Terraprobe

Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
535 – 551 BRANT STREET
BURLINGTON, ONTARIO

Prepared for: **Renimmob Properties Limited**
2069 Lakeshore Road
Burlington, Ontario
L7R 1E2

Attention: **Mark Bales**

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Terraprobe Inc.

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

Hamilton – Niagara
903 Barton Street, Unit 22
Stoney Creek, Ontario L8E 5P5
(905) 643-7560 Fax: 643-7559

Central Ontario
220 Bayview Drive, Unit 25
Barrie, Ontario L4N 4Y8
(705) 739-8355 Fax: 739-8369

Northern Ontario
1012 Kelly Lake Rd., Unit 1
Sudbury, Ontario P3E 5P4
(705) 670-0460 Fax: 670-0558

www.terraprobe.ca

TABLE OF CONTENTS

SECTION PAGE

1.0 EXECUTIVE SUMMARY 4

2.0 INTRODUCTION 6
2.1 Site Description 6
2.2 Property Ownership 7
2.3 Current and Proposed Future Uses 7
2.3.1 Current Land Use 7
2.3.2 Future Land Use 7
2.4 Applicable Site Condition Standard 7
2.5 Objectives of Investigation 8

3.0 BACKGROUND INFORMATION 9
3.1 Physical Setting 9
3.1.1 Water Bodies and Areas of Natural Significance 9
3.1.2 Topography and Surface Water Drainage 10
3.2 Past Investigations 11

4.0 SCOPE OF THE INVESTIGATION 14
4.1 Overview of Site Investigation 14
4.2 Media Investigated 15
4.2.1 Rationale for Inclusion or Exclusion of Media 15
4.2.2 Overview of Field Investigation of Media 15
4.3 Phase One Conceptual Site Model 15
4.4 Deviations from Sampling and Analysis Plan 15
4.5 Impediments 15

5.0 INVESTIGATION METHOD 16
5.1 General 16
5.2 Drilling 16
5.3 Soil Sampling 16
5.3.1 Equipment Used 16
5.3.2 Geological Description of Soil 17
5.4 Field Screening Measurements 17
5.5 Ground Water Monitoring Well Installation 17
5.6 Field Measurement of Water Quality Parameters: Ground Water Sampling 17
5.7 Ground Water Sampling 18
5.8 Sediment Sampling 19
5.9 Analytical Testing 19
5.10 Residue Management Procedures 19
5.10.1 Soil Cuttings 19
5.10.2 Ground Water 19
5.10.3 Fluids from Equipment Cleaning 19
5.11 Elevation Surveying 19
5.12 Quality Assurance and Quality Control Measures 20
5.12.1 Containers, Labelling, Handling and Chain of Custody 20

5.12.2 Equipment Cleaning Procedures 21
5.12.3 Field Quality Control Measures 21
5.12.4 Deviations in the Quality Assurance and Quality Control Measures 21

6.0 REVIEW AND EVALUATION 22
6.1 Geology 22
6.1.1 Geological Unit Thickness (Estimate) 22
6.1.2 Elevations of Geological Units 22
6.1.3 Material in Geological Units 22
6.1.4 Properties of Aquifers and Aquitards 23
6.1.5 Rationale for Choice of Aquifers and Aquitards Investigated 24
6.2 Ground Water Elevations and Flow Direction 24
6.2.1 Rationale for Monitoring Well Locations and Screen Intervals 24
6.2.2 Results of Interface Probe Measurements 24
6.2.3 Thickness of Free Phase Product (LNAPL and/or DNAPL) 24
6.2.4 Ground Water Elevations 24
6.2.5 Interpreted Direction of Ground Water Flow 25
6.2.6 Assessment of Temporal Variability 25
6.2.7 Influence of Buried Utilities 25
6.3 Ground Water Hydraulic Gradients and Hydraulic Conductivity 25
6.3.1 Horizontal Hydraulic Gradients 25
6.3.2 Vertical Hydraulic Gradients 26
6.3.3 Hydraulic Conductivity 26
6.4 Medium and Fine Soil Texture 27
6.4.1 Rationale for Use of Fine-Medium Soil Texture 27
6.5 Soil: Field Screening 27
6.6 Soil Quality 28
6.6.1 Location and Depth of Samples 28
6.6.2 Comparison to Applicable Standards (Soil) 29
6.6.3 Contaminants of Concern (Soil) 31
6.6.4 Contamination Impact On Other Media 31
6.6.5 Presence of Light or Dense Non-Aqueous Phase Liquids (In Soil) 32
6.7 Ground Water Quality 32
6.7.1 Location and Depth of Sample Locations 32
6.7.2 Field Filtering 32
6.7.3 Comparison to Applicable Standards (Ground Water) 32
6.7.4 Contaminants of Concern (Ground Water) 34
6.7.5 Chemical or Biological Transformations 35
6.7.6 Contamination Impact On Other Media 35
6.7.7 Presence of Light or Dense Non-Aqueous Phase Liquids (Ground Water) 35
6.8 Quality Assurance and Quality Control Results 35
6.8.1 Types of Quality Control Samples Collected and Results 35
6.8.2 Samples Not Handled in Accordance with the Analytical Methods 35
6.8.3 Subsection 47 (3) of the Regulation 36
6.8.4 Results Qualified by Laboratory 36
6.8.5 Overall Quality of Field Data 36
6.8.6 Phase Two Conceptual Site Model 36

7.0 CONCLUSIONS 37
7.1 Location and Concentration of Contamination 37

7.1.1 Fill 37
7.1.2 Soil 37
7.1.3 Ground Water 37
7.2 Environmental Conditions Requiring a Risk Assessment 37

8.0 SIGNATURES 38

9.0 REFERENCES 39

10.0 LIMITATIONS AND USE OF THE REPORT 40

TABLES

Table 1 Metals and Inorganics in Soil
Table 2 Polycyclic Aromatic Hydrocarbons in Soil
Table 3 Petroleum Hydrocarbons in Soil
Table 4 Benzene, Toluene, Ethylbenzene, Xylene in Soil
Table 5 Volatile Organic Compounds in Soil
Table 6 Metals and Inorganics in Ground Water
Table 7 Polycyclic Aromatic Hydrocarbons in Ground Water
Table 8 Petroleum Hydrocarbons in Ground Water
Table 9 Benzene, Toluene, Ethylbenzene, Xylene in Ground Water
Table 10 Volatile Organic Compounds in Ground Water

FIGURES

Figure 1 Phase Two Property Location
Figure 2 PCA Locations
Figure 3 Borehole and Monitoring Well and APEC Locations
Figure 4 Ground Water Elevations (Bedrock Aquifer)
Figure 5 Cross Section Locations
Figure 6 Metals Exceedances in Soil - Plan View
Figure 7 Metals Exceedances in Soil - Cross Section A-A'
Figure 8 Metals Exceedances in Soil - Cross Section B-B'
Figure 9 Petroleum Hydrocarbons Exceedances in Ground Water - Plan View
Figure 10 Petroleum Hydrocarbons Exceedances in Ground Water– Cross Section A-A'
Figure 11 Petroleum Hydrocarbons Exceedances in Ground Water– Cross Section B-B'

APPENDICES

Appendix A Phase One Conceptual Site Model
Appendix B Site Survey
Appendix C Notification & Response Regarding Use of Non-Potable Ground Water Standards
Appendix D Sampling and Analysis Plan
Appendix E Standard Field Investigation Protocol
Appendix F Borehole Logs
Appendix G Grain Size Analyses
Appendix H Laboratory Certificates of Analysis

1.0 EXECUTIVE SUMMARY

Renimmob Properties Limited retained Terraprobe Inc. (Terraprobe) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the Property located at 535 – 551 Brant Street in Burlington, Ontario, hereafter referred to as *'the Property'*.

The Phase One ESA entitled "*Phase One Environmental Site Assessment, 535-551 Brant Street, Burlington, Ontario*" dated April 12, 2019, identified five (5) Areas of Potential Environmental Concern (APECs) which were present on the Property. A Phase Two ESA of the Property was recommended to investigate the APECs for the Contaminants of Potential Concern that have been identified on the Property. The Phase Two ESA was completed in general accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

The designated Phase Two Property is rectangular in shape, with a total area of approximately 0.28 ha. The Property is developed with a multi-tenant commercial building, with one basement level and one upper level located at the central portion of the building. The existing use of the Property would be considered commercial, as defined by the Ontario Ministry of the Environment, Conservation and Parks (MECP). It is understood that the Property will be potentially developed for mixed commercial/residential use. As the proposed development of the Property will result in a change in land use from commercial to mixed use commercial/residential, a Record of Site Condition (RSC) will be required by the MECP. Terraprobe understands that the existing building will be demolished and the Property will be developed with a 25-storey mixed use commercial/residential building plus mechanical penthouse and with main floor commercial space and residential units above.

The conclusions of the Phase Two ESA are:

- The applicable Site Condition Standards are the 2011 Ministry of the Environment, Conservation and Parks (MECP) Table 3 Standards for Residential/Parkland/Institutional Land Use with Medium and Fine textured Soil (MECP Table 3 RPI MF Standards).
- An asphalt pavement structure, consisting of 50-120 mm thick asphaltic concrete underlain by 50-260 mm thick aggregate materials was encountered in Boreholes 104 to 107. A 150 mm concrete slab was encountered in Borehole 108. The fill material consisted of clayey silt to sandy silt with trace to some gravel, trace rock fragments, trace asphalt, and trace wood fragments. Glacial till composed of silt, some clay and trace gravel was encountered beneath the earth fill zone. Underlying the glacial till, bedrock was inferred in Borehole 108 by split spoon samples and auger resistance observation. Bedrock of the Queenston formation was confirmed by rock coring in Boreholes 104, 106, and 107 and extended to the full depth of the investigation.
- The MECP Table 3 RPI MF Standards were met in the earth fill soil located on the Property with the exception of the following:
    - Beryllium (Metals) in BH104
    - Lead (Metals) in BH107 and BH108

- The MECP Table 3 RPI MF Standards were met for the native soils, located beneath the earth fill, on the Property.
- The MECP Table 3 MF Standards were met for all tested parameters in the groundwater on the Property with the exception of the following:
    - Petroleum Hydrocarbons F2 in BH104 and BH106
    - Petroleum Hydrocarbons F3 in BH107
- The Phase Two ESA identified EC and SAR impacts in soil and sodium and chloride impacts in ground water (subsequently determined to be a local background condition). However, Ontario Regulation 153/04 (O.Reg. 153/04) was amended on December 04, 2019. In particular, Paragraph 1 of Section 49.1 of O.Reg. 153/04 states that apparent exceedances of the Site Condition Standards are deemed not to be exceedances if the Qualified Person attributes these results to the use of de-icing salt application to surfaces for the safety of vehicular and pedestrian traffic under conditions of snow and ice or both. A review of the analytical results indicated that elevated EC and SAR in fill were associated with the locations of parking areas and driveways.

In summary, exceedances of the applicable Site Condition Standards were noted in the earth fill on the Property. Additionally, exceedances of the applicable Site Condition Standards were noted in the ground water on the Property. A Record of Site Condition cannot be filed for the Property at this time due to the exceedances noted in the earth fill, and ground water. Either remediation or a Risk Assessment will be required before a Record of Site Condition (RSC) can be filed for the Property.

2.0 INTRODUCTION

Renimmob Properties Limited retained Terraprobe Inc. (Terraprobe) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the Property located at 535 – 551 Brant Street in Burlington, Ontario, hereafter referred to as *'the Property'*. The Phase Two ESA was required to investigate the Areas of Potential Environmental Concern for the Potential Contaminants of Concern that have been identified on the Site and are applicable to the Property. The Phase One ESA entitled "*Phase One Environmental Site Assessment, 535-551 Brant Street, Burlington, Ontario*" dated April 12, 2019, identified five (5) Areas of Potential Environmental Concern (APECs) which were present on the Property. A Phase Two ESA of the Property was recommended to investigate the APECs for the Contaminants of Potential Concern that have been identified on the Property. The Phase Two ESA was completed in general accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

2.1 Site Description

The designated Phase Two Property is rectangular in shape, with a total area of approximately 0.28 ha. The Property is developed with a multi-tenant commercial building, with one basement level and one upper level located at the central portion of the building. The existing use of the Property would be considered commercial, as defined by the Ontario Ministry of the Environment, Conservation and Parks (MECP). It is understood that the Property will be potentially developed for mixed commercial/residential use. As the proposed development of the Property will result in a change in land use from commercial to residential, a Record of Site Condition (RSC) will be required by the MECP. The general location of the Property is presented on Figure 1. The legal site Survey is provided in Appendix B.

The Property information is as follows:

Legal Description	Lot 101, 102 & 103 Plan 55
PIN(s)	07071-0056 (LT)
Assessment Roll Number	Not provided
Municipal Address	535 – 551 Brant Street, Burlington
Zoning	Downtown Core Zone
Area	0.28 ha
Persons, other than Property Owner, who engaged the Qualified Person to conduct the Phase Two ESA	Not Applicable

2.2 Property Ownership

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

Property Owner Information	Renimmob Properties Limited 2069 Lakeshore Road Burlington, Ontario L7R 1E2

2.3 Current and Proposed Future Uses

2.3.1 Current Land Use

The Property is currently occupied with a multi-tenant commercial building, with one basement level and one upper level located at the central portion of the building. Under O.Reg. 153/04, the current Property Use of the Property would be considered Commercial Property Use.

2.3.2 Future Land Use

Terraprobe understands, based on the development concept plans that the existing building will be demolished and the Property will be developed with a 25-storey mixed use commercial/residential building plus mechanical penthouse and with with main floor commercial space and residential units above. Under O.Reg 153/04, the proposed future land use for the Property is Residential Property 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 and Institutional in potable ground water condition for medium-fine textured soil (Table 3 RPI MF Standards).

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

- The intended use for the Property is mixed commercial-residential with residential being the most sensitive use.
- Soil PH is within the ranges within which the generic criteria other than the Table 1 (Background) Standards may be applied.
- Soil at the Property was found to be MF textured based on a review of the soil samples collected from the boreholes and the results of soil grain size analyses.
- Bedrock is located at a depth of greater than 2 m.

- The Property is not located within 30 m of a surface water body.
- The Property is not located in or adjacent to or within 30 m of an area of natural significance.
- The Property is located within the City of Burlington, which obtains its potable water from surface water sources (Lake Ontario). In April 2020, Terraprobe filed a request with the Region of Halton and the City of Burlington to use assessment criteria for a non-potable ground water condition. The Region issued a no-objection response regarding the non-potable request. The notification and response regarding the use of non-potable ground water conditions is presented in Appendix C.

2.5 Objectives of Investigation

The general objectives of the investigation include the following:

- To determine the concentration and location of Potential Contaminants of Concern (CoPCs) identified in a Phase One ESA for the Property, and found through the course of conducting the Phase Two ESA, in soil, sediment, and ground water, as applicable.

- To determine if all CoPCs identified in the investigation met the generic Site Condition Standard or standard specified in a Risk Assessment, as applicable.

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 D) of the Phase Two ESA and found through the course of conducting the Phase two ESA, in soil, sediment, and ground water, as applicable.

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

3.1.1 Water Bodies 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. 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)	• The nearest water body is Rambo Creek which is located 75 meters east 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)	Provincially Significant Life Science ANSI • No Life Science ANSIs were identified in the Study Area. Provincially Significant Earth Science ANSI • 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 gleaned from the mapping is summarized below.

Topography	The approximate elevation of the Property is 87.5 to 87.9 meters above sea level (masl) sloping to the southeast. Surface water is expected to flow southeast of the property.
Hydrogeology	The nearest water body is Rambo Creek, which is located approximately 75 m east of the Property. The approximate depth to ground water, based on monitoring wells installed on the Property, is approximately 2.5 m in the overburden soil and 3.0 to 4.5 m in the bedrock. Ground water was found to flow to the northwest in the bedrock aquifer, however, regional ground water flow is expected to be toward Lake Ontario, located approximately 800 m southeast of the Property.
Geology (overburden)	The overburden consists of coarse textured glaciolacustrine deposits consisting of sand, gravel, minor silt and clay.
Geology (bedrock)	The bedrock on the site is of the Queenston Formation, which is comprised of shale, limestone, dolostone and siltstone.
Geology (depth to bedrock)	Based on borehole information from boreholes completed on the Property by Terraprobe, the depth to bedrock is approximately 2.6 m below ground surface.

3.2 Past Investigations

Previous environmental investigations completed by others and Terraprobe for the Property are summarized below:

Report Title	Phase One Environmental Site Assessment, 535-551 Brant Street, Burlington, Ontario
Report Date	April 12, 2019, Revised November 12, 2020
Prepared By	Terraprobe Inc.
Prepared For	Renimmob Properties Limited

- The Phase One ESA was completed in general accordance with O.Reg 153/04 for the Phase One Property (Site)
- Historical activities at the site included private and commercial ownership. At the time of the site inspection in February 2019, the site was developed for commercial purposes (retail commercial plaza).
- Based on the findings of the Phase One ESA, Potentially Contaminating Activities (PCAs) were identified including but not limited to importation of fill materials of unknown quality, commercial auto body shop, fuel storage tanks, waste disposal, and a dry cleaners facility. These activities resulted in the identification of five (5) Areas of Potential Environmental Concern on the Property.
- Terraprobe concluded that, based on the results of the Phase One ESA, a Phase Two Environmental Site Assessment would be required to investigate the issues of potential environmental concern which may have resulted in adverse impacts to the environmental condition of the Property.

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC 1	Entire Property	PCA #30 – Importation of Fill Material of Unknown Quality	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR & PAH	Soil
APEC 2 & 3	Southeastern Portion of Property	PCA #10 – Commercial Autobody Shops PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water
APEC 4	Northwest Portion of Property	PCA #58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Off-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water
APEC 5	Northern Portion of Property	PCA #37 Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOC	Soil Ground Water

- The Phase One ESA report concluded that a Phase Two ESA would be required to determine the quality of the soil and ground water at the site prior to filing for an RSC.

Report Title	Designated Substance Survey 535 Brant Street Burlington, Ontario
Report Date	October 2009
Prepared By	Terraprobe Inc.
Prepared For	Renimmob Properties Limited

- Designated substance survey completed at the site.
- Asbestos containing materials noted in the basement. Materials included vinyl floor time, wall plaster, insulation, cementitious pipe elbow and acoustic ceiling tile.

Report Title	Site Remediation Underground Waste Oil Tank Area 535 Brant Street Burlington, Ontario
Report Date	July, 2006
Prepared By	Terraprobe Inc.
Prepared For	The Effort Trust Company

- An out of service underground waste oil tank was located at the rear of the building, outside the southernmost service bay associated the Firestone Tire and Automotive Centre.
- Approximately 1,000 liters of residual liquid were removed from the tank.
- The remedial activities resulted in an excavation approximately 20 square metres in size.
- Based and wall samples collected of the resulting remedial area, indicated that all samples met the applicable site condition standards.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

Terraprobe conducted the following specific subsurface work at the Property:

- In November 2018, three boreholes (BH101-103) were drilled to a depth of approximately 2.0 m below grade as part of a geotechnical pavement investigation. These boreholes were not investigated as part of the Phase Two ESA.
- In January 2019, five (5) boreholes (BH104-108) were drilled to depths ranging from approximately 2.6 to 18.5 m below grade on the Property.
- Installation of five (5) ground water monitoring wells in BH104-108
- Laboratory analysis of selected soil samples for contaminants of concern identified in the Phase One ESA for APECs 1 to 5 which were within the Property. The analysis included:
    - Metals
    - Hydride-Forming Metals
    - Select Other regulated Parameters (ORPs) including Electrical conductivity (EC), Sodium Absorption Ratio (SAR), Boron, hot water soluble, Cyanide, Mercury, Hexavalent Chromium, pH
    - Polycyclic Aromatic Hydrocarbons (PAHs)
    - Petroleum Hydrocarbons F1 to F4 (PHCs)
    - Volatile Organic Compounds I (VOCs)
    - Volatile Organic Compounds II (BTEX)
- Submission of soil samples to Terraprobe Inc. for grain size analysis and soil classification
- 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 analysis of the ground water samples for contaminants of concern identified in the Phase One ESA for APECs 1 to 5 which were within the Property. The analysis included:
    - Metals
    - Hydride-Forming Metals
    - Select ORP including Chloride, Cyanide, Mercury, Hexavalent Chromium, pH
    - PAHs
    - PHCs
    - VOCs
    - BTEX

4.2 Media Investigated

4.2.1 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.

4.2.2 Overview of Field Investigation of Media

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

4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model was developed as part of the Phase One ESA for the Site through a review of historical records and a reconnaissance of the area. An excerpt from the Phase One ESA outlining the Phase One Conceptual Site Model is provided in Appendix A.

4.4 Deviations from Sampling and Analysis Plan

The sampling and analysis plan is provided in Appendix D. Deviations from the sampling and analysis plan consisted of (i) no yield or poor yield at BH105 and BH108, respectively, preventing the sampling of ground water.

4.5 Impediments

There were no impediments encountered during the investigation.

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 MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"*, December 1996; "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", rev. March 2019; and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", July 2011.

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 E.

5.2 Drilling

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

Borehole	BH104 to BH108
Date of Work	January 22 to 25, 2019
Name of Contractor	Landshark Drilling
Equipment Used	• B60 truck • Solid stem augers
Decontamination Measures	The sampling device was washed between each sample to minimize potential cross-contamination.
Sampling Frequency	Please refer to the borehole logs in Appendix F 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 2 Monitor

5.3.2 Geological Description of Soil

Please refer to the borehole logs in Appendix F 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 and Climate Change.

Samples were screened using an RKI Instruments EAGLE 2 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 August 8, 2010.

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix F.

5.5 Ground Water Monitoring Well Installation

Monitoring wells were installed in boreholes BH104 to BH108 by the drilling sub-contractor on the dates noted in Section 5.2, under the supervision of an experienced Terraprobe field technician. The wells were constructed of 50-mm (2-in) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.3 to 0.6 m above the top of the screen. The wells were then backfilled with bentonite to the ground surface. The wells were finished with flush-mount casings.

As per Ontario Regulation 903, the monitoring wells were tagged. The monitoring well locations are provided in Figure 3. The monitoring well installation details are provided on the borehole logs in Appendix F.

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.

Range

- pH 0.00 to 14.00 pH
- EC 0.00 to 4.00 mS/cm
- TDS 0.00 to 2.0 ppt (g/L)
- Temperature 0.0 to 60.0°C

Resolution

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

Accuracy

- pH ±0.05 pH
- EC ±2% F.S.
- TDS ±2% F.S.
- Temperature ±0.5°C

5.7 Ground Water Sampling

The monitoring wells were purged and sampled using an inertial pump and dedicated bailer. The ground water was purged before sampling to ensure extraction of representative formation ground water. Stabilization of parameters (pH, conductivity, temperature, etc.) of the purged water were monitored before a sample was taken to maintain the equilibrium with the surrounding formation water and produce 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 methodologies from the MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"*, December 1996; "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", rev. March 2019; and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", July 2011, were followed in the collection of the ground water samples.

5.8 Sediment Sampling

No sediment sampling was conducted as part of this investigation because there are no water bodies on-site.

5.9 Analytical Testing

Analytical testing of all soil and ground water samples was conducted by SGS Canada Inc., a laboratory accredited by the Canadian Association for the Laboratory Accreditation.

5.10 Residue Management Procedures

5.10.1 Soil Cuttings

Soil cuttings generated during the drilling activities were removed from the Property by a licenced subcontractor.

5.10.2 Ground Water

The development and purge water generated during the ground water sampling event was disposed of into drums that were removed after the work was complete.

5.10.3 Fluids from Equipment Cleaning

The fluids from cleaning 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 by Terraprobe using a Trimble R10 survey system. The Trimble R10 is a differential global positioning system (GPS) which involves the cooperation of two receivers, one that's stationary and another that's roving around making position measurements. The elevation of each borehole on the Property is presented on the borehole logs in Appendix F.

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, as applicable, for all sampling conducted on the Property.

Soil Parameters	Container
Chloride, electrical conductivity	250 mL glass jar, Teflon lined lid
Cyanide (CN−)	250 mL glass jar, Teflon lined lid
Fraction organic carbon (FOC)	250 mL glass jar, Teflon lined lid
Hexavalent chromium	250 mL glass jar, Teflon lined lid
Metals (includes hydride-forming metals, SAR, HWS boron, calcium, magnesium, sodium)	250 mL glass jar, Teflon lined lid
Mercury, methyl mercury	250 mL glass jar, Teflon lined lid
pH	250 mL glass jar, Teflon lined lid
BTEX, PHCs (F1), THMs, VOCs	40–60 mL glass vial (charged with methanol preservative, pre- weighed) and glass jar (for moisture content)
PHCs (F2–F4)	120 mL glass jar, Teflon lined lid
ABNs, CPs, OCs, PAHs	120 mL glass jar, Teflon lined lid

Ground Water Parameters	Container
Chloride, electrical conductivity, pH	250 mL HDPE
Cyanide (CN−)	250 mL HDPE
Hexavalent chromium	250 mL HDPE
Metals (includes hydride-forming metals, calcium, magnesium, sodium)	250 mL HDPE
Mercury	125 mL clear glass bottle
Methyl mercury	125 mL clear glass bottle
BTEX, PHCs (F1),THMs, VOCs;	40–60 mL glass vials (minimum of 2)
PHCs (F2–F4)	2 x 500 mL amber glass bottle, Teflon lined lid
CP, OCs, PAHs, PCBs	2 x 500 mL amber glass bottle, Teflon lined lid
ABNs,	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
- 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 sampling device was changed between samples to minimize cross-contamination. During ground water sampling any part of the water level meter which came into contact with the ground water was cleaned between monitoring wells.

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

5.12.3 Field Quality Control Measures

- All non-dedicated sampling and monitoring equipment was cleaned following each use.
- Where ground water samples are to be analyzed for volatile organic compounds one trip blank sample was submitted for laboratory analysis with each laboratory submission.
- Sufficient field duplicate samples were collected in each medium being sampled, so that at least one field duplicate sample could be submitted for laboratory analysis for every ten 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

No deviations from the quality assurance and quality control measures occurred.

6.0 REVIEW AND EVALUATION

6.1 Geology

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

6.1.1 Geological Unit Thickness (Estimate)

The geological unit thicknesses are presented below.

Borehole	BH104	BH105	BH106	BH107	BH108
	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)
Fill	2.1	1.5	1.3	1.3	1.3
Native Soil	0.7	1.1	1.5	1.5	1.5
Bedrock	15.5*	-	15*	15.1*	0.3*

* Bedrock extended beyond the vertical depth of the investigation.

6.1.2 Elevations of Geological Units

The geological unit elevations are presented below.

Elevation (m)					
Borehole	**BH104**	**BH105**	**BH106**	**BH107**	**BH108**
Fill	87.2-85.1	87.6-86.1	87.5-86.2	87.6-86.3	87.5-86.2
Native	85.1-84.4	86.1-85.0	86.2-84.7	86.3-84.8	86.2-84.7
Bedrock	84.4-68.9*	-	84.7-69.7*	84.8-69.7*	84.7-84.4*

* Bedrock extended beyond the vertical depth of the investigation.

Groundwater was found to be between elevations of about 82.8 and 85.1 masl . Groundwater contours are shown on Figure 4.

6.1.3 Material in Geological Units

Surficial and Earth Fill Materials

At surface, Boreholes 104 to 107 encountered a pavement structure consisting of 50 to 120 mm of asphalt overlying 50 to 260 mm of aggregate. Borehole 108 encountered 150 mm of concrete slab.

Underlying the pavement structure and surficial material, earth fill was encountered in all the boreholes extending to a depth of 1.5 to 2.3 m below grade (Elev. 85.1 to 86.3 m). The earth fill consists of clayey

silt to sandy silt with trace to some gravel. Trace rock fragments, trace asphalt, trace wood fragments, and trace brick fragments were also observed. It is typically brown to dark brown, and moist.

Glacial Till (Halton Till)

Underlying the earth fill, a glacial till was encountered in all the boreholes at a depth of 1.5 to 2.3 m below grade (Elev. 85.1 to 86.3 m). The glacial till stratum extends to a depth of 2.0 to 3.0 m below grade (Elev. 84.4 to 85.5 m). The glacial till is composed of silt, some clay, trace sand, and trace gravel. It is typically reddish brown and moist.

Bedrock

Underlying the glacial till, bedrock was inferred in Borehole 108 by split spoon samples and auger resistance observation at a depth of about 3.0 m below grade (Elev. 84.7 ±m). This borehole was terminated within the inferred bedrock.

Bedrock was confirmed by rock coring in Boreholes 104, 106, and 107 to depths of 18.0 to 18.5 m below grade (Elev. 68.9 to 69.7 ±m). Rock Core Logs are provided in Appendix F.

The bedrock of the Queenston Formation is a deposit predominantly comprised of thickly bedded to massive brick red shale of Ordovician age. The formation contains interbeds of light grey / green calcareous shale and siltstone and calcareous sandstone which are discontinuous and nominally 50 to 300 mm thick. The shale is a weak to medium strength rock, whereas the limestone/dolostone beds are considered medium strength rock. The percentage of recovered core consisting of limestone/dolostone, or hard layers, are shown on the rock core logs. The percentages ranged from 0 to 33% hard layers per rock core run (1.5± m). Hard layers were encountered in the partially weathered and sound bedrock.

6.1.4 Properties of Aquifers and Aquitards

Earth Fill

The water table at the Property is located below the fill. Any water within the fill is expected to migrate downwards into the glacial till but may transiently pond over the till due to the lower hydraulic conductivity of the underlying layer.

Native Soil – Halton Till

The glacial till consisting of a cohesive to cohesionless silt deposit and is considered to be an aquitard due to its low hydraulic conductivity. It was noted that ground water was found within this layer, but yield was noted to be very low.

Bedrock - Queenston Formation

The Queenston Formation bedrock is found underlying the glacial till. This is considered to be an aquitard due to its low hydraulic conductivity (6x 10^{-7} m/s or less).

6.1.5 Rationale for Choice of Aquifers and Aquitards Investigated

The native soil and bedrock aquifer (Queenston Formation) was chosen for investigation. These strata was chosen for investigation because of:

- the absence of free water in the overlying sill;
- the possibility of free ground water present; and
- the base of the proposed development is within bedrock.

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 glacial till and bedrock across the Property to allow for the collection of ground water samples within the strata of interest. It was noted that the fill materials were not water-bearing.

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 Phase Product (LNAPL and/or DNAPL)

No free phase product was encountered on the Property.

6.2.4 Ground Water Elevations

Unstabilized groundwater levels were measured in each of borehole as they were drilled and after completion, as noted in the borehole logs in Appendix F. Ground water levels were measured in the installed monitoring wells using a Solinst interface probe.

The ground water levels are presented below.

Well ID	BH104		BH105		BH106		BH107		BH108	
Well Depth (mbgs)	18.5		2.3		18.0		18.1		3.0	
Ground Elev. (mASL)	87.4		87.6		87.7		87.8		87.7	
Top of Screen (mASL)	72.0		86.9		72.8		72.8		86.2	
Bottom of Screen (mASL)	68.9		85.3		69.7		69.7		84.7	
Date	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)
February 8, 2019	3.4	84.0	Dry	N/A	11.4	76.3	4.3	83.5	Dry	N/A
February 21, 2019	3.6	83.8	Dry	N/A	4.9	82.8	-	-	-	-
March 15, 2019	3.3	84.1	Dry	N/A	4.5	83.2	4.3	83.5	Dry	N/A
March 22, 2019	3.2	84.2	Dry	N/A	4.5	83.2	4.1	83.7	2.6	85.1
April 18, 2019	3.2	84.2	Dry	N/A	4.4	83.3	4.2	83.6	2.6	85.1

Notes:
WL = Water Level
mbgs = metres below ground surface
mASL = metres above sea level
"-" well was not sampled/ not accessible

6.2.5 Interpreted Direction of Ground Water Flow

Based on the ground water elevations in the monitoring wells at the Property, the ground water was determined to flow northwest. The ground water flow direction is presented on Figure 4.

6.2.6 Assessment of Temporal Variability

Five (5) ground water level measurements were collected on the Property within ten (10) weeks. Additional water level measurements are required to assess temporal variability.

6.2.7 Influence of Buried Utilities

Buried utilities are located on the Property above the static water table. As such, it is unlikely that the buried utilities influence the 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

There are two units of ground water on the Property; the upper unit with the native Halton Till and the lower unit within the bedrock. The horizontal hydraulic gradient of the ground water for the upper unit could not be calculated as only one well within this unit had measurable amounts of water. The horizontal hydraulic gradient of the ground water for the bedrock unit at the Property was calculated based on the current ground water elevations from monitoring well BH104 and BH107, where these two wells are oriented in the direction of the ground water flow (northwest). The approximate hydraulic gradients were calculated as follows:

- BH104 to BH107 → 0.011 m/m
- BH104 to BH106 → 0.019 m/m
- BH107 to BH106 → 0.013 m/m

BH104 to BH107 represents the most direct correlation with the ground water flow, and is likely the most applicable. However both other calculations are in a similar ground water flow orientation. The average hydraulic gradient is 0.014 m/m.

6.3.2 Vertical Hydraulic Gradients

The vertical hydraulic gradient cannot be accurately determined on the Property since there are no nested wells installed between two separate strata (shallow and deep wells).

6.3.3 Hydraulic Conductivity

The hydraulic conductivities from Terraprobe's monitoring wells were determined based on the rising water level recovery of the monitoring well (rising head test). This test involves the rapid removal of water from a single well and monitoring the water level recovery. The results of the rising head tests were analysed using the Bouwer and Rice method (1976). The results of the analysis are presented in Appendix D. The hydraulic conductivities of the strata applicable to the Property are as follows:

Monitoring Well	Well Screen Elevation (mASL)	Strata Screened Within	Hydraulic Conductivity (rising head test, m/s)
BH104	68.9 -72.0	Queenston Formation bedrock	1.78×10^{-7}
BH106	69.7-72.8	Queenston Formation bedrock	2.28×10^{-8}
BH107	69.7-72.8	Queenston Formation bedrock	1.56×10^{-8}

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

- Silty Sand 10^{-3} m/s to 10^{-7}
- Silt 10^{-5} m/s to 10^{-9} m/s
- Clayey Silt 10^{-8} m/s to 10^{-10} m/s

The hydraulic conductivity field results are relatively consistent with the published values associated with the geological materials which were tested.

6.4 Medium and Fine Soil Texture

6.4.1 Rationale for Use of Fine-Medium Soil Texture

A total of five (5) soil samples from selected boreholes were submitted for grain size analysis. In order to determine the soil texture for the applicable standard, the Ontario Regulation 153/04 (Records of Site Condition–Part XV.1 of the Environmental Protection Act) in Section 42(1). Subsection (1) states the following:

'If the qualified person determines that at least 1/3 of the soil at the property, measured by volume, consists of MF textured soil, the qualified person shall apply the standard for MF textured soil.'

Based on the results of the grain size analysis, it is indicated that the soil at the Property consists of soil particles with more than 50% by mass of particles smaller than 75 microns in diameter. The grain size analyses are presented in Appendix G.

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.

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix F.

6.6 Soil Quality

6.6.1 Location and Depth of Samples

Sample ID	Depth (m)/ Approximate Elev.	Strata	M	H-M	ORPs	PAHs	PHCs/ BTEX	VOCs
BH104/SS1	0.5 / 87.0	Fill	✓	✓	✓			
BH104/SS2	1.1 / 86.4	Fill				✓		
BH104/SS3	1.8 / 85.6	Fill					✓	✓
BH104/SS4B	2.7 / 84.7	Native	✓	✓	✓	✓	✓	✓
BH105/SS1	0.5 / 87.2	Fill	✓	✓	✓			
BH105/SS2	1.1 / 86.5	Fill				✓	✓	✓
BH105/SS3	1.8 / 85.9	Native	✓	✓	✓	✓	✓	✓
BH106/SS1	0.5 / 87.3	Fill				✓		
BH106/SS2	1.1 / 86.7	Fill	✓	✓	✓		✓	✓
BH106/SS3	1.8 / 85.9	Native	✓	✓	✓	✓		
BH106/SS4	2.4 / 85.3	Native					✓	✓
BH107/SS1	0.5 / 87.3	Fill	✓	✓	✓	✓		
BH107/SS2	1.1 / 86.7	Fill					✓	✓
BH107/SS3	1.8 / 85.9	Native	✓	✓	✓	✓		
BH107/SS4	2.4 / 85.3	Native					✓	✓
BH108/SS1	0.3 / 87.4	Fill	✓	✓	✓			
BH108/SS2	1.0 / 86.8	Fill				✓	✓	✓
BH108/SS3	1.8 / 86.0	Native	✓	✓	✓			
BH108/SS4	2.5 / 85.2	Native				✓		
BH108/SS5	3.2 / 84.6	Native					✓	✓
Dup 1 (BH104/SS1)	0.5 / 87.0	Fill	✓	✓	✓			
Dup 2 (BH106/SS1)	0.5 / 87.3	Fill				✓		
Dup 3 (BH108/SS5)	3.2 / 84.6	Native					✓	✓

6.6.2 Comparison to Applicable Standards (Soil)

Select soil samples were analysed for the Potential Contaminants of Concern (CoPCs) identified in the Phase One ESA for APECs 1 to 5 which encompassed the Property. CoPCs included:

- Metals
- Hydride-Forming Metals
- Select Other regulated Parameters (ORPs) including Electrical conductivity (EC), Sodium Absorption Ratio (SAR), Boron, hot water soluble, Cyanide, Mercury, Hexavalent Chromium, pH
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Petroleum Hydrocarbons (PHCs)
- Volatile Organic Compounds I (VOCs)
- Volatile Organic Compounds II (BTEX)

The results of the analysis were compared to the future use applicable Site Condition Standard for the Property (Table 3 RPI MF). The laboratory certificates of analysis are provided in Appendix H, and the results of the soil chemical analysis are provided in Tables 1 to 5 and shown on Figures 6 to 13.

Metals in Soil

The following exceedances for Metals of the MECP Table 3 RPI Standard were noted in the samples analyzed:

- Duplicate 1 (BH104/SS1)
  - Beryllium *(Standard 5 ug/g, Result 5.4 ug/g)*
  - Selenium *(Standard 2.4 ug/g, Result 2.6 ug/g)*
- BH107/SS1
  - Lead *(Standard 120 ug/g, Result 280 ug/g)*
- BH108/SS1
  - Lead *(Standard 120 ug/g, Result 140 ug/g)*

It is noted that Duplicate 1, which is a duplicate of BH104/SS1 exceeds for selenium. As such, the selenium concentrations for Duplicate 1 (2.6 ug/g) and BH104/SS1 (2.1 ug/g) can be averaged. The average of these two samples is 2.4 ug/g, therefore selenium is found to meet the Table 3 RPI Site Condition Standards.

All other samples analyzed met the MECP Table 3 RPI Standard for Metals. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix H.

Hydride-forming Metals in Soil

The soil samples submitted for Hydride-forming Metals analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix H.

Other Regulated Parameters in Soil

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

- BH104/SS1
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.4 mS/cm)*
  - Sodium Adsorption Ratio *(Standard 5 unit less, Result 12.4 unit less)*
- BH104/SS4B
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.5 mS/cm)*
  - Sodium Adsorption Ratio *(Standard 5 unit less, Result 8.0 unit less)*
- BH106/SS2
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 2.6 mS/cm)*
  - Sodium Adsorption Ratio *(Standard 5 unit less, Result 41.9 unit less)*
- BH106/SS3
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.9 mS/cm)*
  - Sodium Adsorption Ratio *(Standard 5 unit less, Result 37.3 unit less)*
- BH107/SS1
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.1 mS/cm)*
  - Sodium Adsorption Ratio *(Standard 5 unit less, Result 21.0 unit less)*
- BH107/SS3
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.5 mS/cm)*
  - Sodium Adsorption Ratio *(Standard 5 unit less, Result 21.0 unit less)*
- Duplicate 1
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.3 mS/cm)*
  - Sodium Adsorption Ratio *(Standard 5 unit less, Result 11.1 unit less)*
- BH108/SS1
  - Electrical Conductivity *(Standard 0.7 mS/cm, Result 3.1 mS/cm)*

All other samples analyzed met the MECP Table 3 RPI Standard for ORPs. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix H.

Paragraph 1 of Section 49.1 of O.Reg. 153/04 states that apparent exceedances of EC and SAR are deemed not to be exceedances if the Qualified Person attributes these results to the use of de-icing salt application to surfaces for the safety of vehicular and pedestrian traffic under conditions of snow and ice or both. A review of the analytical results indicated that elevated EC and SAR in fill/soil was associated with the locations of parking areas and driveways.

Polycyclic Aromatic Hydrocarbons in Soil

All soil samples submitted for PAH analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 2 and the laboratory certificates of analysis are provided in Appendix H.

Petroleum Hydrocarbons in Soil

All soil samples submitted for PHC analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 3 and the laboratory certificates of analysis are provided in Appendix H.

Benzene, Toluene, Ethylbenzene and Xylene in Soil

All soil samples submitted for BTEX analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 4 and the laboratory certificates of analysis are provided in Appendix H.

Volatile Organic Compounds in Soil

The soil samples submitted for VOC analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 5 and the laboratory certificates of analysis are provided in Appendix H.

6.6.3 Contaminants of Concern (Soil)

The Contaminants of Concern associated with the earth fill on the Property are:

- Metals
    - Beryllium
    - Lead

There are no Contaminants of Concern associated with the native soil on the Property.

6.6.4 Contamination Impact On Other Media

It is possible that Contaminants of Concern exceeding the applicable site conditions can impact other media.

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

Sample ID	Screen Depth (m)	Screen Elevation (masl)	Strata	M	H-M	ORPs	PAHs	PHCs/ BTEX	VOCs
BH104	15.3 – 18.5	72.2 – 68.9	Native	✓	✓	✓	✓	✓	✓
BH105	0.8 – 2.3	86.9 – 85.3	Fill	Monitoring well was dry					
BH106	15.0 – 18.0	72.8 – 96.8	Native	✓	✓	✓	✓	✓	✓
BH107	15.0 – 18.1	72.7 – 69.7	Native	✓	✓	✓	✓	✓	✓
BH108	1.5 – 3.1	86.2 – 84.7	Native	Monitoring well did not yield enough water					
Dup (BH107)	15.0 – 18.1	72.7 – 69.7	Native	✓	✓	✓	✓	✓	✓

Notes: ORPs analyzed include Chromium IV, Cyanide, Chloride, 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 MECP's *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"*, July 2011. Field filtration utilized dedicated, disposable, in-line 0.45 micron filters.

6.7.3 Comparison to Applicable Standards (Ground Water)

Select ground water samples were analysed for the Potential Contaminants of Concern (CoPCs). CoPCs included:

- Metals
- Hydride-Forming Metals
- Select ORP including Chloride, Cyanide, Mercury, Hexavalent Chromium, pH
- Sodium
- PAHs
- PHCs
- VOCs
- BTEX

The results of the analysis were compared to the applicable Site Condition Standard for the Property (Table 3 MF). 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

The ground water samples submitted for metals analysis met the MECP Table 3 Standard. The results are summarized in Table 6 and the laboratory certificates of analysis are provided in Appendix H.

Hydride-forming Metals in Ground Water

The ground water samples submitted for hydride-forming metals analysis met the MECP Table 3 Standard. The results are summarized in Table 6 and the laboratory certificates of analysis are provided in Appendix H.

Other Regulated Parameters in Ground Water

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

Borehole	Parameter	MECP Table 3 SCS	Result February 19, 2019 (µg/L)	Result February 21, 2019 (µg/L)
BH106	Chloride	2300000	**25000000**	**28000000**

All other samples submitted for ORPs met the MECP Table 3 RPI Standards. The results are summarized in Tables 6 and the laboratory certificates of analysis are provided in Appendix H.

