Terraprobe

Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
2107 & 2119 OLD LAKESHORE ROAD
BURLINGTON, ONTARIO

Prepared for: Old Lakeshore Burlington Inc.
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File No 7-19-0023-42
July 8, 2019

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1.0 EXECUTIVE SUMMARY

Lakeshore (Burlington) Inc. retained Terraprobe Inc. (Terraprobe), to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the Phase Two Property (Property) located at the intersection of Lakeshore Road and old Lakeshore Road in Burlington, Ontario. The Property is comprised of the municipal addresses: 2107 and 2119 Old Lakeshore Road.

The Property is irregular in shape, with a total area of 0.3 ha (0.7 acres). The Property is developed with two (2) low-rise buildings and asphalt paved parking areas. 2107 Old Lakeshore Road is occupied by a condominium presentation centre and 2119 Old Lakeshore Road is occupied by a doctor's office. The Property is considered to be in Commercial Land Use by the Ontario Ministry of the Environment, Conservation and Parks (MECP). It is understood that the Property will be potentially re-developed with high-rise towers over a mixed-use podium resting on a four (4) level underground parking structure. The Phase One Two is required for to support a Record of Site Condition.

The Phase Two ESA is required to investigate the Areas of Potential Environmental Concern (APECs) for the Contaminants of Potential Concern (CoPCs) that have been identified on the Property. The Phase Two ESA and was completed in compliance with Ontario Regulation 153/04 (O.Reg. 153/04).

A Phase One ESA completed on the Property in 2017 indicated five (5) Areas of Potential Environmental Concern (APECs) that were divided into three (3) physical area groups at the Property. The Contaminants of Potential Concern (COPCs) identified in the Phase One ESA were investigated in this assessment.

The conclusions of the Phase Two ESA were:

- The applicable Site Condition Standards are the 2011 Ministry of the Environment, Conservation and Parks Table 3 Standards for Residential, Parkland and Institutional Land Use with medium – fine textured soils (MECP Table 3 Standards).
- Seven (7) boreholes were drilled between March 25th and 26th, 2019. Seven (7) monitoring wells were installed in BH101, BH102, BH103S, BH103D, BH104S, BH104D and BH105. The monitoring wells were installed to depths of approximately 3.1 to 6.1 m below ground surface.
- The ground water depth was identified at approximately 2.2 m below ground surface (mbgs) in monitoring well BH101, 3.0 mbgs in monitoring well BH102, 1.1 mbgs in monitoring well BH103S, 3.1 mbgs in monitoring well BH103D, 1.3 mbgs in monitoring well BH104S, 3.4 mbgs in BH104D and 1.9 mbgs in monitoring well BH105.
- The stratigraphy at the site is generally characterized by having a pavement structure at the ground surface comprising 50 to 150 mm of asphaltic concrete underlain by 100 to 150 mm of aggregate. Earth fill was encountered underlying the surficial material in BH102 and BH103 which extended to depths ranging from 1.5 m to 2.0 m. The earth fill was typically brown with black staining and petroleum hydrocarbon odour. Underlying the fill was native material

extending to a depth ranging from 2.3 to 3.4 m below ground surface. All boreholes encountered a reddish brown weathered shale. The bedrock surface is inferred to be at a depth ranging from 2.3 to 3.4 m below ground surface and extending beyond the vertical extent of the investigation.

- The following exceedances of the Applicable Site Conditions Standards were noted in the earth fill material located on the Property:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter	Table 3 RPI M&F	Result
BH102 SA1	0.3/79.3	Fill	Sodium Adsorption Ratio	5	**10.9**
BH102 SA3	1.7/77.9	Fill/Native	Electrical Conductivity **(mS/cm)**	0.7	**1.16**
			Sodium Adsorption Ratio	5	**11.3**
			PHC F1 (-BTEX) (µg/g)	65	**2000**
			n-Hexane (µg/g)	34	**310**
BH103 SA2	1.1/78.8	Fill	Lead (ug/g)	120	**177**
			Zinc (ug/g)	340	**456**
			Electrical Conductivity **(mS/cm)**	0.7	**0.889**
			Sodium Adsorption Ratio	5	**13.4**
			Benzene (µg/g)	0.17	**0.25**
Dup1 (BH103 SA2)	1.1/78.8	Fill	Benzene (µg/g)	0.17	**0.26**

- The following exceedances of the Applicable Site Conditions Standards were noted in the native material located on the Property:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter	Table 3 RPI M&F	Result
BH103 SA3	1.7/78.2	Native	Sodium Adsorption Ratio	5	**11.9**
BH104 SA3	1.7/78.2	Native	Electrical Conductivity (mS/cm)	0.7	**0.714**
			Sodium Adsorption Ratio	5	**6.16**
			PHC F1 (-BTEX) (µg/g)	65	**210**
			Benzene (µg/g)	0.17	**2.9**

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter	Table 3 RPI M&F	Result
Dup2 (BH104 SA3)	1.7/78.2	Native	Sodium Adsorption Ratio	5	**7.06**
BH104 SA4	2.6/77.3	Native	Electrical Conductivity (mS/cm)	0.7	**0.767**
			Sodium Adsorption Ratio	5	**5.48**
			PHC F1 (-BTEX) (µg/g)	65	**380**
			Benzene (µg/g)	0.17	**24**
			Ethylbenzene (µg/g)	15	**55**
			Toluene (µg/g)	6	**63**
			n-Hexane (µg/g)	34	**150**
			Xylene Mixture (µg/g)	25	**220**
BH104 SA5	3.4/76.5	Native	Benzene (µg/g)	0.17	**0.51**
BH105 SA2	1.1/79.9	Native	Electrical Conductivity (mS/cm)	0.7	**1.41**
			Sodium Adsorption Ratio	5	**6.79**
BH105 SA3	1.7/79.3	Native	Electrical Conductivity (mS/cm)	0.7	**0.816**

- The soil exceedances are provided in Table 1 through 5. All soil exceedance locations are noted on Figure 7 to 21.
- The following exceedances of the Applicable Site Conditions Standards were noted in the ground water located on the Property:

Sample ID	Elev. (masl)	Parameter	Table 3 RPI M&F	Result
BH104S	78.3 to 76.8	PHC F2 (µg/L)	150	**300**
		Benzene (µg/L)	430	**2500**
		Xylene Mixture (µg/L)	4200	**5300**

- The ground water exceedances are provided in Table 6 through 10. All ground water exceedance locations are noted on Figure 22 to 27.

- A Record of Site Condition cannot be filed for the Property at this time. Exceedances of the applicable Site Condition Standards were noted in the earth fill, native soil and ground water on the Property. Terraprobe understands that the affected soils will be removed during the development of a multiple level underground parking structure on the Property. Verification sampling will be required once the excavation is complete in order to confirm that the remaining soil meets the applicable site condition standards. Following the removal of the impacted soil from the Property the ground water should be sampled to determine if ground water impacts remain on the Property. If ground water on the Property is impacted following the removal of the soil, a remedial plan should be developed to determine the most feasible program to obtain the Record of Site Condition (i.e. risk assessment or remediation).

2.0 INTRODUCTION

Lakeshore (Burlington) Inc. retained Terraprobe Inc. (Terraprobe), to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the Phase Two Property (Property) located at the southwest corner of the intersection of Lakeshore Road and Old Lakeshore Road in Burlington, Ontario. The Property is comprised of the municipal addresses: 2107 and 2119 Old Lakeshore Road. The Phase Two ESA is required to investigate the Areas of Potential Environmental Concern (APECs) for the Contaminants of Potential Concern (CoPCs) that have been identified on the Property. The Phase Two ESA and was completed in compliance with Ontario Regulation 153/04 (O.Reg. 153/04).

2.1 Site Description

The Property is irregular in shape, with a total area of 0.3 ha (0.7 acres). The Property was developed with two (2) low-rise buildings and asphalt paved parking areas. 2107 Old Lakeshore Road was occupied by a one-storey condominium presentation centre and 2119 Old Lakeshore Road was occupied by a one-storey medical clinic. The Property was considered to be in Commercial Land Use by the Ontario Ministry of the Environment, Conservation and Parks (MECP). It is understood that the Property will be potentially developed with high-rise towers over a mixed-use podium resting on a four (4) level underground parking structure. The Phase Two is required to support the filing of a Record of Site Condition. The general location of the Property is presented on Figure 1.

The Property information is as follows:

2107 & 2119 Old Lakeshore Road	
Legal Description	2107 Old Lakeshore Road - Part Lots 10 & 11, Block Q, Plan 92 as in 837229 & 677424 2119 Old Lakeshore Road - Part Lots 11 & 12, Block Q, Plan 92 as in 543209
PIN(s)	2107 Old Lakeshore Road - 07061-0090 (LT) 2119 Old Lake Shore Road - 07061-0017 (LT)
Assessment Roll Number	Not available
Municipal Address	2107 and 2119 Old Lakeshore Road, Burlington
Zoning	Downtown Mixed Use (DL-A), Zoning By-Law 2020
Property Owner Information	Old Lakeshore Burlington Inc. 421 Brant Street, Suite 200 Burlington, Ontario L7R 2G3
Persons, other than Property Owner, who engaged the Qualified Person to conduct the Phase Two ESA	None

2.2 Property Ownership

The ownership information for the Phase Two Property is as follows:

Property Owner Information	Old Lakeshore Burlington Inc. 421 Brant Street, Suite 200 Burlington, Ontario L7R 2G3

2.3 Current and Proposed Future Uses

2.3.1 Current Land Use

The Property is currently occupied by two (2) low-rise buildings and asphalt paved parking areas. 2107 Old Lakeshore Road was occupied by a one-storey condominium presentation centre and 2119 Old Lakeshore Road was occupied by a one-storey medical clinic. The Current Land Use of the Property would be considered Commercial Land Use under O.Reg. 153/04.

2.3.2 Future Land Use

It is understood that the Property will be potentially developed with high-rise residential towers over a mixed-use commercial and residential podium resting on a four (4) level underground parking structure. On this basis, the Property would be considered residential land use.

2.4 Applicable Site Condition Standard

The applicable soil and ground water Standards for the Property were determined to be those in Table 3 of the April 15, 2011 Ontario Ministry of the Environment, Conservation and Parks (MECP) "*Soil, Ground Water and Sediment Standards for use under part XV.1 of the Environmental Protection Act*" for Residential, Parkland, Institutional Land Use in a non-potable ground water condition for medium/fine textured soil (MECP Table 3 Standards).

These are considered to be the applicable Standards for the following reasons:

- The intended use of the Property is for Residential Land Use.
- The Property is not located within 30 m of a surface water body.
- The Property is not located in, adjacent to, or within 30 m of an area of natural significance.
- Bedrock across the Property is found at depths of greater than 2 m
- The Property is located in Burlington where water is municipally serviced

Terraprobe notified the City of Burlington and the Halton Region of the intention to use non-potable ground water standards on March 18, 2019. No objections were given to the use of non-potable ground water standards. The notification and response from both the City of Burlington and Halton Region are provided in Appendix C.

2.5 Objectives of Investigation

The general objectives of the investigation include the following:

- To determine the concentration and location of Contaminants of Potential Concern (CoPCs) identified in a Phase One ESA for the Property, and found through the course of conducting the Phase Two ESA, in soil, and ground water, as applicable;
- To determine if all CoPCs identified in the investigation met the generic Site Condition Standard.

To ensure that the general objectives of the investigation were met, the Qualified Person ensured the following:

- That the investigation provided sufficient information to provide an understanding of the geological and hydrogeological conditions at the Phase Two Property; and
- That one or more rounds of field sampling are conducted for all CoPCs identified for the Property, as identified in the Sampling and Analysis Plan (Appendix C) of the Phase Two ESA and found through the course of conducting the Phase Two ESA, in soil, and ground water, as applicable.

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

3.1.1 Water Bodies, Wetlands and Areas of Natural Significance

Mapping from the Ontario Ministry of Natural Resources and Forestry (MNRF) was reviewed to determine if water bodies were present on the Property and within 250 m of the Property. The MNRF National Heritage Information Centre database for listings of Areas of Natural or Scientific Interest (ANSIs) was reviewed. The information is summarized below.

Water Bodies (Property)	• No water bodies were identified on the Property.
Water Bodies (Study Area)	• Lake Ontario – 40 m South of the Property
Wetland (Property)	Provincially Significant • No Provincially Significant wetlands were present on the Property Non- Provincially Significant • No Non- Provincially Significant wetlands were present on the Property Unevaluated • No An Unevaluated wetlands were present on the Property
Wetland (Study Area)	Provincially Significant • No Provincially Significant wetlands were present in the Study Area. Non- Provincially Significant • No Non- Provincially Significant wetlands were present in the Study Area Unevaluated • No unevaluated wetlands were present in the Study Area.
ANSIs (Property)	Provincially Significant Life Science ANSI • No Life Science ANSIs were identified on the Property. Provincially Significant Earth Science ANSI • No Earth Science ANSIs were identified on the Property.

ANSIs (Study Area)	<u>Provincially Significant Life Science ANSI</u> • No Life Science ANSIs were identified in the Study Area. <u>Provincially Significant Earth Science ANSI</u> • No Earth Science ANSIs were identified on the Study Area.

3.1.2 Topography and Surface Water Drainage

A topographic map from the MNRF and the geological mapping produced by the Ontario Ministry of Northern Development and Mines - Ontario Geological Survey was reviewed. The information obtained from the mapping is summarized below.

Topography	The Property is generally flat lying with an approximate elevation of 80 masl.
Hydrology	The nearest water body is Lake Ontario, located approximately 40 m south of the Property. The approximate depth to ground water, based on Water Well Records in the local area, is expected to be 2.4 m to 6.1 m below ground surface. Ground water and surface water is expected to flow in a southerly direction towards Lake Ontario.
Geology (overburden)	The overburden consists of a combination of undifferentiated coarse-textured glaciolacustrine deposits which is comprised of sand, gravel, minor silt and clay, and till deposits which is comprised of clay to silt-textured till.
Geology (bedrock)	The bedrock on the Property is of the Queenston formation, which is comprised of shale, limestone, dolstone and siltstone..
Geology (depth to bedrock)	Based upon historic borehole information from the MNRF and Water Well Records in the vicinity from the MECP, the depth to bedrock in the area of the Property is approximately 2.3 m.

3.2 Past Investigations

Terraprobe previously completed a Phase One ESA on the Property in 2017. The findings of that assessment were provided in the following report and are summarized below.

Report Title	Phase One Environmental Site Assessment, 2107 & 2119 Old Lakeshore Road, Burlington, Ontario
Report Date	January 12, 2017
File Number	1-16-0680-41
Prepared By	Terraprobe Inc.
Prepared For	Carriage Gate Homes

- The scope of the investigation included a review of historical information, a visual site inspection and interviews to identify potential environmental concerns.
- 2107 Old Lakeshore Road has been used for commercial property use since at least the mid-1960s.
- 2119 Old Lakeshore Road has been used for commercial property use since at least the mid-1920s.
- The study area generally consists of residential and commercial properties
- Five (5) Potentially Contaminating Activities (PCAs) were identified on the Property or within the study area to cause APECs on the Property.
- The Phase One ESA identified the following Areas of Potential Environmental Concern on the Property due to the Potentially Contaminating Activities (PCAs) noted:

Location of PCA	PCA	Potential APEC (Yes/No)	Justification
Phase One Property	#30 – Importation of Fill Material of Unknown Quality	Yes	PCA has potential to cause an APEC on the Property
75 Waters (East) (current east part of 2119 Old Lakeshore Road) Phase One Property	#10 – Commercial Autobody Shops #28 – Gasoline and Associated Products Storage in Fixed Tanks	Yes	PCA has potential to cause an APEC on the Property due to historical presence of service station and automobile service garage with USTs on the Property.

Location of PCA	PCA	Potential APEC (Yes/No)	Justification
2119 Old Lakeshore Road Phase One Property	#10 – Commercial Autobody Shops #28 – Gasoline and Associated Products Storage in Fixed Tanks	Yes	PCA has potential to cause an APEC on the Property due to historical presence of automobile service garage with UST on the Property.
Near 2093 Lakeshore Road 15 m North	#28 – Gasoline and Associated Products Storage in Fixed Tanks	Yes	PCA has potential to cause an APEC on the Property due to historical spill and proximity to Property.
Near 2119 Old Lakeshore Road 15 m North	#28 – Gasoline and Associated Products Storage in Fixed Tanks	Yes	PCA has potential to cause an APEC on the Property due to historical spill and proximity to Property.

- A Phase Two Environmental Site Assessment was recommended to investigate the Areas of Potential Environmental Concern for the Contaminants of Potential Concern that have been identified on the Property.

The Phase One CSM is attached in Appendix A. Figure 3 indicates the borehole locations with respect to the APEC investigated.

Additional investigations completed on the Property include a geotechnical investigation and a hydrogeological report and are summarized below

Report Title	Geotechnical Investigation and Engineering Design, 2107 & 2119 Old Lakeshore Road, Burlington, Ontario
Report Date	December 21, 2016
Prepared By	Terraprobe
Prepared For	Carriage Gate Homes

- Terraprobe conducted a subsurface investigation in November 2016 to provide geotechnical recommendation for the proposed development. The investigation involved advancing two (2) boreholes to depths of 6.1 to 16.9 m below grade.
- The boreholes encountered a pavement structure at the ground surface comprising 50 mm of asphaltic concrete underlain by 100 to 150 mm of aggregate. Underlying the pavement structure,

Borehole 2 encountered a zone of earth fill that extends to a depth of 1.5 m below grade (Elev. 78.1 ± m). The fill consists of reddish brown and moist sand, with some silt to being silty, and trace amounts of clay and gravel. Underlying the pavement structure in Borehole 1 and the earth fill in Borehole 2, a glacial till deposit with a cohesive matrix comprising clayey silt, with some sand and trace gravel was encountered. A hydrocarbon odour was detected in the recovered glacial till sample in Borehole 2. The till was found at a depth of 0.2 to 1.5 m below grade (Elev. 81.3 to 78.1 ± m) and extend to the inferred bedrock surface at a depth of 2.3 m below grade (Elev. 79.2 to 77.3 ± m). The till is greyish brown to reddish brown and moist. Bedrock of the Queenston Formation was inferred and identified in Borehole 1 and inferred in Borehole 2, underlying the cohesive glacial till. The bedrock surface is inferred to be at a depth of 2.3 m below grade (Elev. 79.2 to 77.3 ± m). A total of 14.3 m of rock core was recovered from Borehole 1.

Report Title	Hydrogeological investigation 2107 & 2119 Old Lakeshore Road, Burlington, Ontario
Report Date	January 12, 2017
Prepared By	Terraprobe
Prepared For	Carriage Gate Homes

- Terraprobe conducted a hydrogeological investigation in November 2016 in order to assess the ground water conditions and dewatering requirements for the proposed construction activities at the site.
- The highest ground water elevation at the Site is approximately 77.5 masl, located within the glacial till. The base of the excavation is 65.5 masl.
- Treatment of the ground water will be required prior to discharge into the storm or sanitary sewers due to total suspended solids.

4.0 SCOPE OF THE INVESTIGATION

The scope of work for the Phase Two ESA was determined on the basis of the results of the previous reports and in accordance with the scope of work proposed by Terraprobe.

4.1 Overview of Site Investigation

In March/April 2019, Terraprobe conducted the following subsurface work at the Property for a Phase Two Environmental Site Assessment:

- Drilling of seven (7) boreholes (BH101, BH102, BH103S, BH103D, BH104S, BH104D and BH105) to a maximum depth of 7.6 m below existing grades.
- Ground water monitoring wells were installed in all of the boreholes.
- Laboratory analysis of selected soil samples for parameters including:
    - Metals
    - Hydride-Forming Metals (H-M)
    - Selected Other Regulated Parameters (ORPs)
        - Boron - Hot Water Soluble (B-HWS)
        - Cyanide (CN-)
        - Electrical conductivity (EC)
        - Hexavalent Chromium (CrVI)
        - Mercury (Hg)
        - pH
        - Sodium Absorption Ratio (SAR)
    - Volatile Organic Compounds (VOCs)
    - Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)
    - Petroleum Hydrocarbons (PHCs)
    - Polycyclic Aromatic Hydrocarbons (PAHs)
- Survey of all boreholes and monitoring wells to a geodetic benchmark
- Measurement of ground water elevations to determine ground water elevation and flow direction
- Development and sampling of all monitoring wells
- Laboratory analyses of ground water samples for:
    - Metals
    - Hydride-forming Metals
    - Select Other Regulated Parameters (ORPs)
        - Sodium
        - Cyanide (CN-)
        - Mercury (Hg)
        - Hexavalent chromium (CrVI)

  - pH
  - Chloride (Cl)
- Volatile Organic Compounds (VOCs)
- Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)
- Petroleum Hydrocarbons (PHCs)
- Polycyclic Aromatic Hydrocarbons (PAHs)

The table below summarizes the scope of work conducted by Terraprobe. The number of samples conducted includes duplicate analyses, but do not include the trip blanks and field blanks that were collected. Field protocols are provided in Appendix D.

Date	Scope of Investigation	Scope of Soil Analysis	Scope of Ground Water Analysis
March 25, 2019	• Drilled 3 boreholes (BH102, BH104S, BH104D) and sampled for soil • Installed 3 monitoring wells boreholes (BH102, BH104S, BH104D).	• 4 Metal analyses • 3 H-M analyses • 3 ORP analyses • 2 PAHs analyses • 5 PHCs analyses • 5 VOCs analyses	
March 26, 2019	• Drilled 4 boreholes (BH101, BH103S, BH103D, BH105) and sampled for soil • Installed 4 monitoring wells (BH101, BH103S, BH103D, BH105) • Surveyed all monitoring well locations	• 6 Metal analyses • 4 H-M analyses • 4 ORP analyses • 5 PAHs analyses • 4 PHCs analyses • 4 VOCs analyses	
April 6, 2019	• Took water levels of all wells (including 2 existing wells (BH1 & BH2)) • Developed all wells including 2 existing wells		
April 16, 2019	• Took water levels of all wells (including 2 existing wells (BH1 & BH2)) • Stabilized and sampled all wells including one existing well (BH2)		• 9 Metal analyses • 9 H-M analyses • 9 ORP analyses • 9 PAHs analyses • 8 PHCs analyses • 8 VOCs analyses

Notes:

- ORPs for soil include B-HWS, CN-, EC, CrVI, Hg, pH, SAR
- ORPs for ground water include CN-, CrVI, Hg, pH, Chloride

Media Investigated

4.1.1 Rationale for Inclusion or Exclusion of Media

Media	Included or Excluded	Rationale
Soil	Included	Based upon the Phase One ESA investigation, soil sampling was required on the Property for the select contaminants of potential concern (CoPCs). Sample locations were selected to investigate soil across the Property.
Sediment	Excluded	Surface water bodies were not present on the Property. As such, sediment sampling was not conducted during the investigation.
Ground Water	Included	Based upon the Phase One ESA investigation, ground water sampling was required on the Property for the CoPCs. Monitoring wells were installed to investigate ground water quality across the Property.
Surface Water	Excluded	Surface water bodies were not present on the Property. As such, surface water sampling was not conducted during the investigation.

4.1.2 Overview of Field Investigation of Media

Soil sampling was conducted during the drilling program by use of split spoon sampling device. Ground water sampling was conducted from monitoring wells installed within the completed boreholes.

4.2 Deviations from Sampling and Analysis Plan

The sampling and analysis plan is provided in Appendix C. There were no deviations from the sampling and analysis plan during the investigation.

4.3 Impediments

There were no impediments as part of the Phase Two ESA.

5.0 INVESTIGATION METHOD

5.1 General

Public and private utility clearances were undertaken prior to commencing the subsurface investigation. The Phase Two ESA generally followed the methods outlined in the following documents:

- Ontario Ministry of the Environment, Conservation and Parks *"Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"* (December 1996)

The methods used in the Phase Two ESA investigation did not differ from the associated standard operating procedures. The Standard Field Investigation Protocol is presented in Appendix D.

5.2 Drilling

The drilling information for the Phase Two ESA is provided below:

Borehole	BH102, BH104S, BH104D	BH101, BH103S, BH103D, BH105
Date of Work	March 25, 2019	March 26, 2019
Name of Contractor	Strong Soil	
Equipment Used	Truck mounted drill rig, solid stem augers, 2 inch split spoon sampling device	
Decontamination Measures	The split spoon sampling device was washed between each sample to minimize the potential for cross-contamination.	
Sampling Frequency	Please refer to the borehole logs in Appendix E for the sampling frequency.	

5.3 Soil Sampling

5.3.1 Equipment Used

- Laboratory supplied sampling containers
- Nitrile gloves
- Cooler with loose ice
- RKI Instruments EAGLE Monitor

5.3.2 Geological Description of Soil

Please refer to the borehole logs in Appendix E for the geological description of each soil sample collected.

5.4 Field Screening Measurements

Soil samples were screened in the field using portable hydrocarbon vapour testing equipment and following the procedure outlined in the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" published by the Ontario Ministry of the Environment, Conservation and Parks.

Samples were screened using an RKI Instruments EAGLE Monitor. The monitor has a range of 0 parts per million (ppm) to 50,000 ppm and an accuracy of +/- 5%. The monitor was calibrated with hexane prior to field screening as per the calibration procedure outlined by RKI Instruments in "Instruction Manual Eagle Series Portable Multi-Gas Detector 71-0028RK" released July 2001.

Field screening measurements were used to help select samples for laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix E.

5.5 Ground Water Monitoring Well Installation

Monitoring wells were installed in seven (7) boreholes at BH101, BH102, BH103S, BH103D, BH104S, BH104D and BH105 by a drilling sub-contractor on March 25 & 26, 2019 under the supervision of an experienced Terraprobe field technician. All monitoring wells were constructed of 50-mm (2-in) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.6 m above the top of the screen. All monitoring wells were then backfilled with bentonite to approximately 0.3 m below ground surface. The wells were finished with flush mount casings.

As per Ontario Regulation 903, the monitoring wells were tagged with water well records. The monitoring well locations are provided on Figures 3 to 6. The monitoring well installation details are provided on the borehole logs in Appendix E.

5.6 Field Measurement of Water Quality Parameters Ground Water: Sampling

Field measurement of water quality parameters were measured using a Hanna Instruments portable pH/EC/TDS/Temperature meter (model HI 991301).

HI991301 portable pH/EC/TDS/temperature meter

Range

- pH 0.00 to 14.00 pH
- EC 0.0 to 20.0 mS/cm
- Temperature 0.0 to 60.0°C

Resolution

- pH 0.01 pH
- EC 0.001 mS/cm
- Temperature 0.1°C

Accuracy

- pH ±0.01 pH
- EC ±2% F.S.
- Temperature ±0.5°C

5.7 Ground Water Sampling

The monitoring wells were purged using an inertia pump system. Ground water was sampled using a peristaltic pump. Stabilization of parameters (pH, conductivity, temperature) of the purged water are monitored before a sample is taken, thus sampling methods facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

Stabilization was considered to occur when consecutive readings were within the following:

- Conductivity ± 3%
- Temperature ± 3%
- pH ± 0.1 unit

Sampling methodology from the Ontario Ministry of the Environment, Conservation and Parks "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"*, Ontario Ministry of the Environment, Conservation and Parks "*Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04*" and Ontario Ministry of the Environment, Conservation and Parks "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*" were followed in the collection of the ground water samples.

5.8 Sediment Sampling

No sediment sampling was conducted as part of this investigation.

5.9 Analytical Testing

Analytical testing of all soil and ground water samples was conducted by AGAT Laboratories.

5.10 Residue Management Procedures

5.10.1 Soil Cuttings

Soil cuttings generated during the drilling activities were disposed of in drums that will be removed from the Property following the completion of the Phase Two ESA.

5.10.2 Ground Water

Development and purge water generated during the ground water sampling events were disposed in drums that will be removed from the Property following the completion of the Phase Two ESA.

5.10.3 Fluids from Equipment Cleaning

The fluids from cleaning sample equipment (ie. split spoons) were removed from the Property and disposed of by the driller.

5.11 Elevation Surveying

The elevations of the boreholes on the Property were surveyed during the subsurface investigation using a level survey relative to geodetic datum (NAD 83). The elevations of the boreholes on the Property are presented on the Borehole Logs in Appendix E.

5.12 Quality Assurance and Quality Control Measures

5.12.1 Containers, Labelling, Handling and Chain of Custody

Containers

The following laboratory supplied sample containers were used for all sampling conducted on the Property.

Soil Parameters	Container
PHC (F1, BTEX), VOCs, 1,4-Dioxane	2 x 40mL glass vial (methanol preservative)
Metals, Mercury, Boron-HWS, Chromium Hexavalent, EC, SAR, pH, Chloride, Cyanide, Mercury	250 mL glass jar, Teflon lined lid
PHCs (F2-F4), VOC moisture, PAHs, OCPs, PCBs, CPs, ABNs, Methyl mercury, FOCs, Dioxins & Furans	125 mL glass jar, Teflon lined lid

Ground Water Parameters	Container
Chloride, electrical conductivity, pH	125 mL HDPE
Cyanide (CN^-)	60 mL HDPE (sodium hydroxide preservative)
Hexavalent chromium	60 mL HDPE (0.45um field filter followed by ammonium buffer solution)
Metals (includes hydride-forming metals, calcium, magnesium, sodium)	60 mL HDPE (0.45um field filter nitric acid preservative)
Mercury	40 mL clear glass bottle (0.45um field filter hydrochloric acid preservative)
Methyl mercury	125 mL Teflon (FLPE) (hydrochloric acid preservative)
BTEX, PHCs (F1),THMs, VOCs;	2 x 40 mL glass VOA vials (sodium bisulfate preservative, no headspace)
PHCs (F2–F4), PAHs	2 x 100 mL amber glass bottle, (sodium bisulfate preservative, 1 cm headspace)
PCBs	2 x 250 mL amber glass bottle, Teflon lined lid
Benzo(a)pyrene (Lab Filtered)	2 x 100 mL amber glass bottle, Teflon lined lid (sodium bisulfate preservative, 1 cm headspace)
OCPs	2 x 500 mL amber glass bottle, Teflon lined lid
CPs, ABNs,	500 mL amber glass bottle, Teflon lined lid
Dioxins and furans	2 x 1 L amber glass bottle, Teflon lined lid

Labelling

All sampling containers were identified with laboratory supplied labels. The labels included the following information:

- Unique Sample ID
- Company Name
- Date and Time
- Project Number

Handling

Samples were placed in coolers with loose ice after collection for transportation to the laboratory. Sample hold times were met for all submitted soil and ground water samples.

Chain of Custody

Laboratory supplied Chain of Custody forms were completed for all samples submitted for analysis.

5.12.2 Equipment Cleaning Procedures

All non-dedicated sampling and monitoring equipment must be cleaned following each use. During soil sampling the split spoon sampling device was washed between samples to minimize cross-contamination. During ground water sampling any part of the interface meter which came into contact with the ground water was cleaned between monitoring wells.

Dedicated equipment (nitrile gloves, terra core samplers, bladders, tubing) were changed between each sample to avoid cross contamination.

5.12.3 Field Quality Control Measures

- All non-dedicated sampling and monitoring equipment must be cleaned following each use.
- Sufficient field duplicate samples were collected in each medium being sampled, so that at least one (1) field duplicate sample can be submitted for laboratory analysis for every ten (10) samples submitted for laboratory analysis.
- Calibration checks on field instruments occurred daily prior to the commencement of sampling.

5.12.4 Deviations in the Quality Assurance and Quality Control Measures

There were no deviations in the Quality Assurance and Quality Control Measures. Duplicate samples were submitted at a rate of 10% for the soil samples.

6.0 REVIEW AND EVALUATION

6.1 Geology

Detailed geological information for the Property is presented on the borehole logs in Appendix E. The geology at the Property is summarized below.

6.1.1 Geological Unit Thickness (Estimate)

The geological unit thicknesses as provided on the borehole logs are presented below.

Borehole	BH1	BH2	BH101	BH102	BH103	BH104	BH105
	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)
Fill	0.2	1.5	0.2	2.0	1.5	0.2	0.2
Native Soil	2.1	0.8	2.7	0.3	0.8	3.2	2.7
Bedrock	14.6*	3.8*	0.2*	5.4*	5.3*	4.3	0.2*

* Bedrock extended beyond the vertical depth of the investigation.

6.1.2 Elevations of Geological Units

The geological unit elevations as provided on the borehole logs are presented below.

	Elevation (m)						
Borehole	**BH1**	**BH2**	**BH101**	**BH102**	**BH103**	**BH104**	**BH105**
Fill	81.5 -81.3	79.6 – 78.1	81.5 – 81.3	79.6 – 77.6	79.9 – 78.4	79.9 – 79.7	81.0 – 80.8
Native	81.3 – 79.2	78.1 – 77.3	81.3 – 78.6	77.6 – 77.3	78.4 – 77.6	79.7 – 76.5	80.8 – 78.1
Bedrock	79.2 – 64.6*	77.3 – 73.5*	78.6 – 78.4*	77.3 – 71.9*	77.6 – 72.3*	76.5 – 72.2*	78.1 – 77.9*

* Bedrock extended beyond the vertical depth of the investigation.

6.1.3 Material in Geological Units

The following stratigraphy is based on the borehole findings, as well as the geotechnical laboratory testing conducted on selected representative soil samples. The stratigraphic boundaries indicated on the borehole and rock core logs are inferred from non-continuous samples and observations of drilling resistance and typically represent a transition from one soil type to another. These boundaries should not be interpreted to represent exact planes of geological change and will vary between and beyond the borehole locations. Detailed strata of the Property are shown in cross section in Figures 8, 9, 11, 12, 14, 15, 17, 18, 20, 21, 23, 24, 26 and 27. Cross section locations are presented in Figure 5.

Surficial Materials

All boreholes encountered a pavement structure at the ground surface comprising 50 to 150 mm of asphaltic concrete underlain 100 to 150 mm of aggregate.

Earth Fill

Earth fill was encountered underlying the surficial material in BH2, BH102 and BH103 which extended to depths ranging from 1.5 m to 2.0 m below grade. At BH2 the fill consisted of reddish brown and moist sand, with some silt to being silty, and trace amounts of clay and gravel, which, extended to a depth of 1.5 m below grade (Elev. 78.1 ± m). At BH102 the earth fill consisted of a thin layer of brown sand and gravel with trace brick fragments to a depth of 0.2 m below grade (Elev.79.4 ± m). Underlying the thin fill layer was a second layer of earth fill that consisted of clayey silt, some sand and some gravel, with trace brick fragments. The earth fill extended to a depth of 2.0 m below grade (Elev. 77.6 ± m) and was typically brown with black staining and a petroleum hydrocarbon odour. A BH103 earth fill was encountered under the granular base and consisted of brown clayey silt, some sand and some gravel. Black staining and hydrocarbon odour was present between 0.76 and 1.37 mbgs. The fill at BH103 extended to a depth of 1.5 m below grade (Elev. 78.4 ± m).

Native Soil

Sand

At BH105 the surficial materials were underlain by a deposit of native sand with some silt. The sand layer extended to a depth of 1.5 m below grade (Elev. 79.5 ± m).

Clayey Silt Glacial Till

Underlying the surficial materials in BH101 and BH104 and underlying the fill layer in BH102, the boreholes encountered a glacial till deposit with a cohesive matrix comprising clayey silt with some sand and some to trace gravel. The till extended to depths ranging from 2.3 to 2.7 m below grade. The till is

generally characterized as being brown to reddish brown, and moist. A petroleum hydrocarbon odour was noted in the till in BH102 and BH104.

Shaley Till

Underlying the fill in BH103 a deposit of shaley till with grey shale fragments was encountered and extended to a depth of 2.3 m below grade (Elev. 77.6 ± m). Underlying the clayey silt till in BH104 a deposit of silt to shaley till with shale fragments was encountered to a depth of 3.4 m below grade (Elev. 76.5 ± m). Black staining and a petroleum hydrocarbon odour, was observed throughout the depth of the shaley till. Underlying the sand in BH105 the borehole encountered a deposit of clayey silt to shaley till to a depth of 2.9 m below grade (Elev. 78.1 ± m). The shaley till was generally characterized as brown to reddish brown with gray shale fragments.

Bedrock

All boreholes encountered a reddish brown weathered shale. The bedrock surface is inferred to be at a depth ranging from 2.3 to 3.4 m below grade and extending beyond the vertical extent of the investigation. A total of 14.3 m of rock core was recovered from Borehole 1.

The bedrock was determined to be of the Queenston Formation. The Queenston Formation is a deposit predominantly consisting of thickly bedded to massive red shale of Ordovician age. The formation contains interbeds of light grey / green calcareous shale, siltstone, sandstone, and limestone/dolostone which are discontinuous and nominally 50 to 300 mm thick. The shale is a weak strength rock, whereas the harder calcareous and limestone/dolostone beds are considered medium strength rock and are considered to be hard layers. The percentages of hard layers are provided on the rock core log (indicated as “limestone”) and ranged from 0 to 30% (16% on average) per core run (about 1.5 m).

Based on auger grinding, auger resistance, and samples recovered from the split spoon sampler, the bedrock surface was inferred in the boreholes at a depth ranging from 2.3 m below grade (Elev. 79.2 to 77.3 ± m) to 3.4 m below grade (Elev. 76.5± m). The bedrock surface is at a higher elevation on the southwest side of the site and at a lower elevation on the northeast side of the site. In Borehole 1 where rock core was recovered, the zone of partially weathered (Zone II and III) shale was found to be approximately 0.5 m thick, and the transition to sound/unweathered (Zone I) shale was encountered at 2.8 m below grade (Elev. 78.7 ± m).

6.1.4 Properties of Aquifers and Aquitards

Earth Fill

The earth fill on the Property is located within the unsaturated zone and is not considered to be an aquifer. The ground water table on the Property is located below the fill. Any water within the fill is expected to migrate downwards into the native soil and bedrock.

Native Soil

The native soil consisting of a cohesive matrix of clayey silt till and shaley till is located within the saturated zone and is considered to be an unconfined aquifer. The overburden water table is present within the clayey silt till native soil (GW Unit 1).

Bedrock

The bedrock consisting of reddish brown weathered shale is considered to be an unconfined aquifer. The deep water table is present within the bedrock (GW Unit 2).

6.1.5 Rationale for Choice of Aquifers and Aquitards Investigated

The overlying clayey silt till aquifer and the bedrock aquifer were chosen for investigation. These strata were chosen for investigation because of:

- the possibility of free ground water present
- the clayey silt aquifer is the shallow water-bearing zone (GW Unit 1) and the bedrock aquifer is the deep water-bearing zone (GW Unit 2)

6.2 Ground Water Elevations and Flow Direction

6.2.1 Rationale for Monitoring Well Locations and Screen Intervals

Monitoring wells were located across the Property in order to provide full site coverage. The monitoring wells were screened within the native soil and the weathered shale across the Property to allow for the collection of ground water samples from the overburden/shallow bedrock and the deeper bedrock stratum of interest.

6.2.2 Results of Interface Probe Measurements

Interface probe measurements indicated that only water was present on the Property. No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected.

6.2.3 Thickness of Free Flowing Product

No free flowing product was encountered on the Property.

6.2.4 Ground Water Elevations

Ground water levels in the Terraprobe 2016 monitoring wells were measured using a Solinst interface probe on the following dates:

- December 8, 2016
- December 19, 2016
- December 17, 2018
- March 15, 2019
- April 6, 2019
- April 16, 2019

Well ID	**BH1**		**BH2**	
Well Depth (mbgs)	16.9		3.17	
Ground Elev. (masl)	81.5		79.6	
Top of Screen (masl)	72.4		79.5	
Bottom of Screen (masl)	69.3		76.4	
Date	WL (mbgs)	Elev. (masl)	WL (mbgs)	Elev. (masl)
2016/12/08	4.3	77.2	2.2	77.4
2016/12/19	-	-	2.1	77.5
2018/12/17	-	-	1.7	77.9
2019/03/15	6.0	75.5	1.6	78.0
2019/04/06	6.0	75.5	1.6	78.0
2019/04/16	6.0	75.5	1.6	78.0

Ground water levels in the Terraprobe 2019 monitoring wells were measured using a Solinst interface probe on the following dates:

- April 6, 2019
- April 16, 2019

Well ID	**BH101**		**BH102**		**BH103S**		**BH103D**		**BH104S**		**BH104D**		**BH105**	
Well Depth (mbgs)	3.0		7.27		3.3		7.6		3.1		7.1		3.1	
Ground Elev. (masl)	81.5		79.6		79.9		79.9		79.9		79.9		81.0	
Top of Screen (masl)	80.0		75.4		78.1		75.4		78.3		75.9		79.4	
Bottom of Screen (masl)	78.5		72.3		76.6		72.3		76.8		72.8		77.9	
Date	WL (mbgs)	Elev. (masl)	WL (mbgs)	Elev. (masl)	WL (mbgs)	Elev. (masl)	WL (mbgs)	Elev. (masl)	WL (mbgs)	Elev. (masl)	WL (mbgs)	Elev. (masl)	WL (mbgs)	Elev. (masl)
2019/04/06	2.1	79.4	3.6	76.0	1.1	78.8	3.0	76.9	1.3	78.6	3.4	76.5	1.5	79.5
2018/04/16	2.2	79.3	3.0	76.6	1.1	78.8	3.1	76.8	1.3	78.6	3.4	76.5	1.9	79.1

Note: WL = Water Level, Masl = Metres above sea level, Mbgs = metres below ground service

6.2.5 Interpreted Direction of Ground Water Flow

The interpreted direction of ground water flow in the overburden (GW Unit 1) is to the northeast as presented on Figure 4. The interpreted direction of ground water flow in the bedrock (GW Unit 2) is to the southwest as presented on Figure 5.

6.2.6 Assessment of Temporal Variability

Four (4) ground water level measurements were collected on the Property within four months, therefore seasonal variability of the ground water elevations has not been observed. Additional ground water data will be required to assess seasonal variability.

6.2.7 Influence of Buried Utilities

Buried utilities are located on the Property, as such the potential exists that buried utilities could locally influence shallow ground water flow.

6.3 Ground Water Hydraulic Gradients and Hydraulic Conductivity

6.3.1 Horizontal Hydraulic Gradients

The horizontal hydraulic gradient is calculated using the following equation:

$$I = \Delta h/\Delta s$$

where: I = horizontal hydraulic gradient,
Δh (m) = ground water elevation difference; and,

Δs (m) = separation distance

The ground water table (GW Unit 1) is within the silty clay till overburden. Based on the current measured ground water levels, the horizontal hydraulic gradient of the ground water for the native overburden at the Property was determined to be approximately 0.016 m/m from the southwest to the northwest between monitoring well BH101 and BH104s, respectively.

The ground water table (GW Unit 2) is within the shale bedrock. Based on the current measured ground water level, the horizontal hydraulic gradient of the ground water for the shale bedrock at the Property was determined to be approximately 0.021 m/m from the northeast towards the southwest between monitoring well BH102 and BH1, respectively.

6.3.2 Vertical Hydraulic Gradients

The vertical hydraulic gradient is calculated using the following equation:

$$I_v = \Delta h/\Delta L$$

where: I = vertical hydraulic gradient,
Δh (m) = ground water elevation difference between the two wells; and,
ΔL (m) = separation distance between bottom of screen elevation

The vertical hydraulic gradient is calculated between two wells within close proximity and installed within different stratigraphy. Ground water was found in the overburden clayey silt till wells and in the shale bedrock wells installed on the Property. The vertical hydraulic gradient was calculated to be 0.53 between BH104S and BH104D.

