



HYDROGEOLOGICAL REVIEW REPORT

PREPARED FOR:

Starlight Investments
1400-3280 Bloor Street West, Centre Tower
Toronto, Ontario M8X 2X3

ATTENTION:

Matthew Cesta

**1485 Williamsport Drive
Mississauga, Ontario**

Grounded Engineering Inc.

File No. 24-067

Issued May 22, 2024



TABLE OF CONTENTS

1	INTRODUCTION	1
2	STUDY AREA MAP	3
3	GEOLOGY AND PHYSICAL HYDROGEOLOGY	3
4	GROUNDWATER ELEVATIONS.....	4
4.1	MONITORING WELL INFORMATION	4
4.2	WELL OBSERVATIONS.....	4
5	AQUIFER TESTING	4
5.1	PUMPING TEST	4
5.2	SINGLE WELL RESPONSE TEST (SLUG TEST)	5
5.3	LITERATURE.....	5
6	SUMP MONITORING	5
7	WATER QUALITY	5
8	PROPOSED CONSTRUCTION METHOD.....	6
9	PRIVATE WATER DRAINAGE SYSTEM (PWDS)	7
10	GROUNDWATER EXTRACTION AND DISCHARGE	7
11	EVALUATION OF IMPACT	9
11.1	ZONE OF INFLUENCE	9
11.2	CITY'S SEWAGE WORKS	9
11.3	NATURAL ENVIRONMENT	9
11.4	LOCAL DRINKING WATER WELLS	9
11.5	CONTAMINATION SOURCE.....	9
12	PROPOSED MITIGATION MEASURES AND MONITORING PLAN	10
13	LIMITATIONS	10
14	CLOSURE	11



FIGURES

Figure 1 – Site Location Plan

Figure 2 – Borehole Location Plan – Existing Conditions

Figure 3 – Borehole Location Plan – Proposed Conditions

Figure 4 – Subsurface Profile (Boreholes by Others)

APPENDICES

Appendix A – Factual Information by Previous Consultant (Terraprobe)

Appendix B – Dewatering Calculations

Appendix C – Laboratory Certificate of Analysis (Terraprobe)



1 Introduction

Starlight Investments has retained Grounded Engineering Inc. to provide hydrogeological engineering design advice for their proposed development at 1485 Williamsport Drive, in Mississauga, Ontario.

Grounded has been provided with the following reports and drawings to assist in our scope of work:

- Topographic Survey, "Topographic Plan of Survey of Part of Block G - Registered Plan 733, City of Mississauga"; Job No. 16-132-00, dated May 18, 2016, prepared by Schaeffer Dzaldov Purcell Ltd.
- Architectural Drawings, "Pacific Way, Mississauga, Ontario"; Project 21-15, dated June 22, 2023, prepared by Architecture Unfolded
- Geotechnical Report, "1485 Williamsport Drive, Mississauga, Ontario", File 1-22-0531-01, dated Sep 11, 2023, prepared by Terraprobe Inc.
- Hydrogeological Assessment Report, "1485 Williamsport Drive, Mississauga, Ontario", File 1-22-0531-46, dated Dec 8, 2022, prepared by Terraprobe Inc.

Grounded has been provided with factual borehole information for the subject site from other consultants as listed above. Those borehole logs (Terraprobe Boreholes 8 to 11, and 101 to 105) are provided in a report signed and sealed by professional engineers. As such, this borehole information (appended) is taken as factual for present purposes. Unless noted, borehole labels appended with "TP-" refer to Terraprobe's boreholes.

Grounded is also presently retained to complete additional confirmatory boreholes and provide an updated hydrogeological engineering report at a later date.

Property Information	
Location of Site	1485 Williamsport Drive, Mississauga, Ontario, L4X 1T6
Ownership of Site	Starlight Investments
Site Dimensions (m)	200 x 125± (irregular)
Site Area (m ²)	22,000±

Proposed Development	
Number of Building Structures	One
Number of Underground Levels	Tower: One (B1) P1 Extension: One (P1)
Lowest Finished Floor Elevation (FFE)	Tower: Depth 2.4± m / Elev. 137.6± masl P1 Extension: Depth 3.6± m / Elev. 136.4± masl



Proposed Development	
Approx. Base of Foundations	Tower**: Depth 9± m / Elev. 132± masl P1 Extension*: Depth 4.6 ± m / Elev. 135.2± masl
Sub-Grade Area (m²)	Tower: 1,300± P1 Extension: 1,500±
Land Use Classification	Residential

* Assumed spread footings

** Assumed caisson foundations

Qualified Person and Hydrogeological Review Information	
Qualified Person	Matt Bielaski, P.Eng., QP _{RA-ESA} Nick Ng, P.Eng.
Consulting Firm	Grounded Engineering Inc.
Date of Hydrogeological Review	May 22, 2024

Scope of Work	<ul style="list-style-type: none"> ▪ Review of MECP Water Well Records for the area ▪ Review of geological information for the area ▪ Review of topographic information for the area ▪ Advancement of nine (9) boreholes by previous consultants to a maximum depth of 18.5 m, which were instrumented with four (4) monitoring wells ▪ Completion of slug tests in all available monitoring wells <p>The following scope of work is currently underway as of the date of this report:</p> <ul style="list-style-type: none"> ▪ Advancing three (3) boreholes instrumented with one (1) monitoring well ▪ Completion of slug tests in any additional available monitoring wells ▪ Groundwater sampling and analysis to the City of Mississauga/Region of Peel Sewer Use Limits ▪ Assessment of groundwater controls and potential impacts ▪ Report preparation in accordance with Ontario Water Resources Act, Ontario Regulation 387/04
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General Hydrogeological Characterization	
Site Topography	The site has an approximate ground surface elevation of 140± masl.
Local Physiographic Features	The site is composed of sand and silt deposits.
Regional Physiographic Features	The site is located in southern portion of the South Slope. The South Slope contains a variety of soils developed upon tills which are sandier in the east and clayey in the west. The South Slope is bounded in the north by the Oak Ridges and in the south by the Iroquois Plain.
Watershed	The site is located within the Etobicoke Creek Watershed. Locally, groundwater is anticipated to flow northeast towards a branch of Etobicoke Creek.



General Hydrogeological Characterization

Surface Drainage	Surface water is expected to flow towards municipal catch basins located on or adjacent to the site, via Williamsport Drive to the Southeast and Havenwood Drive to the Northeast
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2 Study Area Map

A map has been enclosed which shows the following information:

- All monitoring wells identified on site, and within the study area
- All boreholes identified on site
- All buildings identified on site and within the study area
- The site boundaries
- Any watercourses and drainage features within the study area

3 Geology and Physical Hydrogeology

The site stratigraphy, including soil materials, composition and texture are presented in detail on the borehole logs in Appendix A. A summary of stratigraphic units that were encountered at the site is outlined as follows:

Site Stratigraphy

Stratum/Formation	Depth Range (mbgs)	Elevation Range (masl)	Hydraulic Conductivity (m/s)	Method of Determination
Earth Fill	0 to 8±	140 to 132±	1 x 10 ⁻⁵	Literature ¹
Sand	8 to 18±	132 to 122±	2.8 x 10 ⁻⁵	Slug Test
Bedrock	Beyond 18±	Beyond 122±	1 x 10 ⁻⁷	Literature ¹

Surface Water

Surface Water Body	Distance from site (m)	Direction from site	Hydraulically Connected to Site (yes/no)
Etobicoke Creek	1,300	Northeast	No

¹ Freeze and Cherry (1979)



4 Groundwater Elevations

4.1 Monitoring Well Information

Well ID	Well Diameter (mm)	Ground Surface (masl)	Top of Screen (masl)	Bottom of Screen (masl)	Screened Geological Unit
TP-10	50	140.3	131.5	128.4	Sands
TP-102	50	140.3	126.3	123.2	Sands
TP-103	50	140.5	133.8	130.7	Sands / Fill
TP-105	50	139.9	133.8	132.3	Sands

4.2 Well Observations

Well ID	Groundwater Elevation (masl)							Maximum
	2018-03-23	2018-04-03	2018-10-04	2022-09-19	2022-09-30	2022-10-13	2024-04-19	
TP-10	131.4	131.4	131.6	131.6	131.5	131.5	131.6	131.6
TP-102	-	-	-	132.1	131.5	131.5	131.6	132.1
TP-103	-	-	-	131.5	130.7	130.5	131.5	131.5
TP-105	-	-	-	Dry	Dry	Dry	Dry	Dry

For design purposes, the groundwater table is at Elev. 132± m in the native sands deposit. This unit will yield free-flowing water when penetrated below the groundwater table. There is also perched stormwater in the earth fill which is infiltrating down towards the groundwater table.

Based on the measured groundwater elevations, the anticipated groundwater flow direction at this site is to the Northeast.

Groundwater levels fluctuate with time depending on the amount of precipitation and surface runoff and may be influenced by known or unknown dewatering activities at nearby sites.

5 Aquifer Testing

5.1 Pumping Test

A pumping test was not attempted at the site. Slug tests were conducted and are presented in the section below.



5.2 Single Well Response Test (Slug Test)

The hydraulic conductivities from the monitoring wells were determined based on slug tests (single-well response tests) conducted by Terraprobe. These tests involve rapid removal of water or addition of a “slug” which displaces a known volume of water from a single well, and then monitoring the water level in the well until it recovers.

The hydraulic properties of the strata applicable to the site are as follows:

Well ID	Well Screen Elevation (masl)	Screened Geological Unit	Hydraulic Conductivity (m/s)
TP-10	131.5 - 128.4	Sands	2.8×10^{-5}
TP-102	126.3 - 123.2	Sands	1.5×10^{-5}

5.3 Literature

According to Freeze and Cherry (1979), the typical hydraulic conductivity of the strata investigated at the site are:

Stratum/Formation	Hydraulic Conductivity (m/s)
Earth Fill	10^{-2} to 10^{-6}
Sands	10^{-2} to 10^{-7}
Silts	10^{-5} to 10^{-9}
Bedrock (Shale)	10^{-6} to 10^{-13}

6 Sump Monitoring

A new basement structure is proposed for the site. The monitoring of the existing sumps (where present) is excluded from the present scope.

7 Water Quality

One (1) unfiltered groundwater sample was collected (by Terraprobe) and analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and or Canadian Associate for Laboratory Accreditation.

The sample was collected directly from Terraprobe Borehole 10 on April 3, 2018. The sample was analyzed for the following parameters:

- Region of Peel – Limits for Sanitary and Combined Sewers Discharge (BL-53-2010)
- Region of Peel – Limits for Storm Sewer Discharge (BL-53-2010)



- City of Mississauga – Limits for Storm Sewer Use – (BL-0046-2022)

The groundwater sample **exceeded** the **Peel Limits for Storm Sewer Discharge** for the following parameters:

- Total Suspended Solids (Limit 15 mg/L, Result 679 mg/L)
- Chloroform (Limit 0.002 mg/L, Result 0.0240 mg/L)
- Total Copper (Limit 0.05 mg/L, Result 0.05059 mg/L)
- Total Manganese (Limit 0.05 mg/L, Result 1.20 mg/L)
- Total Phosphorus (Limit 0.4 mg/L, Result 0.810 mg/L)
- Total Zinc (Limit 0.04 mg/L, Result 0.094 mg/L)

The groundwater sample also **exceeded** the **Peel Limits for Sanitary and Combined Sewer Discharge** for the following parameters:

- Total Suspended Solids (Limit 350 mg/L, Result 679 mg/L)

The groundwater sample also **exceeded** the **Mississauga Limits for Storm Sewer Discharge** for the following parameters:

- Total Suspended Solids (Limit 15 mg/L, Result 679 mg/L)
- Total Aluminum (Limit 1 mg/L, Results 38.9 mg/L)
- Total Copper (Limit 0.04 mg/L, Result 0.05059 mg/L)
- Total Phosphorus (Limit 0.4 mg/L, Result 0.810 mg/L)

A new unfiltered groundwater sample will be collected by Grounded upon completion of the additional confirmatory boreholes and included in the updated hydrogeological engineering report at a later date.

8 Proposed Construction Method

The proposed shoring at the site is assumed to consist of conventional soldier piling and lagging for present purposes.

For design purposes, the stabilized groundwater table is at Elev. 132± m, which is well below the bulk and foundation excavation levels for the proposed tower B1 and P1 parking extension. There is infiltrated stormwater in the fill. On this basis, it is expected that groundwater if encountered will be of limited extent. Groundwater may be allowed to drain into the excavation and then pumped out. In open excavations, it is anticipated that seepage volumes will be limited to the extent that temporary pumping will sufficiently control any groundwater seepage. Regardless, excavation delays will occur as seepage (however limited) is controlled. These delays should be anticipated in the construction schedule.



The City of Mississauga will require a Discharge Agreement in the short term, if any water is to be discharged to the storm or sanitary sewers during construction.

9 Private Water Drainage System (PWDS)

If the proposed development consists of drained foundations, then a private water drainage system will be required. The total sub floor drain area will be approximately 1,300m² for the tower B1 level and 1,500m² for the P1 extension, based on the drawings which have been provided.

If the development is designed with a private water drainage system, the drainage system is a critical structural element since it keeps water pressure from acting on the basement walls and floor slab. As such, the sump that ensures the performance of this system must have a duplexed pump arrangement for 100% pumping redundancy and these pumps must be on emergency power. The size of the sump should be adequate to accommodate the estimated groundwater seepage. It is anticipated that the groundwater seepage can be controlled with typical, widely available, commercial/residential sump pumps.

10 Groundwater Extraction and Discharge

Analyses were conducted for both short-term and long-term dewatering scenarios. Bulk and foundation excavations for the proposed tower B1 and P1 extension are well above the design groundwater table at the site (Elev. 132± m). As such, short- and long-term groundwater dewatering is not anticipated. Minor seepage may be encountered.

However, if the excavation is exposed to the elements, storm water will have to be managed. The short-term control of groundwater should consider stormwater management from rainfall events. A dewatering system should be designed to consider the removal of rainfall from the excavation. A design storm of 25 mm has been used in the quantity estimates. Additionally, as required by Ontario Regulation 63/16, a plan for discharge must consider the conveyance of stormwater from a 100-year storm. The additional volume that will be generated in the occurrence of a 100-year storm event is approximately 122,000 L for the proposed tower and 139,000 L for the proposed P1 extension (261,000 L total).

As the proposed tower basement and P1 extension are drained structures, their sub-slab drainage system must account for long term infiltration of infiltrated stormwater in the long term.

The quantity estimates for both short- and long-term conditions are presented below and in the appendices.