BH106 is a deep (~18. m) bedrock well. A nearby Water Well Record from the 1950's (#2800010) reports obtaining salt water from a similar depth (~15 m). As such, the Qualified Person attributes elevated chloride in deep bedrock ground water to background conditions, i.e., the exceedance for chloride is an apparent exceedance only and not an exceedance of its Site Condition Standards.

Sodium in Ground Water

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

Borehole	Parameter	MECP Table 3 SCS	Result February 19, 2019 (µg/L)	Result February 21, 2019 (µg/L)
BH106	Sodium	2300000	**8150000**	**9950000**

The Qualified Person deems the elevated sodium to be a background condition using the same rationale as was applied to chloride. All other samples submitted for ORPs met the MECP Table 3 RPI Standards.

The results are summarized in Tables 6 and the laboratory certificates of analysis are provided in Appendix H.

Polycyclic Aromatic Hydrocarbons in Ground Water

The ground water samples submitted for PAH analysis met the MECP Table 3 Standard. The results are summarized in Table 7 and the laboratory certificates of analysis are provided in Appendix HE.

Petroleum Hydrocarbons in Ground Water

The following exceedances for PHCs of the MECP Table 3 Standard were noted in the ground water samples analyzed:

Borehole	Parameter	MECP Table 3 SCS	Result February 19, 2019 (µg/L)	Result February 21, 2019 (µg/L)
BH104	PHC F2	150	**715**	Meets
BH106	PHC F2	150	**2010**	**181**
BH107	PHC F3	500	**693**	Not Analyzed
Dup (BH107)	PHC F3	500	**550**	Not Analyzed

All other samples submitted for PHCs met the MECP Table 3 RPI Standards. The results 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 ground water samples submitted for BTEX analysis met the MECP Table 3 Standard. The results are summarized in Table 9 and the laboratory certificates of analysis are provided in Appendix H.

Volatile Organic Compounds in Ground Water

The ground water samples submitted for VOC analysis met the MECP Table 3 Standard. The results are summarized in Table 10 the laboratory certificates of analysis are provided in Appendix H.

6.7.4 Contaminants of Concern (Ground Water)

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

- Petroleum Hydrocarbons F2
- Petroleum Hydrocarbons F3

6.7.5 Chemical or Biological Transformations

No chemical or biological transformations are known to have occurred, based on the nature of the Contaminants of Concern associated with the ground water at the Property.

6.7.6 Contamination Impact On Other Media

It is possible that Contaminants of Concern exceeding the applicable site conditions can 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 MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"*, December 1996; "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", rev. March 2019; and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", July 2011. Duplicate samples were submitted at a rate of 10% of the original 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's *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", J*uly 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 used 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.

Container Type

All samples met the container type as specified in Ontario Ministry of the Environment and Climate Change - 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 (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 H to the Phase Two ESA report.

6.8.4 Results Qualified by Laboratory

The laboratory did not make any comments that changed the outcome of the analytical results 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.

6.8.6 Phase Two Conceptual Site Model

A Phase Two Conceptual Site Model (CSM) was not completed at this time. A Phase Two CSM will be prepared prior to submission of the Record of Site Condition.

7.0 CONCLUSIONS

7.1 Location and Concentration of Contamination

7.1.1 Fill

There were exceedances of the MECP Table 3 RPI MF Standards noted in the earth fill for Metals in BH104 and BH107. All soil exceedance locations are noted in Figures 6 to 8.

7.1.2 Soil

The MECP Table 3 MF Standards were met in the native soils located on the Property.

7.1.3 Ground Water

There were exceedances of the MECP Table 3 MF Standards noted in the ground water for PHC (F2 & F3). All ground water exceedance locations are noted in Figures 9 to 14.

7.2 Environmental Conditions Requiring a Risk Assessment

Exceedances of the applicable Site Condition Standards were noted in the earth fill and ground water on the Property. As such, either remediation or a Risk Assessment will be required before a Record of Site Condition (RSC) can be filed for the Property.

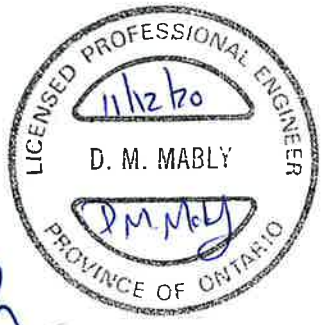
8.0 SIGNATURES

The Phase Two Environmental Site Assessment has been completed by Teresa Weatherhead, LEL, under the direction and supervision of R. Baker Wohayeb, P.Eng., QP_{RA}. The report was reviewed by David Mably, P. Eng. 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 and from the current investigation for the Phase Two Property. The Phase Two Environmental Site Assessment was completed in accordance with the requirements of Ontario Regulation 153/04 (Records of Site Condition–Part XV.1 of the Environmental Protection Act) and met the objectives and requirements set out in that Regulation.

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.



Teresa Weatherhead, LEL
Project Manager

David Mably, P. Eng., QP_{ESA}
Senior Environmental Engineer

9.0 REFERENCES

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8. Terraprobe Inc. July, 2006. *Site Remediation Underground Waste Oil Tank Area 535 Brant Street Burlington, Ontario*

9. Terraprobe Inc. October, 2009. *Designated Substance Survey 535 Brant Street Burlington, Ontario.*

10. Terraprobe. April 2019. Ph*ase One Environmental Site Assessment, 535-551 Brant Street, Burlington, Ontario.*

10.0 LIMITATIONS AND USE OF THE REPORT

This report was prepared for the exclusive use of Renimmob Properties Limited, and is intended to provide an assessment of the environmental condition on the property located at 535-551 Brant Street 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.

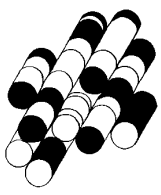


TABLE OF CONTENTS

SECTION PAGE

1.0 EXECUTIVE SUMMARY 4

2.0 INTRODUCTION 6
2.1 Site Description 6
2.2 Property Ownership 7
2.3 Current and Proposed Future Uses 7
2.3.1 Current Land Use 7
2.3.2 Future Land Use 7
2.4 Applicable Site Condition Standard 7
2.5 Objectives of Investigation 8

3.0 BACKGROUND INFORMATION 9
3.1 Physical Setting 9
3.1.1 Water Bodies and Areas of Natural Significance 9
3.1.2 Topography and Surface Water Drainage 10
3.2 Past Investigations 11

4.0 SCOPE OF THE INVESTIGATION 13
4.1 Overview of Site Investigation 13
4.2 Media Investigated 14
4.2.1 Rationale for Inclusion or Exclusion of Media 14
4.2.2 Overview of Field Investigation of Media 14
4.3 Phase One Conceptual Site Model 15
4.4 Deviations from Sampling and Analysis Plan 15
4.5 Impediments 15

5.0 INVESTIGATION METHOD 16
5.1 General 16
5.2 Drilling 16
5.3 Soil Sampling 16
5.3.1 Equipment Used 16
5.3.2 Geological Description of Soil 17
5.4 Field Screening Measurements 17
5.5 Ground Water Monitoring Well Installation 17
5.6 Field Measurement of Water Quality Parameters: Ground Water Sampling 17
5.7 Ground Water Sampling 18
5.8 Sediment Sampling 19
5.9 Analytical Testing 19
5.10 Residue Management Procedures 19
5.10.1 Soil Cuttings 19
5.10.2 Ground Water 19
5.10.3 Fluids from Equipment Cleaning 19
5.11 Elevation Surveying 19
5.12 Quality Assurance and Quality Control Measures 20
5.12.1 Containers, Labelling, Handling and Chain of Custody 20

5.12.2 Equipment Cleaning Procedures 21
5.12.3 Field Quality Control Measures 21
5.12.4 Deviations in the Quality Assurance and Quality Control Measures 21

6.0 REVIEW AND EVALUATION 22
6.1 Geology 22
6.1.1 Geological Unit Thickness (Estimate) 22
6.1.2 Elevations of Geological Units 22
6.1.3 Material in Geological Units 22
6.1.4 Properties of Aquifers and Aquitards 23
6.1.5 Rationale for Choice of Aquifers and Aquitards Investigated 24
6.2 Ground Water Elevations and Flow Direction 24
6.2.1 Rationale for Monitoring Well Locations and Screen Intervals 24
6.2.2 Results of Interface Probe Measurements 24
6.2.3 Thickness of Free Phase Product (LNAPL and/or DNAPL) 24
6.2.4 Ground Water Elevations 24
6.2.5 Interpreted Direction of Ground Water Flow 25
6.2.6 Assessment of Temporal Variability 25
6.2.7 Influence of Buried Utilities 25
6.3 Ground Water Hydraulic Gradients and Hydraulic Conductivity 25
6.3.1 Horizontal Hydraulic Gradients 25
6.3.2 Vertical Hydraulic Gradients 26
6.3.3 Hydraulic Conductivity 26
6.4 Medium and Fine Soil Texture 27
6.4.1 Rationale for Use of Fine-Medium Soil Texture 27
6.5 Soil: Field Screening 27
6.6 Soil Quality 28
6.6.1 Location and Depth of Samples 28
6.6.2 Comparison to Applicable Standards (Soil) 29
6.6.3 Contaminants of Concern (Soil) 31
6.6.4 Contamination Impact On Other Media 31
6.6.5 Presence of Light or Dense Non-Aqueous Phase Liquids (In Soil) 32
6.7 Ground Water Quality 32
6.7.1 Location and Depth of Sample Locations 32
6.7.2 Field Filtering 32
6.7.3 Comparison to Applicable Standards (Ground Water) 32
6.7.4 Contaminants of Concern (Ground Water) 34
6.7.5 Chemical or Biological Transformations 35
6.7.6 Contamination Impact On Other Media 35
6.7.7 Presence of Light or Dense Non-Aqueous Phase Liquids (Ground Water) 35
6.8 Quality Assurance and Quality Control Results 35
6.8.1 Types of Quality Control Samples Collected and Results 35
6.8.2 Samples Not Handled in Accordance with the Analytical Methods 35
6.8.3 Subsection 47 (3) of the Regulation 36
6.8.4 Results Qualified by Laboratory 36
6.8.5 Overall Quality of Field Data 36
6.8.6 Phase Two Conceptual Site Model 36

7.0 CONCLUSIONS 37
7.1 Location and Concentration of Contamination 37

7.1.1 Fill 37
7.1.2 Soil 37
7.1.3 Ground Water 37
7.2 Environmental Conditions Requiring a Risk Assessment 37

8.0 SIGNATURES 38

9.0 REFERENCES 39

10.0 LIMITATIONS AND USE OF THE REPORT 40

TABLES

Table 1 Metals and Inorganics in Soil
Table 2 Polycyclic Aromatic Hydrocarbons in Soil
Table 3 Petroleum Hydrocarbons in Soil
Table 4 Benzene, Toluene, Ethylbenzene, Xylene in Soil
Table 5 Volatile Organic Compounds in Soil
Table 6 Metals and Inorganics in Ground Water
Table 7 Polycyclic Aromatic Hydrocarbons in Ground Water
Table 8 Petroleum Hydrocarbons in Ground Water
Table 9 Benzene, Toluene, Ethylbenzene, Xylene in Ground Water
Table 10 Volatile Organic Compounds in Ground Water

FIGURES

Figure 1 Phase Two Property Location
Figure 2 PCA Locations
Figure 3 Borehole and Monitoring Well and APEC Locations
Figure 4 Ground Water Elevations (Bedrock Aquifer)
Figure 5 Cross Section Locations
Figure 6 Metals Exceedances in Soil - Plan View
Figure 7 Metals Exceedances in Soil - Cross Section A-A'
Figure 8 Metals Exceedances in Soil - Cross Section B-B'
Figure 9 Petroleum Hydrocarbons Exceedances in Ground Water - Plan View
Figure 10 Petroleum Hydrocarbons Exceedances in Ground Water– Cross Section A-A'
Figure 11 Petroleum Hydrocarbons Exceedances in Ground Water– Cross Section B-B'

APPENDICES

Appendix A Phase One Conceptual Site Model
Appendix B Site Survey
Appendix C Notification & Response Regarding Use of Non-Potable Ground Water Standards
Appendix D Sampling and Analysis Plan
Appendix E Standard Field Investigation Protocol
Appendix F Borehole Logs
Appendix G Grain Size Analyses
Appendix H Laboratory Certificates of Analysis

1.0 EXECUTIVE SUMMARY

Renimmob Properties Limited retained Terraprobe Inc. (Terraprobe) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the Property located at 535 – 551 Brant Street in Burlington, Ontario, hereafter referred to as *'the Property'*.

The Phase One ESA entitled "*Phase One Environmental Site Assessment 535-551 Brant Street, Burlington, Ontario*" dated April 12, 2019, identified five (5) Areas of Potential Environmental Concern (APECs) which were present on the Property. A Phase Two ESA of the Property was recommended to investigate the APECs for the Contaminants of Potential Concern that have been identified on the Property. The Phase Two ESA was completed in general accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

The designated Phase Two Property is rectangular in shape, with a total area of approximately 0.28 ha. The Property is developed with a multi-tenant commercial building, with one basement level and one upper level located at the central portion of the building. The existing use of the Property would be considered commercial, as defined by the Ontario Ministry of the Environment, Conservation and Parks (MECP). It is understood that the Property will be potentially developed for mixed commercial/residential use. As the proposed development of the Property will result in a change in land use from commercial to mixed use commercial/residential, a Record of Site Condition (RSC) will be required by the MECP. Terraprobe understands that the existing building will be demolished and the Property will be developed with a 25-storey mixed use commercial/residential building plus mechanical penthouse and with main floor commercial space and residential units above.

The conclusions of the Phase Two ESA are:

- The applicable Site Condition Standards are the 2011 Ministry of the Environment, Conservation and Parks (MECP) Table 3 Standards for Residential/Parkland/Institutional Land Use with Medium and Fine textured Soil (MECP Table 3 RPI MF Standards).
- An asphalt pavement structure, consisting of 50-120 mm thick asphaltic concrete underlain by 50-260 mm thick aggregate materials was encountered in Boreholes 104 to 107. A 150 mm concrete slab was encountered in Borehole 108. The fill material consisted of clayey silt to sandy silt with trace to some gravel, trace rock fragments, trace asphalt, and trace wood fragments. Glacial till composed of silt, some clay and trace gravel was encountered beneath the earth fill zone. Underlying the glacial till, bedrock was inferred in Borehole 108 by split spoon samples and auger resistance observation. Bedrock of the Queenston formation was confirmed by rock coring in Boreholes 104, 106, and 107 and extended to the full depth of the investigation.
- The MECP Table 3 RPI MF Standards were met in the earth fill soil located on the Property with the exception of the following:
    - Beryllium (Metals) in BH104
    - Lead (Metals) in BH107 and BH108

- The MECP Table 3 RPI MF Standards were met for the native soils, located beneath the earth fill, on the Property.
- The MECP Table 3 MF Standards were met for all tested parameters in the groundwater on the Property with the exception of the following:
    - Petroleum Hydrocarbons F2 in BH104 and BH106
    - Petroleum Hydrocarbons F3 in BH107
- The Phase Two ESA identified EC and SAR impacts in soil and sodium and chloride impacts in ground water (subsequently determined to be a local background condition). However, Ontario Regulation 153/04 (O.Reg. 153/04) was amended on December 04, 2019. In particular, Paragraph 1 of Section 49.1 of O.Reg. 153/04 states that apparent exceedances of the Site Condition Standards are deemed not to be exceedances if the Qualified Person attributes these results to the use of de-icing salt application to surfaces for the safety of vehicular and pedestrian traffic under conditions of snow and ice or both. A review of the analytical results indicated that elevated EC and SAR in fill were associated with the locations of parking areas and driveways.

In summary, exceedances of the applicable Site Condition Standards were noted in the earth fill on the Property. Additionally, exceedances of the applicable Site Condition Standards were noted in the ground water on the Property. A Record of Site Condition cannot be filed for the Property at this time due to the exceedances noted in the earth fill, and ground water. Either remediation or a Risk Assessment will be required before a Record of Site Condition (RSC) can be filed for the Property.

2.0 INTRODUCTION

Renimmob Properties Limited retained Terraprobe Inc. (Terraprobe) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the Property located at 535 – 551 Brant Street in Burlington, Ontario, hereafter referred to as *'the Property'*. The Phase Two ESA was required to investigate the Areas of Potential Environmental Concern for the Potential Contaminants of Concern that have been identified on the Site and are applicable to the Property. The Phase One ESA entitled "*Phase One Environmental Site Assessment 535-551 Brant Street, Burlington, Ontario*" dated April 12, 2019, identified five (5) Areas of Potential Environmental Concern (APECs) which were present on the Property. A Phase Two ESA of the Property was recommended to investigate the APECs for the Contaminants of Potential Concern that have been identified on the Property. The Phase Two ESA was completed in general accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

2.1 Site Description

The designated Phase Two Property is rectangular in shape, with a total area of approximately 0.28 ha. The Property is developed with a multi-tenant commercial building, with one basement level and one upper level located at the central portion of the building. The existing use of the Property would be considered commercial, as defined by the Ontario Ministry of the Environment, Conservation and Parks (MECP). It is understood that the Property will be potentially developed for mixed commercial/residential use. As the proposed development of the Property will result in a change in land use from commercial to residential, a Record of Site Condition (RSC) will be required by the MECP. The general location of the Property is presented on Figure 1. The legal site Survey is provided in Appendix B.

The Property information is as follows:

Legal Description	Lot 101, 102 & 103 Plan 55
PIN(s)	07071-0056 (LT)
Assessment Roll Number	Not provided
Municipal Address	535 – 551 Brant Street, Burlington
Zoning	Downtown Core Zone
Area	0.28 ha
Persons, other than Property Owner, who engaged the Qualified Person to conduct the Phase Two ESA	Not Applicable

2.2 Property Ownership

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

Property Owner Information	Renimmob Properties Limited 2069 Lakeshore Road Burlington, Ontario L7R 1E2

2.3 Current and Proposed Future Uses

2.3.1 Current Land Use

The Property is currently occupied with a multi-tenant commercial building, with one basement level and one upper level located at the central portion of the building. Under O.Reg. 153/04, the current Property Use of the Property would be considered Commercial Property Use.

2.3.2 Future Land Use

Terraprobe understands, based on the development concept plans that the existing building will be demolished and the Property will be developed with a 25-storey mixed use commercial/residential building plus mechanical penthouse and with with main floor commercial space and residential units above. Under O.Reg 153/04, the proposed future land use for the Property is Residential Property 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 and Institutional in potable ground water condition for medium-fine textured soil (Table 3 RPI MF Standards).

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

- The intended use for the Property is mixed commercial-residential with residential being the most sensitive use.
- Soil PH is within the ranges within which the generic criteria other than the Table 1 (Background) Standards may be applied.
- Soil at the Property was found to be MF textured based on a review of the soil samples collected from the boreholes and the results of soil grain size analyses.
- Bedrock is located at a depth of greater than 2 m.

- The Property is not located within 30 m of a surface water body.
- The Property is not located in or adjacent to or within 30 m of an area of natural significance.
- The Property is located within the City of Burlington, which obtains its potable water from surface water sources (Lake Ontario). In April 2020, Terraprobe filed a request with the Region of Halton and the City of Burlington to use assessment criteria for a non-potable ground water condition. The Region issued a no-objection response regarding the non-potable request. The notification and response regarding the use of non-potable ground water conditions is presented in Appendix C.

2.5 Objectives of Investigation

The general objectives of the investigation include the following:

- To determine the concentration and location of Potential Contaminants of Concern (CoPCs) identified in a Phase One ESA for the Property, and found through the course of conducting the Phase Two ESA, in soil, sediment, and ground water, as applicable.

- To determine if all CoPCs identified in the investigation met the generic Site Condition Standard or standard specified in a Risk Assessment, as applicable.

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 D) of the Phase Two ESA and found through the course of conducting the Phase two ESA, in soil, sediment, and ground water, as applicable.

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

3.1.1 Water Bodies 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. 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)	• The nearest water body is Rambo Creek which is located 75 meters east 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)	Provincially Significant Life Science ANSI • No Life Science ANSIs were identified in the Study Area. Provincially Significant Earth Science ANSI • 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 gleaned from the mapping is summarized below.

Topography	The approximate elevation of the Property is 87.5 to 87.9 meters above sea level (masl) sloping to the southeast. Surface water is expected to flow southeast of the property.
Hydrogeology	The nearest water body is Rambo Creek, which is located approximately 75 m east of the Property. The approximate depth to ground water, based on monitoring wells installed on the Property, is approximately 2.5 m in the overburden soil and 3.0 to 4.5 m in the bedrock. Ground water was found to flow to the northwest in the bedrock aquifer, however, regional ground water flow is expected to be toward Lake Ontario, located approximately 800 m southeast of the Property.
Geology (overburden)	The overburden consists of coarse textured glaciolacustrine deposits consisting of sand, gravel, minor silt and clay.
Geology (bedrock)	The bedrock on the site is of the Queenston Formation, which is comprised of shale, limestone, dolostone and siltstone.
Geology (depth to bedrock)	Based on borehole information from boreholes completed on the Property by Terraprobe, the depth to bedrock is approximately 2.6 m below ground surface.

3.2 Past Investigations

Previous environmental investigations completed by others and Terraprobe for the Property are summarized below:

Report Title	Phase One Environmental Site Assessment, 535-551 Brant Street, Burlington, Ontario
Report Date	April 12, 2019, Revised November 12, 2020
Prepared By	Terraprobe Inc.
Prepared For	Renimmob Properties Limited

- The Phase One ESA was completed in general accordance with O.Reg 153/04 for the Phase One Property (Site)
- Historical activities at the site included private and commercial ownership. At the time of the site inspection in February 2019, the site was developed for commercial purposes (retail commercial plaza).
- Based on the findings of the Phase One ESA, Potentially Contaminating Activities (PCAs) were identified including but not limited to importation of fill materials of unknown quality, commercial auto body shop, fuel storage tanks, waste disposal, and a dry cleaners facility. These activities resulted in the identification of five (5) Areas of Potential Environmental Concern on the Property.
- Terraprobe concluded that, based on the results of the Phase One ESA, a Phase Two Environmental Site Assessment would be required to investigate the issues of potential environmental concern which may have resulted in adverse impacts to the environmental condition of the Property.

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC 1	Entire Property	PCA #30 – Importation of Fill Material of Unknown Quality	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR & PAH	Soil
APEC 2 & 3	Southeastern Portion of Property	PCA #10 – Commercial Autobody Shops PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water
APEC 4	Northwest Portion of Property	PCA #58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Off-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water
APEC 5	Northern Portion of Property	PCA #37 Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOC	Soil Ground Water

- The Phase One ESA report concluded that a Phase Two ESA would be required to determine the quality of the soil and ground water at the site prior to filing for an RSC.

Report Title	Designated Substance Survey 535 Brant Street Burlington, Ontario
Report Date	October 2009
Prepared By	Terraprobe Inc.
Prepared For	Renimmob Properties Limited

- Designated substance survey completed at the site.
- Asbestos containing materials noted in the basement. Materials included vinyl floor time, wall plaster, insulation, cementitious pipe elbow and acoustic ceiling tile.

Report Title	Site Remediation Underground Waste Oil Tank Area 535 Brant Street Burlington, Ontario
Report Date	July, 2006
Prepared By	Terraprobe Inc.
Prepared For	The Effort Trust Company

- An out of service underground waste oil tank was located at the rear of the building, outside the southernmost service bay associated the Firestone Tire and Automotive Centre.
- Approximately 1,000 liters of residual liquid were removed from the tank.
- The remedial activities resulted in an excavation approximately 20 square metres in size.
- Based and wall samples collected of the resulting remedial area, indicated that all samples met the applicable site condition standards.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

Terraprobe conducted the following specific subsurface work at the Property:

- In November 2018, three boreholes (BH101-103) were drilled to a depth of approximately 2.0 m below grade as part of a geotechnical pavement investigation. These boreholes were not investigated as part of the Phase Two ESA.
- In January 2019, five (5) boreholes (BH104-108) were drilled to depths ranging from approximately 2.6 to 18.5 m below grade on the Property.
- Installation of five (5) ground water monitoring wells in BH104-108
- Laboratory analysis of selected soil samples for contaminants of concern identified in the Phase One ESA for APECs 1 to 5 which were within the Property. The analysis included:
    - Metals
    - Hydride-Forming Metals
    - Select Other regulated Parameters (ORPs) including Electrical conductivity (EC), Sodium Absorption Ratio (SAR), Boron, hot water soluble, Cyanide, Mercury, Hexavalent Chromium, pH
    - Polycyclic Aromatic Hydrocarbons (PAHs)
    - Petroleum Hydrocarbons F1 to F4 (PHCs)

  - Volatile Organic Compounds I (VOCs)
  - Volatile Organic Compounds II (BTEX)
- Submission of soil samples to Terraprobe Inc. for grain size analysis and soil classification
- 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 analysis of the ground water samples for contaminants of concern identified in the Phase One ESA for APECs 1 to 5 which were within the Property. The analysis included:
  - Metals
  - Hydride-Forming Metals
  - Select ORP including Chloride, Cyanide, Mercury, Hexavalent Chromium, pH
  - PAHs
  - PHCs
  - VOCs
  - BTEX

4.2 Media Investigated

4.2.1 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.

4.2.2 Overview of Field Investigation of Media

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

4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model was developed as part of the Phase One ESA for the Site through a review of historical records and a reconnaissance of the area. An excerpt from the Phase One ESA outlining the Phase One Conceptual Site Model is provided in Appendix A.

4.4 Deviations from Sampling and Analysis Plan

The sampling and analysis plan is provided in Appendix D. Deviations from the sampling and analysis plan consisted of (i) no yield or poor yield at BH105 and BH108, respectively, preventing the sampling of ground water.

4.5 Impediments

There were no impediments encountered during the investigation.

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 MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario",* December 1996; "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", rev. March 2019; and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", July 2011.

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 E.

5.2 Drilling

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

Borehole	BH104 to BH108
Date of Work	January 22 to 25, 2019
Name of Contractor	Landshark Drilling
Equipment Used	• B60 truck • Solid stem augers
Decontamination Measures	The sampling device was washed between each sample to minimize potential cross-contamination.
Sampling Frequency	Please refer to the borehole logs in Appendix F 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 2 Monitor

5.3.2 Geological Description of Soil

Please refer to the borehole logs in Appendix F 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 and Climate Change.

Samples were screened using an RKI Instruments EAGLE 2 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 August 8, 2010.

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix F.

5.5 Ground Water Monitoring Well Installation

Monitoring wells were installed in boreholes BH104 to BH108 by the drilling sub-contractor on the dates noted in Section 5.2, under the supervision of an experienced Terraprobe field technician. The wells were constructed of 50-mm (2-in) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.3 to 0.6 m above the top of the screen. The wells were then backfilled with bentonite to the ground surface. The wells were finished with flush-mount casings.

As per Ontario Regulation 903, the monitoring wells were tagged. The monitoring well locations are provided in Figure 3. The monitoring well installation details are provided on the borehole logs in Appendix F.

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.

Range

- pH 0.00 to 14.00 pH
- EC 0.00 to 4.00 mS/cm
- TDS 0.00 to 2.0 ppt (g/L)
- Temperature 0.0 to 60.0°C

Resolution

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

Accuracy

- pH ±0.05 pH
- EC ±2% F.S.
- TDS ±2% F.S.
- Temperature ±0.5°C

5.7 Ground Water Sampling

The monitoring wells were purged and sampled using an inertial pump and dedicated bailer. The ground water was purged before sampling to ensure extraction of representative formation ground water. Stabilization of parameters (pH, conductivity, temperature, etc.) of the purged water were monitored before a sample was taken to maintain the equilibrium with the surrounding formation water and produce 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 methodologies from the MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario",* December 1996; "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", rev. March 2019; and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", July 2011, were followed in the collection of the ground water samples.

5.8 Sediment Sampling

No sediment sampling was conducted as part of this investigation because there are no water bodies on-site.

5.9 Analytical Testing

Analytical testing of all soil and ground water samples was conducted by SGS Canada Inc., a laboratory accredited by the Canadian Association for the Laboratory Accreditation.

5.10 Residue Management Procedures

5.10.1 Soil Cuttings

Soil cuttings generated during the drilling activities were removed from the Property by a licenced subcontractor.

5.10.2 Ground Water

The development and purge water generated during the ground water sampling event was disposed of into drums that were removed after the work was complete.

5.10.3 Fluids from Equipment Cleaning

The fluids from cleaning 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 by Terraprobe using a Trimble R10 survey system. The Trimble R10 is a differential global positioning system (GPS) which involves the cooperation of two receivers, one that's stationary and another that's roving around making position measurements. The elevation of each borehole on the Property is presented on the borehole logs in Appendix F.

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, as applicable, for all sampling conducted on the Property.

Soil Parameters	Container
Chloride, electrical conductivity	250 mL glass jar, Teflon lined lid
Cyanide (CN−)	250 mL glass jar, Teflon lined lid
Fraction organic carbon (FOC)	250 mL glass jar, Teflon lined lid
Hexavalent chromium	250 mL glass jar, Teflon lined lid
Metals (includes hydride-forming metals, SAR, HWS boron, calcium, magnesium, sodium)	250 mL glass jar, Teflon lined lid
Mercury, methyl mercury	250 mL glass jar, Teflon lined lid
pH	250 mL glass jar, Teflon lined lid
BTEX, PHCs (F1), THMs, VOCs	40–60 mL glass vial (charged with methanol preservative, pre- weighed) and glass jar (for moisture content)
PHCs (F2–F4)	120 mL glass jar, Teflon lined lid
ABNs, CPs, OCs, PAHs	120 mL glass jar, Teflon lined lid

Ground Water Parameters	Container
Chloride, electrical conductivity, pH	250 mL HDPE
Cyanide (CN−)	250 mL HDPE
Hexavalent chromium	250 mL HDPE
Metals (includes hydride-forming metals, calcium, magnesium, sodium)	250 mL HDPE
Mercury	125 mL clear glass bottle
Methyl mercury	125 mL clear glass bottle
BTEX, PHCs (F1),THMs, VOCs;	40–60 mL glass vials (minimum of 2)
PHCs (F2–F4)	2 x 500 mL amber glass bottle, Teflon lined lid
CP, OCs, PAHs, PCBs	2 x 500 mL amber glass bottle, Teflon lined lid
ABNs,	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
- 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 sampling device was changed between samples to minimize cross-contamination. During ground water sampling any part of the water level meter which came into contact with the ground water was cleaned between monitoring wells.

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

5.12.3 Field Quality Control Measures

- All non-dedicated sampling and monitoring equipment was cleaned following each use.
- Where ground water samples are to be analyzed for volatile organic compounds one trip blank sample was submitted for laboratory analysis with each laboratory submission.
- Sufficient field duplicate samples were collected in each medium being sampled, so that at least one field duplicate sample could be submitted for laboratory analysis for every ten 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

No deviations from the quality assurance and quality control measures occurred.

6.0 REVIEW AND EVALUATION

6.1 Geology

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

6.1.1 Geological Unit Thickness (Estimate)

The geological unit thicknesses are presented below.

Borehole	BH104	BH105	BH106	BH107	BH108
	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)	Thickness (m)
Fill	2.1	1.5	1.3	1.3	1.3
Native Soil	0.7	1.1	1.5	1.5	1.5
Bedrock	15.5*	-	15*	15.1*	0.3*

* Bedrock extended beyond the vertical depth of the investigation.

6.1.2 Elevations of Geological Units

The geological unit elevations are presented below.

Elevation (m)					
Borehole	**BH104**	**BH105**	**BH106**	**BH107**	**BH108**
Fill	87.2-85.1	87.6-86.1	87.5-86.2	87.6-86.3	87.5-86.2
Native	85.1-84.4	86.1-85.0	86.2-84.7	86.3-84.8	86.2-84.7
Bedrock	84.4-68.9*	-	84.7-69.7*	84.8-69.7*	84.7-84.4*

* Bedrock extended beyond the vertical depth of the investigation.

Groundwater was found to be between elevations of about 82.8 and 85.1 masl . Groundwater contours are shown on Figure 4.

6.1.3 Material in Geological Units

Surficial and Earth Fill Materials

At surface, Boreholes 104 to 107 encountered a pavement structure consisting of 50 to 120 mm of asphalt overlying 50 to 260 mm of aggregate. Borehole 108 encountered 150 mm of concrete slab.

Underlying the pavement structure and surficial material, earth fill was encountered in all the boreholes extending to a depth of 1.5 to 2.3 m below grade (Elev. 85.1 to 86.3 m). The earth fill consists of clayey

silt to sandy silt with trace to some gravel. Trace rock fragments, trace asphalt, trace wood fragments, and trace brick fragments were also observed. It is typically brown to dark brown, and moist.

Glacial Till (Halton Till)

Underlying the earth fill, a glacial till was encountered in all the boreholes at a depth of 1.5 to 2.3 m below grade (Elev. 85.1 to 86.3 m). The glacial till stratum extends to a depth of 2.0 to 3.0 m below grade (Elev. 84.4 to 85.5 m). The glacial till is composed of silt, some clay, trace sand, and trace gravel. It is typically reddish brown and moist.

Bedrock

Underlying the glacial till, bedrock was inferred in Borehole 108 by split spoon samples and auger resistance observation at a depth of about 3.0 m below grade (Elev. 84.7 ±m). This borehole was terminated within the inferred bedrock.

Bedrock was confirmed by rock coring in Boreholes 104, 106, and 107 to depths of 18.0 to 18.5 m below grade (Elev. 68.9 to 69.7 ±m). Rock Core Logs are provided in Appendix F.

The bedrock of the Queenston Formation is a deposit predominantly comprised of thickly bedded to massive brick red shale of Ordovician age. The formation contains interbeds of light grey / green calcareous shale and siltstone and calcareous sandstone which are discontinuous and nominally 50 to 300 mm thick. The shale is a weak to medium strength rock, whereas the limestone/dolostone beds are considered medium strength rock. The percentage of recovered core consisting of limestone/dolostone, or hard layers, are shown on the rock core logs. The percentages ranged from 0 to 33% hard layers per rock core run (1.5± m). Hard layers were encountered in the partially weathered and sound bedrock.

6.1.4 Properties of Aquifers and Aquitards

Earth Fill

The water table at the Property is located below the fill. Any water within the fill is expected to migrate downwards into the glacial till but may transiently pond over the till due to the lower hydraulic conductivity of the underlying layer.

Native Soil – Halton Till

The glacial till consisting of a cohesive to cohesionless silt deposit and is considered to be an aquitard due to its low hydraulic conductivity. It was noted that ground water was found within this layer, but yield was noted to be very low.

Bedrock - Queenston Formation

The Queenston Formation bedrock is found underlying the glacial till. This is considered to be an aquitard due to its low hydraulic conductivity (6x 10^{-7} m/s or less).

6.1.5 Rationale for Choice of Aquifers and Aquitards Investigated

The native soil and bedrock aquifer (Queenston Formation) was chosen for investigation. These strata was chosen for investigation because of:

- the absence of free water in the overlying sill;
- the possibility of free ground water present; and
- the base of the proposed development is within bedrock.

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 glacial till and bedrock across the Property to allow for the collection of ground water samples within the strata of interest. It was noted that the fill materials were not water-bearing.

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 Phase Product (LNAPL and/or DNAPL)

No free phase product was encountered on the Property.

6.2.4 Ground Water Elevations

Unstabilized groundwater levels were measured in each of borehole as they were drilled and after completion, as noted in the borehole logs in Appendix F. Ground water levels were measured in the installed monitoring wells using a Solinst interface probe.

The ground water levels are presented below.

Well ID	BH104		BH105		BH106		BH107		BH108	
Well Depth (mbgs)	18.5		2.3		18.0		18.1		3.0	
Ground Elev. (mASL)	87.4		87.6		87.7		87.8		87.7	
Top of Screen (mASL)	72.0		86.9		72.8		72.8		86.2	
Bottom of Screen (mASL)	68.9		85.3		69.7		69.7		84.7	
Date	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)	WL (mbgs)	Elev. (mASL)
February 8, 2019	3.4	84.0	Dry	N/A	11.4	76.3	4.3	83.5	Dry	N/A
February 21, 2019	3.6	83.8	Dry	N/A	4.9	82.8	-	-	-	-
March 15, 2019	3.3	84.1	Dry	N/A	4.5	83.2	4.3	83.5	Dry	N/A
March 22, 2019	3.2	84.2	Dry	N/A	4.5	83.2	4.1	83.7	2.6	85.1
April 18, 2019	3.2	84.2	Dry	N/A	4.4	83.3	4.2	83.6	2.6	85.1

Notes:
WL = Water Level
mbgs = metres below ground surface
mASL = metres above sea level
"-" well was not sampled/ not accessible

6.2.5 Interpreted Direction of Ground Water Flow

Based on the ground water elevations in the monitoring wells at the Property, the ground water was determined to flow northwest. The ground water flow direction is presented on Figure 4.

6.2.6 Assessment of Temporal Variability

Five (5) ground water level measurements were collected on the Property within ten (10) weeks. Additional water level measurements are required to assess temporal variability.

6.2.7 Influence of Buried Utilities

Buried utilities are located on the Property above the static water table. As such, it is unlikely that the buried utilities influence the 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

There are two units of ground water on the Property; the upper unit with the native Halton Till and the lower unit within the bedrock. The horizontal hydraulic gradient of the ground water for the upper unit could not be calculated as only one well within this unit had measurable amounts of water. The horizontal hydraulic gradient of the ground water for the bedrock unit at the Property was calculated based on the current ground water elevations from monitoring well BH104 and BH107, where these two wells are oriented in the direction of the ground water flow (northwest). The approximate hydraulic gradients were calculated as follows:

- BH104 to BH107 → 0.011 m/m
- BH104 to BH106 → 0.019 m/m
- BH107 to BH106 → 0.013 m/m

BH104 to BH107 represents the most direct correlation with the ground water flow, and is likely the most applicable. However both other calculations are in a similar ground water flow orientation. The average hydraulic gradient is 0.014 m/m.

6.3.2 Vertical Hydraulic Gradients

The vertical hydraulic gradient cannot be accurately determined on the Property since there are no nested wells installed between two separate strata (shallow and deep wells).

6.3.3 Hydraulic Conductivity

The hydraulic conductivities from Terraprobe's monitoring wells were determined based on the rising water level recovery of the monitoring well (rising head test). This test involves the rapid removal of water from a single well and monitoring the water level recovery. The results of the rising head tests were analysed using the Bouwer and Rice method (1976). The results of the analysis are presented in Appendix D. The hydraulic conductivities of the strata applicable to the Property are as follows:

Monitoring Well	Well Screen Elevation (mASL)	Strata Screened Within	Hydraulic Conductivity (rising head test, m/s)
BH104	68.9 -72.0	Queenston Formation bedrock	1.78×10^{-7}
BH106	69.7-72.8	Queenston Formation bedrock	2.28×10^{-8}
BH107	69.7-72.8	Queenston Formation bedrock	1.56×10^{-8}

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

- Silty Sand 10^{-3} m/s to 10^{-7}
- Silt 10^{-5} m/s to 10^{-9} m/s
- Clayey Silt 10^{-8} m/s to 10^{-10} m/s

The hydraulic conductivity field results are relatively consistent with the published values associated with the geological materials which were tested.

6.4 Medium and Fine Soil Texture

6.4.1 Rationale for Use of Fine-Medium Soil Texture

A total of five (5) soil samples from selected boreholes were submitted for grain size analysis. In order to determine the soil texture for the applicable standard, the Ontario Regulation 153/04 (Records of Site Condition–Part XV.1 of the Environmental Protection Act) in Section 42(1). Subsection (1) states the following:

'If the qualified person determines that at least 1/3 of the soil at the property, measured by volume, consists of MF textured soil, the qualified person shall apply the standard for MF textured soil.'

Based on the results of the grain size analysis, it is indicated that the soil at the Property consists of soil particles with more than 50% by mass of particles smaller than 75 microns in diameter. The grain size analyses are presented in Appendix G.

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.

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix F.

6.6 Soil Quality

6.6.1 Location and Depth of Samples

Sample ID	Depth (m)/ Approximate Elev.	Strata	M	H-M	ORPs	PAHs	PHCs/ BTEX	VOCs
BH104/SS1	0.5 / 87.0	Fill	✓	✓	✓			
BH104/SS2	1.1 / 86.4	Fill				✓		
BH104/SS3	1.8 / 85.6	Fill					✓	✓
BH104/SS4B	2.7 / 84.7	Native	✓	✓	✓	✓	✓	✓
BH105/SS1	0.5 / 87.2	Fill	✓	✓	✓			
BH105/SS2	1.1 / 86.5	Fill				✓	✓	✓
BH105/SS3	1.8 / 85.9	Native	✓	✓	✓	✓	✓	✓
BH106/SS1	0.5 / 87.3	Fill				✓		
BH106/SS2	1.1 / 86.7	Fill	✓	✓	✓		✓	✓
BH106/SS3	1.8 / 85.9	Native	✓	✓	✓	✓		
BH106/SS4	2.4 / 85.3	Native					✓	✓
BH107/SS1	0.5 / 87.3	Fill	✓	✓	✓	✓		
BH107/SS2	1.1 / 86.7	Fill					✓	✓
BH107/SS3	1.8 / 85.9	Native	✓	✓	✓	✓		
BH107/SS4	2.4 / 85.3	Native					✓	✓
BH108/SS1	0.3 / 87.4	Fill	✓	✓	✓			
BH108/SS2	1.0 / 86.8	Fill				✓	✓	✓
BH108/SS3	1.8 / 86.0	Native	✓	✓	✓			
BH108/SS4	2.5 / 85.2	Native				✓		
BH108/SS5	3.2 / 84.6	Native					✓	✓
Dup 1 (BH104/SS1)	0.5 / 87.0	Fill	✓	✓	✓			
Dup 2 (BH106/SS1)	0.5 / 87.3	Fill				✓		
Dup 3 (BH108/SS5)	3.2 / 84.6	Native					✓	✓

6.6.2 Comparison to Applicable Standards (Soil)

Select soil samples were analysed for the Potential Contaminants of Concern (CoPCs) identified in the Phase One ESA for APECs 1 to 5 which encompassed the Property. CoPCs included:

- Metals
- Hydride-Forming Metals
- Select Other regulated Parameters (ORPs) including Electrical conductivity (EC), Sodium Absorption Ratio (SAR), Boron, hot water soluble, Cyanide, Mercury, Hexavalent Chromium, pH
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Petroleum Hydrocarbons (PHCs)
- Volatile Organic Compounds I (VOCs)
- Volatile Organic Compounds II (BTEX)

The results of the analysis were compared to the future use applicable Site Condition Standard for the Property (Table 3 RPI MF). The laboratory certificates of analysis are provided in Appendix H, and the results of the soil chemical analysis are provided in Tables 1 to 5 and shown on Figures 6 to 13.

Metals in Soil

The following exceedances for Metals of the MECP Table 3 RPI Standard were noted in the samples analyzed:

- Duplicate 1 (BH104/SS1)
  - Beryllium *(Standard 5 ug/g, Result 5.4 ug/g)*
  - Selenium *(Standard 2.4 ug/g, Result 2.6 ug/g)*
- BH107/SS1
  - Lead *(Standard 120 ug/g, Result 280 ug/g)*
- BH108/SS1
  - Lead *(Standard 120 ug/g, Result 140 ug/g)*

It is noted that Duplicate 1, which is a duplicate of BH104/SS1 exceeds for selenium. As such, the selenium concentrations for Duplicate 1 (2.6 ug/g) and BH104/SS1 (2.1 ug/g) can be averaged. The average of these two samples is 2.4 ug/g, therefore selenium is found to meet the Table 3 RPI Site Condition Standards.

All other samples analyzed met the MECP Table 3 RPI Standard for Metals. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix H.

Hydride-forming Metals in Soil

The soil samples submitted for Hydride-forming Metals analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix H.