6.3.3 Hydraulic Conductivity

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

- Earth Fill 10^{-5} m/s to 10^{-6} m/s
- Native Soil (Sand with some silt) 10^{-5} m/s to 10^{-6} m/s
- Native Soil (Clayey Silt Glacial Till) 10^{-7} m/s to 10^{-9} m/s
- Native Soil (Shaley Till) 10^{-7} m/s to 10^{-9} m/s
- Native Soil (Queenston Formation) 10^{-7} m/s to 10^{-8} m/s

A Hydrogeological Investigation was competed on the Property by Terraprobe in 2017. The report indicated that the hydraulic conductivity, determined based on a single well response test, as per the field investigations completed in December 2016 and analysed using the Bouwer and Rice method (1976) was

determined to be 3 x 10^{-8} m/s for the Glacial Till and 3 x 10^{-7} m/s for the shale bedrock. Based on the typical TRCA values of the Queenston Formation within the vicinity of the Site, the hydraulic conductivity is approximately 1.2 x 10^{-7} m/s. Based on the analyses, the hydraulic conductivity calculated from the rising head test is relatively consistent with the published values associated with the geological material tested. As such, the conservative value provided from the TRCA database of 1.2 x 10^{-7} m/s was used for the Queenston Formation pertaining to the water taking calculations.

6.4 Soil Texture

6.4.1 Rationale for Use of Medium-Fine Soil Texture

The applicable site condition standard chosen for the Property was the MECP Table 3 SCS. Based on the results of grain size analysis medium and fine soil standards were used during the Phase Two ESA.

6.4.2 Results of Grain Size Analysis

Two grain size analyses were previously completed during the 2017 Terraprobe geotechnical investigation. One additional grain size analysis were completed as part of the Phase Two ESA. The results of the grain size analyses indicated the following:

Sample ID	Sample Depth (m)	Soil Type	% smaller then 75 micrometres	Soil Texture as per MECP standard
BH2/SA4	2.3 – 2.7	Clayey silt, some sand (highly weathered shale)	94.2	Medium and fine
BH2/SA3	1.5 – 2.0	Clayey silt, trace sand, trace gravel	92.8	Medium and fine
BH101/SA4	2.3 – 2.9	Sandy silt, some clay	80.4	Medium and fine

The results indicate that the clayey silt/sand silt layer from depths of approximately 0.2 to 2.9 m was classified as medium and fine textured soil. In addition, the weathered shale s from depths of approximately 2.3 to depth of termination was classified as medium and fine textured soil. On this basis, the predominate soil type on the Property is medium and fine textured.

The grain size analyses are presented in Appendix F.

6.4.3 Rationale for Number of Grain Size Samples

A total of three grain size analyses were completed as part of the Phase Two ESA. Three samples was deemed sufficient by the qualified person in order to represent the soil conditions at the Site.

6.5 Soil: Field Screening

All recovered soil samples were screened in the field using portable hydrocarbon vapour testing equipment and following the procedure outlined in the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" published by the Ontario Ministry of the Environment, Conservation and Parks.

Field screening measurements were used to help select samples for laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix G.

6.6 Soil Quality

6.6.1 Location and Depth of Samples

Borehole Samples (depth measured from original ground surface):

Sample ID	Depth / Elev. (m) / (masl)	Strata	Date Sampled	Soil						
				Metals	Hydride Forming Metals	ORPs	PHCs	PAHs	VOCs	BTEX
BH101 SA2	1.1/80.4	Native	Mar 26/19	✓	✓	✓		✓		
BH102 SA1	0.3/79.3	Fill	Mar 25/19	✓	✓	✓		✓		
BH102 SA3	1.7/77.9	Fill/ Native	Mar 25/19	✓		✓ EC, SAR	✓		✓	✓
BH102 SA4	2.6/77.0	Native	Mar 25/19				✓		✓	✓
BH103 SA1	0.3/79.6	Fill	Mar 26/19					✓		
BH103 SA2	1.1/78.8	Fill	Mar 26/19	✓	✓	✓	✓		✓	✓
BH103 SA3	1.7/78.2	Native	Mar 26/19	✓	✓	✓	✓	✓	✓	✓
BH104 SA2	1.1/78.8	Native	Mar 25/19					✓		

Sample ID	Depth / Elev. (m) / (masl)	Strata	Date Sampled	Soil						
				Metals	Hydride Forming Metals	ORPs	PHCs	PAHs	VOCs	BTEX
BH104 SA3	1.7/78.2	Native	Mar 25/19	✓	✓	✓	✓		✓	✓
BH104 SA4	2.6/77.3	Native	Mar 25/19	✓		✓ EC, SAR	✓		✓	✓
BH104 SA5	3.4/76.5	Native	Mar 25/19				✓		✓	✓
BH105 SA2	1.1/79.9	Native	Mar 26/19	✓	✓	✓		✓		
BH105 SA3	1.7/79.3	Native	Mar 26/19	✓		✓ EC, SAR	✓		✓	✓
Dup1 (BH103 SA2)	1.1/78.8	Fill	Mar 26/19				✓		✓	✓
Dup2 (BH104 SA3)	1.7/78.2	Native	Mar 25/19	✓	✓	✓				
Dup3 (BH103 SA3)	1.7/78.2	Native	Mar 26/19					✓		

Notes: ORPs analyzed include Boron (HWS), Chromium IV, Cyanide, Electrical Conductivity (EC), Mercury, pH and Sodium Adsorption Ratio (SAR).

6.6.2 Comparison to Applicable Standards (Soil)

Select soil samples were analysed for the Contaminants of Potential Concern (CoPCs). CoPCs include:

- Metals
- Hydride-Forming Metals (H-M)
- Selected Other Regulated Parameters (ORPs)
  - Boron - Hot Water Soluble (B-HWS)
  - Cyanide (CN-)
  - Electrical conductivity (EC)
  - Hexavalent Chromium (CrVI)
  - Mercury (Hg)
  - pH
  - Sodium Absorption Ratio (SAR)
- Petroleum Hydrocarbons (PHCs)

- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)
- Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)

The results of the analysis were compared to the applicable MECP site condition standard for the Property (MECP Table 3 Standards for medium/fine textured soils). The laboratory certificates of analysis are provided in Appendix G, and the results of the soil chemical analysis are provided in Tables 1 to 5. All soil exceedance locations are shown on Figures 7 through 21.

Metals in Soil

A total of ten (10) samples including duplicates were submitted for analysis of Metals and compared to the MECP Table 3 Standards. All of the samples submitted for analysis met the MECP Table 3 Standards with the exception of one (1).

The following exceedance for Metals of the MECP Table 3 Standards was noted in the samples analyzed:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter (ug/g)	Table 3 RPI M&F	Result
BH103 SA2	1.1/78.8	Fill	Lead	120	**177**
			Zinc	340	**456**

Notes: **177** Exceeds the applicable MECP Table 3 Standards, medium and fine textured soil

All other samples analyzed met the MECP Table 3 Standards for Metals and the exceedances have been delineated vertically. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix G. The Metal soil samples are shown on Figures 6, 7 and 8.

Hydride-Forming Metals in Soil

A total of seven (7) samples including duplicates were submitted for analysis of Hydride metals and compared to the MECP Table 3 Standards. No hydride-forming metal exceedances of the MECP Table 3 Standards were noted in the samples analyzed. All samples are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix G.

Other Regulated Parameters in Soil

A total of ten (10) samples including duplicates were submitted for analysis of ORPs and compared to the MECP Table 3 Standards. Nine (9) of the ten (10) samples identified exceedances.

The following exceedances for ORPs of the MECP Table 3 Standards were noted in the samples analyzed:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter	Table 3 RPI M&F	Result
BH102 SA1	0.3/79.3	Fill	Sodium Adsorption Ratio	5	**10.9**
BH102 SA3	1.7/77.9	Fill/Native	Electrical Conductivity **(mS/cm)**	0.7	**1.16**
			Sodium Adsorption Ratio	5	**11.3**
BH103 SA2	1.1/78.8	Fill	Electrical Conductivity **(mS/cm)**	0.7	**0.889**
			Sodium Adsorption Ratio	5	**13.4**
BH103 SA3	1.7/78.2	Native	Sodium Adsorption Ratio	5	**11.9**
BH104 SA3	1.7/78.2	Native	Electrical Conductivity **(mS/cm)**	0.7	**0.714**
			Sodium Adsorption Ratio	5	**6.16**
Dup2 (BH104 SA3)	1.7/78.2	Native	Sodium Adsorption Ratio	5	**7.06**
BH104 SA4	2.6/77.3	Native	Electrical Conductivity **(mS/cm)**	0.7	**0.767**
			Sodium Adsorption Ratio	5	**5.48**
BH105 SA2	1.1/79.9	Native	Electrical Conductivity **(mS/cm)**	0.7	**1.41**
			Sodium Adsorption Ratio	5	**6.79**
BH105 SA3	1.7/79.3	Native	Electrical Conductivity **(mS/cm)**	0.7	**0.816**

Notes: **10.9** Exceeds the applicable MECP Table 3 Standards, medium and fine textures soil

All other samples analyzed met the MECP Table 3 Standards for ORPs. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix G. The Electrical Conductivity and Sodium Adsorption Ratio soil samples are shown on Figures 10, 11 and 12.

Polycyclic Aromatic Hydrocarbons in Soil

A total of seven (7) samples including duplicates were submitted for analysis of PAHs and compared to the MECP Table 3 Standards. No PAH exceedances of the MECP Table 3 Standards were noted in the samples analyzed. All samples are summarized in Table 2 and the laboratory certificates of analysis are provided in Appendix G.

Petroleum Hydrocarbons in Soil

A total of nine (9) samples including duplicates were submitted for analysis of PHCs and compared to the MECP Table 3 Standards. Three (3) of the nine (9) samples identified exceedances.

The following exceedances for ORPs of the MECP Table 3 Standards were noted in the samples analyzed:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter (µg/g)	Table 3 RPI M&F	Result
BH102 SA3	1.7/77.9	Fill/Native	PHC F1 (-BTEX)	65	**2000**
BH104 SA3	1.7/78.2	Native	PHC F1 (-BTEX)	65	**210**
BH104 SA4	2.6/77.3	Native	PHC F1 (-BTEX)	65	**380**

Notes: **2000** Exceeds the applicable MECP Table 3 Standards, medium and fine textures soil

All other samples analyzed met the MECP Table 3 Standards for PHCs and the exceedances have been delineated vertically. The results are summarized in Table 3 and the laboratory certificates of analysis are provided in Appendix G. The PHC soil samples are shown on Figures 13, 14 and 15.

Benzene, Toluene, Ethylbenzene, and Xylene in Soil

A total of nine (9) samples including duplicates were submitted for analysis of BTEX and compared to the MECP Table 3 Standards. Six (6) of the nine (9) samples identified exceedances.

The following exceedances for BTEX of the MECP Table 3 Standards were noted in the samples analyzed:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter (µg/g)	Table 3 RPI M&F	Result
BH103 SA2	1.1/78.8	Fill	Benzene	0.17	**0.25**
Dup 1 (BH103 SA2)	1.1/78.8	Fill	Benzene	0.17	**0.26**
BH104 SA3	BH104 SA3	Native	Benzene	0.17	**2.9**
BH104 SA4	2.6/77.3	Native	Benzene	0.17	**24**
			Ethylbenzene	15	**55**
			Toluene	6	**63**

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter (µg/g)	Table 3 RPI M&F	Result
			Xylene Mixture	25	**220**
BH104 SA5	3.4/76.5	Native	Benzene	0.17	**0.51**

Notes: **310** Exceeds the applicable MECP Table 3 Standards, medium and fine textures soil

All other samples analyzed met the MECP Table 3 Standards for BTEX and the results have been delineated vertically with the exception of BH104. The results are summarized in Table 4 and the laboratory certificates of analysis are provided in Appendix G. The BTEX soil samples are shown on Figures 16, 17 and 18.

Volatile Organic Compounds in Soil

A total of nine (9) samples including duplicates were submitted for analysis of VOCs and compared to the MECP Table 3 Standards. Two (2) of the nine (9) samples identified exceedances.

The following exceedances for VOCs of the MECP Table 3 Standards were noted in the samples analyzed:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter (µg/g)	Table 3 RPI M&F	Result
BH102 SA3	1.7/77.9	Fill/Native	n-Hexane	34	**310**
BH104 SA4	2.6/77.3	Native	n-Hexane	34	**150**

All other samples analyzed met the MECP Table 3 Standards for VOCs and the results have been delineated vertically. The results are summarized in Table 5 and the laboratory certificates of analysis are provided in Appendix G. The VOC soil samples are shown on Figures 19, 20 and 21.

6.6.3 Contaminants of Concern (Soil)

The contaminants of concern associated with the fill on the Property are:

- Lead (Metals)
- Zinc (Metals)
- Electrical Conductivity (EC) (ORPs)
- Sodium Adsorption Ratio (SAR) (ORPs)
- PHC F1 (-BTEX)

- Benzene (BTEX)
- n-Hexane (VOC)

The contaminants of concern associated with the native soil on the Property are:

- Electrical Conductivity (EC) (ORPs)
- Sodium Adsorption Ratio (SAR) (ORPs)
- PHC F1 (-BTEX)
- Benzene (BTEX)
- Ethylbenzene (BTEX)
- Toluene (BTEX)
- Xylene Mixture (BTEX)
- n-Hexane (VOC)

6.6.4 Contamination Impact on Other Media

The Contaminants of Concern identified within the fill and native soil, which exceeded the applicable Site Condition Standards have the potential to impact the ground water in the area of the exceedances.

6.6.5 Presence of Light or Dense Non-Aqueous Phase Liquids (In Soil)

Light non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) were not detected in the earth fill or native soil on the Property.

6.7 Ground Water Quality

6.7.1 Location and Depth of Sample Locations

Ground water sampling was completed for the monitoring wells on the Property. Ground water samples were analysed for parameters including Metals, Hydride-Forming Metals (H-M), ORPs, Petroleum Hydrocarbons (PHCs), Polycyclic Aromatic Hydrocarbons (PAHs), and Volatile Organic Compounds (VOCs) . The laboratory certificates of analysis are provided in Appendix H.

Monitoring Well	Screen/Sample Elevation (masl)	Metals	H-M	ORPs	PHCs	PAHs	VOCs
BH101	79.9 to 78.4	✓	✓	✓		✓	
BH102	76.6 to 73.5	✓	✓	✓	✓	✓	✓
BH103S	78.3 to 76.8	✓	✓	✓	✓	✓	✓

Monitoring Well	Screen/Sample Elevation (masl)	Metals	H-M	ORPs	PHCs	PAHs	VOCs
BH103D	76.9 to 73.8	✓	✓	✓	✓	✓	✓
BH104S	78.3 to 76.8	✓	✓	✓	✓	✓	✓
BH104D	76.9 to 73.8	✓	✓	✓	✓	✓	✓
BH105	79.4 to 77.9	✓	✓	✓	✓	✓	✓
BH2	78.0 to 76.5	✓	✓	✓	✓	✓	✓
DUP1 (BH103D)	76.9 to 73.8	✓	✓	✓	✓	✓	✓

Notes: ORPs analyzed include Chromium IV, Cyanide, Chloride, Sodium and Mercury. H-M= Hydride-Forming Metals

6.7.2 Field Filtering

Field filtering occurred for all metal samples analyses that require field filtering as per the requirements of the Ontario Ministry of the Environment, Conservation and Parks *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* July 2011. Field filtration utilized a 0.45 micron filter.

6.7.3 Comparison to Applicable Standards (Ground Water)

Select ground water samples were analysed for the COPCs. COPCs include:Metals

- Hydride-forming Metals
- Select Other regulated Parameters (ORPs)
  - Cyanide
  - Mercury
  - Hexavalent chromium
  - pH
  - Chloride
  - Sodium
- Petroleum Hydrocarbons (PHCs)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)
- Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)

The results of the analysis were compared to the applicable MECP site condition standard for the Property (MECP Table 3 Standards in a medium-fine textured soil). The laboratory certificates of analysis are provided in Appendix H, and the results of the ground water chemical analysis are provided in Tables 6 to 10.

Metals in Ground Water

No metal exceedances of the MECP Table 3 Standards were noted in the ground water samples analyzed. The results are summarized in Table 6 and the laboratory certificates of analysis are provided in Appendix H.

Hydride-Forming Metals in Ground Water

No hydride-forming metal exceedances of the MECP Table 3 Standards were noted in the ground water samples analyzed. All samples are summarized in Table 6 and the laboratory certificates of analysis are provided in Appendix H.

Other Regulated Parameters in Ground Water

No other regulated parameter exceedances of the MECP Table 3 Standards were noted in the ground water samples analyzed. All samples are summarized in Table 6 and the laboratory certificates of analysis are provided in Appendix H.

Polycyclic Aromatic Hydrocarbons in Ground Water

No Polycyclic Aromatic Hydrocarbon exceedances of the MECP Table 3 Standards were noted in the ground water samples analyzed. All samples are summarized in Table 7 and the laboratory certificates of analysis are provided in Appendix H.

Petroleum Hydrocarbons in Ground Water

The following petroleum hydrocarbon exceedance of the MECP Table 3 Standards was noted in the samples analyzed.

Sample ID	Elev. (masl)	Parameter	Table 3 RPI M&F	Result
BH104S	78.3 to 76.8	PHC F2 (µg/L)	150	**300**

Notes: **300** Exceeds the applicable MECP Table 3 Standards, medium and fine textures soil

All samples are summarized in Table 8 and the laboratory certificates of analysis are provided in Appendix H.

Benzene, Toluene, Ethylbenzene, and Xylene in Ground Water

The following BTEX exceedances of the MECP Table 3 Standards were noted in the samples analyzed.

Sample ID	Elev. (masl)	Parameter	Table 3 RPI M&F	Result
BH104S	78.3 to 76.8	Benzene (µg/L)	430	**2500**
		Xylene Mixture (µg/L)	4200	**5300**

Notes: **2500** Exceeds the applicable MECP Table 3 Standards, medium and fine textures soil

All samples are summarized in Table 9 and the laboratory certificates of analysis are provided in Appendix H.

Volatile Organic Compounds in Ground Water

No Volatile Organic Compound exceedances of the MECP Table 3 Standards were noted in the samples analyzed. All samples are summarized in Table 10 and the laboratory certificates of analysis are provided in Appendix H.

6.7.4 Contaminants of Concern (Ground Water)

The following Contaminants of Concern are associated with ground water on the Property:

- PHC F2
- Benzene
- Xylene Mixture

6.7.5 Chemical or Biological Transformations

Based on the contaminants of concern associated with the ground water that exceeds the applicable site condition standards Chemical or Biological Transformations are not likely to have occurred.

6.7.6 Contaminant Impact on Other Media

The Contaminants of Concern identified within the ground water, which exceeded the applicable Site Condition Standards, are not likely to impact other media.

6.7.7 Presence of Light or Dense Non-Aqueous Phase Liquids (Ground Water)

Light non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) were not detected in the ground water on the Property.

6.8 Quality Assurance and Quality Control Results

6.8.1 Types of Quality Control Samples Collected and Results

In general, samples were handled in accordance with the Analytical Protocol with respect to holding time, preservation method, storage requirement and sample container type. Laboratory results were compared to MECP standards for quality control under Ontario Regulation 153/04 which require laboratory results to meet specific method detection limit (MDL) requirements. The sampling and analyses performed conformed with the following:

- Ministry of the Environment, Conservation and Parks Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.
- Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.I of the Environmental Protection Act of Ontario.

Duplicate samples were submitted at a rate of 10% for the soil samples and ground water samples.

6.8.2 Samples Not Handled in Accordance with the Analytical Methods

Holding Time

All samples met the holding times as specified in Ontario Ministry of the Environment, Conservation and Parks - Laboratory Services Branch *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* July 1, 2011.

Preservation Method

All samples met the preservation methods as specified in Ontario Ministry of the Environment, Conservation and Parks - Laboratory Services Branch "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*" July 1, 2011.

Storage Requirement

All samples met the storage requirements as specified in Ontario Ministry of the Environment, Conservation and Parks - Laboratory Services Branch "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*" July 1, 2011.

Container Type

All samples met the container type as specified in Ontario Ministry of the Environment, Conservation and Parks - Laboratory Services Branch "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*" July 1, 2011.

6.8.3 Subsection 47 (3) of the Regulation

All certificates of analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47(3). A certificate of analysis or analytical report has been received for each sample submitted for analysis. All certificates of analysis or analytical reports received have been included in full in Appendix G and Appendix H.

6.8.4 Results Qualified by Laboratory

The laboratory made no qualifier remarks regarding the soil and ground water samples.

6.8.5 Overall Quality of Field Data

Decision making regarding the environmental condition of the Property was not affected by the overall quality of the field data. The overall quality of the field data was considered by the Qualified Person to meet the objectives of the investigation and assessment.

7.0 CONCLUSIONS

7.1 Location and Concentration of Contamination

7.1.1 Land

The following exceedances of the Applicable Site Conditions Standards were noted in the earth fill material located on the Property:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter	Table 3 RPI M&F	Result
BH102 SA1	0.3/79.3	Fill	Sodium Adsorption Ratio	5	**10.9**
BH102 SA3	1.7/77.9	Fill/Native	Electrical Conductivity (mS/cm)	0.7	**1.16**
			Sodium Adsorption Ratio	5	**11.3**
			PHC F1 (-BTEX) (µg/g)	65	**2000**
			n-Hexane (µg/g)	34	**310**
BH103 SA2	1.1/78.8	Fill	Lead (ug/g)	120	**177**
			Zinc (ug/g)	340	**456**
			Electrical Conductivity (mS/cm)	0.7	**0.889**
			Sodium Adsorption Ratio	5	**13.4**
			Benzene (µg/g)	0.17	**0.25**
Dup1 (BH103 SA2)	1.1/78.8	Fill	Benzene (µg/g)	0.17	**0.26**

The following exceedances of the Applicable Site Conditions Standards were noted in the native material located on the Property:

Sample ID	Depth (m)/ Elev.(masl)	Strata	Parameter	Table 3 RPI M&F	Result
BH103 SA3	1.7/78.2	Native	Sodium Adsorption Ratio	5	**11.9**
BH104 SA3	1.7/78.2	Native	Electrical Conductivity (mS/cm)	0.7	**0.714**
			Sodium Adsorption Ratio	5	**6.16**
			PHC F1 (-BTEX) (µg/g)	65	**210**
			Benzene (µg/g)	0.17	**2.9**
Dup2 (BH104 SA3)	1.7/78.2	Native	Sodium Adsorption Ratio	5	**7.06**
BH104 SA4	2.6/77.3	Native	Electrical Conductivity (mS/cm)	0.7	**0.767**
			Sodium Adsorption Ratio	5	**5.48**
			PHC F1 (-BTEX) (µg/g)	65	**380**
			Benzene (µg/g)	0.17	**24**
			Ethylbenzene (µg/g)	15	**55**
			Toluene (µg/g)	6	**63**
			n-Hexane (µg/g)	34	**150**
			Xylene Mixture (µg/g)	25	**220**
BH104 SA5	3.4/76.5	Native	Benzene (µg/g)	0.17	**0.51**
BH105 SA2	1.1/79.9	Native	Electrical Conductivity (mS/cm)	0.7	**1.41**
			Sodium Adsorption Ratio	5	**6.79**
BH105 SA3	1.7/79.3	Native	Electrical Conductivity (mS/cm)	0.7	**0.816**

The soil exceedances are provided in Table 1 through 6. All soil exceedance locations are noted on Figure 7 to 21.

7.1.2 Ground Water

The following exceedances of the Applicable Site Conditions Standards were noted in the ground water located on the Property:

Sample ID	Elev. (masl)	Parameter	Table 3 RPI M&F	Result
BH104S	78.3 to 76.8	PHC F2 (µg/L)	150	**300**
		Benzene (µg/L)	430	**2500**
		Xylene Mixture (µg/L)	4200	**5300**

The ground water exceedances are provided in Table 22 through 27.

7.2 Environmental Conditions Requiring Remediation

Exceedances of the applicable Site Condition Standards were noted in the earth fill, native soil and ground water on the Property. Terraprobe understands that the affected soils will be removed during the development of a multiple level underground parking structure on the Property. Verification sampling will be required once the excavation is complete in order to confirm that the remaining soil meets the applicable site condition standards. Following the removal of the impacted soil from the Property the ground water should be sampled to determine if ground water impacts remain on the Property. If ground water on the Property is impacted following the removal of the soil, a remedial plan should be developed to determine the most feasible program to obtain the Record of Site Condition (i.e. risk assessment or remediation).

7.3 Whether Applicable Site Condition Standards Were Met

Soil – Earth Fill

The applicable site condition standards were not met in the earth fill material located on the Property.

Soil – Native Soils

The applicable Site Condition Standards were not met in the native soils located on the Property.

Ground Water

The applicable site condition standards were not met in the ground water located on the Property.

7.4 Signatures

The Phase Two Environmental Site Assessment has been completed by Amber Brooks, B.Sc., under the direction and supervision of Matthew J. Bielaski., P.Eng, QP_{RA}. The findings and conclusions presented in this report have been determined on the basis of the information that was obtained from review of previous investigations provided and from the current investigation for the Phase Two Property.

The Phase Two Environmental Site Assessment was completed in accordance with Ontario Regulation 153/04 (Records of Site Condition–Part XV.1 of the Environmental Protection Act). The Phase Two Environmental Site Assessment met the objectives and requirements set out in that Ontario Regulation 153/04.

We trust this report meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

Terraprobe Inc.



Katie Greenman, B.Sc.
Environmental Scientist



Amber Brooks, B.Sc.
Project Manager



Matthew J. Bielaski., P.Eng, QP_{RA}
Associate

8.0 REFERENCES

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2. Chapman, L.J. and Putnam, D.F. 2007. *The Physiography of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 228.

3. Freeze, R. Allen and Cherry, John A., 1979. *Groundwater*. Page 29.

4. Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*

5. Ontario Ministry of Environment, 15 April 2011. *Soil, Ground Water and Sediment Standards for use under part XV.1of the Environmental Protection Act.*

6. Ontario Ministry of the Environment, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04.*

7. Ontario Ministry of the Environment, July 2011. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.*

8. Terraprobe, January 2017. *Phase One Environmental Site Assessment, 2107 & 2119 Old Lakeshore Road, Burlington, Ontario.*

9. Terraprobe, December 2016. *Geotechnical Investigation and Engineering Design, 2017 & 2119 Old Lakeshore Road, Burlington, Ontario.*

10. Terraprobe, January 2017. *Hydrogeological Investigation, 2017 & 2119 Old Lakeshore Road, Burlington, Ontario.*

9.0 LIMITATIONS AND USE OF THE REPORT

This report was prepared for the exclusive use of Old Lakeshore Burlington Inc. and is intended to provide an assessment of the environmental condition on the property located at 2107 and 2119 Old Lakeshore Road in Burlington, Ontario. The report was prepared for the purpose of identifying potential environmental concerns, including an assessment of the likelihood that the environmental quality of the soil and ground water at the Property may have been adversely affected by past and present practices at the Property, and/or those of the surrounding properties prior to development of the Property. 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. Terraprobe 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 assessment should not be considered a comprehensive audit that eliminates all risks of encountering environmental problems. The information presented in this report is based on information collected during the completion of the subsurface investigation conducted by Terraprobe Inc. It is based on conditions at the Property at the time of the site inspection. The subsurface conditions were assessed based on information collected at specific borehole and monitoring well locations. The actual subsurface conditions between the sampling points may vary.

There is no warranty expressed or implied by this report regarding the environmental status of the Property. Professional judgment was exercised in gathering and analyzing information collected by our staff, as well as that submitted by others. The conclusions presented are the product of professional care and competence, and cannot be construed as an absolute guarantee.

In the event that during future work new information regarding the environmental condition of the Property is encountered, or in the event that the outstanding responses from the regulatory agencies indicate outstanding issues on file with respect to the Property, Terraprobe should be notified in order that we may re-evaluate the findings of this assessment and provide amendments, as required.

TABLES

TERRAPROBE INC.

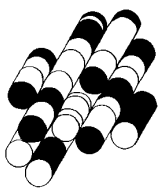


Table 1
Soil Quality Analysis
Metals & Inorganics
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

										Duplicate				
Sample Description	**Unit**	**MECP**	**RDL**	**BH101 SA2**	**BH102 SA1**	**BH102 SA3**	**BH103 SA2**	**BH103 SA3**	**BH104 SA3**	**Dup 2**	**BH104 SA4**	**BH105 SA2**	**BH105 SA3**
Date Sampled		**Table 3**		**03/26/2019**	**03/25/2019**	**03/25/2019**	**03/26/2019**	**03/26/2019**	**03/25/2019**	**03/25/2019**	**03/25/2019**	**03/26/2019**	**03/26/2019**
Lab ID #		**RPI MF**		**9997055**	**9997058**	**9997061**	**9998823**	**9998848**	**9998852**	**9999267**	**9999227**	**9999261**	**9999263**
Sample Depth (m)/ Elevation (masl)				**1.1/80.4**	**0.3/79.3**	**1.7/77.9**	**1.1/78.8**	**1.7/78.2**	**1.7/78.2**	**1.7/78.2**	**2.6/77.3**	**1.1/79.9**	**1.7/79.3**
Parameter													
Metals													
Barium	µg/g	390	2	97	45	69	153	126	127	67	134	103	56
Beryllium	µg/g	5	0.5	0.6	0.5	0.7	0.6	0.9	0.7	<0.5	1.0	0.9	0.9
Boron	µg/g	120	5	10	7	12	10	19	10	6	16	12	18
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	20	16	21	18	22	17	9	25	19	20
Cobalt	µg/g	22	0.5	12.3	6.1	11.9	9.1	12.3	8.0	4.4	12.3	11.7	12.4
Copper	µg/g	180	1	51	23	12	56	8	19	21	16	19	22
Lead	µg/g	120	1	8	11	17	**177**	11	58	75	23	11	10
Molybdenum	µg/g	6.9	0.5	0.8	1.6	0.9	0.9	0.9	1.0	0.7	1.2	0.7	0.8
Nickel	µg/g	100	1	27	14	22	20	29	18	10	27	22	27
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.5	0.6	0.5	0.5	0.5	0.9	<0.5	1.2	0.9	0.7
Vanadium	µg/g	86	1	27	21	25	26	29	24	18	31	27	26
Zinc	µg/g	340	5	55	39	61	**456**	60	103	82	76	58	63
Hydride Metals													
Antimony	µg/g	7.5	0.8	<0.8	<0.8	NA	1.4	<0.8	<0.8	<0.8	NA	<0.8	NA
Arsenic	µg/g	18	1	6	5	NA	6	4	3	3	NA	5	NA
Selenium	µg/g	2.4	0.4	<0.4	<0.4	NA	<0.4	0.9	0.8	0.6	NA	<0.4	NA
Other Regulated Parameters													
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.11	0.22	NA	0.44	0.42	1.23	0.71	NA	0.25	NA
Chromium VI	µg/g	10	0.2	<0.2	<0.2	NA	<0.2	<0.2	<0.2	<0.2	NA	<0.2	NA
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	NA	<0.040	<0.040	<0.040	<0.040	NA	<0.040	NA
Mercury	µg/g	1.8	0.10	<0.10	<0.10	NA	<0.10	<0.10	0.11	0.12	NA	<0.10	NA
Electrical Conductivity	mS/cm	0.7	0.005	0.358	0.612	**1.16**	**0.889**	0.453	**0.714**	0.612	**0.767**	**1.41**	**0.816**
Sodium Adsorption Ratio	NA	5	NA	3.05	**10.9**	**11.3**	**13.4**	**11.9**	**6.16**	**7.06**	**5.48**	**6.79**	1.96
pH, 2:1 CaCl2 Extraction	pH Units	see notes	NA	8.24	8.13	NA	7.93	7.98	7.43	7.45	NA	7.73	NA

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium - FIneTextured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

pH values should be between 5 and 9 for surface soils and between 5-11 for subsurface soils

Table 2
Soil Quality Analysis
Polycyclic Aromatic Hydrocarbons
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

							Duplicate			
Sample Description	**Unit**	**MECP**	**RDL**	**BH101 SA2**	**BH102 SA1**	**BH103 SA1**	**BH103 SA3**	**Dup 3**	**BH104 SA2**	**BH105 SA2**
Date Sampled		**Table 3**		**03/26/2019**	**03/25/2019**	**03/26/2019**	**03/26/2019**	**03/26/2019**	**03/25/2019**	**03/26/2019**
Lab ID #		**RPI MF**		**9997055**	**9997058**	**9998820**	**9998848**	**9999268**	**9998850**	**9999261**
Sample Depth (m)/ Elevation (masl)				**1.1/80.4**	**0.3/79.3**	**0.3/79.6**	**1.7/78.2**	**1.7/78.2**	**1.1/78.8**	**1.1/79.9**
Parameter										
Acenaphthene	µg/g	58	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.17	0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.74	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05
Benz(a)anthracene	µg/g	0.63	0.05	<0.05	<0.05	0.17	<0.05	<0.05	0.18	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	0.08	<0.05	<0.05	0.06	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	7.8	0.05	<0.05	<0.05	0.07	<0.05	<0.05	0.07	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	0.06	<0.05	<0.05	0.13	<0.05
Chrysene	µg/g	7.8	0.05	<0.05	<0.05	0.20	<0.05	<0.05	0.22	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	0.25	<0.05	<0.05	0.39	<0.05
Fluorene	µg/g	69	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05	0.05	<0.05	<0.05	0.05	<0.05
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	<0.05	0.16	<0.05	<0.05	0.27	<0.05
Pyrene	µg/g	78	0.05	<0.05	<0.05	0.31	<0.05	<0.05	0.39	<0.05
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.20	<0.05

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium - FIneTextured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

pH values should be between 5 and 9 for surface soils and between 5-11 for subsurface soils

Table 3
Soil Quality Analysis
Petroleum Hydrocarbons
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

						Duplicate						
Sample Description	**Unit**	**MECP**	**RDL**	**BH102 SA3**	**BH102 SA4**	**BH103 SA2**	**Dup 1**	**BH103 SA3**	**BH104 SA3**	**BH104 SA4**	**BH104 SA5**	**BH105 SA3**
Date Sampled		**Table 3**		**03/25/2019**	**03/25/2019**	**03/26/2019**	**03/26/2019**	**03/26/2019**	**03/25/2019**	**03/25/2019**	**03/25/2019**	**03/26/2019**
Lab ID #		**RPI MF**		**9997061**	**9997071**	**9998823**	**9999266**	**9998848**	**9998852**	**9999227**	**9999230**	**9999263**
Sample Depth (m)/ Elevation (masl)				**1.7/77.9**	**2.6/77.0**	**1.1/78.8**	**1.1/78.8**	**1.7/78.2**	**1.7/78.2**	**2.6/77.3**	**3.4/76.5**	**1.7/79.3**
Parameter												
F1 (C6 to C10)	µg/g	nv	5	2000	34	<5	<5	<5	230	740	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	65	5	**2000**	31	<5	<5	<5	**210**	**380**	<5	<5
F2 (C10 to C16)	µg/g	150	10	37	11	<10	<10	<10	20	18	<10	<10
F3 (C16 to C34)	µg/g	1300	50	81	<50	<50	310	300	64	74	<50	<50
F4 (C34 to C50)	µg/g	5600	50	<50	<50	<50	<50	70	<50	<50	<50	<50

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium - FIneTextured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

pH values should be between 5 and 9 for surface soils and between 5-11 for subsurface soils

Table 4
Soil Quality Analysis
Benzene, Toluene, Ethylbenzene, Xylene
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

						Duplicate						
Sample Description		**MECP**		**BH102 SA3**	**BH102 SA4**	**BH103 SA2**	**Dup 1**	**BH103 SA3**	**BH104 SA3**	**BH104 SA4**	**BH104 SA5**	**BH105 SA3**
Date Sampled		**Table 3**		**03/25/2019**	**03/25/2019**	**03/26/2019**	**03/26/2019**	**03/26/2019**	**03/25/2019**	**03/25/2019**	**03/25/2019**	**03/26/2019**
Lab ID #	**Unit**	**RPI MF**	**RDL**	**9997061**	**9997071**	**9998823**	**9999266**	**9998848**	**9998852**	**9999227**	**9999230**	**9999263**
Sample Depth (m)/ Elevatio				**1.7/77.9**	**2.6/77.0**	**1.1/78.8**	**1.1/78.8**	**1.7/78.2**	**1.7/78.2**	**2.6/77.3**	**3.4/76.5**	**1.7/79.3**
Parameter												
Benzene	ug/g	0.17	0.02	<0.02	<0.02	**0.25**	**0.26**	<0.02	**2.9**	**24**	**0.51**	<0.02
Ethylbenzene	ug/g	15	0.05	8.9	0.51	0.17	0.13	<0.05	6.5	**55**	0.58	<0.05
Toluene	ug/g	6	0.05	<0.05	<0.05	0.20	0.17	<0.05	3.2	**63**	0.30	<0.05
Xylene Mixture	ug/g	25	0.05	22	2.2	0.59	0.47	<0.05	9.4	**220**	2.1	0.14
m & p-Xylene	ug/g	NV	0.05	20	1.8	0.51	0.39	<0.05	8.0	150	1.8	0.14
o-Xylene	ug/g	NV	0.05	2.4	0.38	0.08	0.08	<0.05	1.4	66	0.32	<0.05

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium - FIneTextured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

pH values should be between 5 and 9 for surface soils and between 5-11 for subsurface soils

Table 5
Soil Quality Analysis
Volatile Organic Compounds
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

						Duplicate						
Sample Description		**MECP**		**BH102 SA3**	**BH102 SA4**	**BH103 SA2**	**Dup 1**	**BH103 SA3**	**BH104 SA3**	**BH104 SA4**	**BH104 SA5**	**BH105 SA3**
Date Sampled		**Table 3**		**03/25/2019**	**03/25/2019**	**03/26/2019**	**03/26/2019**	**03/26/2019**	**03/25/2019**	**03/25/2019**	**03/25/2019**	**03/26/2019**
Lab ID #	**Unit**	**RPI MF**	**RDL**	**9997061**	**9997071**	**9998823**	**9999266**	**9998848**	**9998852**	**9999227**	**9999230**	**9999263**
Sample Depth (m)/ Elevation				**1.7/77.9**	**2.6/77.0**	**1.1/78.8**	**1.1/78.8**	**1.7/78.2**	**1.7/78.2**	**2.6/77.3**	**3.4/76.5**	**1.7/79.3**
Parameter												
Acetone	ug/g	28	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	ug/g	13	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.26	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.12	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	ug/g	2.7	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	ug/g	0.18	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Cis- 1,2-Dichloroethylene	ug/g	30	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	ug/g	9.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	4.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.097	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	11	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	ug/g	0.085	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropene	µg/g	0.083	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Methyl Ethyl Ketone	ug/g	44	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	4.3	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	ug/g	1.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.96	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
n-Hexane	µg/g	34	0.05	**310**	4.8	0.39	0.51	0.34	9.6	**150**	0.18	0.29
Styrene	ug/g	2.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.75	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	ug/g	3.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	ug/g	0.52	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	ug/g	5.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.022	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium - FIneTextured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

pH values should be between 5 and 9 for surface soils and between 5-11 for subsurface soils

Table 6
Ground Water Quality Analysis
Metals & Inorganics
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

									Duplicate								
Sample Description		**MECP**		**BH101**		**BH2**		**BH102**	**BH103D**	**Dup 1**		**BH103S**	**BH104S**		**BH104D**		**BH105**
Date Sampled		**Table 3**		**04/16/2019**		**04/16/2019**		**04/16/2019**	**04/16/2019**	**04/16/2019**		**04/16/2019**	**04/16/2019**		**04/16/2019**		**04/16/2019**
Lab ID #	**Unit**	**RPI MF**	**RDL**	**134607**	**RDL**	**134743**	**RDL**	**134757**	**134758**	**134763**	**RDL**	**134759**	**134760**	**RDL**	**134761**	**RDL**	**134762**
Sample Elevation				**79.9 to 78.4**		**78.0 to 76.5**		**76.6 to 73.5**	**76.9 to 73.8**	**76.9 to 73.8**		**78.3 to 76.8**	**78.3 to 76.8**		**76.9 to 73.8**		**79.4 to 77.9**
Parameter																	
Metals																	
Barium	µg/L	29000	2.0	162	2.0	1400	2.0	69.7	547	540	2.0	525	375	2.0	117	2.0	252
Beryllium	µg/L	67	0.5	<0.5	0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.5	<0.5	0.5	<0.5
Boron	µg/L	45000	10.0	62.5	10.0	141	10.0	1720	751	841	10.0	93.0	253	10.0	1230	10.0	122
Cadmium	µg/L	2.7	0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	0.2	<0.2	0.2	<0.2
Chloride	µg/L	2300000	2000	669000	10000	2170000	2000	533000	666000	660000	5000	1400000	1270000	2000	516000	5000	1650000
Chromium	µg/L	810	2.0	6.6	2.0	29.0	2.0	11.1	17.7	14.1	2.0	16.1	27.6	2.0	12.8	2.0	16.9
Cobalt	µg/L	66	0.5	0.7	0.5	2.3	0.5	0.8	0.6	0.6	0.5	1.1	1.2	0.5	0.6	0.5	1.5
Copper	µg/L	87	1.0	2.3	1.0	3.3	1.0	2.6	<1.0	1.2	1.0	2.0	<1.0	1.0	1.8	1.0	4.2
Lead	µg/L	25	0.5	<0.5	0.5	5.5	0.5	1.6	<0.5	<0.5	0.5	1.4	16.5	0.5	<0.5	0.5	<0.5
Molybdenum	µg/L	9200	0.5	5.5	0.5	6.5	0.5	10.4	6.3	5.9	0.5	2.5	11.7	0.5	3.7	0.5	2.7
Nickel	µg/L	490	1.0	1.5	1.0	5.3	1.0	2.2	1.0	1.3	1.0	2.7	2.0	1.0	1.1	1.0	5.7
Silver	µg/L	1.5	0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	0.2	<0.2	0.2	<0.2
Thallium	µg/L	510	0.3	<0.3	0.3	<0.3	0.3	<0.3	<0.3	<0.3	0.3	<0.3	<0.3	0.3	<0.3	0.3	<0.3
Uranium	µg/L	420	0.5	2.0	0.5	8.1	0.5	5.4	1.8	2.0	0.5	4.2	6.1	0.5	4.2	0.5	12.5
Vanadium	µg/L	250	0.4	1.5	0.4	2.1	0.4	2.3	4.6	3.5	0.4	3.9	7.8	0.4	2.9	0.4	4.4
Zinc	µg/L	1100	5.0	<5.0	5.0	7.5	5.0	5.5	<5.0	<5.0	5.0	7.8	<5.0	5.0	<5.0	5.0	<5.0
Hydride Metals																	
Antimony	µg/L	20000	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	<1.0	1.0	<1.0	1.0	1.0	<1.0	1.0	<1.0
Arsenic	µg/L	1900	1.0	<1.0	1.0	22.1	1.0	2.6	4.1	6.5	1.0	<1.0	8.2	1.0	4.2	1.0	1.8
Selenium	µg/L	63	1.0	8.6	1.0	7.9	1.0	6.0	6.3	7.1	1.0	<1.0	2.8	1.0	9.0	1.0	<1.0
Other Regulated Parameters																	
Chromium VI	µg/L	140	5	<5	5	<5	5	<5	<5	<5	5	<5	<5	5	<5	5	<5
Cyanide	µg/L	66	2	<2	2	<2	2	<2	<2	<2	2	<2	<2	2	<2	2	<2
Mercury	µg/L	2.8	0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.02	<0.02	0.02	<0.02
Electrical Conductivity	uS/cm	NV	2	2420	2	7500	2	2790	2810	2780	2	5080	4970	2	2640	2	5790
Sodium	µg/L	2300000	2500	203000	5000	1320000	2500	134000	140000	144000	5000	679000	799000	2500	133000	5000	439000
pH	pH Units	NV	NA	7.89	NA	7.88	NA	7.72	7.81	7.82	NA	7.88	7.93	NA	7.70	NA	7.80