Short Term (Construction) Steady State Groundwater Quantity						
Proposed Development	Estimated Groundwater Seepage		Design Rainfall Event (25mm)		Estimated Total Daily Water Takings	
	L/day	L/min	L/day	L/min	L/day	L/min
Tower B1	-	-	33,000	22.9	33,000	22.9
P1 Extension	-	-	37,000	25.7	37,000	25.7
Total	-	-	70,000	48.6	70,000	48.6

Long Term (Permanent) Steady State Groundwater Quantity						
Proposed Development	Estimated Groundwater Seepage		Estimated Infiltrated Stormwater – Design Rainfall Event (25mm)		Estimated Total Daily Water Takings	
	L/day	L/min	L/day	L/min	L/day	L/min
Tower B1	-	-	6,000	4.2	6,000	4.2
P1 Extension	-	-	6,000	4.2	6,000	4.2
Total	-	-	12,000	8.4	12,000	8.4

Regulatory Requirements	
Environmental Activity and Sector Registry (EASR) Posting	Not Required
Short Term Permit to Take Water (PTTW)	Not Required
Long Term Permit to Take Water (PTTW)	Not Required
Short Term Discharge Agreement City of Mississauga/Region of Peel	Required
Long Term Discharge Agreement City of Mississauga/Region of Peel	Required

Please note:

- The proposed pump schedule for short term construction dewatering has not been completed. As such, the actual peak short term discharge rate is not available at the time of writing this report. The pump schedule must be specified by either the dewatering contractor retained or the mechanical consultant.
- The proposed pump schedule for long term permanent drainage has not been completed. As such the actual peak long term discharge rate is not available at the time writing of this report. The pump schedule must be specified by the mechanical consultant.
- On-site containment (infiltration gallery/dry well etc.) has not been considered as part of the proposed development at this time. If this option is considered, additional work will have to be conducted (i.e. infiltration testing).



11 Evaluation of Impact

11.1 Zone of Influence

Localized dewatering of an aquifer produces a cone-shaped depression in the groundwater table that extends some distance away from the dewatering point. The lateral distance which the cone of depression extends (i.e., the distance to where drawdown is effectively zero) is known as the Zone of Influence (ZOI).

Considering that bulk and foundation excavation will not extend near or below the groundwater table, positive dewatering is not required, and the ZOI with respect to groundwater seepage is negligible.

11.2 City's Sewage Works

Negative impacts to City's sewage works may occur in terms of the quantity or quality of the groundwater discharged. This report provided the estimated quantity of the water discharge. However, this report does not speak to the sewer capacities. The sewer capacity analysis is provided under a separate cover by the civil consultant.

The quality of the proposed groundwater discharge is provided in Section 7. As noted in that section, a new groundwater sample quality will be collected and tested at a later date.

11.3 Natural Environment

There is no ZOI, per the above sections. As such, no natural waterbodies will be affected. Any groundwater which will be taken from the site will be discharged (if required) into the City's sewer systems and not into any natural waterbody. As such, there will be no impact to the natural environment caused by the water takings at the site.

11.4 Local Drinking Water Wells

The site is located within the municipal boundaries of the City of Mississauga. The site and surrounding area are provided with municipal piped water and sewer supply. There is no use of the groundwater for water supply in this area of Peel Region. As such, there will be no impact to drinking water wells.

11.5 Contamination Source

There is no ZOI, per the above sections. As such, there will be no pumping of groundwater, and the migration of potential contaminants from surrounding sources is not anticipated.



12 Proposed Mitigation Measures and Monitoring Plan

The ZOI is negligible, per the above sections. Negative impacts associated with dewatering are limited to within the ZOI. Therefore, negative impacts are not anticipated. The groundwater elevation will be monitored during construction to ensure that this is the case.

Both the temporary construction dewatering system and the permanent building drainage system must be properly installed and screened to ensure sediments and fines will not be removed, which is typically a primary cause of dewatering related settlement.

13 Limitations

Natural occurrences, the passage of time, local construction, and other human activity all have the potential to directly or indirectly alter the subsurface conditions at or near the project site. Contractual obligations related to groundwater or stormwater control must be considered with attention and care as they relate this potential site alteration.

The preliminary hydrogeological engineering advice provided in this report is based on the factual observations made from the site investigations as reported by Terraprobe. It is intended for use by the owner and their retained design team. If there are changes to the features of the development or to the scope, the interpreted subsurface information, geotechnical engineering design parameters, advice, and discussion on construction considerations may not be relevant or complete for the project. Grounded should be retained to review the implications of such changes with respect to the contents of this report.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Grounded accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, including consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The authorized users of this report are Starlight Investments and their design team, for whom this report has been prepared. Grounded Engineering Inc. maintains the copyright and ownership of this document. Reproduction of this report in any format or medium requires explicit prior authorization from Grounded Engineering Inc. The City of Toronto may also make use of and rely upon this report, subject to the limitations as stated.



14 Closure

If there are any questions regarding the discussion and advice provided, please do not hesitate to contact our office. We trust that this report meets your requirements at present.

For and on behalf of our team,



James Wagner, B.A.Sc.
Project Coordinator

Nick Ng, P.Eng.
Team Lead, Geotechnical Engineering



Matthew Bielaski, P.Eng., QP_{ESA/RA}
Principal

FIGURES





GROUND
ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE SITE BOUNDARY
- STUDY AREA (250 m RADIUS)
- MECP WELL LOCATION

Note

Reference

ArcGIS Online 2024

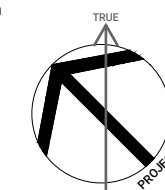
Project

1485 WILLIAMSPORT DRIVE,
MISSISSAUGA, ON

Figure Title

**SITE LOCATION PLAN
AND STUDY AREA**

North



Date

MAY 2024

Scale

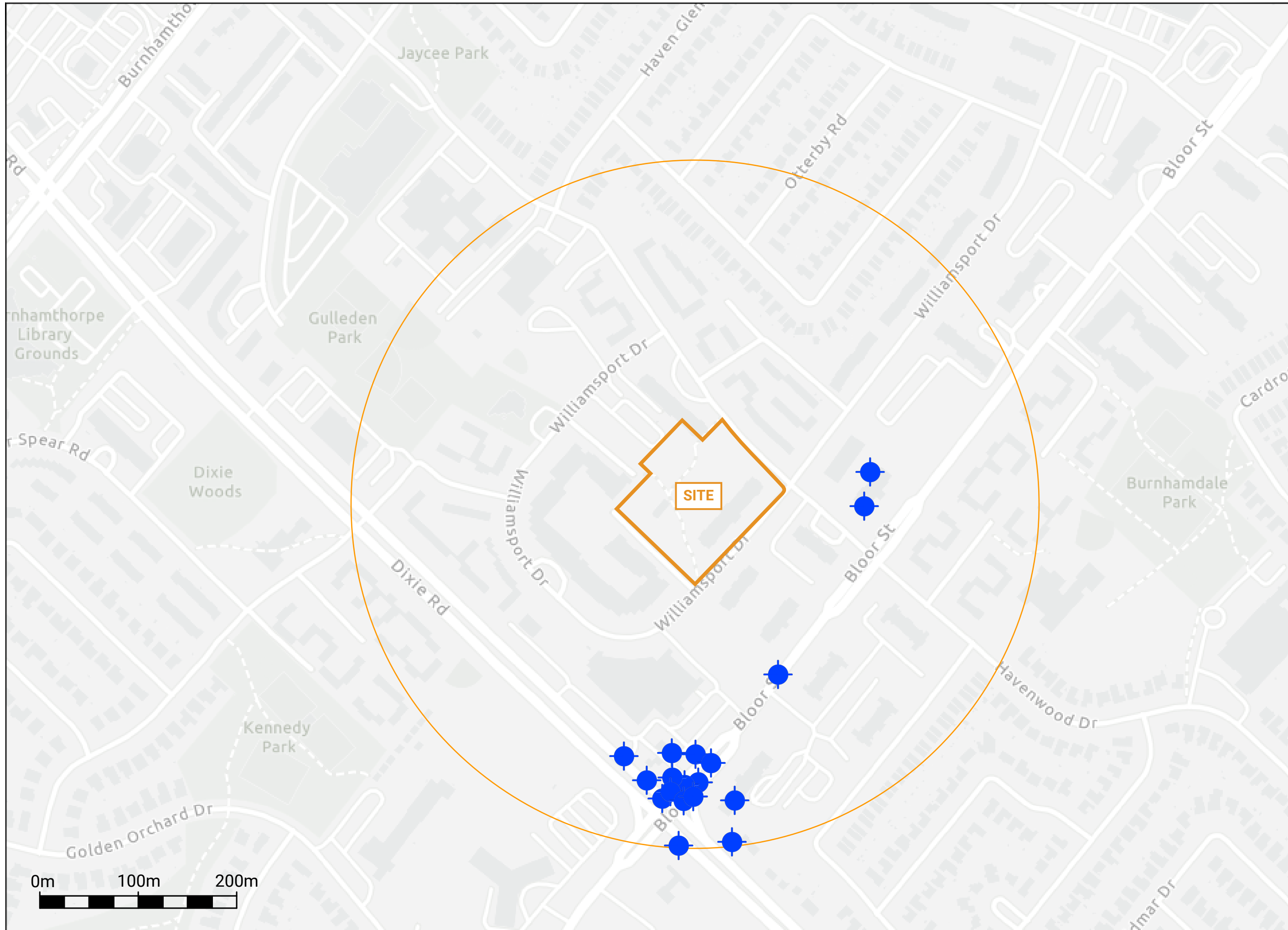
AS INDICATED

Job No



24-067

Figure No

FIGURE 1



LEGEND

-  APPROXIMATE SITE LOCATION
-  MONITORING WELL/BOREHOLE BY OTHERS

Note
Grounded will complete a confirmatory site-specific investigation for detailed design at a later date.

Reference
Topographic Survey, "Topographic Plan of Survey of Part of Block G - Registered Plan 733, City of Mississauga"; Job No. 16-132-00, dated May 18, 2016, prepared by Schaeffer Dzaldov Purcell Ltd.

Project
1485 WILLIAMSPORT DRIVE, MISSISSAUGA, ON

Figure Title
BOREHOLE LOCATION PLAN - EXISTING CONDITIONS

North

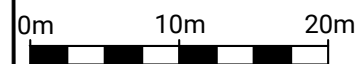
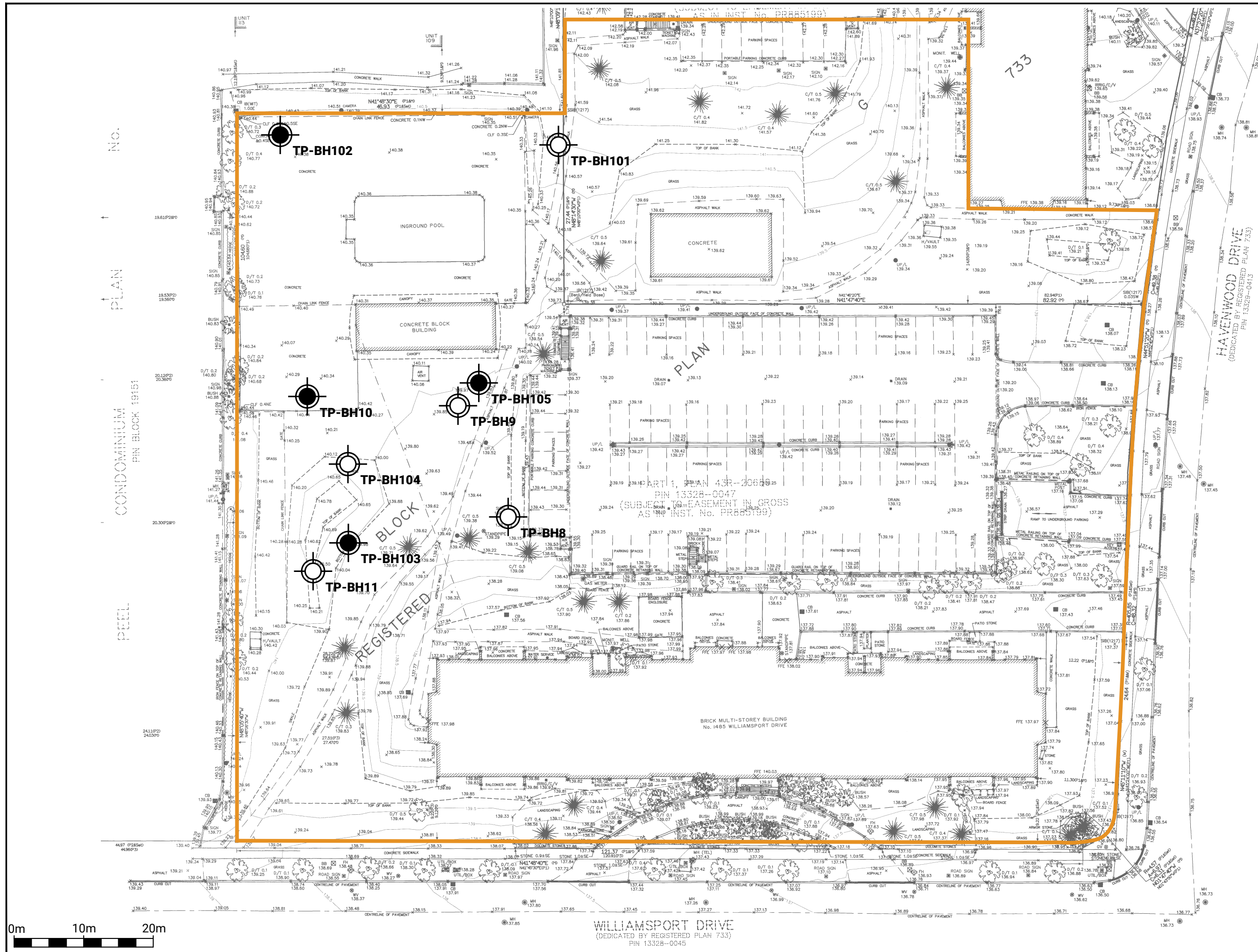


Date
MAY 2024

Scale
AS INDICATED

Job No
24-067

Figure No
FIGURE 2



WILLIAMSPORT DRIVE
(DEDICATED BY REGISTERED PLAN 733)
PIN 13328-0045



GROUND
ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE SITE LOCATION
- MONITORING WELL/BOREHOLE BY OTHERS

Note
Grounded will complete a confirmatory site-specific investigation for detailed design at a later date.