Other Regulated Parameters in Soil

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

- BH104/SS1
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.4 mS/cm)*
    - Sodium Adsorption Ratio *(Standard 5 unit less, Result 12.4 unit less)*
- BH104/SS4B
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.5 mS/cm)*
    - Sodium Adsorption Ratio *(Standard 5 unit less, Result 8.0 unit less)*
- BH106/SS2
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 2.6 mS/cm)*
    - Sodium Adsorption Ratio *(Standard 5 unit less, Result 41.9 unit less)*
- BH106/SS3
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.9 mS/cm)*
    - Sodium Adsorption Ratio *(Standard 5 unit less, Result 37.3 unit less)*
- BH107/SS1
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.1 mS/cm)*
    - Sodium Adsorption Ratio *(Standard 5 unit less, Result 21.0 unit less)*
- BH107/SS3
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.5 mS/cm)*
    - Sodium Adsorption Ratio *(Standard 5 unit less, Result 21.0 unit less)*
- Duplicate 1
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 1.3 mS/cm)*
    - Sodium Adsorption Ratio *(Standard 5 unit less, Result 11.1 unit less)*
- BH108/SS1
    - Electrical Conductivity *(Standard 0.7 mS/cm, Result 3.1 mS/cm)*

All other samples analyzed met the MECP Table 3 RPI Standard for ORPs. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix H.

Paragraph 1 of Section 49.1 of O.Reg. 153/04 states that apparent exceedances of EC and SAR are deemed not to be exceedances if the Qualified Person attributes these results to the use of de-icing salt application to surfaces for the safety of vehicular and pedestrian traffic under conditions of snow and ice or both. A review of the analytical results indicated that elevated EC and SAR in fill/soil was associated with the locations of parking areas and driveways.

Polycyclic Aromatic Hydrocarbons in Soil

All soil samples submitted for PAH analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 2 and the laboratory certificates of analysis are provided in Appendix H.

Petroleum Hydrocarbons in Soil

All soil samples submitted for PHC analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 3 and the laboratory certificates of analysis are provided in Appendix H.

Benzene, Toluene, Ethylbenzene and Xylene in Soil

All soil samples submitted for BTEX analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 4 and the laboratory certificates of analysis are provided in Appendix H.

Volatile Organic Compounds in Soil

The soil samples submitted for VOC analysis met the MECP Table 3 RPI Standard. The results are summarized in Table 5 and the laboratory certificates of analysis are provided in Appendix H.

6.6.3 Contaminants of Concern (Soil)

The Contaminants of Concern associated with the earth fill on the Property are:

- Metals
    - Beryllium
    - Lead

There are no Contaminants of Concern associated with the native soil on the Property.

6.6.4 Contamination Impact On Other Media

It is possible that Contaminants of Concern exceeding the applicable site conditions can impact other media.

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

Sample ID	Screen Depth (m)	Screen Elevation (masl)	Strata	M	H-M	ORPs	PAHs	PHCs/ BTEX	VOCs
BH104	15.3 – 18.5	72.2 – 68.9	Native	✓	✓	✓	✓	✓	✓
BH105	0.8 – 2.3	86.9 – 85.3	Fill	Monitoring well was dry					
BH106	15.0 – 18.0	72.8 – 96.8	Native	✓	✓	✓	✓	✓	✓
BH107	15.0 – 18.1	72.7 – 69.7	Native	✓	✓	✓	✓	✓	✓
BH108	1.5 – 3.1	86.2 – 84.7	Native	Monitoring well did not yield enough water					
Dup (BH107)	15.0 – 18.1	72.7 – 69.7	Native	✓	✓	✓	✓	✓	✓

Notes: ORPs analyzed include Chromium IV, Cyanide, Chloride, 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 MECP's *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"*, July 2011. Field filtration utilized dedicated, disposable, in-line 0.45 micron filters.

6.7.3 Comparison to Applicable Standards (Ground Water)

Select ground water samples were analysed for the Potential Contaminants of Concern (CoPCs). CoPCs included:

- Metals
- Hydride-Forming Metals
- Select ORP including Chloride, Cyanide, Mercury, Hexavalent Chromium, pH
- Sodium
- PAHs
- PHCs
- VOCs
- BTEX

The results of the analysis were compared to the applicable Site Condition Standard for the Property (Table 3 MF). 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

The ground water samples submitted for metals analysis met the MECP Table 3 Standard. The results are summarized in Table 6 and the laboratory certificates of analysis are provided in Appendix H.

Hydride-forming Metals in Ground Water

The ground water samples submitted for hydride-forming metals analysis met the MECP Table 3 Standard. The results are summarized in Table 6 and the laboratory certificates of analysis are provided in Appendix H.

Other Regulated Parameters in Ground Water

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

Borehole	Parameter	MECP Table 3 SCS	Result February 19, 2019 (µg/L)	Result February 21, 2019 (µg/L)
BH106	Chloride	2300000	**25000000**	**28000000**

All other samples submitted for ORPs met the MECP Table 3 RPI Standards. The results are summarized in Tables 6 and the laboratory certificates of analysis are provided in Appendix H.

BH106 is a deep (~18. m) bedrock well. A nearby Water Well Record from the 1950's (#2800010) reports obtaining salt water from a similar depth (~15 m). As such, the Qualified Person attributes elevated chloride in deep bedrock ground water to background conditions, i.e., the exceedance for chloride is an apparent exceedance only and not an exceedance of its Site Condition Standards.

Sodium in Ground Water

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

Borehole	Parameter	MECP Table 3 SCS	Result February 19, 2019 (µg/L)	Result February 21, 2019 (µg/L)
BH106	Sodium	2300000	**8150000**	**9950000**

The Qualified Person deems the elevated sodium to be a background condition using the same rationale as was applied to chloride. All other samples submitted for ORPs met the MECP Table 3 RPI Standards.

The results are summarized in Tables 6 and the laboratory certificates of analysis are provided in Appendix H.

Polycyclic Aromatic Hydrocarbons in Ground Water

The ground water samples submitted for PAH analysis met the MECP Table 3 Standard. The results are summarized in Table 7 and the laboratory certificates of analysis are provided in Appendix HE.

Petroleum Hydrocarbons in Ground Water

The following exceedances for PHCs of the MECP Table 3 Standard were noted in the ground water samples analyzed:

Borehole	Parameter	MECP Table 3 SCS	Result February 19, 2019 (µg/L)	Result February 21, 2019 (µg/L)
BH104	PHC F2	150	**715**	Meets
BH106	PHC F2	150	**2010**	**181**
BH107	PHC F3	500	**693**	Not Analyzed
Dup (BH107)	PHC F3	500	**550**	Not Analyzed

All other samples submitted for PHCs met the MECP Table 3 RPI Standards. The results 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 ground water samples submitted for BTEX analysis met the MECP Table 3 Standard. The results are summarized in Table 9 and the laboratory certificates of analysis are provided in Appendix H.

Volatile Organic Compounds in Ground Water

The ground water samples submitted for VOC analysis met the MECP Table 3 Standard. The results are summarized in Table 10 the laboratory certificates of analysis are provided in Appendix H.

6.7.4 Contaminants of Concern (Ground Water)

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

- Petroleum Hydrocarbons F2
- Petroleum Hydrocarbons F3

6.7.5 Chemical or Biological Transformations

No chemical or biological transformations are known to have occurred, based on the nature of the Contaminants of Concern associated with the ground water at the Property.

6.7.6 Contamination Impact On Other Media

It is possible that Contaminants of Concern exceeding the applicable site conditions can 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 MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario",* December 1996; "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", rev. March 2019; and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", July 2011. Duplicate samples were submitted at a rate of 10% of the original 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's *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", J*uly 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 used 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.

Container Type

All samples met the container type as specified in Ontario Ministry of the Environment and Climate Change - 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 (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 H to the Phase Two ESA report.

6.8.4 Results Qualified by Laboratory

The laboratory did not make any comments that changed the outcome of the analytical results 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.

6.8.6 Phase Two Conceptual Site Model

A Phase Two Conceptual Site Model (CSM) was not completed at this time. A Phase Two CSM will be prepared prior to submission of the Record of Site Condition.

7.0 CONCLUSIONS

7.1 Location and Concentration of Contamination

7.1.1 Fill

There were exceedances of the MECP Table 3 RPI MF Standards noted in the earth fill for Metals in BH104 and BH107. All soil exceedance locations are noted in Figures 6 to 8.

7.1.2 Soil

The MECP Table 3 MF Standards were met in the native soils located on the Property.

7.1.3 Ground Water

There were exceedances of the MECP Table 3 MF Standards noted in the ground water for PHC (F2 & F3). All ground water exceedance locations are noted in Figures 9 to 14.

7.2 Environmental Conditions Requiring a Risk Assessment

Exceedances of the applicable Site Condition Standards were noted in the earth fill and ground water on the Property. As such, either remediation or a Risk Assessment will be required before a Record of Site Condition (RSC) can be filed for the Property.

8.0 SIGNATURES

The Phase Two Environmental Site Assessment has been completed by Teresa Weatherhead, LEL, under the direction and supervision of R. Baker Wohayeb, 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 and from the current investigation for the Phase Two Property. The Phase Two Environmental Site Assessment was completed in accordance with the requirements of Ontario Regulation 153/04 (Records of Site Condition–Part XV.1 of the Environmental Protection Act) and met the objectives and requirements set out in that Regulation.

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.

Teresa Weatherhead, LEL
Project Manager

R. Baker Wohayeb, M.A.Sc., P.Eng., QP_{RA}
Principal

9.0 REFERENCES

1. Armstrong, D.K. and Dodge, J.E.P. *Paleozoic Geology Map of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 219.

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 II 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 Inc. July, 2006. *Site Remediation Underground Waste Oil Tank Area 535 Brant Street Burlington, Ontario*

9. Terraprobe Inc. October, 2009. *Designated Substance Survey 535 Brant Street Burlington, Ontario.*

10. Terraprobe. April 2019. Ph*ase One Environmental Site Assessment, 535-551 Brant Street, Burlington, Ontario.*

10.0 LIMITATIONS AND USE OF THE REPORT

This report was prepared for the exclusive use of Renimmob Properties Limited, and is intended to provide an assessment of the environmental condition on the property located at 535-551 Brant Street 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.

TABLE 1
SOIL QUALITY ANALYSIS
METALS AND INORGANICS
535 - 551 Brant Street
BURLINGOTN, ONTARIO
PROJECT #1-18-0718-42

				Duplicate										
Sample Name	**Units**	**MECP Table 3 2011 Criteria RPI MF**	**RDL**	**BH 104/SS1**	**Dup 1 (BH 104/SS1)**	**BH 104/SS4B**	**BH 105/SS1**	**BH 105/SS3**	**BH 106/SS2**	**BH 106/SS3**	**BH 107/SS1**	**BH 107/SS3**	**BH 108/SS1**	**BH 108/SS3**
COC ID #				**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**
Date				**22-Jan-19**	**22-Jan-19**	**22-Jan-19**	**25-Jan-19**	**25-Jan-19**	**23-Jan-19**	**23-Jan-19**	**24-Jan-19**	**24-Jan-19**	**25-Jan-19**	**25-Jan-19**
Depth of Sample (m)				**0.2 - 0.8**	**0.2 - 0.8**	**2.6 - 2.9**	**0.2 - 0.8**	**1.5 - 2.0**	**0.8 - 1.4**	**1.5 - 2.1**	**0.2 - 0.8**	**1.5 - 2.1**	**0.0 - 0.6**	**1.5 - 2.0**
Elev of Sample (masl)				**87.3 - 86.7**	**87.3 - 86.7**	**84.8 - 84.5**	**87.5 - 86.8**	**86.1 - 85.6**	**87.0 - 86.4**	**86.2 - 85.6**	**87.6 - 87.0**	**86.2 - 85.6**	**87.7 - 87.1**	**86.2 - 85.8**
Parameter														
Metals														
Barium	µg/g	390	0.01	220	260	77	110	76	59	65	180	95	66	120
Beryllium	µg/g	5	0.02	4.8	**5.4**	0.76	0.73	0.77	0.60	0.55	1.6	0.65	0.47	0.58
Boron	µg/g	120	1	49	55	16	15	14	16	13	19	14	10	9
Cadmium	µg/g	1.2	0.02	0.38	0.51	0.12	0.14	0.10	0.08	0.08	0.61	0.11	0.50	0.12
Chromium	µg/g	160	0.5	15	15	21	17	20	16	15	18	17	10	18
Cobalt	µg/g	22	0.01	3.3	2.8	13	11	13	10	10	8.2	11	7.6	13
Copper	µg/g	180	0.1	13	14	28	13	8.2	14	10	66	13	24	91
Lead	µg/g	120	0.1	43	54	14	69	11	12	9.9	**280**	25	**140**	11
Molybdenum	µg/g	6.9	0.1	0.6	0.7	0.6	0.7	0.6	0.5	0.5	1.4	0.6	0.5	0.5
Nickel	µg/g	130	0.1	9.1	8.0	27	22	27	21	21	18	22	9.8	25
Silver	µg/g	25	0.01	0.06	0.07	< 0.05	0.05	< 0.05	< 0.05	< 0.05	0.27	< 0.05	0.10	0.07
Thallium	µg/g	1	0.02	0.04	0.03	0.10	0.08	0.08	0.08	0.06	0.19	0.08	0.08	0.10
Uranium	µg/g	23	0.002	3.0	3.5	0.58	0.70	0.46	0.48	0.43	1.1	0.45	0.59	0.50
Vanadium	µg/g	86	3	17	15	27	21	23	21	18	23	20	16	22
Zinc	µg/g	340	0.7	100	100	60	68	55	48	47	180	56	130	57
Hydride Metals														
Antimony	µg/g	7.5	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	1.1	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	18	0.5	3.5	3.2	4.6	6.1	4.4	4.5	4.8	14	5.0	9.1	5.6
Selenium	µg/g	2.4	0.7	2.1	2.6*	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	1.2	< 0.7	< 0.7	< 0.7
Other Regulated Parameters														
Boron (Hot Water Soluble)	µg/g	1.5	0.5	< 0.5	< 0.5	0.6	0.6	< 0.5	< 0.5	< 0.5	0.7	< 0.5	0.8	< 0.5
Chromium VI	µg/g	10	0.2	0.3	0.3	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.3	< 0.2	0.3	< 0.2
Cyanide (CN-)	µg/g	0.051	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Electrical Conductivity	mS/cm	0.7	0.002	1.4	1.3	1.5	0.53	0.54	2.6	1.9	1.1	1.5	3.1	0.59
Mercury	µg/g	1.8	0.05	0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.15	< 0.05	0.13	< 0.05
Sodium Adsorption Ratio	---	5	0.2	12.4	11.1	8.0	2.8	3.2	41.9	37.3	5.8	21.0	1.1	3.1
pH	-	-	0.05	9.03	8.86	8.07	8.02	7.93	8.24	8.33	8.63	8.24	7.92	8.09

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

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard
1.4	Exceedance exempt under Paragraph 1 of Section 49.1 of O.Reg. 153/04
*	but

NV- No Value
NA-Not Analyzed

TABLE 2
SOIL QUALITY ANALYSIS
POLYCYCLIC AROMATIC HYDROCARBONS
535 - 551 Brant Street
BURLINGOTN, ONTARIO
PROJECT #1-18-0718-42

Sample Name	Units	MECP Table 3 2011 Criteria RPI MF	RDL	BH 104/SS2	BH 104/SS4B	BH 105/SS2	BH 105/SS3	BH 106/SS1	Dup 2 (BH106/SS1)	BH 106/SS3	BH 107/SS1	BH 107/SS3	BH 108/SS2	BH 108/SS4
								Duplicate						
COC ID #				CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R
Date				22-Jan-19	22-Jan-19	25-Jan-19	25-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	24-Jan-19	24-Jan-19	25-Jan-19	25-Jan-19
Depth of Sample (m)				0.8 - 1.4	2.6 - 2.9	0.8 - 1.4	1.5 - 2.0	0.2 - 0.8	0.2 - 0.8	1.5 - 2.1	0.2 - 0.8	1.5 - 2.1	0.8 - 1.2	2.3 - 2.7
Elev of Sample (masl)				86.7 - 86.1	84.8 - 84.5	86.8 - 86.2	86.1 - 85.6	87.6 - 87.0	87.6 - 87.0	86.2 - 85.6	87.6 - 87.0	86.2 - 85.6	87.0 - 86.5	85.5 - 85.0
Parameter														
Moisture Content	%	-	-											
Acenaphthene	µg/g	58	0.05	< 0.05	< 0.05	< 0.05	< 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	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 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	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/g	0.63	0.05	0.13	< 0.05	0.13	0.08	0.06	0.20	0.07	0.15	< 0.05	0.07	< 0.05
Benzo(a)pyrene	µg/g	0.3	0.05	0.10	< 0.05	0.12	0.05	< 0.05	0.15	< 0.05	0.12	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	0.15	< 0.05	0.17	0.07	0.06	0.27	0.07	0.21	< 0.05	0.07	< 0.05
Benzo(g,h,i)perylene	µg/g	7.8	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/g	0.78	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.05	< 0.05	< 0.05	< 0.05
Chrysene	µg/g	7.8	0.05	0.14	< 0.05	0.13	0.07	0.06	0.19	0.06	0.15	< 0.05	0.06	< 0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	µg/g	0.69	0.05	0.25	0.06	0.24	0.19	0.12	0.41	0.15	0.26	< 0.05	0.16	< 0.05
Fluorene	µg/g	69	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.48	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1-Methylnaphthalene	µg/g	3.4	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/g	3.4	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-and 1-Methylnaphthalene	µg/g	3.4	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05
Naphthalene	µg/g	0.8	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/g	7.8	0.05	0.14	0.06	0.14	0.08	0.08	0.25	0.12	0.14	< 0.05	0.17	< 0.05
Pyrene	µg/g	78	0.05	0.22	0.05	0.22	0.15	0.10	0.35	0.12	0.25	< 0.05	0.13	< 0.05

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
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
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.
NV- No Value
NA-Not Analyzed

TABLE 3
SOIL QUALITY ANALYSIS
PETROLEUM HYDROCARBONS
535 - 551 Brant Street
BURLINGOTN, ONTARIO
PROJECT #1-18-0718-42

												Duplicate	
Sample Name	**Units**	**MECP Table 3 2011 Criteria RPI MF**	**RDL**	**BH 104/SS3**	**BH 104/SS4B**	**BH 105/SS2**	**BH 105/SS3**	**BH 106/SS2**	**BH 106/SS4**	**BH 107/SS2**	**BH 107/SS4**	**BH 108/SS2**	**BH 108/SS5**	**Dup 3 (BH108 SS5)**
COC ID #				**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**
Date				**22-Jan-19**	**22-Jan-19**	**25-Jan-19**	**25-Jan-19**	**23-Jan-19**	**23-Jan-19**	**24-Jan-19**	**24-Jan-19**	**25-Jan-19**	**25-Jan-19**	**22-Jan-19**
Depth of Sample (m)				**1.5 - 2.0**	**2.6 - 2.9**	**0.8 - 1.4**	**1.5 - 2.0**	**0.8 - 1.4**	**2.3 - 2.7**	**0.8 - 1.4**	**2.3 - 2.7**	**0.8 - 1.4**	**3.1 - 3.7**	**3.1 - 3.7**
Elev of Sample (masl)				**85.9 - 85.4**	**84.8 - 84.5**	**86.8 - 86.2**	**86.1 - 85.6**	**87.0 - 86.4**	**83.4 - 83.0**	**87.0 - 86.4**	**85.5 - 85.1**	**86.9 - 86.3**	**84.6 - 84.0**	**84.6 - 84.0**
Parameter														
F1 (C6 to C10)	µg/g	NV	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	65	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F2 (C10 to C16)	µg/g	150	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F3 (C16 to C34)	µg/g	1300	50	< 50	< 50	< 50	124	< 50	< 50	60	< 50	< 50	< 50	< 50
F4 (C34 to C50)	µg/g	5600	50	< 50	< 50	< 50	276	< 50	< 50	134	< 50	< 50	< 50	< 50
Total Hydrocarbons (C6-C50)	µg/g	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gravimetric Heavy Hydrocarbons	µg/g	5600	200	NA	NA	NA	925	NA	NA	NA	NA	NA	NA	NA
Chromatogram returned to baseline at nC50	-	-	-	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
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.
Total C6 - C50 results are corrected for BTEX contributions.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.
NV- No Value
NA-Not Analyzed

TABLE 4
SOIL QUALITY ANALYSIS
BENZENE, TOULENE, ETHYLBENZENE, XYLENE
535 - 551 Brant Street
BURLINGOTN, ONTARIO
PROJECT #1-18-0718-42

												Duplicate	
Sample Name	**Units**	**MECP Table 3 2011 Criteria RPI MF**	**RDL**	**BH 104/SS3**	**BH 104/SS4B**	**BH 105/SS2**	**BH 105/SS3**	**BH 106/SS2**	**BH 106/SS4**	**BH 107/SS2**	**BH 107/SS4**	**BH 108/SS2**	**BH 108/SS5**	**Dup 3 (BH108 SS5)**
COC ID #				**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**
Date				**22-Jan-19**	**22-Jan-19**	**25-Jan-19**	**25-Jan-19**	**23-Jan-19**	**23-Jan-19**	**24-Jan-19**	**24-Jan-19**	**25-Jan-19**	**25-Jan-19**	**22-Jan-19**
Depth of Sample (m)				**1.5 - 2.0**	**2.6 - 2.9**	**0.8 - 1.4**	**1.5 - 2.0**	**0.8 - 1.4**	**2.3 - 2.7**	**0.8 - 1.4**	**2.3 - 2.7**	**0.8 - 1.4**	**3.1 - 3.7**	**3.1 - 3.7**
Elev of Sample (masl)				**85.9 - 85.4**	**84.8 - 84.5**	**86.8 - 86.2**	**86.1 - 85.6**	**87.0 - 86.4**	**83.4 - 83.0**	**87.0 - 86.4**	**85.5 - 85.1**	**86.9 - 86.3**	**84.6 - 84.0**	**84.6 - 84.0**
Parameter														
Benzene	µg/g	0.17	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	15	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	6	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene Mixture	µg/g	25	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	-	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	-	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
Results are based on sample dry weight.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Quality Control Data is available upon request.
NV- No Value
NA-Not Analyzed

TABLE 5
SOIL QUALITY ANALYSIS
VOLATILE ORGANIC COMPOUNDS
535 - 551 Brant Street
BURLINGOTN, ONTARIO
PROJECT #1-18-0718-42

												Duplicate	
Sample Name	**Units**	**MECP Table 3 2011 Criteria RPI MF**	**RDL**	**BH 104/SS1**	**BH 104/SS4B**	**BH 105/SS2**	**BH 105/SS3**	**BH 106/SS2**	**BH 106/SS4**	**BH 107/SS2**	**BH 107/SS4**	**BH 108/SS2**	**BH 108/SS5**	**Dup 3 (BH108 SS5)**
COC ID #				**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**	**CA14591-Jan19 R**
Date				**22-Jan-19**	**22-Jan-19**	**25-Jan-19**	**25-Jan-19**	**23-Jan-19**	**23-Jan-19**	**24-Jan-19**	**24-Jan-19**	**25-Jan-19**	**25-Jan-19**	**22-Jan-19**
Depth of Sample (m)				**0.2 - 0.8**	**2.6 - 2.7**	**0.8 - 1.4**	**1.5 - 2.0**	**0.8 - 1.4**	**2.3 - 2.7**	**0.8 - 1.4**	**2.3 - 2.7**	**0.8 - 1.4**	**3.1 - 3.7**	**3.1 - 3.7**
Elev of Sample (masl)				**87.3 - 86.7**	**84.8 - 84.5**	**86.8 - 86.2**	**86.1 - 85.6**	**87.0 - 86.4**	**83.4 - 83.0**	**87.0 - 86.4**	**85.5 - 85.1**	**86.9 - 86.3**	**84.6 - 84.0**	**84.6 - 84.0**
Parameter														
Acetone	µg/g	28	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbon Tetrachloride	µg/g	0.15	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chlorobenzene	µg/g	2.7	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chloroform	µg/g	0.18	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1, 2-Dibromoethane	µg/g	-	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,2-	µg/g	4.3	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,3-	µg/g	6	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,4-	µg/g	0.097	0.05	< 0.05	< 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	< 0.05	< 0.05
Dichloroethane, 1,1-	µg/g	11	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichloroethane, 1,2-	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,1-	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,2-cis-	µg/g	30	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,2-trans-	µg/g	0.75	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichloropropane, 1,2-	µg/g	0.085	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichloropropene, 1,3-	µg/g	0.083	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichloropropene, 1,3- cis-	µg/g	-	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichloropropene, 1,3- trans-	µg/g	-	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Ethylene dibromide	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexane (n)	µg/g	34	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methyl Ethyl Ketone	µg/g	44	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	µg/g	4.3	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether (MTBE)	µg/g	1.4	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylene Chloride	µg/g	0.96	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Styrene	µg/g	2.2	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tetrachloroethane, 1,1,1,2-	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tetrachloroethane, 1,1,2,2-	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	2.3	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichloroethane, 1,1,1-	µg/g	3.4	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichloroethane, 1,1,2-	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.52	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	5.8	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.022	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
THMs														
Bromodichloromethane	µg/g	1.5	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.26	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	9.4	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
The sample was analysed 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.
NV- No Value
NA-Not Analyzed

TABLE 6
GROUND WATER QUALITY ANALYSIS
METALS & INORGANICS
535-551 BRANT STREET
BURLINGTON, ONTARIO
PROJECT #1-18-0718-42

					Duplicate					Duplicate
Sample Name		**MECP**		**MW 104**	**BH 104**	**DUP**	**MW 106**	**BH 106**	**MW 107**	**Dup**
Lab ID #	**Units**	**Table3**	**RDL**	**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**
Date		**2011 Criteria**		**08-Feb-19**	**21-Feb-19**	**21-Feb-19**	**08-Feb-19**	**21-Feb-19**	**08-Feb-19**	**08-Feb-19**
Sample Elevation		**RPI MF**		**72.0-68.9**	**72.0-68.9**	**72.0-68.9**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**
Parameter										
Metals										
Barium	µg/L	29000	0.02	86.2	106	112	351	509	153	163
Beryllium	µg/L	67	0.007	0.007	< 0.007	< 0.007	0.010	0.007	< 0.007	< 0.007
Boron (total)	µg/L	45000	2	1210	428	451	4690	4930	836	849
Cadmium	µg/L	2.7	0.003	0.043	0.005	0.011	0.112	0.075	0.034	0.029
Chromium Total	µg/L	810	0.03	0.05	0.11	0.12	0.13	0.18	< 0.03	0.04
Cobalt	µg/L	66	0.004	0.232	0.219	0.221	1.57	1.47	1.03	1.02
Copper	µg/L	87	0.02	0.75	0.99	1.06	3.79	1.70	0.67	0.38
Lead	µg/L	25	0.01	0.03	0.02	0.06	0.20	0.22	0.08	0.03
Molybdenum	µg/L	9200	0.01	73.3	12.4	12.1	51.9	41.6	28.6	28.7
Nickel	µg/L	490	0.1	2.1	2.6	2.4	6.8	5.0	6.8	7.0
Silver	µg/L	1.5	0.002	0.003	< 0.002	0.004	0.020	0.040	0.004	0.002
Thallium	µg/L	510	0.005	0.015	0.009	0.020	0.160	0.170	0.048	0.042
Uranium	µg/L	420	0.002	5.22	3.81	3.84	2.82	5.70	1.87	2.04
Vanadium	µg/L	250	0.01	0.68	0.28	0.28	0.64	0.56	0.14	0.13
Zinc	µg/L	1100	2	< 2	5	6	5	6	6	6
Hydride Metals										
Antimony	µg/L	20000	0.09	1.2	0.34	0.33	0.96	1.6	0.52	0.53
Arsenic	µg/L	1900	0.2	5.6	1.4	1.4	2.8	1.7	2.1	2.0
Selenium	µg/L	63	0.04	0.48	0.85	0.73	0.29	0.35	0.24	0.27
Other Regulated Parameters										
Chromium VI	µg/L	140	0.2	< 0.2	< 0.2	< 0.2	< 2	< 2.0	< 0.2	< 0.2
Cyanide (CN-)	µg/L	66	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Mercury	µg/L	2.8	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	µg/L	2300000	200	930000	740000	780000	25000000	28000000	2100000	2200000
Sodium	µg/L	2300000	10	554000	349000	334000	8150000	9950000	632000	639000
pH	---	---	0.05	7.97	7.09	7.17	7.25	6.82	8.00	8.06

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

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard
10030000	Terraprobe demonstrated that elevated sodium and chloride at depth in bedrock were consistent with a nearby water well record from the 1950's for a well of the same depth (i.e., background condition) and that the concentration of chloride was high enough that a water well could not be installed under Ontario Regulation 903 (O.Reg. 903). See Section 6.7.3 in Phase Two ESA report

TABLE 7
GROUND WATER QUALITY ANALYSIS
POLYCYCLIC AROMATIC HYDROCARBONS
535-551 BRANT STREET
BURLINGTON, ONTARIO
PROJECT #1-18-0718-42

					Duplicate					Duplicate
Sample Name		**MECP**		**MW 104**	**BH 104**	**DUP**	**MW 106**	**BH 106**	**MW 107**	**Dup**
Lab ID #	**Units**	**Table3**	**RDL**	**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**
Date		**2011 Criteria**		**08-Feb-19**	**21-Feb-19**	**21-Feb-19**	**08-Feb-19**	**21-Feb-19**	**08-Feb-19**	**08-Feb-19**
Sample Elevation		**RPI MF**		**72.0-68.9**	**72.0-68.9**	**72.0-68.9**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**
Parameter										
Acenaphthene	µg/L	1700	0.1	1.0	0.12	0.12	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	1.8	0.1	0.31	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	2.4	0.1	0.17	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benz(a)anthracene	µg/L	4.7	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	0.81	0.01	< 0.01	< 0.01	< 0.01	0.03	< 0.01	0.01	0.01
Benzo(b)fluoranthene	µg/L	0.75	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	µg/L	0.4	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	0.52	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	130	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	400	0.1	1.6	0.15	0.16	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1-Methylnaphthalene	µg/L	1800	0.5	7.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Methylnaphthalene	µg/L	1800	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methylnaphthalene, 2-(1-)	µg/L	1800	0.5	8.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	µg/L	6400	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	µg/L	580	0.1	3.0	0.18	0.19	0.10	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	68	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.
+ - Insufficient water for sampling
NA-Not Analyzed

TABLE 8
GROUND WATER QUALITY ANALYSIS
PETROLEUM HYDROCARBONS
535-551 BRANT STREET
BURLINGTON, ONTARIO
PROJECT #1-18-0718-42

					Duplicate				Duplicate		
Sample Name	**Units**	**MECP**	**RDL**	**MW 104**	**BH 104**	**DUP**	**MW 106**	**BH 106**	**MW 107**	**Dup**	**Trip Blank**
Lab ID #		**Table3**		**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**
Date		**2011 Criteria**		**08-Feb-19**	**21-Feb-19**	**21-Feb-19**	**08-Feb-19**	**21-Feb-19**	**08-Feb-19**	**08-Feb-19**	**08-Feb-19**
Sample Elevation		**RPI MF**		**72.0-68.9**	**72.0-68.9**	**72.0-68.9**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**-**
Parameter											
Petroleum Hydrocarbons F1	ug/L	NV	25	42	< 25	< 25	< 25	< 25	< 25	< 25	< 25
F1 (C6 to C10) minus BTEX	ug/L	750	25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Petroleum Hydrocarbons F2	ug/L	150	100	**715**	< 100	< 100	**2010**	**181**	< 100	< 100	---
Petroleum Hydrocarbons F3	ug/L	500	200	363	< 200	< 200	325	< 200	**693**	**550**	---
Petroleum Hydrocarbons F4	ug/L	500	200	< 200	< 200	< 200	< 200	< 200	265	215	---
Gravimetric Heavy Hydrocarbons	ug/L	500		YES	YES	YES	YES	YES	YES	YES	---

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
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
+ - Insufficient water for sampling
NA-Not Analyzed

TABLE 9
GROUND WATER QUALITY ANALYSIS
BENZENE, TOLUENE, ETHYL BENZENE AND XYLENE
535-551 BRANT STREET
BURLINGTON, ONTARIO
PROJECT #1-18-0718-42

					Duplicate				Duplicate			
Sample Name	**Units**	**MECP**	**RDL**	**MW 104**	**BH 104**	**DUP**	**MW 106**	**BH 106**	**MW 107**	**Dup**	**Trip Blank**	**Trip Blank**
Lab ID #		**Table3**		**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**	**CA14529-FEB19**
Date		**2011 Criteria**		**08-Feb-19**	**21-Feb-19**	**21-Feb-19**	**08-Feb-19**	**21-Feb-19**	**08-Feb-19**	**08-Feb-19**	**08-Feb-19**	**21-Feb-19**
Sample Elevation		**RPI MF**		**72.0-68.9**	**72.0-68.9**	**72.0-68.9**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**-**	**-**
Parameter												
Benzene	µg/L	430	0.5	< 0.5	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	2300	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	18000	0.5	34.3	5.5	5.1	1.7	0.7	0.5	0.5	< 0.5	< 0.5
Xylene Mixture	µg/L	4200	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	-	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-xylene	µg/L	-	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

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
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
Extraction and holding times were met for this sample.
NV-No Value
NA-Not Analyzed

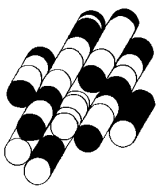
TABLE 10
GROUND WATER QUALITY ANALYSIS
VOLATILE ORGANIC COMPOUNDS
535-551 BRANT STREET
BURLINGTON, ONTARIO
PROJECT #1-18-0718-42

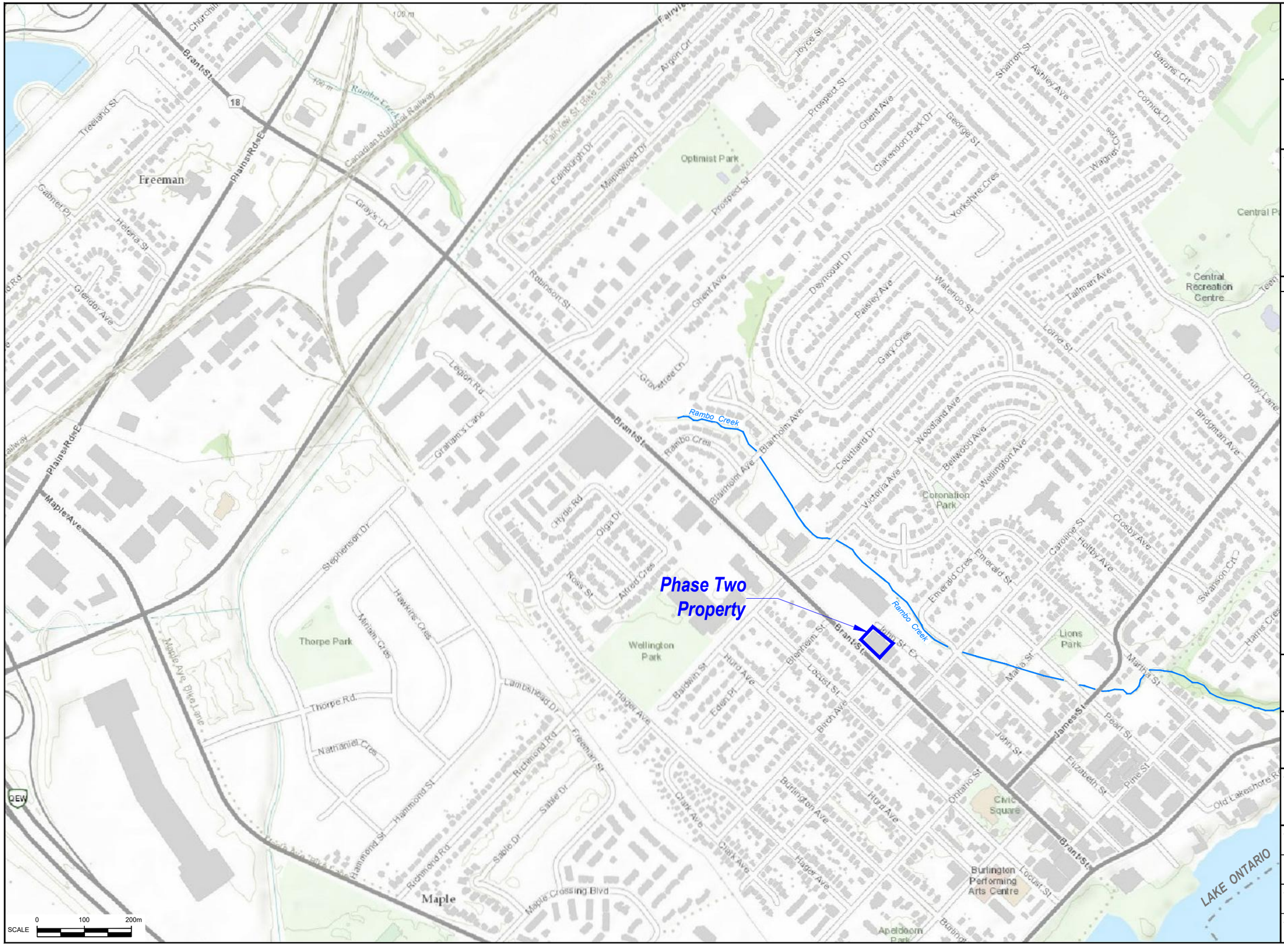
					Duplicate					Duplicate			
Sample Name	**Units**	**MECP**	**RDL**	**MW 104**	**BH 104**	**DUP**	**MW 106**	**BH 106**	**MW 107**	**Dup**	**Trip Blank**	**Trip Blank**
Lab ID #		**Table3**		**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14529-FEB19**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**	**CA14204-Feb19 R1**	**CA14529-FEB19**
Date		**2011 Criteria**		**08-Feb-19**	**21-Feb-19**	**21-Feb-19**	**08-Feb-19**	**21-Feb-19**	**08-Feb-19**	**08-Feb-19**	**08-Feb-19**	**21-Feb-19**
Sample Elevation		**RPI MF**		**72.0-68.9**	**72.0-68.9**	**72.0-68.9**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**72.8-69.7**	**-**	**-**
Parameter												
Acetone	µg/L	130000	30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Bromomethane	µg/L	56	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	8.4	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	630	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	µg/L	22	0.5	6.9	1.3	1.3	0.9	< 0.5	2.7	2.9	< 0.5	< 0.5
Dichlorobenzene, 1,2-	µg/L	9600	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	9600	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	67	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	4400	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	3100	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	12	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	17	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,2-cis-	µg/L	17	0.5	< 0.5	0.9	0.9	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,2-trans-	µg/L	17	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane, 1,2-	µg/L	140	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	45	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	45	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	45	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene dibromide	µg/L	0.83	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexane (n)	µg/L	520	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methyl Ethyl Ketone	µg/L	1500000	20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	580000	20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Methyl tert-Butyl Ether (MTBE)	µg/L	1400	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	µg/L	5500	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	9100	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	28	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	15	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	17	0.5	< 0.5	0.5	0.7	< 0.5	< 0.5	0.6	0.6	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	6700	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	30	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	17	0.5	< 0.5	0.8	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	2500	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	1.7	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

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
<150 Detection limit exceeded Standard
150 Sample result exceeded 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:
Explore Burlington 2018

Notes:

Legend:

Phase Two Property Boundary

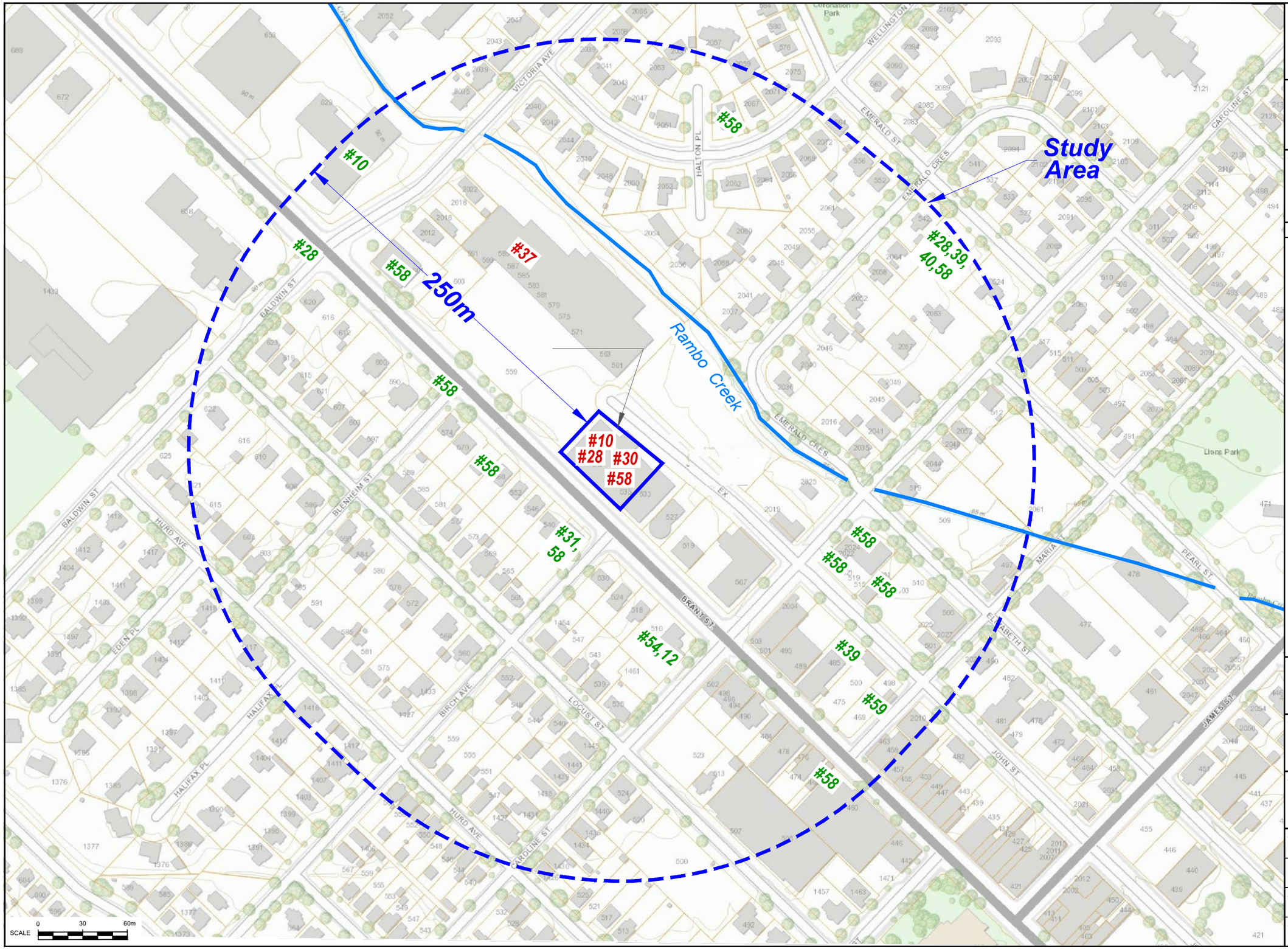
Project Title:
Phase Two Environmental Site Assessment

Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
PHASE TWO PROPERTY LOCATION

Designed By: TW	***File No.:*** 1-18-0718-42
Drawn By: AA	***Scale:*** As Shown
Reviewed By: SH	***Figure No.:*** 1
Date: May 2020	

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Reference:
Explore Burlington 2018

Notes:
PCA - Potentially Contaminating Activity
RED - PCA causing APEC on Property
GREEN - PCA unlikely to affect Property

Legend:

	Phase Two Property Boundary
	Phase Two Study Area, 250m
PCA	Potentially Contaminating Activity
#10	Commercial Autobody Shops
#17	Dye Manufacturing, Processing and Bulk Storage
#28	Gasoline and Associated Products Storage in Fixed Tanks
#30	Importation of Fill Material of Unknown Quality
#31	Ink Manufacturing, Processing and Bulk Storage
#37	Operation of Dry Cleaning Equipment (where chemicals are used)
#39	Paints Manufacturing, Processing and Bulk Storage
#40	Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
#54	Textile Manufacturing and Processing
#58	Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
#59	Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products