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium- Fine Textured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NA-Not Analyzed

NV- No Value

Table 7
Ground Water Quality Analysis
Polycyclic Aromatic Hydrocarbons
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

							Duplicate					
Sample Description		**MECP**		**BH101**	**BH2**	**BH102**	**BH103D**	**Dup 1**	**BH103S**	**BH104S**	**BH104D**	**BH105**
Date Sampled		**Table 3**		**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**
Lab ID#	**Unit**	**RPI MF**	**RDL**	**134607**	**134743**	**134757**	**134758**	**134763**	**134759**	**134760**	**134761**	**134762**
Sample Elevation				**79.9 to 78.4**	**78.0 to 76.5**	**76.6 to 73.5**	**76.9 to 73.8**	**76.9 to 73.8**	**78.3 to 76.8**	**78.3 to 76.8**	**76.9 to 73.8**	**79.4 to 77.9**
Parameter												
Acenaphthene	µg/L	1700	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.24	<0.20	<0.20
Acenaphthylene	µg/L	1.8	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Anthracene	µg/L	2.4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benz(a)anthracene	µg/L	4.7	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.81	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.75	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L	0.4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenz(a,h)anthracene	µg/L	0.52	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Fluoranthene	µg/L	130	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Fluorene	µg/L	400	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.59	<0.20	<0.20
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Naphthalene	µg/L	6400	0.20	<0.20	6.9	<0.20	4.2	4.1	<0.20	93	0.45	<0.20
Phenanthrene	µg/L	580	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.27	<0.10	<0.10
Pyrene	µg/L	68	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	1800	0.20	<0.20	2.2	<0.20	0.62	0.68	<0.20	51	0.34	<0.20

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium- Fine Textured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

Table 8
Ground Water Quality Analysis
Petroleum Hydrocarbons
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

						Duplicate					
Sample Description	**Unit**	**MECP**	**RDL**	**BH2**	**BH102**	**BH103D**	**Dup 1**	**BH103S**	**BH104S**	**BH104D**	**BH105**
Date Sampled		**Table 3**		**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**
Lab ID #		**RPI MF**		**134743**	**134757**	**134758**	**134763**	**134759**	**134760**	**134761**	**134762**
Sample Elevation				**78.0 to 76.5**	**76.6 to 73.5**	**76.9 to 73.8**	**76.9 to 73.8**	**78.3 to 76.8**	**78.3 to 76.8**	**76.9 to 73.8**	**79.4 to 77.9**
Parameter											
F1 (C6 to C10) minus BTEX	µg/L	750	25	220	28	230	160	<25	700	33	<25
F1 (C6-C10)	µg/L	NV	25	380	54	1100	1000	42	19000	78	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100	<100	<100	**300**	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100	<100	<100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100	<100	<100	<100	<100

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium- Fine Textured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

Table 9
Ground Water Quality Analysis
Benzene, Toluene, Ethylbenzene, Xylene
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

						Duplicate								
Sample Description		**MECP**		**BH2**	**BH102**	**BH103D**	**Dup 1**	**BH103S**		**BH104S**		**BH104D**	**BH105**	**Trip Blank**
Date Sampled		**Table 3**		**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**		**04/16/2019**		**04/16/2019**	**04/16/2019**	**04/16/2019**
Lab ID #	**Unit**	**RPI MF**	**RDL**	**134743**	**134757**	**134758**	**134763**	**134759**	**RDL**	**134760**	**RDL**	**134761**	**134762**	**134774**
Sample Elevation				**78.0 to 76.5**	**76.6 to 73.5**	**76.9 to 73.8**	**76.9 to 73.8**	**78.3 to 76.8**		**78.3 to 76.8**		**76.9 to 73.8**	**79.4 to 77.9**	**-**
Parameter														
Benzene	µg/L	430	0.20	0.98	2.0	54	55	<0.20	2.00	**2500**	0.20	3.3	<0.20	<0.20
Ethylbenzene	µg/L	2300	0.10	57	8.7	230	210	3.1	1.00	1000	0.10	9.3	<0.10	<0.10
Toluene	µg/L	18000	0.20	2.6	4.3	220	210	5.6	2.00	9500	0.20	5.7	<0.20	<0.20
Xylene Mixture	µg/L	4200	0.20	98	11	370	360	24	2.00	**5300**	0.20	26	<0.20	<0.20
m & p-Xylene	µg/L	NV	0.20	75	7.5	280	270	15	2.00	3700	0.20	20	<0.20	<0.20
o-Xylene	µg/L	NV	0.10	23	3.5	85	94	9.4	1.00	1600	0.10	6.3	<0.10	<0.10

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium- Fine Textured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

150 Sample result exceeded RPI Standard

NV- No Value

NA-Not Analyzed

Table 10
Ground Water Quality Analysis
Volatile Organic Compounds
2107 & 2109 Old Lakeshore Road
Burlington, Ontario
Project #7-19-0023-42

						Duplicate								
Sample Description		**MECP**		**BH2**	**BH102**	**BH103D**	**Dup 1**	**BH103S**		**BH104S**		**BH104D**	**BH105**	**Trip Blank**
Date Sampled		**Table 3**		**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**	**04/16/2019**		**04/16/2019**		**04/16/2019**	**04/16/2019**	**04/16/2019**
Lab ID #	**Unit**	**RPI MF**	**RDL**	**134743**	**134757**	**134758**	**134763**	**134759**	**RDL**	**134760**	**RDL**	**134761**	**134762**	**134774**
Sample Elevation				**78.0 to 76.5**	**76.6 to 73.5**	**76.9 to 73.8**	**76.9 to 73.8**	**78.3 to 76.8**		**78.3 to 76.8**		**76.9 to 73.8**	**79.4 to 77.9**	**-**
Parameter														
Acetone	µg/L	130000	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10.0	<10.0	1.0	<1.0	<1.0	<1.0
Bromodichloromethane	µg/L	85000	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	770	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
Bromomethane	µg/L	56	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
Carbon Tetrachloride	µg/L	8.4	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	630	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
Chloroform	µg/L	22	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	82000	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	67	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
Dichlorodifluoromethane	µg/L	4400	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	12	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	3100	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30	<0.30	<0.30
1,1-Dichloroethylene	µg/L	17	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30	<0.30	<0.30
1,2-Dichloropropane	µg/L	140	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
1,3-Dichloropropene	µg/L	45	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30	<0.30	<0.30
Ethylene Dibromide	µg/L	0.83	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
n-Hexane	µg/L	520	0.20	5.2	0.77	11	11	<0.20	2.00	99	0.20	4.1	<0.20	<0.20
Methyl Ethyl Ketone	µg/L	1500000	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10.0	<10.0	1.0	<1.0	<1.0	<1.0
Methyl Isobutyl Ketone	µg/L	580000	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10.0	<10.0	1.0	<1.0	<1.0	<1.0
Methyl tert-butyl ether	µg/L	1400	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
Methylene Chloride	µg/L	5500	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30	<0.30	<0.30
Styrene	µg/L	9100	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
1,1,1,2-Tetrachloroethane	µg/L	28	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	15	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	µg/L	30	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	6700	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30	<0.30	<0.30
Trichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	2500	0.40	<0.40	<0.40	<0.40	<0.40	<0.40	4.00	<4.00	0.40	<0.40	<0.40	<0.40
Vinyl Chloride	µg/L	1.7	0.17	<0.17	<0.17	<0.17	<0.17	<0.17	1.70	<1.70	0.17	<0.17	<0.17	<0.17
cis- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20
trans- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20	<0.20	<0.20

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for
Residential/Parkland/Institutional Land Use in a Medium- Fine Textured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<0.065 RDL exceeded Standard

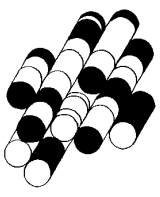
150 Sample result exceeded RPI Standard

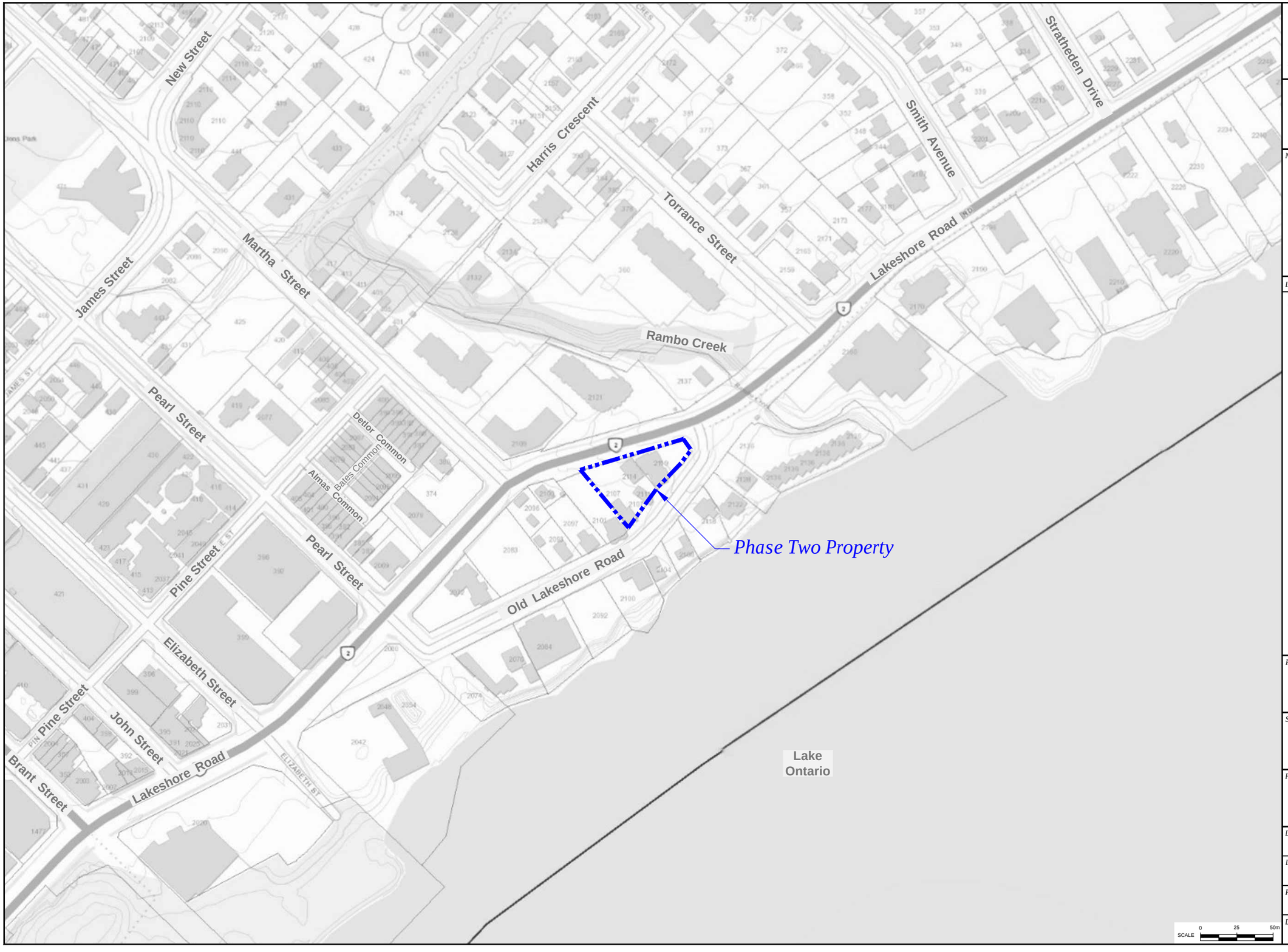
NV- No Value

NA-Not Analyzed

FIGURES

TERRAPROBE INC.





Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Burlington Maps

Notes:

Legend:
Phase Two Property Boundary

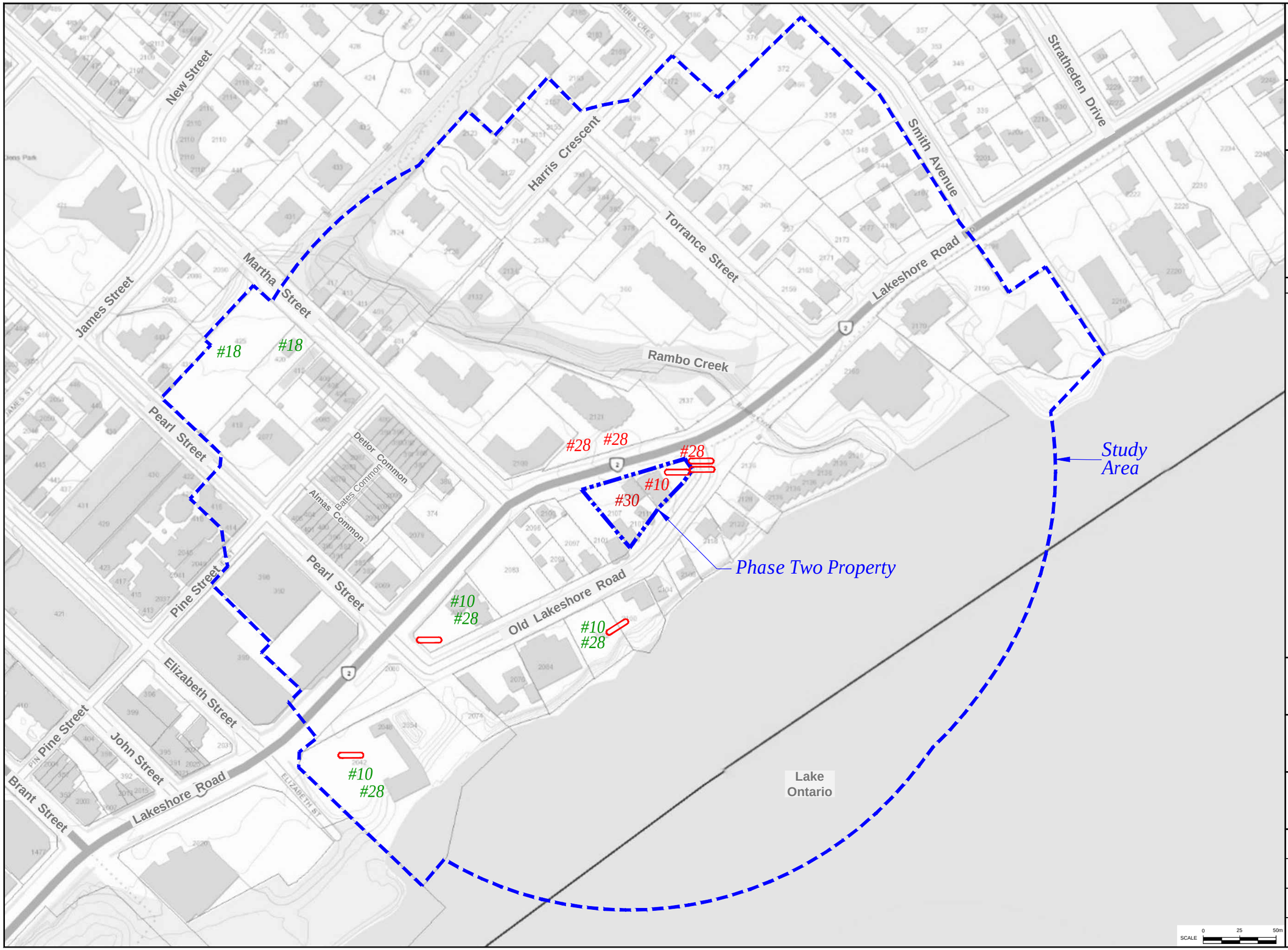
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
PHASE TWO PROPERTY LOCATION

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 1
Date: June 2019	

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Terraprobe Inc.

Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing

11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Burlington Maps

Notes:

PCA - Potentially Contaminating Activity

#00 PCA Causing APEC

#00 PCA Not Causing APEC

Legend:

	Phase Two Property Boundary
	Phase One Study Area, 250m
#10	Commercial Body Shops
#18	Electricity Generation, Transformation and Power Stations
#28	Gasoline and Associated Products Storage in Fixed Tanks
#30	Importation of Fill Material of Unknown Quality
	Approximate Location of USTs

Project Title:

Phase Two Environmental Site Assessment

Site Location:

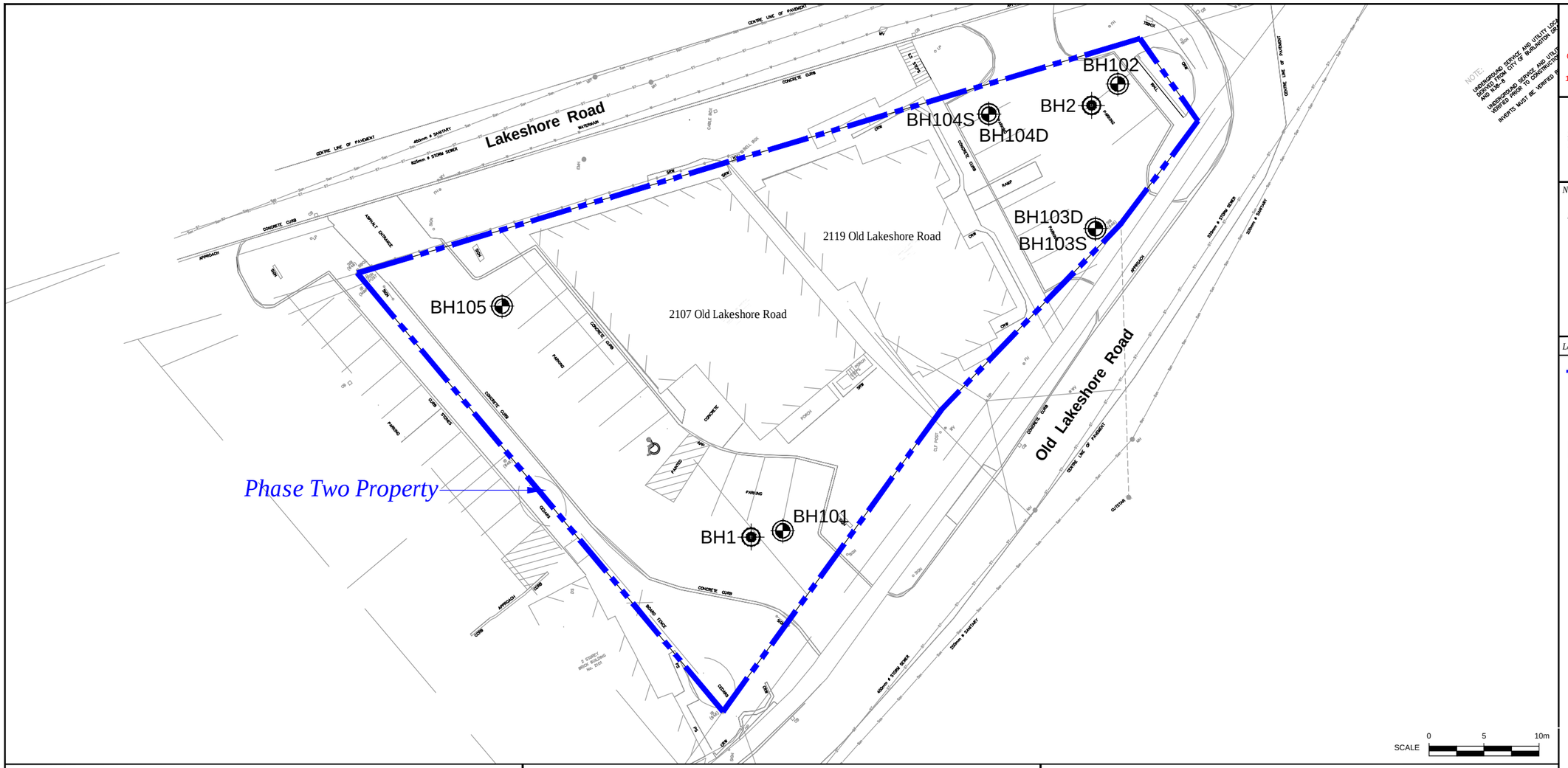
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

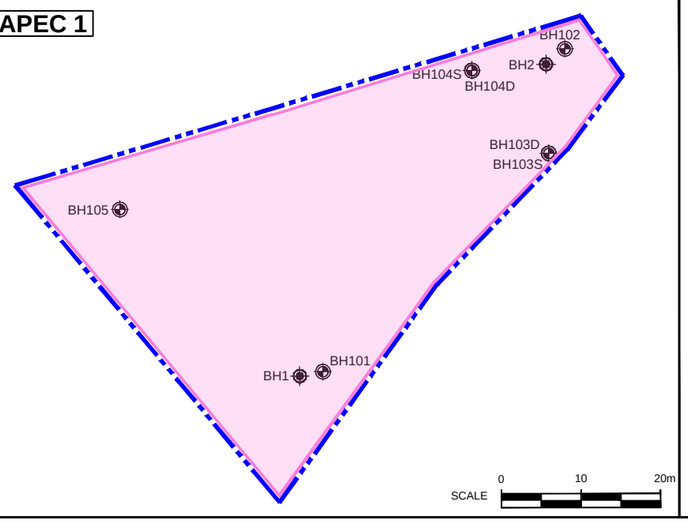
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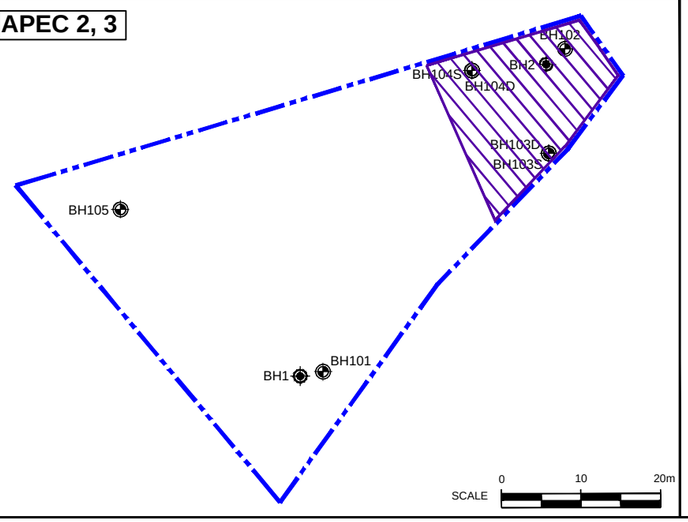
PCA LOCATIONS

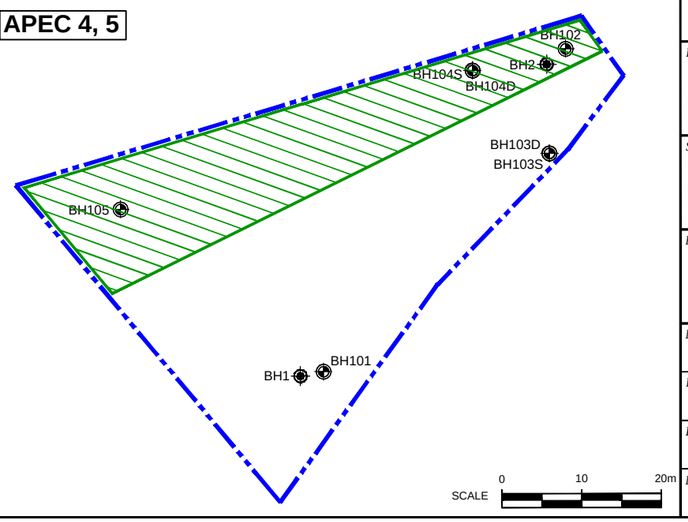
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Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 2
Date: June 2019	

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Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:

APEC - Area of Potential Environmental Concern

Legend:

- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- APEC 1
- APEC 2, 3
- APEC 4, 5

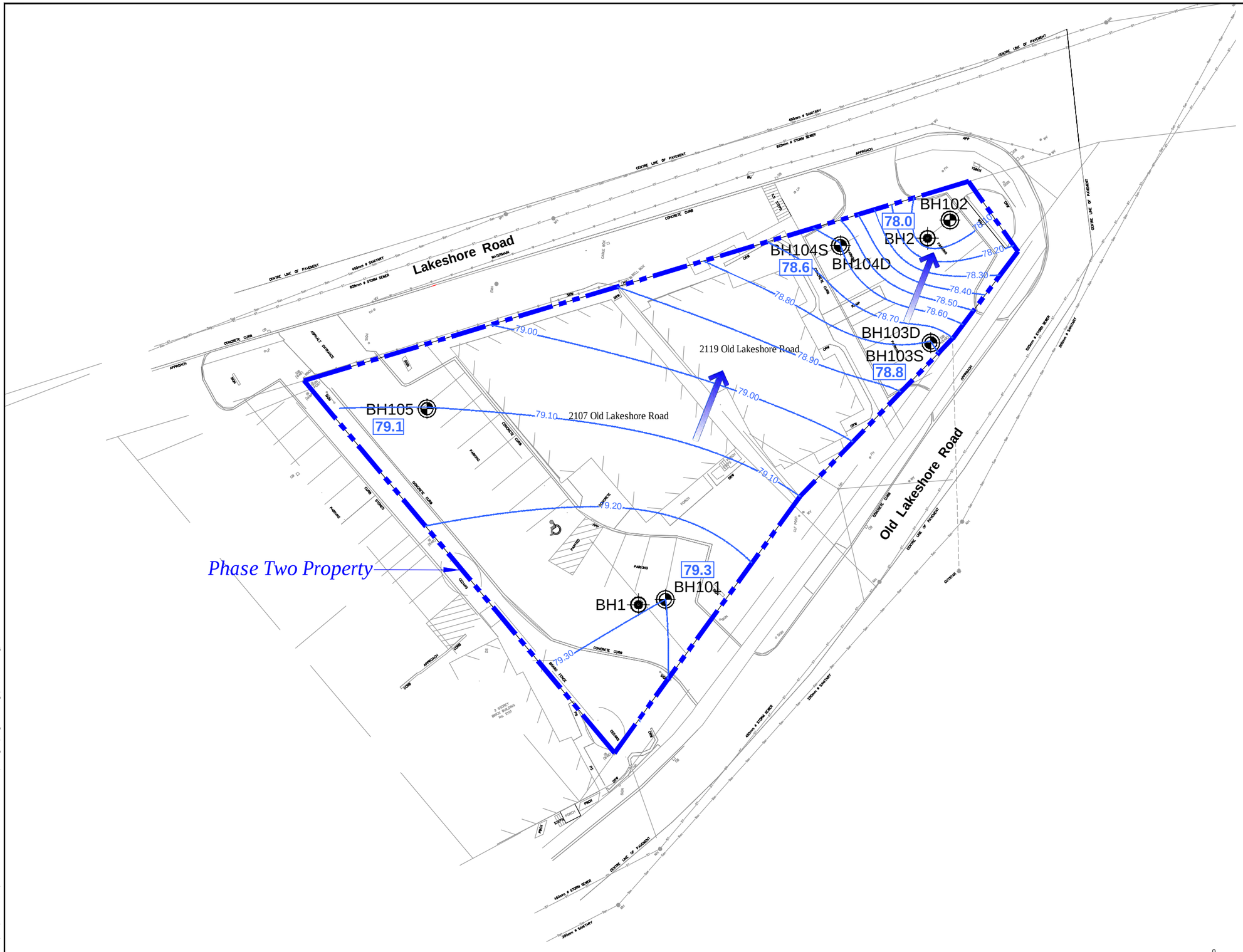
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
BOREHOLE, MONITORING WELL AND APEC LOCATION PLAN

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 3
Date: June 2019	

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Construction Materials, Inspection & Testing

11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:

Legend:

- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- 79.3 — Ground Water Level (masl), April 16, 2019
- 78.90 — Ground Water Contour Line
- Approximate Ground Water Flow Direction

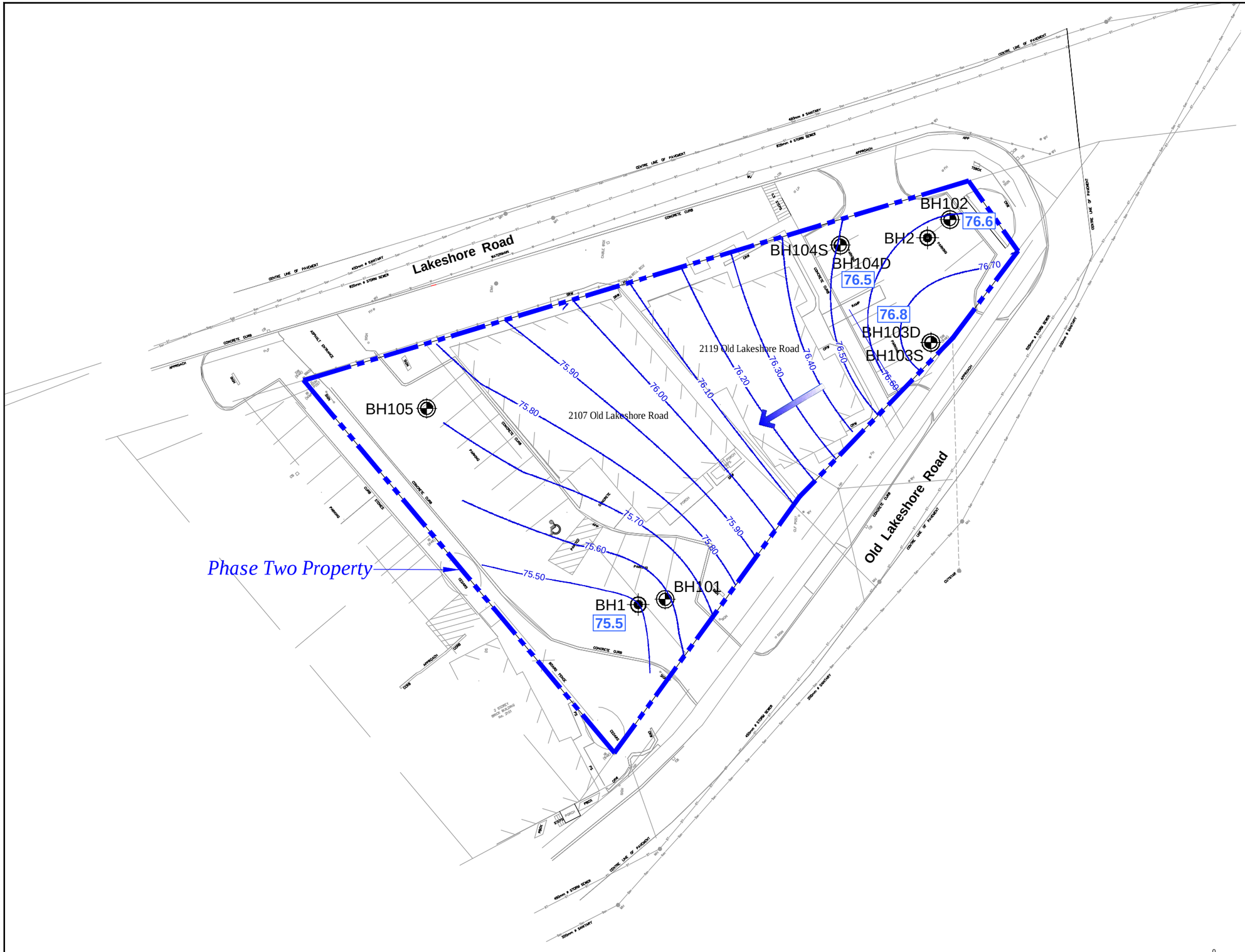
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
GROUND WATER CONTOURS
(GW UNIT 1)

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 4
Date: June 2019	

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Terraprobe Inc.

Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing

11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:

Legend:

- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- 76.8 Ground Water Level (masl), April 16, 2019
- 76.70 Ground Water Contour Line
- Approximate Ground Water Flow Direction

Project Title:

Phase Two Environmental Site Assessment

Site Location:

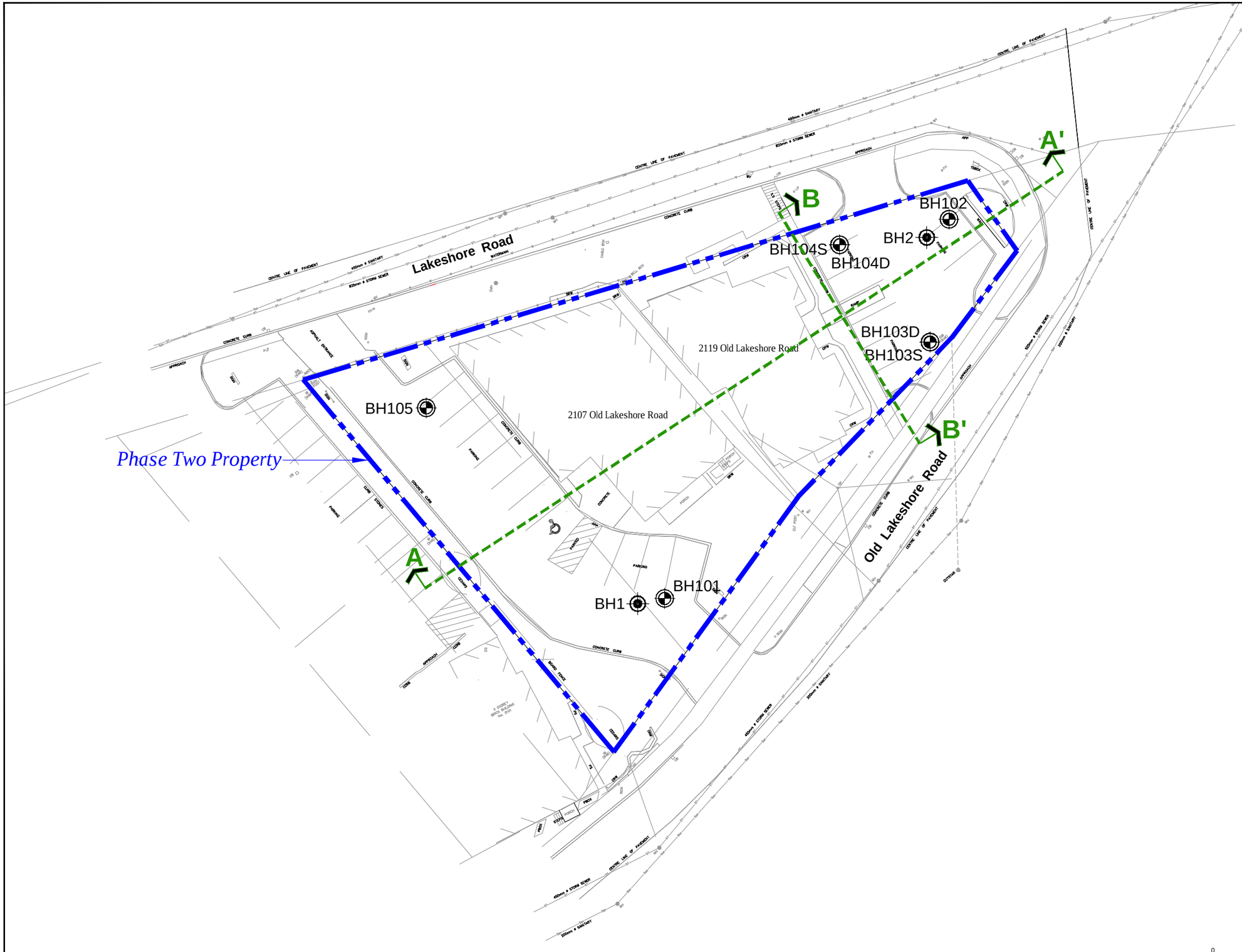
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:

GROUND WATER CONTOURS
(GW UNIT 2)

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 5
Date: June 2019	

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SCALE 0 5 10m

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Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:

Legend:

- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Approximate Cross Section Location

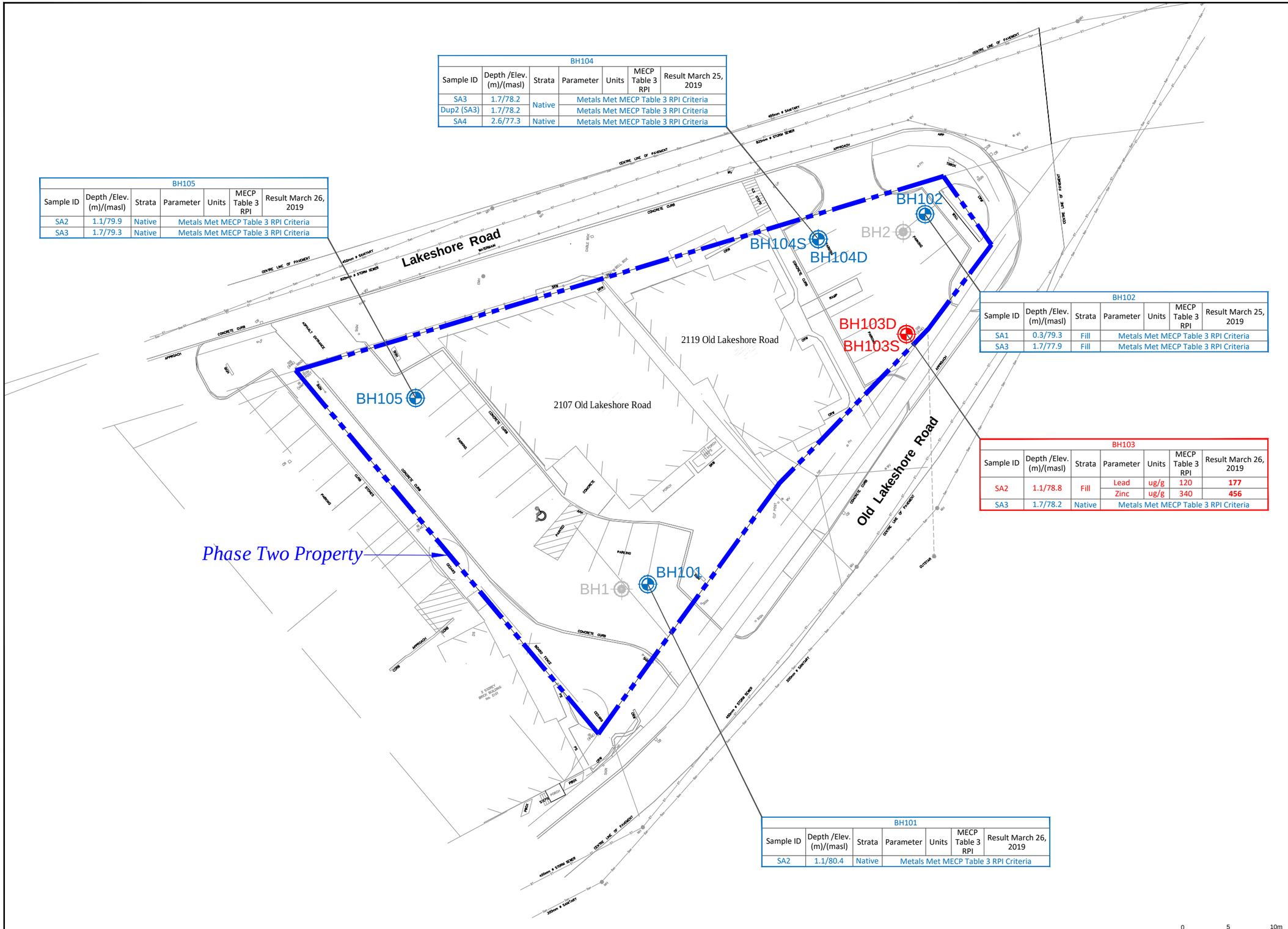
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
BOREHOLE, MONITORING WELL AND CROSS SECTION LOCATIONS

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 6
Date: June 2019	

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BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	Metals Met MECP Table 3 RPI Criteria			
Dup2 (SA3)	1.7/78.2		Metals Met MECP Table 3 RPI Criteria			
SA4	2.6/77.3	Native	Metals Met MECP Table 3 RPI Criteria			

BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/79.9	Native	Metals Met MECP Table 3 RPI Criteria			
SA3	1.7/79.3	Native	Metals Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA1	0.3/79.3	Fill	Metals Met MECP Table 3 RPI Criteria			
SA3	1.7/77.9	Fill	Metals Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	Lead	ug/g	120	**177**
			Zinc	ug/g	340	**456**
SA3	1.7/78.2	Native	Metals Met MECP Table 3 RPI Criteria			

BH101						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/80.4	Native	Metals Met MECP Table 3 RPI Criteria			

SCALE 0 5 10m

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:
1. SA1 = Parameter Result Meets Standard
2. 177 = Parameter Result Exceeds Standard

Legend:
- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Sample in Borehole Meets Standard
- Sample in Borehole Exceeds Standard
- Borehole Not Analyzed

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
METAL SOIL EXCEEDANCES - PLAN VIEW