Reference
Architectural Drawing, "Basement Plan Option 1"; Drawing No. A300, Job No. 21-15, dated June 22, 2023, prepared by ArchitectureUnfolded

Project
**1485 WILLIAMSPORT DRIVE,
MISSISSAUGA, ON**

Figure Title
**BOREHOLE LOCATION PLAN -
PROPOSED CONDITIONS**

North



Date
MAY 2024

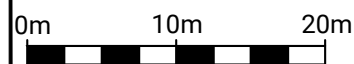
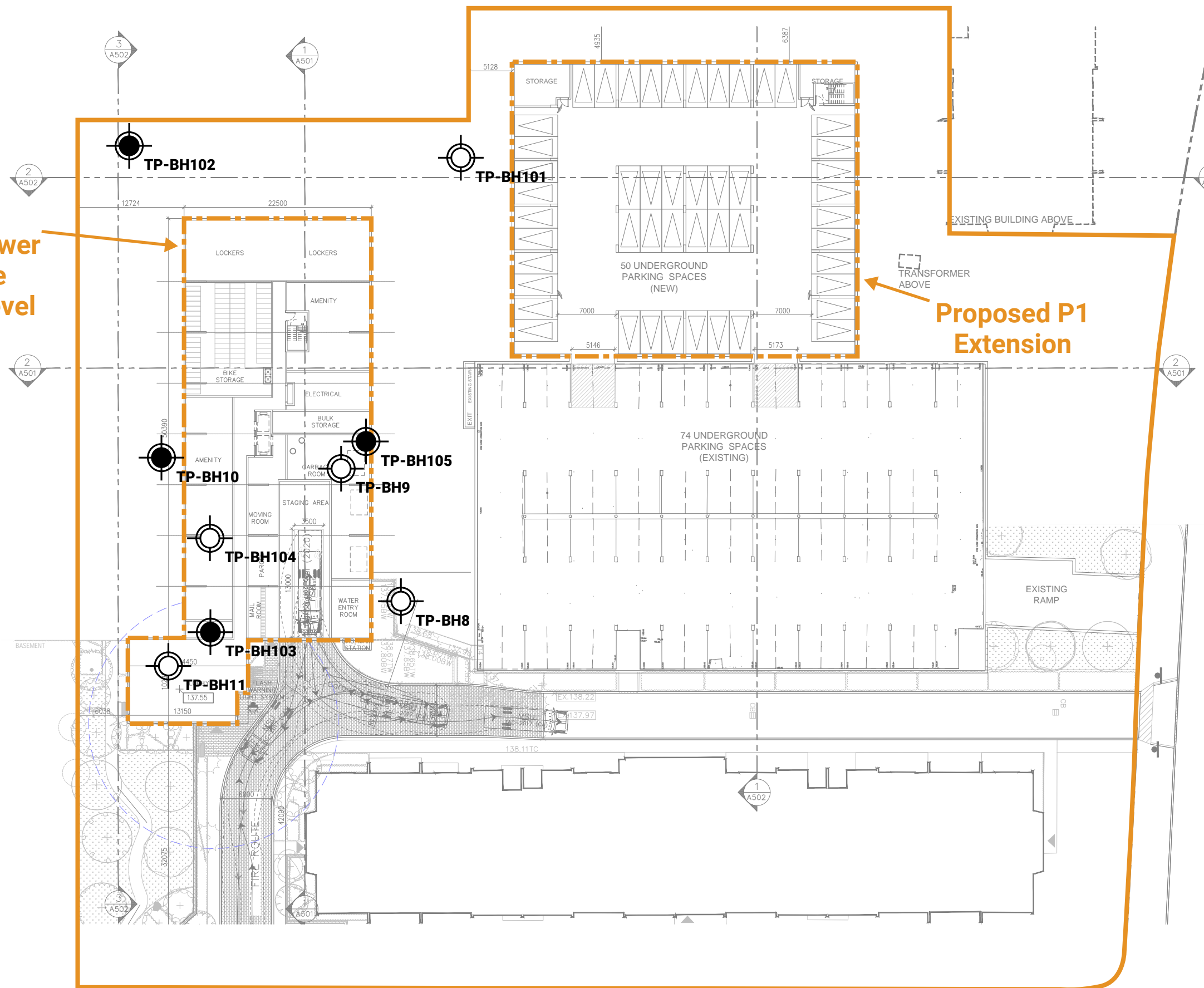
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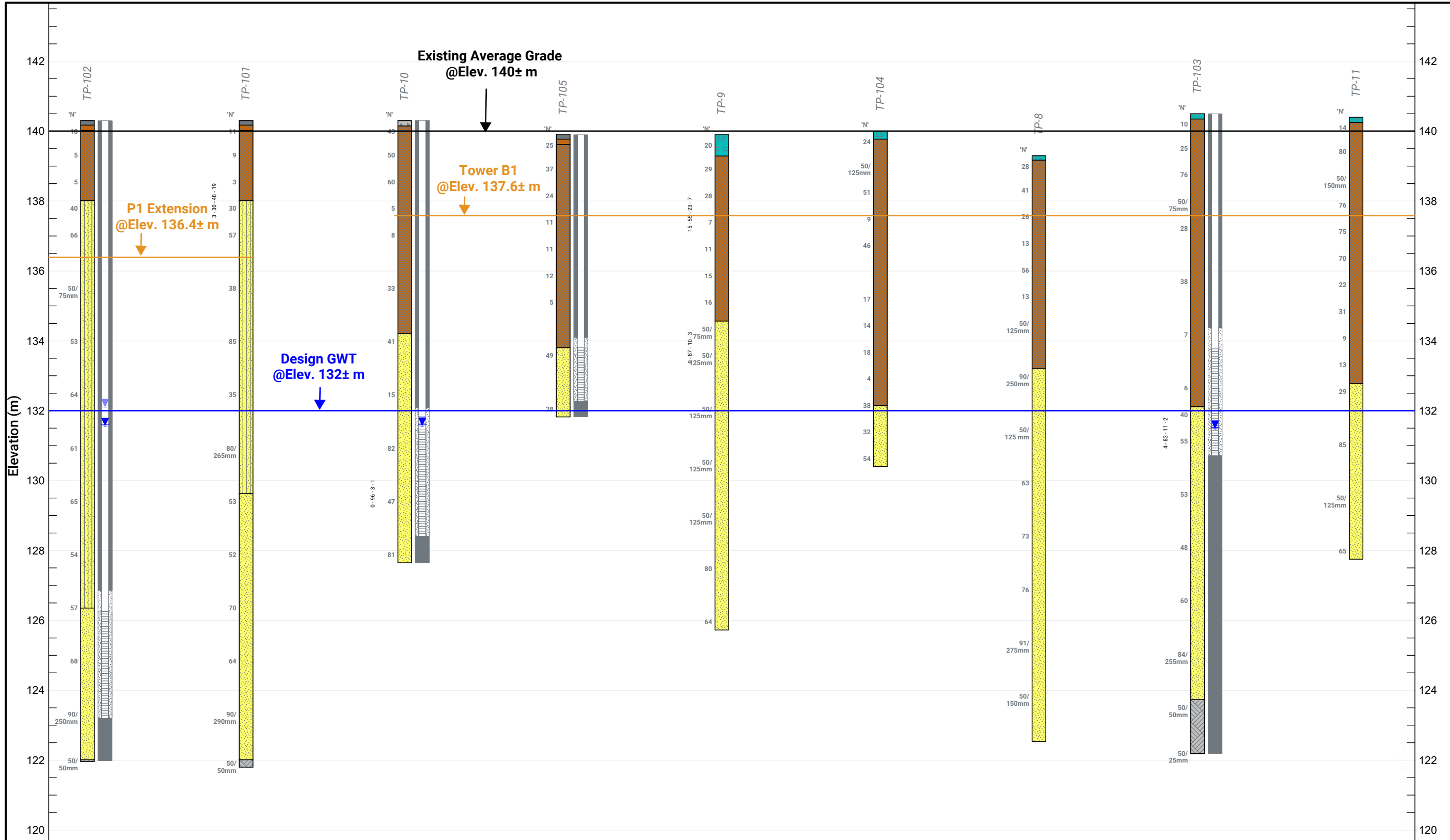
Job No
24-067

Figure No
FIGURE 2

**Proposed
10-Storey Tower
with Single
Basement Level**

**Proposed P1
Extension**





LEGEND

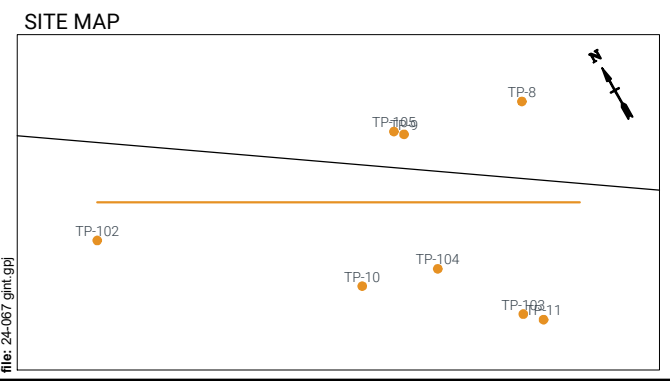
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLESS TILLS
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- DISTURBED/REWORKED/ORGANIC

T-BH7 BOREHOLES BY OTHERS

- water level, unstabilized
- water level, stabilized (latest)
- water level, stabilized (highest)

Project
**1485 WILLIAMSPORT DR
MISSISSAUGA, ON**

Figure Title
**SUBSURFACE PROFILE
BOREHOLES BY OTHERS**



Boreholes Equally Spaced

BOREHOLE STRATIGRAPHY LEGEND

- | | |
|----------|--------------------|
| Topsoil | Asphalt |
| Fill | Aggregate |
| Sand | Sandy Silt |
| Concrete | Bedrock (inferred) |

The factual borehole information shown is from other consultants only. A full list of references is provided in the body of our report.

Date
MAY 2024

Scale
AS INDICATED

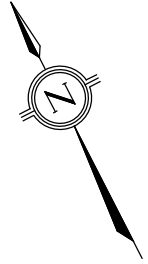
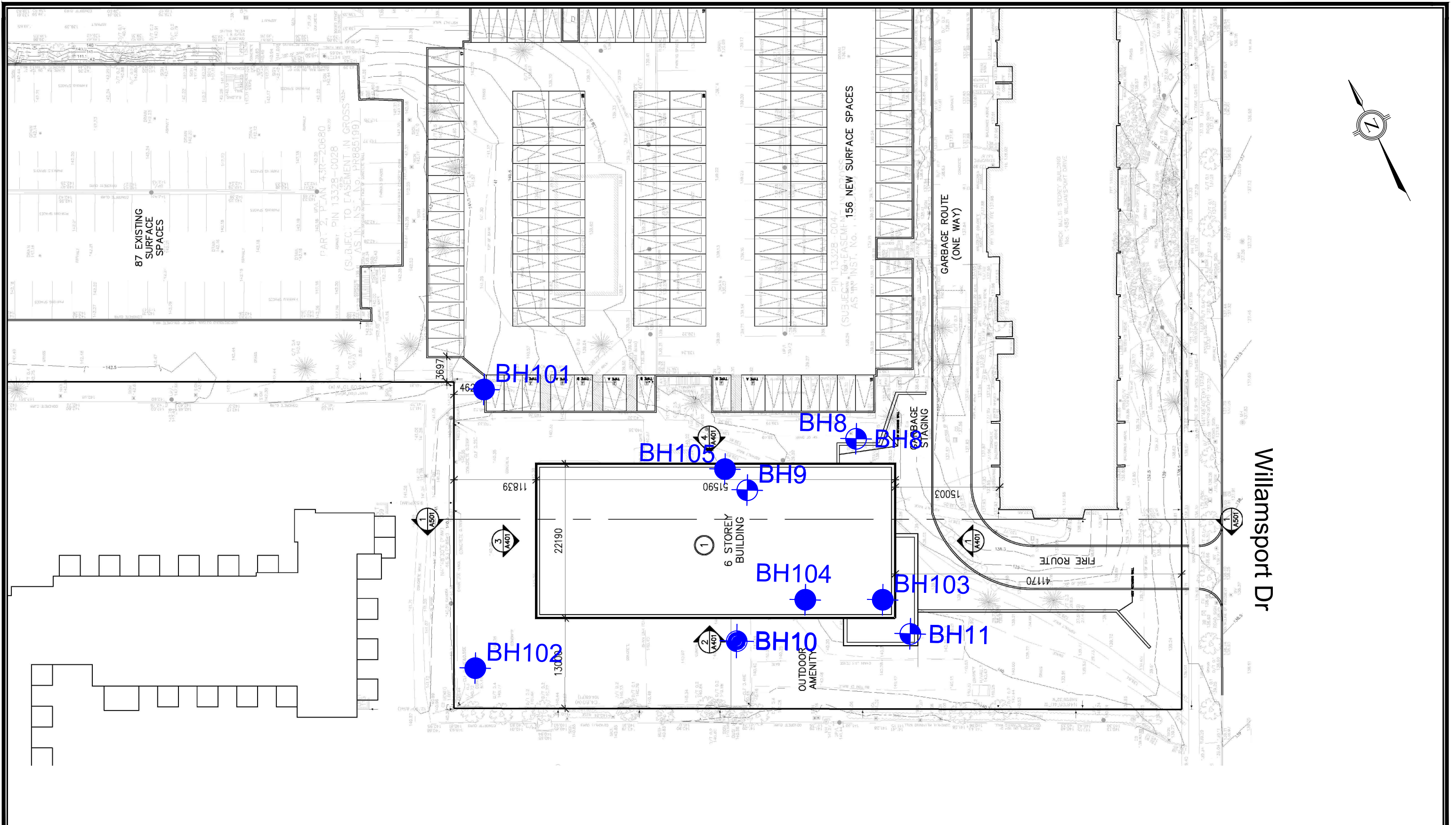
Job No
24-067

Figure No
FIGURE 4

APPENDIX A

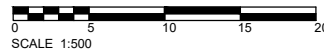


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DWG TO PDF



REFERENCE
 Project: Pacific Way
 Title: Site Plan, Proj. No.: 21-15
 Date: Sep 12, 2022, Dwg. No.: A101
 By: Architectureunfolded

LEGEND
 ● Borehole Location (2022)
 ⊕ Borehole Location (2018)



Terraprobe
 11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250

Title: BOREHOLE LOCATION PLAN	
Proposed Condition	
File No.	1-22-0531-46

FIGURE :
2B



SAMPLING METHODS		PENETRATION RESISTANCE
AS	auger sample	<p>Standard Penetration Test (SPT) resistance ('N' values) is defined as the number of blows by a hammer weighing 63.6 kg (140 lb.) falling freely for a distance of 0.76 m (30 in.) required to advance a standard 50 mm (2 in.) diameter split spoon sampler for a distance of 0.3 m (12 in.).</p> <p>Dynamic Cone Test (DCT) resistance is defined as the number of blows by a hammer weighing 63.6 kg (140 lb.) falling freely for a distance of 0.76 m (30 in.) required to advance a conical steel point of 50 mm (2 in.) diameter and with 60° sides on 'A' size drill rods for a distance of 0.3 m (12 in.)."</p>
CORE	cored sample	
DP	direct push	
FV	field vane	
GS	grab sample	
SS	split spoon	
ST	shelby tube	
WS	wash sample	

COHESIONLESS SOILS		COHESIVE SOILS			COMPOSITION	
Compactness	'N' value	Consistency	'N' value	Undrained Shear Strength (kPa)	Term (e.g)	% by weight
very loose	< 4	very soft	< 2	< 12	<i>trace</i> silt	< 10
loose	4 – 10	soft	2 – 4	12 – 25	<i>some</i> silt	10 – 20
compact	10 – 30	firm	4 – 8	25 – 50	silty	20 – 35
dense	30 – 50	stiff	8 – 15	50 – 100	sand <i>and</i> silt	> 35
very dense	> 50	very stiff	15 – 30	100 – 200		
		hard	> 30	> 200		