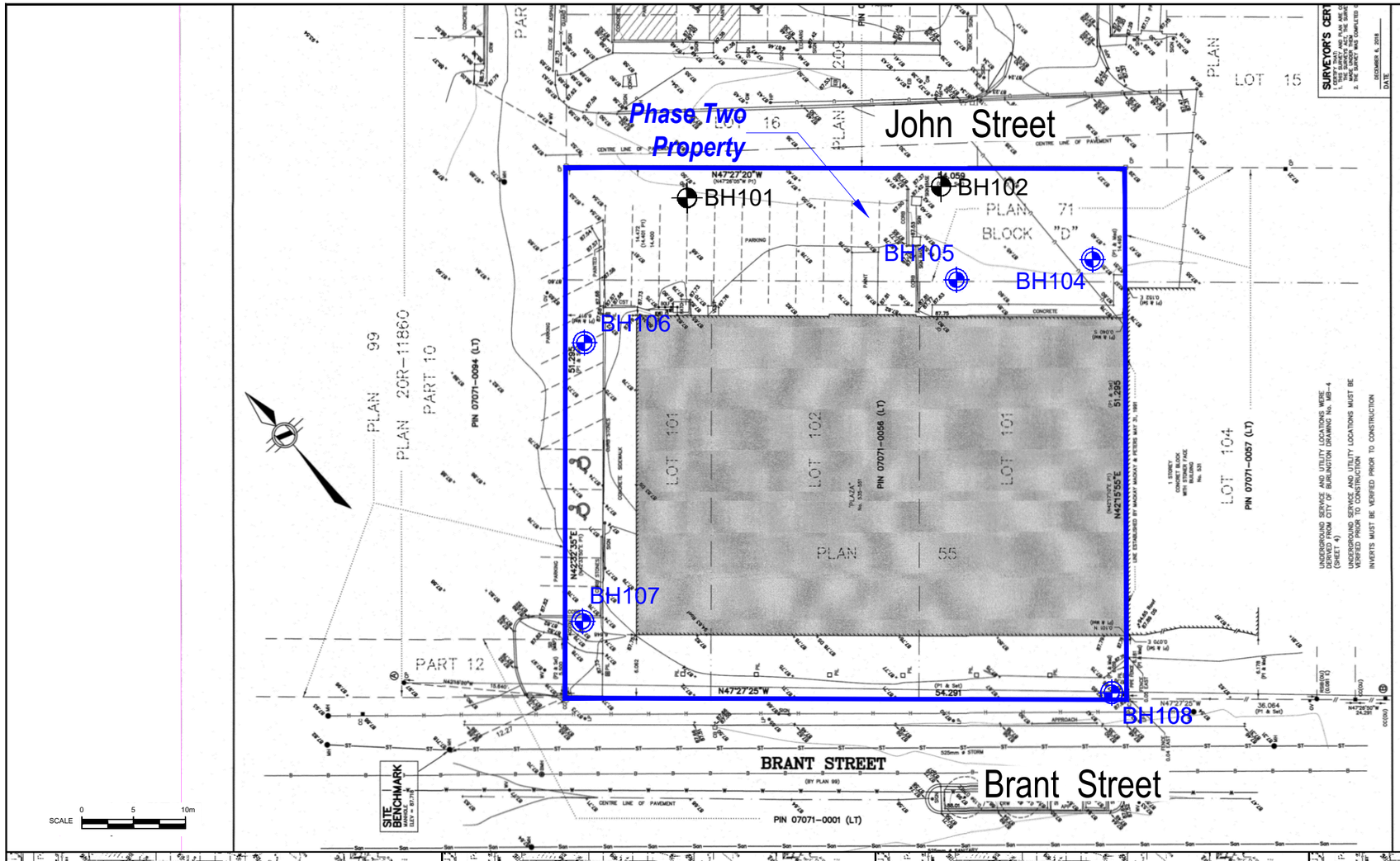
Project Title:
Phase Two Environmental Site Assessment

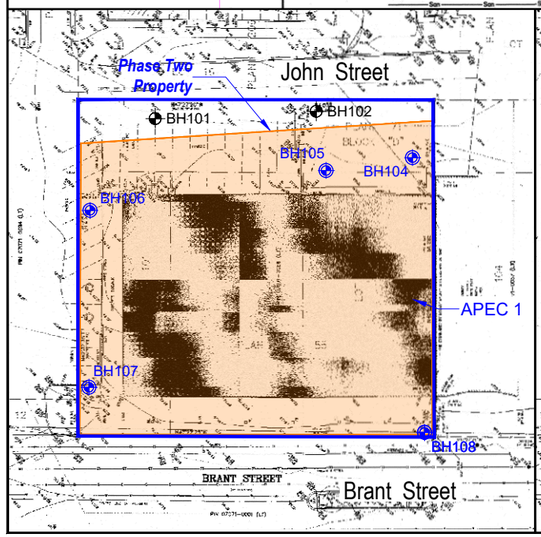
Site Location:
535 to 551 Brant Street, Burlington, Ontario

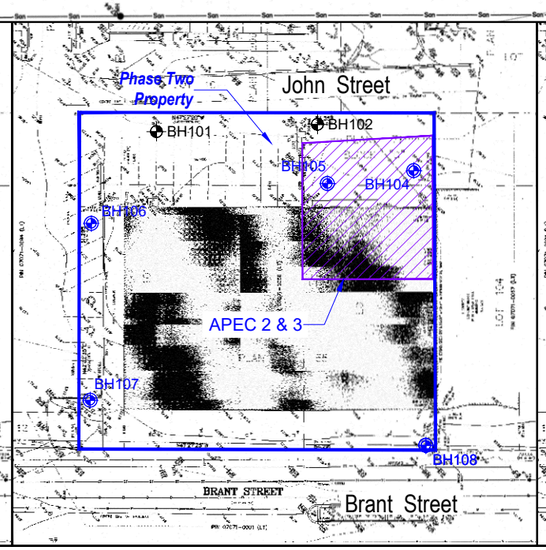
Figure Title:
PCA LOCATIONS

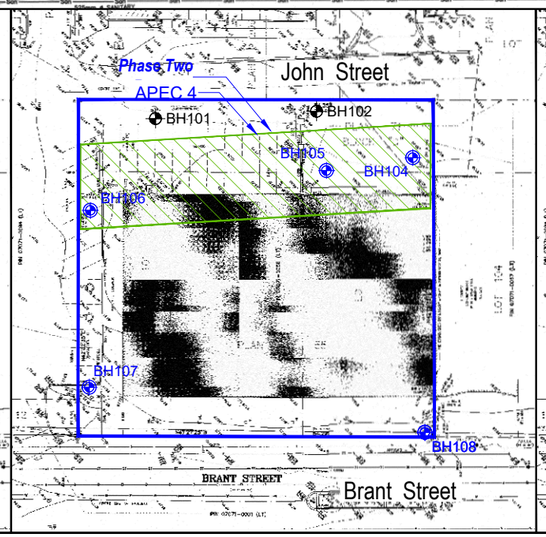
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Drawn By: AA	*Scale:* As Shown
Reviewed By: SH	*Figure No.:* 2
Date: May 2020	

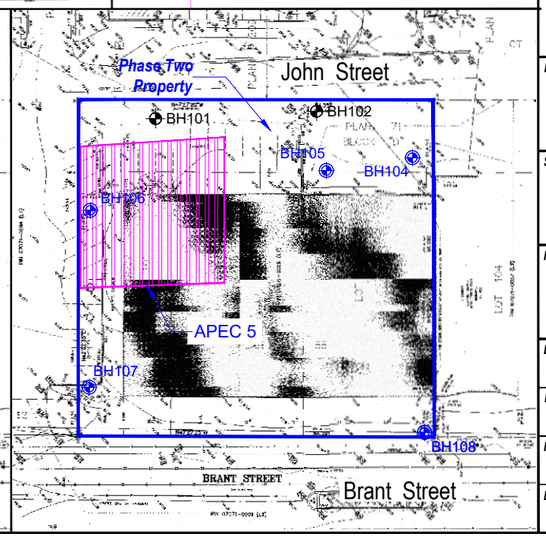
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Reference:
Google Earth Pro 2018

Notes:
APEC - Areas of Potential Environmental Concern

Legend:
- Phase Two Property Boundary
- Approximate Borehole with Monitoring Well Location
- Approximate Borehole Location (Drilled on Public Property as part of a Separate Geotechnical Pavement Investigation)
- APEC 1
- APEC 2 & 3
- APEC 4
- APEC 5

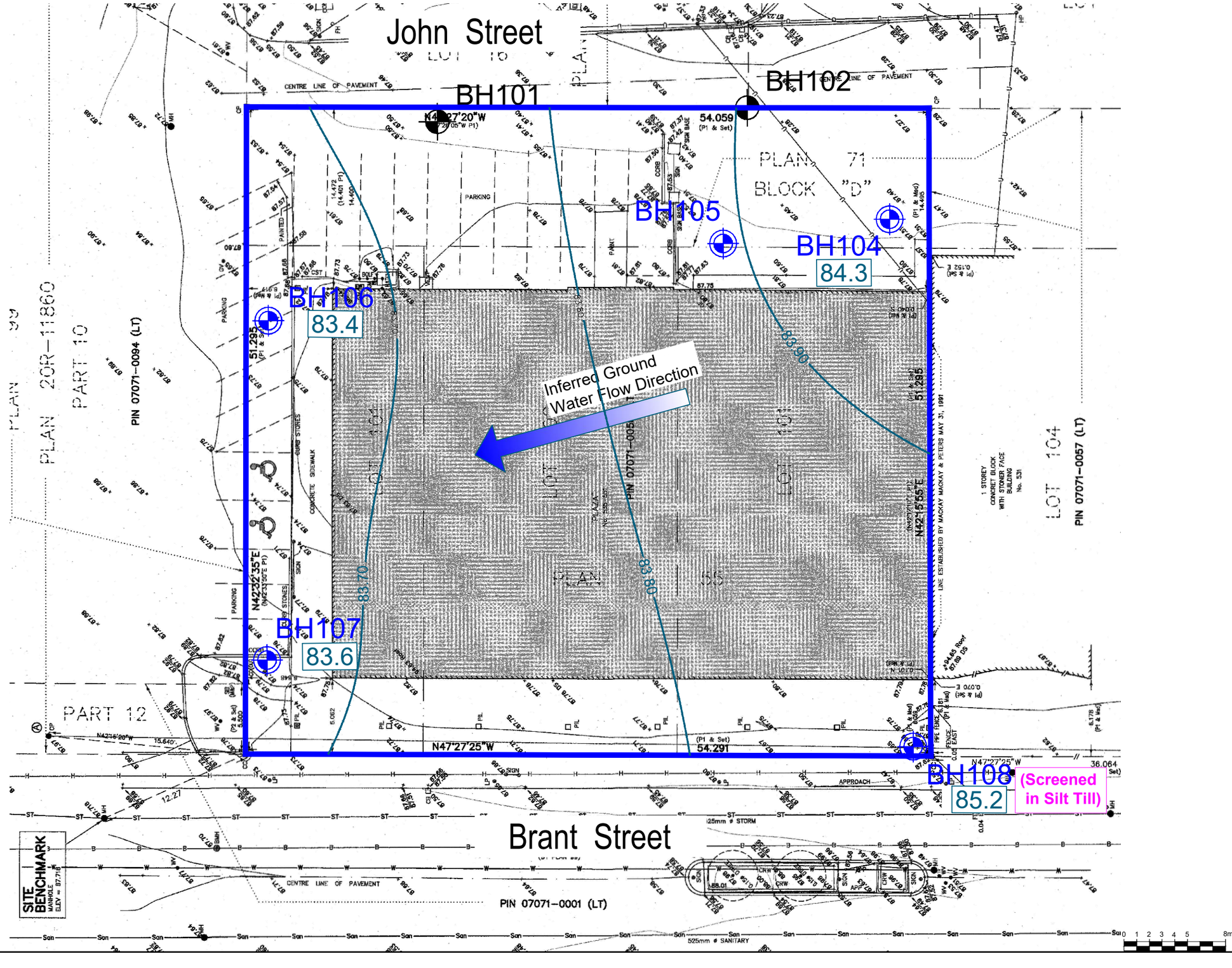
Project Title:
Phase Two Environmental Site Assessment

Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
BOREHOLE/ MONITORING WELL AND APEC LOCATIONS

Designed By: TW	*File No.:* 1-18-0718-42
Drawn By: AA	*Scale:* As Shown
Reviewed By: SH	*Figure No.:* 3
Date: May 2020	

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

Reference:
Google Earth Pro 2018

Notes:

Legend:

- Phase Two Property Boundary
- Approximate Borehole with Monitoring Well Location
- Approximate Geotechnical Pavement Investigation Borehole Location
- 84.3 — Ground Water Elevation (masl), April 14, 2019
- 83.9 — Ground Water Elevation Contour
- Ground Water Flow Direction

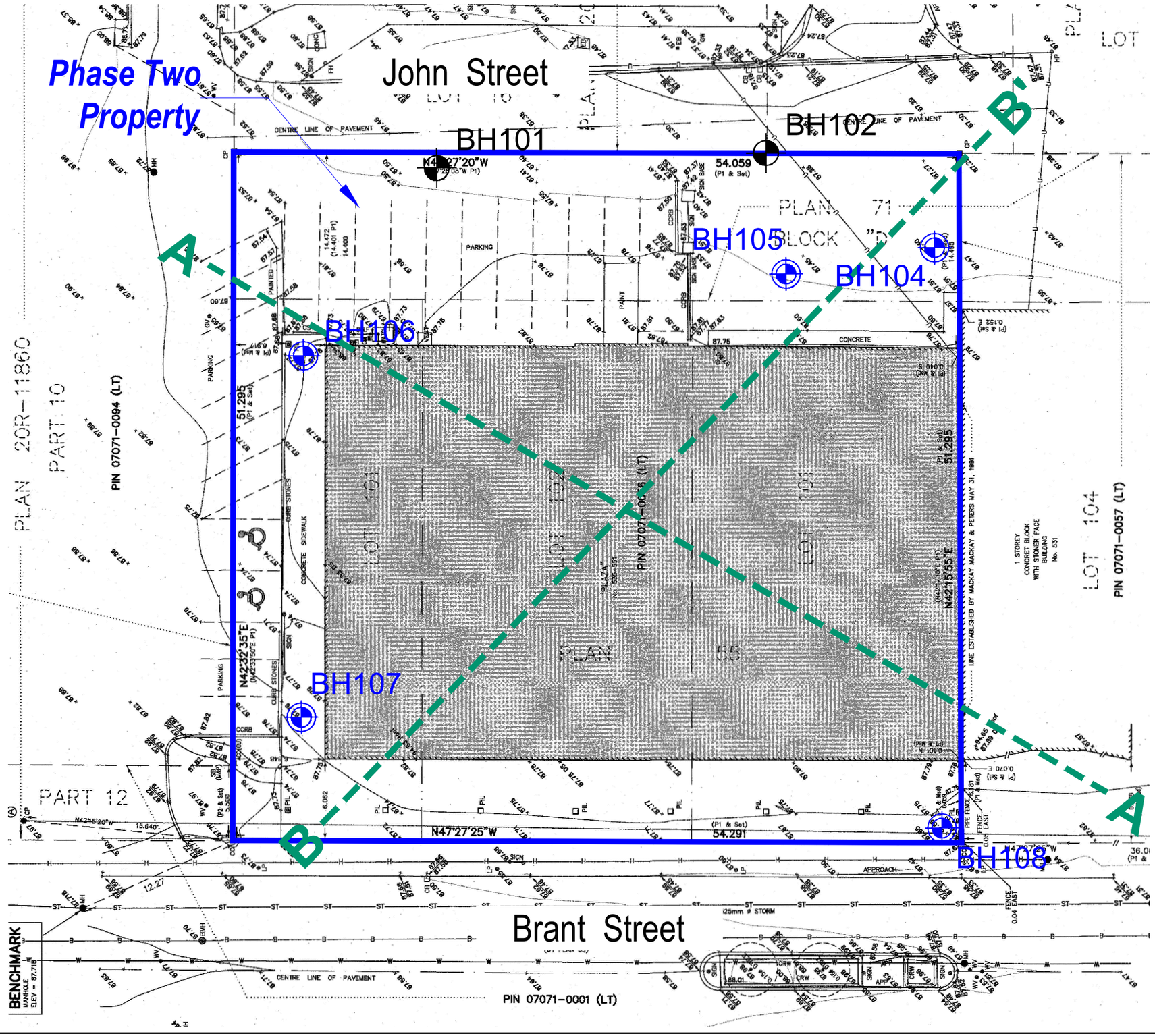
Project Title:
Phase Two Environmental Site Assessment

Site Location:
535 to 535 to 551 Brant Street, Burlington, Ontario

Figure Title:
GROUND WATER ELEVATIONS
(Bedrock Aquifer)

Designed By: TW	**File No.:** 1-18-0718-42
Drawn By: AA	**Scale:** As Shown
Reviewed By: SH	**Figure No.:** 4
Date: May 2020	

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

Reference:
Google Earth Pro 2018

Notes:

Legend:

- Phase Two Property Boundary
- Approximate Borehole with Monitoring Well Location
- Approximate Borehole Location (Drilled on Public Property as part of a Separate Geotechnical Pavement Investigation)
- Approximate Cross Section Location

Project Title:
Phase Two Environmental Site Assessment

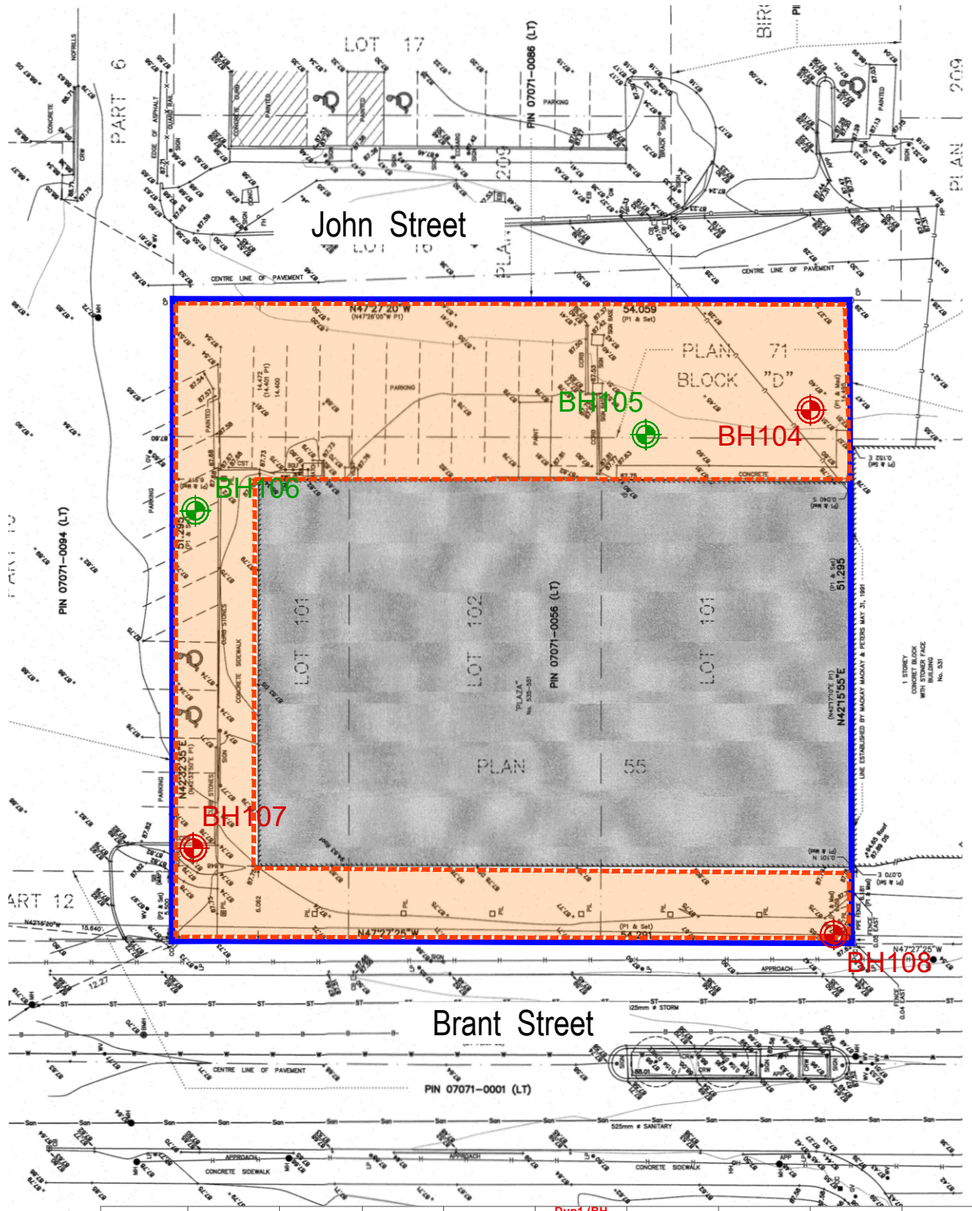
Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
CROSS SECTION LOCATIONS

Designed By: TW	*File No.:* 1-18-0718-42
Drawn By: AA	*Scale:* As Shown
Reviewed By: SH	*Figure No.:* 5
Date: May 2020	

0 1 2 3 4 5 8m

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SCALE 0 5 10m

Sample Name	Units	MECP Table 3 2011 Criteria RPI MF	RDL	BH 104/SS1	Dup1 (BH 104/SS1)	BH 104/SS4B	BH 105/SS1	BH 105/SS3	BH 106/SS2	BH 106/SS3	BH 107/SS1	BH 107/SS3	BH 108/SS1	BH 108/SS3
COC ID #				CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R
Date				22-Jan-19	22-Jan-19	22-Jan-19	25-Jan-19	25-Jan-19	23-Jan-19	23-Jan-19	24-Jan-19	24-Jan-19	25-Jan-19	25-Jan-19
Depth of Sample (m)				0.2 - 0.8	0.2 - 0.8	2.6 - 2.9	0.2 - 0.8	1.5 - 2.0	0.8 - 1.4	1.5 - 2.1	0.2 - 0.8	1.5 - 2.1	0.0 - 0.6	1.5 - 2.0
Elev of Sample (masl)				87.3 - 86.7	87.3 - 86.7	84.8 - 84.5	87.5 - 86.8	86.1 - 85.6	87.0 - 86.4	86.2 - 85.6	87.6 - 87.0	86.2 - 85.6	87.7 - 87.1	86.2 - 85.8
Parameter														
Beryllium	µg/g	5	0.02	4.8	5.4	0.76	0.73	0.77	0.60	0.55	1.6	0.65	0.47	0.58
Lead	µg/g	120	0.1	43	54	14	69	11	12	9.9	280	25	140	11

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

Reference:
Google Earth Pro 2018

Notes:

Legend:

- Phase Two Property Boundary
- Borehole with Monitoring Well
- Borehole with Monitoring Well Meets Standard
- Borehole with Monitoring Well Exceeds Standard
- Approximate Extent of Contaminant Impacted

Project Title:
Phase Two Environmental Site Assessment

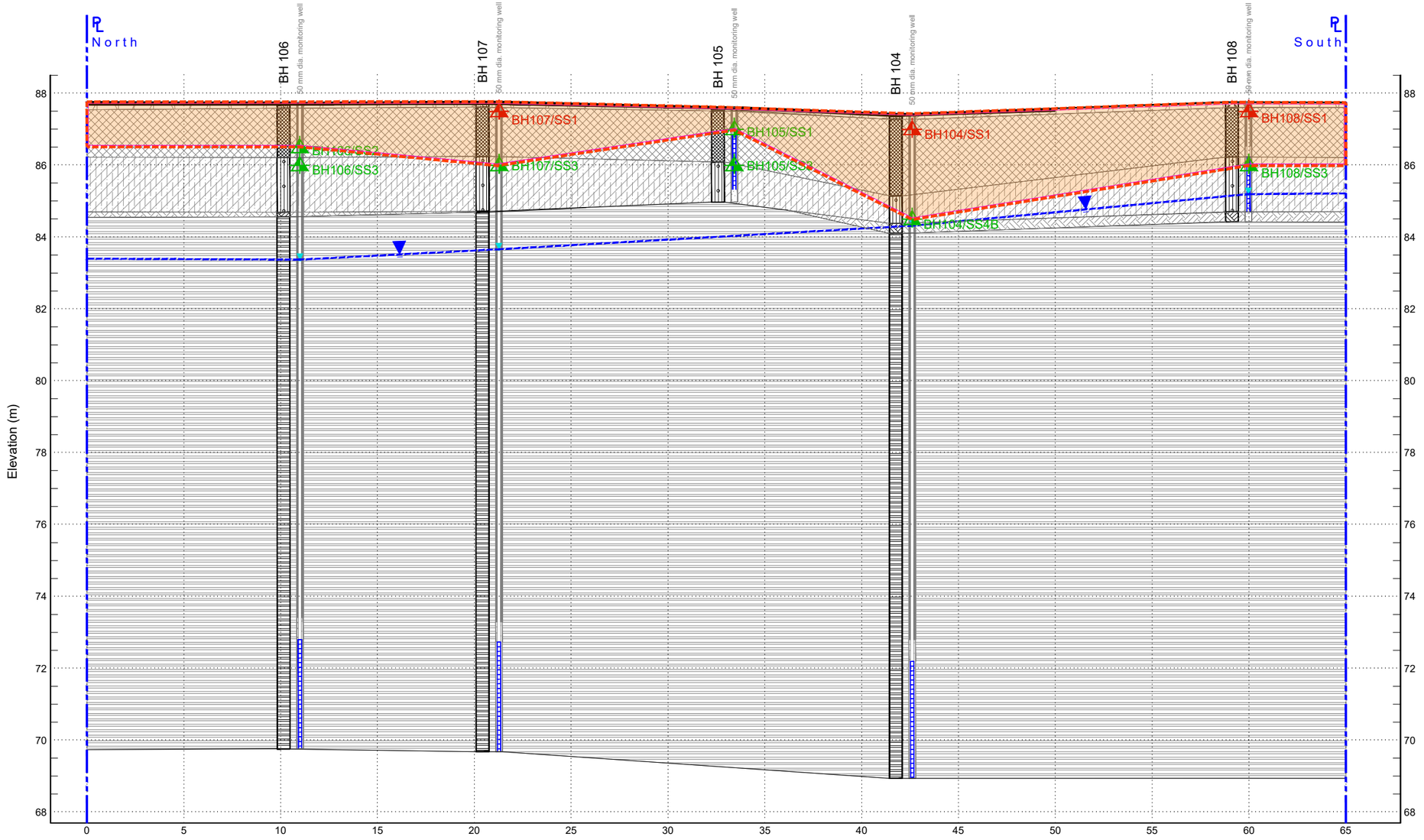
Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
METALS EXCEEDANCES IN SOIL - PLAN VIEW

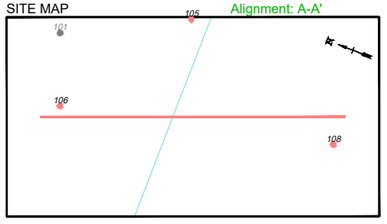
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Reviewed By: SH	***Figure No.:*** 6
Date: May 2020	

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SECTION A-A'



SITE MAP



Sample Name	Units	MECP Table 3 2011 Criteria RPI MF	RDL	BH 104/SS1	Dup1 (BH 104/SS1)	BH 104/SS4B	BH 105/SS1	BH 105/SS3	BH 106/SS2	BH 106/SS3	BH 107/SS1	BH 107/SS3	BH 108/SS1	BH 108/SS3
COC ID #				CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R
Date				22-Jan-19	22-Jan-19	22-Jan-19	25-Jan-19	25-Jan-19	23-Jan-19	23-Jan-19	24-Jan-19	24-Jan-19	25-Jan-19	25-Jan-19
Depth of Sample (m)				0.2 - 0.8	0.2 - 0.8	2.6 - 2.9	0.2 - 0.8	1.5 - 2.0	0.8 - 1.4	1.5 - 2.1	0.2 - 0.8	1.5 - 2.1	0.0 - 0.6	1.5 - 2.0
Elev of Sample (masl)				87.3 - 86.7	87.3 - 86.7	84.8 - 84.5	87.5 - 86.8	86.1 - 85.6	87.0 - 86.4	86.2 - 85.6	87.6 - 87.0	86.2 - 85.6	87.7 - 87.1	86.2 - 85.8
Parameter														
Beryllium	µg/g	5	0.02	4.8	5.4	0.76	0.73	0.77	0.60	0.55	1.6	0.65	0.47	0.58
Lead	µg/g	120	0.1	43	54	14	69	11	12	9.9	280	25	140	11

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

Reference:

Notes:

Legend:

- Asphaltic Concrete with Aggregate
- Fill Material
- Silt, some Clay (Halton Till)
- Shale
- Bedrock (Queenston Formation)
- Ground Water Level, April 2019
- Monitoring Well Screen
- Approximate Extent of Contaminant Impacted
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

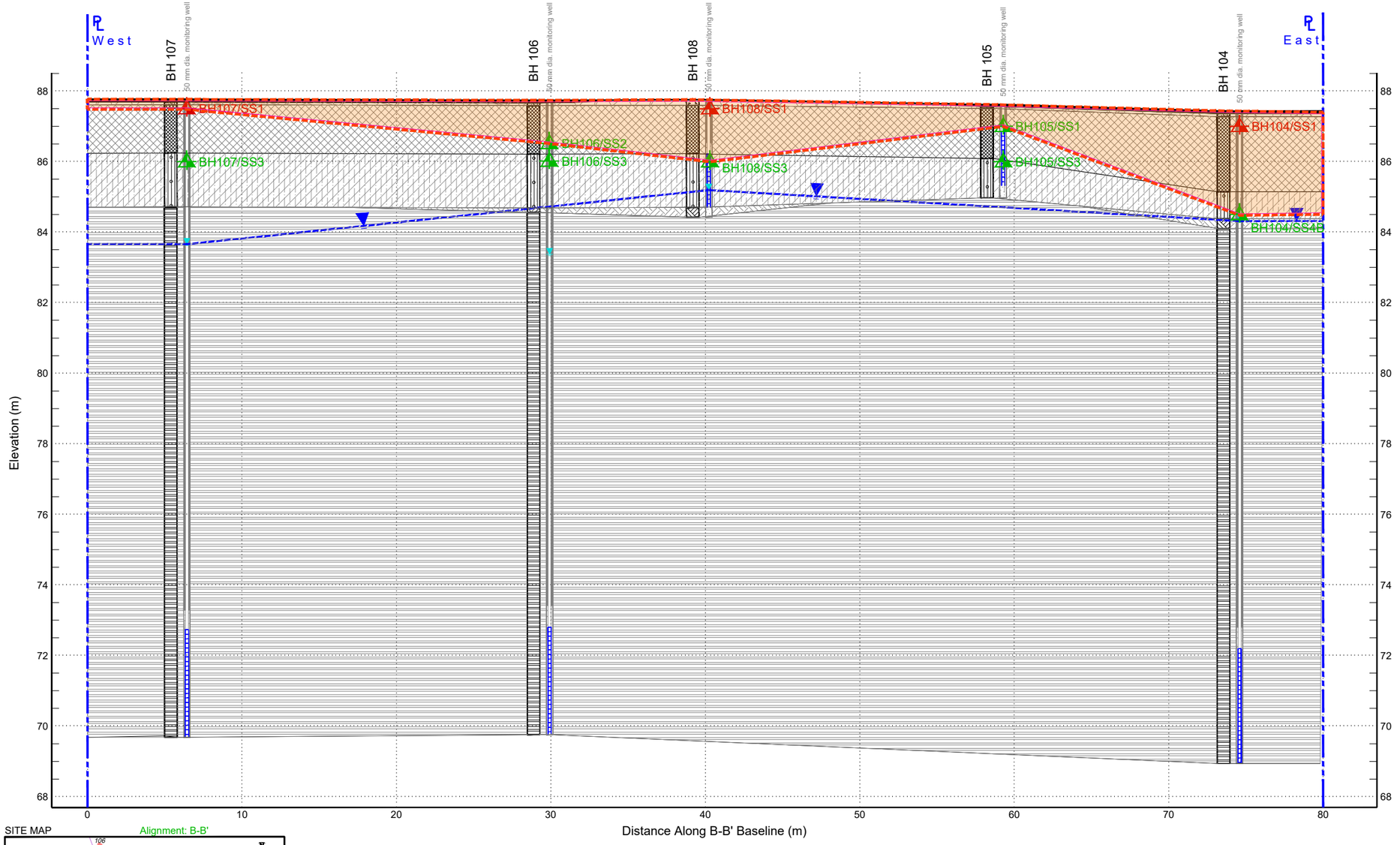
Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
METALS
EXCEEDANCES IN SOIL - CROSS SECTION A-A'

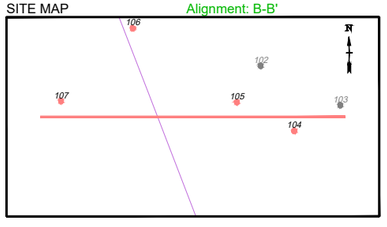
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Reviewed By: SH	**Figure No.:** 7
Date: May 2020	

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SECTION B-B'



SITE MAP Alignment: B-B'



Sample Name	Units	MECP Table 3 2011 Criteria RPI MF	RDL	BH 104/SS1	Dup1 (BH 104/SS1)	BH 104/SS4B	BH 105/SS1	BH 105/SS3	BH 106/SS2	BH 106/SS3	BH 107/SS1	BH 107/SS3	BH 108/SS1	BH 108/SS3
COC ID #				CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R	CA14591-Jan19 R
Date				22-Jan-19	22-Jan-19	22-Jan-19	25-Jan-19	25-Jan-19	23-Jan-19	23-Jan-19	24-Jan-19	24-Jan-19	25-Jan-19	25-Jan-19
Depth of Sample (m)				0.2 - 0.8	0.2 - 0.8	2.6 - 2.9	0.2 - 0.8	1.5 - 2.0	0.8 - 1.4	1.5 - 2.1	0.2 - 0.8	1.5 - 2.1	0.0 - 0.6	1.5 - 2.0
Elev of Sample (masl)				87.3 - 86.7	87.3 - 86.7	84.8 - 84.5	87.5 - 86.8	86.1 - 85.6	87.0 - 86.4	86.2 - 85.6	87.6 - 87.0	86.2 - 85.6	87.7 - 87.1	86.2 - 85.8
Parameter														
Beryllium	µg/g	5	0.02	4.8	5.4	0.76	0.73	0.77	0.60	0.55	1.6	0.65	0.47	0.58
Lead	µg/g	120	0.1	43	54	14	69	11	12	9.9	280	25	140	11

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Reference:

Notes:

Legend:

- Asphaltic Concrete with Aggregate
- Fill Material
- Silt, some Clay (Halton Till)
- Shale
- Bedrock (Queenston Formation)
- Ground Water Level, April 2019
- Monitoring Well Screen
- Approximate Extent of Contaminant Impacted
- Sample Location Meets Standard
- Sample Location Exceeds Standard

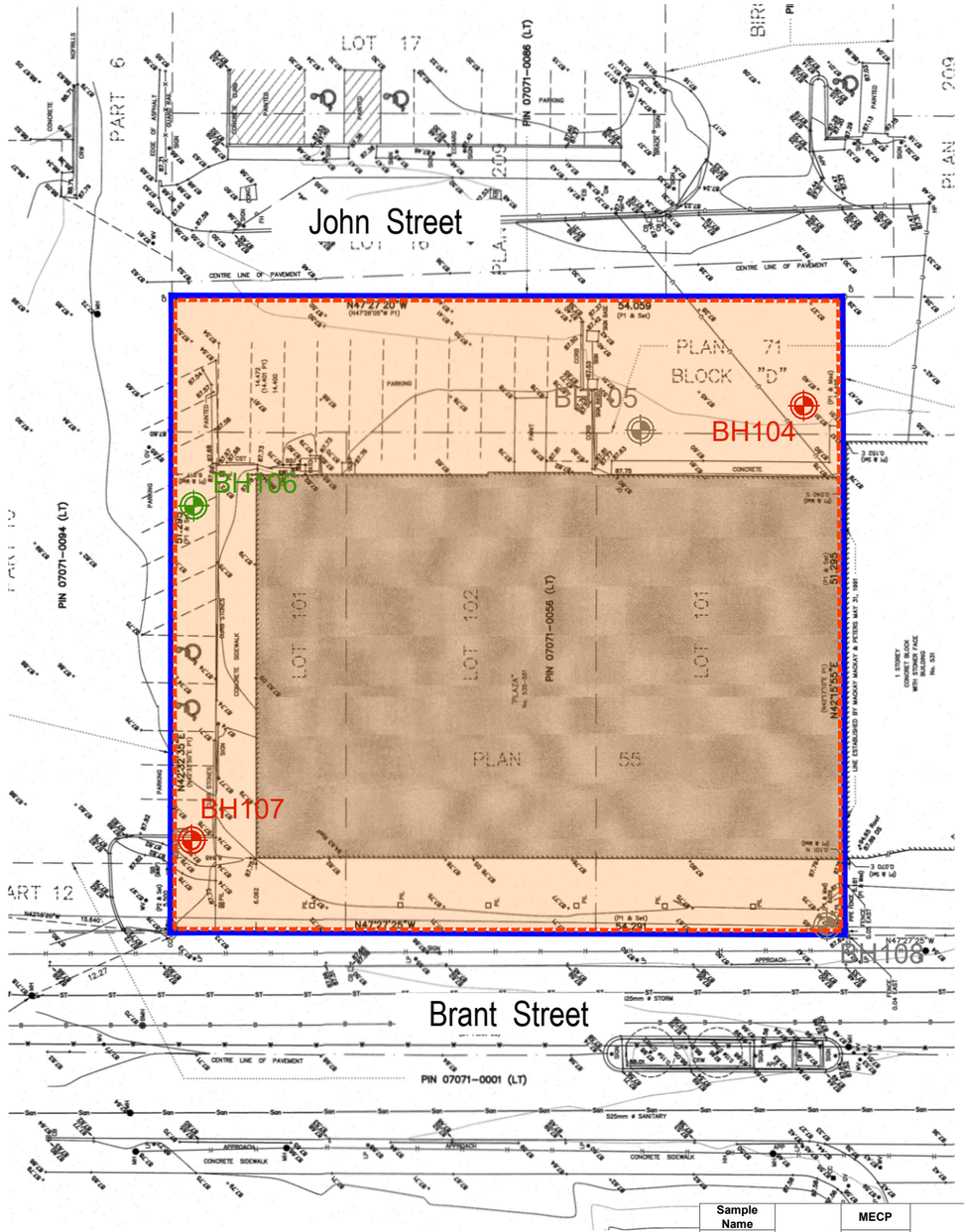
Project Title:
Phase Two Environmental Site Assessment

Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
METALS
EXCEEDANCES IN SOIL - CROSS SECTION B-B'

Designed By: TW	**File No.:** 1-18-0718-42
Drawn By: AA	**Scale:** As Shown
Reviewed By: SH	**Figure No.:** 8
Date: May 2020	

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SCALE 0 5 10m

Sample Name	Units	MECP	RDL	MW 104	BH 104	Dup (BH 104)	MW 106	BH 106	MW 107	Dup (MW 107)
Lab ID #		Table3		CA14204-Feb19 R1	CA14529-FEB19	CA14529-FEB19	CA14204-Feb19 R1	CA14529-FEB19	CA14204-Feb19 R1	CA14204-Feb19 R1
Date		2011 Criteria		08-Feb-19	21-Feb-19	21-Feb-19	08-Feb-19	21-Feb-19	08-Feb-19	08-Feb-19
Sample Elevation		RPI MF		72.0-68.9	72.0-68.9	72.0-68.9	72.8-69.8	72.8-69.8	72.8-69.7	72.8-69.7
Parameter										
Petroleum Hydrocarbons F2	ug/L	150	100	715	< 100	< 100	2010	181	< 100	< 100
Petroleum Hydrocarbons F3	ug/L	500	200	363	< 200	< 200	325	< 200	693	550

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Construction Materials, Inspection & Testing
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Reference:
Google Earth Pro 2018

Notes:

Legend:

- Phase Two Property Boundary
- Borehole with Monitoring Well
- Borehole with Monitoring Well Meets Standard
- Borehole with Monitoring Well Exceeds Standard
- Boreholes with Monitoring Well Not Sampled for Parameter
- Approximate Extent of Contaminant Impacted

Project Title:
Phase Two Environmental Site Assessment

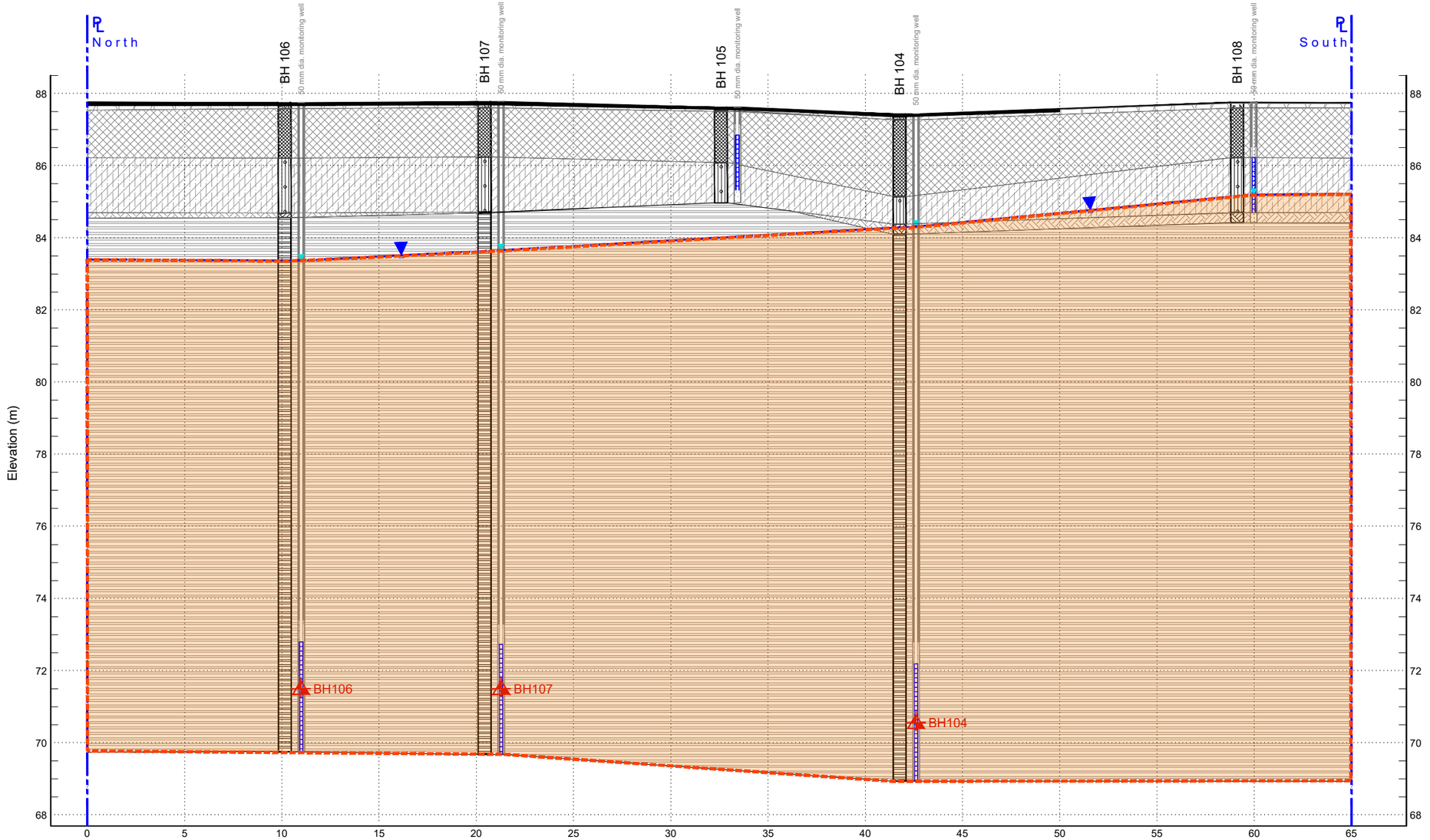
Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBONS EXCEEDANCES IN GROUND WATER - PLAN VIEW