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 7
Date: June 2019	

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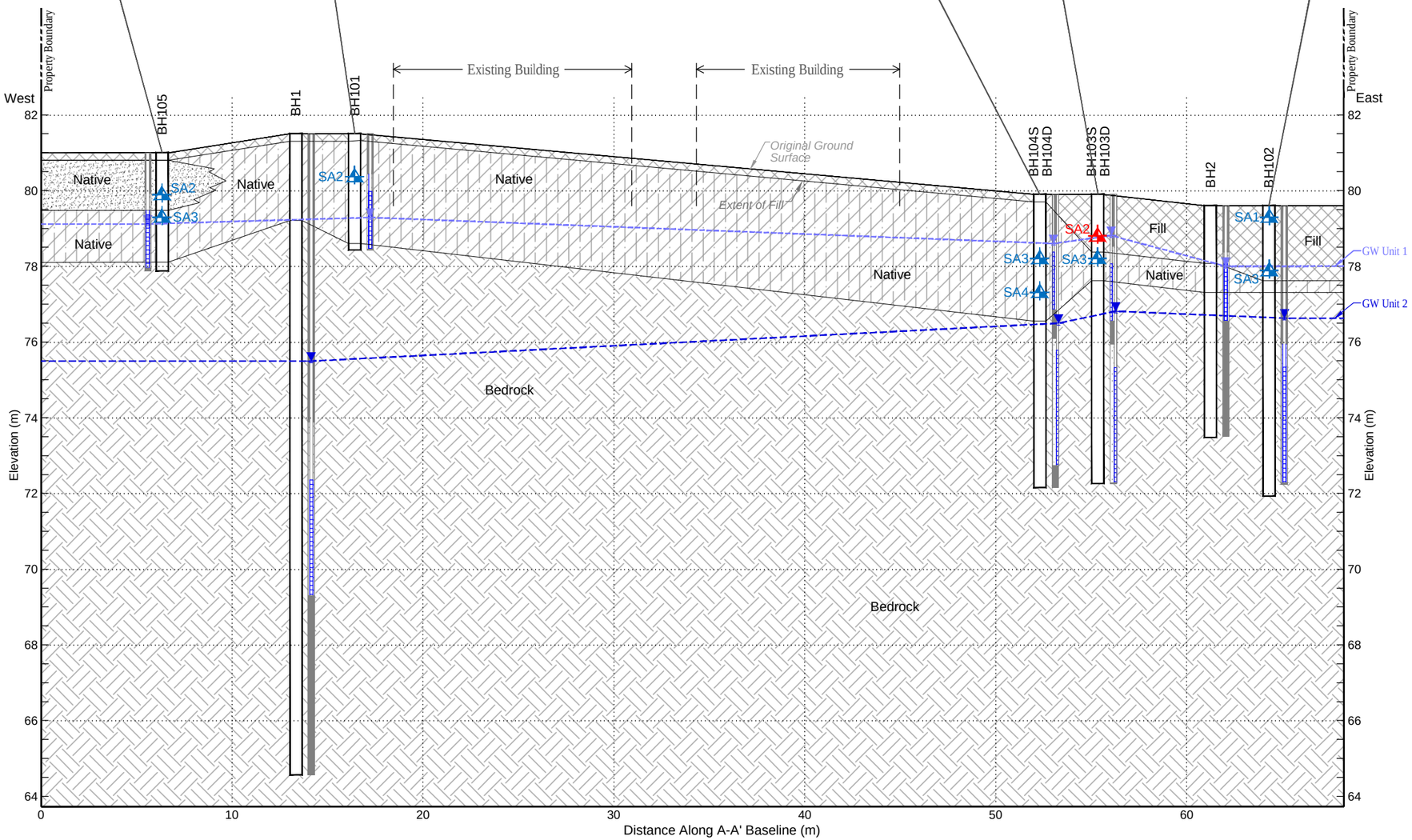
BH101						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/80.4	Native	Metals Met MECP Table 3 RPI Criteria			

BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/79.9	Native	Metals Met MECP Table 3 RPI Criteria			
SA3	1.7/79.3	Native	Metals Met MECP Table 3 RPI Criteria			

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	Metals Met MECP Table 3 RPI Criteria			
Dup2 (SA3)	1.7/78.2		Metals Met MECP Table 3 RPI Criteria			
SA4	2.6/77.3	Native	Metals Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	Lead	ug/g	120	**177**
			Zinc	ug/g	340	**456**
SA3	1.7/78.2	Native	Metals Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA1	0.3/79.3	Fill	Metals Met MECP Table 3 RPI Criteria			
SA3	1.7/77.9	Fill	Metals Met MECP Table 3 RPI Criteria			



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Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA1 = Parameter Result Meets Standard
2. **177** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Sand)
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
METAL SOIL EXCEEDANCES - CROSS SECTION A-A'

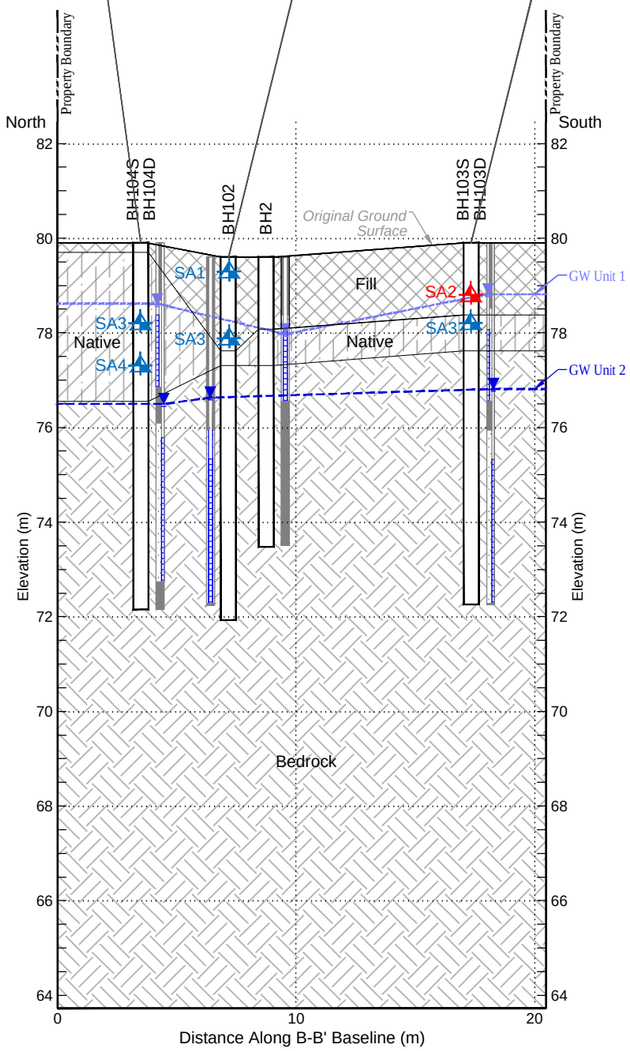
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Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 8
Date: June 2019	

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BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	Metals Met MECP Table 3 RPI Criteria			
Dup2 (SA3)	1.7/78.2		Metals Met MECP Table 3 RPI Criteria			
SA4	2.6/77.3	Native	Metals Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA1	0.3/79.3	Fill	Metals Met MECP Table 3 RPI Criteria			
SA3	1.7/77.9	Fill	Metals Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	Lead	ug/g	120	**177**
			Zinc	ug/g	340	**456**
SA3	1.7/78.2	Native	Metals Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA1 = Parameter Result Meets Standard
2. 177 = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

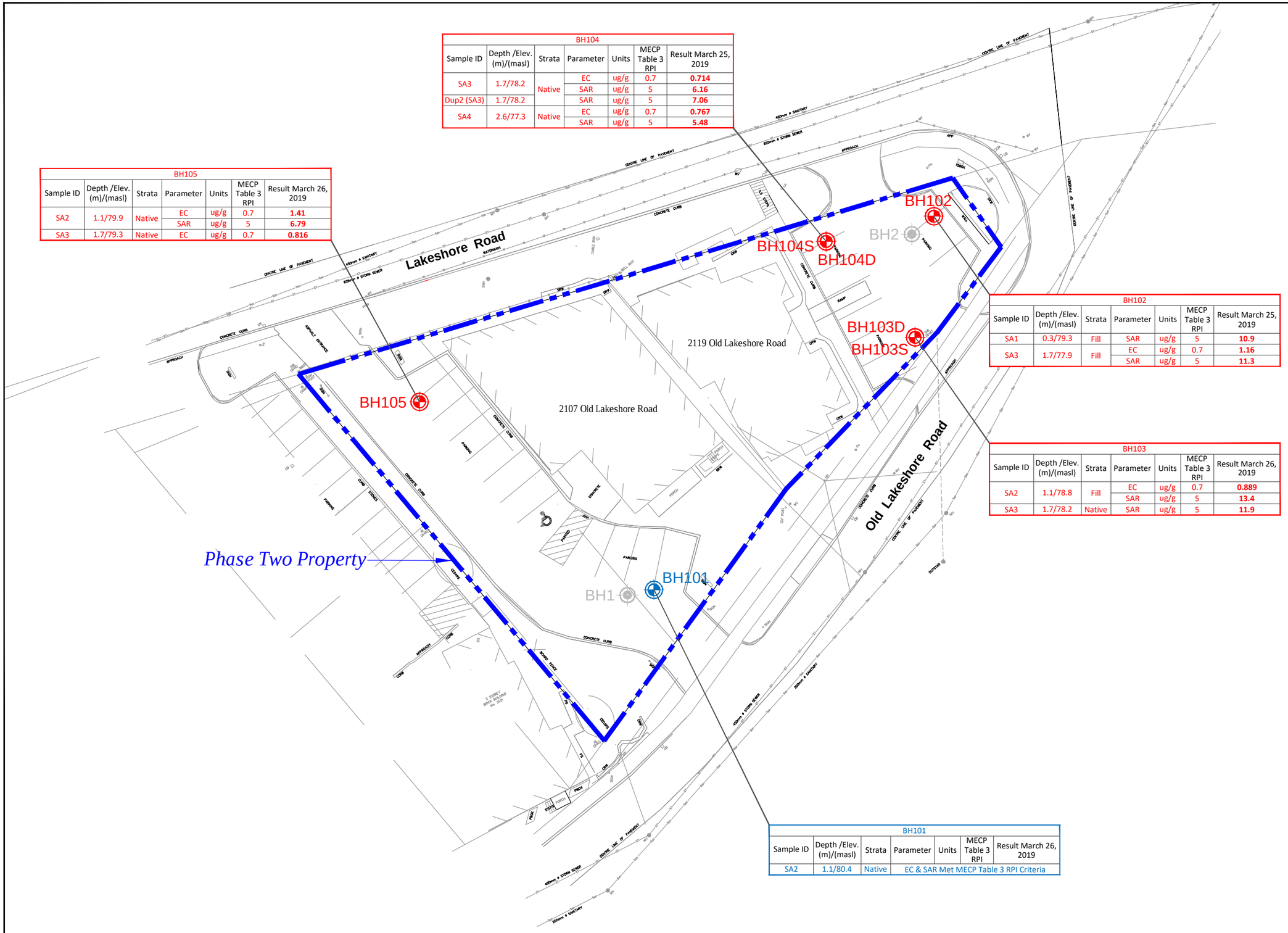
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
METAL SOIL EXCEEDANCES - CROSS SECTION B-B'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 9
Date: June 2019	

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BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	EC	ug/g	0.7	**0.714**
			SAR	ug/g	5	**6.16**
Dup2 (SA3)	1.7/78.2		SAR	ug/g	5	**7.06**
SA4	2.6/77.3	Native	EC	ug/g	0.7	**0.767**
			SAR	ug/g	5	**5.48**

BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/79.9	Native	EC	ug/g	0.7	**1.41**
			SAR	ug/g	5	**6.79**
SA3	1.7/79.3	Native	EC	ug/g	0.7	**0.816**

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA1	0.3/79.3	Fill	SAR	ug/g	5	**10.9**
SA3	1.7/77.9	Fill	EC	ug/g	0.7	**1.16**
			SAR	ug/g	5	**11.3**

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	EC	ug/g	0.7	**0.889**
			SAR	ug/g	5	**13.4**
SA3	1.7/78.2	Native	SAR	ug/g	5	**11.9**

BH101						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/80.4	Native	EC & SAR Met MECP Table 3 RPI Criteria			

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
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Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:
1. SA2 = Parameter Result Meets Standard
2. **10.9** = Parameter Result Exceeds Standard

Legend:
- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Sample in Borehole Meets Standard
- Sample in Borehole Exceeds Standard
- Borehole Not Analyzed

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
ELECTRICAL CONDUCTIVITY AND
SODIUM ADSORPTION RATIO
SOIL EXCEEDANCES - PLAN VIEW

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 10
Date: June 2019	

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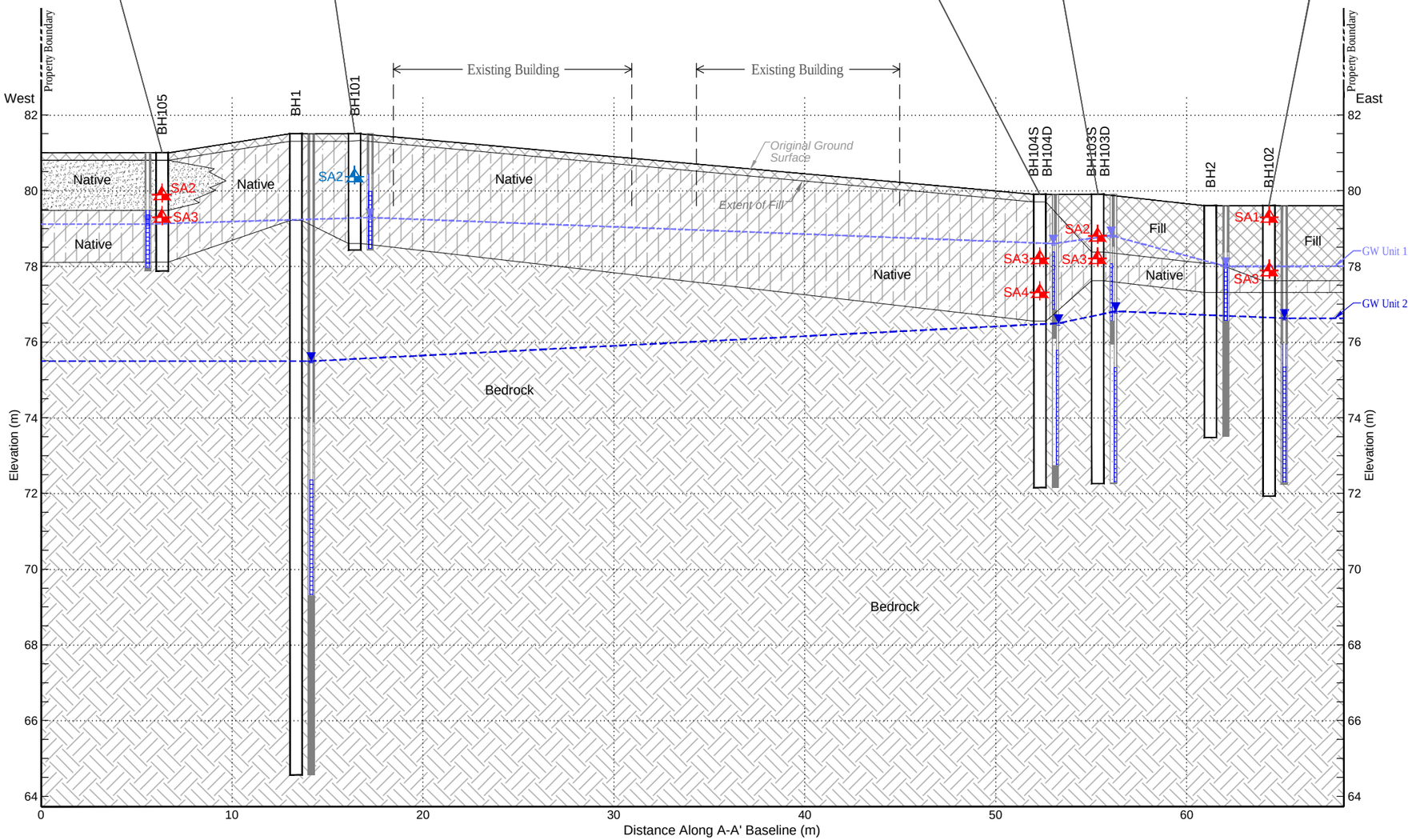
BH101						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/80.4	Native	EC & SAR Met MECP Table 3 RPI Criteria			

BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/79.9	Native	EC	ug/g	0.7	**1.41**
			SAR	ug/g	5	**6.79**
SA3	1.7/79.3	Native	EC	ug/g	0.7	**0.816**

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	EC	ug/g	0.7	**0.714**
			SAR	ug/g	5	**6.16**
Dup2 (SA3)	1.7/78.2		SAR	ug/g	5	**7.06**
SA4	2.6/77.3	Native	EC	ug/g	0.7	**0.767**
			SAR	ug/g	5	**5.48**

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	EC	ug/g	0.7	**0.889**
			SAR	ug/g	5	**13.4**
SA3	1.7/78.2	Native	SAR	ug/g	5	**11.9**

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA1	0.3/79.3	Fill	SAR	ug/g	5	**10.9**
SA3	1.7/77.9	Fill	EC	ug/g	0.7	**1.16**
			SAR	ug/g	5	**11.3**



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA2 = Parameter Result Meets Standard
2. **10.9** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Sand)
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
ELECTRICAL CONDUCTIVITY AND
SODIUM ADSORPTION RATIO
SOIL EXCEEDANCES - CROSS SECTION A-A'

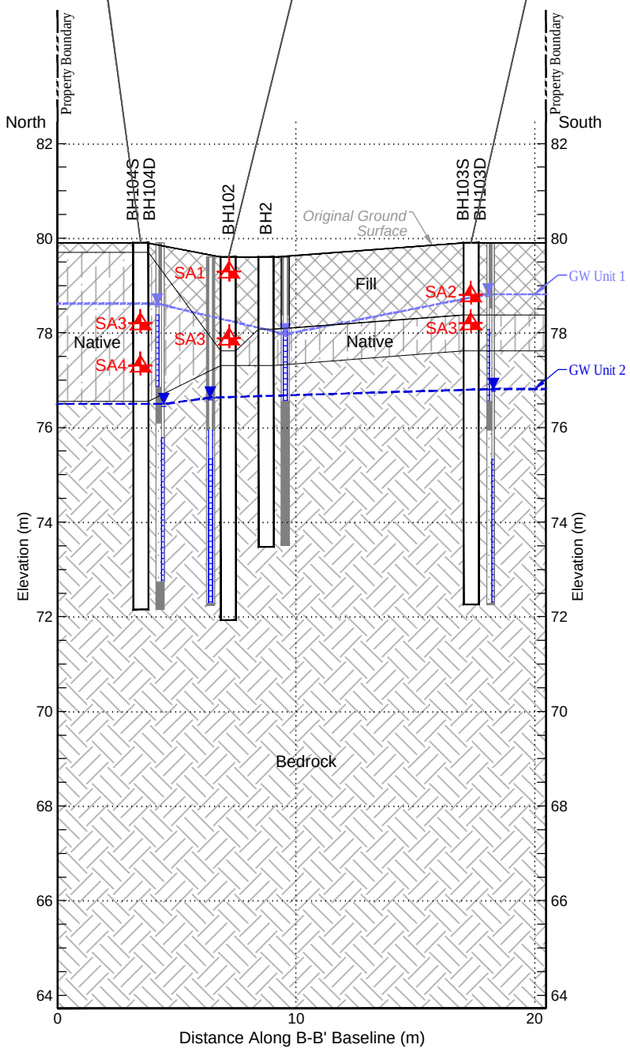
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Reviewed By: MB	*Figure No.:* 11
Date: June 2019	

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BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	EC	ug/g	0.7	**0.714**
			SAR	ug/g	5	**6.16**
Dup2 (SA3)	1.7/78.2		SAR	ug/g	5	**7.06**
SA4	2.6/77.3	Native	EC	ug/g	0.7	**0.767**
			SAR	ug/g	5	**5.48**

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA1	0.3/79.3	Fill	SAR	ug/g	5	**10.9**
SA3	1.7/77.9	Fill	EC	ug/g	0.7	**1.16**
			SAR	ug/g	5	**11.3**

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	EC	ug/g	0.7	**0.889**
			SAR	ug/g	5	**13.4**
SA3	1.7/78.2	Native	SAR	ug/g	5	**11.9**



Terraprobe Inc.
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Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA2 = Parameter Result Meets Standard
2. **10.9** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

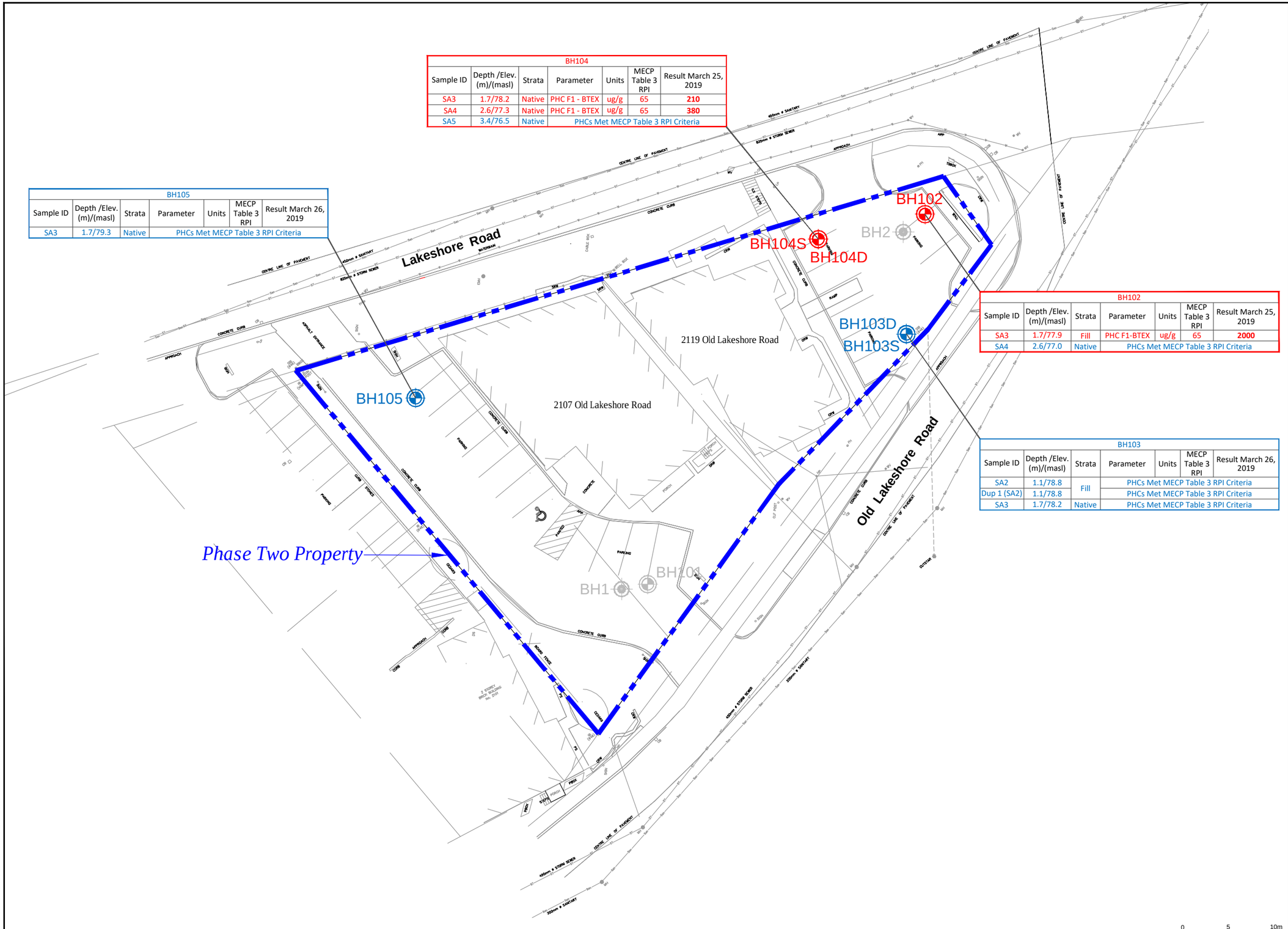
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
ELECTRICAL CONDUCTIVITY AND
SODIUM ADSORPTION RATIO
SOIL EXCEEDANCES - CROSS SECTION B-B'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 12
Date: June 2019	

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BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	PHC F1 - BTEX	ug/g	65	**210**
SA4	2.6/77.3	Native	PHC F1 - BTEX	ug/g	65	**380**
SA5	3.4/76.5	Native	PHCs Met MECP Table 3 RPI Criteria			

BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA3	1.7/79.3	Native	PHCs Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	PHC F1-BTEX	ug/g	65	**2000**
SA4	2.6/77.0	Native	PHCs Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	PHCs Met MECP Table 3 RPI Criteria			
Dup 1 (SA2)	1.1/78.8		PHCs Met MECP Table 3 RPI Criteria			
SA3	1.7/78.2	Native	PHCs Met MECP Table 3 RPI Criteria			

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:
1. SA2 = Parameter Result Meets Standard
2. **2000** = Parameter Result Exceeds Standard

Legend:
- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Sample in Borehole Meets Standard
- Sample in Borehole Exceeds Standard
- Borehole Not Analyzed

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBON
SOIL EXCEEDANCES - PLAN VIEW

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 13
Date: June 2019	

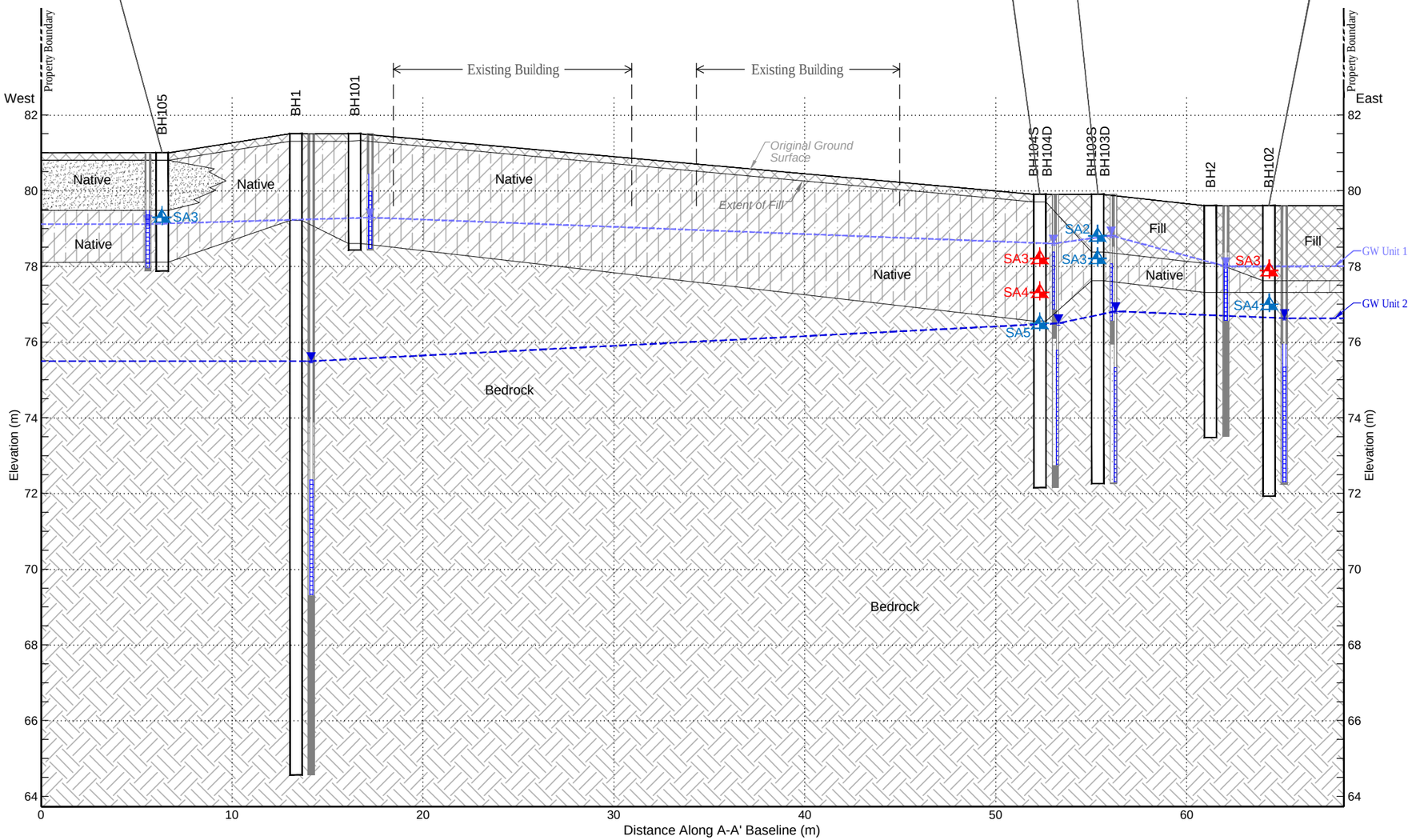
2:\1-Project Files\2019\[Branch Folders]\7-19-0023-42 - 2107 & 2119 Old Lakeshore Road, Burlington\C. Figures and Logs\7-19-0023-42.dwg, MV

BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA3	1.7/79.3	Native	PHCs Met MECP Table 3 RPI Criteria			

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	PHC F1 - BTEX	ug/g	65	**210**
SA4	2.6/77.3	Native	PHC F1 - BTEX	ug/g	65	**380**
SA5	3.4/76.5	Native	PHCs Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	PHCs Met MECP Table 3 RPI Criteria			
Dup 1 (SA2)	1.1/78.8		PHCs Met MECP Table 3 RPI Criteria			
SA3	1.7/78.2	Native	PHCs Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	PHC F1-BTEX	ug/g	65	**2000**
SA4	2.6/77.0	Native	PHCs Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA2 = Parameter Result Meets Standard
2. **2000** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Sand)
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBON
SOIL EXCEEDANCES -
CROSS SECTION A-A'

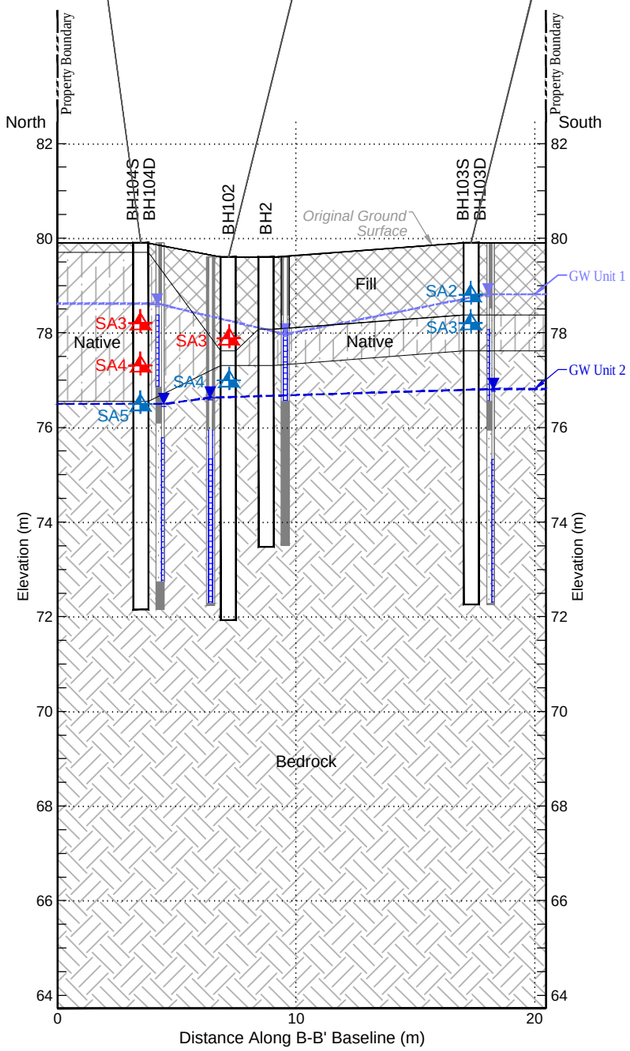
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Reviewed By: MB	*Figure No.:* 14
Date: June 2019	

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BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	PHC F1 - BTEX	ug/g	65	**210**
SA4	2.6/77.3	Native	PHC F1 - BTEX	ug/g	65	**380**
SA5	3.4/76.5	Native	PHCs Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	PHC F1-BTEX	ug/g	65	**2000**
SA4	2.6/77.0	Native	PHCs Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	PHCs Met MECP Table 3 RPI Criteria			
Dup 1 (SA2)	1.1/78.8		PHCs Met MECP Table 3 RPI Criteria			
SA3	1.7/78.2	Native	PHCs Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA2 = Parameter Result Meets Standard
2. **2000** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

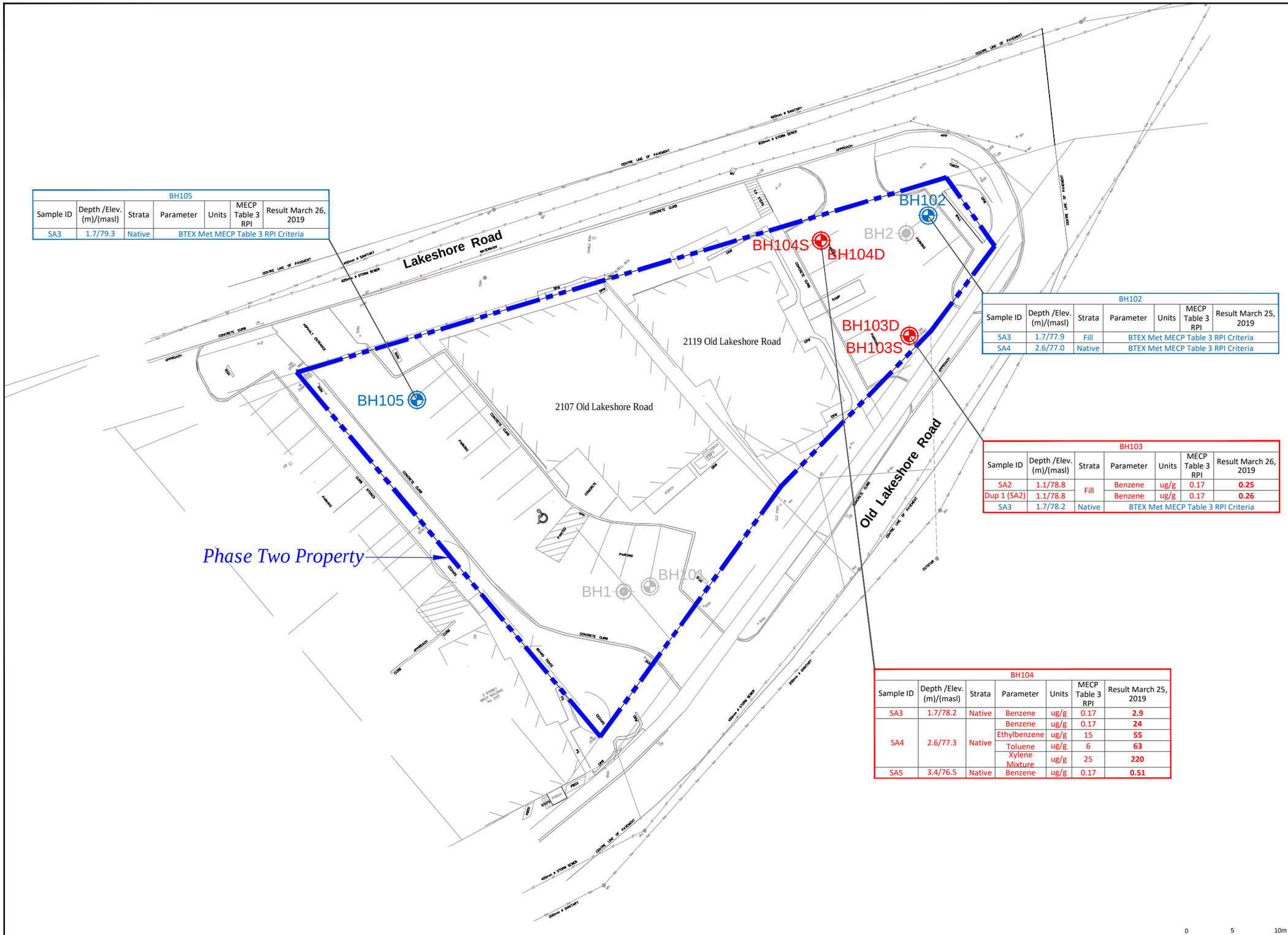
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBON
SOIL EXCEEDANCES -
CROSS SECTION B-B'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 15
Date: June 2019	

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BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA3	1.7/79.3	Native	BTEX Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	BTEX Met MECP Table 3 RPI Criteria			
SA4	2.6/77.0	Native	BTEX Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	Benzene	ug/g	0.17	**0.25**
Dup 1 (SA2)	1.1/78.8		Benzene	ug/g	0.17	**0.26**
SA3	1.7/78.2	Native	BTEX Met MECP Table 3 RPI Criteria			

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	Benzene	ug/g	0.17	**2.9**
SA4	2.6/77.3	Native	Benzene	ug/g	0.17	**24**
			Ethylbenzene	ug/g	15	**55**
			Toluene	ug/g	6	**63**
			Xylene Mixture	ug/g	25	**220**
SA5	3.4/76.5	Native	Benzene	ug/g	0.17	**0.51**

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:
1. SA3 = Parameter Result Meets Standard
2. **220** = Parameter Result Exceeds Standard

Legend:
- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Sample in Borehole Meets Standard
- Sample in Borehole Exceeds Standard
- Borehole Not Analyzed

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
BTEX SOIL EXCEEDANCES - PLAN VIEW

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 16
Date: June 2019	

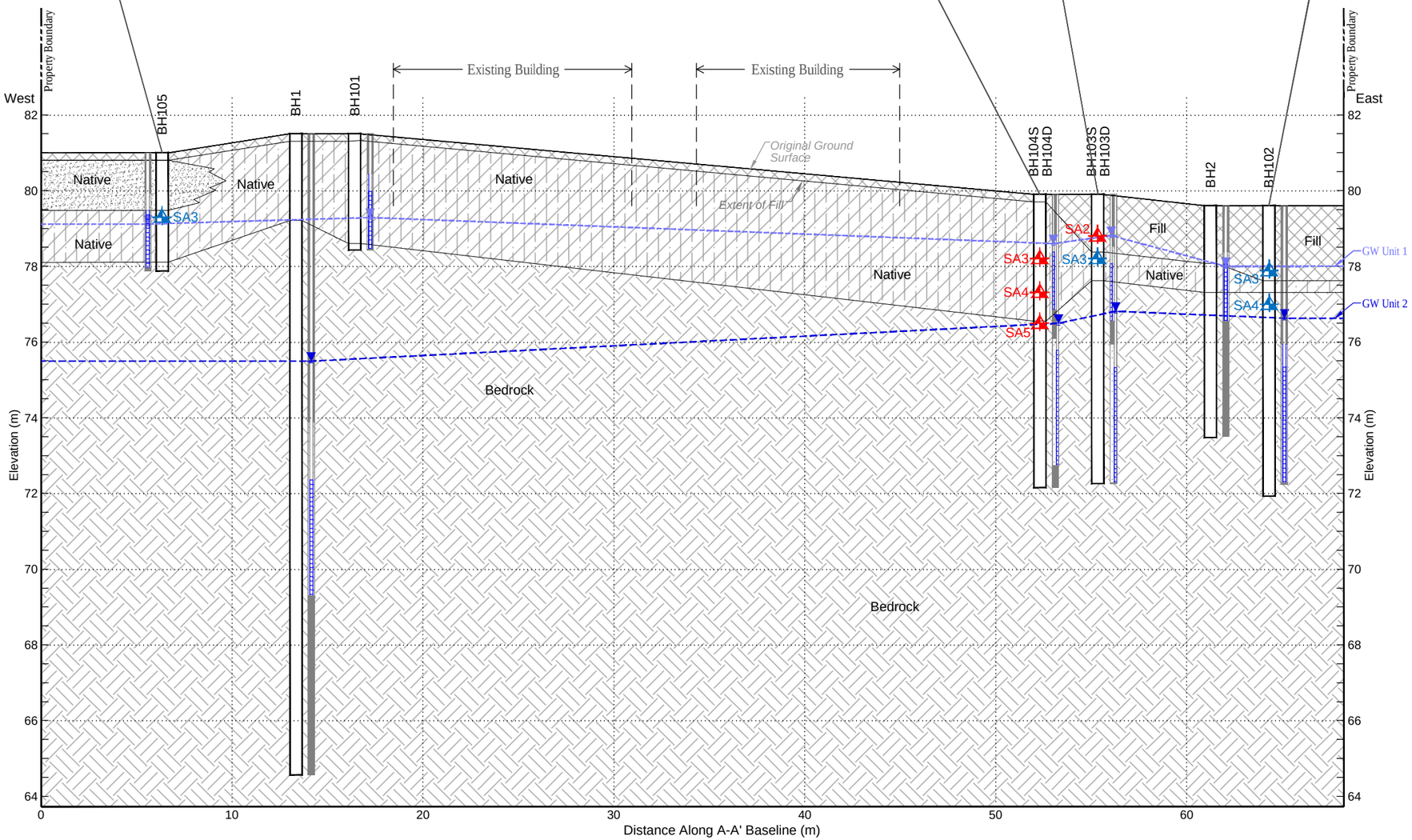
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BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA3	1.7/79.3	Native	BTEX Met MECP Table 3 RPI Criteria			

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	Benzene	ug/g	0.17	**2.9**
SA4	2.6/77.3	Native	Benzene	ug/g	0.17	**24**
			Ethylbenzene	ug/g	15	**55**
			Toluene	ug/g	6	**63**
			Xylene Mixture	ug/g	25	**220**
SA5	3.4/76.5	Native	Benzene	ug/g	0.17	**0.51**

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	Benzene	ug/g	0.17	**0.25**
Dup 1 (SA2)	1.1/78.8		Benzene	ug/g	0.17	**0.26**
SA3	1.7/78.2	Native	BTEX Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	BTEX Met MECP Table 3 RPI Criteria			
SA4	2.6/77.0	Native	BTEX Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA3 = Parameter Result Meets Standard
2. 220 = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Sand)
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
BTEX SOIL EXCEEDANCES - CROSS SECTION A-A'

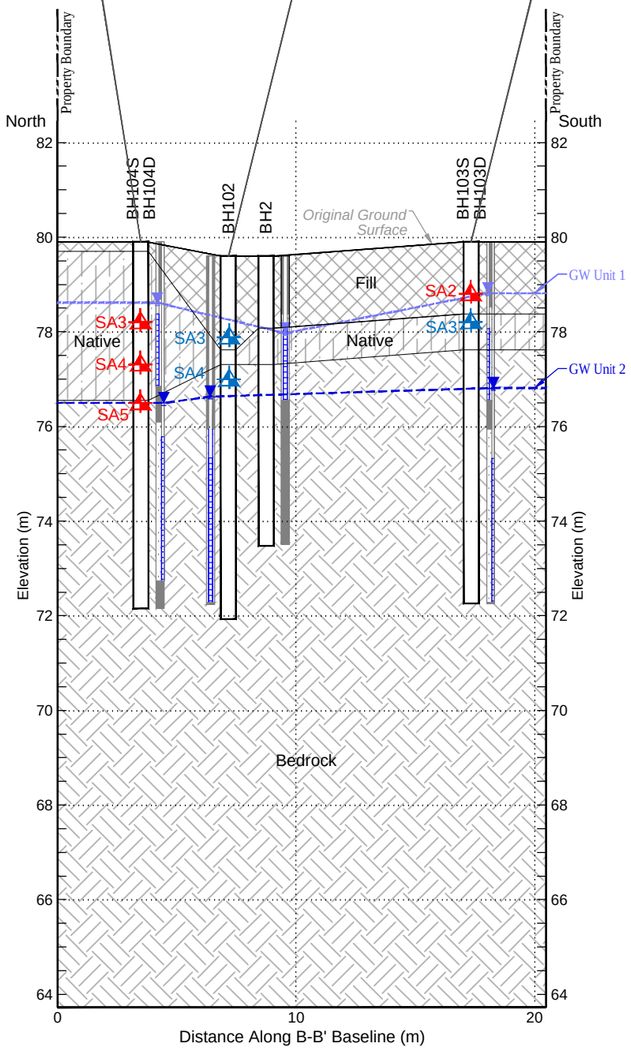
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Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 17
Date: June 2019	

Z:\1-Project Files\2019\Branch Folders\7-19-0023-42 - 2107 & 2119 Old Lakeshore Road, Burlington\C. Figures and Logs\7-19-0023-42.dwg, MV