TESTS AND SYMBOLS

MH	mechanical sieve and hydrometer analysis		Unstabilized water level
w, w _c	water content		1 st water level measurement
w _L , LL	liquid limit		2 nd water level measurement
w _P , PL	plastic limit		Most recent water level measurement
I _P , PI	plasticity index		
k	coefficient of permeability	^{3.0} +	Undrained shear strength from field vane (with sensitivity)
γ	soil unit weight, bulk	C _c	compression index
G _s	specific gravity	c _v	coefficient of consolidation
φ'	internal friction angle	m _v	coefficient of compressibility
c'	effective cohesion	e	void ratio
c _u	undrained shear strength		

FIELD MOISTURE DESCRIPTIONS

Damp	refers to a soil sample that does not exhibit any observable pore water from field/hand inspection.
Moist	refers to a soil sample that exhibits evidence of existing pore water (e.g. sample feels cool, cohesive soil is at or close to plastic limit) but does not have visible pore water
Wet	refers to a soil sample that has visible pore water

Project No. : 1-22-0531-01

Client : Starlight Investments

Originated by : SM

Date started : March 7, 2017

Project : 1485 Williamsport Drive

Compiled by : JH

Sheet No. : 1 of 2

Location : Mississauga, Ontario

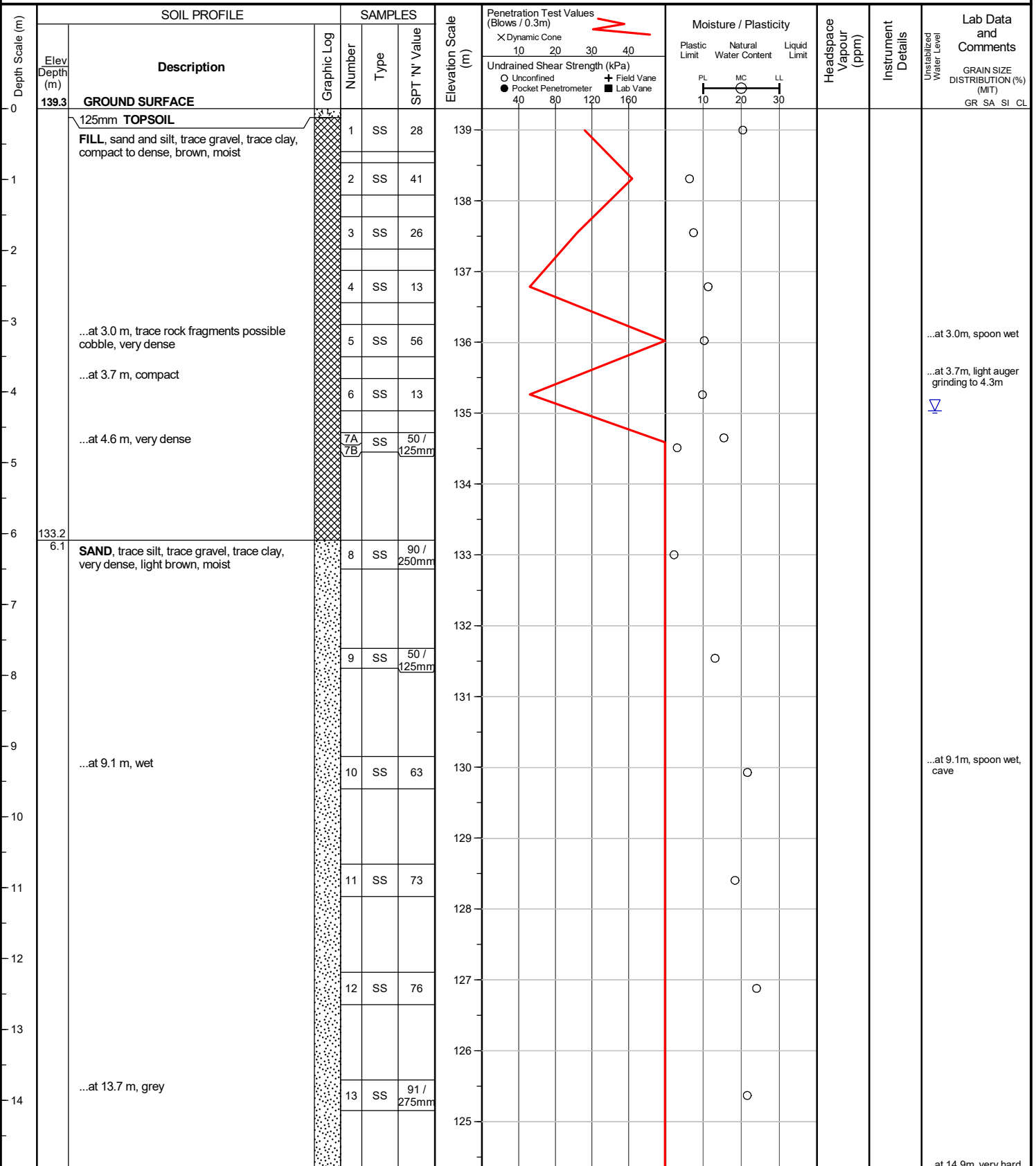
Checked by : MD

Position : E: 613414, N: 4830578 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Truck-mounted

Drilling Method : Solid stem augers




file: 1-22-0531-01 bh logs.gpj

(continued next page)

Project No. : 1-22-0531-01 Client : Starlight Investments Originated by : SM
 Date started : March 7, 2017 Project : 1485 Williamsport Drive Compiled by : JH
 Sheet No. : 2 of 2 Location : Mississauga, Ontario Checked by : MD

Position : E: 613414, N: 4830578 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane 40 80 120 160	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type			SPT 'N' Value	Plastic Limit	Natural Water Content			
15	(continued)												
15		SAND, trace silt, trace gravel, trace clay, very dense, light brown, moist (continued) ...at 15.2 m, trace shale fragments		14	SS	50 / 150mm							at 15.2m, very hard auger grinding to 16.8m
16													...at 15.8m, bedrock to 16.2m
122.5	16.8	...at 16.8 m, inferred weathered bedrock		15	AS								

END OF BOREHOLE

Unstabilized water level measured at 4.3 m below ground surface; borehole caved to 7.9 m below ground surface upon completion of drilling.

Project No. : 1-22-0531-01

Client : Starlight Investments

Originated by : MC

Date started : March 14, 2017

Project : 1485 Williamsport Drive

Compiled by : JH

Sheet No. : 1 of 1

Location : Mississauga, Ontario

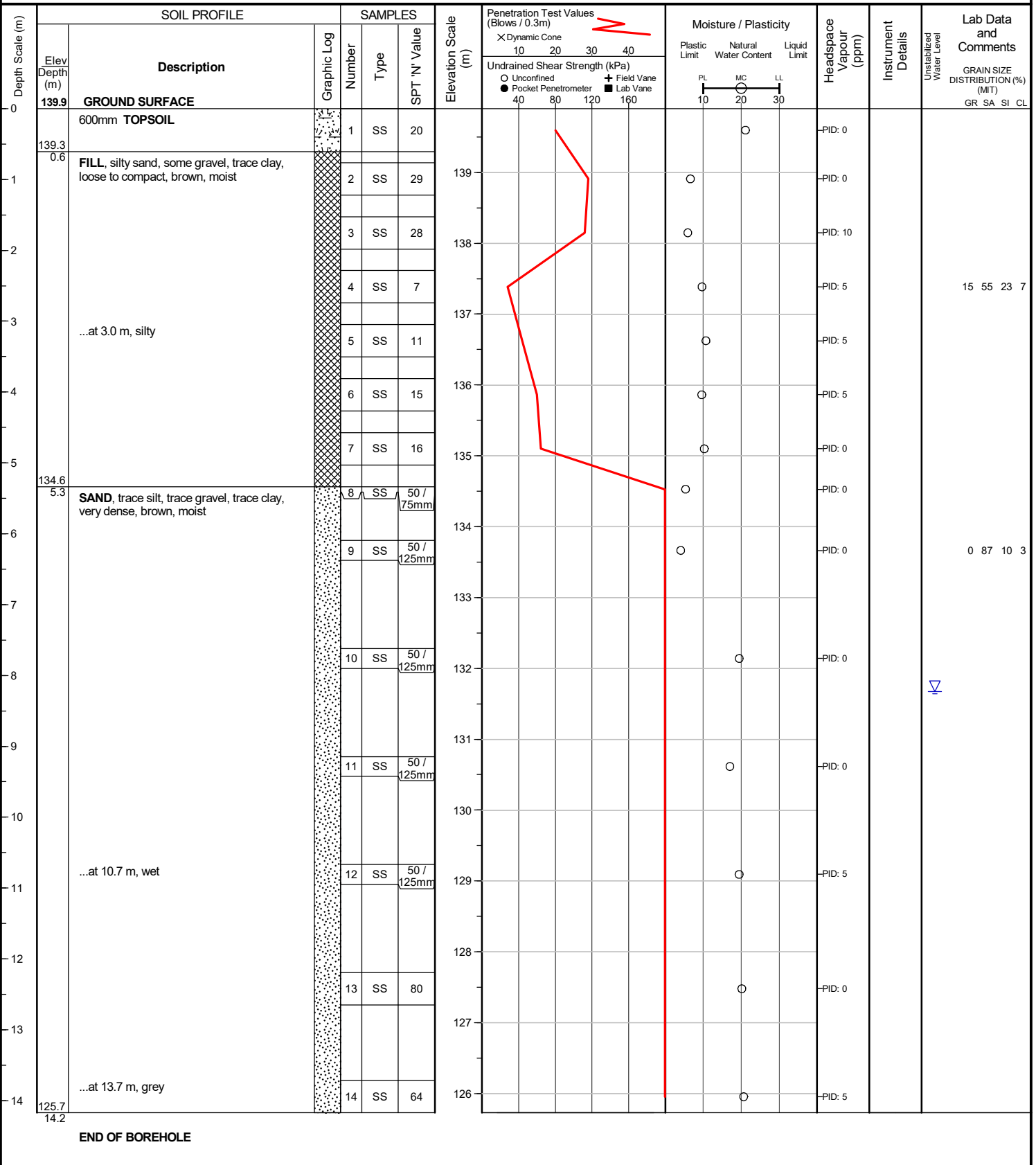
Checked by : MD

Position : E: 613398, N: 4830582 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Truck-mounted

Drilling Method :



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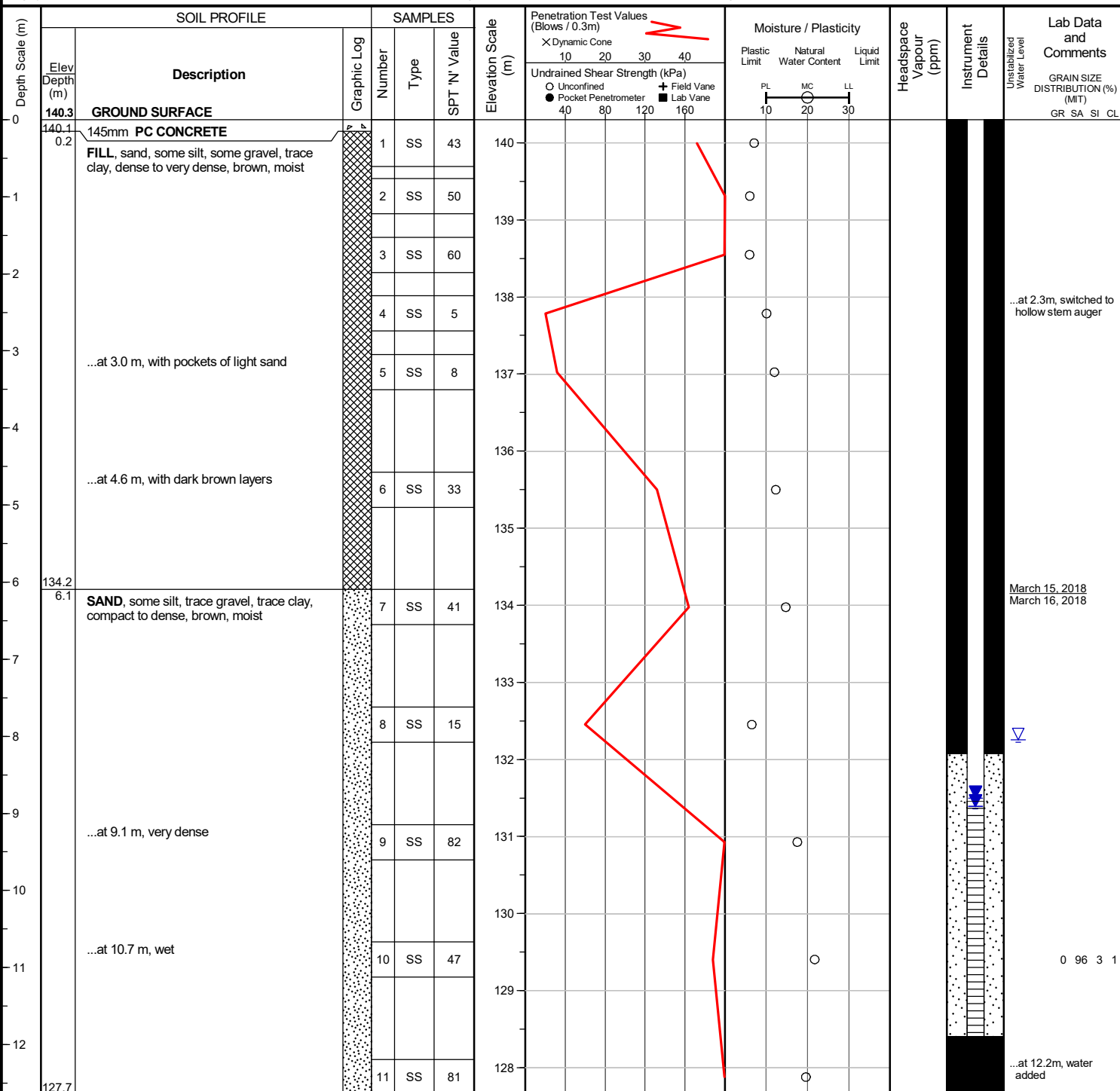
Wet cave at 8.2 m below ground surface upon completion of drilling.

Project No. : 1-22-0531-01
 Date started : March 15, 2017
 Sheet No. : 1 of 1

Client : Starlight Investments
 Project : 1485 Williamsport Drive
 Location : Mississauga, Ontario

Originated by : JH
 Compiled by : JH
 Checked by : MD

Position : E: 613383, N: 4830567 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Truck-mounted Drilling Method : Solid stem / hollow stem augers



Unstabilized water level measured at 8.0 m below ground surface; borehole was open upon completion of drilling.
 50 mm dia. monitoring well installed.