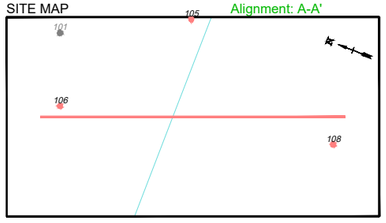
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Reviewed By: SH	**Figure No.:** 9
Date: May 2020	

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SECTION A-A'



SITE MAP



Sample Name	Units	MECP	RDL	MW 104	BH 104	Dup (BH 104)	MW 106	BH 106	MW 107	Dup (MW 107)
Lab ID #		Table3		CA14204-Feb19 R1	CA14529-FEB19	CA14529-FEB19	CA14204-Feb19 R1	CA14529-FEB19	CA14204-Feb19 R1	CA14204-Feb19 R1
Date		2011 Criteria		08-Feb-19	21-Feb-19	21-Feb-19	08-Feb-19	21-Feb-19	08-Feb-19	08-Feb-19
Sample Elevation		RPI MF		72.0-68.9	72.0-68.9	72.0-68.9	72.8-69.8	72.8-69.8	72.8-69.7	72.8-69.7
Parameter										
Petroleum Hydrocarbons F2	ug/L	150	100	715	< 100	< 100	2010	181	< 100	< 100
Petroleum Hydrocarbons F3	ug/L	500	200	363	< 200	< 200	325	< 200	693	550

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Construction Materials, Inspection & Testing
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Reference:

Notes:

Legend:

- Asphaltic Concrete with Aggregate
- Fill Material
- Silt, some Clay (Halton Till)
- Shale
- Bedrock (Queenston Formation)
- Ground Water Level, April 2019
- Monitoring Well Screen
- Approximate Extent of Contaminant Impacted
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

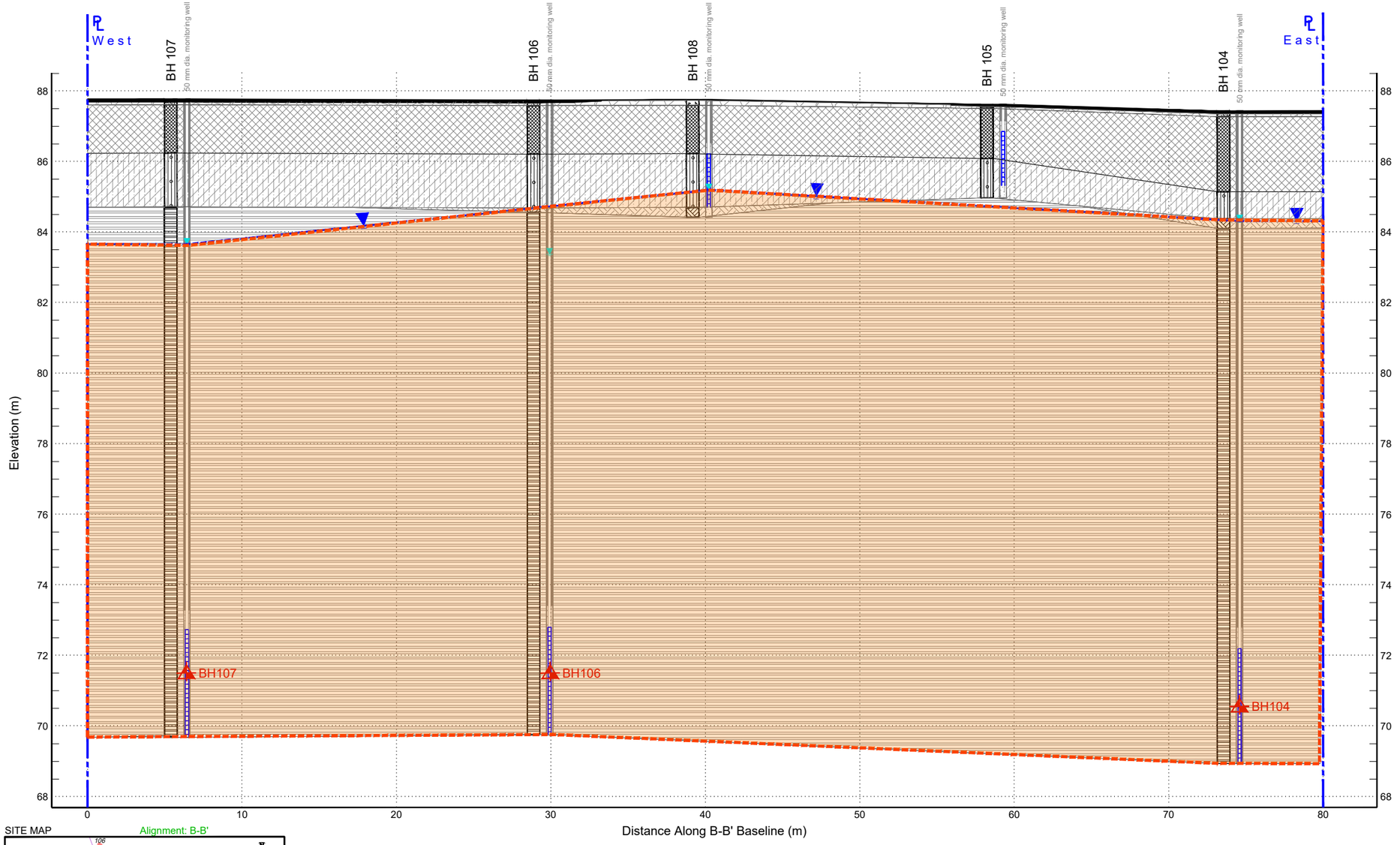
Site Location:
535 to 551 Brant Street, Burlington, Ontario

Figure Title:
PETROLEUM HYDROCARBONS EXCEEDANCES IN GROUNDWATER CROSS SECTION A-A'

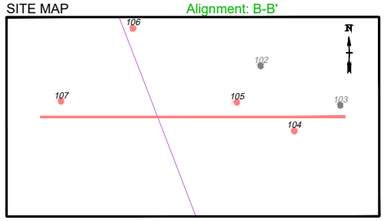
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Drawn By: AA	**Scale:** As Shown
Reviewed By: SH	**Figure No.:** 10
Date: May 2020	

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SECTION B-B'



SITE MAP Alignment: B-B'



Sample Name	Units	MECP	RDL	MW 104	BH 104	Dup (BH 104)	MW 106	BH 106	MW 107	Dup (MW 107)
Lab ID #		Table3		CA14204-Feb19 R1	CA14529-FEB19	CA14529-FEB19	CA14204-Feb19 R1	CA14529-FEB19	CA14204-Feb19 R1	CA14204-Feb19 R1
Date		2011 Criteria		08-Feb-19	21-Feb-19	21-Feb-19	08-Feb-19	21-Feb-19	08-Feb-19	08-Feb-19
Sample Elevation		RPI MF		72.0-68.9	72.0-68.9	72.0-68.9	72.8-69.8	72.8-69.8	72.8-69.7	72.8-69.7
Parameter										
Petroleum Hydrocarbons F2	ug/L	150	100	715	< 100	< 100	2010	181	< 100	< 100
Petroleum Hydrocarbons F3	ug/L	500	200	363	< 200	< 200	325	< 200	693	550

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

Reference:

Notes:

Legend:

- Asphaltic Concrete with Aggregate
- Fill Material
- Silt, some Clay (Halton Till)
- Shale
- Bedrock (Queenston Formation)
- Ground Water Level, April 2019
- Monitoring Well Screen
- Approximate Extent of Contaminant Impacted
- Sample Location Meets Standard
- Sample Location Exceeds Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
535 to 551 Brant Street, Burlington, Ontario

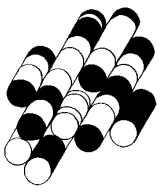
Figure Title:
PETROLEUM HYDROCARBONS EXCEEDANCES IN GROUNDWATER CROSS SECTION B-B'

Designed By: TW	**File No.:** 1-18-0718-42
Drawn By: AA	**Scale:** As Shown
Reviewed By: SH	**Figure No.:** 11
Date: May 2020	

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APPENDIX A

TERRAPROBE INC.



PHASE ONE CONCEPTUAL SITE MODEL

535 – 551 Brant Street, Burlington

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 is Rambo Creek, located approximately 75 m east of the Property. All water bodies on the Phase One Property and in the Phase One Study Area are shown on Figure 1.
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	The location of drinking water wells, and all other wells, identified on the Phase One Property are shown on Figure 2.
v.	Show roads, including names, within the Phase One Study Area	The Property is bounded to the north by an parking lot and commercial developments, to the south by an commercial units, east by John Street followed by parking lot, and west by Brant Street. 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) were identified on the Property. The Contaminants of Potential Concern are split into four (4) areas and described on the Table of Area of Potential Environmental Concern. The Location of the APECs on the Phase One Property are shown on Figure 6.

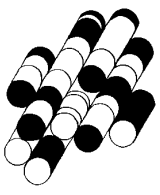
Phase One CSM		Information Pertaining to Property
The following is a description and assessment of:		
i.	Any areas where potentially contaminating activity on or potentially affecting the Phase One Property has occurred	Phase One Property • #30 – Importation of Fill Material of Unknown Quality. • #10– Commercial Autobody Shops • #28 – Gasoline and Associated Products Storage in Fixed Tanks • #58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners Within Phase One Study Area • #37 Operation of Dry Cleaning Equipment (where chemicals are used)
ii.	Any contaminants of potential concern	Contaminants of Potential Concern (CoPCs) were identified for the Property. • Metals, As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR in soil and ground water • PAH in soil and ground water • PHC in soil and ground water • VOCs in soil and ground water • BTEX in soil and ground water
iii.	The potential for underground utilities, if any present, to affect contaminant distribution and transport,	Catch basins and lamp posts were noted within the at-grade parking lots. There is a potential for underground utilities to affect the horizontal distribution or transport of contaminants.

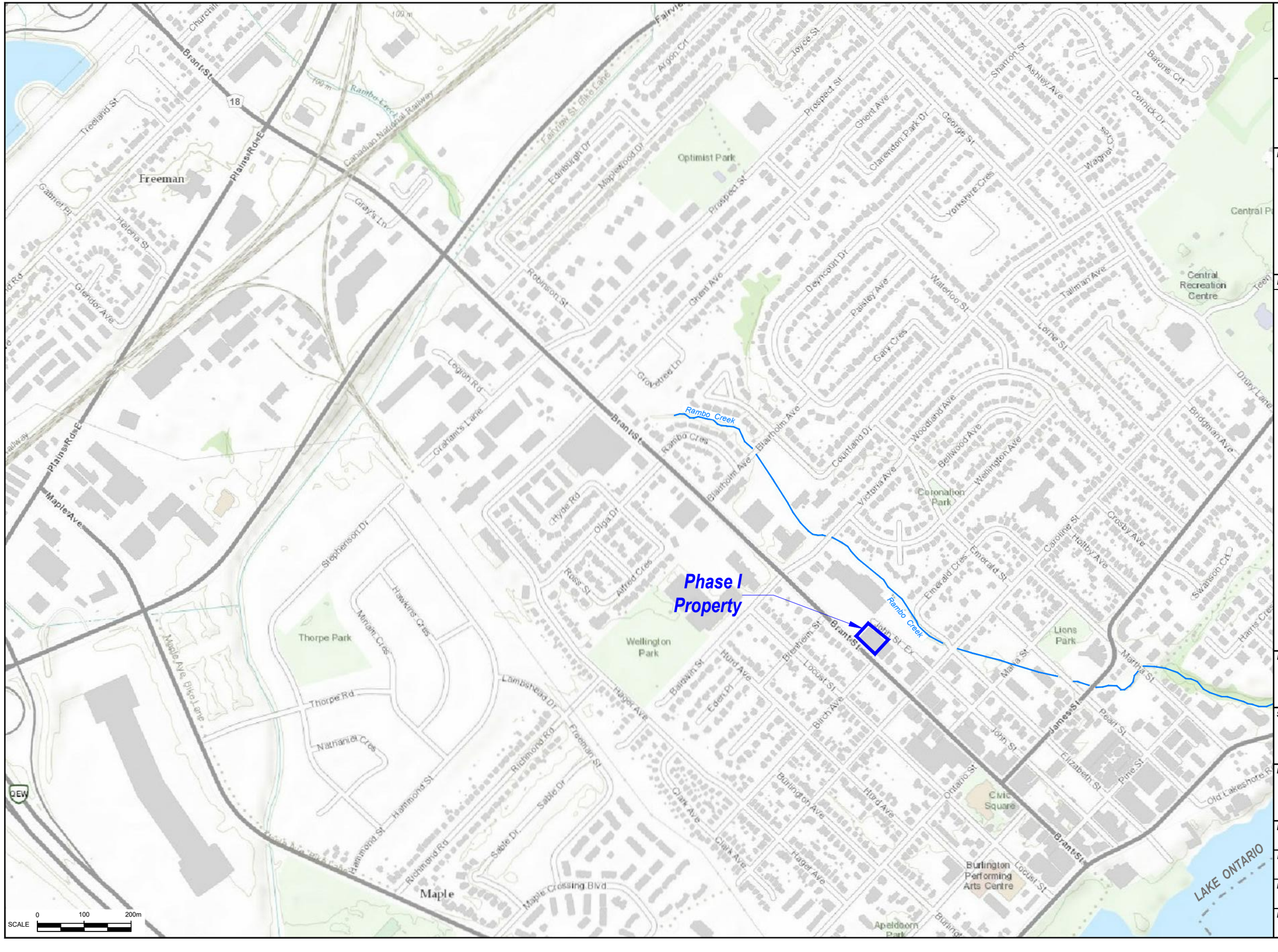
Phase One CSM		Information Pertaining to Property
iv.	Available regional or site specific geological and hydrogeological information,	Topography • The approximate elevation of the Property ranges from 87.5 & 87.9.6 masl, sloping to the south. Hydrogeology • The nearest water body is Rambo Creek, which is located approximately 75 m east of the Property. The approximate depth to ground water based on water levels taken from the boreholes in the Study Area ranges from 2.5 in the overburden and 3.3 to 4.5 in the bedrock. Ground water is expected to flow south and surface water is expected to also flow to the south. Geology (overburden) • The overburden consists coarse textured glaciolacustrine deposits consisting of sand, gravel, minor silt and clay. Geology (depth to bedrock) • The bedrock on the site is of the Queenston Formation, which is comprised of shale, limestone, dolostone and siltstone., as per Ontario Geological Survey Earth mapping.
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

FIGURES

TERRAPROBE INC.





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

Reference:
Explore Burlington 2018

Notes:

Legend:

Phase I Property Boundary

Project Title:
Phase I Environmental Site Assessment

Site Location:
551 Brant Street, Burlington, Ontario

Figure Title:
PHASE I PROPERTY LOCATION

Designed By: PP	***File No.:*** 1-18-0718-41
Drawn By: JB	***Scale:*** As Shown
Reviewed By: MB	***Figure No.:*** 1
Date: April 2019	

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

Reference:
Google Earth Pro 2018

Notes:

Legend:

Phase I Property Boundary

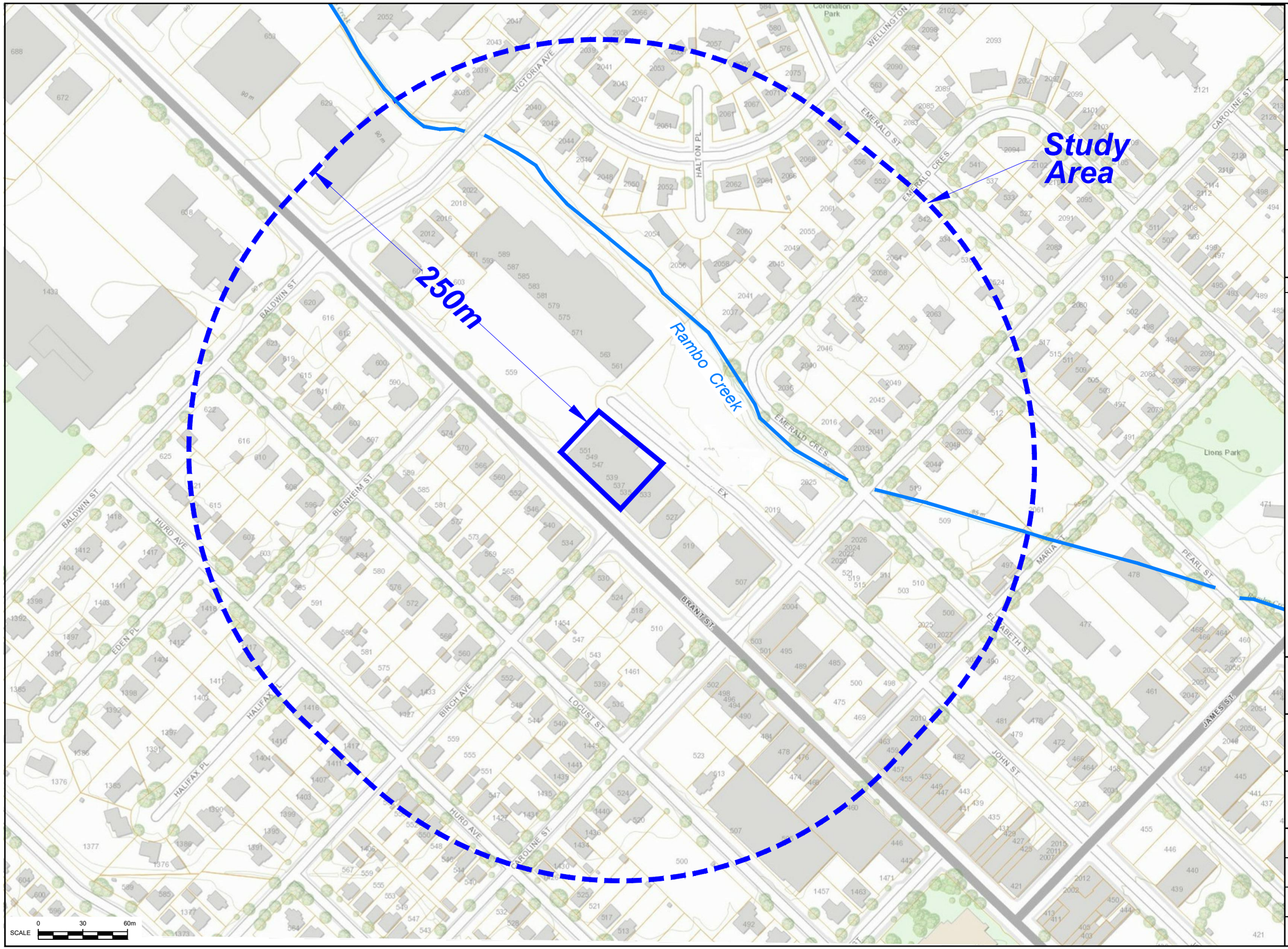
Project Title:
Phase I Environmental Site Assessment

Site Location:
551 Brant Street, Burlington, Ontario

Figure Title:
PHASE I PROPERTY

Designed By: PP	***File No.:*** 1-18-0718-41
Drawn By: JB	***Scale:*** As Shown
Reviewed By: MB	***Figure No.:*** 2
Date: April 2019	

Z:\1-Project Files\2018\1-18-0718 - 535 - 551 Brant Street, Burlington\41 - Phase One ESA\A. Dwgs, Logs\AutoCAD\1-18-0718-41 Phase I ESA.dwg, JB



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

Reference:
Explore Burlington 2018

Notes:

Legend:

- Phase I Property Boundary
- Phase I Study Area, 250m

Project Title:
Phase I Environmental Site Assessment

Site Location:
551 Brant Street, Burlington, Ontario

Figure Title:
PHASE I STUDY AREA

Designed By: PP	***File No.:*** 1-18-0718-41
Drawn By: JB	***Scale:*** As Shown
Reviewed By: MB	***Figure No.:*** 3
Date: April 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:
Google Earth Pro 2018

Notes:

Legend:

- Phase I Property Boundary
- Residential Land Use
- Community Land Use (Roads)
- Commercial Land Use

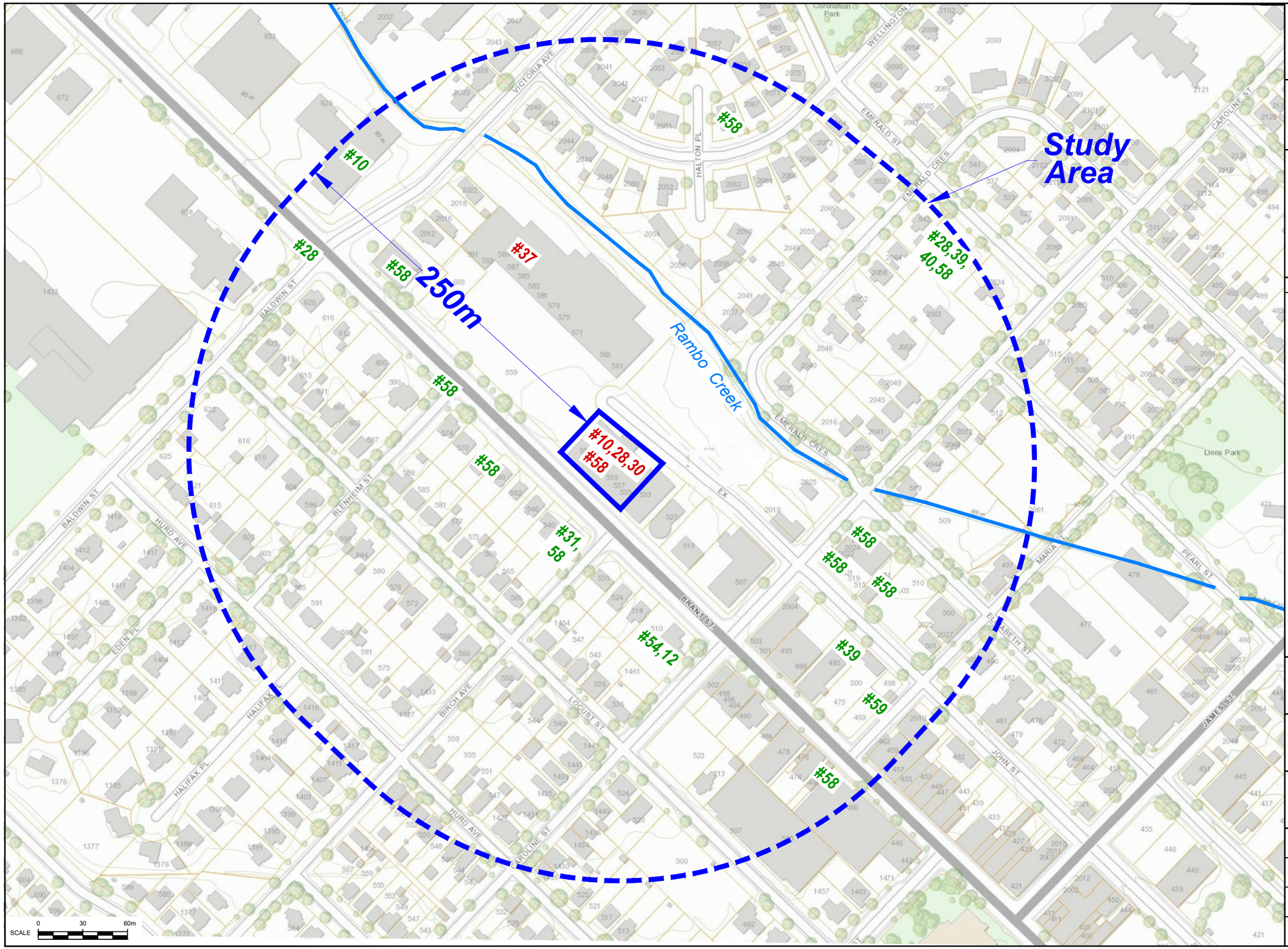
Project Title:
Phase I Environmental Site Assessment

Site Location:
551 Brant Street, Burlington, Ontario

Figure Title:
ADJACENT PROPERTY LAND USES

Designed By: PP	***File No.:*** 1-18-0718-41
Drawn By: JB	***Scale:*** As Shown
Reviewed By: MB	***Figure No.:*** 4
Date: April 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:
Explore Burlington 2018

Notes:

PCA - Potentially Contaminating Activity

RED - PCA causing APEC on Property

GREEN - PCA unlikely to affect Property

Legend:

	Phase I Property Boundary
	Phase I Study Area, 250m
PCA	Potentially Contaminating Activity
#10	Commercial Autobody Shops
#17	Dye Manufacturing, Processing and Bulk Storage
#28	Gasoline and Associated Products Storage in Fixed Tanks
#30	Importation of Fill Material of Unknown Quality
#31	Ink Manufacturing, Processing and Bulk Storage
#37	Operation of Dry Cleaning Equipment (where chemicals are used)
#39	Paints Manufacturing, Processing and Bulk Storage
#40	Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
#54	Textile Manufacturing and Processing
#58	Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
#59	Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products

Project Title:
Phase I Environmental Site Assessment

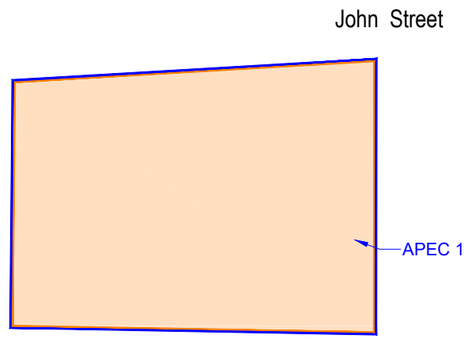
Site Location:
551 Brant Street, Burlington, Ontario

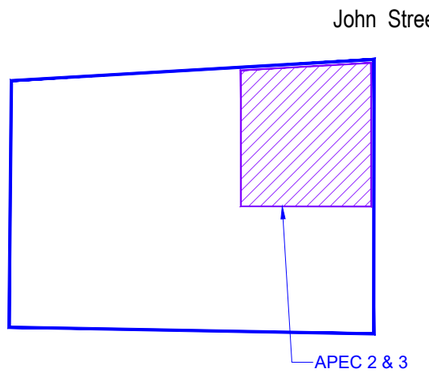
Figure Title:
PCA LOCATIONS

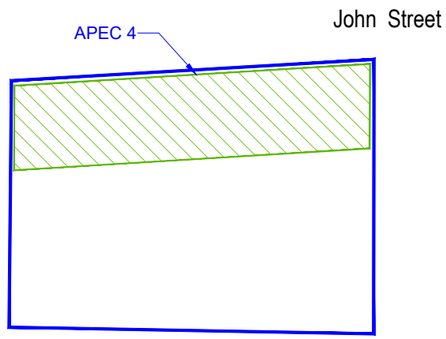
Designed By: PP	*File No.:* 1-18-0718-41
Drawn By: JB	*Scale:* As Shown
Reviewed By: MB	*Figure No.:* 5
Date: April 2019	

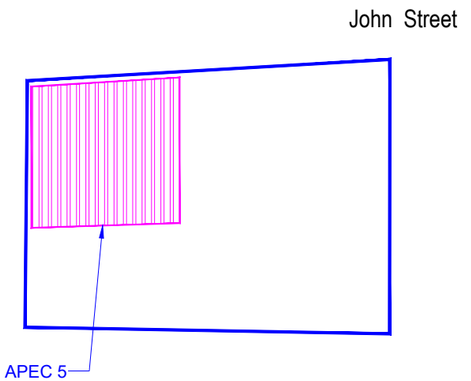
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Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Google Earth Pro 2018

Notes:
APEC - Areas of Potential Environmental Concern

Legend:
- Phase I Property Boundary
- APEC 1
- APEC 2 & 3
- APEC 4
- APEC 5

Project Title:
Phase I Environmental Site Assessment

Site Location:
551 Brant Street, Burlington, Ontario

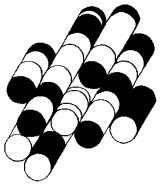
Figure Title:
APEC LOCATIONS

Designed By: PP	***File No.:*** 1-18-0718-41
Drawn By: JB	***Scale:*** As Shown
Reviewed By: MB	***Figure No.:*** 6
Date: April 2019	

Z:\1-Project Files\2018\1-18-0718 - 535 - 551 Brant Street, Burlington\A1 - Phase One ESA\A_Dwgs_Logs\AutoCAD\1-18-0718-41 Phase I ESA.dwg, JB

APPENDIX B

TERRAPROBE INC.



TOPOGRAPHIC SURVEY
OF
LOTS 101, 102 & 103
REGISTERED PLAN 55
AND PART OF
LOT D
REGISTERED PLAN 71
IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

SCALE 1:200 METRIC

4 2 0 4 8 12 metres

S.D. McLAREN, O.L.S. – 2018

BEARING NOTE:
BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0)

NOTE:
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999707922

INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORP's): UTM ZONE 17, NAD83 (CSRS) (2010.0). COORDINATES TO URBAN ACCURACY PER SEC. 14(2) OF O.REG. 216/10

POINT ID	NORTHING	EASTING
ORP Ⓐ	4798025.450	597110.748
ORP Ⓑ	4797936.365	597205.718

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

SITE BENCHMARK
MANHOLE
ELEV = 87.716

PLAN 99
PLAN 20R-11860
PART 10
PART 12
PART 6
PIN 07071-0094 (LT)
PIN 07071-0001 (LT)
PIN 07071-0056 (LT)
PIN 07071-0086 (LT)
PIN 07071-0084 (LT)
PIN 07071-0057 (LT)

BRANT STREET (BY PLAN 99)
BIRCH AVENUE (BY PLAN 209)

LOT 101
LOT 102
LOT 103
LOT 104
"PLAZA" No. 535-551
1 STOREY CONCRETE BLOCK WITH STONER FACE BUILDING No. 531
PLAN BLOCK "D" 71
PLAN 209
LOT 16
LOT 17
LOT 15
LOT 14

N42°32'35"E (N42°33'50"E P1) 51.295 (P1 & Set)
N47°27'25"W 54.291 (P1 & Set)
N42°17'10"E P1) N42°15'55"E (P1 & Set) 51.295
N47°27'25"W 54.059 (P1 & Set)
N47°27'25"W 36.064 (P1 & Set)
N47°22'20"W (N47°26'05"W P1) 14.472 (14.401 P1) 14.400
LINE ESTABLISHED BY MACKAY MACKAY & PETERS MAY 31, 1991

LEGEND:

□	DENOTES	MONUMENT SET
■		MONUMENT FOUND
IB		IRON BAR
PB		PLASTIC BAR
CP		CONCRETE PIN
CC		CUT CROSS
SIB#		ROUND STANDARD IRON BAR
SIB		STANDARD IRON BAR
SSIB		SHORT STANDARD IRON BAR
B24		A.T. McLAREN, O.L.S.
M&P		MACKAY MACKAY & PETERS
OU		ORIGIN UNKNOWN
P1		PLAN BY A.T. McLAREN, O.L.S. DATED JULY 19, 2001 FILE 29480
P2		PLAN 20R-11860
APP		APPROACH
HH		HAND HOLE
MH		MANHOLE
CB		CATCH BASIN
CONC		CONCRETE
FH		FIRE HYDRANT
WV		WATER VALVE
PIL		PILLAR
DS		DOOR SILL
GF		GARAGE FLOOR
LP		LIGHT POST
HP		HYDRO POLE
GW		GUY WIRE
CRW		CONCRETE RETAINING WALL
BRACK		BIKE RACK
BOL		BOLLARD
BOLF		BOLLARD FENCE
GM		GAS MAIN
GV		GAS VALVE
CCRB		CONCRETE CURB
ECHARGE		ELECTRICAL CHARGING STATION
EB		ELECTRICAL BOX
DTREE		DECIDUOUS TREE
#		DIAMETER
//		NOT TO SCALE

	DENOTES	PROPERTY BOUNDARY
		BUILDING BOUNDARY
B		BELL CABLE
G		GAS MAIN
W		WATER MAIN
San		SANITARY SEWER
ST		STORM SEWER
U		OVERHEAD UTILITIES
H		BURIED HYDRO LINES
CANOPY		CANOPY
		TREE CANOPY
		SAPLING

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

BENCHMARK:
BURLINGTON B.M. No. 301

BENCHMARK SET ON CITY PLATE SOUTHWEST CORNER, SOUTH SIDE OF CENTRAL PUBLIC SCHOOL FACING BALDWIN STREET

ELEVATION: 90.583 metres

UNDERGROUND SERVICE AND UTILITY LOCATIONS WERE DERIVED FROM CITY OF BURLINGTON DRAWING No. MB-4 (SHEET 4)

UNDERGROUND SERVICE AND UTILITY LOCATIONS MUST BE VERIFIED PRIOR TO CONSTRUCTION

INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION

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 5th DAY OF DECEMBER, 2018

DECEMBER 6, 2018
DATE

S. DAN McLAREN, O.L.S.

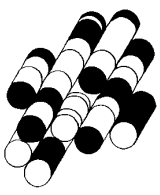
© S.D. McLAREN, O.L.S. – 2018. NO PERSON MAY COPY REPRODUCE, DISTRIBUTE OR ALTER THIS PLAN IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF S.D. McLAREN, O.L.S.

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	MW	1:200	35815

APPENDIX C

TERRAPROBE INC.



Legislative & Planning Services
Planning Services
1151 Bronte Road
Oakville ON L6M 3L1

May 5, 2020

Teresa Weatherhead
903 Barton Street, Unit 22
Stoney Creek, Ontario, L8E 5P5

Dear: Teresa Weatherhead

RE: **Notification of Intent to Use Non-Potable Groundwater Site Condition Standards**
Subject Property: **535 Brant Street, Burlington**

Further to your correspondence received by Halton Region Planning Services on **April 17, 2020**, Regional Municipality of Halton staff has prepared this letter in response to your O. Reg. 153/04 Records of Site Condition – Part XV.1 of the Environmental Protection Act request to assume that the groundwater beneath the subject property "does not or will not serve as a raw water supply for a drinking water system, as defined in the Safe Drinking Water Act (2002)".

The key features for this request are presented in Table 1 below:

Table 1: Key Features Assessment

Key Feature	Is the property located within or nearby these Key Features (yes/no)
Wellhead Protection Area	**No**
Highly Vulnerable Aquifer	**Yes**
Environmentally Sensitive Area (within 30m)	**No**
Rural Area	**No**
Water Well Records Within 250 metres	**No**

Region of Halton records indicate that the property is located within the **City of Burlington** and **is not** within a wellhead protection area, **but is** located within a highly vulnerable aquifer, as identified in the Region's Source Water Protection Planning under the Clean Water Act, 2006. A report drafted by Terraprobe (File No. 1-18-0718) and dated April 13 2020, provided sufficient soil and groundwater information and analysis on the local scale to show this property is unlikely to be within the Highly Vulnerable Aquifer area. As such this will not be considered as justification against application of non-potable standards. The property **is not** located within 30m of environmentally sensitive areas (see definition in O. Reg. 153/04). There are **no** potable well records that are located within 250m of the property.

Based on this information, Halton Region **does not object** to the intention to apply non-potable water use criteria for the assessment of the subject property.

If you have any questions regarding this information, please contact the undersigned at ext. 3241.

Sincerely,

Behnam Doulatyari
Planner – Groundwater and Hydrology, Sustainable Planning

c. Tim Edwards, District Engineer, Ministry of the Environment, Halton-Peel District Office
Nicole Mathews, Manager, Environmental Health, Halton Region (email)
Ang Capone, City of Burlington (email)

Terraprobe
Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

File No. 1-18-0718

April 13, 2020

Daniel Banks
Supervisor, Municipal Water Resources Planning
Halton Region
1151 Bronte Road, Oakville, Ontario, L6M 3L1

RE: HIGHLY VULNERABLE AQUIFER ASSESSMENT
535 - 551 BRANT STREET, BURLINGTON, ONTARIO

Dear Mr. Banks,

We have recently completed a Phase Two Environmental Site Assessment on the Property located at 535 - 551 Brant Street in Burlington. A site plan showing the location of the property is attached.

Terraprobe intends to use the Full Depth Site Condition Standards in a Non-Potable Ground Water Condition, for Residential/Park/Institutional use from the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" for the evaluation of soil and ground water at the property to support the filing of the Record of Site Condition. This letter is to formally notify the Regional Municipality of Halton of the intention to use the non-potable ground water criteria for the above noted property.

Terraprobe notes that based on the Conservation Halton Interactive Mapping Program, the Property is located within an area specified as highly vulnerable aquifer. A review of the Halton Region Source Protection Area Assessment Report Version 3.5, October 2017, Section 6.2.1 indicated that "The analysis of highly vulnerable aquifers is based on limited data analyzed on a regional scale and using basic methodology". In addition is states that "As studies are completed within the Halton Region Source Protection Area, and as the additional borehole data is included in the interpretation, the mapping may change. Accordingly, based on the data and method used for this assessment, the uncertainty is "high". On this basis can you please review the Property specific information provided below to determine if the highly vulnerable aquifer restriction can be removed from the Property, therefore permitting non-potable site condition standards to be applied.

- According to information presented in the *Halton Region Source Protection Area Assessment Report Version 3.5, October 2017,* Section 6.2.1, Highly vulnerable aquifers are groundwater sources that could relatively easily be impacted by the release of contaminants on the ground surface. Highly vulnerable aquifers are located above the Niagara Escarpment where thin soils overlie fractured bedrock and below the Escarpment where there are sandy soils and a shallow

water table. Areas of high vulnerability are due to thin permeable soils and a shallow water table. The Property specific soil and ground water information is presented below and indicates that the Property does not contain sandy soils and a shallow water table. Ground water was encountered at a depth ranging from 2.6 m to 4.5 m below grade.

- The borehole logs for the Property (attached) indicate that the stratigraphy of the site generally consist of asphalt concrete pavement or concrete floor slab underlain by an aggregate base layer. A site plan showing the borehole/monitoring well locations on the property is attached.The exterior boreholes encountered a layer of earth fill consisting of clayey silt to sandy silt with trace sand and gravel. Underlying the earth fill, undisturbed deposits of cohesive glacial till with a stiff to hard consistency was encountered and extended to depths of approximately 3.0 to 4.6 m below ground surface. The native soils are underlain by bedrock of the Queenston formation at a depth of 3.0 m below ground surface. The material on the Property more closely matches soils on properties located to the south which fall in areas not classified as a vulnerable aquifer.
- The nearest known private water well (Well Record #2800010) produced salt water from 15 m which is consistent with conditions on-site at BH106. As such, groundwater on-site cannot be used as a source of potable water. In fact, any well installed on-site with the intention of being used as a source of potable water would have to be abandoned under Section 21(4) of O.Reg. 903 ("If a well produces mineralized water, the well owner shall immediately abandon the well. O. Reg. 372/07, s. 20."). With respect to chloride, mineralized water is defined under O.Reg. 903 as water containing in excess of 500 mg/L of chloride. The ground water samples collected from BH106 had chloride concentrations ranging from 25,000 mg/L to 28,000 mg/L. As the groundwater on-site cannot legally be used as a source of potable water, we are of the opinion that the use of potable groundwater assessment criteria is without meaningful purpose.
- The future development of this property consists of a four level underground parking garage which extends to an approximate depth of 13 m bgs, (approximately 10 m into the shale bedrock) and extends from the north to the south and from the east to the west Property line. The architectural drawings showing the underground levels and ground floor level are attached.
- When the Property is redeveloped there will be no native soil remaining on the Property and the site will be capped with landscaping material and hard capped surfaces (asphalt and concrete) and underlain by a four level underground parking structure. Utility trenches would not be considered a contaminant transport pathway as underground utilities would be installed into a parking level and not buried within native soil.
- Ground water that would naturally flow onto the Property will be intercepted by the concrete wall of the underground parking structure and directed to the perimeter drainage of the building. The water collected in the drainage system would be discharged to the appropriate City or Region sewer.
- The future use of the Property is residential development with main floor retail/office commercial. The likelihood of a contaminating activity occurring on the Property that would impact the ground water under the Property is considered to be low. In addition, hard capped

surfaces placed on site in the form of the concrete underground parking structure would prevent environmental contamination sources at the surface (if present) from impacting the ground water under the Property.

The *Halton Region Source Protection Area Assessment Report Version 3.5, October 2017,* Section 6.2.1 also indicates that "The analysis of highly vulnerable aquifers is based on limited data analyzed on a regional scale and using basic methodology". The Property is located approximately 440 m from the southwest boundary of the area indicated as the highly vulnerable aquifer. Based on the soil and ground water information provided for the Property the actual boundary for the vulnerable aquifer may fall outside the location of the Property.

Should there be any questions or concerns or if any issues noted within the contents of this letter are required to be discussed, please do not hesitate to contact the undersigned.

Terraprobe Inc.