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	Benzene	ug/g	0.17	**2.9**
SA4	2.6/77.3	Native	Benzene	ug/g	0.17	**24**
			Ethylbenzene	ug/g	15	**55**
			Toluene	ug/g	6	**63**
			Xylene Mixture	ug/g	25	**220**
SA5	3.4/76.5	Native	Benzene	ug/g	0.17	**0.51**

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	BTEX Met MECP Table 3 RPI Criteria			
SA4	2.6/77.0	Native	BTEX Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	Benzene	ug/g	0.17	**0.25**
Dup 1 (SA2)	1.1/78.8		Benzene	ug/g	0.17	**0.26**
SA3	1.7/78.2	Native	BTEX Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA3 = Parameter Result Meets Standard
2. 220 = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

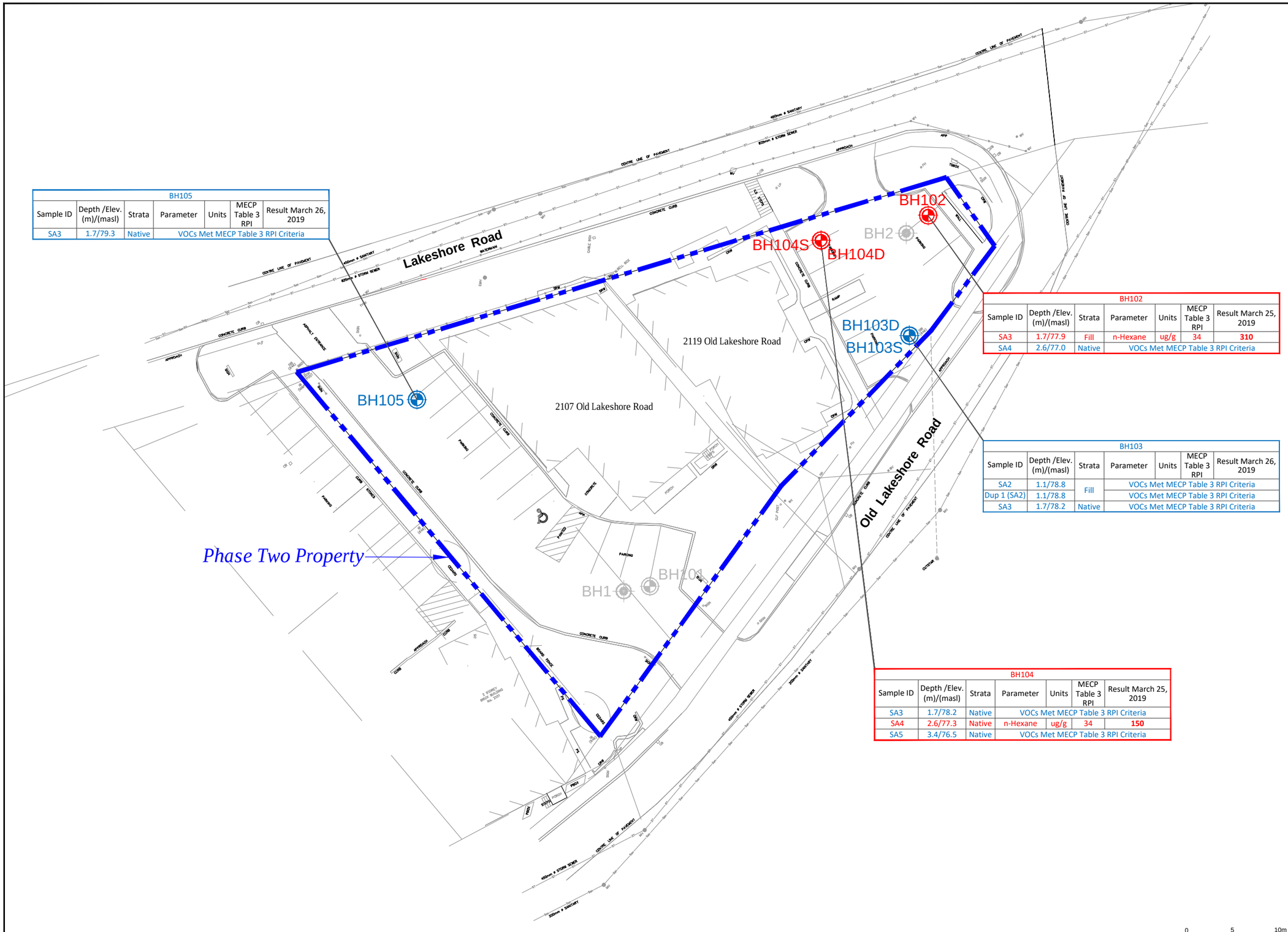
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
BTEX SOIL EXCEEDANCES -
CROSS SECTION B-B'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 18
Date: June 2019	

Z:\1-Project Files\2019\Branch Folders\7-19-0023-42 - 2107 & 2119 Old Lakeshore Road, Burlington\C. Figures and Logs\7-19-0023-42.dwg, MV



BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA3	1.7/79.3	Native	VOCs Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	n-Hexane	ug/g	34	**310**
SA4	2.6/77.0	Native	VOCs Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	VOCs Met MECP Table 3 RPI Criteria			
Dup 1 (SA2)	1.1/78.8		VOCs Met MECP Table 3 RPI Criteria			
SA3	1.7/78.2	Native	VOCs Met MECP Table 3 RPI Criteria			

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	VOCs Met MECP Table 3 RPI Criteria			
SA4	2.6/77.3	Native	n-Hexane	ug/g	34	**150**
SA5	3.4/76.5	Native	VOCs Met MECP Table 3 RPI Criteria			

SCALE 0 5 10m

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:
1. SA2 = Parameter Result Meets Standard
2. **150** = Parameter Result Exceeds Standard

Legend:
- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Sample in Borehole Meets Standard
- Sample in Borehole Exceeds Standard
- Borehole Not Analyzed

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
VOC SOIL EXCEEDANCES - PLAN VIEW

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 19
Date: June 2019	

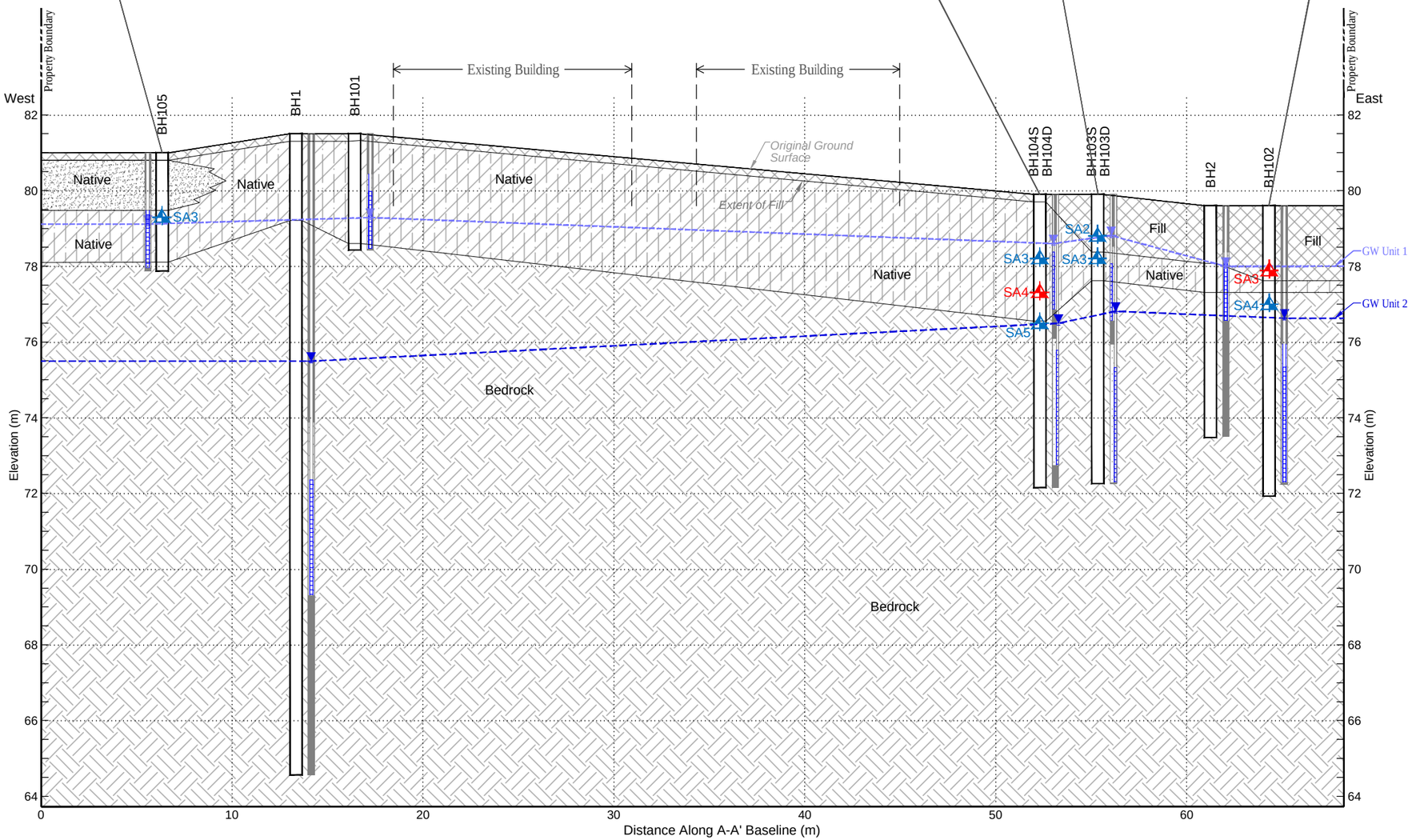
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BH105						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA3	1.7/79.3	Native	VOCs Met MECP Table 3 RPI Criteria			

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	VOCs Met MECP Table 3 RPI Criteria			
SA4	2.6/77.3	Native	n-Hexane	ug/g	34	**150**
SA5	3.4/76.5	Native	VOCs Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	VOCs Met MECP Table 3 RPI Criteria			
Dup 1 (SA2)	1.1/78.8		VOCs Met MECP Table 3 RPI Criteria			
SA3	1.7/78.2	Native	VOCs Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	n-Hexane	ug/g	34	**310**
SA4	2.6/77.0	Native	VOCs Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA2 = Parameter Result Meets Standard
2. **150** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Sand)
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
VOC SOIL EXCEEDANCES - CROSS SECTION A-A'

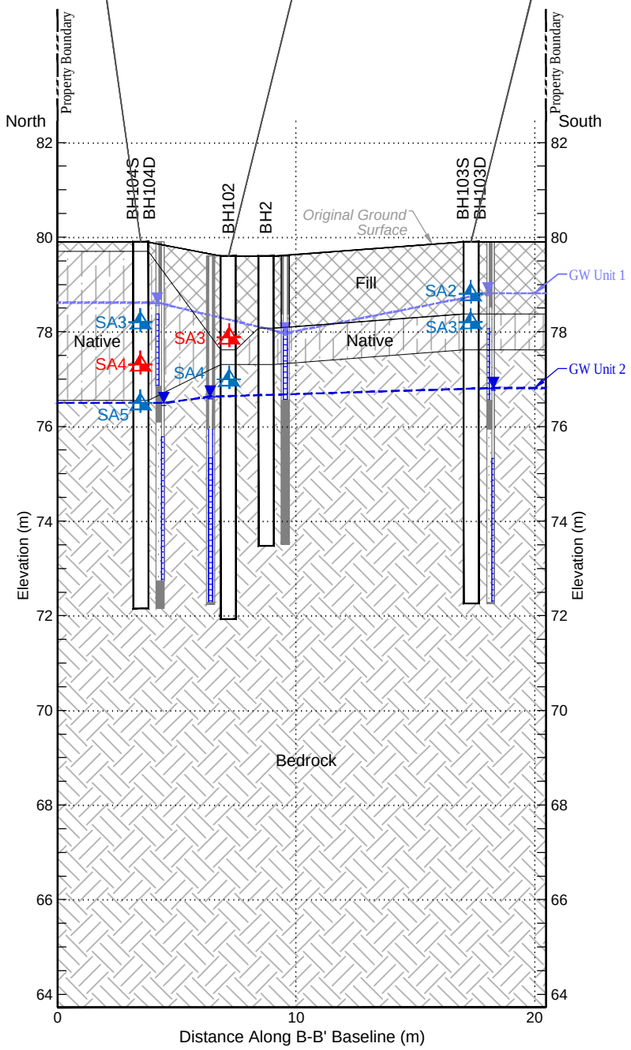
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Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 20
Date: June 2019	

Z:\1-Project Files\2019\Branch Folders\7-19-0023-42 - 2107 & 2119 Old Lakeshore Road, Burlington\C. Figures and Logs\7-19-0023-42.dwg, MV

BH104						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/78.2	Native	VOCs Met MECP Table 3 RPI Criteria			
SA4	2.6/77.3	Native	n-Hexane	ug/g	34	**150**
SA5	3.4/76.5	Native	VOCs Met MECP Table 3 RPI Criteria			

BH102						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 25, 2019
SA3	1.7/77.9	Fill	n-Hexane	ug/g	34	**310**
SA4	2.6/77.0	Native	VOCs Met MECP Table 3 RPI Criteria			

BH103						
Sample ID	Depth /Elev. (m)/(masl)	Strata	Parameter	Units	MECP Table 3 RPI	Result March 26, 2019
SA2	1.1/78.8	Fill	VOCs Met MECP Table 3 RPI Criteria			
Dup 1 (SA2)	1.1/78.8		VOCs Met MECP Table 3 RPI Criteria			
SA3	1.7/78.2	Native	VOCs Met MECP Table 3 RPI Criteria			



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Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. SA2 = Parameter Result Meets Standard
2. **150** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

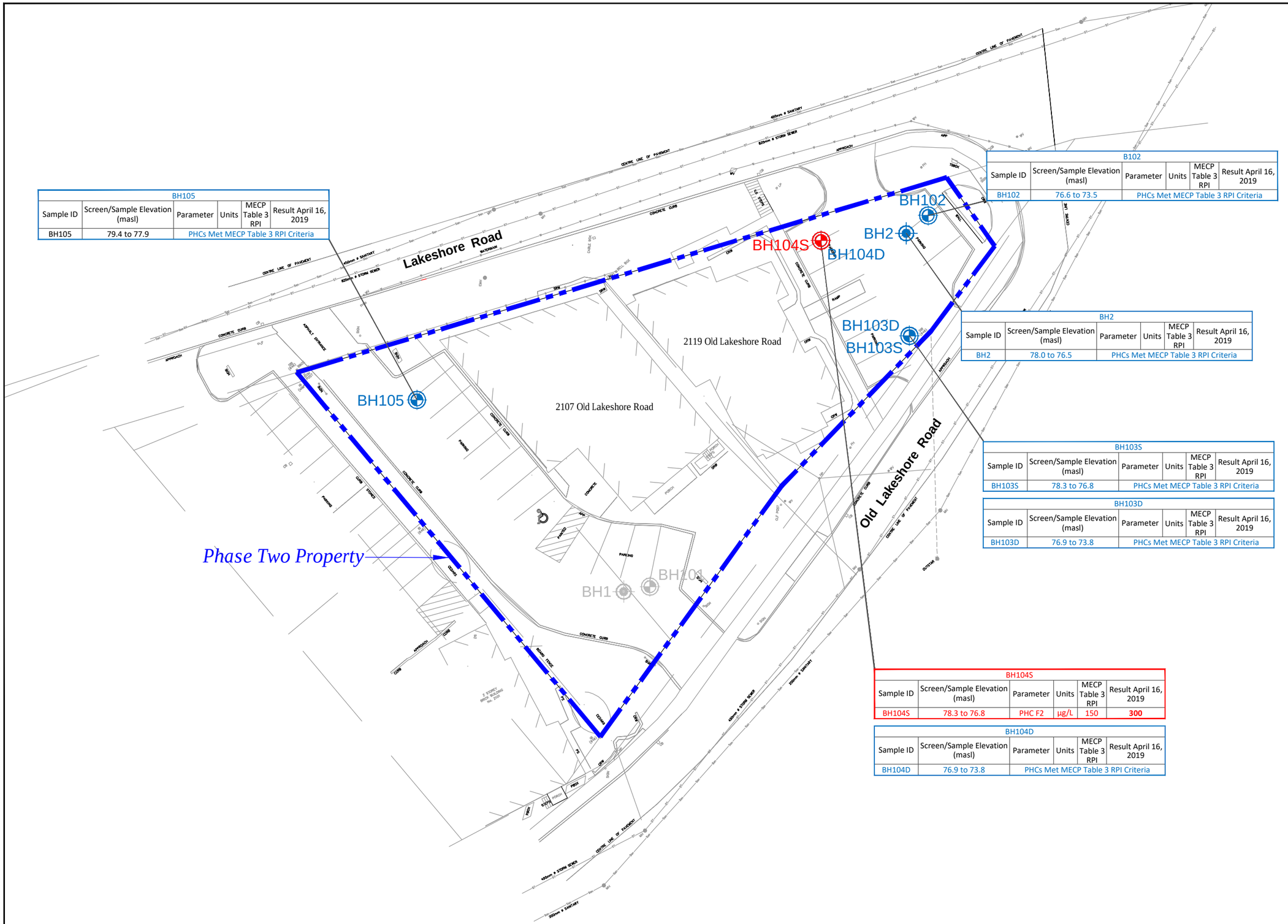
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
VOC SOIL EXCEEDANCES -
CROSS SECTION B-B'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 21
Date: June 2019	

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BH105					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH105	79.4 to 77.9	PHCs Met MECP Table 3 RPI Criteria			

B102					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH102	76.6 to 73.5	PHCs Met MECP Table 3 RPI Criteria			

BH2					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH2	78.0 to 76.5	PHCs Met MECP Table 3 RPI Criteria			

BH103S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103S	78.3 to 76.8	PHCs Met MECP Table 3 RPI Criteria			

BH103D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103D	76.9 to 73.8	PHCs Met MECP Table 3 RPI Criteria			

BH104S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104S	78.3 to 76.8	PHC F2	µg/L	150	**300**

BH104D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104D	76.9 to 73.8	PHCs Met MECP Table 3 RPI Criteria			

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:
1. BH = Parameter Result Meets Standard
2. **300** = Parameter Result Exceeds Standard

Legend:
- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Sample in Borehole Meets Standard
- Sample in Borehole Exceeds Standard
- Borehole Not Analyzed

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBON
GROUND WATER EXCEEDANCES - PLAN VIEW

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 22
Date: June 2019	

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BH105					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH105	79.4 to 77.9	PHCs Met MECP Table 3 RPI Criteria			

BH104S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104S	78.3 to 76.8	PHC F2	µg/L	150	**300**

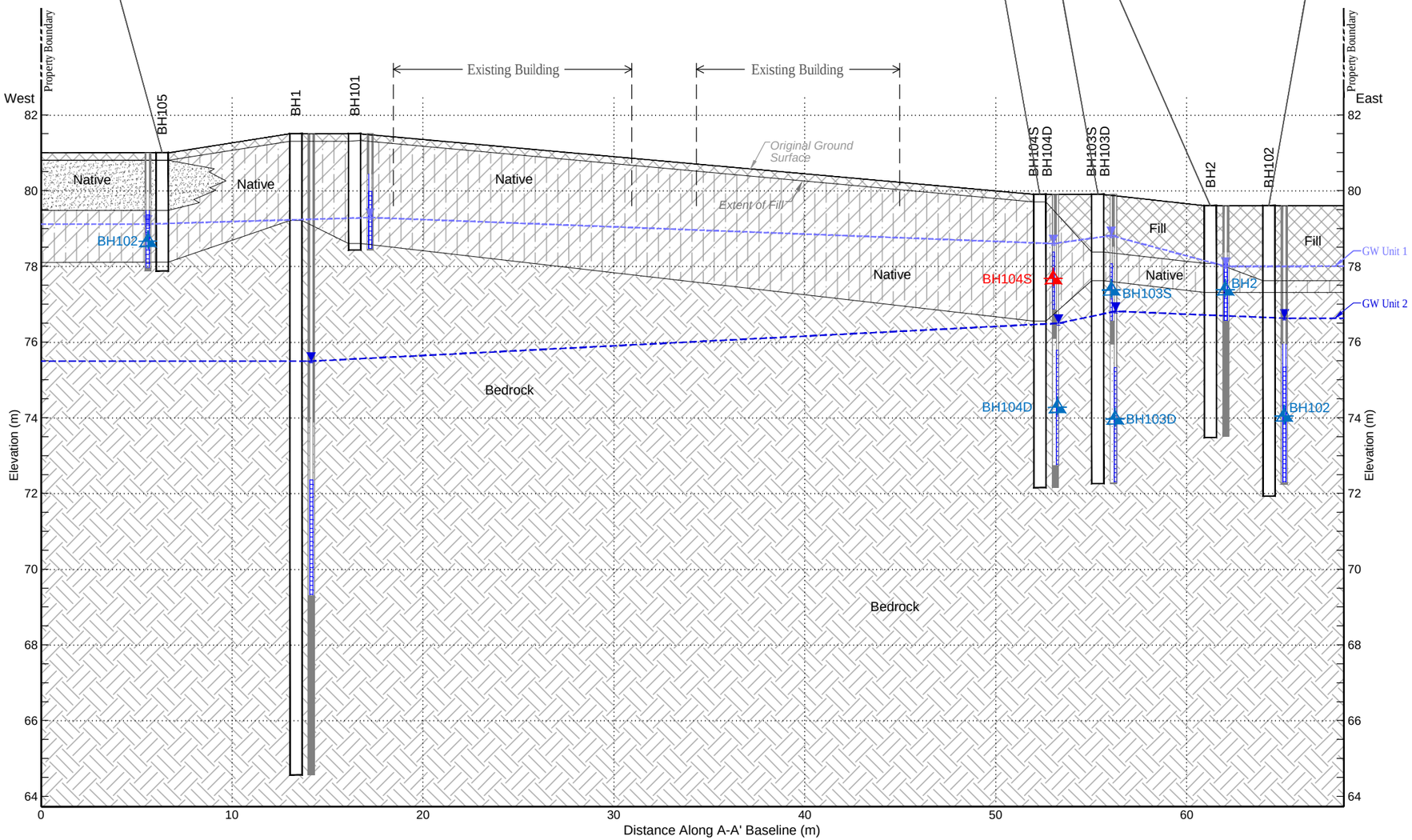
BH104D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104D	76.9 to 73.8	PHCs Met MECP Table 3 RPI Criteria			

BH103S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103S	78.3 to 76.8	PHCs Met MECP Table 3 RPI Criteria			

BH103D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103D	76.9 to 73.8	PHCs Met MECP Table 3 RPI Criteria			

BH2					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH2	78.0 to 76.5	PHCs Met MECP Table 3 RPI Criteria			

B102					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH102	76.6 to 73.5	PHCs Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
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Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. BH = Parameter Result Meets Standard
2. 300 = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Sand)
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBON
GROUND WATER EXCEEDANCES -
CROSS SECTION A-A'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 23
Date: June 2019	

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B102					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH102	76.6 to 73.5	PHCs Met MECP Table 3 RPI Criteria			

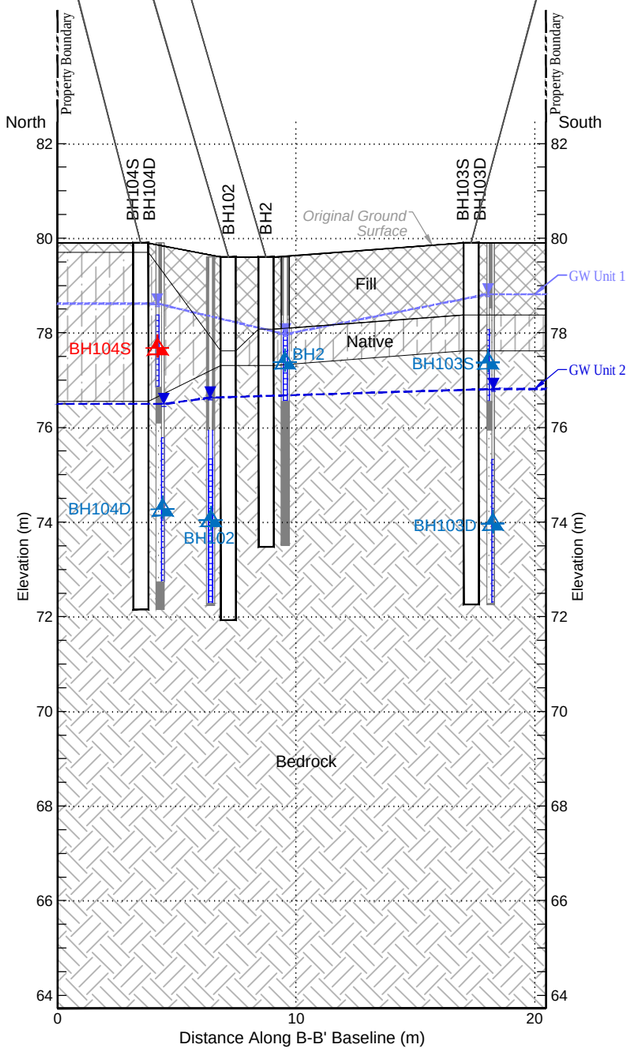
BH2					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH2	78.0 to 76.5	PHCs Met MECP Table 3 RPI Criteria			

BH103S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103S	78.3 to 76.8	PHCs Met MECP Table 3 RPI Criteria			

BH104S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104S	78.3 to 76.8	PHC F2	µg/L	150	**300**

BH104D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104D	76.9 to 73.8	PHCs Met MECP Table 3 RPI Criteria			

BH103D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103D	76.9 to 73.8	PHCs Met MECP Table 3 RPI Criteria			



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11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. BH = Parameter Result Meets Standard
2. 300 = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

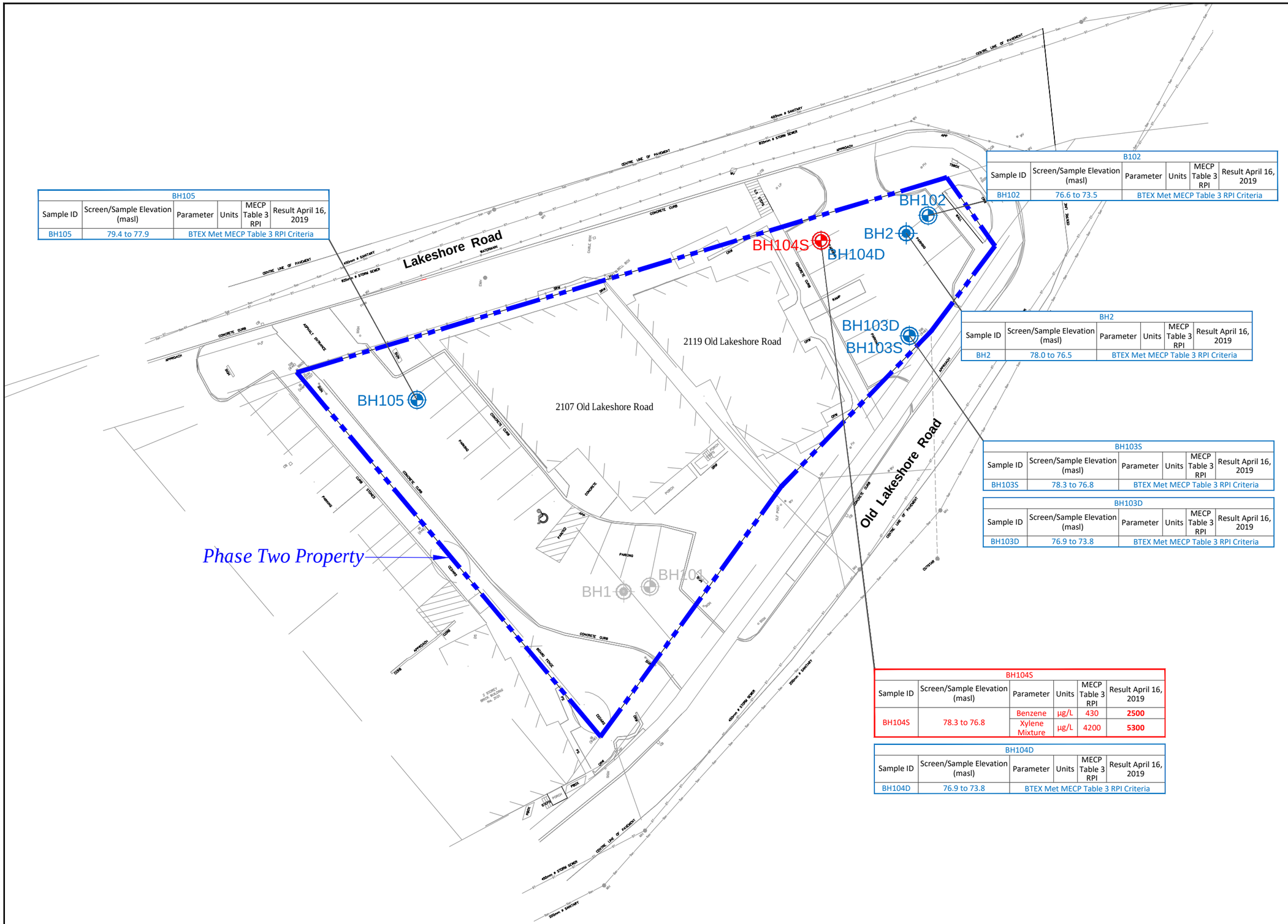
Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBON
GROUND WATER EXCEEDANCES -
CROSS SECTION B-B'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 24
Date: June 2019	

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BH105					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH105	79.4 to 77.9	BTEX Met MECP Table 3 RPI Criteria			

B102					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH102	76.6 to 73.5	BTEX Met MECP Table 3 RPI Criteria			

BH2					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH2	78.0 to 76.5	BTEX Met MECP Table 3 RPI Criteria			

BH103S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103S	78.3 to 76.8	BTEX Met MECP Table 3 RPI Criteria			

BH103D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103D	76.9 to 73.8	BTEX Met MECP Table 3 RPI Criteria			

BH104S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104S	78.3 to 76.8	Benzene	µg/L	430	**2500**
		Xylene Mixture	µg/L	4200	**5300**

BH104D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104D	76.9 to 73.8	BTEX Met MECP Table 3 RPI Criteria			

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Title: Topographic Survey - Part of Lots 10 & 12, Block "Q" and all of Lot 11, Block "Q" Compiled Plan 92 in The City of Burlington
Prepared By: A.T. McLaren Limited
DWG No: 35182
Dated: November 17, 2016

Notes:
1. BH = Parameter Result Meets Standard
2. **5300** = Parameter Result Exceeds Standard

Legend:
- Phase Two Property Boundary
- Borehole / Monitoring Well by Terraprobe, 2019
- Borehole / Monitoring Well by Terraprobe, 2016
- Sample in Borehole Meets Standard
- Sample in Borehole Exceeds Standard
- Borehole Not Analyzed

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road,
Burlington, Ontario

Figure Title:
BTEX GROUND WATER EXCEEDANCES - PLAN VIEW

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 25
Date: June 2019	

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BH105					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH105	79.4 to 77.9	BTEX Met MECP Table 3 RPI Criteria			

BH103S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103S	78.3 to 76.8	BTEX Met MECP Table 3 RPI Criteria			

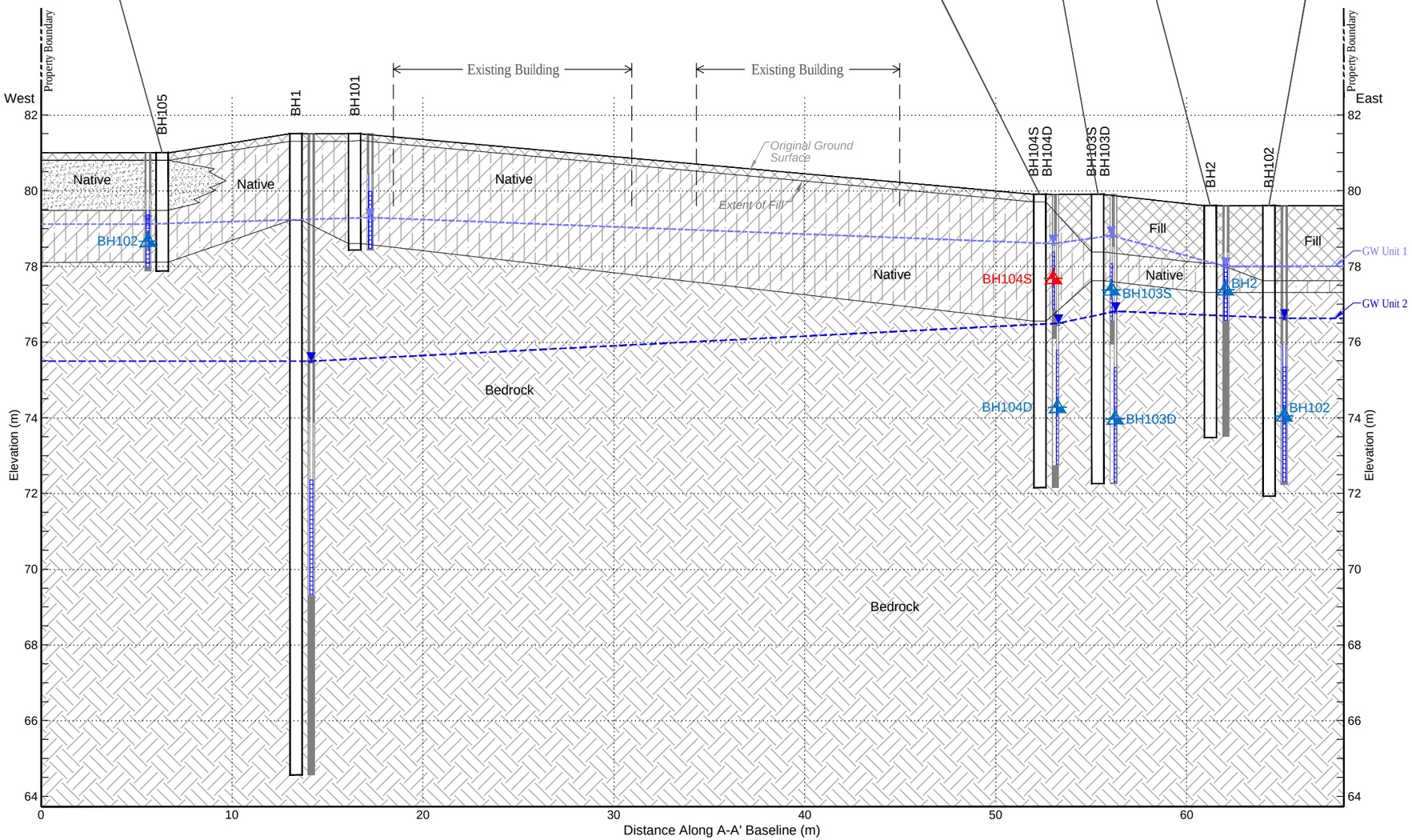
BH103D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103D	76.9 to 73.8	BTEX Met MECP Table 3 RPI Criteria			

BH104S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104S	78.3 to 76.8	Benzene	µg/L	430	**2500**
		Xylene Mixture	µg/L	4200	**5300**

BH104D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104D	76.9 to 73.8	BTEX Met MECP Table 3 RPI Criteria			

BH2					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH2	78.0 to 76.5	BTEX Met MECP Table 3 RPI Criteria			

B102					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH102	76.6 to 73.5	BTEX Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

1. BH = Parameter Result Meets Standard
2. **5300** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Sand)
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

Figure Title:
BTEX GROUND WATER EXCEEDANCES - CROSS SECTION A-A'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 26
Date: June 2019	

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B102					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH102	76.6 to 73.5	BTEX Met MECP Table 3 RPI Criteria			

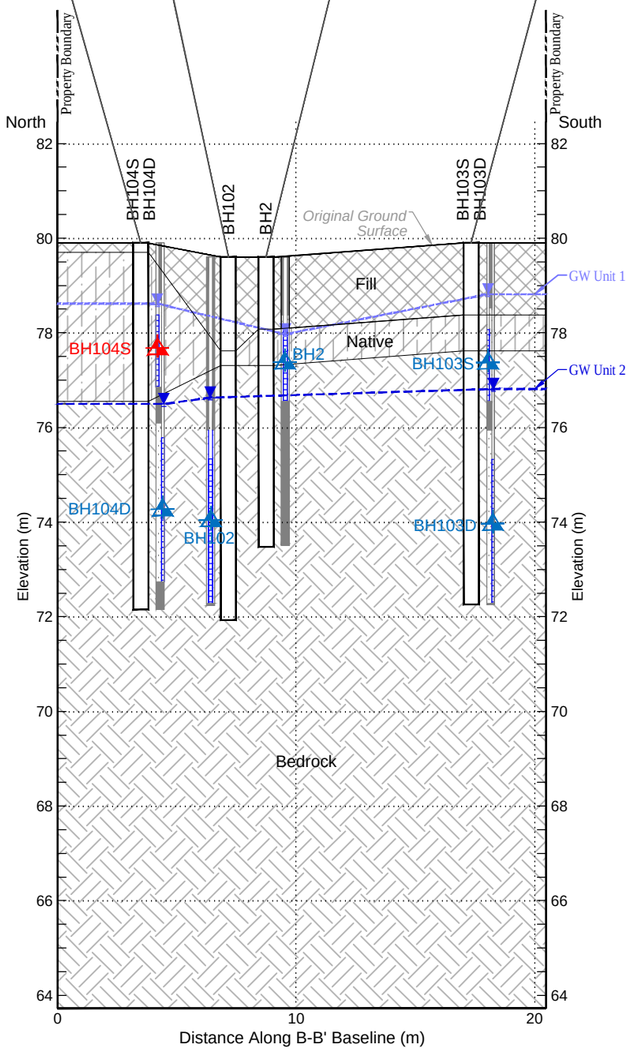
BH2					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH2	78.0 to 76.5	BTEX Met MECP Table 3 RPI Criteria			

BH103S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103S	78.3 to 76.8	BTEX Met MECP Table 3 RPI Criteria			

BH104S					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104S	78.3 to 76.8	Benzene	µg/L	430	**2500**
		Xylene Mixture	µg/L	4200	**5300**

BH104D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH104D	76.9 to 73.8	BTEX Met MECP Table 3 RPI Criteria			

BH103D					
Sample ID	Screen/Sample Elevation (masl)	Parameter	Units	MECP Table 3 RPI	Result April 16, 2019
BH103D	76.9 to 73.8	BTEX Met MECP Table 3 RPI Criteria			



Terraprobe Inc.
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Construction Materials, Inspection & Testing
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Reference:

Notes:

1. BH = Parameter Result Meets Standard
2. **5300** = Parameter Result Exceeds Standard

Legend:

- Phase Two Property Boundary
- Fill
- Native (Clayey Silt, Silt to Shaley Till)
- Bedrock
- Monitoring Well Screen
- Ground Water Level (masl), GW Unit 1, April 16, 2019
- Ground Water Level (masl), GW Unit 2, April 16, 2019
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
2107 & 2119 Old Lakeshore Road, Burlington, Ontario

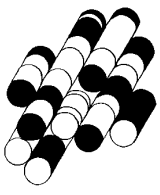
Figure Title:
BTEX GROUND WATER EXCEEDANCES - CROSS SECTION B-B'

Designed By: AB	*File No.:* 7-19-0023-42
Drawn By: MV	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 27
Date: June 2019	

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APPENDIX A

TERRAPROBE INC.



PHASE ONE CONCEPTUAL SITE MODEL

2107 & 2119 Old Lakeshore Road
Burlington, Ontario

Phase One CSM		Information Pertaining to Property
Figures of the Phase One Study Area are provided that:		
i.	Show any existing buildings and structures,	Existing buildings and structures are shown on Figure 2.
ii.	Identify and locate water bodies located in whole or in part on the Phase One Study Area	The closest water body to the Phase One Property is the Lake Ontario which is located approximately 40 m to the south. All water bodies on the Phase One Property and in the Phase One Study Area are shown on Figure 3.
iii.	Identify and locate any Areas of Natural Significance located in whole or in part on the Phase One Study Area	Terraprobe reviewed the Ontario Ministry of Natural Resources and Forestry NHIC database for natural area listings. No Areas of Natural Significance were located in the Phase One Study Area.
iv.	Locate any drinking water wells at the Phase One Property	No drinking water wells were identified on the Property during the site inspection. No records of wells on the Property were found in the MOECC Water Well Information System (WWIS).
v.	Show roads, including names, within the Phase One Study Area	The Property is bounded to the north by Lakeshore Road and to the east/south by Old Lakeshore Road. Other roads and properties within the Study Area are presented on Figure 3.
vi.	Show use of properties adjacent to the Phase One Property	The Land Uses of the adjacent properties are shown on Figure 4.
vii.	Identify and locate area where any potentially contaminating activity has occurred, and show tanks in such areas	Potentially Contaminating Activities (PCAs) located on the Property and within the Study Area are shown on Figure 5.
viii.	Identify and locate any areas of potential environmental concern	Five (5) Areas of Potential Environmental Concern (APECs) and associated Contaminants of Potential Concern are described on the Table of Areas of Potential Environmental Concern. The location of the APECs on the Phase One Property are shown on Figure 6.
The following is a description and assessment of:		
i.	Any areas where potentially contaminating activity on or potentially affecting the Phase One Property has occurred,	2107 & 2119 Old Lakeshore Road • Phase One Property • #30 – Importation of Fill Material of Unknown Quality

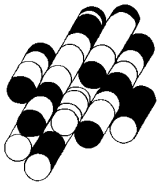
Phase One CSM		Information Pertaining to Property
		2119 Old Lakeshore Road (former 75 Water (East)) • Phase One Property • #28 – Gasoline and Associated Products Storage in Fixed Tanks 2119 Old Lakeshore Road • Phase One Property • #10 – Commercial Autobody Shops Near 2093 Lakeshore Road • North Portion of the Property • #28 – Gasoline and Associated Products Storage in Fixed Tanks Near 2119 Old Lakeshore Road • North Portion of the Property • #28 – Gasoline and Associated Products Storage in Fixed Tanks
ii.	Any contaminants of potential concern	Potential Contaminants of Concern (PCoCs) identified the Property include: • PHCs in soil and ground water • VOCs in soil and ground water • BTEX in soil and ground water • THMs in soil and ground water • PAHs in soil and ground water • Metals in soil and ground water • Hydride-Forming Metals in soil and ground water • ORPs (Cr(VI), CN-, Hg, pH) in soil and ground water • ORPs (B-HWS, EC, SAR) in soil • ORPs (Cl) in ground water • Sodium (Na) in ground water
iii.	The potential for underground utilities, if any present, to affect contaminant distribution and transport,	No above-ground utilities were observed during the site inspection; however underground utilities may be present. There is the potential for underground utilities to affect the horizontal distribution or transport of contaminants potentially.

Phase One CSM		Information Pertaining to Property
iv.	Available regional or site specific geological and hydrogeological information,	Topography • The approximate elevation of the Property is 80 masl. Hydrogeology • The nearest water body is Lake Ontario, which is located approximately 40 m south of the Property. The approximate depth to ground water, based on Water Well Records in the local area, is expected to be 2.4 m to 6.1 m. Ground water and surface water is expected to flow to the south. • The overburden consists of a combination of undifferentiated coarse-textured glaciolacustrine deposits which is comprised of sand, gravel, minor silt and clay (9), and till deposits which is comprised on clay to silt-textured till (5d). • The bedrock on the site is of the Queenston formation, which is comprised of shale, limestone, dolstone and siltstone (55a). Geology (depth to bedrock) • Based upon historic borehole and water well information, the depth to bedrock in the area of the Property is approximately 2.3 m.
v.	How any uncertainty or absence of information obtained in each of the components of the Phase One ESA could affect the validity of the model.	No uncertainty was encountered while conducting the Phase One ESA that could affect the validity of the model.