Date	Water Depth (m)	Elevation (m)
Mar 23, 2018	8.9	131.4
Apr 3, 2018	8.9	131.4
Oct 4, 2018	8.7	131.6
Sep 19, 2022	8.7	131.6
Sep 30, 2022	8.8	131.5
Oct 13, 2022	8.8	131.5

Project No. : 1-22-0531-01

Client : Starlight Investments

Originated by : SM

Date started : March 8, 2017

Project : 1485 Williamsport Drive

Compiled by : JH

Sheet No. : 1 of 1

Location : Mississauga, Ontario

Checked by : MD

Position : E: 613402, N: 4830551 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Truck-mounted

Drilling Method : Hollow stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value			Plastic Limit	Natural Water Content	Liquid Limit			
0	140.4	GROUND SURFACE												
0	139.8	150mm TOPSOIL	[Pattern]	1	SS	14	140							SS1 Analysis: OC Pest
1	0.6	FILL , sand, trace gravel, trace silt, very dense, light brown, damp	[Pattern]	2	SS	80	139							...at 0.8m, light auger grinding to 1.5m
2			[Pattern]	3	SS	50 / 150mm	139							SS2 Analysis: M&I, PCB
3			[Pattern]	4	SS	76	138							
4			[Pattern]	5	SS	75	137							SS5 Analysis: PHC
5		...at 4.6 m, moist, compact to dense	[Pattern]	6	SS	70	136							
6		...at 5.2 m, trace brick, trace glass, trace asphalt, dark brown	[Pattern]	7	SS	22	135							
7		...at 6.1 m, trace cinders	[Pattern]	8	SS	31	134							
8			[Pattern]	9	SS	9	134							
8	132.8	SAND , trace silt, trace gravel, trace clay, compact, light brown, moist	[Pattern]	10	SS	13	133							
9	7.6		[Pattern]	11	SS	29	132							SS11 Analysis: M&I, PHC
10		...at 9.1 m, wet, very dense	[Pattern]	12	SS	85	131							...at 10.7m, spoon wet ...at 10.7m, water added
11			[Pattern]	11	SS	50 / 125mm	130							
12			[Pattern]	12	SS	65	128							

END OF BOREHOLE

Borehole was dry and caved to 7.9 m below ground surface upon completion of drilling.

Project No. : 1-22-0531-01

Client : Starlight Investments

Originated by : ZJ

Date started : September 15, 2022

Project : 1485 Williamsport Drive

Compiled by : FM

Sheet No. : 1 of 2

Location : Mississauga, Ontario

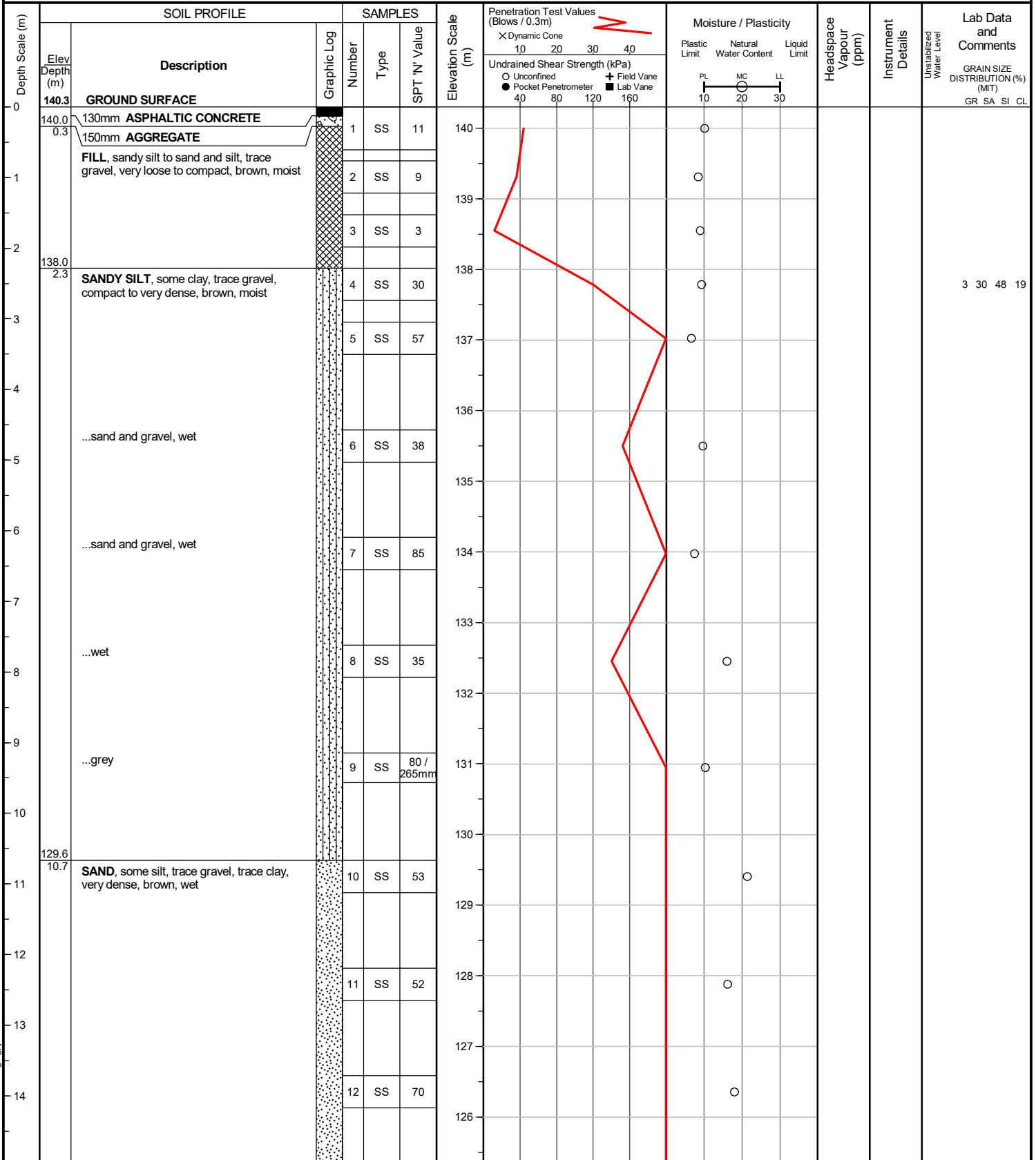
Checked by : HR

Position : E: 613375, N: 4830612 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Track-mounted

Drilling Method : Solid stem augers/mud rotary





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Project No. : 1-22-0531-01 Client : Starlight Investments Originated by : ZJ
 Date started : September 15, 2022 Project : 1485 Williamsport Drive Compiled by : FM
 Sheet No. : 2 of 2 Location : Mississauga, Ontario Checked by : HR

Position : E: 613375, N: 4830612 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers/mud rotary

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL	
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value			Plastic Limit	Natural Water Content	Liquid Limit				
15	(continued)														
15	SAND, some silt, trace gravel, trace clay, very dense, brown, wet (continued)		13	SS	64		125								
16							124								
17	...grey below		14	SS	90 / 290mm		123								
18							122								
122.0 121.8 18.5	INFERRED BEDROCK, shale fragments (GEORGIAN BAY FORMATION)		15	SS	50 / 50mm		122								

END OF BOREHOLE

Borehole contained drill water upon completion of drilling. Unstabilized water level and cave not measured.

Project No. : 1-22-0531-01

Client : Starlight Investments

Originated by : ZJ

Date started : September 14, 2022

Project : 1485 Williamsport Drive

Compiled by : FM

Sheet No. : 1 of 2

Location : Mississauga, Ontario

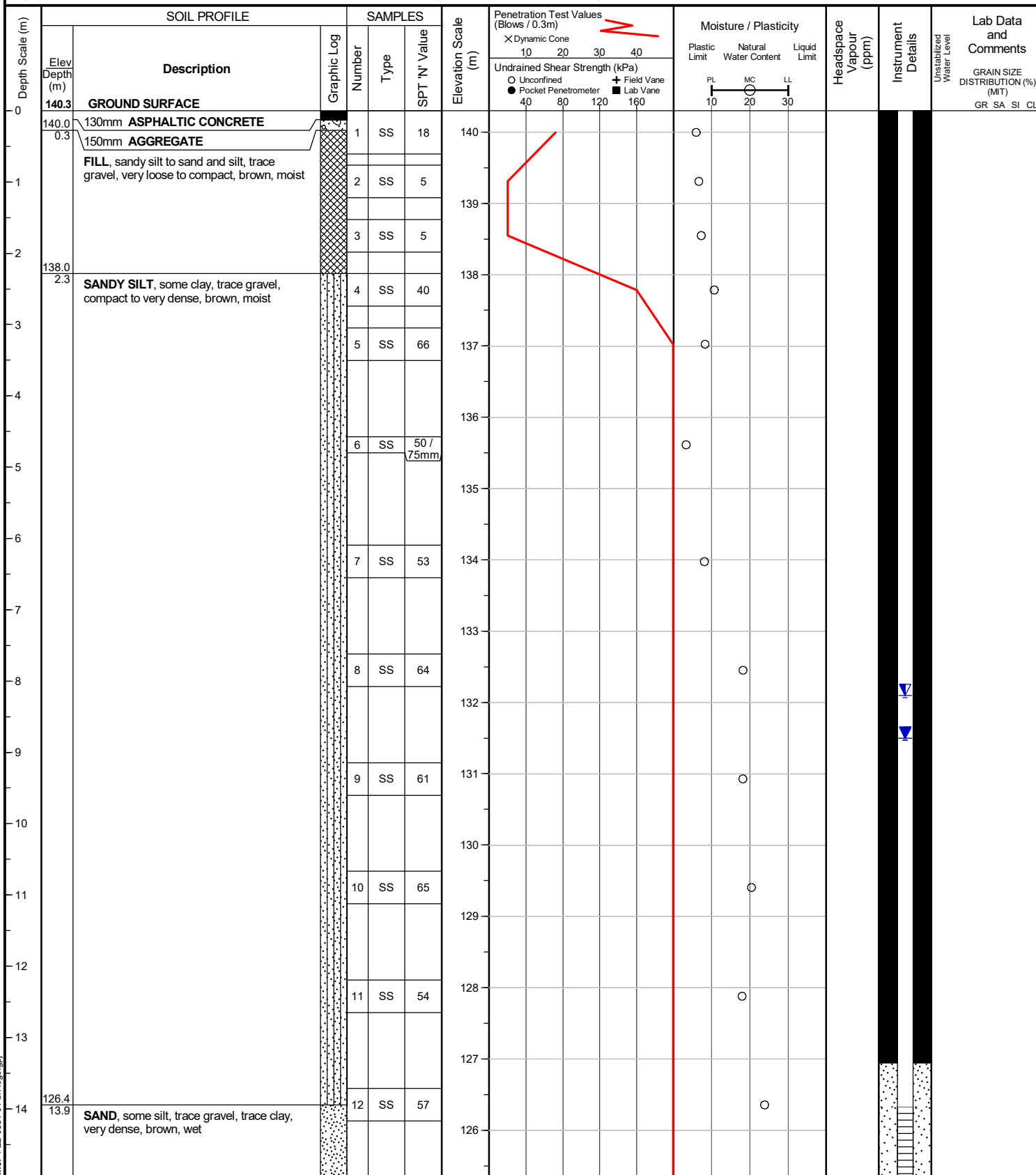
Checked by : HR

Position : E: 613355, N: 4830590 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Track-mounted

Drilling Method : Solid stem augers/mud rotary



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Project No. : 1-22-0531-01 Client : Starlight Investments Originated by : ZJ
 Date started : September 14, 2022 Project : 1485 Williamsport Drive Compiled by : FM
 Sheet No. : 2 of 2 Location : Mississauga, Ontario Checked by : HR

Position : E: 613355, N: 4830590 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers/mud rotary

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL	
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value			Plastic Limit	Natural Water Content	Liquid Limit				Unstabilized Water Level
15	(continued)														
15		SAND, some silt, trace gravel, trace clay, very dense, brown, wet (continued)		13	SS	68	125								
16							124								
17		...shale fragments		14	SS	90 / 250mm	123								
18							122								
122.0 122.0 18.3		INFERRED BEDROCK, shale fragments (GEORGIAN BAY FORMATION)		15	SS	50 / 50mm	122								

END OF BOREHOLE

Borehole contained drill water upon completion of drilling. Unstabilized water level and cave not measured.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Sep 19, 2022	8.2	132.1
Sep 30, 2022	8.8	131.5
Oct 13, 2022	8.8	131.5

Project No. : 1-22-0531-01

Client : Starlight Investments

Originated by : ZJ

Date started : September 12, 2022

Project : 1485 Williamsport Drive

Compiled by : FM

Sheet No. : 1 of 2

Location : Mississauga, Ontario

Checked by : HR

Position : E: 613400, N: 4830553 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Track-mounted

Drilling Method : Solid stem augers/mud rotary



Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type			SPT 'N' Value	Plastic Limit	Natural Water Content			
0	140.5	GROUND SURFACE											
0.2	140.3	150mm TOPSOIL											
		FILL , sandy silt to sand and silt, trace gravel, very loose to compact, brown, moist											
1			1	SS	10	140							
2			2	SS	25	139							
3			3	SS	76	138							
4			4	SS	50 / 75mm	138							
5			5	SS	28	137							
6			6	SS	38	136							
7			7	SS	7	134							
8			8	SS	6	133							
8.4	132.1	SAND , some silt, trace gravel, trace clay, dense to very dense, brown, moist to wet											
9			9	SS	40	132							
10			10	SS	55	131							
11			11	SS	53	129							
12			12	SS	48	128							
13						127							
14			13	SS	60	126							

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Project No. : 1-22-0531-01 Client : Starlight Investments Originated by : ZJ
 Date started : September 12, 2022 Project : 1485 Williamsport Drive Compiled by : FM
 Sheet No. : 2 of 2 Location : Mississauga, Ontario Checked by : HR

Position : E: 613400, N: 4830553 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers/mud rotary

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type			SPT 'N' Value	Plastic Limit	Natural Water Content			
15	(continued)												
15		SAND, some silt, trace gravel, trace clay, dense to very dense, brown, moist to wet (continued) ...shale fragments		14	SS	84 / 225mm							
16													
17	123.7 16.8	INFERRED BEDROCK, shale fragments (GEORGIAN BAY FORMATION)		15	SS	50 / 50mm							
18	122.2 18.3			16	SS	50 / 25mm							

END OF BOREHOLE

Borehole contained drill water upon completion of drilling. Unstabilized water level and cave not measured.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Sep 19, 2022	9.0	131.5
Sep 30, 2022	9.8	130.8
Oct 13, 2022	10.0	130.5