Teresa Weatherhead

PROFESSIONAL GEOSCIENTIST
APRIL 17, 2020
STEPHEN J. HODGSON
PRACTISING MEMBER
0325
ONTARIO

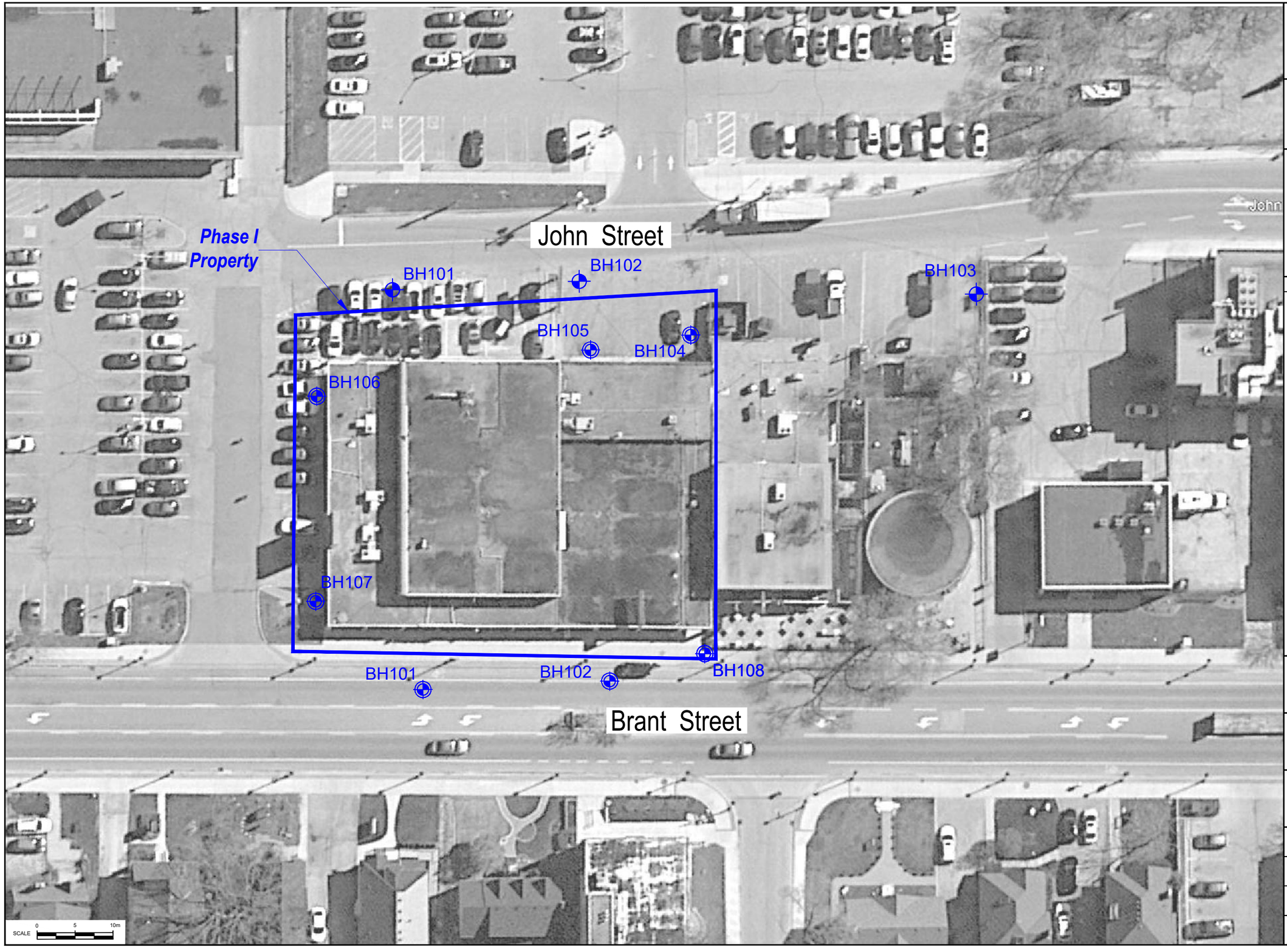
Teresa Weatherhead, LEL
Project Manager

Stephen Hodgson, P.Geo.
Senior Hydrogeologist

Enclosures:

Phase Two Property Location and Borehole/Monitoring Well Location Plan
Architectural Drawing A1.02 – Site Plan
Architectural Drawing A2.01 – Typical U/G 2 to U/G 4 1
Borehole Logs
Laboratory Certificates of Analysis

cc: Behnam Doulatyari, Planner – Groundwater and Hydrology, Sustainable Planning (Behnam.Doulatyari@halton.ca)
Manager, Source Water Protection (sourceprotection@hrca.on.ca)



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

Reference:
Google Earth Pro 2018

Notes:

Legend:

- Phase II Property Boundary
- Borehole with Monitoring Well
- Borehole with Monitoring Well

Project Title:
Phase II Environmental Site Assessment

Site Location:
551 Brant Street, Burlington, Ontario

Figure Title:
MONITORING WELL LOCATIONS

Designed By: PP	***File No.:*** 1-18-0718-42
Drawn By: JB	***Scale:*** As Shown
Reviewed By: MB	***Figure No.:*** 3
Date: April 2019	

Z:\1-Project Files\2018\1-18-0718 - 535 - 551 Brant Street, Burlington\42- Phase Two ESA\A. Dwgs, Logs\AutoCAD\1-18-0718-42 Phase II.dwg, JB



TURNER FLEISCHER

TURNER FLEISCHER ARCHITECTS INC.
67 Lesmil Roa Toront on Canad m3 2t
Telepho (41) 425-22
turnerfleisch.co

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#	DATE	DESCRIPTION	BY

PROJECT

535-551 BRANT STREET

BURLINGTON, ON

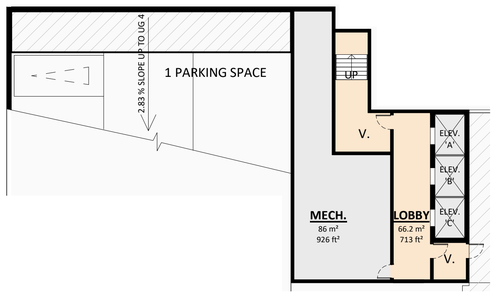
DRAWING

SITE PLAN

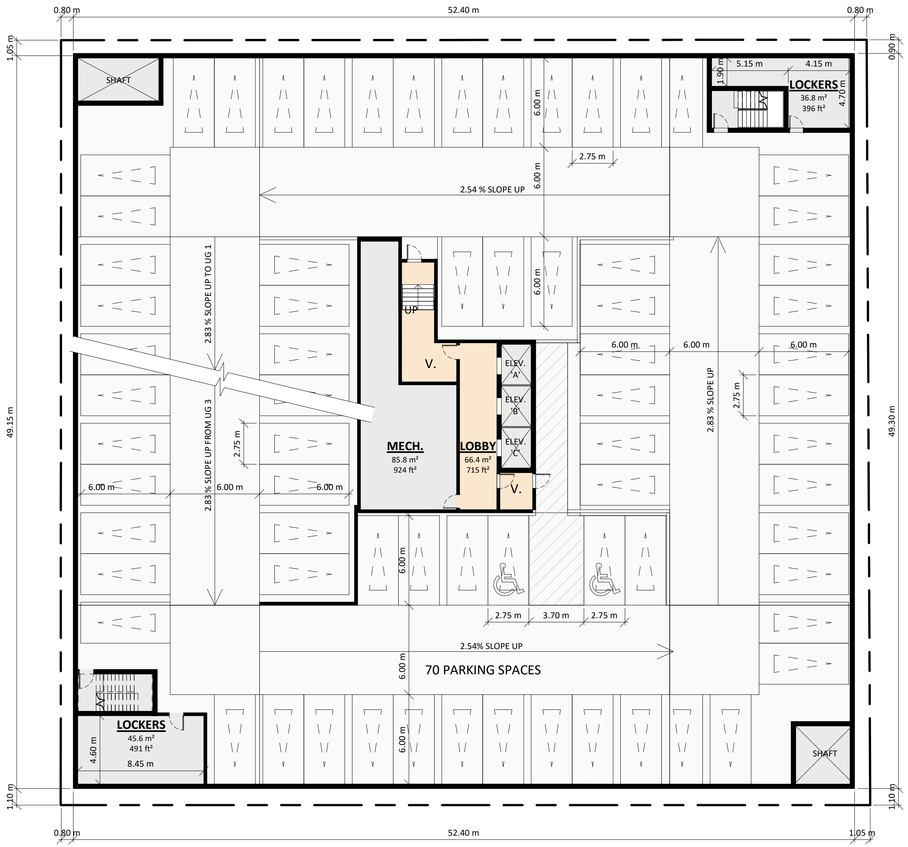
PROJECT NO.	18.069
PROJECT DATE	2018-03-23
DRAWN BY	Author
CHECKED BY	Checker
SCALE	1 : 200

DRAWING NO.

A1.02



2 A2.01 U/G 4 - CONTINUED
1 : 200



TURNER FLEISCHER

TURNER FLEISCHER ARCHITECTS INC.
67 Lesmil Roa Toront on Canad m3 2t
Telepho (41) 425-22
turnerfleisch.co

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#	DATE	DESCRIPTION	BY

PROJECT
535-551 BRANT STREET

BURLINGTON, ON

DRAWING
TYPICAL U/G 2 TO U/G4

PROJECT NO.	18.069
PROJECT DATE	2018-03-23
DRAWN BY	Author
CHECKED BY	Checker
SCALE	1 : 200

DRAWING NO.
A2.01

LOG OF BOREHOLE 101

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : November 26, 2018	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 1	Location : Burlington, ON	Checked by : MD

Position : E: 597162, N: 4798043 (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
	87.5	**GROUND SURFACE**				
0	87.2	115mm **ASPHALTIC CONCRETE**				
	0.3	150mm **AGGREGATE**				
		FILL, clayey silt, trace sand, trace gravel, trace asphalt, stiff, red with black pockets, moist		1	SS	15
1				2	SS	12
	86.0					
	1.5	**SILT**, some clay, trace sand, trace gravel, hard, reddish brown, moist (HALTON TILL)		3	SS	92 / 275mm
	85.5					
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 87, 86

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

Borehole was dry and open upon completion of drilling.

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 102

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : November 26, 2018	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 1	Location : Burlington, ON	Checked by : MD

Position : E: 597181, N: 4798028 (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
0	87.3	**GROUND SURFACE**				
		120mm **ASPHALTIC CONCRETE**				
	86.9	260mm **AGGREGATE**				
	0.4	**FILL**, clayey silt, some sand, trace to some gravel, trace asphalt, trace rock fragments, firm to stiff, dark brown, moist		1	SS	7
1		...at 0.6 m, red, stiff		2	SS	13
	85.8					
	1.5	**SILT**, some silt, trace sand, trace gravel, hard, reddish brown, moist		3	SS	59
	85.3	(HALTON TILL)				
	2.0					

Elevation Scale (m): 87, 86

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

END OF BOREHOLE

Unstabilized water level measured at 0.3 m below ground surface; borehole caved to 0.9 m below ground surface upon completion of drilling.

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 103

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : November 26, 2018	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 1	Location : Burlington, ON	Checked by : MD

Position : E: 597202, N: 4798017 (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
0	87.3	**GROUND SURFACE**				
	87.0	95mm **ASPHALTIC CONCRETE**				
	0.3	240mm **AGGREGATE**				
1		**FILL**, clayey silt, some sand, trace to some gravel, trace asphalt, trace rock fragments, stilff to very stiff, red with black pockets, moist		1	SS	26
				2	SS	12
	85.8					
	1.5	**SILT**, some clay, trace sand, trace gravel, very stiff, reddish brown, moist (HALTON TILL)		3	SS	17
	85.3					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 87, 86

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

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 104

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 22, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597190, N: 4798010 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
0	**87.4**	**GROUND SURFACE**					87	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		Unstabilized Water Level	GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	87.2	80mm **ASPHALTIC CONCRETE**										
	0.2	80mm **AGGREGATE**										
		FILL, clayey silt, trace to some gravel, trace sand, trace asphalt, hard, red with grey and black pockets, moist		1	SS	34				PID: <5		SS1 Analysis: M&I, DUP 1
1		...at 0.8 m, some sand, trace concrete, dark brown to black, firm		2	SS	5	86			PID: 5		SS2 Analysis: PAH
		...at 1.5 m, brown with red staining		3	SS	6				PID: 10		SS3 Analysis: VOC, PHC
2	85.1											
	2.3	**SILT**, some clay, trace sand, trace gravel, firm, reddish brown, moist (HALTON TILL)		4A	SS	6	85			PID: <5		17 11 47 25
		...at 2.6 m, silty clay, trace shale fragments		4B						PID: <5		4B Analysis: M&I, PAH, VOC, PHC
3	84.4											
	3.0			5	SS	50 / 125mm				PID: <5		
	84.1	**INFERRED BEDROCK**, shale, red					84					
	3.3	**QUEENSTON FORMATION** (See rock core log for details)		1	RUN							
		...at 3.5 m, transition to sound bedrock		2	RUN		83					
5												
				3	RUN		82					
6												
							81					
7				4	RUN							
							80					
8												
							79					
9				5	RUN							
							78					
10												
							77					
				6	RUN							
11							76					
				7	RUN							

(continued next page)

LOG OF BOREHOLE 104

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 22, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 2 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597190, N: 4798010 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
		(continued)				
12		**QUEENSTON FORMATION** (See rock core log for details) *(continued)*		7	RUN	
13				8	RUN	
14						
15				9	RUN	
16						
17				10	RUN	
18				11	RUN	
	68.9 18.5	**END OF BOREHOLE**				

Elevation Scale (m): 75, 74, 73, 72, 71, 70, 69

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

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

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Mar 15, 2019	3.3	84.2
Mar 22, 2019	3.2	84.2

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 105

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 25, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 1	Location : Burlington, ON	Checked by : MD

Position : E: 597175, N: 4798018 (UTM 17T) Elevation Datum : Geodetic

Rig type : Big Beaver 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 (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
0	87.6	**GROUND SURFACE**					87					
		50mm **ASPHALTIC CONCRETE**										
		50mm **AGGREGATE**										
1		**FILL**, clayey silt, trace to some sand, trace to some gravel, trace asphalt, trace wood fragments, trace rock fragments, stiff, reddish brown, moist		1	SS	9				PID: <5		SS1 Analysis: M&I
				2	SS	13				PID: <5		SS2 Analysis: PAH, VOC, PHC
	86.1 / 1.5	**SILT**, some clay, trace sand, trace gravel, very stiff, reddish brown, moist (HALTON TILL)		3	SS	28	86			PID: <5		SS3 Analysis: M&I, PAH, VOC, PHC
2		...at 2.3 m, trace shale fragments, hard, grey with red		4	SS	81 / 200mm				PID: <5		14 22 46 18 / 21 18 41 20
	85.0 / 2.6	**END OF BOREHOLE**					85					

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

Unstabilized Water Level

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

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Mar 15, 2019	dry	n/a
Mar 22, 2019	dry	n/a

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 106

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 23, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597147, N: 4798038 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	87.7	**GROUND SURFACE**				
	87.5	80mm **ASPHALTIC CONCRETE**				
	0.2	80mm **AGGREGATE**		1	SS	7
		FILL, sandy silt, trace gravel, trace asphalt, loose, brown to dark brown, moist		2	SS	7
	86.2					
2	1.5	**SILT**, some clay, trace sand, trace gravel, very stiff to hard, reddish brown, moist (HALTON TILL)		3	SS	24
				4	SS	54
	84.7					
3	3.0	**INFERRED BEDROCK**, shale, red		5	SS	50 / 125mm
	84.5	...at 3.2 m, transition to sound bedrock				
	3.2	**QUEENSTON FORMATION** (See rock core log for details)		1	RUN	
4						
5				2	RUN	
6				3	RUN	
7						
8				4	RUN	
9				5	RUN	
10						
11				6	RUN	
				7	RUN	

Elevation Scale (m): 87, 86, 85, 84, 83, 82, 81, 80, 79, 78, 77, 76

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) 10, Natural Water Content (MC) 20, Liquid Limit (LL) 30

Headspace Vapour (ppm): PID: <5 (SS1), PID: <5 (SS2), PID: <5 (SS3), PID: <5 (SS4), PID: <5 (5)

Instrument Details: Unstabilized Water Level

Lab Data and Comments

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

SS1 Analysis: PAH, DUP 2

SS2 Analysis: M&I, VOC, PHC

SS3 Analysis: M&I, PAH

0 10 74 16

SS4 Analysis: VOC, PHC

(continued next page)

LOG OF BOREHOLE 106

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 23, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 2 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597147, N: 4798038 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
12		*(continued)*				
		QUEENSTON FORMATION (See rock core log for details) *(continued)*		7	RUN	
13						
				8	RUN	
14						
				9	RUN	
15						
16				10	RUN	
17	69.7 / 18.0					

Elevation Scale (m): 75, 74, 73, 72, 71, 70

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

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Mar 15, 2019	4.5	83.2
Mar 22, 2019	4.5	83.3

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 107

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 24, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597128, N: 4798019 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	87.8	**GROUND SURFACE**				
	87.6	75mm **ASPHALTIC CONCRETE**				
	0.2	75mm **AGGREGATE**		1	SS	11
		FILL, clayey silt, sandy, trace to some gravel, trace asphalt, trace concrete fragments, trace brick, very loose/very soft to stiff/compact, black to dark brown, moist		2	SS	2
	86.3					
2	1.5	**SILT**, some clay, trace sand, trace gravel, very stiff to hard, reddish brown, moist (HALTON TILL)		3	SS	16
				4	SS	50 / 125mm
3	84.8					
	3.0	**INFERRED BEDROCK**, shale, red		5	SS	50 / 25mm
	84.7	**QUEENSTON FORMATION** (See rock core log for details)		1	RUN	
	3.1	...at 3.6 m, transition to sound bedrock		2	RUN	
4				3	RUN	
5				4	RUN	
6				5	RUN	
7				6	RUN	
8				7	RUN	
9						
10						
11						

Elevation Scale (m): 87, 86, 85, 84, 83, 82, 81, 80, 79, 78, 77, 76

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

SS1 Analysis: M&I, PAH

SS2 Analysis: VOC, PHC

SS3 Analysis: M&I, PAH

SS4 Analysis: VOC, PHC

(continued next page)

LOG OF BOREHOLE 107

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 24, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 2 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597128, N: 4798019 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
12		*(continued)*				
		QUEENSTON FORMATION (See rock core log for details) *(continued)*		7	RUN	
13				8	RUN	
14						
15				9	RUN	
16				10	RUN	
17						
18	69.7 / 18.1			11	RUN	

Elevation Scale (m): 75, 74, 73, 72, 71, 70

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

END OF BOREHOLE

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

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Mar 15, 2019	4.3	83.5
Mar 22, 2019	4.1	83.7

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 108

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 25, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 1	Location : Burlington, ON	Checked by : MD

Position : E: 597160, N: 4797980 (UTM 17T) Elevation Datum : Geodetic

Rig type : Big Beaver Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	87.7	**GROUND SURFACE**				
0	87.5	150mm **PC CONCRETE**				
	0.2	**FILL**, sandy silt, trace gravel, trace rock fragments, loose to compact, dark brown, moist		1	SS	8
1				2	SS	10
	86.2					
	1.5	**SILT**, some clay, trace sand, trace gravel, hard, reddish brown, moist (HALTON TILL)		3	SS	39
2				4	SS	78 / 275mm
	84.7					
3	3.0	**INFERRED BEDROCK**, shale, red		5	SS	50 / 125mm
	84.4					
	3.3	**END OF BOREHOLE**				

Elevation Scale (m): 87, 86, 85

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

SS1 Analysis: M&I

SS2 Analysis: PAH, VOC, PHC

SS3 Analysis: M&I

0 14 73 13

SS4 Analysis: PAH

SS5 Analysis: VOC, PHC, DUP 3

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Mar 15, 2019	dry	n/a
Mar 22, 2019	2.6	85.2

file: 1-18-0718 bh logs.gpj





FINAL REPORT

CA14204-FEB19 R1

1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Prepared for

Terraprobe Inc

FINAL REPORT

First Page

CLIENT DETAILS

Client	Terraprobe Inc
Address	11 Indell Lane Brampton, ON L6T 3Y3. Canada
Contact	Prakash Patel
Telephone	(905) 796-2650
Facsimile	(905) 796-2250
Email	ppatel@terraprobe.ca
Project	1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario
Order Number	
Samples	Ground Water (5)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA14204-FEB19
Received	02/08/2019
Approved	02/14/2019
Report Number	CA14204-FEB19 R1
Date Reported	04/13/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Temperature of Sample upon Receipt: 1 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:NA

MW 106 - 4-Terphenyl-d14 surrogate low and outside control limits due to sample matrix. The overall quality control for this analysis has been assessed and meets method acceptability criteria.

RL raised for Cr6 on sample #8 due to SM

SIGNATORIES

Brad Moore Hon. B.Sc

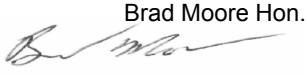


TABLE OF CONTENTS

First Page..... 1
Index..... 2
Results..... 3-10
Exceedance Summary..... 11
QC Summary..... 12-20
Legend..... 21
Annexes..... 22-23

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - BTEX** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9	10	11
	Sample Name			MW 104	MW 106	MW 107	Dup	Trip Blank
	Sample Matrix			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
	Sample Date			08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
BTEX								
Benzene	µg/L	0.5	44	< 0.5	0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	2300	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	18000	34.3	1.7	0.5	0.5	< 0.5
Xylene (total)	µg/L	0.5	4200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - Hydrides** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9	10
	Sample Name			MW 104	MW 106	MW 107	Dup
	Sample Matrix			Ground Water	Ground Water	Ground Water	Ground Water
	Sample Date			08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Hydrides							
Antimony	µg/L	0.02	20000	1.2	0.96	0.52	0.53
Arsenic	µg/L	0.2	1900	5.6	2.8	2.1	2.0
Selenium	µg/L	0.04	63	0.48	0.29	0.24	0.27

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - Metals and Inorganics** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	MW 104	MW 106	MW 107	Dup		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics							
Barium	µg/L	0.02	29000	86.2	351	153	163
Beryllium	µg/L	0.007	67	0.007	0.010	< 0.007	< 0.007
Boron	µg/L	2	45000	1210	4690	836	849
Cadmium	µg/L	0.003	2.7	0.043	0.112	0.034	0.029
Chromium	µg/L	0.03	810	0.05	0.13	< 0.03	0.04
Cobalt	µg/L	0.004	66	0.232	1.57	1.03	1.02
Copper	µg/L	0.02	87	0.75	3.79	0.67	0.38
Lead	µg/L	0.01	25	0.03	0.20	0.08	0.03
Molybdenum	µg/L	0.01	9200	73.3	51.9	28.6	28.7
Nickel	µg/L	0.1	490	2.1	6.8	6.8	7.0
Silver	µg/L	0.002	1.5	0.003	0.020	0.004	0.002
Thallium	µg/L	0.005	510	0.015	0.160	0.048	0.042
Uranium	µg/L	0.002	420	5.22	2.82	1.87	2.04
Vanadium	µg/L	0.01	250	0.68	0.64	0.14	0.13
Zinc	µg/L	2	1100	< 2	5	6	6

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - Na** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	MW 104	MW 106	MW 107	Dup
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Na							
Sodium	µg/L	10	2.3e+006	554000	8150000	632000	639000

PACKAGE: **REG153 - Other (ORP)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	MW 104	MW 106	MW 107	Dup
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Other (ORP)							
Mercury (total)	µg/L	0.01	0.29	< 0.01	< 0.01	< 0.01	< 0.01
pH	no unit	0.05		7.97	7.25	8.00	8.06
Chloride	µg/L	200	2.3e+006	930000	25000000	2100000	2200000
Chromium VI	µg/L	0.2	140	< 0.2	< 2↑	< 0.2	< 0.2
Cyanide (free)	µg/L	2	66	< 2	< 2	< 2	< 2

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	MW 104	MW 106	MW 107	Dup
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PAHs							
Acenaphthene	µg/L	0.1	600	1.0	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	0.1	1.8	0.31	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	MW 104	MW 106	MW 107	Dup		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PAHs (continued)							
Anthracene	µg/L	0.1	2.4	0.17	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	0.1	4.7	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	0.01	0.81	< 0.01	0.03	0.01	0.01
Benzo(b)fluoranthene	µg/L	0.1	0.75	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	µg/L	0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	0.1	1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	µg/L	0.1	0.52	< 0.1	< 0.1	< 0.1	< 0.1
Fluroanthene	µg/L	0.1	130	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	0.1	400	1.6	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
1-Methylnaphthalene	µg/L	0.5		7.8	< 0.5	< 0.5	< 0.5
2-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
Methylnaphthalene, 2-(1-)	µg/L	0.5	1800	8.1	< 0.5	< 0.5	< 0.5
Naphthalene	µg/L	0.5	1400	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	µg/L	0.1	580	3.0	0.10	< 0.1	< 0.1
Pyrene	µg/L	0.1	68	< 0.1	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9	10	11	
	Sample Name			MW 104	MW 106	MW 107	Dup	Trip Blank	
	Sample Matrix			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	
	Sample Date			08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	
PHCs									
F1 (C6-C10)	µg/L	25	750	42	< 25	< 25	< 25	< 25	
F1-BTEX (C6-C10)	µg/L	25		< 25	< 25	< 25	< 25	< 25	
F2 (C10-C16)	µg/L	100	150	715	2010	< 100	< 100		
F3 (C16-C34)	µg/L	200	500	363	325	693	550		
F4 (C34-C50)	µg/L	200	500	< 200	< 200	265	215		
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES	YES		

PACKAGE: **REG153 - SVOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9	10	
	Sample Name			MW 104	MW 106	MW 107	Dup	
	Sample Matrix			Ground Water	Ground Water	Ground Water	Ground Water	
	Sample Date			08/02/2019	08/02/2019	08/02/2019	08/02/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	
SVOC Surrogates								
Surr Nitrobenzene-d5	Surr Rec %	-		90	87	81	84	
Surr 2-Fluorobiphenyl	Surr Rec %	-		63	59	74	80	
Surr 4-Terphenyl-d14	Surr Rec %	-		59	20	51	59	
Surr 2-Fluorophenol	Surr Rec %	-		44	48	46	45	
Surr 2,4,6-Tribromophenol	Surr Rec %	-		70	73	83	87	

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - THMs (VOC)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10	11
			Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
THMs (VOC)								
Bromodichloromethane	µg/L	0.5	85000	1.0	< 0.5	2.0	2.0	< 0.5
Bromoform	µg/L	0.5	380	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L	0.5	82000	< 0.5	< 0.5	1.5	1.4	< 0.5

PACKAGE: **REG153 - VOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10	11
			Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates								
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		104	112	105	105	102
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		94	95	92	96	89
Surr 4-Bromofluorobenzene	Surr Rec %	-		96	97	93	95	93

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10	11
			Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs								
Acetone	µg/L	30	130000	< 30	< 30	< 30	< 30	< 30
Bromomethane	µg/L	0.5	5.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon tetrachloride	µg/L	0.2	0.79	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	630	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10	11		
	Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)								
Chloroform	µg/L	0.5	2.4	6.9	0.9	2.7	2.9	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	4600	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	9600	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2.0	4400	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	320	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	16	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5	5.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.25	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0	51	< 1	< 1	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	470000	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	140000	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	190	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	µg/L	0.5	610	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	1300	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	1.6	< 0.5	< 0.5	0.6	0.6	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	3.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10	11		
	Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)								
1,1,2,2-Tetrachloroethane	µg/L	0.5	3.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	640	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	4.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5.0	2500	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED L1
MW 104				
F2 (C10 to C16)	CCME Tier 1	µg/L	715	150
Chloroform	EPA 5030B/8260C	µg/L	6.9	2.4
MW 106				
F2 (C10 to C16)	CCME Tier 1	µg/L	2010	150
Chloride	EPA300/MA300-Ions1.3	µg/L	25000000	2.3e+006
Sodium	SM 3030/EPA 200.8	µg/L	8150000	2.3e+006
MW 107				
F3 (C16 to C34)	CCME Tier 1	µg/L	693	500
Chloroform	EPA 5030B/8260C	µg/L	2.7	2.4
Dup				
F3 (C16 to C34)	CCME Tier 1	µg/L	550	500
Chloroform	EPA 5030B/8260C	µg/L	2.9	2.4

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0115-FEB19	µg/L	200	<200	1	20	97	80	120	NV	75	125
Chloride	DIO0133-FEB19	µg/L	200	<200	ND	20	93	80	120	102	75	125

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0072-FEB19	µg/L	2	<2	ND	10	101	90	110	99	75	125

QC SUMMARY

Hexavalent Chromium by IC

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]IC-LAK-AN-008

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	DIO0131-FEB19	ug/L	0.2	<0.2	1	20	94	80	120	94	75	125
Chromium VI	DIO0136-FEB19	ug/L	0.2	<0.2	1	20	108	80	120	87	75	125

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0013-FEB19	ug/L	0.01	<0.01	ND	20	90	80	120	98	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0060-FEB19	µg/L	0.002	<0.002	ND	20	96	90	110	90	70	130
Arsenic	EMS0060-FEB19	µg/L	0.2	<0.2	ND	20	98	90	110	101	70	130
Barium	EMS0060-FEB19	µg/L	0.02	<0.02	9	20	97	90	110	NV	70	130
Beryllium	EMS0060-FEB19	µg/L	0.007	<0.007	ND	20	102	90	110	99	70	130
Boron	EMS0060-FEB19	µg/L	2	<2	13	20	98	90	110	NV	70	130
Cadmium	EMS0060-FEB19	µg/L	0.003	<0.003	ND	20	94	90	110	94	70	130
Cobalt	EMS0060-FEB19	µg/L	0.004	<0.004	ND	20	97	90	110	96	70	130
Chromium	EMS0060-FEB19	µg/L	0.03	<0.03	0	20	97	90	110	100	70	130
Copper	EMS0060-FEB19	µg/L	0.02	<0.02	2	20	97	90	110	76	70	130
Molybdenum	EMS0060-FEB19	µg/L	0.01	<0.01	8	20	92	90	110	89	70	130
Sodium	EMS0060-FEB19	µg/L	10	< 10	1	20	92	90	110	NV	70	130
Nickel	EMS0060-FEB19	µg/L	0.1	<0.1	6	20	98	90	110	94	70	130
Lead	EMS0060-FEB19	µg/L	0.01	<0.01	ND	20	97	90	110	93	70	130
Antimony	EMS0060-FEB19	µg/L	0.02	<0.02	18	20	102	90	110	102	70	130
Selenium	EMS0060-FEB19	µg/L	0.04	<0.04	ND	20	98	90	110	108	70	130
Thallium	EMS0060-FEB19	µg/L	0.005	<0.005	ND	20	98	90	110	95	70	130
Uranium	EMS0060-FEB19	µg/L	0.002	<0.002	10	20	95	90	110	101	70	130
Vanadium	EMS0060-FEB19	µg/L	0.01	<0.01	6	20	97	90	110	102	70	130
Zinc	EMS0060-FEB19	µg/L	2	<2	2	20	98	90	110	95	70	130
Sodium	EMS0071-FEB19	µg/L	10	< 10	ND	20	92	90	110	NV	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0145-FEB19	µg/L	25	<25	2	30	111	60	140	99	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0148-FEB19	µg/L	100	<100	8	30	108	60	140	110	60	140
F3 (C16-C34)	GCM0148-FEB19	µg/L	200	<200	10	30	108	60	140	110	60	140
F4 (C34-C50)	GCM0148-FEB19	µg/L	200	<200	ND	30	108	60	140	110	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0144-FEB19	no unit	0.05	NA	1		101			NA		

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0129-FEB19	µg/L	0.5	< 0.5	NSS	30	73	50	140	NSS	50	140
2-Methylnaphthalene	GCM0129-FEB19	µg/L	0.5	< 0.5	NSS	30	70	50	140	NSS	50	140
Acenaphthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	80	50	140	NSS	50	140
Acenaphthylene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	85	50	140	NSS	50	140
Anthracene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	92	50	140	NSS	50	140
Benzo(a)anthracene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	100	50	140	NSS	50	140
Benzo(a)pyrene	GCM0129-FEB19	ug/L	0.01	< 0.01	NSS	30	95	50	140	NSS	50	140
Benzo(b)fluoranthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	95	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0129-FEB19	µg/L	0.2	< 0.2	NSS	30	99	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	101	50	140	NSS	50	140
Chrysene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	97	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140
Fluroanthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	99	50	140	NSS	50	140
Fluorene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	88	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0129-FEB19	µg/L	0.2	< 0.2	NSS	30	98	50	140	NSS	50	140
Naphthalene	GCM0129-FEB19	µg/L	0.5	< 0.5	NSS	30	72	50	140	NSS	50	140
Phenanthrene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	92	50	140	NSS	50	140
Pyrene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	95	50	140	NSS	50	140

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,1,1-Trichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1,2,2-Tetrachloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1,2-Trichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	99	60	130	NSS	50	140
1,1-Dichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
1,1-Dichloroethylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,2-Dichlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,2-Dichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
1,2-Dichloropropane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
1,3-Dichlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
1,4-Dichlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Acetone	GCM0131-FEB19	µg/L	30	<30	NSS	30	91	60	130	NSS	50	140
Benzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
Bromodichloromethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Bromoform	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Bromomethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	89	50	140	NSS	50	140
Carbon tetrachloride	GCM0131-FEB19	µg/L	0.2	<0.2	NSS	30	97	60	130	NSS	50	140
Chlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Chloroform	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
cis-1,2-Dichloroethene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140

QC SUMMARY

Volatile Organics (continued)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dibromochloromethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dichlorodifluoromethane	GCM0131-FEB19	µg/L	2.0	<2	NSS	30	68	50	140	NSS	50	140
Ethylbenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Ethylenedibromide	GCM0131-FEB19	µg/L	0.2	<0.2	NSS	30	99	60	130	NSS	50	140
n-Hexane	GCM0131-FEB19	µg/L	1.0	<1	NSS	30	88	60	130	NSS	50	140
m/p-xylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
Methyl ethyl ketone	GCM0131-FEB19	µg/L	20	<20	NSS	30	95	60	130	NSS	50	140
Methyl Isobutyl Ketone	GCM0131-FEB19	µg/L	20	<20	NSS	30	96	50	140	NSS	50	140
Methyl-t-butyl Ether	GCM0131-FEB19	µg/L	2.0	<2	NSS	30	96	60	130	NSS	50	140
Methylene Chloride	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
o-xylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Styrene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Tetrachloroethylene (perchloroethylene)	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Toluene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	94	60	130	NSS	50	140
trans-1,2-Dichloroethene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
trans-1,3-Dichloropropene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	101	60	130	NSS	50	140
Trichloroethylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	94	60	130	NSS	50	140
Trichlorofluoromethane	GCM0131-FEB19	µg/L	5.0	<5	NSS	30	100	50	140	NSS	50	140
Vinyl Chloride	GCM0131-FEB19	µg/L	0.2	<0.2	NSS	30	90	60	130	NSS	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

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

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

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

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

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No:

Page __1__ of __1__

Laboratory Information Section - Lab use only

Received By: Stephanie Vaithilingam
Received Date (mm/dd/yyyy): 02/08/19 (mm\dd\yy)
Received Time: 15:37
Received By (signature):
Custody Seal Present: ☑
Custody Seal Intact: ☑
Cooling Agent Present: ☑ ICE
Temperature Upon Receipt (°C) 5°6°8° 1x3
LAB LIMS #: CA14704-Feb19.

REPORT INFORMATION

Company: Terraprobe Inc
Contact: Prakash Patel
Address: 11 Indell Lane
Brampton, ON, L6T 3Y3
Phone:[905) 796-2650
Fax:(905) 796-2250
Email: ppatel@terraprobe.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email:

PROJECT INFORMATION

Quotation #: 2017-272
P.O. #:
Project #: 1-18-0718-42 535 to 551 Brant Stre Site Location/ID: Burlington, Ontario

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:
Rush Confirmation ID:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

Regulation 153/04:
☐ Table 1 ☑ Res/Park Soil Texture:
☑ Table 2 ☐ Ind/Com ☒ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium
☐ Table _____ ☐ Fine

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☒ MISA

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☒ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PHC F1-F4 ☐ BTEX ☐ BTEX/F1 ☐ F2-F4 ☐	VOC ☐	PAH ☐ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	Metals & Inorganics	PHC F1 to F4	BTEX	VOC	PAH		COMMENTS:
1	MW BH 104	8-Feb-18		12	GW											X	X	X	X	X		
2	MW BH 106	8-Feb-18		12	GW											X	X	X	X	X		
3	MW BH 107	8-Feb-18		12	GW											X	X	X	X	X		
4	~~Duplicate~~ DUP	8-Feb-18		12	GW											X	X	X	X	X		
5	Trip Blank	8-Feb-18		~~4~~	GW												X		X			
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Observations/Comments/Special Instructions

Sampled By (NAME): Tarak A.	Signature:	Date: _02__ / _08_ / _19_	(mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): ~~Prakash P.~~ Tarak A.	Signature:	Date: _02__ / _08_ / _19_	(mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018





FINAL REPORT

CA14529-FEB19 R1

1-18-0718-42 535 Brant St. Burlington

Prepared for

Terraprobe Inc

FINAL REPORT

CA14529-FEB19 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Terraprobe Inc	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	11 Indell Lane Brampton, ON L6T 3Y3. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Prakash Patel	Telephone	705-652-2143
Telephone	(905) 796-2650	Facsimile	705-652-6365
Facsimile	(905) 796-2250	Email	brad.moore@sgs.com
Email	ppatel@terraprobe.ca	SGS Reference	CA14529-FEB19
Project	1-18-0718-42 535 Brant St. Burlington	Received	02/21/2019
Order Number		Approved	02/27/2019
Samples	Ground Water (4)	Report Number	CA14529-FEB19 R1
		Date Reported	04/13/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Temperature of Sample upon Receipt: 1 degrees C
Cooling Agent Present: Yes
Custody Seal Present: No

Chain of Custody Number: 002424

BH 106 - 4-Terphenyl-d14 surrogate recovery is outside control limits due to sample matrix. The overall quality control for this analysis has been assessed and meets method acceptability criteria.

RL raised for Cr(VI) on sampke #8 due to SM interference

SIGNATORIES

Brad Moore Hon. B.Sc

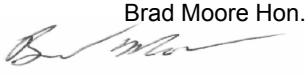


TABLE OF CONTENTS

First Page..... 1
Index..... 2
Results..... 3-10
Exceedance Summary..... 11
QC Summary..... 12-20
Legend..... 21
Annexes..... 22-23

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - BTEX** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	BH 104	BH 106	DUP	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
BTEX							
Benzene	µg/L	0.5	44	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	2300	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	18000	5.5	0.7	5.1	< 0.5
Xylene (total)	µg/L	0.5	4200	< 0.5	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
o-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - Hydrides** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9		
	Sample Name	BH 104	BH 106	DUP		
	Sample Matrix	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Hydrides						
Antimony	µg/L	0.02	20000	0.34	1.6	0.33
Arsenic	µg/L	0.2	1900	1.4	1.7	1.4
Selenium	µg/L	0.04	63	0.85	0.35	0.73

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - Metals and Inorganics** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

Sample Number	7	8	9
Sample Name	BH 104	BH 106	DUP
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	21/02/2019	21/02/2019	21/02/2019

Metals and Inorganics

Parameter	Units	RL	L1	Result	Result	Result
Barium	µg/L	0.02	29000	106	509	112
Beryllium	µg/L	0.007	67	< 0.007	0.007	< 0.007
Boron	µg/L	2	45000	428	4930	451
Cadmium	µg/L	0.003	2.7	0.005	0.075	0.011
Chromium	µg/L	0.03	810	0.11	0.18	0.12
Cobalt	µg/L	0.004	66	0.219	1.47	0.221
Copper	µg/L	0.02	87	0.99	1.70	1.06
Lead	µg/L	0.01	25	0.02	0.22	0.06
Molybdenum	µg/L	0.01	9200	12.4	41.6	12.1
Nickel	µg/L	0.1	490	2.6	5.0	2.4
Silver	µg/L	0.002	1.5	< 0.002	0.040	0.004
Thallium	µg/L	0.005	510	0.009	0.170	0.020
Uranium	µg/L	0.002	420	3.81	5.70	3.84
Vanadium	µg/L	0.01	250	0.28	0.56	0.28
Zinc	µg/L	2	1100	5	6	6

Client: Terraprobe Inc
Project: 1-18-0718-42 535 Brant St. Burlington
Project Manager: Prakash Patel
Samplers: Nathan Brandt

PACKAGE: **REG153 - Na** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9
	Sample Name			BH 104	BH 106	DUP
	Sample Matrix			Ground Water	Ground Water	Ground Water
	Sample Date			21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Na						
Sodium	µg/L	10	2.3e+006	349000	9950000	334000

PACKAGE: **REG153 - Other (ORP)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9
	Sample Name			BH 104	BH 106	DUP
	Sample Matrix			Ground Water	Ground Water	Ground Water
	Sample Date			21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Other (ORP)						
Mercury (total)	µg/L	0.01	0.29	< 0.01	< 0.01	< 0.01
pH	no unit	0.05		7.09	6.82	7.17
Chloride	µg/L	200	2.3e+006	740000	28000000	780000
Chromium VI	µg/L	0.2	140	< 0.2	< 2.0↑	< 0.2
Cyanide (free)	µg/L	2	66	< 2	< 2	< 2

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9
	Sample Name			BH 104	BH 106	DUP
	Sample Matrix			Ground Water	Ground Water	Ground Water
	Sample Date			21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
PAHs						
Acenaphthene	µg/L	0.1	600	0.12	< 0.1	0.12
Acenaphthylene	µg/L	0.1	1.8	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

Sample Number	7	8	9
Sample Name	BH 104	BH 106	DUP
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	21/02/2019	21/02/2019	21/02/2019

Parameter	Units	RL	L1	Result	Result	Result
PAHs (continued)						
Anthracene	µg/L	0.1	2.4	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	0.1	4.7	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	0.01	0.81	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/L	0.1	0.75	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	µg/L	0.1	0.4	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	0.1	1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	µg/L	0.1	0.52	< 0.1	< 0.1	< 0.1
Fluroanthene	µg/L	0.1	130	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	0.1	400	0.15	< 0.1	0.16
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
1-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5
2-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5
Methylnaphthalene, 2-(1-)	µg/L	0.5	1800	< 0.5	< 0.5	< 0.5
Naphthalene	µg/L	0.5	1400	< 0.5	< 0.5	< 0.5
Phenanthrene	µg/L	0.1	580	0.18	< 0.1	0.19
Pyrene	µg/L	0.1	68	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc
Project: 1-18-0718-42 535 Brant St. Burlington
Project Manager: Prakash Patel
Samplers: Nathan Brandt

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH 104	BH 106	DUP
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
PHCs						
F1 (C6-C10)	µg/L	25	750	< 25	< 25	< 25
F1-BTEX (C6-C10)	µg/L	25		< 25	< 25	< 25
F2 (C10-C16)	µg/L	100	150	< 100	181	< 100
F3 (C16-C34)	µg/L	200	500	< 200	< 200	< 200
F4 (C34-C50)	µg/L	200	500	< 200	< 200	< 200
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES

PACKAGE: **REG153 - SVOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH 104	BH 106	DUP
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
SVOC Surrogates						
Surr Nitrobenzene-d5	Surr Rec %	-		83	73	79
Surr 2-Fluorobiphenyl	Surr Rec %	-		72	67	74
Surr 4-Terphenyl-d14	Surr Rec %	-		90	48	89
Surr 2-Fluorophenol	Surr Rec %	-		42	44	40
Surr 2,4,6-Tribromophenol	Surr Rec %	-		86	54	88

Client: Terraprobe Inc
Project: 1-18-0718-42 535 Brant St. Burlington
Project Manager: Prakash Patel
Samplers: Nathan Brandt

PACKAGE: **REG153 - THMs (VOC)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH 104	BH 106	DUP	Trip Blank
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				21/02/2019	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
THMs (VOC)							
Bromodichloromethane	µg/L	0.5	85000	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	380	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L	0.5	82000	< 0.5	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - VOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH 104	BH 106	DUP	Trip Blank
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				21/02/2019	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates							
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		102	111	100	101
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		96	98	96	94
Surr 4-Bromofluorobenzene	Surr Rec %	-		93	93	91	92

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH 104	BH 106	DUP	Trip Blank
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				21/02/2019	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOCs							
Acetone	µg/L	30	130000	< 30	< 30	< 30	< 30
Bromomethane	µg/L	0.5	5.6	< 0.5	< 0.5	< 0.5	< 0.5
Carbon tetrachloride	µg/L	0.2	0.79	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	630	< 0.5	< 0.5	< 0.5	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	BH 104	BH 106	DUP	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)							
Chloroform	µg/L	0.5	2.4	1.3	< 0.5	1.3	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	4600	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	9600	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	8	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2.0	4400	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	320	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	1.6	0.9	< 0.5	0.9	< 0.5
1,2-Dichloropropane	µg/L	0.5	16	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5	5.2	< 0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.25	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0	51	< 1	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	470000	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	140000	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	190	< 2	< 2	< 2	< 2
Methylene Chloride	µg/L	0.5	610	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	1300	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	1.6	0.5	< 0.5	0.7	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	3.3	< 0.5	< 0.5	< 0.5	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	BH 104	BH 106	DUP	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)							
1,1,2,2-Tetrachloroethane	µg/L	0.5	3.2	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	640	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	4.7	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	1.6	0.8	< 0.5	0.7	< 0.5
Trichlorofluoromethane	µg/L	5.0	2500	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	0.5	< 0.2	< 0.2	< 0.2	< 0.2

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED L1
BH 106				
F2 (C10 to C16)	CCME Tier 1	µg/L	181	150
Chloride	EPA300/MA300-Ions1.3	µg/L	28000000	2.3e+006
Sodium	SM 3030/EPA 200.8	µg/L	9950000	2.3e+006

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0301-FEB19	µg/L	200	<200	2	20	95	80	120	99	75	125
Chloride	DIO0335-FEB19	µg/L	200	<200	10	20	97	80	120	107	75	125

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0176-FEB19	µg/L	2	<2	ND	10	103	90	110	NV	75	125

Hexavalent Chromium by IC

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]IC-LAK-AN-008

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	DIO0311-FEB19	ug/L	0.2	<0.2	ND	20	89	80	120	87	75	125