Figures:
Figure 1 – Phase One Property Location
Figure 2 – Phase One Property
Figure 3 – Phase One Study Area
Figure 4 – Adjacent Property Land Uses
Figure 5 – PCA Locations
Figure 6 – APEC Locations

APPENDIX B

TERRAPROBE INC.



TOPOGRAPHIC SURVEY
OF PART OF
PART OF LOTS 10 & 12, BLOCK "Q"
AND ALL OF
LOT 11, BLOCK "Q"
COMPILED PLAN 92
IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF
HALTON

SCALE 1:150 METRIC

3 1.5 0 3 6 9 metres

S.D. McLAREN, O.L.S. – 2016

LEGEND:

□	DENOTES	MONUMENT SET
■	"	MONUMENT FOUND
IB	"	IRON BAR
SIB	"	STANDARD IRON BAR
CC	"	CUT CROSS
Msd	"	MEASURED
S46	"	R.G. SEWELL, O.L.S.
S24	"	A.T.McLAREN, O.L.S.
M&P	"	MACKAY MACKAY & PETERS
P1	"	PLAN 20R-15858
P2	"	PLAN 20R-12277
P3	"	PLAN BY MACKAY MACKAY & PETERS DATED MAY 15, 1998 FILE 98H-162
P4	"	PLAN BY YATES & YATES DATED JUNE 30, 1983 FILE 83Y-305
P5	"	PLAN 20R-1322
P6	"	PLAN 20R-5044
MH	"	MANHOLE
CB	"	CATCH BASIN
EMH	"	ELECTRICAL MANHOLE
ILS	"	INTER-LOCKING STONE
LSA	"	LANDSCAPED AREA
FH	"	FIRE HYDRANT
WV	"	WATER VALVE
CCRB	"	CONCRETE CURB
LP	"	LIGHT POLE
HP	"	HYDRO POLE
CRW	"	CONCRETE RETAINING WALL
SRW	"	STONE RETAINING WALL
DS	"	DOOR SILL
CL	"	CENTRELINE
HV	"	HYDRO VAULT
PBOX	"	PLANTERS BOX
BBOX	"	BELL BOX
CLF	"	CHAIN LINK FENCE
ø	"	DIAMETER
APP	"	APPROACH

BENCHMARK:
MONUMENT 198

Plate on pump house located just west of Rambo Creek, being 0.32 km east of Brant Street on Lakeshore Road. Plate is fixed to the south face of brick building, being 0.15m east of the southwest corner and 0.30m above existing concrete sidewalk.

ELEVATION: 78.036 metres

NOTE:

UNDERGROUND SERVICE AND UTILITY LOCATIONS WERE DERIVED FROM CITY OF BURLINGTON DRAWING No. N38-3 AND N38-8

UNDERGROUND SERVICE AND UTILITY LOCATIONS MUST BE VERIFIED PRIOR TO CONSTRUCTION

INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION

SITE BENCH MARK
CUTSTAR
ELEV. 80.558

METRIC NOTE
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING NOTE:
BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE EASTERLY LIMIT OF PART 1 AS SHOWN ON PLAN 20R-15858 AS BEING N39°48'15"W

SURVEYOR'S CERTIFICATE:
I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM
2. THE SURVEY WAS COMPLETED ON THE 17th DAY OF NOVEMBER, 2016

NOVEMBER 24, 2016
DATE

S. DAN McLAREN, O.L.S.

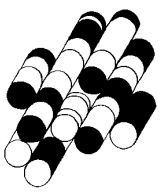
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A.T. McLaren Limited
LEGAL AND ENGINEERING SURVEYS
69 JOHN STREET SOUTH, SUITE 230
HAMILTON, ONTARIO, L8N 2B9
PHONE (905) 527-8559 FAX (905) 527-0032

Drawn	Checked	Crew Chief	Scale	Dwg.No.
JB	RBM	DW	1:150	35182

APPENDIX C

TERRAPROBE INC.

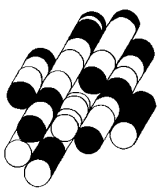


APPENDIX D: SAMPLING AND ANALYSIS PLAN
2107 & 2119 Old Lakeshore Roadt, Burlington, Ontario
Project #7-19-0023-42

Borehole/ Confirmatory Sample	APEC	PCA	Media	Metals	H-M	ORPs	VOCs	PHCs	BTEX	PAHs
BH101, BH102, BH103, BH104, BH105	APEC 1	#30 - Importation of Fill Material of Unknown Quaility	Soil	✓	✓	✓				✓
BH102, BH2, BH103S, BH103D, BH104S, BH104D,	APEC 2	#28 - Gasoline and Associated Products Storage in Fixed Tanks	Soil	✓			✓	✓	✓	
BH102, BH2, BH103S, BH103D, BH104S, BH104D,	APEC 3	#10 - Commerical Autobody Shops	Soil	✓			✓	✓	✓	
BH102, BH2, BH104S, BH104D, BH105	APEC 4	#28 - Gasoline and Associated Products Storage in Fixed Tanks	Soil	✓			✓	✓	✓	
BH102, BH2, BH104S, BH104D, BH105	APEC 5	#28 - Gasoline and Associated Products Storage in Fixed Tanks	Soil	✓			✓	✓	✓	
BH101, BH102, BH2, BH103S, BH103D, BH104S, BH104D, BH105	APEC 1	#30 - Importation of Fill Material of Unknown Quaility	Ground Water	✓	✓	✓				✓
BH102, BH2, BH103S, BH103D, BH104S, BH104D,	APEC 2	#28 - Gasoline and Associated Products Storage in Fixed Tanks	Ground Water	✓			✓	✓	✓	
BH102, BH2, BH103S, BH103D, BH104S, BH104D,	APEC 3	#10 - Commerical Autobody Shops	Ground Water	✓			✓	✓	✓	
BH102, BH2, BH104S, BH104D, BH105	APEC 4	#28 - Gasoline and Associated Products Storage in Fixed Tanks	Ground Water	✓			✓	✓	✓	
BH102, BH2, BH104S, BH104D, BH105	APEC 5	#28 - Gasoline and Associated Products Storage in Fixed Tanks	Ground Water	✓			✓	✓	✓	

APPENDIX D

TERRAPROBE INC.



STANDARD OPERATING PROCEDURE
BOREHOLE DRILLING
Solid and Hollow Stem Augers

Introduction

Soil drilling, using a drill rig or other equipment based on site accessibility is a common way to obtain soil samples on a site. Soil drilling is typically completed with a truck or bombardier-mounted drill rig, or Pionjar (or other portable drilling equipment) depending on the site accessibility. The driller operator will handle all equipment, including opening the split spoon.

Hollow stem augers are typically used when wet or loose cohesionless materials are encountered to permit sampling without removing the augers. Alternatively, solid stem augers are advanced and removed at each sampling depth. Samples and in-situ Standard Penetration Testing (STP) are conducted by driving a standard 2" diameter split spoon (hollow sampling tube) through a process of continuous or intermittent sampling. If monitoring wells are to be installed in the boreholes, hollow stem augers are to be used.

Equipment Required

- Personal Protective Equipment (PPE)
    - Hard hat, safety vest, protective eyewear, steel toed boots
- Nitrile Gloves
- Slider Bags
- Borehole logs & Clipboard
- Portable Soil Vapour Measurement Device (Gastech/PID)
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice
- Drums for Soil Storage

Procedure

1. Prior to drilling, boreholes will be numbered and marked and the site cleared for utilities.

2. Downhole equipment is cleaned/decontaminated by the contractor.
3. All drill cuttings are to be placed in labeled drums or other container and moved to a designated location.
4. Review sampling plan and borehole locations with project manager
5. Determine what equipment and supplies are required.
6. Obtain necessary sampling and monitoring equipment.
7. Coordinate with project manager and clients and drilling crew, as required, for site access.
8. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
9. Perform health and safety meeting, discuss safety around rig and muster points should there be an emergency.
10. The technician will direct the drill crew where to set up the rig to begin drilling.
11. A borehole log must be prepared for every borehole drilled. Include: elevation, GPS coordinates, depth, soil classification, drilling details, sampling, water levels, free product (if any).
12. Record the type of equipment used (solid stem or hollow, type of rig) and the start time when drilling begins.
13. Sampling will be at pre-specified intervals; typically every 2 ½" to 10-15 feet then once every 5 feet from then on. Between samples, split spoons will be cleaned (if an environmental sampling is being conducted).
14. At each sampling interval record; interval number (or sample ID), blow counts, soil description, PPM reading
15. Record depth of borehole, caving (if any) and water level when borehole is complete.
16. Upon completion of drilling in an open borehole that will not be converted to a well the borehole is to be properly filled and abandoned. There are two methods depending on whether the static water level is above or below the bottom of the borehole.
    a. Above and less than 20 feet deep: Abandon borehole by mixing cement or cement/bentonite grout and pouring the mixture into the borehole until it is filled to ground surface.
    b. Below and more than 20 feet deep: Mix and pump cement/bentonite mixture to the bottom of the hole until filled to ground surface.

References

- *Standard Operating Procedure No. 6. Drilling, Logging, and Sampling of Subsurface Materials.*
- *Geotechnical Field Investigations, Terraprobe Limited, July 1990.*

STANDARD OPERATING PROCEDURE
SOIL SAMPLING
General Procedures

Introduction

Subsurface investigations typically involve sampling of subsurface soils at various depths at locations of interest. Several soil sampling methods can be implemented depending on the nature of the investigations. Field screening of soil samples may be performed when potential contaminants of concern include VOC and PHC F1.

Equipment Required

- Nitrile Gloves
- Field Parameter Measurement Device (Gastech, PID)
- Laboratory Sample Bottles
- Terracores or sampling syringes (sampler)
- Field Notebook and/or Field Sheets
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice and cooler

Procedure

1. Review sampling plan and sampling locations with project manager
2. Determine what equipment and supplies are required.
3. Obtain necessary sampling and monitoring equipment.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all sampling locations.
7. Assemble the appropriate laboratory supplied jars/vials.
8. Collect the samples to be analyzed
    a. Borehole - split spoon, sample from spoon
        i. Split spoon sampling methods are primarily used to collect shallow and deep subsurface soils.

ii. Gravel, concrete, asphalt and etc. present at or near the surface of the sampling location should be removed prior to split spoon sampling.

iii. Split spoons used for soil sampling must be constructed with stainless steel and are 2 inches in diameter and 18 to 24 inches in length.

iv. The top several inches of the material in the spoon must be discarded before remove any portion of the spoon for sampling.

b. Test pit (backhoe), bag from excavator bucket, then sample.

i. Usually used in the collection of surface and shallow soil samples. Allow soil samples to be collected from very specific intervals.

ii. The bucket must be decontaminated prior to sample collection.

iii. Ensure to scrap off any smeared material on the surface of the bucket that may cross-contaminate the sample prior to jarring the soil sample.

iv. Make sure to not physically enter backhoe excavations to collect a sample for safety issue.

c. Hand-dig (hang augers), sample.

i. Hand augers are typically used to advanced boreholes and collect surficial soils and shallow subsurface soils. A 4 inch stainless steel auger buckets with cutting heads are usually used. The bucket is advanced by simultaneously pushing and turning using an attached handle with extension.

ii. The top several inches of the soil collected by the auger bucket should be discarded and not be placed in the laboratory supplied container for sample submission.

iii. VOC samples need to be collected directly from the auger bucket, if possible.

iv. The entire hand auger assembly must be decontaminated before sampling at a new location. This is to minimize cross-contamination of soil samples.

9. Fill the appropriate jars, making sure to label properly; include the date, company name, parameter to be analyzed, and project number.
10. Change Nitrile gloves between samples.
11. Clean off loose soil that may be on the outside of the jar.
12. Place in a cooler with ice.
13. Log samples in field book.
14. Complete a Chain of Custody for all samples.
15. Package samples and complete necessary paperwork.
16. Transport samples (that have been kept cool) to laboratory or transport to office and call for pick up.

References

- *SESD Operating Procedure – Soil Sampling* U.S EPA, December 2011
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011

STANDARD OPERATING PROCEDURE
FIELD SCREENING AND CALIBRATION

RKI Eagle Gastech and Mini Rae Photo-Ionization Detector

Introduction

Field screening is an important tool in that it provides data for onsite, real time total vapor measurements, evaluation of existing conditions, sample location optimization, extent of contamination, and health and safety evaluations.

RKI Eagle

Portable Multi-Gas Detector

The gastech can be used for reading headspace values in soil and water (wells). There are two types of 'Gastechs' in the Terraprobe office, the RKI Eagle 1 and Eagle 2. These portable gas detectors assist in screening field samples on many projects.

Portable VOC Monitor (Mini Rae 2000)

Portable VOC Monitors or PIDs (photo-ionization detector) monitors VOCs using the photo-ionization detector. If screening is required for VOCs, then this machine can be used. The PIDs are also used for health and safety for workers in enclosed spaces (such as trenches) in a known contaminated area.

Equipment Required

For Cailbration

- Canister of gas (Hexane at 400ppm for Eagle 1, Hexane at 1650ppm for Eagle 2, Isobutylene at 100ppm for PID)
- Regulator.
- Tubing to attach probe to canister.

Field Screening

- Eagle or Mini Rae
- Nitrile Gloves
- Slider Bags
- Sampling Plan (from project manager)

- Access Agreements (if required)
- Field Notebook and/or Field Sheets
  Appropriate Sampling Jars

Procedure (Calibration)

In order to ensure accuracy in the field, Terraprobe calibrates its Gastechs and PIDs each time they will be in the field.

There are three different gas canisters – one for the Eagle 1, the other for the Eagle 2 and a third for the MiniRae. The Eagle 1 is calibrated using the concentration of 400ppm while the Eagle 2 is calibrated with the concentration of 1650ppm. The PID is calibrated with Isobutylene at a concentration of 100ppm. Calibrating each machine is similar in principle but there are differences due to the different models we are using.

Eagle 1:

1. Take the Eagle to a fresh-air location
2. Turn the Eagle on and allow one minute for warm up
3. Hold the AIR button until a tone sounds
4. Press and hold SHIFT/▼ and then press the DISP/ADJ button. This will display the Calibration menu.
5. Select Single Calibration, press Enter
6. Press Enter to select HEX
7. The screen displays the channel selected, and the gas reading will flash
8. Connect the tubing from the regulator to the Eagle's probe.
9. If needed, use the AIR /▲ and SHIFT/▼ buttons to adjust the reading to match the concentration on the cylinder.
10. Press the ENTER button to set the value. Single Calibration will end and the menu will display.
11. Disconnect the tubing from the probe.
12. With the single calibration menu still displayed, use the SHIFT/▼ button until the ESC message displays, then press the ENTER button to return to the Calibration menu.
13. Press the SHIFT/▼ button to place the arrow next to Normal Operation and then press ENTER to return to the normal screen.

Eagle 2:

1. Take the Eagle to a fresh-air environment.
2. Turn the Eagle on and allow one minute for warm up.
3. Press and hold the RANGE/SHIFT button, when press the DISPLAY/ADJUST/NO button and release both buttons.
4. The Calibration Mode Screen displays with the cursor beside Auto Calibration.
5. Set the fresh air reading by: Moving the cursor to the Perform Air Adjust menu item by using the RANGE/SHIFT button. Press and release the POWER/ENTER/RESET button. The screen will say “Perform Air Adjust?” Press the AIR/YES button to continue. The Eagle 2 will indicate it is adjusting the zero reading before it returns to the Calibration Mode Screen.
6. Move the cursor to Single Calibration menu item by using the AIR/YES button.
7. Press and release the POWER/ENTER/RESET button. The “Select Sensor Screen” appears with the cursor flashing.
8. Move the cursor next to the sensor you want to calibrate with the AIR/YES and RANGE/SHIFT buttons.
9. Press and release the power enter reset button to proceed to the Single Calibration Gas Value screen. The calibration gas value is flashing
10. If necessary, adjust the calibration gas value to match the cylinder concentration with the air/yes and range/shift buttons.
11. Press and release the power/enter/reset button to proceed to the single calibration apply gas screen. Cal in Process is flashing.
12. Connect the tubing from the demand flow regulator to the probe. Allow the Eagle 2 to draw gas for one minute.

Mini Rae PID Calibration

1. Bring the Mini Rae to a fresh air environment.
2. Push the MODE and N/- buttons together to access a sub menu.
3. “Fresh Air Cal?” will appear.
4. Press the Y/+ key, the display shows “zero in progress” followed by “wait” and a countdown timer.
5. After about 15 seconds, the display shows the message “zeroed… reading = X.Xppm…” Press any key or wait, the monitor will return to “Fresh Air Calibration?” menu.
6. Connect the tubing to the regulator on the gas cylinder.
7. Press the Y/+ key at the “Span Cal?” to start calibration. The display shows the gas name and the span value of the corresponding gas.
8. The display shows “Apply gas now!” Turn on the valve of the span gas supply.

9. Display shows "wait… 30" with a countdown timer showing the number of remaining seconds while the monitor performs the calibration.
10. When the countdown timer reaches 0, the display gas shows the calibrated value.
11. After a span calibration is completed, the display will show the message "Span Cal Done! Turn Off Gas!"
12. Turn off the flow of gas and disconnect the calibration tubing from the Mini Rae.
13. Press any key to return to the sub menu. Press MENU to return to main menu and being operations.

Procedure (Field Screening)

1. Place soil sample in a slider bag and gently break up the pieces.
2. Using the Eagle, insert the probe into the bag and hold it above the soil. Do NOT put the probe in the soil. Wait 30 seconds for the probe to read the soil vapour.
3. Record the value and remove the probe from the slider bag.
4. PIDs can be used the same way HOWEVER, it must be noted that if sampling for VOCs, the sample must be preserved within 10-12 seconds of sampling. This means that any sample that is potentially going to be jarred must have a methanol vial stored immediately.
5. Using the probes to measure headspace readings in a well follows the same basic principles. Open the j-plug or slip cap and quickly insert the probe into the top of the well taking extreme caution not to allow the probe to touch any water, and cover the top of the well with your hand.
6. Wait 30 seconds for the probe to establish a reading.
7. Remove the probe and record the value.

References

- *US EPA Field Sampling Guidance Document #1210 "Soil Sampling for Volatile Compounds"*
- *MiniRae 2000 Portable VOC Monitor Operation and Maintenance Manual, Rev. C*
- *US EPA Field Screening Methods Catalog User's Guide*
- *Instruction Manual Eagle Series Portable Multi Gas Detector. Rev.H.*
- *RKI Eagle 2 Operator's Manual. Rev. Q.*

STANDARD OPERATING PROCEDURE
WELL INSTALLATION

Introduction

All wells are to be constructed with flush-thread joints and factory-slotted screen. Terraprobe monitoring wells are 2-inch (50 mm) inside diameter PVC unless otherwise stipulated or required by site specific standards or sampling requirements. Other possible well diameters and materials include:

- 1-inch (25 mm) PVC,
- 1.5 –inch (37 mm) PVC,
- 4-inch (100mm) steel,
- 6 inch (150 mm) steel,
- 10 inch (255 mm) steel and;
- 3 foot (915 mm) concrete.

Water washed silica sand is used for the filter pack, bentonite is used to create a seal above the screen to just below the surface and sand is added to ground level. Well casings are installed using cement to secure them.

Notes:

- Monitoring wells are to be installed by a licenced well driller only.
- The installation procedures outlined in this document are for reference only to insure familiarization with the process.
- The installation procedures outlined in this document are for the installation of a typical 2-inch PVC monitoring well.
- Maximum length of well screen allowed under O.Reg. 153/04 is 3 m (10 feet)
- A MOE Well Record is required under O.Reg. 903 if:
    - The monitoring well is greater than 3 m (10 feet) and/or
    - The monitoring well will be in place longer than 30 days
- Well Records can be either for a single well or a group of wells (cluster).
- A well cluster record can be written only if all the wells are within the same property, or adjacent properties owned by the same owner.

Equipment Required

- Interface or Water Level Meter
- Field Notebook and/or Field Sheets
- Well Keys/Locks or Tools Required
- PVC Pipe (risers/casing)
- PVC Screen
- J-Plugs
- Flush Mount Casing or Above Grade Casing
- Bentonite
- Silica Sand
- Sampling Plan (from project manager)
- Access Agreements (if required)

Procedure

1. After borehole completion, measure total depth before riser casing and screen are installed and before the augers are removed. This confirms drilling depths are accurate.
2. Decontaminate screen and casing (typically done off-site by water well driller), check that casing sections are straight and not cracked or damaged.
3. Verify and record diameter and lengths of casings and screen.
4. The casing/screen will be installed by:
    a. Placing an end cap on the screen section
    b. Attaching a section of riser to the screen and lowering into the borehole
    c. Additional sections of riser will be added and lowered into the borehole until the desired screened interval is reached
5. Record the length of screen and riser pipe used for the monitoring well.
6. Verify and record that the proper filter (sand) pack has been selected.
7. The sand is poured into the space around the screen. Ensure it fills the hole to at least two feet above the screen.
    a. In hollow stem auger wells, the sand pack must be poured down the hollow stem of the augers. Augers are then pulled out of the borehole in 2-1/2 to 5 feet increments, sand is poured and level measured with a weighted tape.
8. Use a weighted tape and take continuous measurements while the sand is being poured to ensure proper installation. Pack the sand down to verify.
9. Record how much sand is used.
10. A bentonite seal is placed directly above the sand pack, minimum two feet thick, and should extend into the next soil strata.
11. Record how much bentonite is used.
12. A grout seal is then placed above the bentonite and can be a mixture of cement, bentonite, sand and water.

13. Surface completion is to be completed one of two ways.
    a. Above grade: Locking well cover sticking above grade, secured by lock and key.
    b. At grade: Flush mount casing, lock with ratchet bolts or allen key.
14. Each casing is installed over the PVC pipe and cemented into place.
15. Record GPS coordinates and measure stick up (if above grade).
16. Confirm that a well record will be completed for the monitoring well. Confirm the information to be submitted on the well record or the cluster of wells.
17. Survey the completed monitoring well to a geodetic or recoverable benchmark

References

- *Geotechnical Field Investigations, Terraprobe Ltd, July 26, 1990*
- *Ontario Water Resources Act R.R.O. 1990 Regulation 903 Wells*
- *Environmental Protection Act Ontario Regulation 153/04*

STANDARD OPERATING PROCEDURE
WELL DEVELOPMENT

Introduction

Monitoring well development is necessary to ensure that complete hydraulic connection is made and maintained between the well and the aquifer material surrounding the well screen and filter pack. It also serves to restore the groundwater properties disturbed during drilling.

Most common techniques at Terraprobe include 'surging', and bailing, often used together. Other development methods that may be used include jetting, airlift, and submersible pump methods. Jetting is typically not used as a development method for environmental investigations, but is commonly used for water resource monitoring wells or drinking water wells. Generally a phased process is used to develop wells, starting with a gentle bailing phase to remove sand, followed by a surging phase, and finally a pumping phase after the well begins to clear up.

After a well is first installed, and in fact, often before the bentonite pellet seal is set, gentle bailing is used to remove water and sand from the well. Bailing can be accomplished through the use of dedicated bailers or Waterra inertia pumps. The purpose of this technique is used to settle the sand pack. After further well sealant materials have been added and allowed to set for approximately 48 hours, bailing is resumed as part of well development. The purpose of bailing is to remove any fine material that may have accumulated in the well, and start pulling in natural material into the sand pack. Bailing is often conducted until the sand content in the removed water begins to decrease.

After the sand content begins to decrease, surging is conducted. A surge block is used to move sediments from the filter pack into the well casing. All surge blocks will be constructed of materials that will not introduce contamination into the well. Surge blocks should have some manner of allowing pressure release to prevent casing collapse. Terraprobe uses Waterra surge blocks which fit onto Waterra inertia pumps. The surge block is moved up and down the well screen interval and then removed, followed by a return to bailing to remove any sand brought into the well by the surging action. Care should be taken to not surge too strongly with subsequent casing deformation or collapse; the well screen interval is often the weakest part of a well. Surging should be followed by additional bailing to remove fine materials that may have entered the well during the surging effort.

After surging has been completed and the sand content of the bailed water has decreased, a submersible pump or inertia pump is used to continue well development. The pump should be moved up and

down the well screen interval until the obtained water is relatively clear. Well development will continue until the water in the well clarifies and monitoring parameters such as pH, specific conductivity, and temperature stabilize as defined in the project-specific planning documents. It should be noted that where very fine-grained formations are present at the screened interval, continued well development until clear water is obtained might be impossible. Decisions regarding when to cease development where very fine-grained conditions exist should be made between the field supervisor and project manager.

During well development pH, specific conductivity, temperature, and turbidity should be monitored frequently to establish natural conditions and evaluate whether the well has been completely developed. The main criterion for well development is clear water (Nephelometric turbidity units or NTU of less than 5). As mentioned above, clear water can often be impossible to obtain with environmental monitoring wells. A further criterion for completed well development is that the other water quality parameters mentioned above stabilize to within 10 percent between readings over one well volume. The minimum volume of water purged from the well during development will be approximately a minimum of 3 borehole volumes (wells will typically not reach stabilization of water quality parameters before this condition is achieved and may not have reached stability even after this threshold has been achieved).

Equipment Required

- Interface or Water Level Meter
- Nitrile Gloves
- Water Quality Meter (EC, pH, Temperature)
- Bucket
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Waterra
- Waterra cutters (avoid using knives)
- Surge Blocks (if required)
- Foot valves
- Storage for contaminated (or suspected contaminated) water.
- Access Agreements (if required)

Procedure

1. Review monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Obtain Waterra tubing, foot valves and surge blocks.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all monitoring wells.

7. Open the monitoring well and take initial readings (ie; head space air monitor readings, water level, well depth) and record in the field notebook.
8. Organize equipment.
9. Bailing the monitoring well:
    a. Calculate casing volume to determine the ideal amount to be purged (three casing volumes).
    b. Attach foot valve to that end of Waterra
    c. Slowly lower Waterra down the well. Once it hits the bottom, leave some extra Waterra above the top of the well to easily handle pumping and cut the Waterra.
    d. Slowly remove three casing volumes from the monitoring well.
    e. Dispose of purged water in barrels if known or suspected contaminates are of concern, or however the project manager instructs.
10. Surging the monitoring well
    a. Slip surge block onto the end of the Waterra and reattach the foot valve, securing the surge block
    b. Place surge block and Waterra back into the monitoring well
    c. Raise and lower the surge block along the screen. (Should be able to feel location of the well screen)
    d. Continue surging for 5-10 minutes.
11. Final purge of the monitoring well
    a. Remove surge block from Waterra
    b. Lower the Waterra back down the well. Begin pumping water out of the well, taking care to note water quality and appearance (smell, clarity, etc.).
    c. Continue to purge the monitoring well until the following water quality parameters have stabilized:
        i. Turbidity (± 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
        ii. Conductivity (± 3%),
        iii. Temperature (± 3%),
        iv. pH (± 0.1 unit),
    d. Dispose of purged water in barrels if known or suspected contaminates are of concern, or however the project manager instructs.
12. Record final measurements in field book, record date, water level before and after development, quantity of water removed, equipment used and techniques (surge and purge, or purge only).

References

- *ASTM Standard Practice and Installation of Ground Water Monitoring Wells in Aquifers*
- *EPA SOP#2044 Well Development March 10, 199*

STANDARD OPERATING PROCEDURE
FIELD MEASUREMENT OF WATER QUALITY INDICATORS
Hanna Instruments Portable pH/EC/TDS/Temperature Meter (HI 991301)

Introduction

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken. The HI 991301 can be used with all ground water sampling methods (manual or low-flow).

HI 991301's micro-processor allows the system to be easily calibrated with the press of a few keys. Additionally, the micro-processor performs a self-diagnostic routine each time the instrument is turned on. The self-diagnostic routine provides useful information about the function of the instrument and probe.

Equipment Required

- Interface or Water Level Meter
- Water pump or bailer
- Nitrile Gloves
- Bucket and/or Graduated Cylinder
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)

Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.
5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Calibrate pH and Conductivity on the HI 991301 as follow:
    a. Prior to Calibration
        i. Ensure all sensors are immersed in calibration solutions. The top vent hole of the conductivity sensor must be immersed.

ii. Fill a bucket with ambient temperature water to rinse the probe module between calibration solutions. Prepare clean, absorbent paper towels or cotton cloth available to dry probe module between rinses. This reduces carry-over contamination and increase accuracy of the calibration.

b. pH Calibration

i. While in pH measurement mode, press and hold the ON/OFF/MODE button until "OFF" on the secondary display is replaced by "CAL". Release the button. Place the sensor into the first calibration buffer.

ii. Calibration may be performed at 1, 2 or 3-points (at pH 7, 4 and 10, or at pH 6.86, 4.01 and 9.18). Perform a 1-point calibration (at pH 7 or at pH 6.86) ONLY if a previous 2 or 3-point calibration has been performed recently. In most cases, a 2-point pH calibration will be sufficient for accurate pH measurements, but if the general range of pH in the sample is not known, a 3-point calibration may be necessary. Enter the calibration standard of choice.

iii. First calibration must be either pH 7 or pH 6.86.

iv. Place 30 to 35 mL of the pH buffer you have chosen to calibrate the system with (pH 7 or 6.86) in the 100 mL graduated cylinder. The graduated cylinder minimizes the amount of solution needed.

v. If the buffer is recognized "REC" is displayed until the reading is stable and the calibration is accepted.

vi. When the buffer is accepted the "OK" message is displayed and the meter returns to pH measurement mode.

vii. If the buffer is not recognized or the calibration offset is out of the accepted range "WRONG" is displayed.

c. Conductivity Calibration

i. From EC or TDS normal mode, press and hold the ON/OFF/MODE button until "OFF" on the secondary display is replaced by "CAL". Release the button.

ii. The meter enters calibration mode. Immerse the probe in the HI 7030 calibration solution (mS 12.88).

iii. If the standard is recognized "REC" is displayed until the reading is stable and calibration is accepted.

iv. The LCD will display "OK" for 1 second and return to normal measurement mode.

v. If the standard is not recognised or the slope is out of acceptance range "WRONG" is displayed. Change the calibration solution or the electrode or press any key to exit calibration

vi. When the calibration procedure is complete the "Calibrated" tag is turned on.

d. Measurement Mode

i. Press the ON/OFF/MODE button until the display lights up. At start-up, all the LCD segments are displayed for 1 second, then the percent indication of the remaining battery life is displayed for another second. The meter then enters the normal measuring mode.

ii. To select the measurement range, while in normal measurement mode, press the SET/HOLD button quickly to select pH, EC, or TDS value on the primary LCD, while temperature will be simultaneously displayed on the secondary LCD.

iii. Turn off meter by pressing the ON/OFF/MODE button. Rinse the probe and return to storage solution.

References

- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011
- *HI 991300/991301 Instruction Manual*, Hanna Instruments, January 2011

STANDARD OPERATING PROCEDURE
GROUND WATER SAMPLING
Inertial Pump (Waterra/Footvalve)

Introduction

The inertial pump consists of a one way foot valve and low density or high density tubing. The inertial pump can be used in the development, purging and sampling of ground water monitoring wells.

Equipment Required

- Interface or Water Level Meter
- Waterra Tubing (typically 5/8" in diameter)
- Footvalve(s)
- Surge Block(s)
- Nitrile Gloves
- Bucket
- Field Parameter Measurement Device (Horiba Flow Cell, YSI Meter, Hanna Meter, etc.)
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice

Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.
5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Coordinate with project manager and clients, as required, for site access.
7. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
8. Identify and mark all sampling locations.
9. Start sampling at the least contaminated monitoring well (if known).

10. Remove locking well cap, note location time of day, and date in your notebook
11. Remove well casing cap.
12. Lower water level measuring device or equivalent into well until water surface is encountered.
13. Measure distance from water surface to reference measuring point on well casing and in field notebook. Alternatively, if there is no reference point, note that water level measurement is from top of steel casing, top of PVC riser pipe, from ground surface.
14. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook
15. Calculate the volume of water in the well and record in field notebook.
16. Assemble Waterra tubing and footvalve.
17. Lower tubing (Footvalve first) into the well until the foot valve is at the depth of the well screen.
18. Cut Waterra, leaving enough room to purge and sample comfortably.
19. Purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured by a hand held device (YSI or similar). Record field parameters until parameters have stabilized , and record the water level in the monitoring well.
    a. If the calculated purge volume is small, the measurements should be taken frequently to provide a sufficient number of measurements to evaluate stability (every ¼ casing volume). If the purge volume is large, measurements taken every ½ to 1 casing volume may be sufficient.
    b. Stabilization occurs when:
        i. Turbidity (± 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
        ii. Conductivity (± 3%),
        iii. Temperature (± 3%),
        iv. pH (± 0.1 unit),
    c. If after three well volumes have been removed, the chemical parameters have not stabilized according to the above criteria, additional well volumes should be removed.
    d. If the field parameters have not stabilized within five volumes, contact the project manager to determine whether or not to collect a sample or to continue purging.
20. Collect and dispose of purge waters as specified in the site-specific sampling plan.
21. Assemble the appropriate laboratory supplied bottles.
22. Organize sample bottles so as to easily fill them if alone. If with a partner, have them hold the bottles as pumping occurs.
23. Collect samples in the laboratory supplied bottle
    a. For non-filtered samples collect directly from the tubing into the sample bottle.
    b. For filtered samples, connect the tubing directly to the filter unit.
24. Cap the sample bottle tightly and place relabeled sample container in a carrier
25. Replace the well cap.
26. Log all samples in the site logbook and label all samples.

27. Package samples and complete necessary paperwork.
28. Transport sample to staging area for preparation for transport to analytical laboratory.

NOTE: Purging should be completed immediately prior to sample collection although it is acceptable to purge and then collect samples within 24 hours.

References

- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011

STANDARD OPERATING PROCEDURE
GROUND WATER SAMPLING

PERISTALTIC PUMP

Introduction

Low flow purging and sampling involves extracting groundwater at rates comparable to ambient ground water flow (typically less than 500 ml/min), so that the drawdown of the water level is minimized, and the mixing of stagnant water with water from the screened intake area in a well is reduced.

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken, thus low flow methods facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

Equipment Required

- Interface or Water Level Meter
- Peristaltic Pump
- Batteries
- Low Density Polyethylene Tubing (LDPE Tubing)
- Silicon Tubing
- Nitrile Gloves
- Bucket
- Field Parameter Measurement Device (Horiba Flow Cell, YSI Meter, Hanna Meter, etc.)
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice

Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.

5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Coordinate with project manager and clients, as required, for site access.
7. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
8. Identify and mark all sampling locations.
9. Start sampling at the least contaminated monitoring well (if known).
10. Remove locking well cap, note location time of day, and date in your notebook
11. Remove well casing cap.
12. Lower water level measuring device or equivalent into well until water surface is encountered.
13. Measure distance from water surface to reference measuring point on well casing and in field notebook. Alternatively, if there is no reference point, note that water level measurement is from top of steel casing, top of PVC riser pipe, from ground surface.
14. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook
15. Calculate the volume of water in the well and record in field notebook.
16. Lower LDPE tubing into the well until the end of the tubing is at the bottom of the well.
17. Cut LDPE tubing, leaving enough room to sample comfortably.
18. Pull the appropriate amount of tubing out of the well so that the end of the tubing is within the well screen.
19. Attach LDPE tubing to approximately 6' of flexible silicon tubing and insert the silicon tubing into the roller on the peristaltic pump, closing the lever in order to secure the tubing.
20. Attach power supply, and purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured by a hand held device (YSI or similar). Record field parameters until parameters have stabilized , and record the water level in the monitoring well.
    a. If the calculated purge volume is small, the measurements should be taken frequently to provide a sufficient number of measurements to evaluate stability (every ¼ casing volume). If the purge volume is large, measurements taken every ½ to 1 casing volume may be sufficient.
    b. Stabilization occurs when:
        i. Turbidity (± 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
        ii. Conductivity (± 3%),
        iii. Temperature (± 3%),
        iv. pH (± 0.1 unit),
    c. If after three well volumes have been removed, the chemical parameters have not stabilized according to the above criteria, additional well volumes should be removed.
    d. If the field parameters have not stabilized within five volumes, contact the project manager to determine whether or not to collect a sample or to continue purging.
21. Collect and dispose of purge waters as specified in the site-specific sampling plan.
22. Assemble the appropriate laboratory supplied bottles.

23. Organize sample bottles so as to easily fill them if alone. If with a partner, have them hold the bottles as pumping occurs.
24. Collect samples in the laboratory supplied bottle
    a. For non-filtered samples collect directly from the tubing into the sample bottle.
    b. For filtered samples, connect the tubing directly to the filter unit.
25. Cap the sample bottle tightly and place relabeled sample container in a carrier
26. Replace the well cap.
27. Log all samples in the site logbook and label all samples.
28. Package samples and complete necessary paperwork.
29. Transport sample to staging area for preparation for transport to analytical laboratory.

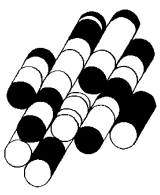
NOTE: Purging should be completed immediately prior to sample collection although it is acceptable to purge and then collect samples within 24 hours.

References

- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011

APPENDIX E

TERRAPROBE INC.



LOG OF BOREHOLE 101

Terraprobe

Project No. : 7-19-0023-42	Client : Old Lakeshore Burlington Inc.	Originated by : KG
Date started : March 26, 2019	Project : 2107 & 2119 Old Lakeshore Road	Compiled by : AB
Sheet No. : 1 of 1	Location : Burlington, Ontario	Checked by : BW

Position : E: 597993, N: 4797787 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity	Headspace Vapour (ppm)	Instrument Details	Unstabilized Water Level	Lab Data and Comments
	81.5	**GROUND SURFACE**						Dynamic Cone 10 20 30 40; Unconfined, Pocket Penetrometer, Field Vane, Lab Vane 40 80 120 160	Plastic Limit, Natural Water Content, Liquid Limit PL MC LL 10 20 30				GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
0	81.3	50mm **ASPHALTIC CONCRETE**											
	0.2	**FILL**, granular base											
		CLAYEY SILT, trace to some sand, trace to some gravel, stiff to hard, grey and brown (GLACIAL TILL)		1	SS	15	81			PID: 20			
1				2	SS	80				PID: 35			SS2 Analysis: M&I, PAH
				3	SS	47	80			PID: 25			
2				4	SS	83 / 250mm	79			PID: 25			0 24 57 19
	78.6												
3	78.4	**WEATHERED SHALE**, very dense, reddish brown		5	SS	50 / 25mm				PID: 20			
	3.1												

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Apr 6, 2019	2.1	79.4
Apr 16, 2019	2.2	79.3

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LOG OF BOREHOLE 102

Terraprobe

Project No. : 7-19-0023-42	Client : Old Lakeshore Burlington Inc.	Originated by : KG
Date started : March 26, 2019	Project : 2107 & 2119 Old Lakeshore Road	Compiled by : AB
Sheet No. : 1 of 1	Location : Burlington, Ontario	Checked by : BW

Position : E: 598010, N: 4797828 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	79.6	**GROUND SURFACE**				
	79.4	100mm **ASPHALTIC CONCRETE**				
	0.2	**FILL**, sand and gravel, trace brick fragments, brown		1	SS	20
1		**FILL**, clayey silt, some sand, some gravel, trace brick fragments, trace staining, strong petroleum hydrocarbon odour, firm, brown		2	SS	8
				3	SS	8
2	77.6					
	2.0	**CLAYEY SILT**, some sand, trace gravel, petroleum odour, hard, reddish brown				
	77.3					
	2.3	**WEATHERED SHALE**, petroleum hydrocarbon odour to 6.7m depth, hard, reddish brown		4	SS	98 / 275mm
3				5	SS	50 / 100mm
				6	SS	50 / 75mm
4				7	SS	50 / 75mm
				8	SS	50 / 50mm
5						
6						
	71.9			9	SS	50 / 50mm
7	7.7					

END OF BOREHOLE

Borehole was dry and caved to 7.3 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10, 20, 30, 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40, 80, 120, 160

Elevation Scale (m): 79, 78, 77, 76, 75, 74, 73, 72

Moisture / Plasticity — Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL): 10, 20, 30

Headspace Vapour (ppm): PID: 0; PID: 1650; PID: 1650; PID: 870; PID: 410; PID: 250; PID: 200; PID: 55; PID: 80

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) — GR SA SI CL

SS1 Analysis: M&I, PAH

SS3 Analysis: Metals, VOC, PHC, EC/SAR

SS4 Analysis: VOC, PHC

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Apr 6, 2019	3.6	76.0
Apr 16, 2019	3.0	76.6

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LOG OF BOREHOLE 103

Terraprobe

Project No. : 7-19-0023-42	Client : Old Lakeshore Burlington Inc.	Originated by : KG
Date started : March 26, 2019	Project : 2107 & 2119 Old Lakeshore Road	Compiled by : AB
Sheet No. : 1 of 1	Location : Burlington, Ontario	Checked by : BW

Position : E: 598020, N: 4797809 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth (m)	Elev Depth (m)	Description	Number	Type	SPT 'N' Value
	79.9	**GROUND SURFACE**			
0	79.7	150mm **ASPHALTIC CONCRETE**			
	0.2				
	79.7	**FILL**, granular base	1	SS	9
	0.2	**FILL**, clayey silt, some sand, some gravel, black staining (0.76 to 1.37m), petroleum odour, firm, brown	2	SS	5
1	78.4				
	1.5	**SHALEY TILL**, with grey shale fragments, dense, reddish brown	3	SS	70
2	77.6				
	2.3	**WEATHERED SHALE**, very dense, reddish brown	4	SS	50 / 75mm
			5	SS	50 / 125mm
3			6	SS	50 / 75mm
4			7	SS	50 / 50mm
5					
6			8	SS	50 / 50mm
7	72.3		9	SS	50 / 25mm
	7.6	**END OF BOREHOLE**			

Elevation Scale (m): 79, 78, 77, 76, 75, 74, 73

Penetration Test Values (Blows / 0.3m): Dynamic Cone; 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane; 40 80 120 160

Moisture / Plasticity: Plastic Limit, Natural Water Content, Liquid Limit; PL MC LL; 10 20 30

Headspace Vapour (ppm)
PID: 10
PID: 10
PID: 15
PID: 190
PID: 120
PID: 20
PID: 10
PID: 10

Instrument Details: W1 W2

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

SS1 Analysis: PAH

SS2 Analysis: M&I, VOC, PHC

SS3 Analysis: M&I, PAH, VOC, PHC

Unstabilized water level measured at 4.9 m below ground surface; borehole was open upon completion of drilling.

W1: 50 mm dia. monitoring well installed.
W2: 50 mm dia. monitoring well installed.