Project No. : 1-22-0531-01

Client : Starlight Investments

Originated by : ZJ

Date started : September 13, 2022

Project : 1485 Williamsport Drive

Compiled by : FM

Sheet No. : 1 of 1

Location : Mississauga, Ontario

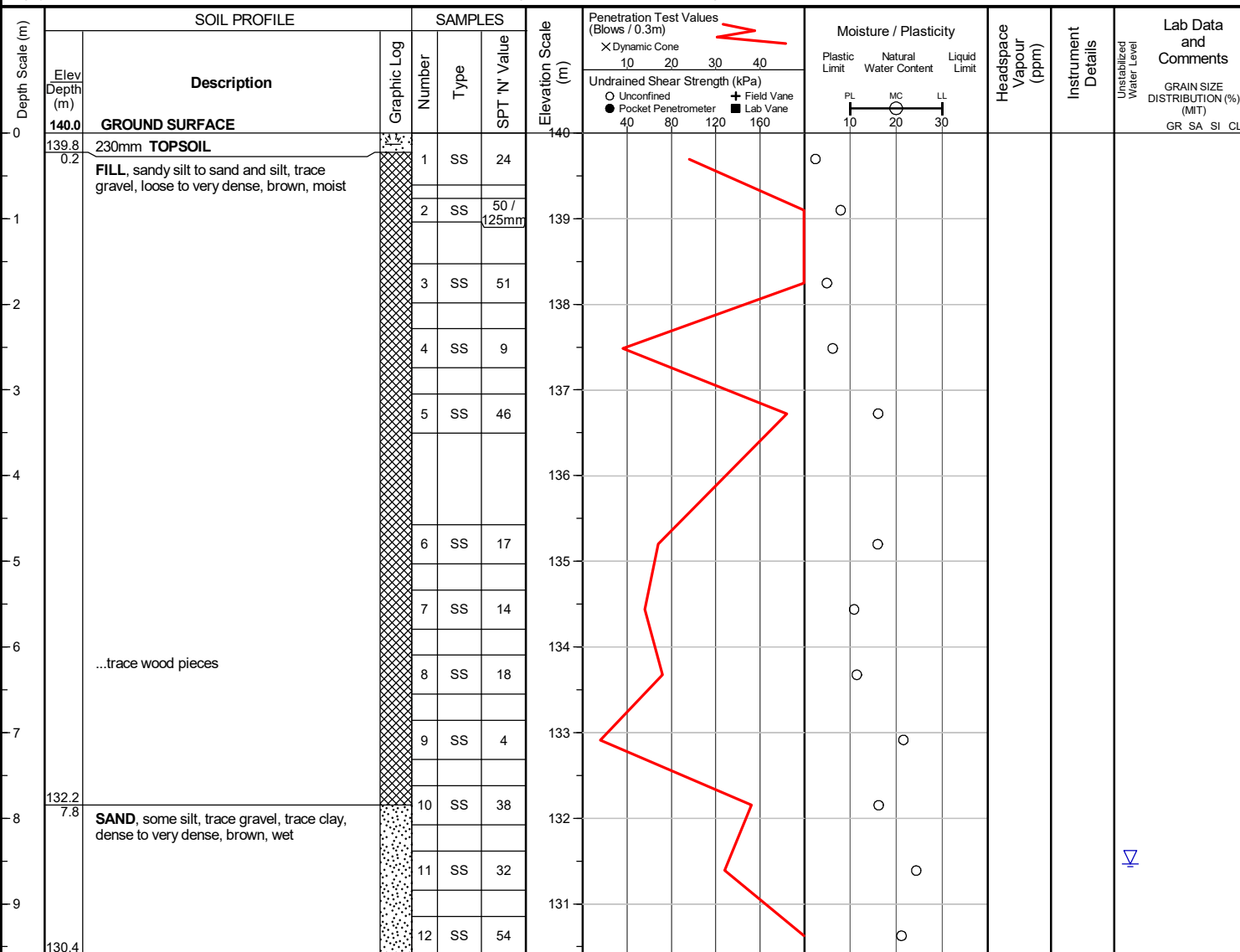
Checked by : HR

Position : E: 613393, N: 4830564 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Track-mounted

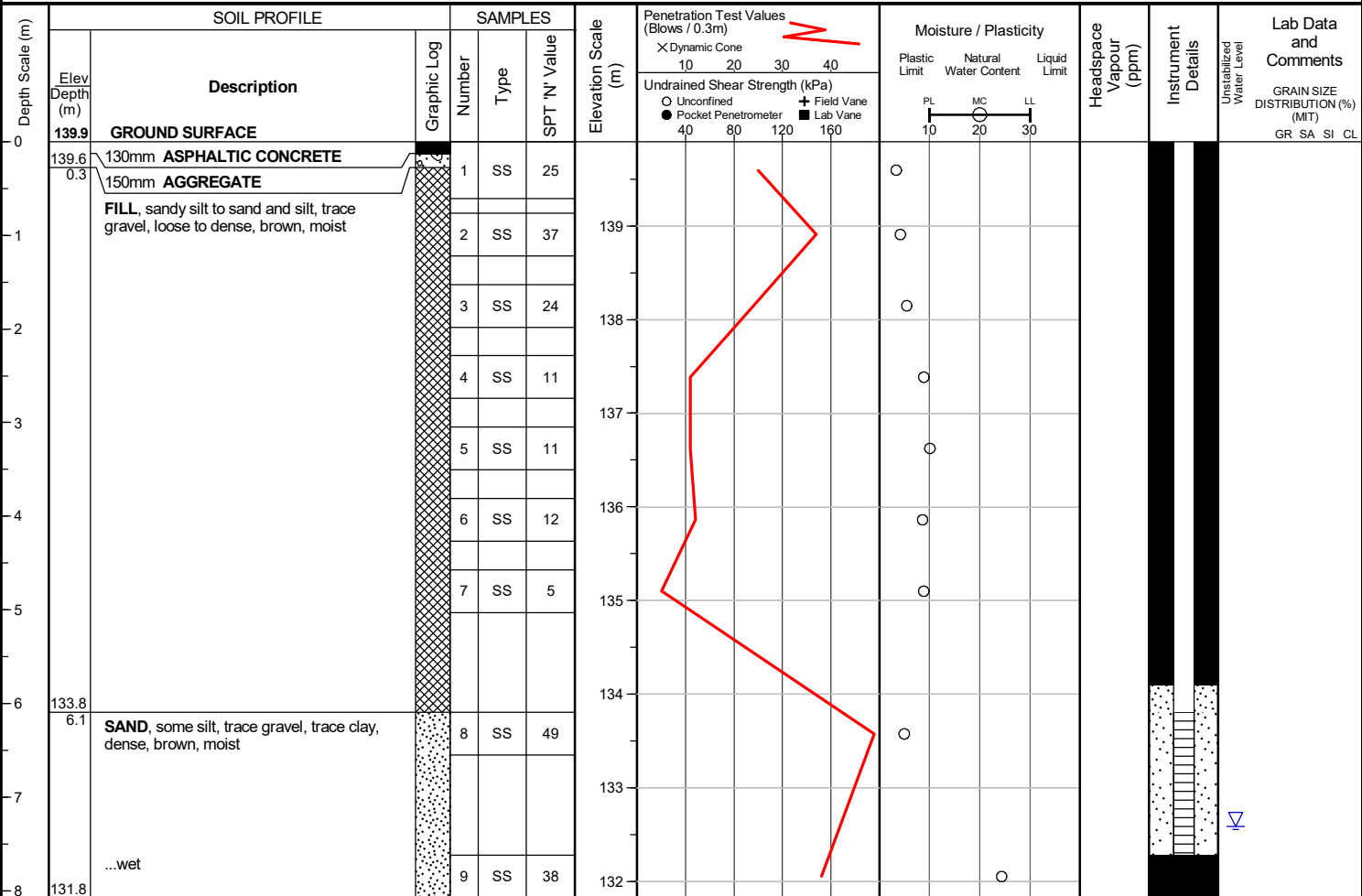
Drilling Method : Solid stem augers


END OF BOREHOLE

Unstabilized water level measured at 8.5 m below ground surface; borehole caved to 8.5 m below ground surface upon completion of drilling.

Project No. : 1-22-0531-01 Client : Starlight Investments Originated by : ZJ
 Date started : September 13, 2022 Project : 1485 Williamsport Drive Compiled by : FM
 Sheet No. : 1 of 1 Location : Mississauga, Ontario Checked by : HR

Position : E: 613397, N: 4830583 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers



END OF BOREHOLE

Unstabilized water level measured at 7.3 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Sep 19, 2022	dry	n/a
Sep 30, 2022	dry	n/a
Oct 13, 2022	dry	n/a



Terraprobe Inc.

Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing

Slug Test Analysis Report

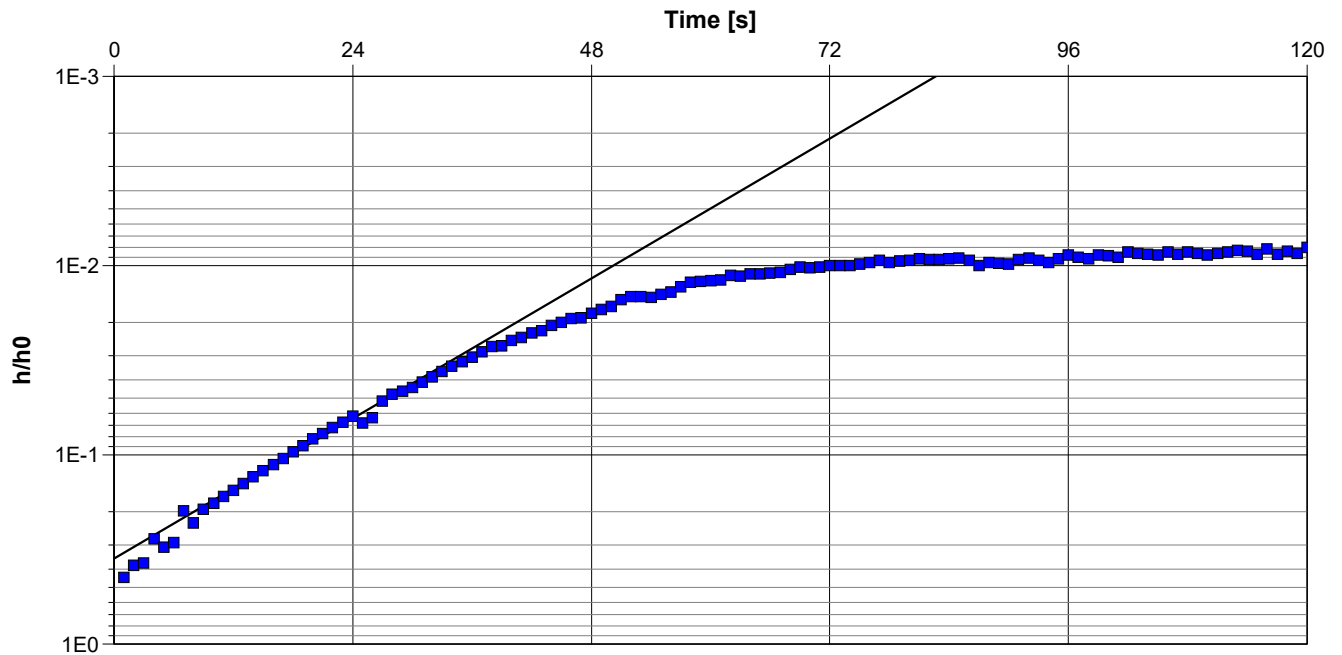
Appendix D

Project: 1485 Williamsport Drive

Number: 1-22-0531-46

Client: Starlight Investments

Location: Mississauga	Slug Test: BH 10	Test Well: BH 10
Test Conducted by: DH		Test Date: 9/30/2022
Analysis Performed by: JSB	BH 10 - FHT	Analysis Date: 10/21/2022
Aquifer Thickness: 3.10 m		



Calculation using Bower & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH 10	2.75×10^{-5}



Terraprobe Inc.

Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing

Slug Test Analysis Report

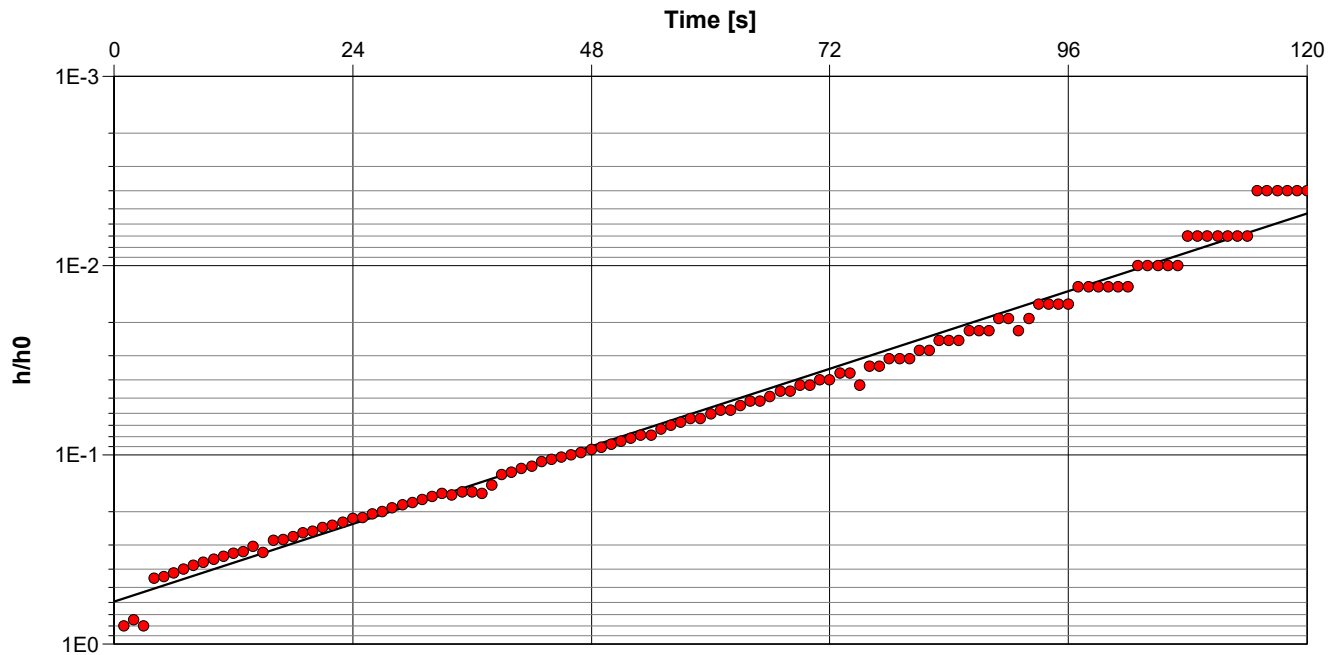
Appendix D

Project: 1485 Williamsport Drive

Number: 1-22-0531-46

Client: Starlight Investments

Location: Mississauga	Slug Test: BH 102	Test Well: BH102
Test Conducted by: AA		Test Date: 10/27/2022
Analysis Performed by: JSB	BH 102 FHT	Analysis Date: 10/28/2022
Aquifer Thickness: 3.10 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH102	1.53×10^{-5}