QC SUMMARY

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0028-FEB19	ug/L	0.01	<0.01	ND	20	113	80	120	111	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0103-FEB19	µg/L	0.002	<0.002	NV	20	NV	90	110	NV	70	130
Arsenic	EMS0103-FEB19	µg/L	0.2	<0.2	3	20	94	90	110	97	70	130
Barium	EMS0103-FEB19	µg/L	0.02	<0.02	4	20	97	90	110	NV	70	130
Beryllium	EMS0103-FEB19	µg/L	0.007	<0.007	ND	20	98	90	110	102	70	130
Boron	EMS0103-FEB19	µg/L	2	<2	2	20	92	90	110	NV	70	130
Cadmium	EMS0103-FEB19	µg/L	0.003	<0.003	ND	20	98	90	110	101	70	130
Cobalt	EMS0103-FEB19	µg/L	0.004	<0.004	20	20	96	90	110	93	70	130
Chromium	EMS0103-FEB19	µg/L	0.03	<0.03	4	20	95	90	110	98	70	130
Copper	EMS0103-FEB19	µg/L	0.02	<0.02	1	20	95	90	110	83	70	130
Molybdenum	EMS0103-FEB19	µg/L	0.01	<0.01	2	20	91	90	110	87	70	130
Sodium	EMS0103-FEB19	µg/L	10	< 10	0	20	98	90	110	NV	70	130
Nickel	EMS0103-FEB19	µg/L	0.1	<0.1	0	20	96	90	110	89	70	130
Lead	EMS0103-FEB19	µg/L	0.01	<0.01	0	20	95	90	110	96	70	130
Antimony	EMS0103-FEB19	µg/L	0.02	<0.02	ND	20	101	90	110	103	70	130
Selenium	EMS0103-FEB19	µg/L	0.04	<0.04	ND	20	97	90	110	100	70	130
Thallium	EMS0103-FEB19	µg/L	0.005	<0.005	ND	20	97	90	110	95	70	130
Uranium	EMS0103-FEB19	µg/L	0.002	<0.002	9	20	95	90	110	97	70	130
Vanadium	EMS0103-FEB19	µg/L	0.01	<0.01	ND	20	95	90	110	96	70	130
Zinc	EMS0103-FEB19	µg/L	2	<2	ND	20	96	90	110	96	70	130
Silver	EMS0118-FEB19	µg/L	0.002	<0.002	ND	20	106	90	110	107	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0278-FEB19	µg/L	25	<25	3	30	104	60	140	91	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0273-FEB19	µg/L	100	<100	NSS	30	78	60	140	120	60	140
F3 (C16-C34)	GCM0273-FEB19	µg/L	200	<200	NSS	30	78	60	140	120	60	140
F4 (C34-C50)	GCM0273-FEB19	µg/L	200	<200	NSS	30	78	60	140	120	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0335-FEB19	no unit	0.05	NA	1		101			NA		

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0266-FEB19	µg/L	0.5	< 0.5	NSS	30	76	50	140	NSS	50	140
2-Methylnaphthalene	GCM0266-FEB19	µg/L	0.5	< 0.5	NSS	30	75	50	140	NSS	50	140
Acenaphthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	85	50	140	NSS	50	140
Acenaphthylene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	87	50	140	NSS	50	140
Anthracene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	90	50	140	NSS	50	140
Benzo(a)anthracene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140
Benzo(a)pyrene	GCM0266-FEB19	ug/L	0.01	< 0.01	NSS	30	92	50	140	NSS	50	140
Benzo(b)fluoranthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	88	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0266-FEB19	µg/L	0.2	< 0.2	NSS	30	102	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	96	50	140	NSS	50	140
Chrysene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	92	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140
Fluroanthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	95	50	140	NSS	50	140
Fluorene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	91	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0266-FEB19	µg/L	0.2	< 0.2	NSS	30	98	50	140	NSS	50	140
Naphthalene	GCM0266-FEB19	µg/L	0.5	< 0.5	NSS	30	72	50	140	NSS	50	140
Phenanthrene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	91	50	140	NSS	50	140
Pyrene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1,1-Trichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,1,2,2-Tetrachloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	91	60	130	NSS	50	140
1,1,2-Trichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1-Dichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,1-Dichloroethylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	99	60	130	NSS	50	140
1,2-Dichlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	100	60	130	NSS	50	140
1,2-Dichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	94	60	130	NSS	50	140
1,2-Dichloropropane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,3-Dichlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
1,4-Dichlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Acetone	GCM0275-FEB19	µg/L	30	<30	NSS	30	89	60	130	NSS	50	140
Benzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Bromodichloromethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Bromoform	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
Bromomethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	50	140	NSS	50	140
Carbon tetrachloride	GCM0275-FEB19	µg/L	0.2	<0.2	NSS	30	99	60	130	NSS	50	140
Chlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Chloroform	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
cis-1,2-Dichloroethene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140

QC SUMMARY

Volatile Organics (continued)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dibromochloromethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dichlorodifluoromethane	GCM0275-FEB19	µg/L	2.0	<2	NSS	30	93	50	140	NSS	50	140
Ethylbenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Ethylenedibromide	GCM0275-FEB19	µg/L	0.2	<0.2	NSS	30	97	60	130	NSS	50	140
n-Hexane	GCM0275-FEB19	µg/L	1.0	<1	NSS	30	91	60	130	NSS	50	140
m/p-xylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Methyl ethyl ketone	GCM0275-FEB19	µg/L	20	<20	NSS	30	94	60	130	NSS	50	140
Methyl Isobutyl Ketone	GCM0275-FEB19	µg/L	20	<20	NSS	30	95	50	140	NSS	50	140
Methyl-t-butyl Ether	GCM0275-FEB19	µg/L	2.0	<2	NSS	30	94	60	130	NSS	50	140
Methylene Chloride	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
o-xylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Styrene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	99	60	130	NSS	50	140
Tetrachloroethylene (perchloroethylene)	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Toluene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
trans-1,2-Dichloroethene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
trans-1,3-Dichloropropene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Trichloroethylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	102	60	130	NSS	50	140
Trichlorofluoromethane	GCM0275-FEB19	µg/L	5.0	<5	NSS	30	100	50	140	NSS	50	140
Vinyl Chloride	GCM0275-FEB19	µg/L	0.2	<0.2	NSS	30	98	60	130	NSS	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

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

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

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

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

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

No: 002424

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Stephanie Vaithilingam
Received By (signature):
Received Date (mm/dd/yyyy): 02/21/19 (mm\dd\yy)
Received Time: 16:11
Custody Seal Present: ☐ NO
Custody Seal Intact: ☐ NO
Cooling Agent Present: ☑ ICE
Temperature Upon Receipt (°C): 5.0 5.3 1X3
CA 14529 - Feb 19
LAB LIMS #:

REPORT INFORMATION	INVOICE INFORMATION	PROJECT INFORMATION
Company: Terraprobe	☒ (same as Report Information)	Quotation #:
Contact: Prakash Patel	Company:	P.O. #:
Address: 11 Indell Lane	Contact:	Project #: 1-18-0718-42
Brampton Ont.	Address:	Site Location/ID: 535 Brant st. Burlington
Phone: 905 796 2650	Phone:	
Fax: ppatel@terraprobe.ca	Email:	
Email:		

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days) — TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: Rush Confirmation ID:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

Regulation 153/04: ☐ Table 1 ☒ Res/Park ☐ Table 2 ☐ Ind/Com ☐ Table 3 ☐ Agri/Other ☐ Table ____ — Soil Texture: ☒ Coarse ☐ Medium ☐ Fine

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☒ YES ☐ NO

ANALYSIS REQUESTED

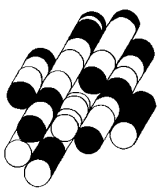
	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PHC F1-F4 ☒ VOC ☒ BTEX ☒ BTEX/F1 ☐ F2-F4 ☐	PAH ☒ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	COMMENTS:
1	BH 104	Feb 21/19		13	GW		X	X	X						
2	BH 106	↓		↓	↓		X	X	X						
3	DUP			↓	↓		X	X	X						
4	Trip Blank			2				X (VOC)							
5															
6															
7															
8															
9															
10															
11															
12															

Observations/Comments/Special Instructions

Sampled By (NAME):	Nathan Brandt	**Signature:**	Date: 02/21/19 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME):	Nathan Brandt	**Signature:**	Date: 02/21/19 (mm/dd/yy)	Yellow & White Copy - SGS

APPENDIX D

TERRAPROBE INC.



File No. 1-18-0718-42
Brampton Office

RE: SAMPLING AND ANALYSIS PLAN (SAP)
535-551 BRANT STREET
BURLINGTON, ONTARIO

1. INTRODUCTION

This appendix presents the Sampling and Analysis Plan (SAP) that was developed in support of the Phase Two Environmental Site Assessment (ESA) for the property located at 535-551 Brant Street, in Burlington, Ontario (hereinafter referred to as the 'Property'). The Phase Two ESA is conducted to:

- Characterize soil and ground water on site;
- Identify the extent of soil and ground water impacts, if any;
- Assess remedial options, if required; and,
- Filing a Record of Site Condition (RSC), if required

The SAP presents the procedures and approach to the field investigative activities to characterize the Property site conditions and meet the data quality objectives of the Phase Two ESA. The SAP presents the sampling program for the Property, the recommended procedures and protocols for sampling and related field activities, the data quality objectives, and the quality assurance/ quality control (QA/QC) measures for the collection of accurate, reproducible and representative data. These components are described in further detail below.

2. QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM

The data quality objectives of the quality assurance/quality control (QA/QC) program is to obtain soil and groundwater samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA. The objectives of the QA/QC program are achieved through the implementation of procedures for the collection of unbiased (i.e. non-contaminated) samples, sample documentation and the collection of appropriate QC samples to provide a measure of sample reproducibility and accuracy.

The field QA/QC program includes the following components:

- Decontamination Protocols;
- Equipment Calibration;
- Sample Preservation;
- Sample Documentation; and,
- Field Quality Control Samples.

Details on the field QA/QC components are provided below.

2.1 Decontamination Protocols

Decontamination protocols are followed during field sampling where non-dedicated sampling equipment is used to prevent sample cross contamination. For the borehole drilling and soil sampling, split soil sampling devices are cleaned and decontaminated between sampling intervals and auger flights between borehole locations in accordance with Standard Operating Procedure (SOP) requirements as indicated in Appendix E. For the monitoring well installation, well components are not to come into contact with the ground surface prior to insertion into boreholes. Electronic water level meters are decontaminated between monitoring well locations during well development and purging activities. All decontamination fluids are collected and stored in sealed, labelled containers.

2.2 Equipment Calibration

All equipment requiring calibration are calibrated in the field according to manufacturer's requirements using analytical grade reagents, or by the supplier prior to conducting field activities, and subsequently checked in the field. The calibration of all pre-calibrated instruments are checked in the field using analytical grade reagents and re-calibrated as required. For multiple day sampling events, equipment calibration is checked prior to the beginning of sampling activities. All calibration data are documented in a bound hard cover notebook.

2.3 Sample Preservation

Laboratory supplied sample containers are used for all sampling conducted on the Property. All samples are preserved using appropriate analytical test group specific reagents, as required and as provided by the laboratory, and upon collection placed in ice-filled insulated coolers for storage and transport.

2.4 Sample Documentation

All samples are assigned a unique identification number, which is recorded along with the date, time, project number, company name, location and requested analysis in a bound field notebook. All samples are handled and transported following Chain of Custody protocols.

2.5 Field Quality Control Samples

Field quality controls samples are collected to evaluate the accuracy and reproducibility of the field sampling procedures. For soil sampling, one (1) field duplicate sample is collected for every ten (10) samples of a specific geologic unit submitted for analysis. For groundwater sampling, one (1) field duplicate is collected for every ten (10) samples submitted for chemical analysis. The field duplicate samples are assessed by calculating the relative percent difference (RPD) and comparing to the analytical test group specific acceptance criteria.

For ground water samples submitted for the analysis of VOCs, one (1) field blank prepared in the field using de-ionized water and/or one (1) trip blank prepared by the contractual laboratory are submitted for chemical analysis to evaluate the potential for sample cross-contamination during sampling and transportation. The recommended alert criterion is the detection of any test group analyte at a concentration in excess of laboratory detection limits.

3. DATA QUALITY OBJECTIVES

The data quality objectives of the quality assurance/quality control (QA/QC) program are as follows:

- To obtain soil and groundwater samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA.
- To collect samples of unbiased (i.e. non-contaminated) samples, document sampling procedures, and to collect appropriate QC samples to provide a measure of sample reproducibility and accuracy.
- To collect field quality control samples at a rate that meets or exceeds those specified in Section 2.5, and to ensure that the results of those QC samples are satisfactory.

The data quality objectives for all types of field data collected during the Phase Two ESA field investigation that set the level of uncertainty in environmental data were set such that:

- Decision-making is not affected; and,
- The general (general) objectives of the investigation are met.

The data quality objectives are met through implementation of the QA/QC program and in the use of the Standard Operating Procedures identified below.

4. STANDARD OPERATION PROCEDURES FOR FIELD INVESTIGATION METHODS

To meet the requirements of the field sampling program, the following field investigative methods are undertaken:

- Borehole Drilling;
- Field Screening Measurements, including Calibration Procedures;
- Monitoring Well Installation;
- Monitoring Well Development;
- Field Measurement of Water Quality Indicators, including Calibration Procedures;
- Residue Management Procedures;
- Groundwater Level Measurements;
- Elevation Survey; and,
- Groundwater Sampling.

The following procedures are not required for this investigation:

- Sediment Sampling.

The field investigative methods required for this investigation are described in the following sections.

4.1 Borehole Drilling

Boreholes are advanced at the Property to facilitate the collection of soil samples for chemical analysis and geologic characterization; and, for the installation of ground water monitoring wells. Multiple boreholes are required at the Property and would require depths to investigate the surficial fill and native till overburden materials to provide for the collection of samples of the surficial and subsurface materials beneath the Property. Additional boreholes may be drilled for delineation of any soil and ground water impacts identified during the investigation. The borehole locations are selected to assess the soil and ground water quality in the areas of potential environmental concern (APECs) identified at the Property as in the table below:

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC 1	Entire Property	PCA #30 – Importation of Fill Material of Unknown Quality	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR & PAH	Soil
APEC 2 & 3	Southeastern Portion of Property	PCA #10 – Commercial Autobody Shops PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water
APEC 4	Northwest Portion of Property	PCA #58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Off-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water
APEC 5	Northern Portion of Property	PCA #37 Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOC	Soil Ground Water

Prior to borehole drilling, utility clearances are obtained from public and private locators, as required. If any uncertainty regarding the location of a buried utility at a borehole location is encountered or if a borehole location is within 1 m of a buried utility, the borehole is initiated by daylighting or hand augering to a sufficient depth to be clear of any utilities. Boreholes are required to be advanced into the surficial fill and overburden soils by a drilling company under the full-time supervision of Terraprobe staff. An appropriate drill rig equipped with sampling arrangement is utilized to advance the boreholes through the overburden materials.

4.2 Soil Sampling

Soil samples for geologic characterization and chemical analysis are required to be collected on a continuous basis in the overburden materials using 5 cm diameter and 60 cm long tube samplers advanced into the subsurface using a portable direct push drill rig or a truck mounted drill rig equipped with hollow stem augers and split spoon sampler. The soil cores are extruded from the plastic lined inner tubes/split spoon samplers. Geologic and sampling details of the recovered cores are logged and the samples are assessed for the potential presence of non-aqueous phase liquids.

Samples for chemical analysis are selected on the basis of visual, combustible gas and olfactory evidence of impacts and at specific intervals to define the lateral and vertical extent of known impacts.

Recommended volumes of soil samples selected for chemical analysis are collected into pre-cleaned, laboratory supplied, analytical test group specific containers. The samples are placed into clean insulated coolers chilled with ice for storage and transport. Samples intended for VOC and/or petroleum hydrocarbon (PHC) fractions F1 and F2 analysis are collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. The samples are assigned unique identification numbers, and the date, time, location, and requested analyses for each sample are documented in a bound field note book. The samples are submitted to the contractual laboratory within analytical test group holding times under Chain of Custody (COC) protocols. New disposable chemical resistant gloves are used during the handling and sample collection for each soil core to prevent sample cross-contamination.

4.3 Field Screening Measurements, including Calibration Procedures

A portion of each soil core is placed in a re-sealable plastic bag and allowed to reach ambient temperature prior to field screening with a combustible gas detector or photo-ionization detector (PID) that is calibrated with an appropriate reference gas prior to use. The vapour measurements are made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings provide a real-time indication of the relative concentration of volatile organic vapours encountered in the subsurface during drilling.

4.4 Monitoring Well Installation

Select boreholes are required to be instrumented as ground water monitoring wells installed with 0.6 m to 3 m long screens intercepting the groundwater table in the overburden within the aquifer of interest. Additional monitoring wells may be installed for delineation of any ground water impacts identified during investigation, or to confirm ground water quality after remediation, if conducted. The monitoring wells are installed in general accordance with the Ontario Water Resources Act- R.R.O. 1990, Regulation 903 – Amended to O. Reg. 128/03 and are installed by a licensed well contractor.

The monitoring wells are constructed using 40 to 50 mm diameter, Schedule 40, PVC riser pipe and number 10 slot size (0.25 mm) well screens. The bases of the well screens are sealed with PVC end caps. All well pipe connections are factory machined threaded flush couplings. The pipe components are pre-wrapped in plastic, which are removed prior to insertion in the borehole to minimize the potential for contamination. No lubricants or adhesives are used in the construction of the monitoring well. The annular space around the well screens is backfilled with silica sand to an average height of 0.3 m above the top of the screen. Granular bentonite is placed in the borehole annulus from the top of the sand pack to approximately 0.3 m below grade. The monitoring wells are completed with a flush mount protective steel casing cemented into place.

4.5 Monitoring Well Development

The monitoring wells are developed to remove fine sediment particles potentially lodged in the sand pack and well screen to enhance hydraulic communication with the surrounding formation waters. The monitoring wells will be developed using a Waterra™ sample tubing and surge block SBD-25. Monitoring well development is monitored by visual observations of turbidity, and by taking field measurements of pH, specific conductance and temperature for every standing well (i.e. wetted casing) volume removed. Standing water volumes are determined by means of an electronic water level meter. Approximately three to five (3 to 5) wetted well volumes are removed; and, well development continues until the purged water has chemically stabilized as indicated by visual observations and field parameters measurements.

Well development details are documented on a well development log sheet or in a bound hard cover notebook. All development waters are collected and stored in labelled, sealed containers.

4.6 Field Measurement of Water Quality Indicators, including Calibration Procedures

Water quality parameter measurements are recorded using a multi meter instrument. The instrument probes are calibrated prior to use, following manufacturer's procedures using analytical grade reagents, or if obtained from a field equipment supplier, the calibration checked. Approximately three to five (3 to 5) wetted well volumes are removed; and, well development continues until the purged water has chemically stabilized as indicated by visual observations and field parameters measurements.

Details of field measurement of water quality indicators are documented on a log sheet or in a bound hard cover notebook, indicating the values of the parameters, the volumes of water purged, the date of purging, and additional information. A YSI Multi-Probe System was used.

4.7 Residue Management Procedures

The residue materials produced during the borehole drilling, soil sampling programs and monitoring well sampling programs comprised of soil cuttings from drilling activities, decontamination fluids from equipment cleaning, and waters from well development and purging are placed in labeled, sealed drums for off-Site disposal, or are disposed of by the licensed well contractor.

4.8 Ground Water Level Measurements

Ground water level measurements are recorded for monitoring wells to determine ground water flow and direction in the overburden aquifer beneath the Property. Water levels are measured with respect to the top of the casing by means of a Solinst interface probe, an electronic water level meter. The water levels are recorded on water level log sheets or in a bound field notebook. The water level meter probe is decontaminated between each monitoring well location.

4.9 Elevation Survey

An elevation survey is conducted to obtain vertical control of the monitoring well locations at the Property. The elevations of the boreholes on the Property will be surveyed using a Trimble R10 survey system. The Trimble R10 is a differential global positioning system (GPS) which involves the cooperation of two receivers, one that's stationary and another that's roving around making position measurements. Elevations measured against a geodetic benchmark are recorded as meters above mean sea level (masl). The elevation survey is accurate to within ± 1.0 cm in vertical elevation.

4.10 Ground Water Sampling

Ground water samples are collected from monitoring wells for chemical analysis. The monitoring wells are purged first of three to five wetted well volumes of water to remove standing water and draw in fresh formation water. Wells, which are purged dry, are to recover to 75% of static levels before sampling.

Recommended ground water sample volumes are collected into pre-cleaned, laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples are placed in an insulated cooler chilled with ice for storage and transport. Samples for VOC analysis are collected in triplicate vials prepared with concentrated hydrochloric acid as a preservative. Each VOC vial is inverted and inspected for gas bubbles prior to being placed in the cooler to ensure that no head- space is present.

All ground water samples are assigned unique identification numbers, and the date, time, project number, company name, location and requested analyses for each sample are documented in a bound hard cover notebook. The samples are submitted to the contractual laboratory within analytical test group holding times under COC protocols. New disposable chemical resistant gloves are used for each sampling location to prevent sample cross-contamination.

5. PHYSICAL IMPEDIMENTS

No physical impediments are expected to be encountered that interfere with or limit the ability to conduct sampling and analysis of the required parameters and media at the Phase Two Property.

6. SAMPLING AND ANALYSIS PLAN RATIONALE AND PROCEDURES

The SAP has identified rationale and procedures for the following items:

- Choice of Sampling System;
- Sampling Media;
- Number of Samples;
- Sampling Frequency;
- Sampling Points;
- Sampling Depth Intervals;
- Other Field Information; and,
- Samples to be Submitted for Laboratory Analysis.

These sampling and analysis plan rationale and procedures are listed in further details in the following sections.

6.1 Choice of Sampling System

A judgemental sampling system has been selected for the purposes of this investigation. Random sampling and grid sampling systems have not been chosen as the primary sampling system in this investigation as APECs have been identified and there is an understanding as to where potential contaminants may be found. Investigation of the APECs is considered sufficient and more effective in locating contaminants within the Property.

6.2 Sampling Media

The soil sampling media consists of the earth fill underneath the surficial materials, and the underlying native glacial till. There are no APECs identified for the sediment at the Property and thus sediment is not included in the soil sampling media. The media to be sample does not include air though VOCs and sVOCs are included as a part of the PCOCs as the concentrations are not expected to be a risk at the Property. The soil sampling, in the case of VOCs, is location-specific to assess for the potential presence of these chemical constituents based on field screening observations, or the identification of areas of potential concern.

The ground water samples are collected from the aquifer of interest contained within the glacial till and bedrock. The ground water sampling is location-specific to assess for the potential presence of chemical constituents based on previous observations, or the identification of potential areas of concern.

6.3 Number of Samples

At least one sample is required to be taken for each contaminant of concern in each medium for which that contaminant was identified for each APEC. Where exceedances are found, additional samples may be required to delineate the impact.

6.4 Sampling Frequency

Soil sampling is completed at the Property at 0.6 m (2 ft.) for every 0.76 m (2.5 ft.) drilled for the first 3.0 m (10 ft.), then at 0.6 m (2 ft.) for every 1.52 m (5 ft.) drilled. However, if fill material is present then soil sampling proceeds at 0.6 m (2 ft.) for every 0.76 m (2.5 ft.) drilled until the samples no longer indicate the presence of fill material or until the depth of the investigation.

Groundwater sampling and analysis is completed at the Property for each monitoring well at least once after the development of the well is complete and water quality parameters indicate the formation water is stable.

6.5 Sampling Points

Soil sampling points for PAHs may be identified by the presence of cinders or apparent indication of PAHs within the soil samples. Soil sampling points for PHCs may be identified by the presence of hydrocarbon odours, signs of obvious staining, and combustible gas readings. Soil sampling points for VOCs may be identified by the presence of solvent odour and signs of obvious staining. Details including the exact depth are marked on the borehole log prior to sampling. Sampling points do not apply to Metals, Hydride-forming metals, and Other Regulated Parameters soil sampling as a composite sample is taken over a sampling depth interval. However, for reference, the mid-depth of the interval is used as the sampling point. Further details are indicated in Section 6.6. These details identify the specific locations of potential exceedances and assist in the analysis of migration and source of the contaminant of concern.

Sampling points for ground water samples are identified at the mid-point of the well screen elevation when the low flow sampling rate is equal to or lower than the recharge rate at the monitoring well of interest. However, if the sampling rate exceeds the recharge rate or if the water table is present below the mid-point of the well screen, the sampling point does not apply to ground water sampling. Instead a sampling depth interval is recorded using the top of the water table to the bottom of the well screen in the aquifer of interest. Further details are indicated in Section 6.6.

6.6 Sampling Depth Intervals

Sampling depth intervals for soil sampling are identified as the full split spoon sampler (or equivalent) depth with respect to the geodetic elevation. The sampling depth intervals typically correspond with the sampling frequency as mentioned in Section 6.4.

Sampling depth intervals for ground water sampling when non-low flow sampling is utilized is identified as the top of the well screen to the bottom of the well screen when the water table is above the top of the well screen. In the event the water table is below the top of the well screen, the top of the water table to the bottom of the well screen will be used as the sampling depth interval for ground water sampling.

6.7 Other Field Information

Vertical control of the boreholes and monitoring wells will ultimately be obtained through the completion of an elevation survey with reference to a geodetic benchmark. Groundwater flow and direction in the water table aquifer are determined through groundwater level measurements and the relative groundwater elevations established in the Property elevation survey.

Wells are required with screens within the glacial till and underlying bedrock, which is the aquifer of interest. This provides data regarding ground water quality in the aquifer of interest. The water table aquifers are the zones that are expected to be impacted in the APECs identified in the Phase One studies.

6.8 Samples to be Submitted for Laboratory Analysis

The field sampling program was developed to provide for the collection of samples of the surficial and subsurface soil materials and ground water for chemical analysis of one or more of the following parameters: metals, hydride forming metals, sodium, ORPs, PAHs, PHCs, VOCs and BTEX.

7. SAMPLING AND ANALYSIS PLAN CRITERIA

The QP considered the PCAs, all COPCs, and appropriate subsets of such contaminants and any other information and matters relating to the environmental condition of the property which are relevant to an informed professional judgment.

Based on the consideration of all matters and items above, the QP determined the sampling and analysis of COPCs and appropriate sampling and analysis for any other relevant contaminants that may be of concern at the Property.

The Phase Two ESA investigations, rationale for sampling locations with respect to APECs is summarised in the following table:

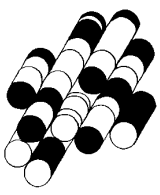
Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)	Borehole
APEC 1	Entire Property	PCA #30 – Importation of Fill Material of Unknown Quality	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR & PAH	Soil	BH104 to BH108
APEC 2 & 3	Southeastern Portion of Property	PCA #10 – Commercial Autobody Shops PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water	BH104, BH105
APEC 4	Northwest Portion of Property	PCA #58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Off-Site	Metals As, Sb, Se, Na, B-HWS, Cl-, CN-, Electrical Conductivity, Cr (VI), Hg, Methyl Mercury, Low or high pH, SAR, PAH, PHC, BTEX & VOC	Soil Ground Water	BH104, BH105, BH106
APEC 5	Northern Portion of Property	PCA #37 Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOC	Soil Ground Water	BH106

7.1 Plan of Implementation

Borehole	Rationale	*APEC*	Chemical Analyses	
			Soil	GW
BH104	Borehole to determine soil stratigraphy. Sample of earth fill and native till to determine soil quality. Deep monitoring well placed on southeast portion of Property to determine possible contaminants and ground water elevation.	*APEC 1, 2, 3, 4*	2 Metals 2 H-M 2 ORPs 2 PAHs 2 PHCs 2 VOCs 2 BTEX	2 Metals 2 H-M 2 Na 2 ORPs 2 PAHs 2 PHCs 2 VOCs 2 BTEX
BH105	Shallow borehole to determine soil stratigraphy. Sample of earth fill and native till to determine soil quality. Shallow monitoring well placed on east portion of Property to determine possible contaminants and ground water flow direction.	*APEC 1, 2, 3, 4*	2 Metals 2 H-M 2 ORPs 2 PAHs 2 PHCs 2 VOCs 2 BTEX	
BH106	Borehole to determine soil stratigraphy. Sample of earth fill and native till to determine soil quality Deep monitoring well placed on northeast portion of Property to determine possible contaminants and ground water flow direction.	*APEC 1, 4, 5*	2 Metals 2 H-M 2 ORPs 2 PAHs 2 PHCs 2 VOCs 2 BTEX	2 Metals 2 H-M 2 Na 2 ORPs 2 PAHs 2 PHCs 2 VOCs 2 BTEX
BH107	Borehole to determine soil stratigraphy. Sample of earth fill and native till to determine soil quality Deep monitoring well placed on northwest portion of Property to determine possible contaminants and ground water flow direction.	*APEC 1*	2 Metals 2 H-M 2 ORPs 2 PAHs 2 PHCs 2 VOCs 2 BTEX	1 Metals 1 H-M 1 Na 1 ORPs 1 PAHs 1 PHCs 1 VOCs 1 BTEX
BH108	Borehole to determine soil stratigraphy. Sample of earth fill and native till to determine soil quality Deep monitoring well placed on southwest portion of Property to determine possible contaminants and ground water flow direction.	*APEC 1*	2 Metals 2 H-M 2 ORPs 2 PAHs 2 PHCs 2 VOCs 2 BTEX	

APPENDIX E

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 – SOIL SAMPLING

VOC

Introduction

To properly screen for VOC and PHC F1 that may be present in the soil, it is necessary to preserve ALL samples. Upon retrieval of soil samples from borehole and test pit investigations, soil should be placed in methanol vials as quickly as possible (within 10 to 15 seconds after retrieval). Temporary storage of soil in split spoons, jars or ziplock bags is not permitted.

Field screening may still be used to decide which samples will be submitted for analysis but all potential samples must be immediately chemically preserved. Once the VOC or PHC F1 sample has been collected the remaining portion of the sample can be placed into plastic bags and sealed tightly with a nominal head space. Upon completion of each borehole, gas tech or PID readings can be taken of each sample collected to determine which sample(s) will be submitted for chemical analysis.

In addition to samples collected in methanol vials, a separate container must be collected to determine moisture content. The same jars that are used to collect other soil samples are appropriate containers (60ml or 120ml).

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

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 bottles.
8. Collect the sample to be analyzed
    a. Borehole - split spoon, sample from spoon
    b. Test pit, collect sample in bag from excavator bucket, then sample immediately
9. Push the sampler into the soil to retrieve the sample.
10. Remove the sampler from the soil.
11. Clean off loose soil that may be on the outside of the sampler and remove extra soil if applicable.
12. Place the mouth of the sampler into the 40ml methanol vial.
13. Ensure vial is at an angle to reduce the chance of splashing chemical.
14. Collect samples in the laboratory supplied bottle
15. Log all samples in the site logbook and label all samples.
16. Package samples and complete necessary paperwork.
17. Transport sample to staging area for preparation for transport to analytical laboratory.

References

- *Field Sampling guidance Document # 1210 – Soil Sampling for Volatile Compounds*, U.S.EPA,
- *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 – 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

YSI 63 Hand-held System

Introduction

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken. The YSI 63 Hand-held system can be used with all ground water sampling methods (manual or low-flow).

YSI 63'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 YSI 63 Hand-held System 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 (pH calibration on YSI 63 MUST be performed before taking pH measurements)

i. Accessing the calibration screen from the main menu by pressing up arrow and down arrow at the same time.

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. Exit the calibrate menu and rinse the probe module and sensors in tap or purified water and dry. Repeat step ii to iv for 2- and 3-point buffers using the corresponding pH buffer solutions.

c. Conductivity Calibration (system calibration is rarely required because of the factory calibration of YSI 63)

i. Accessing the calibration screen from the main menu.

ii. It is recommended that the conductivity standard chosen should be within the same conductivity range as the samples to be measured (fresh water = 1 mS/cm; brackish water = 10 mS/cm; seawater = 50 mS/cm).

iii. Carefully immerse the sensor end of probe module into the solution. Do not use 100 mL graduated cylinder because the diameter of the cylinder is too small for accurate conductivity measurements.

iv. Move the probe vigorously from side to side to dislodge any air bubbles from the electrodes.

v. Be sure to enter the value in mS/cm at 25°C and allow at least one minute for temperature equilibration before proceeding.

vi. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.

vii. Press the up arrow and down arrow and the same time to record calibration and rinse the probe module and sensors in tap or purified water and dry.

7. Coordinate with project manager and clients, as required, for site access.
8. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
9. Identify and mark all sampling locations.
10. Start sampling at the least contaminated monitoring well.
11. Remove locking well cap, note location time of day, and date in your notebook

12. Remove well casing cap.
13. Lower water level measuring device or equivalent into well until water surface is encountered.
14. 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.
15. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook.
16. Calculate the volume of water in the well and record in field notebook.
17. Select the appropriate purging and sampling equipment.
18. Lower the pump into the well. Make sure the pump is deep enough so that purging does not evacuate all the water and that the pump is located at the depth of the well screen
19. Attach power supply, and purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured by placing the YSI 63 Hand-held system in a measuring container (bucket or 100 ml cylinder). When field parameters are measured record the measurements, the elapsed time, the flow rate and the water level in the monitoring well. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, lower the pump further into the well, and continue pumping.
    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. Conductivity (± 3%),
        ii. Temperature (± 3%),
        iii. pH (± 0.1 unit),
        iv. Salinity (determined automatically from conductivity and temperature readings).
    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.

References

- *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, U.S.EPA, April 1996
- *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
- *YSI 63 MPS Operations Manual*, YSI Environmental, January 2007

STANDARD OPERATING PROCEDURE – GROUND WATER SAMPLING

BAILER

Introduction

Most bailers consist of some form of tubing with a one-way check valve at the bottom. Water will fill the bailer from the top when it is submersed. On retrieval of the bailers, the check valve closes containing a sample of the contents of the well or tank. Bailers can be made of various materials (polyethylene, Teflon, PVC), lengths, widths, and can have many features such as weighted, unweighted, check-valve, etc.

The bailer is used as a sample collection device if the well is first purged using a pump or waterra, when the well is slow to recover or when there is little water to be removed prior to sampling.

Equipment Required

- Interface or Water Level Meter
- Bailer(s)
- String or twine
- Field Filter and connecting tubing (if needed)
- Nitrile Gloves
- Bucket
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice
- Sample cooler

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. Select the appropriate purging and sampling equipment. Complete as per Well Development.
17. Tie string securely to the top ring on the bailer.
18. Lower the bailer slowly into the well until the top of the bailer is below the water level.
19. Allow the bailer to fill with water and gently pull the bailer back up.
20. Connect the bottom emptying spout to release water from the bottom of the bailer.
21. Remove the spout to stop the flow of water if needed.
22. Collect samples in the laboratory supplied bottle
    a. For non-filtered samples collect directly from the bailer into the sample bottle.
    b. For filtered samples, connect tubing from the bailer and sample directly from the filter unit.
23. Cap the sample bottle tightly and place relabeled sample container in a carrier. Repeat as necessary for all samples.
24. Retrieve the bailer from the well and dispose of it.
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.

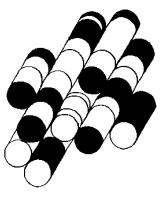
NOTE: Purging should be completed immediately prior to sample collection and is generally done without bailers. Refer to Terraprobe's SOP Well Development and Inertial Pump for more details. It is acceptable to purge and then collect samples within 24 hours.

References

- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Groundwater Sampling Manual Devices*, ThermoFisher Scientific, 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

APPENDIX F

TERRAPROBE INC.



LOG OF BOREHOLE 104

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 22, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597190, N: 4798010 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
0	**87.4**	**GROUND SURFACE**					87					
	87.2	80mm **ASPHALTIC CONCRETE**										
	0.2	80mm **AGGREGATE**										
1		**FILL**, clayey silt, trace to some gravel, trace sand, trace asphalt, hard, red with grey and black pockets, moist		1	SS	34				PID: <5		SS1 Analysis: M&I, DUP 1
		...at 0.8 m, some sand, trace concrete, dark brown to black, firm		2	SS	5	86			PID: 5		SS2 Analysis: PAH
2		...at 1.5 m, brown with red staining		3	SS	6				PID: 10		SS3 Analysis: VOC, PHC
	85.1						85			PID: <5		
	2.3	**SILT**, some clay, trace sand, trace gravel, firm, reddish brown, moist (HALTON TILL)		4A	SS	6				PID: <5		17 11 47 25
3		...at 2.6 m, silty clay, trace shale fragments		4B								4B Analysis: M&I, PAH, VOC, PHC
	84.4											
	3.0	**INFERRED BEDROCK**, shale, red		5	SS	50 / 125mm				PID: <5		
	84.1						84					
	3.3	**QUEENSTON FORMATION** (See rock core log for details)		1	RUN							
4		...at 3.5 m, transition to sound bedrock		2	RUN		83					
5												
				3	RUN		82					
6												
							81					
7				4	RUN							
							80					
8												
							79					
9				5	RUN							
							78					
10												
							77					
				6	RUN							
11							76					
				7	RUN							

(continued next page)

LOG OF BOREHOLE 104

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 22, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 2 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597190, N: 4798010 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
		(continued)				
12		**QUEENSTON FORMATION** (See rock core log for details) *(continued)*		7	RUN	
13				8	RUN	
14						
15				9	RUN	
16						
17				10	RUN	
18				11	RUN	
	68.9					
	18.5	**END OF BOREHOLE**				

Elevation Scale (m): 75, 74, 73, 72, 71, 70, 69

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

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

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 8, 2019	3.4	84.1
Feb 21, 2019	3.6	83.9
Mar 15, 2019	3.3	84.2
Mar 22, 2019	3.2	84.2
Apr 14, 2019	3.2	84.3

ROCK CORE LOG 104

Terraprobe

Project No. : 1-18-0718 | Client : Carriage Gate Homes | Originated by : TG

Date started : January 22, 2019 | Project : 535-551 Brant Street | Compiled by : JK

Sheet No. : 1 of 1 | Location : Burlington, ON | Checked by : MD

Position : E: 597190, N: 4798010 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth (m)	Graphic Log	GENERAL DESCRIPTION	Run / Elev Depth (m)	Recovery	Elevation (m)	Shale Weathering Zones	UCS (MPa) / Estimated Strength	Natural Fractures: Frequency	Natural Fractures: Spacing	Laboratory Testing	Comments	Elevation (m)
		Rock coring started at 3.3m below grade	**84.1**			Z1 Z2 Z3 Z4	R1 R2 R3 R4 R5 R6					
4		**QUEENSTON FORMATION** **calcareous Shale**, red, medium bedded, weak; joints are horizontal, closed to gapped, clean;	3.3 R1 83.3	TCR = **103**% SCR = **87**% RQD = **45**%	84			5 2			**3.3m:** *highly weathered*	84
		interbedded with **limestone**, grey, thinly bedded, medium strong ...at 3.5m, transition to sound bedrock	4.1 R2 81.8	TCR = **100**% SCR = **97**% RQD = **83**%	83			6 2 2 1 2 2			**3.8m:** *dipping joint, closed, clean, smooth, planar* **4.1m:** *vertilcal joint, closed, clean, smooth, planar*	83
5		*Run 1 : 0% limestone* *100% shale*										
6		*Run 2 : 10% limestone* *90% shale*	5.6 R3 80.2	TCR = **100**% SCR = **93**% RQD = **68**%	82			WZ 3 1 0			**5.6-5.7m:** *50mm rubblized*	82
7		*Run 3 : 7% limestone* *93% shale*			81			1 1 1 0				81
8		*Run 4 : 16% limestone* *84% shale*	7.2 R4 78.7	TCR = **98**% SCR = **98**% RQD = **95**%	80			1 1 0 1				80
9			8.7 R5 77.2	TCR = **93**% SCR = **88**% RQD = **60**%	79			1 >10 3 1			**8.8-8.8m:** *rubble* **8.9m:** *dipping joint, clean, smooth, closed, planar*	79
10		*Run 5 : 29% limestone* *71% shale*			78			5 2 1			**9.6-9.7m:** *horizontal joint, clay infilled, gapped, smooth, planar*	78
11		*Run 6 : 17% limestone* *83% shale*	10.2 R6 75.7	TCR = **100**% SCR = **97**% RQD = **85**%	77			0 1 1 0			**10.3m:** *dipping joint, closed, smooth, planar, clean*	77
12			11.7 R7 74.3	TCR = **98**% SCR = **98**% RQD = **98**%	76			0 1 0 0				76
13		*Run 7 : 8% limestone* *92% shale*			75			0 0 0			**13.0m:** *cacium deposits*	75
14		*Run 8 : 9% limestone* *91% shale*	13.1 R8 72.7	TCR = **100**% SCR = **100**% RQD = **100**%	74			1 1 1 0				74
15			14.7 R9 71.2	TCR = **97**% SCR = **97**% RQD = **97**%	73			0 0 0 0				73
16		*Run 9 : 9% limestone* *91% shale*			72			0 1 0				72
17			16.2 R10 69.6	TCR = **95**% SCR = **94**% RQD = **87**%	71			2 0 0 0			**16.5m:** *vertical joint, clean, closed, smooth, undulating*	71
18		*Run 10 : 6% limestone* *94% shale*			70			2 0				70
		Run 11 : 4% limestone *96% shale*	17.8 R11 68.9	TCR = **100**% SCR = **96**% RQD = **96**%	69			0 0 0				69
			18.5m									
		END OF COREHOLE										

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 105

Terraprobe

Project No.	: 1-18-0718	Client	: Carriage Gate Homes	Originated by	: TG
Date started	: January 25, 2019	Project	: 535-551 Brant Street	Compiled by	: JK
Sheet No.	: 1 of 1	Location	: Burlington, ON	Checked by	: MD

Position : E: 597175, N: 4798018 (UTM 17T) Elevation Datum : Geodetic

Rig type : Big Beaver 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
0	**87.6**	**GROUND SURFACE**					87	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
		50mm **ASPHALTIC CONCRETE**											
		50mm **AGGREGATE**											
1		**FILL**, clayey silt, trace to some sand, trace to some gravel, trace asphalt, trace wood fragments, trace rock fragments, stiff, reddish brown, moist		1	SS	9				PID: <5			14 22 46 18 SS1 Analysis: M&I
				2	SS	13	86			PID: <5			SS2 Analysis: PAH, VOC, PHC
	86.1 1.5	**SILT**, some clay, trace sand, trace gravel, very stiff, reddish brown, moist (HALTON TILL)		3	SS	28				PID: <5			SS3 Analysis: M&I, PAH, VOC, PHC
2		...at 2.3 m, trace shale fragments, hard, grey with red		4	SS	81 / 200mm	85			PID: <5			21 18 41 20
	85.0 2.6	**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)
Feb 8, 2019	dry	n/a
Feb 21, 2019	dry	n/a
Mar 15, 2019	dry	n/a
Mar 22, 2019	dry	n/a
Apr 14, 2019	dry	n/a

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 106

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 23, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 1 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597147, N: 4798038 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	87.7	**GROUND SURFACE**				
	87.5 / 0.2	80mm **ASPHALTIC CONCRETE**				
		80mm **AGGREGATE**		1	SS	7
		FILL, sandy silt, trace gravel, trace asphalt, loose, brown to dark brown, moist		2	SS	7
1	86.2					
	1.5	**SILT**, some clay, trace sand, trace gravel, very stiff to hard, reddish brown, moist (HALTON TILL)		3	SS	24
2				4	SS	54
	84.7					
3	3.0	**INFERRED BEDROCK**, shale, red		5	SS	50 / 125mm
	84.5 / 3.2	...at 3.2 m, transition to sound bedrock				
		QUEENSTON FORMATION (See rock core log for details)		1	RUN	
4						
				2	RUN	
5						
6				3	RUN	
7						
				4	RUN	
8						
9				5	RUN	
10						
				6	RUN	
11						
				7	RUN	

Elevation Scale (m): 87, 86, 85, 84, 83, 82, 81, 80, 79, 78, 77, 76

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: <5 | PID: <5 | PID: <5 | PID: <5 | PID: <5

Instrument Details — Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT)

GR SA SI CL

SS1 Analysis: PAH, DUP 2

SS2 Analysis: M&I, VOC, PHC

SS3 Analysis: M&I, PAH

0 10 74 16

SS4 Analysis: VOC, PHC

(continued next page)