W1 WATER LEVELS

Date	Water Depth (m)	Elevation (m)
Apr 6, 2019	1.1	78.8
Apr 16, 2019	1.1	78.8

W2 WATER LEVELS

Date	Water Depth (m)	Elevation (m)
Apr 6, 2019	3.0	76.9
Apr 16, 2019	3.1	76.8

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LOG OF BOREHOLE 104

Terraprobe

Project No. : 7-19-0023-42	Client : Old Lakeshore Burlington Inc.	Originated by : KG
Date started : March 26, 2019	Project : 2107 & 2119 Old Lakeshore Road	Compiled by : AB
Sheet No. : 1 of 1	Location : Burlington, Ontario	Checked by : BW

Position : E: 598011, N: 4797821 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth (m)	Elev Depth (m)	Description	Number	Type	SPT 'N' Value
0	79.9	**GROUND SURFACE**			
	79.7	50mm **ASPHALTIC CONCRETE**			
	0.2	**FILL**, granular base	1	SS	12
		CLAYEY SILT, some sand, some gravel, petroleum odour below 0.76m, firm, brown	2	SS	4
2			3	SS	10
	77.6				
	2.3	**SILT to SHALEY TILL**, with shale fragments, black staining (2.5 to 3.35m) depth, petroleum odour, dense, reddish brown	4	SS	45
3	76.5		5	SS	83 / 250mm
	3.4	**WEATHERED SHALE**, petroleum odour, reddish brown	6	SS	50 / 100mm
4			7	SS	50 / 100mm
5					
6			8	SS	50 / 100mm
7	72.2		9	SS	50 / 125mm
	7.7	**END OF BOREHOLE**			

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL) 10 20 30

Headspace Vapour (ppm): PID: 5; PID: 10; PID: 350; PID: 500; PID: 150; PID: 170; PID: 95; PID: 70; PID: 30

Instrument Details: W1, W2

Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

- SS2 Analysis: PAH
- SS3 Analysis: M&I, VOC, PHC
- SS4 Analysis: Metals, VOC, PHC, EC/SAR
- SS5 Analysis: VOC, PHC

Borehole was dry and open upon completion of drilling.

W1: 50 mm dia. monitoring well installed.
W2: 50 mm dia. monitoring well installed.

W1 WATER LEVELS

Date	Water Depth (m)	Elevation (m)
Apr 6, 2019	1.3	78.6
Apr 16, 2019	1.3	78.6

W2 WATER LEVELS

Date	Water Depth (m)	Elevation (m)
Apr 6, 2019	3.4	76.5
Apr 16, 2019	3.4	76.5

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LOG OF BOREHOLE 105

Terraprobe

Project No. : 7-19-0023-42	Client : Old Lakeshore Burlington Inc.	Originated by : KG
Date started : March 26, 2019	Project : 2107 & 2119 Old Lakeshore Road	Compiled by : AB
Sheet No. : 1 of 1	Location : Burlington, Ontario	Checked by : BW

Position :
Elevation Datum : Geodetic
Rig type : Truck-mounted
Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	81.0	**GROUND SURFACE**				
0	80.8	50mm **ASPHALTIC CONCRETE**				
	0.2	**FILL**, granular base		1	SS	17
		SAND, some silt, compact, brown				
1				2	SS	18
	79.5					
	1.5	**CLAYEY SILT to SHALEY TILL**, hard, brown to reddish brown		3	SS	43
2				4	SS	80 / 250mm
	78.1					
3	2.9	**WEATHERED SHALE**, very dense, reddish brown		5	SS	50 / 75mm
	77.9					
	3.1					

Elevation Scale (m): 81, 80, 79, 78

Penetration Test Values (Blows / 0.3m)
Dynamic Cone: 10, 20, 30, 40
Undrained Shear Strength (kPa)
Unconfined, Pocket Penetrometer, Field Vane, Lab Vane
40, 80, 120, 160

Moisture / Plasticity
Plastic Limit, Natural Water Content, Liquid Limit
PL, MC, LL
10, 20, 30

Headspace Vapour (ppm): PID: 0, PID: 25, PID: 25, PID: 20, PID: 25

Instrument Details

Unstabilized Water Level

Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%) (MIT)
GR SA SI CL

SS2 Analysis: M&I, PAH

SS3 Analysis: Metals, VOC, PHC, EC/SAR

END OF BOREHOLE

Borehole was dry and caved to 7.2 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Apr 6, 2019	1.5	79.5
Apr 16, 2019	1.9	79.1

file: 7-19-0023-42 2107 old lakeshore road.gpj

LOG OF BOREHOLE 1

Terraprobe

Project No. : 1-16-0680-01	Client : Carriage Gate Homes	Originated by : TG
Date started : November 25, 2016	Project : SW of Old Lakeshore & Lakeshore Rd	Compiled by : NN
Sheet No. : 1 of 2	Location : Burlington, Ontario	Checked by : JC

Position : E: 597988, N: 4797784 (UTM 17T) | Elevation Datum : Geodetic (NAD83) | Core Diameter : **HQ**, OD=96mm, ID=64mm

Rig type : Truck-mounted | Drilling Method : Solid stem augers, HQ rock coring

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	81.5	**GROUND SURFACE**				
	81.3	50mm **ASPHALTIC CONCRETE**				
	0.2	150mm **AGGREGATE**				
		CLAYEY SILT, trace to some sand, trace to some gravel, very stiff to hard, mottled greyish brown (GLACIAL TILL)		1	SS	20
1		...at 0.8 m, reddish brown		2	SS	88
				3	SS	63
2	79.2					
	2.3	**INFERRED BEDROCK**, shale, red, weathered		4	SS	50 / 125mm
	78.9					
	2.6	**QUEENSTON FORMATION** (See rock core log for details)		1	RUN	
3				2	RUN	
4						
5				3	RUN	
6						
7				4	RUN	
8						
9				5	RUN	
10				6	RUN	

Elevation Scale (m): 81, 80, 79, 78, 77, 76, 75, 74, 73, 72

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160

Moisture / Plasticity — Plastic Limit, Natural Water Content, Liquid Limit: PL MC LL; 10 20 30

Headspace Vapour (ppm)

Instrument Details — Unstabilized Water Level

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

...at 1.5m, augers grinding

(continued next page)

LOG OF BOREHOLE 1

Terraprobe

Project No. : 1-16-0680-01	Client : Carriage Gate Homes	Originated by : TG
Date started : November 25, 2016	Project : SW of Old Lakeshore & Lakeshore Rd	Compiled by : NN
Sheet No. : 2 of 2	Location : Burlington, Ontario	Checked by : JC

Position : E: 597988, N: 4797784 (UTM 17T) | Elevation Datum : Geodetic (NAD83) | Core Diameter : **HQ**, OD=96mm, ID=64mm

Rig type : Truck-mounted | Drilling Method : Solid stem augers, HQ rock coring

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value	Elevation Scale (m)
		(continued)					
11		**QUEENSTON FORMATION** (See rock core log for details) *(continued)*		6	RUN		71
12				7	RUN		70
13				8	RUN		69
14				9	RUN		68
15							67
16	64.6 / 16.9			10	RUN		66
							65

Penetration Test Values (Blows / 0.3m): Dynamic Cone — 10, 20, 30, 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40, 80, 120, 160

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL) — 10, 20, 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT): GR SA SI CL

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Dec 8, 2016	4.3	77.2
Mar 15, 2019	6.0	75.5
Apr 6, 2019	6.0	75.5
Apr 16, 2019	6.0	75.5

file: 1-16-0680-01 bh logs.gpj

LOG OF BOREHOLE 2

Terraprobe

Project No. : 1-16-0680-01	Client : Carriage Gate Homes	Originated by : TG
Date started : November 23, 2016	Project : SW of Old Lakeshore & Lakeshore Rd	Compiled by : NN
Sheet No. : 1 of 1	Location : Burlington, Ontario	Checked by : JC

Position : E: 598019, N: 4797817 (UTM 17T) Elevation Datum : Geodetic (NAD83)

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	79.6	**GROUND SURFACE**				
0	79.4	50mm **ASPHALTIC CONCRETE**				
	0.2	100mm **AGGREGATE**				
		FILL, sand, some silt to silty, trace gravel, trace clay, compact, reddish brown, moist		1	SS	16
1				2	SS	15
	78.1					
	1.5	**CLAYEY SILT**, some sand, trace gravel, hydrocarbon odour, firm, reddish brown, moist (GLACIAL TILL)		3	SS	6
2	77.3					
	2.3	**INFERRED BEDROCK**, shale, red, weathered (QUEENSTON FORMATION)		4	SS	97 / 275mm
3				5	SS	50 / 75mm
4				6	SS	50 / 25mm
5						
6	73.5			7	SS	50 / 25mm
	6.1	**END OF BOREHOLE**				

Elevation Scale (m): 79, 78, 77, 76, 75, 74

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) Natural Water Content (MC) Liquid Limit (LL) — 10 20 30

Headspace Vapour (ppm):
- PID: <5
- PID: <5
- PID: 3250
- PID: 2950
- PID: 270
- PID: 45

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

2 10 59 29

...at 4.0m, heavy grinding to 4.3m

Unstabilized water level measured at 4.9 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

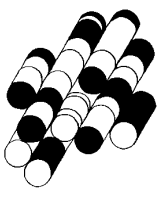
WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Dec 8, 2016	2.2	77.4
Dec 19, 2016	2.1	77.5
Dec 17, 2018	1.7	77.9
Mar 15, 2019	1.6	78.0
Apr 6, 2019	1.6	78.0
Apr 16, 2019	1.6	78.0

file: 1-16-0680-01 bh logs.gpj

APPENDIX F

TERRAPROBE INC.



Terraprobe

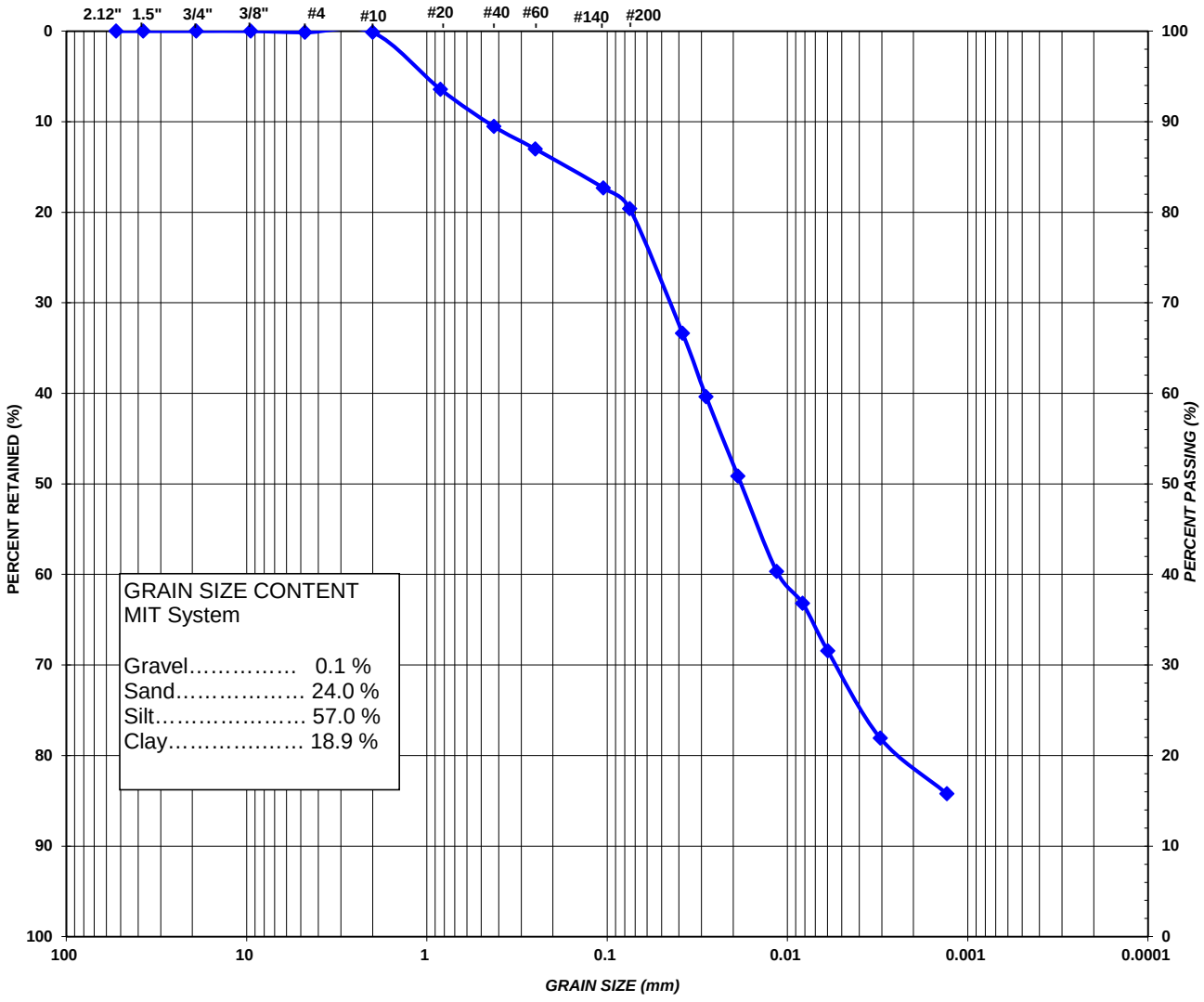
SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **2107 & 2119 Old Lakeshore Road**
LOCATION: **Burlington, Ontario**
CLIENT: **Old Lakeshore Burlington Inc.**
BOREHOLE: **101**
SAMPLE NUMBER: **4**
SAMPLE DEPTH:
SAMPLE DESCRIPTION: **Sandy Silt some Clay**

FILE NO.: **7-19-0023-42**
LAB NO.: **S3212**
SAMPLE DATE: **April 4, 2019**
SAMPLED BY: **K.G.**

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL		COARSE	MEDIUM	FINE	SILT	CLAY
			SAND				
UNIFIED SYSTEM	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY	
	GRAVEL		SAND				

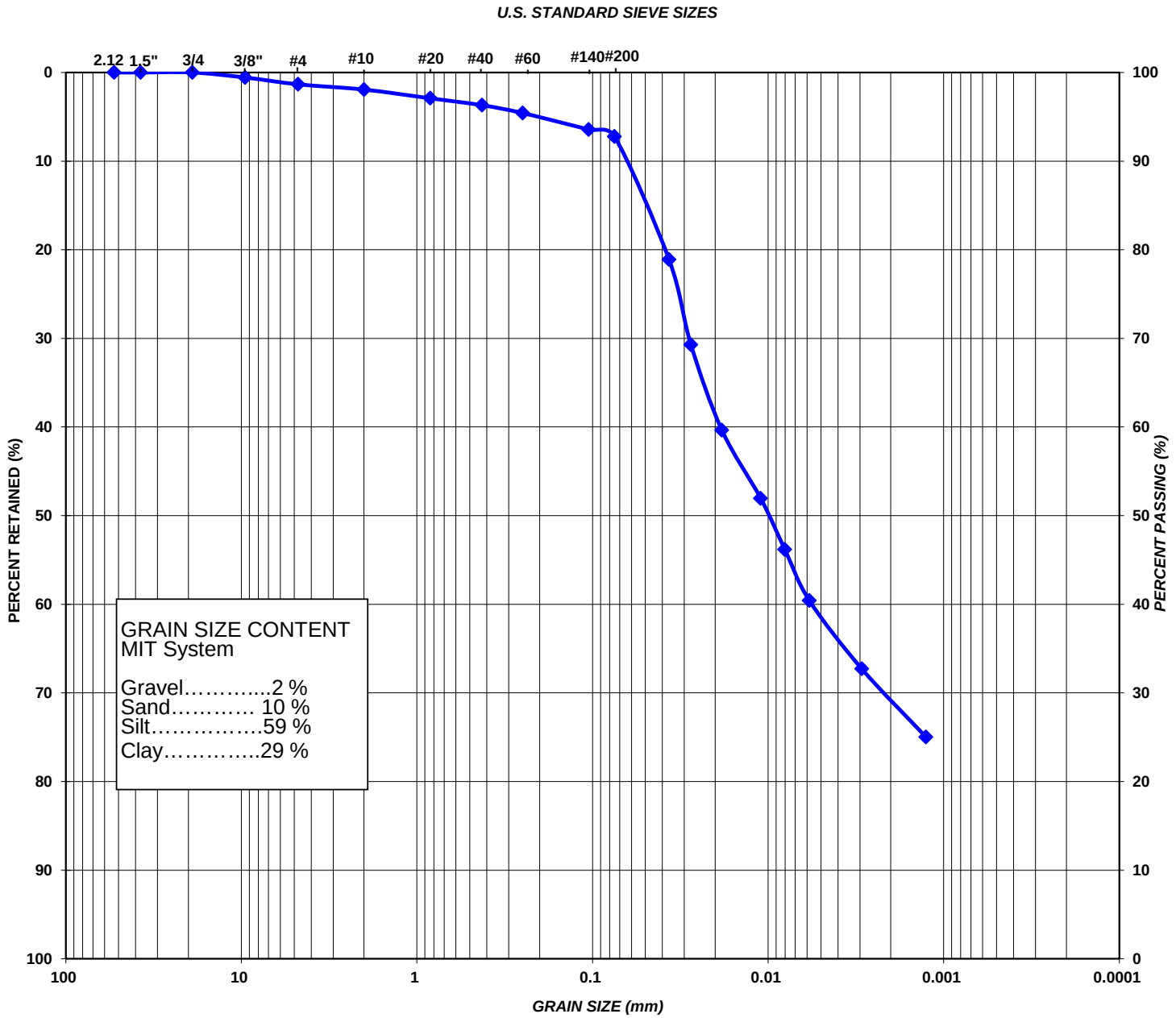
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **Southwest of Old Lakeshore & Lakeshore Roads**
LOCATION: **Burlington, On.**
CLIENT: **Carriage Gate Homes**
BOREHOLE: **2**
SAMPLE NUMBER: **3**
SAMPLE DEPTH: **5' - 6'6"**
SAMPLE DESCRIPTION: **CLAYEY SILT, trace sand, trace gravel**

FILE NO.: **1-16-0680-01**
LAB NO.: **1296**
SAMPLE DATE: **Nov 25, 2016**
SAMPLED BY: **T.G.**

GRAIN SIZE DISTRIBUTION



MIT SYSTEM	GRAVEL		COARSE	MEDIUM	FINE	SILT	CLAY
			SAND				
UNIFIED SYSTEM ASTM D2487	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY	
	GRAVEL		SAND				

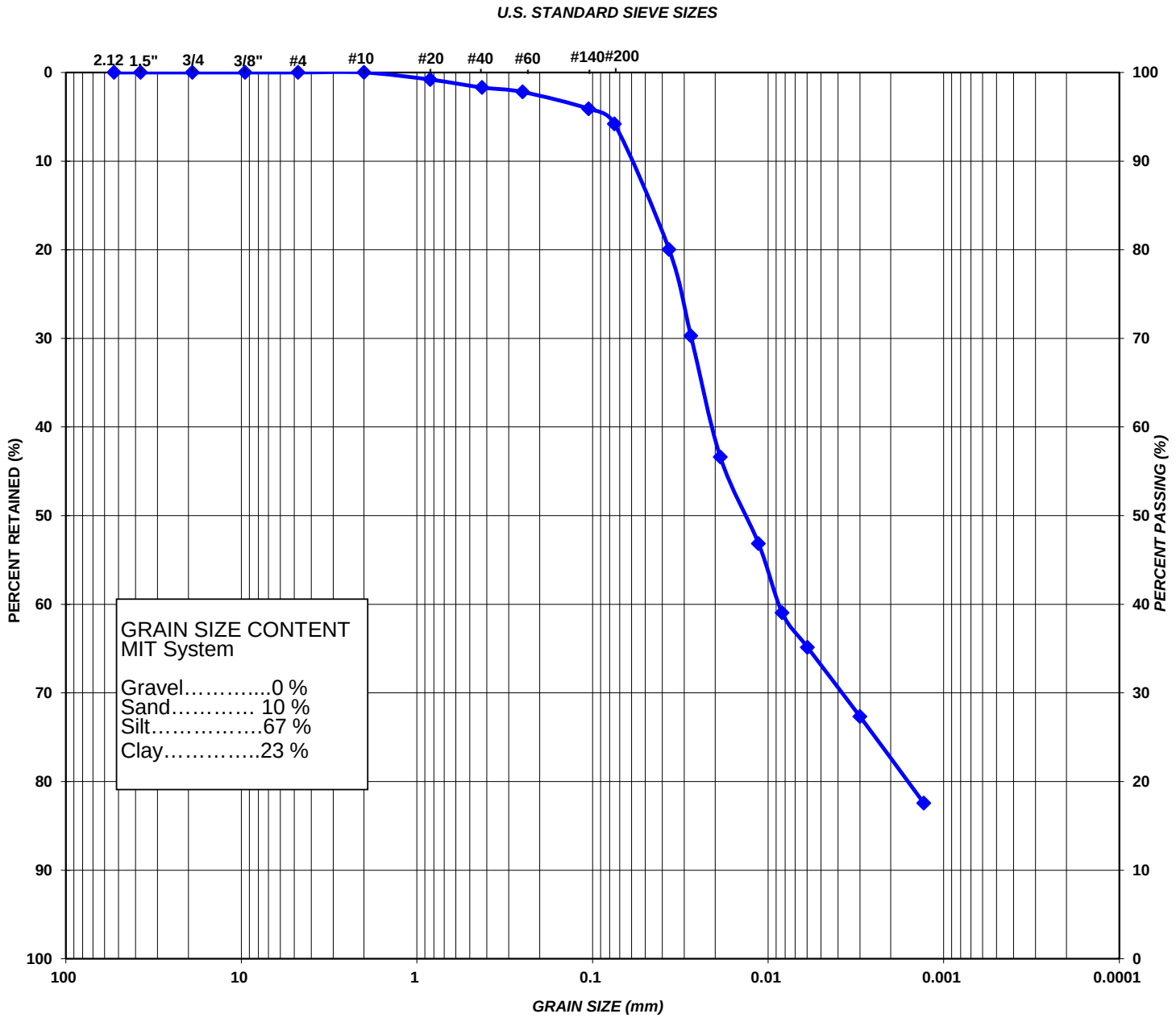
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **Southwest of Old Lakeshore & Lakeshore Roads**
LOCATION: **Burlington, On.**
CLIENT: **Carriage Gate Homes**
BOREHOLE: **2**
SAMPLE NUMBER: **4**
SAMPLE DEPTH: **5' - 6'6"**
SAMPLE DESCRIPTION: **CLAYEY SILT, some sand**

FILE NO.: **1-16-0680-01**
LAB NO.: **1295**
SAMPLE DATE: **Nov 25, 2016**
SAMPLED BY: **T.G.**

GRAIN SIZE DISTRIBUTION

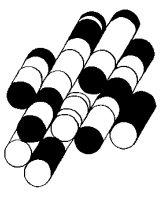


MIT SYSTEM	GRAVEL	COARSE	MEDIUM	FINE	SILT	CLAY
		SAND				

UNIFIED SYSTEM ASTM D2487	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY
	GRAVEL		SAND			

APPENDIX G

TERRAPROBE INC.



AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC
903 Barton Street
Stoney Creek, ON L8E5P5
(905) 643-7560

ATTENTION TO: Amber Brooks

PROJECT: 7-19-0023-42

AGAT WORK ORDER: 19H450728

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Apr 09, 2019

PAGES (INCLUDING COVER): 20

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2019-03-27

DATE REPORTED: 2019-04-09

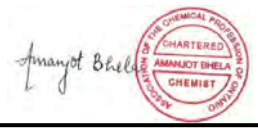
		SAMPLE DESCRIPTION:		BH101 SA2	BH102 SA1	BH103 SA2	BH103 SA3	BH104 SA3	BH105 SA2	Dup 2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-03-26	2019-03-25	2019-03-26	2019-03-26	2019-03-25	2019-03-26	2019-03-25
Parameter	Unit	G / S	RDL	9997055	9997058	9998823	9998848	9998852	9999261	9999267
Antimony	µg/g	7.5	0.8	<0.8	<0.8	1.4	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	6	5	6	4	3	5	3
Barium	µg/g	390	2	97	45	153	126	127	103	67
Beryllium	µg/g	4	0.5	0.6	0.5	0.6	0.9	0.7	0.9	<0.5
Boron	µg/g	120	5	10	7	10	19	10	12	6
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.11	0.22	0.44	0.42	1.23	0.25	0.71
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	20	16	18	22	17	19	9
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	µg/g	22	0.5	12.3	6.1	9.1	12.3	8.0	11.7	4.4
Copper	µg/g	140	1	51	23	56	8	19	19	21
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Electrical Conductivity	mS/cm	0.7	0.005	0.358	0.612	**0.889**	0.453	**0.714**	**1.41**	0.612
Lead	µg/g	120	1	8	11	**177**	11	58	11	75
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	0.12
Molybdenum	µg/g	6.9	0.5	0.8	1.6	0.9	0.9	1.0	0.7	0.7
Nickel	µg/g	100	1	27	14	20	29	18	22	10
Selenium	µg/g	2.4	0.4	<0.4	<0.4	<0.4	0.9	0.8	<0.4	0.6
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sodium Adsorption Ratio	NA	5	NA	3.05	**10.9**	**13.4**	**11.9**	**6.16**	**6.79**	**7.06**
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.5	0.6	0.5	0.5	0.9	0.9	<0.5
Vanadium	µg/g	86	1	27	21	26	29	24	27	18
Zinc	µg/g	340	5	55	39	**456**	60	103	58	82
pH, 2:1 CaCl2 Extraction	pH Units		NA	8.24	8.13	7.93	7.98	7.43	7.73	7.45

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9997055-9999267 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 COOPERS AVENUE
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Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Excluding Hydrides) (Soil)

DATE RECEIVED: 2019-03-27

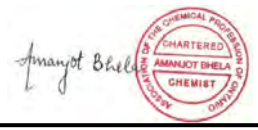
DATE REPORTED: 2019-04-09

		SAMPLE DESCRIPTION:		BH102 SA3	BH104 SA4	BH105 SA3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2019-03-25	2019-03-25	2019-03-26
Parameter	Unit	G / S	RDL	9997061	9999227	9999263
Barium	µg/g	390	2	69	134	56
Beryllium	µg/g	4	0.5	0.7	1.0	0.9
Boron	µg/g	120	5	12	16	18
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	21	25	20
Cobalt	µg/g	22	0.5	11.9	12.3	12.4
Copper	µg/g	140	1	12	16	22
Lead	µg/g	120	1	17	23	10
Molybdenum	µg/g	6.9	0.5	0.9	1.2	0.8
Nickel	µg/g	100	1	22	27	27
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.5	1.2	0.7
Vanadium	µg/g	86	1	25	31	26
Zinc	µg/g	340	5	61	76	63

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - ORPs (Soil)

DATE RECEIVED: 2019-03-27

DATE REPORTED: 2019-04-09

		SAMPLE DESCRIPTION:		BH102 SA3	BH104 SA4	BH105 SA3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2019-03-25	2019-03-25	2019-03-26
Parameter	Unit	G / S	RDL	9997061	9999227	9999263
Electrical Conductivity	mS/cm	0.7	0.005	**1.16**	**0.767**	**0.816**
Sodium Adsorption Ratio	NA	5	NA	**11.3**	**5.48**	1.96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9997061-9999263 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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CANADA L4Z 1Y2
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Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2019-03-27

DATE REPORTED: 2019-04-09

		SAMPLE DESCRIPTION:		BH101 SA2	BH102 SA1	BH103 SA1	BH103 SA3	BH104 SA2	BH105 SA2	Dup 3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-03-26	2019-03-25	2019-03-26	2019-03-26	2019-03-25	2019-03-26	2019-03-26
Parameter	**Unit**	**G / S**	**RDL**	**9997055**	**9997058**	**9998820**	**9998848**	**9998850**	**9999261**	**9999268**
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	<0.05	0.17	<0.05	0.18	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	0.08	<0.05	0.06	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	<0.05	0.07	<0.05	0.07	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	0.06	<0.05	0.13	<0.05	<0.05
Chrysene	µg/g	7	0.05	<0.05	<0.05	0.20	<0.05	0.22	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	0.25	<0.05	0.39	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05	0.05	<0.05	0.05	<0.05	<0.05
Moisture Content	%		0.1	16.1	11.8	15.4	9.6	12.5	16.6	12.9
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	<0.05	0.16	<0.05	0.27	<0.05	<0.05
Pyrene	µg/g	78	0.05	<0.05	<0.05	0.31	<0.05	0.39	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	<0.05	0.20	<0.05	<0.05
Surrogate	**Unit**	**Acceptable Limits**								
Chrysene-d12	%	50-140		79	84	94	73	86	71	70

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9997055-9999268 Results are based on the dry weight of the soil.
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)

DATE RECEIVED: 2019-03-27 **DATE REPORTED: 2019-04-09**

		SAMPLE DESCRIPTION:		BH102 SA3	BH102 SA4	BH103 SA2	BH104 SA3	BH104 SA4	BH104 SA5	BH105 SA3	Dup 1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-03-25	2019-03-25	2019-03-26	2019-03-25	2019-03-25	2019-03-25	2019-03-26	2019-03-26
Parameter	**Unit**	**G / S**	**RDL**	9997061	9997071	9998823	9998852	9999227	9999230	9999263	9999266
F1 (C6 to C10)	µg/g	55	5	**2000**	34	<5	**230**	**740**	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	**2000**	31	<5	**210**	**380**	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	37	11	<10	20	18	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	81	<50	<50	64	74	<50	<50	**310**
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	15.1	11.4	19.7	17.5	18.7	10.5	13.7	19.9
Surrogate	**Unit**	**Acceptable Limits**									
Terphenyl	%	60-140		98	90	115	97	110	109	118	100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9997061-9999266 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified without the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)

DATE RECEIVED: 2019-03-27 **DATE REPORTED: 2019-04-09**

		SAMPLE DESCRIPTION:		BH103 SA3
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-03-26
Parameter	**Unit**	**G / S**	**RDL**	**9998848**
F1 (C6 to C10)	µg/g	55	5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5
F2 (C10 to C16)	µg/g	98	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	300	50	300
F3 (C16 to C34) minus PAHs	µg/g		50	300
F4 (C34 to C50)	µg/g	2800	50	70
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA
Moisture Content	%		0.1	9.6
Surrogate	**Unit**	**Acceptable Limits**		
Terphenyl	%	60-140		100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9998848 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2019-03-27

DATE REPORTED: 2019-04-09

SAMPLE DESCRIPTION:				BH102 SA3	BH102 SA4	BH103 SA2	BH103 SA3	BH104 SA3	BH104 SA4	BH104 SA5	BH105 SA3
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2019-03-25	2019-03-25	2019-03-26	2019-03-26	2019-03-25	2019-03-25	2019-03-25	2019-03-26
Parameter	Unit	G / S	RDL	9997061	9997071	9998823	9998848	9998852	9999227	9999230	9999263
Acetone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.32	0.02	<0.02	<0.02	0.25	<0.02	**2.9**	**24**	**0.51**	<0.02
Bromodichloromethane	ug/g	18	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.61	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.21	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	ug/g	0.47	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Cis- 1,2-Dichloroethylene	ug/g	55	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	ug/g	13	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	6.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	ug/g	0.064	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	ug/g	0.16	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropene	µg/g	0.18	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylbenzene	ug/g	9.5	0.05	8.9	0.51	0.17	<0.05	6.5	**55**	0.58	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Methyl Ethyl Ketone	ug/g	70	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	31	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	ug/g	11	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	34	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.087	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	4.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	ug/g	68	0.05	<0.05	<0.05	0.20	<0.05	3.2	63	0.30	<0.05

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2019-03-27 **DATE REPORTED: 2019-04-09**

		SAMPLE DESCRIPTION:		BH102 SA3	BH102 SA4	BH103 SA2	BH103 SA3	BH104 SA3	BH104 SA4	BH104 SA5	BH105 SA3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-03-25	2019-03-25	2019-03-26	2019-03-26	2019-03-25	2019-03-25	2019-03-25	2019-03-26
Parameter	**Unit**	**G / S**	**RDL**	**9997061**	**9997071**	**9998823**	**9998848**	**9998852**	**9999227**	**9999230**	**9999263**
Trans- 1,2-Dichloroethylene	ug/g	1.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	ug/g	6.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	ug/g	0.91	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.032	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Xylene Mixture	ug/g	26	0.05	22	2.2	0.59	<0.05	9.4	**220**	2.1	0.14
m & p-Xylene	ug/g		0.05	20	1.8	0.51	<0.05	8.0	150	1.8	0.14
n-Hexane	µg/g	46	0.05	**310**	4.8	0.39	0.34	9.6	**150**	0.18	0.29
o-Xylene	ug/g		0.05	2.4	0.38	0.08	<0.05	1.4	66	0.32	<0.05
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	% Recovery	50-140		89	100	93	95	94	118	104	94
Toluene-d8	% Recovery	50-140		89	102	103	104	100	105	101	99

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AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2019-03-27

DATE REPORTED: 2019-04-09

		SAMPLE DESCRIPTION:		Dup 1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-03-26
Parameter	Unit	G / S	RDL	9999266
Acetone	ug/g	16	0.50	<0.50
Benzene	ug/g	0.32	0.02	0.26
Bromodichloromethane	ug/g	18	0.05	<0.05
Bromoform	ug/g	0.61	0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05
Carbon Tetrachloride	ug/g	0.21	0.05	<0.05
Chlorobenzene	ug/g	2.4	0.05	<0.05
Chloroform	ug/g	0.47	0.04	<0.04
Cis- 1,2-Dichloroethylene	ug/g	55	0.02	<0.02
Dibromochloromethane	ug/g	13	0.05	<0.05
1,3-Dichlorobenzene	ug/g	9.6	0.05	<0.05
1,2-Dichlorobenzene	ug/g	6.8	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.2	0.05	<0.05
Dichlorodifluoromethane	µg/g	16	0.05	<0.05
1,1-Dichloroethane	ug/g	17	0.02	<0.02
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1-Dichloroethylene	ug/g	0.064	0.05	<0.05
1,2-Dichloropropane	ug/g	0.16	0.03	<0.03
1,3-Dichloropropene	µg/g	0.18	0.04	<0.04
Ethylbenzene	ug/g	9.5	0.05	0.13
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Methyl Ethyl Ketone	ug/g	70	0.50	<0.50
Methyl Isobutyl Ketone	ug/g	31	0.50	<0.50
Methyl tert-butyl Ether	ug/g	11	0.05	<0.05
Methylene Chloride	ug/g	1.6	0.05	<0.05
Styrene	ug/g	34	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.087	0.04	<0.04
Tetrachloroethylene	ug/g	4.5	0.05	<0.05
Toluene	ug/g	68	0.05	0.17

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2019-03-27 **DATE REPORTED: 2019-04-09**

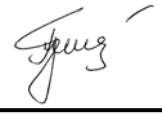
		SAMPLE DESCRIPTION:		Dup 1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-03-26
Parameter	**Unit**	**G / S**	**RDL**	**9999266**
Trans- 1,2-Dichloroethylene	ug/g	1.3	0.05	<0.05
1,1,1-Trichloroethane	ug/g	6.1	0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Trichloroethylene	ug/g	0.91	0.03	<0.03
Trichlorofluoromethane	ug/g	4	0.05	<0.05
Vinyl Chloride	ug/g	0.032	0.02	<0.02
Xylene Mixture	ug/g	26	0.05	0.47
m & p-Xylene	ug/g		0.05	0.39
n-Hexane	µg/g	46	0.05	0.51
o-Xylene	ug/g		0.05	0.08
Surrogate	**Unit**	**Acceptable Limits**		
4-Bromofluorobenzene	% Recovery	50-140		96
Toluene-d8	% Recovery	50-140		100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Industrial/Commercial/Community Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9997061-9999266 The sample was analyzed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Guideline Violation

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9997058	BH102 SA1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	10.9
9997061	BH102 SA3	ON T3 S ICC CT	O. Reg. 153(511) - VOCs (Soil)	n-Hexane	µg/g	46	310
9997061	BH102 SA3	ON T3 S RPI CT	O. Reg. 153(511) - ORPs (Soil)	Electrical Conductivity	mS/cm	0.7	1.16
9997061	BH102 SA3	ON T3 S RPI CT	O. Reg. 153(511) - ORPs (Soil)	Sodium Adsorption Ratio	NA	5	11.3
9997061	BH102 SA3	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)	F1 (C6 to C10)	µg/g	55	2000
9997061	BH102 SA3	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)	F1 (C6 to C10) minus BTEX	µg/g	55	2000
9998823	BH103 SA2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.7	0.889
9998823	BH103 SA2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Lead	µg/g	120	177
9998823	BH103 SA2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	13.4
9998823	BH103 SA2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Zinc	µg/g	340	456
9998848	BH103 SA3	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	11.9
9998852	BH104 SA3	ON T3 S ICC CT	O. Reg. 153(511) - VOCs (Soil)	Benzene	ug/g	0.32	2.9
9998852	BH104 SA3	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.7	0.714
9998852	BH104 SA3	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	6.16
9998852	BH104 SA3	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)	F1 (C6 to C10)	µg/g	55	230
9998852	BH104 SA3	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)	F1 (C6 to C10) minus BTEX	µg/g	55	210
9999227	BH104 SA4	ON T3 S ICC CT	O. Reg. 153(511) - VOCs (Soil)	Benzene	ug/g	0.32	24
9999227	BH104 SA4	ON T3 S ICC CT	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	ug/g	9.5	55
9999227	BH104 SA4	ON T3 S ICC CT	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	ug/g	26	220
9999227	BH104 SA4	ON T3 S ICC CT	O. Reg. 153(511) - VOCs (Soil)	n-Hexane	µg/g	46	150
9999227	BH104 SA4	ON T3 S RPI CT	O. Reg. 153(511) - ORPs (Soil)	Electrical Conductivity	mS/cm	0.7	0.767
9999227	BH104 SA4	ON T3 S RPI CT	O. Reg. 153(511) - ORPs (Soil)	Sodium Adsorption Ratio	NA	5	5.48
9999227	BH104 SA4	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)	F1 (C6 to C10)	µg/g	55	740
9999227	BH104 SA4	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)	F1 (C6 to C10) minus BTEX	µg/g	55	380
9999230	BH104 SA5	ON T3 S ICC CT	O. Reg. 153(511) - VOCs (Soil)	Benzene	ug/g	0.32	0.51
9999261	BH105 SA2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.7	1.41
9999261	BH105 SA2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	6.79
9999263	BH105 SA3	ON T3 S RPI CT	O. Reg. 153(511) - ORPs (Soil)	Electrical Conductivity	mS/cm	0.7	0.816
9999266	Dup 1	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)	F3 (C16 to C34)	µg/g	300	310
9999267	Dup 2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	7.06

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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

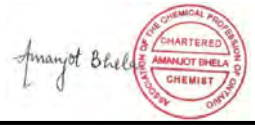
RPT Date: Apr 09, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	9990059		4.2	4.2	0.0%	< 0.8	118%	70%	130%	106%	80%	120%	84%	70%	130%
Arsenic	9990059		11	12	8.7%	< 1	105%	70%	130%	108%	80%	120%	107%	70%	130%
Barium	9990059		401	426	6.0%	< 2	100%	70%	130%	98%	80%	120%	104%	70%	130%
Beryllium	9990059		0.8	0.7	NA	< 0.5	127%	70%	130%	97%	80%	120%	103%	70%	130%
Boron	9990059		11	12	NA	< 5	81%	70%	130%	100%	80%	120%	91%	70%	130%
Boron (Hot Water Soluble)	101654		0.15	0.14	NA	< 0.10	107%	60%	140%	96%	70%	130%	93%	60%	140%
Cadmium	9990059		0.6	0.7	NA	< 0.5	107%	70%	130%	103%	80%	120%	102%	70%	130%
Chromium	9990059		23	20	14.0%	< 2	85%	70%	130%	96%	80%	120%	81%	70%	130%
Chromium VI	104677		<0.2	<0.2	NA	< 0.2	108%	70%	130%	101%	80%	120%	93%	70%	130%
Cobalt	9990059		7.0	7.0	0.0%	< 0.5	89%	70%	130%	98%	80%	120%	94%	70%	130%
Copper	9990059		116	116	0.0%	< 1	85%	70%	130%	105%	80%	120%	100%	70%	130%
Cyanide	104677		<0.040	<0.040	NA	< 0.040	93%	70%	130%	92%	80%	120%	90%	70%	130%
Electrical Conductivity	101654		0.603	0.564	6.7%	< 0.005	103%	90%	110%	NA			NA		
Lead	9990059		1560	1930	21.2%	< 1	101%	70%	130%	95%	80%	120%	93%	70%	130%
Mercury	9990059		0.19	0.16	NA	< 0.10	103%	70%	130%	100%	80%	120%	100%	70%	130%
Molybdenum	9990059		2.6	2.2	NA	< 0.5	94%	70%	130%	109%	80%	120%	101%	70%	130%
Nickel	9990059		23	24	4.3%	< 1	93%	70%	130%	104%	80%	120%	97%	70%	130%
Selenium	9990059		1.9	0.9	NA	< 0.4	96%	70%	130%	105%	80%	120%	99%	70%	130%
Silver	9990059		0.3	0.3	NA	< 0.2	128%	70%	130%	99%	80%	120%	98%	70%	130%
Sodium Adsorption Ratio	101654		0.228	0.235	3.0%	NA	NA								
Thallium	9990059		<0.4	<0.4	NA	< 0.4	94%	70%	130%	104%	80%	120%	95%	70%	130%
Uranium	9990059		0.8	0.7	NA	< 0.5	99%	70%	130%	97%	80%	120%	96%	70%	130%
Vanadium	9990059		27	26	3.8%	< 1	89%	70%	130%	102%	80%	120%	101%	70%	130%
Zinc	9990059		357	370	3.6%	< 5	98%	70%	130%	104%	80%	120%	102%	70%	130%
pH, 2:1 CaCl2 Extraction	104677		11.6	11.6	0.0%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
Duplicate Qualifier: 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

O. Reg. 153(511) - ORPs (Soil)															
Electrical Conductivity	112013		1.08	1.10	1.8%	< 0.005	104%	90%	110%	NA			NA		
Sodium Adsorption Ratio	112013		1.53	1.43	6.8%	NA	NA			NA			NA		

Comments: NA signifies Not Applicable.