APPENDIX B



TOWER B1 - SHORT TERM - PILE & LAGGING

Excavation Dimensions [m]		Rainfall Data		
N-S	58	Year	2	100
E-W	23	Hour	3	12
Area (m ²)	1293.75	Depth (mm)	25	94
Perimeter (m)	160	Depth (m)	0.025	0.094

Section	Flow [m ³ /day]	Length [m]	Volume [L/day]
Base	0	57.5	-
Sides	0	160	-
<i>(extra row if sides are different)</i>		0	-
Total			-
Factor of Safety	3.0		-

Storm Events	Summary	L/day	L/min
2 Year [L/day]	Groundwater	-	-
100 Year [L/day]	Rainfall	33,000	22.9
32,344	122,000	Total	33,000
			22.9

TOWER B1 - LONG TERM - PILE & LAGGING

Excavation Dimensions [m]		Rainfall Data		
N-S	58	Year	2	100
E-W	23	Hour	3	12
Area (m ²)	1293.75	Depth (mm)	25	94
Perimeter (m)	160	Depth (m)	0.025	0.094

Section	Flow [m ³ /day]	Length [m]	Volume [L/day]
Base	0	57.5	-
Sides	0	160	-
<i>(extra row if sides are different)</i>		0	-
Total			-
Factor of Safety	3.0		-

Infiltration [L/day]	Summary	L/day	L/min
6000	Groundwater	-	-
	Infiltration	6,000	4.2
	Total	6,000	4.2

P1 EXTENSION - SHORT TERM - PILE & LAGGING

Excavation Dimensions [m]		Rainfall Data		
N-S	42	Year	2	100
E-W	36	Hour	3	12
Area (m ²)	1473.25	Depth (mm)	25	94
Perimeter (m)	154	Depth (m)	0.025	0.094

Section	Flow [m ³ /day]	Length [m]	Volume [L/day]
Base	0	41.5	-
Sides	0	154	-
<i>(extra row if sides are different)</i>		0	-
Total			-
Factor of Safety	3.0		-

Storm Events	Summary	L/day	L/min
2 Year [L/day]	Groundwater	-	-
100 Year [L/day]	Rainfall	37,000	25.7
36,831	139,000	Total	37,000
			25.7

P1 EXTENSION - LONG TERM - PILE & LAGGING

Excavation Dimensions [m]		Rainfall Data		
N-S	42	Year	2	100
E-W	36	Hour	3	12
Area (m ²)	1473.25	Depth (mm)	25	94
Perimeter (m)	154	Depth (m)	0.025	0.094

Section	Flow [m ³ /day]	Length [m]	Volume [L/day]
Base	0	41.5	-
Sides	0	154	-
<i>(extra row if sides are different)</i>		0	-
Total			-
Factor of Safety	3.0		-

Infiltration [L/day]	Summary	L/day	L/min
5775	Groundwater	-	-
	Infiltration	6,000	4.2
	Total	6,000	4.2

APPENDIX C





FINAL REPORT

CA14045-APR18 R1

1-18-0071-46 1485 Willaimsport

Prepared for

Terraprobe Inc

First Page

CLIENT DETAILS

Client: Terraprobe Inc
 Address: 11 Indell Lane, Brampton
 Canada, L6T 3Y3
 Phone: (905) 796-2650. Fax:(905) 796-2250
 Contact: Zenith Wong
 Telephone: (905) 796-2650
 Facsimile: (905) 796-2250
 Email: zwong@terraprobe.ca
 Project: 1-18-0071-46 1485 Willaimsport
 Order Number:
 Samples: Ground Water (1)

LABORATORY DETAILS

Project Specialist: Deanna Edwards, B.Sc, C.Chem
 Laboratory: SGS Canada Inc.
 Address: 185 Concession St., Lakefield ON, K0L 2H0
 Telephone: 705-652-2000
 Facsimile: 705-652-6365
 Email: deanna.edwards@sgs.com
 SGS Reference: CA14045-APR18
 Received: 04/03/2018
 Approved: 04/09/2018
 Report Number: CA14045-APR18 R1
 Date Reported: 04/09/2018

COMMENTS

RL - SGS Reporting Limit
 Temperature of Samples upon receipt: 4 degrees C
 Cooling Agent present: Yes
 Custody seal present: No
 Chain of Custody Number: 01065

SIGNATORIES

Deanna Edwards, B.Sc, C.Chem



TABLE OF CONTENTS

First Page.....	1
Index.....	2
Results.....	3-8
Exceedance Summary.....	9
QC Summary.....	10-19
Legend.....	20
Annexes.....	21-22



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

PACKAGE: **SANSEW - General Chemistry (WATER)**

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 †
Total Suspended Solids	mg/L	2	350	15	679
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5

PACKAGE: **SANSEW - Metals and Inorganics (WATER)**

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.24
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		40
Aluminum (total)	mg/L	0.001	50		38.9
Antimony (total)	mg/L	0.0002	5		0.0007
Arsenic (total)	mg/L	0.0002	1	0.02	0.0104
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000195
Chromium (total)	mg/L	0.00003	5	0.08	0.0319
Copper (total)	mg/L	0.00002	3	0.05	0.05059
Cobalt (total)	mg/L	0.000004	5		0.0233
Lead (total)	mg/L	0.00001	3	0.12	0.0271



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

PACKAGE: **SANSEW - Metals and Inorganics**

(WATER)

Sample Number 8

Sample Name SW-UF

Sample Matrix Ground Water

Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Manganese (total)	mg/L	0.00001	5	0.05	1.20
Molybdenum (total)	mg/L	0.00001	5		0.00244
Nickel (total)	mg/L	0.0001	3	0.08	0.0361
Phosphorus (total)	mg/L	0.003	10	0.4	0.810
Selenium (total)	mg/L	0.00004	1	0.02	0.00057
Silver (total)	mg/L	0.00005	5	0.12	0.00006
Tin (total)	mg/L	0.00001	5		0.0140
Titanium (total)	mg/L	0.00005	5		0.343
Zinc (total)	mg/L	0.002	3	0.04	0.094



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

PACKAGE: SANSEW - Microbiology (WATER)

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Microbiology					
Fecal Coliform	cfu/100mL	-			0
E. Coli	cfu/100mL	-		200	0

PACKAGE: SANSEW - Nonylphenol and Ethoxylates (WATER)

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01

PACKAGE: SANSEW - Oil and Grease (WATER)

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

PACKAGE: SANSEW - Oil and Grease (WATER)

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
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Oil and Grease (continued)

Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4
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PACKAGE: SANSEW - Other (ORP) (WATER)

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
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Other (ORP)

pH	no unit	0.05	10	9	7.40
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001

PACKAGE: SANSEW - PCBs (WATER)

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
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PCBs

Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
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PACKAGE: SANSEW - Phenols (WATER)

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
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FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

PACKAGE: **SANSEW - Phenols (WATER)**

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002

PACKAGE: **SANSEW - SVOCs (WATER)**

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002

PACKAGE: **SANSEW - VOCs (WATER)**

Sample Number 8
 Sample Name SW-UF
 Sample Matrix Ground Water
 Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	0.0240
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005			< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

PACKAGE: **SANSEW - VOCs (WATER)**

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
VOCs (continued)					
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

PACKAGE: **SANSEW - VOCs - BTEX (WATER)**

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER	SANSEW / WATER
				/ - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	/ - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2

SW-UF

Chloroform	EPA 5030B/8260C	mg/L	0.0240		0.002
Total Suspended Solids	SM 2540D	mg/L	679	350	15
Copper	SM 3030/EPA 200.8	mg/L	0.05059		0.05
Manganese	SM 3030/EPA 200.8	mg/L	1.20		0.05
Phosphorous	SM 3030/EPA 200.8	mg/L	0.810		0.4
Zinc	SM 3030/EPA 200.8	mg/L	0.094		0.04

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO0097-APR18	mg/L	2	<2	1	20	102	80	120	107	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0006-APR18	mg/L	2	< 2	6	30	92	70	130	110	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0030-APR18	mg/L	0.01	<0.01	ND	10	98	90	110	90	75	125



FINAL REPORT

CA14045-APR18 R1

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0090-APR18	mg/L	0.06	<0.06	ND	10	101	90	110	106	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0004-APR18	mg/L	0.00001	< 0.1	ND	20	103	80	120	NV	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0020-APR18	mg/L	0.00005	<0.00005	14	20	101	90	110	95	70	130
Aluminum (total)	EMS0020-APR18	mg/L	0.001	<0.001	ND	20	103	90	110	NV	70	130
Arsenic (total)	EMS0020-APR18	mg/L	0.0002	<0.0002	3	20	103	90	110	94	70	130
Cadmium (total)	EMS0020-APR18	mg/L	0.000003	<0.000003	16	20	101	90	110	99	70	130
Cobalt (total)	EMS0020-APR18	mg/L	0.000004	<0.000004	2	20	101	90	110	NV	70	130
Chromium (total)	EMS0020-APR18	mg/L	0.00003	<0.00003	2	20	102	90	110	NV	70	130
Copper (total)	EMS0020-APR18	mg/L	0.00002	<0.00002	0	20	101	90	110	NV	70	130
Manganese (total)	EMS0020-APR18	mg/L	0.00001	<0.00001	1	20	102	90	110	NV	70	130
Molybdenum (total)	EMS0020-APR18	mg/L	0.00001	<0.00001	3	20	104	90	110	94	70	130
Nickel (total)	EMS0020-APR18	mg/L	0.0001	<0.0001	0	20	101	90	110	NV	70	130
Lead (total)	EMS0020-APR18	mg/L	0.00001	<0.00001	2	20	98	90	110	NV	70	130
Antimony (total)	EMS0020-APR18	mg/L	0.0002	<0.0002	1	20	96	90	110	102	70	130
Selenium (total)	EMS0020-APR18	mg/L	0.00004	<0.00004	4	20	99	90	110	84	70	130
Tin (total)	EMS0020-APR18	mg/L	0.00001	<0.00001	2	20	103	90	110	NV	70	130
Titanium (total)	EMS0020-APR18	mg/L	0.00005	<0.00005	2	20	102	90	110	NV	70	130
Zinc (total)	EMS0020-APR18	mg/L	0.002	<0.002	2	20	103	90	110	NV	70	130



FINAL REPORT

CA14045-APR18 R1

QC SUMMARY

Metals in aqueous samples - ICP-OES

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	EMS0020-APR18	mg/L	0.003	<0.003	1	20	100	90	110	NV	70	130

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9027-APR18	cfu/100mL	-	ACCEPTED	ACCEPTED	D						
Fecal Coliform	BAC9027-APR18	cfu/100mL	-	ACCEPTED	ACCEPTED	D						

QC SUMMARY

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0031-APR18	mg/L	0.01	< 0.01			107	55	120			
Nonylphenol Ethoxylates	GCM0031-APR18	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0031-APR18	mg/L	0.01	< 0.01			100	55	120			
Nonylphenol	GCM0031-APR18	mg/L	0.001	< 0.001			74	55	120			

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0045-APR18	mg/L	2	<2			102	75	125			



FINAL REPORT

CA14045-APR18 R1

QC SUMMARY

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0045-APR18	mg/L	4	< 4			NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0045-APR18	mg/L	4	< 4			NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0037-APR18	no unit	0.05	NA	1		102			NA		

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0025-APR18	mg/L	0.002	<0.002	ND	10	103	90	110	NA	75 125	

QC SUMMARY

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0058-APR18	mg/L	0.0001	<0.0001	NSS	30	115	60	140	NSS	60	140

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0050-APR18	mg/L	0.002	< 0.002	NSS	30	85	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0050-APR18	mg/L	0.002	< 0.002	NSS	30	89	50	140	NSS	50	140

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0044-APR18	mg/L	2	< 2	6	10	100	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0024-APR18	as N mg/L	0.5	<0.5	3	10	99	90	110	107	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140
1,2-Dichlorobenzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	105	60	130	98	50	140
1,4-Dichlorobenzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	105	60	130	98	50	140
Benzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	97	50	140
Chloroform	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	104	60	130	98	50	140
cis-1,2-Dichloroethene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	99	60	130	94	50	140
Ethylbenzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	97	50	140
m-p-xylene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	96	50	140
Methyl ethyl ketone	GCM0060-APR18	mg/L	0.02	<0.02	ND	30	103	50	140	100	50	140
Methylene Chloride	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	98	50	140
o-xylene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	96	50	140
Styrene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	104	60	130	97	50	140
Tetrachloroethylene (perchloroethylene)	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	95	50	140
Toluene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	101	60	130	96	50	140
trans-1,3-Dichloropropene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	108	60	130	100	50	140
Trichloroethylene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	97	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND**FOOTNOTES**

NSS Insufficient sample for analysis.
RL Reporting Limit.
 ↑ Reporting limit raised.
 ↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- End of Analytical Report --



SGS Environment,
Health and Safety

Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365
London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com

No: 01065
Page 1 of 1

Request for Laboratory Services and CHAIN OF CUSTODY

Laboratory Information Section Lab use only

Received By: *D Reid*
Received Date: *06/18* (mm/dd/yy)
Received Time: *06:11* am / pm (circle)

Cooling Agent Present: N Type: *lee*
Temperature Upon Receipt (°C): *13.2*

LAB LIMS #: *4X3-C*
0A14045 - Apr 18

REPORT INFORMATION

Company: *Terraprobe Inc.*
Contact: *Yvona Quan*
Address: *Brampton ON*

INVOICE INFORMATION

(same as Report Information)
Company: _____
Contact: _____
Address: _____

PROJECT INFORMATION

Quotation #: _____ P.O. #: _____
Project #: *1-18-0071-46* Site Location/ID: *1485 Williamspoint*

Phone: _____
Fax: _____
Email: *yvona@terraprobe.ca*

Phone: _____
Email: *lrossie@terraprobe.ca*

TURNAROUND TIME (TAT) REQUIRED
 Regular TAT (5-7days) TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 3pm or on weekends : TAT begins the next business day
 1 Day 2 Days 3-4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Rush Confirmation ID: _____

REGULATIONS

Regulation 153 (2011):

Table 1 Res/Park Soil Texture:
 Table 2 Ind/Com Coarse
 Table 3 Agri/Other Medium
 Table Fine

Other Regulations:

Sewer By-Law: Sanitary Storm
Municipality: *Peel Region*

ANALYSIS REQUESTED

COMMENTS:
Field Filtered (F)
Preserved (P)

RECORD OF SITE CONDITION (RSC) YES NO

SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX
1 <i>SW-4E</i>	<i>Apr 3/18</i>	<i>13:30</i>	<i>16</i>	<i>GW</i>
2				
3				
4				
5				
6				
7				
8				
9				
10				

X Sewer Use Bylaw

Not Filtered.

