-24

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 2 of 3



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**Borehole No: DMW101**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario

**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.33

**Total Depth:** 21.94 m

**Water Level:** 18.235 m

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 (%)		
56		layered SILTY CLAY and weakly plastic SILT occasioanl sand lens occasional wet sand seams up to 80 mm thick	18	16	SS	20	100				22.1	<div>Water Level 2019-05-09</div> <div>#3 Silica Sand</div> <div>51 mm Slotted 3.05 m Screen</div>
58												
60				17	SS	17	100				24.9	
62												
64												
66				18	SS	19	100				18.7	
68												
70		End of Borehole	20	19	SS	23	100				13.5	
72												
74												
76												
78												
80												

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-24

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 3 of 3



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**Borehole No: MW102**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario

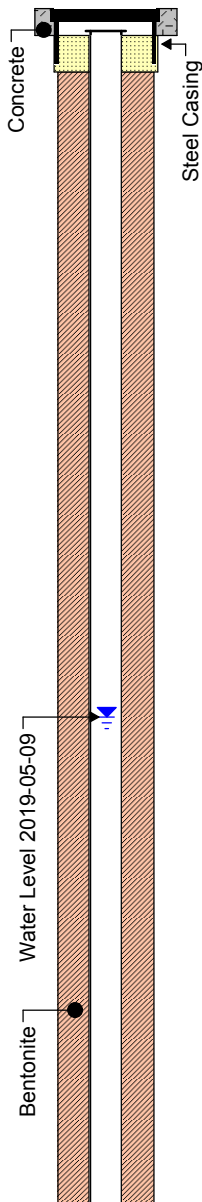
**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.28

**Total Depth:** 12.80 m

**Water Level:** 6.07 m

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 (%)	
0		Ground Surface	100.28								
0		130 mm Asphalt									
2		sand and angular gravel FILL		1	SS	17	58				
4				2	SS	20	67				
6		compact moist		3	SS	11	50				
8		loose wet		4	SS	3	38				
10			97.23								
12		400 mm seam wet brown SILTY fine SAND		5	SS	21	100				
14				6A	SS	28	100				
16				6B	SS						
18		200 mm seam wet SILT and fine SAND		7	SS	23	100				
20		very stiff grey layered SILTY CLAY		8A	SS						
22		frequent silt seam and parting occasional silt and sand lens up to 80 mm thick		8B	SS	23	100				
24				9	SS	29	100				
26				10	SS	24	100				

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-25

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 1 of 2



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**Borehole No: MW102**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario

**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.28

**Total Depth:** 12.80 m

**Water Level:** 6.07 m

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 (%)		
28 30 32 34 36 38 40 42 44 46 48 50 52 54	10   											

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-25

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 2 of 2





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**Borehole No: MW103**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario

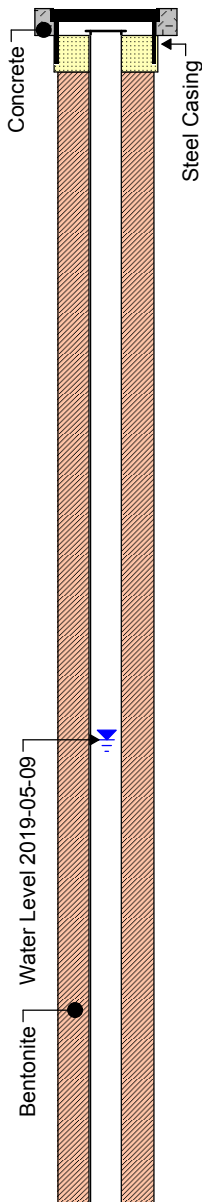
**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.40

**Total Depth:** 12.80 m

**Water Level:** 5.105 m

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 (%)		
0		Ground Surface	100.40									
0		50 mm Asphalt 80 mm sand and angular gravel brick some sand, some silt FILL	100.00									
2		brown with grey patches  stiff ----- very stiff   grey layered SILTY CLAY with silt silt seams and parting occasional thin silt and sand seams		1	SS	6	75					
2				2	SS	3	75					
4				3	SS	11	100					
6	2			4	SS	23	100					
8				5	SS	21	100					
10				6A	SS	21	100					
12	4			7	SS	23	100					
14				8	SS	26	100					
16				9	SS	26	100					
18				10	SS	26	100					
20	6											
22												
24												
26	8											

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-26

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 1 of 2



**WATTERS  
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www.wattersenvironmental.com  
416-361-2407

**Borehole No: MW103**

**Project No.:** 19-0016.04

**Client:** 1140 Yonge Inc.

**Location:** 1140 Yonge Street, Toronto, Ontario

**Project Manager:** R.O.

**Logged By:** T.A.

**Ground Elevation:** 100.40

**Total Depth:** 12.80 m

**Water Level:** 5.105 m

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 (%)		
28 30 32 34 36 38 40 42 44 46 48 50 52 54		grey layered SILTY CLAY with silt seam and parting occasional thin silt and sand seam	87.60								 #3 Silica Sand 51 mm Slotted 3.05 m Screen	
10				11	SS	17	100					
				12	SS	28	100					
12												
				13	SS	29	100					
		End of Borehole										
14 16												

**Drilled By:** Pontil Drilling, CME 75

**Drill Method:** Split Spoon Sampling and Hollow Stem Augers

**Drill Date:** 2019-04-26

**Hole Size:** 200 mm

**Screening Tool:** Eagle II

**Sheet:** 2 of 2