Certified By:



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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Apr 09, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)															
F1 (C6 to C10)	9991701		< 5	< 5	NA	< 5	110%	60%	130%	93%	85%	115%	80%	70%	130%
F2 (C10 to C16)	9987796		< 10	< 10	NA	< 10	98%	60%	130%	90%	80%	120%	82%	70%	130%
F3 (C16 to C34)	9987796		< 50	< 50	NA	< 50	101%	60%	130%	89%	80%	120%	85%	70%	130%
F4 (C34 to C50)	9987796		< 50	< 50	NA	< 50	105%	60%	130%	108%	80%	120%	93%	70%	130%
O. Reg. 153(511) - VOCs (Soil)															
Acetone	9997071	9997071	< 0.50	< 0.50	NA	< 0.50	104%	50%	140%	115%	50%	140%	116%	50%	140%
Benzene	9997071	9997071	< 0.02	< 0.02	NA	< 0.02	117%	50%	140%	106%	60%	130%	119%	50%	140%
Bromodichloromethane	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	104%	60%	130%	117%	50%	140%
Bromoform	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	110%	60%	130%	116%	50%	140%
Bromomethane	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	111%	50%	140%	114%	50%	140%
Carbon Tetrachloride	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	102%	60%	130%	110%	50%	140%
Chlorobenzene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	103%	60%	130%	113%	50%	140%
Chloroform	9997071	9997071	< 0.04	< 0.04	NA	< 0.04	113%	50%	140%	108%	60%	130%	106%	50%	140%
Cis- 1,2-Dichloroethylene	9997071	9997071	< 0.02	< 0.02	NA	< 0.02	112%	50%	140%	105%	60%	130%	108%	50%	140%
Dibromochloromethane	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	117%	50%	140%	112%	60%	130%	108%	50%	140%
1,3-Dichlorobenzene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	92%	60%	130%	109%	50%	140%
1,2-Dichlorobenzene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	105%	60%	130%	103%	50%	140%
1,4-Dichlorobenzene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	96%	60%	130%	102%	50%	140%
Dichlorodifluoromethane	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	113%	50%	140%	110%	50%	140%
1,1-Dichloroethane	9997071	9997071	< 0.02	< 0.02	NA	< 0.02	113%	50%	140%	89%	60%	130%	85%	50%	140%
1,2-Dichloroethane	9997071	9997071	< 0.03	< 0.03	NA	< 0.03	107%	50%	140%	102%	60%	130%	100%	50%	140%
1,1-Dichloroethylene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	113%	60%	130%	84%	50%	140%
1,2-Dichloropropane	9997071	9997071	< 0.03	< 0.03	NA	< 0.03	112%	50%	140%	107%	60%	130%	96%	50%	140%
1,3-Dichloropropene	9997071	9997071	< 0.04	< 0.04	NA	< 0.04	85%	50%	140%	102%	60%	130%	111%	50%	140%
Ethylbenzene	9997071	9997071	0.51	0.67	27.1%	< 0.05	101%	50%	140%	115%	60%	130%	112%	50%	140%
Ethylene Dibromide	9997071	9997071	< 0.04	< 0.04	NA	< 0.04	118%	50%	140%	108%	60%	130%	104%	50%	140%
Methyl Ethyl Ketone	9997071	9997071	< 0.50	< 0.50	NA	< 0.50	118%	50%	140%	101%	50%	140%	85%	50%	140%
Methyl Isobutyl Ketone	9997071	9997071	< 0.50	< 0.50	NA	< 0.50	117%	50%	140%	100%	50%	140%	103%	50%	140%
Methyl tert-butyl Ether	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	77%	50%	140%	103%	60%	130%	79%	50%	140%
Methylene Chloride	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	113%	60%	130%	106%	50%	140%
Styrene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	80%	50%	140%	109%	60%	130%	102%	50%	140%
1,1,2,2-Tetrachloroethane	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	105%	60%	130%	107%	50%	140%
1,1,1,2-Tetrachloroethane	9997071	9997071	< 0.04	< 0.04	NA	< 0.04	113%	50%	140%	108%	60%	130%	114%	50%	140%
Tetrachloroethylene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	106%	60%	130%	115%	50%	140%
Toluene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	118%	50%	140%	112%	60%	130%	114%	50%	140%
Trans- 1,2-Dichloroethylene	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	109%	60%	130%	108%	50%	140%
1,1,1-Trichloroethane	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	118%	50%	140%	108%	60%	130%	117%	50%	140%
1,1,2-Trichloroethane	9997071	9997071	< 0.04	< 0.04	NA	< 0.04	115%	50%	140%	109%	60%	130%	116%	50%	140%
Trichloroethylene	9997071	9997071	< 0.03	< 0.03	NA	< 0.03	113%	50%	140%	101%	60%	130%	100%	50%	140%

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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Apr 09, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Trichlorofluoromethane	9997071	9997071	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	113%	50%	140%	113%	50%	140%
Vinyl Chloride	9997071	9997071	< 0.02	< 0.02	NA	< 0.02	96%	50%	140%	115%	50%	140%	117%	50%	140%
m & p-Xylene	9997071	9997071	1.8	2.1	15.4%	< 0.05	118%	50%	140%	87%	60%	130%	102%	50%	140%
n-Hexane	9997071	9997071	4.8	5.6	15.4%	< 0.05	106%	50%	140%	106%	60%	130%	95%	50%	140%
o-Xylene	9997071	9997071	0.38	0.40	5.1%	< 0.05	107%	50%	140%	108%	60%	130%	117%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)															
F2 (C10 to C16)	9998823	9998823	< 10	< 10	NA	< 10	98%	60%	130%	90%	80%	120%	82%	70%	130%
F3 (C16 to C34)	9998823	9998823	< 50	< 50	NA	< 50	101%	60%	130%	89%	80%	120%	85%	70%	130%
F4 (C34 to C50)	9998823	9998823	< 50	< 50	NA	< 50	105%	60%	130%	108%	80%	120%	93%	70%	130%
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)															
F2 (C10 to C16)	9999266	9999266	< 10	< 10	NA	< 10	91%	60%	130%	102%	80%	120%	90%	70%	130%
F3 (C16 to C34)	9999266	9999266	310	400	25.4%	< 50	103%	60%	130%	104%	80%	120%	91%	70%	130%
F4 (C34 to C50)	9999266	9999266	<50	<50	NA	< 50	92%	60%	130%	89%	80%	120%	101%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Acenaphthene	9997802		< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	100%	50%	140%	115%	50%	140%
Acenaphthylene	9997802		< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	103%	50%	140%	113%	50%	140%
Anthracene	9997802		< 0.05	< 0.05	NA	< 0.05	118%	50%	140%	101%	50%	140%	118%	50%	140%
Benz(a)anthracene	9997802		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	91%	50%	140%	116%	50%	140%
Benzo(a)pyrene	9997802		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	84%	50%	140%	83%	50%	140%
Benzo(b)fluoranthene	9997802		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	77%	50%	140%	80%	50%	140%
Benzo(g,h,i)perylene	9997802		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	80%	50%	140%	80%	50%	140%
Benzo(k)fluoranthene	9997802		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	83%	50%	140%	83%	50%	140%
Chrysene	9997802		< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	92%	50%	140%	111%	50%	140%
Dibenz(a,h)anthracene	9997802		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	92%	50%	140%	87%	50%	140%
Fluoranthene	9997802		< 0.05	< 0.05	NA	< 0.05	117%	50%	140%	98%	50%	140%	119%	50%	140%
Fluorene	9997802		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	103%	50%	140%	116%	50%	140%
Indeno(1,2,3-cd)pyrene	9997802		< 0.05	< 0.05	NA	< 0.05	117%	50%	140%	86%	50%	140%	79%	50%	140%
Naphthalene	9997802		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	98%	50%	140%	109%	50%	140%
Phenanthrene	9997802		< 0.05	< 0.05	NA	< 0.05	118%	50%	140%	100%	50%	140%	116%	50%	140%
Pyrene	9997802		< 0.05	< 0.05	NA	< 0.05	118%	50%	140%	96%	50%	140%	118%	50%	140%
2-and 1-methyl Naphthalene	9997802		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	99%	50%	140%	112%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A;SM 4500 CN	TECHNICON AUTO ANALYZER
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270	BALANCE
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P&T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	CCME Tier 1 Method	GC/FID
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC/FID
Terphenyl	VOL-91-5009		GC/FID
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H450728

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19H450728

Cooler Quantity: LG cooler

Arrival Temperatures: 5.6 | 5.5 | 5.4
5 | 4.2 | 4

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: ON ICE

Report Information:

Company:
Contact:
Address: **Terraprobe Inc.** 903 Barton Street, Unit 22, Stoney Creek, Ontario L8E 5P5
Phone: **Ph:** (905) 643-7560 **Fax:** (905) 643-7559
Attn.: Amber Brooks abrooks@terraprobe.ca

Reports to be sent to:
1. Email:
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region _____ (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
_____ (Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 7-19-0023-42
Site Location:
Sampled By: K. Greenman
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	Metals and Inorganics	O Reg 153: All Metals ☒ / Hydride Metals ☐	O Reg 153: 153 Metals (excl. Hydrides)	O Reg 153: 153 Metals (Incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☒ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
BH101 SA2	Mar 26/19	1:13	1	S	limited sample		X											X			
BH102 SA1	Mar 25/19	12:46	1	S	High PHC		X											X			
BH102 SA3	"	12:50	4	S	High PHC			X							X	X					
BH102 SA4	"	1:03	3	S	High PHC										X	X					
BH103 SA1	Mar 26/19	8:45	1	S														X			
BH103 SA2	"	8:49	4	S	limited sample		X								X	X					
DUP BH103 SA3	"	8:55	4	S			X								X	X		X			
BH104 SA2	Mar 25/19	9:15	1	S														X			
BH104 SA3	"	9:20	4	S	High PHC		X								X	X					
BH104 SA4	"	9:30	5	S	High PHC			X							X	X					
BH104 SA5	"	9:41	3	S											X	X					

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
K. Greenman	Mar 27/19	3:20	Daniella Jaic	Mar 27/19	3:23pm
DJAIC	Mar 28/19	3:25pm	John Cyryla	Mar 28	3:25
			John Cyryla	Mar 28	4:45

Page 1 of 2

No: T 081333

Document ID: DIV 78-1511.015

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Date Issued: March 16, 2018

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19H450728

Cooler Quantity: LG Cooler

Arrival Temperatures: 5.1 | 5.5 | 5.4
~~6.5~~ | 4.2 | 4

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: ON ICE

Report Information:

Company:
Contact:
Address:
Phone:

Terraprobe Inc. 903 Barton Street, Unit 22
Stoney Creek, Ontario L8E 5P5
Ph: (905) 643-7560 **Fax:** (905) 643-7559
Attn.: Amber Brooks abrooks@terraprobe.ca

Reports to be sent to:
1. Email:
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 *Indicate One*
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region _____ *Indicate One*
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other

_____ *Indicate One*

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 7-19-0023-42
Site Location:
Sampled By: K. Greenman
AGAT Quote #: PO:

Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	O. Reg 153: ☐All Metals ☒153 Metals (excl. Hydrides) ☐Hydride Metals ☐153 Metals (incl. Hydrides)	O. Reg 153: ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr^{6+} ☐EC ☐FOC ☐Hg ☐pH ☐SAR	Full Metals Scan	Regulation/Custom Metals	O. Reg 153: Nutrients: ☐TP ☐NH_3 ☐TKN ☐NO_3 ☐NO_2 ☐NO_3+NO_2	O. Reg 153: Volatiles: ☒VOC ☐BTEX ☐THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	PCBs: ☐Total ☐Aroclors	Organochlorine Pesticides	TCLP: ☐M&I ☐VOCs ☐ABNs ☐B(a)P ☐PCBs	Sewer Use
BH105 SA2	Mar 26/19	2:13	1	S			X								X				
BH105 SA3	"	2:17	4	S				X				X	X						
Dup 1	Mar 26/19	—	3	S								X	X						
Dup 2	Mar 25/19	—	1	S	High PHC		X												
Dup 3	Mar 26/19	—	1	S											X				

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
K. Greenman	Mar 27/19	3:20	Daniella Jale	Mar 27/19	3:23pm
DSPAC	Mar 28/19	3:25pm	John Chypyha	Mar 28	3:25
			John Chypyha	Mar 28	4:45

Page 2 of 2

N°: T 081334

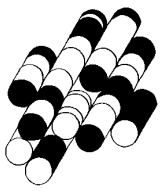
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Date Issued: March 16, 2018

APPENDIX H

TERRAPROBE INC.



AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC
903 Barton Street
Stoney Creek, ON L8E5P5
(905) 643-7560

ATTENTION TO: Amber Brooks

PROJECT: 7-19-0023-42

AGAT WORK ORDER: 19H457186

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Apr 23, 2019

PAGES (INCLUDING COVER): 18

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH101	BH2	BH102	BH103D	BH103S	BH104S	BH104D	BH105
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16
Parameter	Unit	G / S	RDL	134607	134743	134757	134758	134759	134760	134761	134762
Acenaphthene	µg/L	1700	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.24	<0.20	<0.20
Acenaphthylene	µg/L	1.8	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Anthracene	µg/L	2.4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benz(a)anthracene	µg/L	4.7	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.81	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.75	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L	0.4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenz(a,h)anthracene	µg/L	0.52	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Fluoranthene	µg/L	130	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Fluorene	µg/L	400	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.59	<0.20	<0.20
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Naphthalene	µg/L	6400	0.20	<0.20	6.9	<0.20	4.2	<0.20	93	0.45	<0.20
Phenanthrene	µg/L	580	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.27	<0.10	<0.10
Pyrene	µg/L	68	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	1800	0.20	<0.20	2.2	<0.20	0.62	<0.20	51	0.34	<0.20
Surrogate	Unit	Acceptable Limits									
Chrysene-d12	%	50-140		93	94	92	88	88	83	90	96

Certified By:

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AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		Dup 1
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2019-04-16
Parameter	Unit	G / S	RDL	134763
Acenaphthene	µg/L	1700	0.20	<0.20
Acenaphthylene	µg/L	1.8	0.20	<0.20
Anthracene	µg/L	2.4	0.10	<0.10
Benz(a)anthracene	µg/L	4.7	0.20	<0.20
Benzo(a)pyrene	µg/L	0.81	0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.75	0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20
Benzo(k)fluoranthene	µg/L	0.4	0.10	<0.10
Chrysene	µg/L	1	0.10	<0.10
Dibenz(a,h)anthracene	µg/L	0.52	0.20	<0.20
Fluoranthene	µg/L	130	0.20	<0.20
Fluorene	µg/L	400	0.20	<0.20
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20
Naphthalene	µg/L	6400	0.20	4.1
Phenanthrene	µg/L	580	0.10	<0.10
Pyrene	µg/L	68	0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	1800	0.20	0.68
Surrogate	Unit	Acceptable Limits		
Chrysene-d12	%	50-140		81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

134607-134763 Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH2	BH102	BH103D	BH103S	BH104S	BH104D	BH105	Dup 1
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16	2019-04-16
Parameter	Unit	G / S	RDL	134743	134757	134758	134759	134760	134761	134762	134763
F1 (C6 to C10) minus BTEX	µg/L	750	25	220	28	230	<25	700	33	<25	160
F1 (C6-C10)	µg/L	750	25	380	54	1100	42	19000	78	<25	1000
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100	<100	300	<100	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	<100	<100	<100	210	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	<100	<100	<100	<100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	<500	NA	NA	NA	NA	NA
Surrogate	Unit	Acceptable Limits									
Terphenyl	%	60-140		80	85	81	78	89	81	82	69

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

134743-134763 The C6-C10 fraction is calculated using toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH2	BH102	BH103D	BH103S		BH104S		BH104D
		SAMPLE TYPE:		Water	Water	Water	Water		Water		Water
		DATE SAMPLED:		2019-04-16	2019-04-16	2019-04-16	2019-04-16		2019-04-16		2019-04-16
Parameter	Unit	G / S	RDL	134743	134757	134758	134759	RDL	134760	RDL	134761
Acetone	µg/L	130000	1.0	<1.0	<1.0	<1.0	<1.0	10.0	<10.0	1.0	<1.0
Benzene	µg/L	430	0.20	0.98	2.0	54	<0.20	2.00	2500	0.20	3.3
Bromodichloromethane	µg/L	85000	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Bromoform	µg/L	770	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
Bromomethane	µg/L	56	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Carbon Tetrachloride	µg/L	8.4	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Chlorobenzene	µg/L	630	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
Chloroform	µg/L	22	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Dibromochloromethane	µg/L	82000	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
1,4-Dichlorobenzene	µg/L	67	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
1,2-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
1,3-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
Dichlorodifluoromethane	µg/L	4400	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
1,2-Dichloroethane	µg/L	12	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
1,1-Dichloroethane	µg/L	3100	0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30
1,1-Dichloroethylene	µg/L	17	0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30
1,2-Dichloropropane	µg/L	140	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
1,3-Dichloropropene	µg/L	45	0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30
Ethylbenzene	µg/L	2300	0.10	57	8.7	230	3.1	1.00	1000	0.10	9.3
Ethylene Dibromide	µg/L	0.83	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
Methyl Ethyl Ketone	µg/L	1500000	1.0	<1.0	<1.0	<1.0	<1.0	10.0	<10.0	1.0	<1.0
Methyl Isobutyl Ketone	µg/L	580000	1.0	<1.0	<1.0	<1.0	<1.0	10.0	<10.0	1.0	<1.0
Methyl tert-butyl ether	µg/L	1400	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Methylene Chloride	µg/L	5500	0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30
Styrene	µg/L	9100	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
1,1,1,2-Tetrachloroethane	µg/L	28	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	15	0.10	<0.10	<0.10	<0.10	<0.10	1.00	<1.00	0.10	<0.10
Tetrachloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Toluene	µg/L	18000	0.20	2.6	4.3	220	5.6	2.00	9500	0.20	5.7
1,1,2-Trichloroethane	µg/L	30	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20

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AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH2	BH102	BH103D	BH103S		BH104S		BH104D
		SAMPLE TYPE:		Water	Water	Water	Water		Water		Water
		DATE SAMPLED:		2019-04-16	2019-04-16	2019-04-16	2019-04-16		2019-04-16		2019-04-16
Parameter	Unit	G / S	RDL	134743	134757	134758	134759	RDL	134760	RDL	134761
1,1,1-Trichloroethane	µg/L	6700	0.30	<0.30	<0.30	<0.30	<0.30	3.00	<3.00	0.30	<0.30
Trichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Trichlorofluoromethane	µg/L	2500	0.40	<0.40	<0.40	<0.40	<0.40	4.00	<4.00	0.40	<0.40
Vinyl Chloride	µg/L	1.7	0.17	<0.17	<0.17	<0.17	<0.17	1.70	<1.70	0.17	<0.17
Xylene Mixture	µg/L	4200	0.20	98	11	370	24	2.00	5300	0.20	26
cis- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
m & p-Xylene	µg/L		0.20	75	7.5	280	15	2.00	3700	0.20	20
n-Hexane	µg/L	520	0.20	5.2	0.77	11	<0.20	2.00	99	0.20	4.1
o-Xylene	µg/L		0.10	23	3.5	85	9.4	1.00	1600	0.10	6.3
trans- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20	2.00	<2.00	0.20	<0.20
Surrogate	Unit	Acceptable Limits									
4-Bromofluorobenzene	% Recovery	50-140		92	106	107	106		101		106
Toluene-d8	% Recovery	50-140		113	97	109	99		108		101

Certified By:

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AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH105	Dup 1	Trip Blank
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2019-04-16	2019-04-16	2019-04-16
Parameter	Unit	G / S	RDL	134762	134763	134774
Acetone	µg/L	130000	1.0	<1.0	<1.0	<1.0
Benzene	µg/L	430	0.20	<0.20	55	<0.20
Bromodichloromethane	µg/L	85000	0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	770	0.10	<0.10	<0.10	<0.10
Bromomethane	µg/L	56	0.20	<0.20	<0.20	<0.20
Carbon Tetrachloride	µg/L	8.4	0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	630	0.10	<0.10	<0.10	<0.10
Chloroform	µg/L	22	0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	82000	0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	67	0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10
Dichlorodifluoromethane	µg/L	4400	0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	12	0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	3100	0.30	<0.30	<0.30	<0.30
1,1-Dichloroethylene	µg/L	17	0.30	<0.30	<0.30	<0.30
1,2-Dichloropropane	µg/L	140	0.20	<0.20	<0.20	<0.20
1,3-Dichloropropene	µg/L	45	0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2300	0.10	<0.10	210	<0.10
Ethylene Dibromide	µg/L	0.83	0.10	<0.10	<0.10	<0.10
Methyl Ethyl Ketone	µg/L	1500000	1.0	<1.0	<1.0	<1.0
Methyl Isobutyl Ketone	µg/L	580000	1.0	<1.0	<1.0	<1.0
Methyl tert-butyl ether	µg/L	1400	0.20	<0.20	<0.20	<0.20
Methylene Chloride	µg/L	5500	0.30	<0.30	<0.30	<0.30
Styrene	µg/L	9100	0.10	<0.10	<0.10	<0.10
1,1,1,2-Tetrachloroethane	µg/L	28	0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	15	0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20
Toluene	µg/L	18000	0.20	<0.20	210	<0.20
1,1,2-Trichloroethane	µg/L	30	0.20	<0.20	<0.20	<0.20

Certified By:

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AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH105	Dup 1	Trip Blank
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2019-04-16	2019-04-16	2019-04-16
Parameter	Unit	G / S	RDL	134762	134763	134774
1,1,1-Trichloroethane	µg/L	6700	0.30	<0.30	<0.30	<0.30
Trichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	2500	0.40	<0.40	<0.40	<0.40
Vinyl Chloride	µg/L	1.7	0.17	<0.17	<0.17	<0.17
Xylene Mixture	µg/L	4200	0.20	<0.20	360	<0.20
cis- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20
m & p-Xylene	µg/L		0.20	<0.20	270	<0.20
n-Hexane	µg/L	520	0.20	<0.20	11	<0.20
o-Xylene	µg/L		0.10	<0.10	94	<0.10
trans- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits				
4-Bromofluorobenzene	% Recovery	50-140		91	108	89
Toluene-d8	% Recovery	50-140		96	108	93

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

134743-134759 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.

134760 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
Dilution factor=10
The sample was diluted to keep the target compounds in the calibration range of the instrument and avoid contaminating the Purge and Trap system. The reporting detection limit has been corrected for the dilution factor used.

134761-134774 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - Metals & Inorganics (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH101		BH2		BH102	BH103D		BH103S
		SAMPLE TYPE:		Water		Water		Water	Water		Water
		DATE SAMPLED:		2019-04-16		2019-04-16		2019-04-16	2019-04-16		2019-04-16
Parameter	Unit	G / S	RDL	134607	RDL	134743	RDL	134757	134758	RDL	134759
Antimony	µg/L	20000	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	<1.0
Arsenic	µg/L	1900	1.0	<1.0	1.0	22.1	1.0	2.6	4.1	1.0	<1.0
Barium	µg/L	29000	2.0	162	2.0	1400	2.0	69.7	547	2.0	525
Beryllium	µg/L	67	0.5	<0.5	0.5	<0.5	0.5	<0.5	<0.5	0.5	<0.5
Boron	µg/L	45000	10.0	62.5	10.0	141	10.0	1720	751	10.0	93.0
Cadmium	µg/L	2.7	0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	0.2	<0.2
Chloride	µg/L	2300000	2000	669000	10000	2170000	2000	533000	666000	5000	1400000
Chromium	µg/L	810	2.0	6.6	2.0	29.0	2.0	11.1	17.7	2.0	16.1
Chromium VI	µg/L	140	5	<5	5	<5	5	<5	<5	5	<5
Cobalt	µg/L	66	0.5	0.7	0.5	2.3	0.5	0.8	0.6	0.5	1.1
Copper	µg/L	87	1.0	2.3	1.0	3.3	1.0	2.6	<1.0	1.0	2.0
Cyanide	µg/L	66	2	<2	2	<2	2	<2	<2	2	<2
Electrical Conductivity	uS/cm		2	2420	2	7500	2	2790	2810	2	5080
Lead	µg/L	25	0.5	<0.5	0.5	5.5	0.5	1.6	<0.5	0.5	1.4
Mercury	µg/L		0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.02	0.02	<0.02
Molybdenum	µg/L	9200	0.5	5.5	0.5	6.5	0.5	10.4	6.3	0.5	2.5
Nickel	µg/L	490	1.0	1.5	1.0	5.3	1.0	2.2	1.0	1.0	2.7
Selenium	µg/L	63	1.0	8.6	1.0	7.9	1.0	6.0	6.3	1.0	<1.0
Silver	µg/L	1.5	0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	0.2	<0.2
Sodium	µg/L	2300000	2500	203000	5000	1320000	2500	134000	140000	5000	679000
Thallium	µg/L	510	0.3	<0.3	0.3	<0.3	0.3	<0.3	<0.3	0.3	<0.3
Uranium	µg/L	420	0.5	2.0	0.5	8.1	0.5	5.4	1.8	0.5	4.2
Vanadium	µg/L	250	0.4	1.5	0.4	2.1	0.4	2.3	4.6	0.4	3.9
Zinc	µg/L	1100	5.0	<5.0	5.0	7.5	5.0	5.5	<5.0	5.0	7.8
pH	pH Units		NA	7.89	NA	7.88	NA	7.72	7.81	NA	7.88

Certified By: Iris Verástegui

Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

O. Reg. 153(511) - Metals & Inorganics (Water)

DATE RECEIVED: 2019-04-16

DATE REPORTED: 2019-04-23

		SAMPLE DESCRIPTION:		BH104S		BH104D		BH105		Dup 1
		SAMPLE TYPE:		Water		Water		Water		Water
		DATE SAMPLED:		2019-04-16		2019-04-16		2019-04-16		2019-04-16
Parameter	Unit	G / S	RDL	134760	RDL	134761	RDL	134762	RDL	134763
Antimony	µg/L	20000	1.0	1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0
Arsenic	µg/L	1900	1.0	8.2	1.0	4.2	1.0	1.8	1.0	6.5
Barium	µg/L	29000	2.0	375	2.0	117	2.0	252	2.0	540
Beryllium	µg/L	67	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5
Boron	µg/L	45000	10.0	253	10.0	1230	10.0	122	10.0	841
Cadmium	µg/L	2.7	0.2	<0.2	0.2	<0.2	0.2	<0.2	0.2	<0.2
Chloride	µg/L	2300000	5000	1270000	2000	516000	5000	1650000	2000	660000
Chromium	µg/L	810	2.0	27.6	2.0	12.8	2.0	16.9	2.0	14.1
Chromium VI	µg/L	140	5	<5	5	<5	5	<5	5	<5
Cobalt	µg/L	66	0.5	1.2	0.5	0.6	0.5	1.5	0.5	0.6
Copper	µg/L	87	1.0	<1.0	1.0	1.8	1.0	4.2	1.0	1.2
Cyanide	µg/L	66	2	<2	2	<2	2	<2	2	<2
Electrical Conductivity	uS/cm		2	4970	2	2640	2	5790	2	2780
Lead	µg/L	25	0.5	16.5	0.5	<0.5	0.5	<0.5	0.5	<0.5
Mercury	µg/L		0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02
Molybdenum	µg/L	9200	0.5	11.7	0.5	3.7	0.5	2.7	0.5	5.9
Nickel	µg/L	490	1.0	2.0	1.0	1.1	1.0	5.7	1.0	1.3
Selenium	µg/L	63	1.0	2.8	1.0	9.0	1.0	<1.0	1.0	7.1
Silver	µg/L	1.5	0.2	<0.2	0.2	<0.2	0.2	<0.2	0.2	<0.2
Sodium	µg/L	2300000	5000	799000	2500	133000	5000	439000	2500	144000
Thallium	µg/L	510	0.3	<0.3	0.3	<0.3	0.3	<0.3	0.3	<0.3
Uranium	µg/L	420	0.5	6.1	0.5	4.2	0.5	12.5	0.5	2.0
Vanadium	µg/L	250	0.4	7.8	0.4	2.9	0.4	4.4	0.4	3.5
Zinc	µg/L	1100	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0
pH	pH Units		NA	7.93	NA	7.70	NA	7.80	NA	7.82

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

134607-134763 Elevated RDLs indicate the degree of sample dilutions prior to the analysis to keep analytes within the calibration range, reduce matrix interference and/or to avoid contaminating the instrument.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

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AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

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CLIENT NAME: TERRAPROBE INC

ATTENTION TO: Amber Brooks

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
134758	BH103D	ON T3 NPGW MFT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)	F1 (C6-C10)	µg/L	750	1100
134760	BH104S	ON T3 NPGW MFT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)	F1 (C6-C10)	µg/L	750	19000
134760	BH104S	ON T3 NPGW MFT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)	F2 (C10 to C16)	µg/L	150	300
134760	BH104S	ON T3 NPGW MFT	O. Reg. 153(511) - VOCs (Water)	Benzene	µg/L	430	2500
134760	BH104S	ON T3 NPGW MFT	O. Reg. 153(511) - VOCs (Water)	Xylene Mixture	µg/L	4200	5300
134763	Dup 1	ON T3 NPGW MFT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)	F1 (C6-C10)	µg/L	750	1000

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Quality Assurance

CLIENT NAME: TERRAPROBE INC
PROJECT: 7-19-0023-42
SAMPLING SITE:

AGAT WORK ORDER: 19H457186
ATTENTION TO: Amber Brooks
SAMPLED BY:K. Greenman

Trace Organics Analysis

RPT Date: Apr 23, 2019

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PAHs (Water)															
Acenaphthene		TW	< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	95%	50%	140%	86%	50%	140%
Acenaphthylene		TW	< 0.20	< 0.20	NA	< 0.20	92%	50%	140%	95%	50%	140%	87%	50%	140%
Anthracene		TW	< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	94%	50%	140%	77%	50%	140%
Benz(a)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	73%	50%	140%	72%	50%	140%
Benzo(a)pyrene		TW	< 0.01	< 0.01	NA	< 0.01	96%	50%	140%	79%	50%	140%	91%	50%	140%
Benzo(b)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	99%	50%	140%	92%	50%	140%	73%	50%	140%
Benzo(g,h,i)perylene		TW	< 0.20	< 0.20	NA	< 0.20	98%	50%	140%	100%	50%	140%	84%	50%	140%
Benzo(k)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	90%	50%	140%	103%	50%	140%	86%	50%	140%
Chrysene		TW	< 0.10	< 0.10	NA	< 0.10	101%	50%	140%	78%	50%	140%	86%	50%	140%
Dibenz(a,h)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	97%	50%	140%	99%	50%	140%	86%	50%	140%
Fluoranthene		TW	< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	95%	50%	140%	81%	50%	140%
Fluorene		TW	< 0.20	< 0.20	NA	< 0.20	89%	50%	140%	89%	50%	140%	93%	50%	140%
Indeno(1,2,3-cd)pyrene		TW	< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	78%	50%	140%	82%	50%	140%
Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	81%	50%	140%	91%	50%	140%
Phenanthrene		TW	< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	92%	50%	140%	83%	50%	140%
Pyrene		TW	< 0.20	< 0.20	NA	< 0.20	90%	50%	140%	97%	50%	140%	76%	50%	140%
2-and 1-methyl Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	85%	50%	140%	100%	50%	140%	87%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)															
F1 (C6-C10)	133661		< 25	< 25	NA	< 25	97%	60%	140%	113%	60%	140%	85%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	108%	60%	140%	80%	60%	140%	67%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	105%	60%	140%	101%	60%	140%	85%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	85%	60%	140%	101%	60%	140%	83%	60%	140%
O. Reg. 153(511) - VOCs (Water)															
Acetone	135151		< 1.0	< 1.0	NA	< 1.0	98%	50%	140%	111%	50%	140%	91%	50%	140%
Benzene	135151		< 0.20	< 0.20	NA	< 0.20	95%	50%	140%	103%	60%	130%	114%	50%	140%
Bromodichloromethane	135151		< 0.20	< 0.20	NA	< 0.20	90%	50%	140%	91%	60%	130%	110%	50%	140%
Bromoform	135151		< 0.10	< 0.10	NA	< 0.10	99%	50%	140%	73%	60%	130%	80%	50%	140%
Bromomethane	135151		< 0.20	< 0.20	NA	< 0.20	81%	50%	140%	94%	50%	140%	104%	50%	140%
Carbon Tetrachloride	135151		< 0.20	< 0.20	NA	< 0.20	113%	50%	140%	94%	60%	130%	105%	50%	140%
Chlorobenzene	135151		< 0.10	< 0.10	NA	< 0.10	112%	50%	140%	102%	60%	130%	93%	50%	140%
Chloroform	135151		< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	96%	60%	130%	115%	50%	140%
Dibromochloromethane	135151		< 0.10	< 0.10	NA	< 0.10	107%	50%	140%	80%	60%	130%	88%	50%	140%
1,4-Dichlorobenzene	135151		< 0.10	< 0.10	NA	< 0.10	85%	50%	140%	112%	60%	130%	111%	50%	140%
1,2-Dichlorobenzene	135151		< 0.10	< 0.10	NA	< 0.10	107%	50%	140%	114%	60%	130%	88%	50%	140%
1,3-Dichlorobenzene	135151		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	106%	60%	130%	102%	50%	140%
Dichlorodifluoromethane	135151		< 0.20	< 0.20	NA	< 0.20	75%	50%	140%	112%	50%	140%	108%	50%	140%
1,2-Dichloroethane	135151		< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	94%	60%	130%	97%	50%	140%
1,1-Dichloroethane	135151		< 0.30	< 0.30	NA	< 0.30	102%	50%	140%	90%	60%	130%	117%	50%	140%

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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

Trace Organics Analysis (Continued)

RPT Date: Apr 23, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
1,1-Dichloroethylene	135151		< 0.30	< 0.30	NA	< 0.30	103%	50%	140%	105%	60%	130%	91%	50%	140%
1,2-Dichloropropane	135151		< 0.20	< 0.20	NA	< 0.20	90%	50%	140%	90%	60%	130%	97%	50%	140%
1,3-Dichloropropene	135151		< 0.30	< 0.30	NA	< 0.30	87%	50%	140%	81%	60%	130%	83%	50%	140%
Ethylbenzene	135151		< 0.10	< 0.10	NA	< 0.10	114%	50%	140%	107%	60%	130%	99%	50%	140%
Ethylene Dibromide	135151		< 0.10	< 0.10	NA	< 0.10	119%	50%	140%	102%	60%	130%	115%	50%	140%
Methyl Ethyl Ketone	135151		< 1.0	< 1.0	NA	< 1.0	112%	50%	140%	87%	50%	140%	90%	50%	140%
Methyl Isobutyl Ketone	135151		< 1.0	< 1.0	NA	< 1.0	107%	50%	140%	89%	50%	140%	108%	50%	140%
Methyl tert-butyl ether	135151		< 0.20	< 0.20	NA	< 0.20	82%	50%	140%	92%	60%	130%	100%	50%	140%
Methylene Chloride	135151		< 0.30	< 0.30	NA	< 0.30	113%	50%	140%	95%	60%	130%	100%	50%	140%
Styrene	135151		< 0.10	< 0.10	NA	< 0.10	95%	50%	140%	108%	60%	130%	118%	50%	140%
1,1,1,2-Tetrachloroethane	135151		< 0.10	< 0.10	NA	< 0.10	95%	50%	140%	95%	60%	130%	94%	50%	140%
1,1,2,2-Tetrachloroethane	135151		< 0.10	< 0.10	NA	< 0.10	96%	50%	140%	115%	60%	130%	107%	50%	140%
Tetrachloroethylene	135151		< 0.20	< 0.20	NA	< 0.20	99%	50%	140%	102%	60%	130%	97%	50%	140%
Toluene	135151		< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	113%	60%	130%	85%	50%	140%
1,1,2-Trichloroethane	135151		< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	116%	60%	130%	94%	50%	140%
1,1,1-Trichloroethane	135151		< 0.30	< 0.30	NA	< 0.30	114%	50%	140%	91%	60%	130%	95%	50%	140%
Trichloroethylene	135151		< 0.20	< 0.20	NA	< 0.20	86%	50%	140%	100%	60%	130%	103%	50%	140%
Trichlorofluoromethane	135151		< 0.40	< 0.40	NA	< 0.40	84%	50%	140%	109%	50%	140%	111%	50%	140%
Vinyl Chloride	135151		< 0.17	< 0.17	NA	< 0.17	107%	50%	140%	101%	50%	140%	98%	50%	140%
cis- 1,2-Dichloroethylene	135151		< 0.20	< 0.20	NA	< 0.20	118%	50%	140%	98%	60%	130%	97%	50%	140%
m & p-Xylene	135151		< 0.20	< 0.20	NA	< 0.20	111%	50%	140%	108%	60%	130%	108%	50%	140%
n-Hexane	135151		< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	84%	60%	130%	102%	50%	140%
o-Xylene	135151		< 0.10	< 0.10	NA	< 0.10	114%	50%	140%	100%	60%	130%	87%	50%	140%
trans- 1,2-Dichloroethylene	135151		< 0.20	< 0.20	NA	< 0.20	95%	50%	140%	103%	60%	130%	80%	50%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Quality Assurance

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

Water Analysis

RPT Date: Apr 23, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Water)															
Antimony	134607	134607	<1.0	<1.0	NA	< 1.0	100%	70%	130%	101%	80%	120%	98%	70%	130%
Arsenic	134607	134607	<1.0	<1.0	NA	< 1.0	99%	70%	130%	104%	80%	120%	106%	70%	130%
Barium	134607	134607	162	159	1.9%	< 2.0	100%	70%	130%	101%	80%	120%	98%	70%	130%
Beryllium	134607	134607	<0.5	<0.5	NA	< 0.5	96%	70%	130%	108%	80%	120%	103%	70%	130%
Boron	134607	134607	62.5	64.2	2.7%	< 10.0	106%	70%	130%	104%	80%	120%	112%	70%	130%
Cadmium	134607	134607	<0.2	<0.2	NA	< 0.2	93%	70%	130%	100%	80%	120%	103%	70%	130%
Chloride	133722		48100	48100	0.0%	< 100	98%	70%	130%	104%	70%	130%	109%	70%	130%
Chromium	134607	134607	6.6	6.2	NA	< 2.0	100%	70%	130%	102%	80%	120%	107%	70%	130%
Chromium VI	128398		<5	<5	NA	< 5	100%	70%	130%	100%	80%	120%	98%	70%	130%
Cobalt	134607	134607	0.7	0.6	NA	< 0.5	95%	70%	130%	98%	80%	120%	99%	70%	130%
Copper	134607	134607	2.3	2.2	NA	< 1.0	101%	70%	130%	102%	80%	120%	98%	70%	130%
Cyanide	128398		<2	<2	NA	< 2	96%	70%	130%	95%	80%	120%	88%	70%	130%
Electrical Conductivity	137192		309	308	0.3%	< 2	96%	90%	110%						
Lead	134607	134607	<0.5	<0.5	NA	< 0.5	102%	70%	130%	104%	80%	120%	98%	70%	130%
Mercury	134607	134607	<0.02	<0.02	NA	< 0.02	102%	70%	130%	100%	80%	120%	93%	70%	130%
Molybdenum	134607	134607	5.5	5.8	5.3%	< 0.5	94%	70%	130%	94%	80%	120%	102%	70%	130%
Nickel	134607	134607	1.5	1.5	NA	< 1.0	97%	70%	130%	101%	80%	120%	97%	70%	130%
Selenium	134607	134607	8.6	10.0	15.1%	< 1.0	94%	70%	130%	105%	80%	120%	105%	70%	130%
Silver	134607	134607	<0.2	<0.2	NA	< 0.2	94%	70%	130%	107%	80%	120%	102%	70%	130%
Sodium	134763	134763	144000	142000	1.4%	< 500	98%	70%	130%	98%	80%	120%	98%	70%	130%
Thallium	134607	134607	<0.3	<0.3	NA	< 0.3	104%	70%	130%	105%	80%	120%	97%	70%	130%
Uranium	134607	134607	2.0	2.0	NA	< 0.5	96%	70%	130%	101%	80%	120%	98%	70%	130%
Vanadium	134607	134607	1.5	1.0	NA	< 0.4	92%	70%	130%	95%	80%	120%	100%	70%	130%
Zinc	134607	134607	<5.0	<5.0	NA	< 5.0	100%	70%	130%	110%	80%	120%	102%	70%	130%
pH	137192		7.86	7.85	0.1%	NA	101%	90%	110%						

Comments: NA signifies Not Applicable.
Duplicate Qualifier: 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.

Certified By: Iris Verástegui

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270D	GC/MS
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	P&T GC/FID
F1 (C6-C10)	VOL-91- 5010	MOE PHC-E3421	P&T GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Acetone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS

Results relate only to the items tested. Results apply to samples as received.

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Method Summary

CLIENT NAME: TERRAPROBE INC

AGAT WORK ORDER: 19H457186

PROJECT: 7-19-0023-42

ATTENTION TO: Amber Brooks

SAMPLING SITE:

SAMPLED BY:K. Greenman

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET 1002	EPA SW-846 6020A & 200.8	ICP-MS
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW 846 7470 & 245.1	CVAAS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19H457186

Cooler Quantity: 4 coolers

Arrival Temperatures: 4.5 | 5.0 | 5.2

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: ON ICE

Report Information:

Company:
Contact:
Address:
Phone:

Terraprobe Inc. 903 Barton Street, Unit 22
Stoney Creek, Ontario L8E 5P5
Ph: (905) 643-7560 **Fax:** (905) 643-7559
Attn.: Amber Brooks abrooks@terraprobe.ca

Reports to be sent to:
1. Email:
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 *Indicate One*
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region _____ *Indicate One*
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
Indicate One

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 7-19-0083-42
Site Location:
Sampled By: K. Greenman
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company: Terraprobe
Contact: Attn: Lorena Rossi
Address:
Email: lrossi@terraprobe.ca

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Field Filtered - Metals, Hg, CrVI	O. Reg 153: Metals and Inorganics	☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☒ VOC ☒ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
BH101	Apr 16/19	10:30	6	GW		Y	X	X						X	X		X			
BH2	"	9:00	13	"		Y	X	X						X	X		X			
BH102	"	9:30	13	"		Y	X	X						X	X		X			
BH1030	"	8:00	13	"		Y	X	X						X	X		X			
BH1035	"	8:30	13	"		Y	X	X						X	X		X			
BH104S	"	7:00	13	"		Y	X	X						X	X		X			
BH104D	"	7:30	13	"		Y	X	X						X	X		X			
BH105	"	10:00	13	"		Y	X	X						X	X		X			
Dup 1	"	—	13	"		Y	X	X						X	X		X			
Trip Blank	"	—	3	—										X						

Samples Relinquished By (Print Name and Sign): K. Greenman	Date: Apr 16/19	Time: 12:35	Samples Received By (Print Name and Sign): Daniella Talc	Date: APR 16/19	Time: 12:35pm
Samples Relinquished By (Print Name and Sign): Daniella Talc	Date: APR 16/19	Time: 2:30pm	Samples Received By (Print Name and Sign): John Chypyha	Date: Apr 16	Time: 2:30
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign): John Chypyha	Date: Apr 16	Time:

Page 1 of 1

N°: T 086415

Document ID: DIV 78-1511.015

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date Issued: March 16, 2018

AGAT Laboratories

Sample Temperature Log

Client: TERRAPROBE

Work Order #: 19H457186

Arrival Temperatures - Branch/Driver

Cooler #1:	4.5	4.2	4.0
Cooler #2:	4.8	5.0	5.5
Cooler #3:	4.6	4.9	5.2
Cooler #4:	6.0	6.2	5.9
Cooler #5:			
Cooler #6:			
Cooler #7:			
Cooler #8			
Cooler #9:			
Cooler #10:			

IR Gun ID: _____

Taken By: _____

Date (mm/dd/yyyy): _____ Time: ____ AM / PM

Arrival Temperatures - Laboratory

Cooler #1:	7.7	7.7	7.7
Cooler #2:	7.5	7.6	7.7
Cooler #3:	7.8	7.9	8
Cooler #4:	8.4	9.3	8.7
Cooler #5:			
Cooler #6:			
Cooler #7:			
Cooler #8			
Cooler #9:			
Cooler #10:			

IR Gun ID: _____

Taken By: _____

Date (mm/dd/yyyy): _____ Time: ____ AM / PM

2nd