Observations/Comments/Special Instructions

Sampled By (NAME): *Bob Racher* Signature: *[Signature]* Date: *04/03/18* (mm/dd/yy) Pink Copy - Client

Relinquished by (NAME): *Bob Racher* Signature: *[Signature]* Date: *04/03/18* (mm/dd/yy) Yellow & White Copy - SGS

Project Number: 1-18-0071-46
SGS Sample ID: CA 14045 - April 18
Date / Time Sampled: April 3/18 / 13:30
Client Sample ID: SW-UF

ONTARIO REGULATION 153/04

ALL

Sample Submission General Sample Integrity Violations

- Temperature >10 C upon receipt if not sampled same day
- No evidence of cooling trend initiated if sampled same day
- Chain of Custody not submitted
- Chain of Custody incomplete
- Chain of Custody not signed / dated
- Chain of Custody not a current version
- Bottles / Samples listed on CoC but not received
- Bottles / Samples received but not listed on the CoC
- Sample container received empty

also received
Cr VI-1C bottle
but not in
template

-not needed
as per
Deanna
HIA

Sample Specific Sample Integrity Violations

- | | | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Sample received past hold time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Incorrect preservation (including no preservation where required) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Headspace present in VOC vial (aqueous) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample(s) received frozen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Bottle(s) broken or damaged in transport | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Discrepancy between sample label and chain of custody | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Analysis requirements absent / unclear | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Missing or incorrect sample label(s) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Inappropriate sample container used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insufficient number of bottles received | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Limited sample volume | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insufficient sample volume | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample contains multiple phases | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Sediment Log

- Groundwater samples contain visible sediment / particulate
- Groundwater contains greater than 1cm of sediment / particulate matter in bottle

Additional Comments/Remarks:

No issues upon receipt

Initials: HIA



FINAL REPORT

CA14045-APR18 R1

1-18-0071-46 1485 Willaimsport

Prepared for

Terraprobe Inc

First Page

CLIENT DETAILS

Client: Terraprobe Inc
 Address: 11 Indell Lane, Brampton
 Canada, L6T 3Y3
 Phone: (905) 796-2650. Fax:(905) 796-2250
 Contact: Zenith Wong
 Telephone: (905) 796-2650
 Facsimile: (905) 796-2250
 Email: zwong@terraprobe.ca
 Project: 1-18-0071-46 1485 Willaimsport
 Order Number:
 Samples: Ground Water (1)

LABORATORY DETAILS

Project Specialist: Deanna Edwards, B.Sc, C.Chem
 Laboratory: SGS Canada Inc.
 Address: 185 Concession St., Lakefield ON, K0L 2H0
 Telephone: 705-652-2000
 Facsimile: 705-652-6365
 Email: deanna.edwards@sgs.com
 SGS Reference: CA14045-APR18
 Received: 04/03/2018
 Approved: 04/09/2018
 Report Number: CA14045-APR18 R1
 Date Reported: 11/02/2022

COMMENTS

RL - SGS Reporting Limit
 Temperature of Samples upon receipt: 4 degrees C
 Cooling Agent present: Yes
 Custody seal present: No
 Chain of Custody Number: 01065

SIGNATORIES

Deanna Edwards, B.Sc, C.Chem



TABLE OF CONTENTS

First Page.....	1
Index.....	2
Results.....	3-6
Exceedance Summary.....	7
QC Summary.....	8-16
Legend.....	17
Annexes.....	18-19



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

MATRIX: WATER

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Mississauga Sewer Use ByLaw - Storm Sewer - BL_0046_2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2	15	< 4 †
Total Suspended Solids	mg/L	2	15	679
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5

Metals and Inorganics

Fluoride	mg/L	0.06		0.24
Cyanide (total)	mg/L	0.01	0.02	< 0.01
Sulphate	mg/L	2		40
Aluminum (total)	mg/L	0.001	1	38.9
Antimony (total)	mg/L	0.0002		0.0007
Arsenic (total)	mg/L	0.0002	0.02	0.0104
Cadmium (total)	mg/L	0.000003	0.008	0.000195
Chromium (total)	mg/L	0.00003	0.08	0.0319
Copper (total)	mg/L	0.00002	0.04	0.05059
Cobalt (total)	mg/L	0.000004		0.0233
Lead (total)	mg/L	0.00001	0.12	0.0271
Manganese (total)	mg/L	0.00001	2	1.20
Molybdenum (total)	mg/L	0.00001		0.00244
Nickel (total)	mg/L	0.0001	0.08	0.0361
Phosphorus (total)	mg/L	0.003	0.4	0.810
Selenium (total)	mg/L	0.00004	0.02	0.00057
Silver (total)	mg/L	0.00005	0.12	0.00006
Tin (total)	mg/L	0.00001		0.0140



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

MATRIX: WATER

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Mississauga Sewer Use ByLaw - Storm Sewer - BL_0046_2022

Parameter	Units	RL	L1	Result
-----------	-------	----	----	--------

Metals and Inorganics (continued)

Titanium (total)	mg/L	0.00005		0.343
Zinc (total)	mg/L	0.002	0.2	0.094

Microbiology

Fecal Coliform	cfu/100mL	0		0
E. Coli	cfu/100mL	0	200	0

Nonylphenol and Ethoxylates

Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01

Oil and Grease

Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

MATRIX: WATER

Sample Number 8
Sample Name SW-UF
Sample Matrix Ground Water
Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Mississauga Sewer Use ByLaw - Storm Sewer - BL_0046_2022

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	no unit	0.05	9	7.40
Mercury (total)	mg/L	0.00001	0.0004	< 0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.0004	< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.008	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		0.0240
1,2-Dichlorobenzene	mg/L	0.0005	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005		< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.0076	< 0.0005



FINAL REPORT

CA14045-APR18 R1

Client: Terraprobe Inc

Project: 1-18-0071-46 1485 Willaimsport

Project Manager: Zenith Wong

Samplers: Bob Racher

MATRIX: WATER

Sample Number 8

Sample Name SW-UF

Sample Matrix Ground Water

Sample Date 03/04/2018

L1 = SANSEW / WATER / - - Mississauga Sewer Use ByLaw - Storm Sewer - BL_0046_2022

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.002	< 0.0005
Toluene	mg/L	0.0005	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005		< 0.0005
o-xylene	mg/L	0.0005		< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	L1
				SANSEW / WATER / - - Mississauga Sewer Use ByLaw - Storm Sewer - BL_0046_2022

SW-UF

Total Suspended Solids	SM 2540D	mg/L	679	15
Aluminum	SM 3030/EPA 200.8	mg/L	38.9	1
Copper	SM 3030/EPA 200.8	mg/L	0.05059	0.04
Phosphorus	SM 3030/EPA 200.8	mg/L	0.810	0.4

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO0097-APR18	mg/L	2	<2	1	20	102	80	120	107	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0006-APR18	mg/L	2	< 2	6	30	92	70	130	110	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0030-APR18	mg/L	0.01	<0.01	ND	10	98	90	110	90	75	125



FINAL REPORT

CA14045-APR18 R1

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0090-APR18	mg/L	0.06	<0.06	ND	10	101	90	110	106	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0004-APR18	mg/L	0.00001	< 0.1	ND	20	103	80	120	NV	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0020-APR18	mg/L	0.00005	< 0.1	14	20	101	90	110	95	70	130
Aluminum (total)	EMS0020-APR18	mg/L	0.001	< 0.1	ND	20	103	90	110	NV	70	130
Arsenic (total)	EMS0020-APR18	mg/L	0.0002	< 0.1	3	20	103	90	110	94	70	130
Cadmium (total)	EMS0020-APR18	mg/L	0.000003	< 0.1	16	20	101	90	110	99	70	130
Cobalt (total)	EMS0020-APR18	mg/L	0.000004	< 0.1	2	20	101	90	110	NV	70	130
Chromium (total)	EMS0020-APR18	mg/L	0.00003	< 0.1	2	20	102	90	110	NV	70	130
Copper (total)	EMS0020-APR18	mg/L	0.00002	< 0.1	0	20	101	90	110	NV	70	130
Manganese (total)	EMS0020-APR18	mg/L	0.00001	< 0.1	1	20	102	90	110	NV	70	130
Molybdenum (total)	EMS0020-APR18	mg/L	0.00001	< 0.1	3	20	104	90	110	94	70	130
Nickel (total)	EMS0020-APR18	mg/L	0.0001	< 0.1	0	20	101	90	110	NV	70	130
Lead (total)	EMS0020-APR18	mg/L	0.00001	< 0.1	2	20	98	90	110	NV	70	130
Phosphorus (total)	EMS0020-APR18	mg/L	0.003	< 0.1	1	20	100	90	110	NV	70	130
Antimony (total)	EMS0020-APR18	mg/L	0.0002	< 0.1	1	20	96	90	110	102	70	130
Selenium (total)	EMS0020-APR18	mg/L	0.00004	< 0.1	4	20	99	90	110	84	70	130
Tin (total)	EMS0020-APR18	mg/L	0.00001	< 0.1	2	20	103	90	110	NV	70	130
Titanium (total)	EMS0020-APR18	mg/L	0.00005	< 0.1	2	20	102	90	110	NV	70	130
Zinc (total)	EMS0020-APR18	mg/L	0.002	< 0.1	2	20	103	90	110	NV	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9027-APR18	cfu/100mL	-	ACCEPTED	ACCEPTED							
Fecal Coliform	BAC9027-APR18	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0031-APR18	mg/L	0.01	< 0.01			107	55	120			
Nonylphenol Ethoxylates	GCM0031-APR18	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0031-APR18	mg/L	0.01	< 0.01			100	55	120			
Nonylphenol	GCM0031-APR18	mg/L	0.001	< 0.001			74	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0045-APR18	mg/L	2	<2			102	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0045-APR18	mg/L	4	< 4			NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0045-APR18	mg/L	4	< 4			NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0037-APR18	no unit	0.05	NA	1		102			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0025-APR18	mg/L	0.002	<0.002	ND	10	103	80	120	NA	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0058-APR18	mg/L	0.0001	<0.0001	NSS	30	115	60	140	NSS	60	140



FINAL REPORT

CA14045-APR18 R1

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0050-APR18	mg/L	0.002	< 0.002	NSS	30	85	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0050-APR18	mg/L	0.002	< 0.002	NSS	30	89	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0044-APR18	mg/L	2	< 2	6	10	100	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0024-APR18	as N mg/L	0.5	<0.5	3	10	99	90	110	107	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140
1,2-Dichlorobenzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	105	60	130	98	50	140
1,4-Dichlorobenzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	105	60	130	98	50	140
Benzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	97	50	140
Chloroform	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	104	60	130	98	50	140
cis-1,2-Dichloroethene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	99	60	130	94	50	140
Ethylbenzene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	97	50	140
m-p-xylene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	96	50	140
Methyl ethyl ketone	GCM0060-APR18	mg/L	0.02	<0.02	ND	30	103	50	140	100	50	140
Methylene Chloride	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	98	50	140
o-xylene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	103	60	130	96	50	140
Styrene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	104	60	130	97	50	140
Tetrachloroethylene (perchloroethylene)	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	95	50	140
Toluene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	101	60	130	96	50	140
trans-1,3-Dichloropropene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	108	60	130	100	50	140
Trichloroethylene	GCM0060-APR18	mg/L	0.0005	<0.0005	ND	30	102	60	130	97	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

- NSS** Insufficient sample for analysis.
- RL** Reporting Limit.
 - ↑ Reporting limit raised.
 - ↓ Reporting limit lowered.
- NA** The sample was not analysed for this analyte
- ND** Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

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This report supersedes all previous versions.

-- End of Analytical Report --



SGS Environment,
Health and Safety

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No: 01065
Page 1 of 1

Request for Laboratory Services and CHAIN OF CUSTODY

Laboratory Information Section Lab use only

Received By: D Reid
Received Date: 06/18 (mm/dd/yy)
Received Time: 06:11 am / pm (circle)
Custody Seal Present: Y / N (circle)
Custody Seal Intact: Y / N (circle)

Cooling Agent Present: Y / N Type: Ice
Temperature Upon Receipt (°C): 13.2

LAB LIMS #: 4X3-C
0A14045 - Apr 18

REPORT INFORMATION

Company: Terraprobe Inc.
Contact: Yvona Quan
Address: Brampton ON

INVOICE INFORMATION

(same as Report Information)
Company: _____
Contact: _____
Address: _____

PROJECT INFORMATION

Quotation #: _____ P.O. #: _____
Project #: 1-18-0071-46 Site Location/ID: 1485 Williamspoint
TURNAROUND TIME (TAT) REQUIRED
Regular TAT (5-7days) TAT's are quoted in business days (exclude statutory holidays & weekends).
RUSH TAT (Additional Charges May Apply) 1 Day 2 Days 3-4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Rush Confirmation ID: _____

REGULATIONS

Regulation 153 (2011):
 Table 1 Res/Park Soil Texture:
 Table 2 Ind/Com Coarse
 Table 3 Agri/Other Medium
 Table Fine
Other Regulations:
 Reg 347/558 (3 Day min TAT)
 PW/QO MMR
 CCME Other:
Municipality: Reel Region
Sewer By-Law: Sanitary Storm

ANALYSIS REQUESTED

DRINKING WATER SAMPLES (POTABLE WATER FOR HUMAN CONSUMPTION) MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY
COMMENTS:
Field Filtered (F)
Preserved (P)
X Sewer Use Bylaw
Not Filtered.

SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	RECORD OF SITE CONDITION (RSC)	
					YES	NO
1 SW-4E	Apr 3/18	13:30	16	GW		
2						
3						
4						
5						
6						
7						
8						
9						
10						

Observations/Comments/Special Instructions
Sampled By (NAME): Bob Racher Signature: [Signature] Date: 04/03/18 (mm/dd/yy) Pink Copy - Client
Relinquished by (NAME): Bob Racher Signature: [Signature] Date: 04/03/18 (mm/dd/yy) Yellow & White Copy - SGS

Project Number: 1-18-0071-46
SGS Sample ID: CA 14045 - April 18
Date / Time Sampled: April 3/18 / 13:30
Client Sample ID: SW-UF
ONTARIO REGULATION 153/04

ALL

Sample Submission General Sample Integrity Violations

- Temperature >10 C upon receipt if not sampled same day
- No evidence of cooling trend initiated if sampled same day
- Chain of Custody not submitted
- Chain of Custody incomplete
- Chain of Custody not signed / dated
- Chain of Custody not a current version
- Bottles / Samples listed on CoC but not received
- Bottles / Samples received but not listed on the CoC
- Sample container received empty

also received
Cr VI-1C bottle
but not in
template

-not needed
as per
Deanna
HIA

Sample Specific Sample Integrity Violations

- | | | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Sample received past hold time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Incorrect preservation (including no preservation where required) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Headspace present in VOC vial (aqueous) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample(s) received frozen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Bottle(s) broken or damaged in transport | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Discrepancy between sample label and chain of custody | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Analysis requirements absent / unclear | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Missing or incorrect sample label(s) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Inappropriate sample container used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insufficient number of bottles received | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Limited sample volume | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insufficient sample volume | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample contains multiple phases | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Sediment Log

- | | | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Groundwater samples contain visible sediment / particulate | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Groundwater contains greater than 1cm of sediment / particulate matter in bottle | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Additional Comments/Remarks:

No issues upon receipt

Initials: HIA