LOG OF BOREHOLE 106

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 23, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 2 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597147, N: 4798038 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)
		(continued)					
12		**QUEENSTON FORMATION** (See rock core log for details) *(continued)*		7	RUN		75
13				8	RUN		74
14							73
15				9	RUN		72
16							71
17				10	RUN		70
	69.7 18.0						

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

END OF BOREHOLE

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

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 8, 2019	11.4	76.4
Feb 21, 2019	4.9	82.8
Mar 15, 2019	4.5	83.2
Mar 22, 2019	4.5	83.3
Apr 14, 2019	4.4	83.3

ROCK CORE LOG 106

Terraprobe

Project No. : 1-18-0718 | Client : Carriage Gate Homes | Originated by : TG

Date started : January 23, 2019 | Project : 535-551 Brant Street | Compiled by : JK

Sheet No. : 1 of 1 | Location : Burlington, ON | Checked by : MD

Position : E: 597147, N: 4798038 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth (m)	Graphic Log	GENERAL DESCRIPTION	Run / Elev / Depth (m)	Recovery	Elevation (m)	Shale Weathering Zones	UCS (MPa) / Estimated Strength	Natural Fractures: Frequency	Natural Fractures: Spacing	Laboratory Testing	Comments	Elevation (m)
		Rock coring started at 3.2m below grade	**84.5**			Z1 Z2 Z3 Z4	R1 R2 R3 R4 R5 R6					
4		**QUEENSTON FORMATION** **calcareous Shale**, red, medium bedded, weak; joints are horizontal, closed to gapped, clean; interbedded with **limestone**, grey, thinly bedded, medium strong ...at 3.2m, transition to sound bedrock *Run 1 : 16% limestone 84% shale*	3.2 R1 83.4	TCR = **98%** SCR = **88%** RQD = **77%**	84			4 0 1 1			**3.4m:** *dipping joint, clean, smooth, planar, closed*	84
5		*Run 2 : 16% limestone 84% shale*	4.3 R2 81.9	TCR = **95%** SCR = **93%** RQD = **92%**	83			2 2 1 2				83
6		*Run 3 : 21% limestone 79% shale*	5.8 R3 80.4	TCR = **100%** SCR = **95%** RQD = **92%**	82			0 >10 1 1			**5.8m:** *approx. 75mm core loss* **6.1-6.2m:** *approx. 25mm rubblized* **6.2m:** *orange colour in joint (oxidation)*	82
7		*Run 4 : 32% limestone 68% shale*	7.3 R4 78.9	TCR = **100%** SCR = **100%** RQD = **100%**	81			0 1 1 1 1				81
8		*Run 5 : 17% limestone 83% shale*	8.8 R5 77.3	TCR = **97%** SCR = **90%** RQD = **62%**	80			0 5 4 2 3				80
9		*Run 6 : 3% limestone 97% shale*	10.4 R6 75.8	TCR = **95%** SCR = **95%** RQD = **95%**	79			0 0 0 1 0				79
10		*Run 7 : 18% limestone 82% shale*	11.9 R7 74.3	TCR = **100%** SCR = **98%** RQD = **94%**	78			0 0 2 0 0				78
11		*Run 8 : 8% limestone 92% shale*	13.4 R8 72.8	TCR = **100%** SCR = **100%** RQD = **87%**	77			0 0 4 1 3			**14.2-14.3m:** *approx. 25mm dipping joint, clean*	77
12		*Run 9 : 17% limestone 83% shale*	14.9 R9 71.2	TCR = **100%** SCR = **100%** RQD = **100%**	76			0 0 0 1 0				76
13		*Run 10 : 5% limestone 95% shale*	16.5 R10 69.7	TCR = **98%** SCR = **98%** RQD = **98%**	75			0 0 1 0 0				75
14					74							74
15					73							73
16					72							72
17					71							71
			18.0m		70							70

END OF COREHOLE

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 107

Terraprobe

Project No.	: 1-18-0718	Client	: Carriage Gate Homes	Originated by	: TG
Date started	: January 24, 2019	Project	: 535-551 Brant Street	Compiled by	: JK
Sheet No.	: 1 of 2	Location	: Burlington, ON	Checked by	: MD

Position : E: 597128, N: 4798019 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
0	87.8	**GROUND SURFACE**				
	87.6	75mm **ASPHALTIC CONCRETE**				
	0.2	75mm **AGGREGATE**		1	SS	11
		FILL, clayey silt, sandy, trace to some gravel, trace asphalt, trace concrete fragments, trace brick, very loose/very soft to stiff/compact, black to dark brown, moist		2	SS	2
1	86.3					
	1.5	**SILT**, some clay, trace sand, trace gravel, very stiff to hard, reddish brown, moist (HALTON TILL)		3	SS	16
				4	SS	50 / 125mm
2	84.8					
	3.0	**INFERRED BEDROCK**, shale, red		5	SS	50 / 25mm
	84.7	**QUEENSTON FORMATION**		1	RUN	
	3.1	(See rock core log for details)				
3		...at 3.6 m, transition to sound bedrock				
				2	RUN	
4						
				3	RUN	
5						
				4	RUN	
6						
				5	RUN	
7						
				6	RUN	
8						
				7	RUN	
9						
10						
11						

Elevation Scale (m): 87, 86, 85, 84, 83, 82, 81, 80, 79, 78, 77, 76

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

SS1 Analysis: M&I, PAH

SS2 Analysis: VOC, PHC

SS3 Analysis: M&I, PAH

SS4 Analysis: VOC, PHC

(continued next page)

LOG OF BOREHOLE 107

Terraprobe

Project No. : 1-18-0718	Client : Carriage Gate Homes	Originated by : TG
Date started : January 24, 2019	Project : 535-551 Brant Street	Compiled by : JK
Sheet No. : 2 of 2	Location : Burlington, ON	Checked by : MD

Position : E: 597128, N: 4798019 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
12		*(continued)*				
		QUEENSTON FORMATION (See rock core log for details) *(continued)*		7	RUN	
13				8	RUN	
14						
15				9	RUN	
16				10	RUN	
17						
18	69.7			11	RUN	
	18.1	**END OF BOREHOLE**				

Elevation Scale (m): 75, 74, 73, 72, 71, 70

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

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

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 8, 2019	4.3	83.5
Feb 21, 2019	dry	n/a
Mar 15, 2019	4.3	83.5
Mar 22, 2019	4.1	83.7
Apr 14, 2019	4.1	83.6

file: 1-18-0718 bh logs.gpj

ROCK CORE LOG 107

Terraprobe

Project No. : 1-18-0718 | Client : Carriage Gate Homes | Originated by : TG

Date started : January 24, 2019 | Project : 535-551 Brant Street | Compiled by : JK

Sheet No. : 1 of 1 | Location : Burlington, ON | Checked by : MD

Position : E: 597128, N: 4798019 (UTM 17T) | Elevation Datum : Geodetic | Core Diameter : **HQ**, OD=96mm, ID=64mm

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

Depth (m)	GENERAL DESCRIPTION	Run / Elev / Depth (m)	Recovery	Elevation (m)	Shale Weathering Zones	UCS (MPa) / Estimated Strength	Natural Fractures: Frequency	Natural Fractures: Spacing	Laboratory Testing	Comments	Elevation (m)
	Rock coring started at 3.1m below grade	**84.7**			Z1 Z2 Z3 Z4	5 25 50 100 250 / R1 R2 R3 R4 R5 R6					
4	**QUEENSTON FORMATION** **calcareous Shale**, red, medium bedded, weak; joints are horizontal, closed to gapped, clean; interbedded with **limestone**, grey, thinly bedded, medium strong ...at 3.6m, transition to sound bedrock	3.1 R1 83.5	TCR = **100%** SCR = **72%** RQD = **43%**	84			>10 >10 2 2			**3.1-3.3m:** *approx. 200mm rubble* **3.4-3.5m:** *approx. 25mm rubblized zone* **3.5m:** *vertical joint, clean, gapped, smooth, planar* **3.5-3.6m:** *approx. 100mm weathered zone, clay with angular blocks*	84
5	*Run 1 : 9% limestone* *91% shale*	4.3 R2 82.0	TCR = **97%** SCR = **92%** RQD = **68%**	83			1 4 6 >10				83
6	*Run 2 : 33% limestone* *67% shale*	5.8 R3 80.5	TCR = **100%** SCR = **98%** RQD = **97%**	82			2 0 12 3				82
7	*Run 3 : 10% limestone* *90% shale*	7.3 R4 79.6	TCR = **100%** SCR = **89%** RQD = **78%**	81			2 1 >10 1			**7.3-7.4m:** *approx. 100mm rubblized zone probably caved material*	81
8	*Run 4 : 19% limestone* *81% shale*			80			2 1				80
9	*Run 5 : 30% limestone* *70% shale*	8.2 R5 78.0	TCR = **100%** SCR = **97%** RQD = **93%**	79			1 1 0 4				79
10		9.8 R6 76.5	TCR = **95%** SCR = **95%** RQD = **90%**	78			0 2 2				78
11	*Run 6 : 28% limestone* *72% shale*			77			1 0 0				77
12	*Run 7 : 25% limestone* *75% shale*	11.3 R7 75.0	TCR = **95%** SCR = **95%** RQD = **92%**	76			0 0 0 1			**12.5-12.6m:** *approx. 150mm calcium layer*	76
13		12.8 R8 73.6	TCR = **100%** SCR = **100%** RQD = **100%**	75			2 0 0 0			**13.4m:** *calcium deposits*	75
14	*Run 8 : 9% limestone* *91% shale*			74			1 0 0				74
15	*Run 9 : 19% limestone* *81% shale*	14.2 R9 72.0	TCR = **98%** SCR = **98%** RQD = **81%**	73			0 3 2 1			**15.0m:** *dipping joint, gapped, smooth, planar, clean* **15.1-15.1m:** *approx. 40mm dipping joint, smooth, undulating, open, clay infilled*	73
16		15.8 R10 70.4	TCR = **100%** SCR = **100%** RQD = **100%**	72			0 0 0				72
17	*Run 10 : 0% limestone* *100% shale*			71			0 0 0				71
18	*Run 11 : 8% limestone* *92% shale*	17.4 R11 69.7	TCR = **100%** SCR = **100%** RQD = **100%**	70			0 0 0				70
	END OF COREHOLE	**18.1m**									

file: 1-18-0718 bh logs.gpj

LOG OF BOREHOLE 108

Terraprobe

Project No.	: 1-18-0718	Client	: Carriage Gate Homes	Originated by	: TG
Date started	: January 25, 2019	Project	: 535-551 Brant Street	Compiled by	: JK
Sheet No.	: 1 of 1	Location	: Burlington, ON	Checked by	: MD

Position : E: 597160, N: 4797980 (UTM 17T) Elevation Datum : Geodetic

Rig type : Big Beaver Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	87.7	**GROUND SURFACE**				
0	87.5	150mm **PC CONCRETE**				
	0.2	**FILL**, sandy silt, trace gravel, trace rock fragments, loose to compact, dark brown, moist		1	SS	8
1				2	SS	10
	86.2					
	1.5	**SILT**, some clay, trace sand, trace gravel, hard, reddish brown, moist (HALTON TILL)		3	SS	39
2				4	SS	78 / 275mm
	84.7					
3	3.0	**INFERRED BEDROCK**, shale, red		5	SS	50 / 125mm
	84.4					
	3.3	**END OF BOREHOLE**				

Elevation Scale (m): 87, 86, 85

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) 10, Natural Water Content (MC) 20, Liquid Limit (LL) 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

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

SS1 Analysis: M&I

SS2 Analysis: PAH, VOC, PHC

SS3 Analysis: M&I

0 14 73 13

SS4 Analysis: PAH

SS5 Analysis: VOC, PHC, DUP 3

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

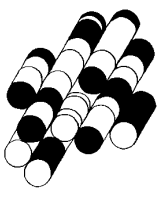
WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 8, 2019	dry	n/a
Feb 21, 2019	2.8	85.0
Mar 15, 2019	dry	n/a
Mar 22, 2019	2.6	85.2
Apr 14, 2019	2.6	85.2

file: 1-18-0718 bh logs.gpj

APPENDIX G

TERRAPROBE INC.



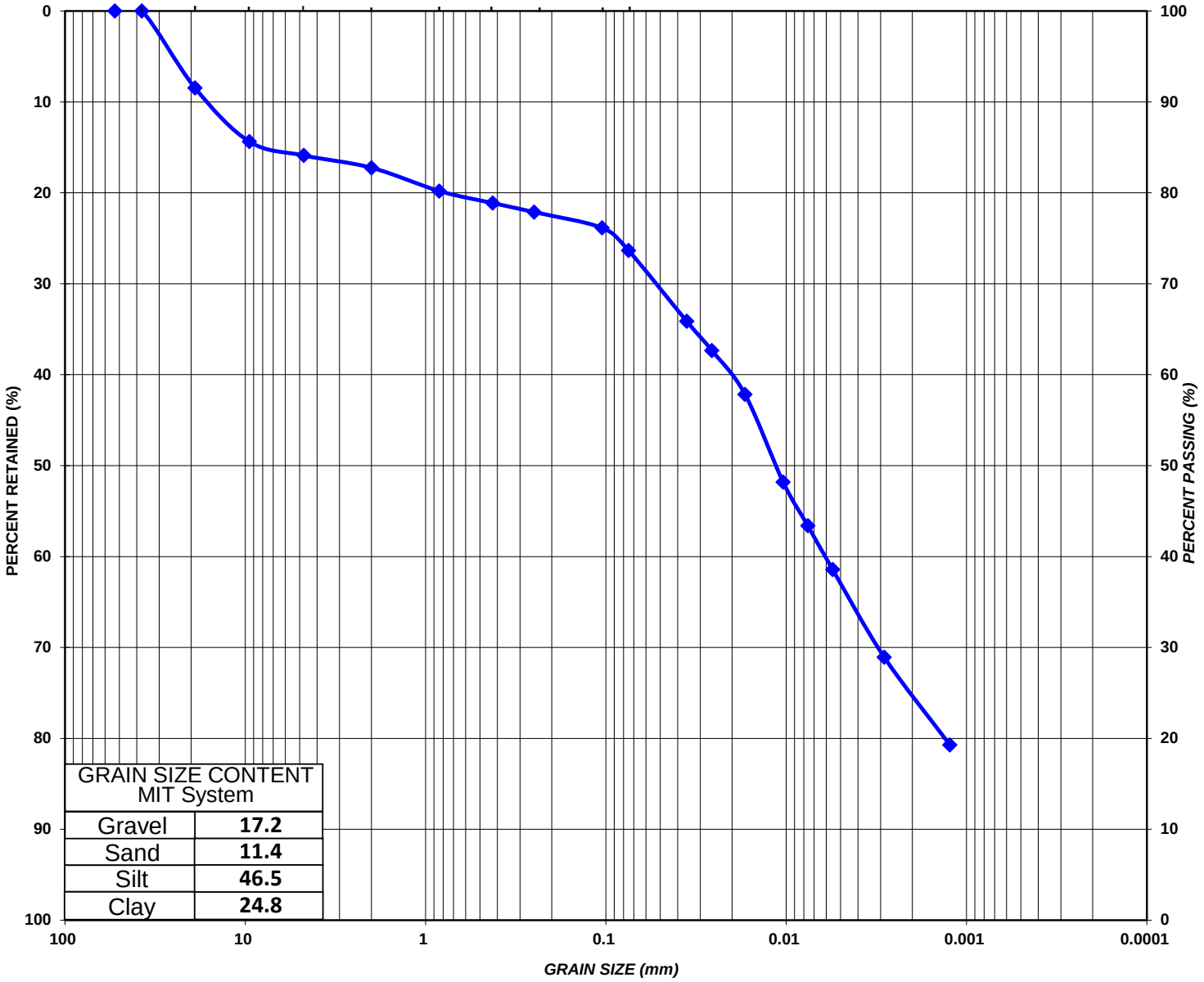
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **535 - 551 Brant Street, Burlington, Ontario**
LOCATION: **Burlington, ON**
CLIENT: **Carriage Gate Homes**
BOREHOLE: **104**
SAMPLE NUMBER: **4B**
SAMPLE DEPTH:
SAMPLE DESCRIPTION: **CLAYEY SILT, some gravel, some sand**

FILE NO.: **1-18-0718**
LAB NO.: **1070A**
SAMPLE DATE:
SAMPLED BY:

GRAIN SIZE DISTRIBUTION ANALYSIS



GRAIN SIZE CONTENT MIT System	
Gravel	**17.2**
Sand	**11.4**
Silt	**46.5**
Clay	**24.8**

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

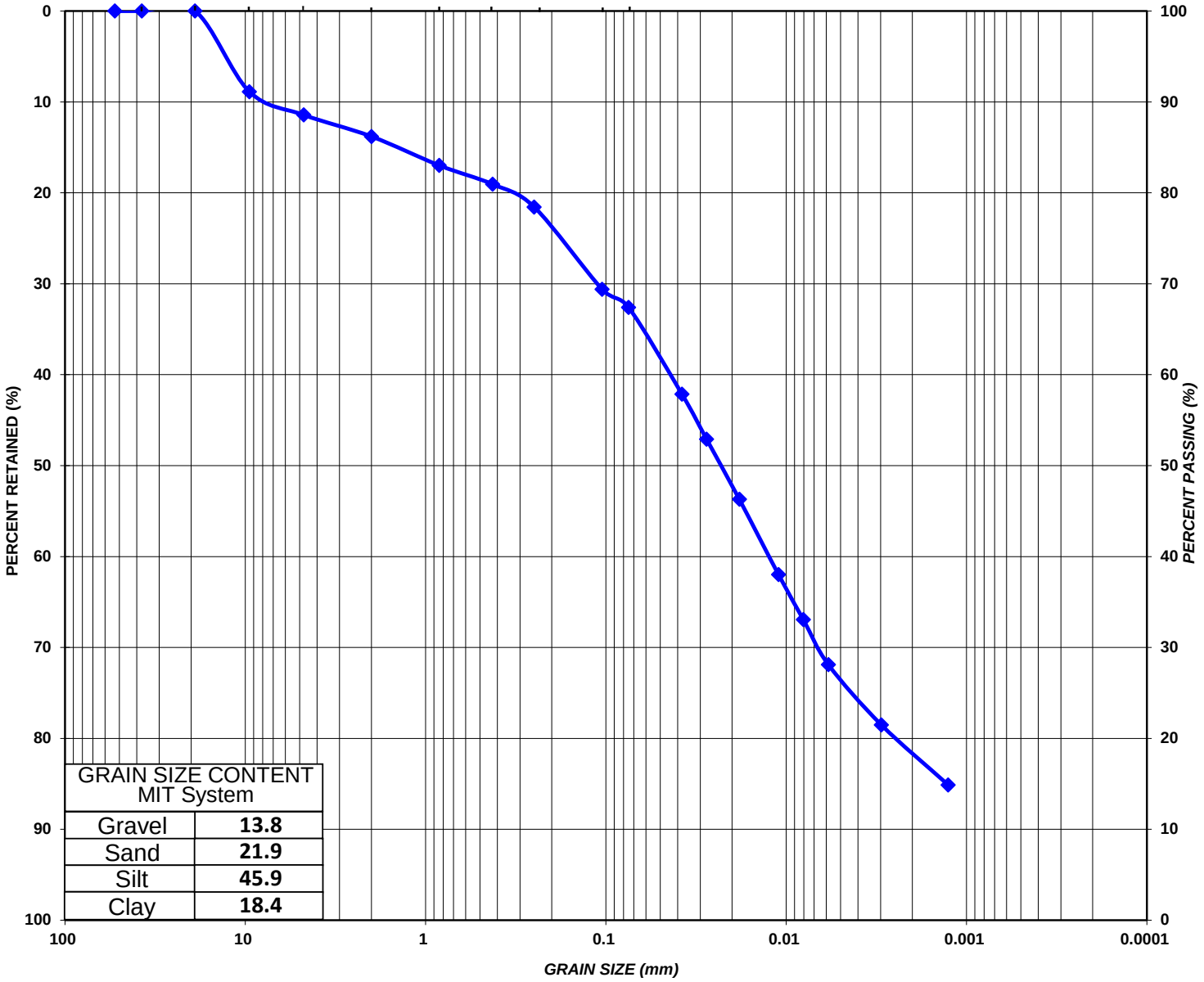
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: 535 - 551 Brant Street, Burlington, Ontario
LOCATION: Burlington, ON
CLIENT: Carriage Gate Homes
BOREHOLE: 105
SAMPLE NUMBER: 1
SAMPLE DEPTH:
SAMPLE DESCRIPTION: SANDY SILT, some clay, some gravel

FILE NO.: 1-18-0718
LAB NO.: 1070B
SAMPLE DATE:
SAMPLED BY:

GRAIN SIZE DISTRIBUTION ANALYSIS



GRAIN SIZE CONTENT MIT System	
Gravel	13.8
Sand	21.9
Silt	45.9
Clay	18.4

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

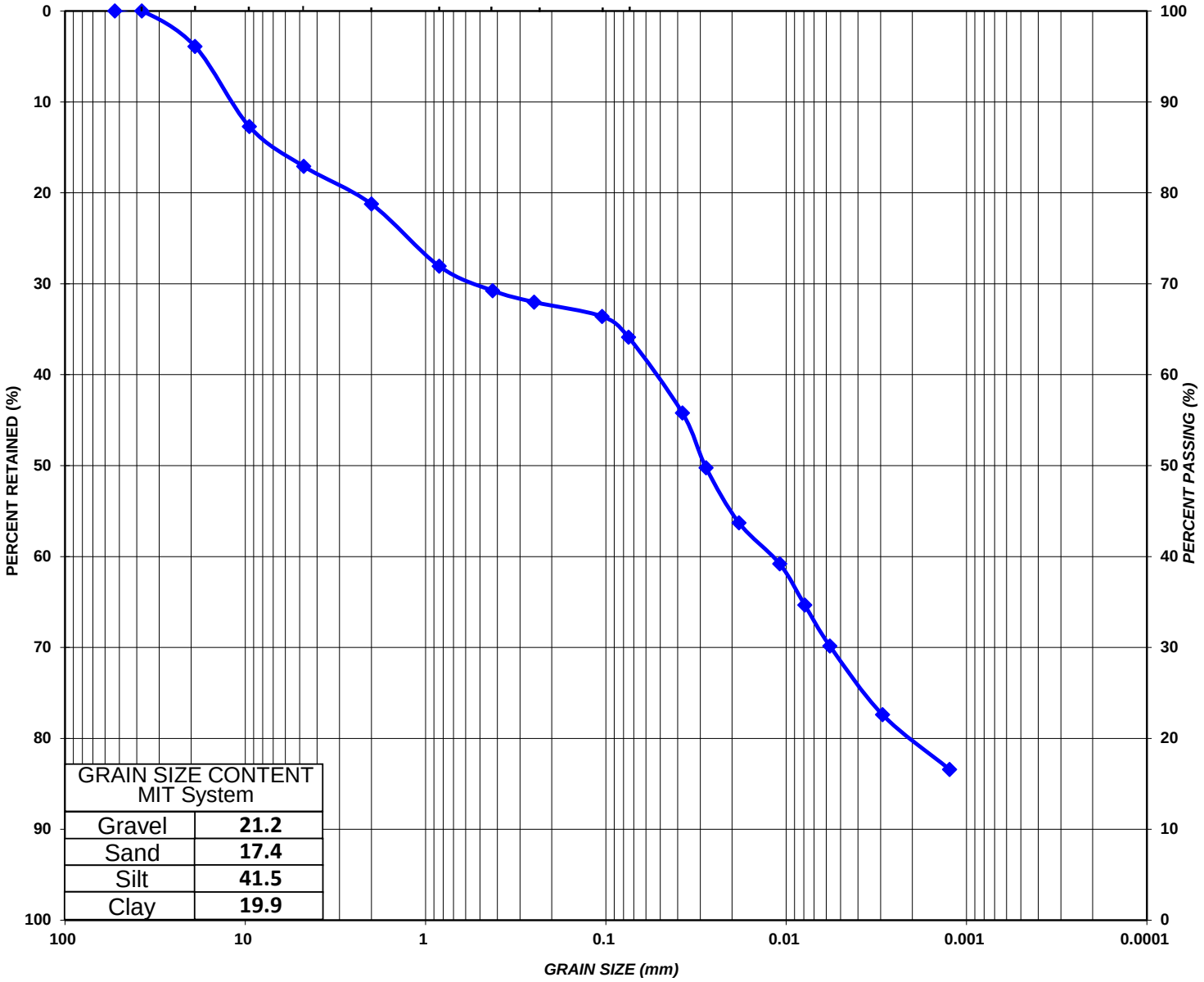
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **535 - 551 Brant Street, Burlington, Ontario**
LOCATION: **Burlington, ON**
CLIENT: **Carriage Gate Homes**
BOREHOLE: **105**
SAMPLE NUMBER: **4**
SAMPLE DEPTH:
SAMPLE DESCRIPTION: **GRAVELLY SILT, some clay, some sand**

FILE NO.: **1-18-0718**
LAB NO.: **1070C**
SAMPLE DATE:
SAMPLED BY:

GRAIN SIZE DISTRIBUTION ANALYSIS



GRAIN SIZE CONTENT MIT System	
Gravel	**21.2**
Sand	**17.4**
Silt	**41.5**
Clay	**19.9**

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

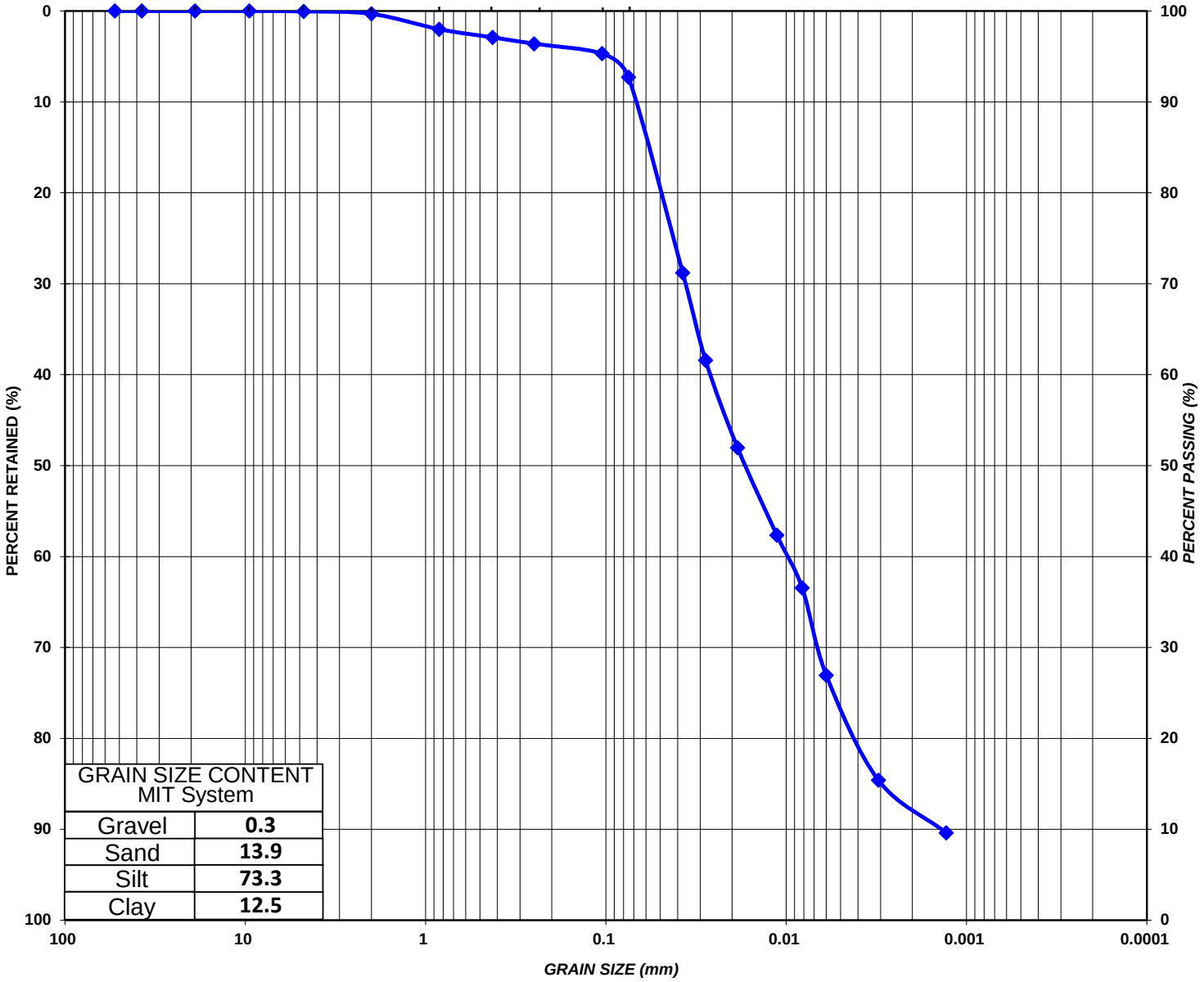
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **535 - 551 Brant Street, Burlington, Ontario**
LOCATION: **Burlington, ON**
CLIENT: **Carriage Gate Homes**
BOREHOLE: **108**
SAMPLE NUMBER: **4**
SAMPLE DEPTH:
SAMPLE DESCRIPTION: **SILT, some sand, some clay, trace gravel**

FILE NO.: **1-18-0718**
LAB NO.: **1070D**
SAMPLE DATE:
SAMPLED BY:

GRAIN SIZE DISTRIBUTION ANALYSIS



GRAIN SIZE CONTENT MIT System	
Gravel	0.3
Sand	13.9
Silt	73.3
Clay	12.5

MIT SYSTEM	GRAVEL		COARSE	MEDIUM	FINE	SILT	CLAY
			SAND				

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

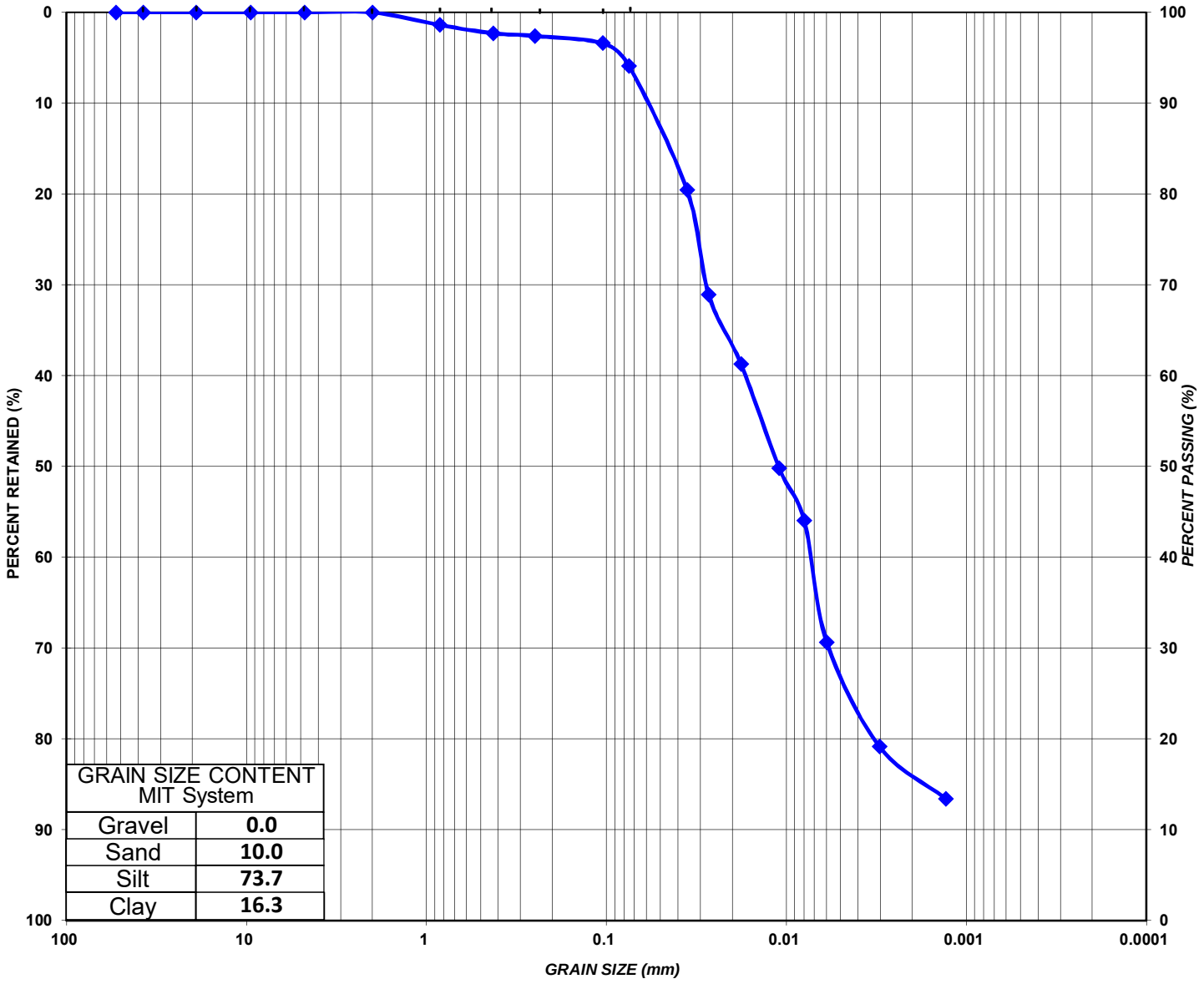
Terraprobe

SIEVE AND HYDROMETER ANALYSIS TEST REPORT

PROJECT: **535 - 551 Brant Street, Burlington, Ontario**
LOCATION: **Burlington, On.**
CLIENT: **Carriage Gate Homes**
BOREHOLE: **106**
SAMPLE NUMBER: **4**
SAMPLE DEPTH: **7'**
SAMPLE DESCRIPTION: **SILT, some clay, trace sand**

FILE NO.: **1-18-0718**
LAB NO.: **1057**
SAMPLE DATE: **Jan 27, 2019**
SAMPLED BY: **TG**

GRAIN SIZE DISTRIBUTION

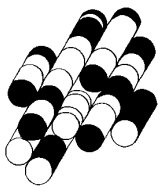


GRAIN SIZE CONTENT MIT System	
Gravel	**0.0**
Sand	**10.0**
Silt	**73.7**
Clay	**16.3**

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

APPENDIX H

TERRAPROBE INC.







FINAL REPORT

CA14591-JAN19 R1

1-18-0718-42

Prepared for

Terraprobe Inc

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Terraprobe Inc	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	11 Indell Lane Brampton, ON L6T 3Y3. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Prakash Patel	Telephone	705-652-2143
Telephone	(905) 796-2650	Facsimile	705-652-6365
Facsimile	(905) 796-2250	Email	brad.moore@sgs.com
Email	ppatel@terraprobe.ca	SGS Reference	CA14591-JAN19
Project	1-18-0718-42	Received	01/29/2019
Order Number		Approved	02/04/2019
Samples	Soil (23)	Report Number	CA14591-JAN19 R1
		Date Reported	05/19/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

Temperature of Sample upon Receipt: 1 degrees C
Cooling Agent Present:Yes
Custody Seal Present:No

Chain of Custody Number:003525/003423

SIGNATORIES

Brad Moore Hon. B.Sc

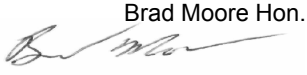


TABLE OF CONTENTS

First Page..... 1

Index..... 2

Results..... 3-18

Exceedance Summary..... 19

QC Summary..... 20-28

Legend..... 29

Annexes..... 30-32

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - BTEX** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	10	11	13	15	17	19	22	24
	Sample Name	BH 104/SS3	BH 104/SS4B	BH 106/SS2	BH 106/SS4	BH 107/SS2	BH 107/SS4	Dup 3	BH 105/SS2
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
BTEX											
Benzene	µg/g	0.02	0.17	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - BTEX** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	25	27	30		
	Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS5		
	Sample Matrix	Soil	Soil	Soil		
	Sample Date	25/01/2019	25/01/2019	25/01/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
BTEX						
Benzene	µg/g	0.02	0.17	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	15	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	6	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	25	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - Hydrides** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number			8	11	13	14	16	18	20	23
	Sample Name			BH 104/SS1	BH 104/SS4B	BH 106/SS2	BH 106/SS3	BH 107/SS1	BH 107/SS3	Dup 1	BH 105/SS1
	Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date			22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Hydrides											
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8	< 0.8	< 0.8	1.1	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	3.5	4.6	4.5	4.8	14	5.0	3.2	6.1
Selenium	µg/g	0.7	2.4	2.1	< 0.7	< 0.7	< 0.7	1.2	< 0.7	2.6	< 0.7

PACKAGE: **REG153 - Hydrides** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number			25	26	28
	Sample Name			BH 105/SS3	BH 108/SS1	BH 108/SS3
	Sample Matrix			Soil	Soil	Soil
	Sample Date			25/01/2019	25/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Hydrides						
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	4.4	9.1	5.6
Selenium	µg/g	0.7	2.4	< 0.7	< 0.7	< 0.7

PACKAGE: **REG153 - Metals and Inorganics** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number			8	9	10	11	12	13	14	15
	Sample Name			BH 104/SS1	BH 104/SS2	BH 104/SS3	BH 104/SS4B	BH 106/SS1	BH 106/SS2	BH 106/SS3	BH 106/SS4
	Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date			22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics											
Moisture Content	%	-		12.7	19.8	16.7	15.3	13.8	13.3	12.0	10.6
Barium	µg/g	0.1	390	220			77		59	65	
Beryllium	µg/g	0.02	5	4.8			0.76		0.60	0.55	
Boron	µg/g	1	120	49			16		16	13	

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - Metals and Inorganics** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	8	9	10	11	12	13	14	15
	Sample Name	BH 104/SS1	BH 104/SS2	BH 104/SS3	BH 104/SS4B	BH 106/SS1	BH 106/SS2	BH 106/SS3	BH 106/SS4
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)										
Cadmium	µg/g	0.02	1.2	0.38			0.12		0.08	0.08
Chromium	µg/g	0.5	160	15			21		16	15
Cobalt	µg/g	0.01	22	3.3			13		10	10
Copper	µg/g	0.1	180	13			28		14	10
Lead	µg/g	0.1	120	43			14		12	9.9
Molybdenum	µg/g	0.1	6.9	0.6			0.6		0.5	0.5
Nickel	µg/g	0.5	130	9.1			27		21	21
Silver	µg/g	0.05	25	0.06			< 0.05		< 0.05	< 0.05
Thallium	µg/g	0.02	1	0.04			0.10		0.08	0.06
Uranium	µg/g	0.002	23	3.0			0.58		0.48	0.43
Vanadium	µg/g	3	86	17			27		21	18
Zinc	µg/g	0.7	340	100			60		48	47
Water Soluble Boron	µg/g	0.5	1.5	< 0.5			0.6		< 0.5	< 0.5

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - Metals and Inorganics** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number				16	17	18	19	20	21	22	23
Sample Name				BH 107/SS1	BH 107/SS2	BH 107/SS3	BH 107/SS4	Dup 1	Dup 2	Dup 3	BH 105/SS1
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	22/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics											
Moisture Content	%	-		17.0	24.1	11.4	8.5	12.7	18.0	17.3	12.4
Barium	µg/g	0.1	390	180		95		260			110
Beryllium	µg/g	0.02	5	1.6		0.65		5.4			0.73
Boron	µg/g	1	120	19		14		55			15
Cadmium	µg/g	0.02	1.2	0.61		0.11		0.51			0.14
Chromium	µg/g	0.5	160	18		17		15			17
Cobalt	µg/g	0.01	22	8.2		11		2.8			11
Copper	µg/g	0.1	180	66		13		14			13
Lead	µg/g	0.1	120	280		25		54			69
Molybdenum	µg/g	0.1	6.9	1.4		0.6		0.7			0.7
Nickel	µg/g	0.5	130	18		22		8.0			22
Silver	µg/g	0.05	25	0.27		< 0.05		0.07			0.05
Thallium	µg/g	0.02	1	0.19		0.08		0.03			0.08
Uranium	µg/g	0.002	23	1.1		0.45		3.5			0.70
Vanadium	µg/g	3	86	23		20		15			21
Zinc	µg/g	0.7	340	180		56		100			68
Water Soluble Boron	µg/g	0.5	1.5	0.7		< 0.5		< 0.5			0.6

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - Metals and Inorganics** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number			24	25	26	27	28	29	30	
Sample Name			BH 105/SS2	BH 105/SS3	BH 108/SS1	BH 108/SS2	BH 108/SS3	BH 108/SS4	BH 108/SS5	
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Sample Date			25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics										
Moisture Content	%	-		16.7	12.3	14.9	12.4	12.3	9.5	9.4
Barium	µg/g	0.1	390		76	66		120		
Beryllium	µg/g	0.02	5		0.77	0.47		0.58		
Boron	µg/g	1	120		14	10		9		
Cadmium	µg/g	0.02	1.2		0.10	0.50		0.12		
Chromium	µg/g	0.5	160		20	10		18		
Cobalt	µg/g	0.01	22		13	7.6		13		
Copper	µg/g	0.1	180		8.2	24		91		
Lead	µg/g	0.1	120		11	140		11		
Molybdenum	µg/g	0.1	6.9		0.6	0.5		0.5		
Nickel	µg/g	0.5	130		27	9.8		25		
Silver	µg/g	0.05	25		< 0.05	0.10		0.07		
Thallium	µg/g	0.02	1		0.08	0.08		0.10		
Uranium	µg/g	0.002	23		0.46	0.59		0.50		
Vanadium	µg/g	3	86		23	16		22		
Zinc	µg/g	0.7	340		55	130		57		
Water Soluble Boron	µg/g	0.5	1.5		< 0.5	0.8		< 0.5		

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - Other (ORP)** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	8	11	13	14	16	18	20	23
	Sample Name	BH 104/SS1	BH 104/SS4B	BH 106/SS2	BH 106/SS3	BH 107/SS1	BH 107/SS3	Dup 1	BH 105/SS1
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Other (ORP)										
Mercury	µg/g	0.05	1.8	0.05	< 0.05	< 0.05	< 0.05	0.15	< 0.05	0.06	< 0.05
Sodium Adsorption Ratio	---	0.2	5	12.4	8.0	41.9	37.3	5.8	21.0	11.1	2.8
SAR Calcium	mg/L	0.09		22.7	44.5	6.9	5.0	17.6	4.3	23.6	16.6
SAR Magnesium	mg/L	0.02		2.5	8.7	1.9	1.7	67.5	1.4	2.8	41.5
SAR Sodium	mg/L	0.15		232	224	484	379	237	198	214	92.3
Conductivity	mS/cm	0.002	0.7	1.4	1.5	2.6	1.9	1.1	1.5	1.3	0.53
pH	pH Units	0.05		9.03	8.07	8.24	8.33	8.63	8.24	8.86	8.02
Chromium VI	µg/g	0.2	10	0.3	< 0.2	< 0.2	< 0.2	0.3	< 0.2	0.3	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - Other (ORP)** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	25	26	28
Sample Name	BH 105/SS3	BH 108/SS1	BH 108/SS3
Sample Matrix	Soil	Soil	Soil
Sample Date	25/01/2019	25/01/2019	25/01/2019

Parameter	Units	RL	L1	Result	Result	Result
Other (ORP)						
Mercury	µg/g	0.05	1.8	< 0.05	0.13	< 0.05
Sodium Adsorption Ratio	---	0.2	5	3.2	1.1	3.1
SAR Calcium	mg/L	0.09		23.5	525	30.1
SAR Magnesium	mg/L	0.02		4.7	54.4	3.1
SAR Sodium	mg/L	0.15		65.1	99.7	65.9
Conductivity	mS/cm	0.002	0.7	0.54	3.1	0.59
pH	pH Units	0.05		7.93	7.92	8.09
Chromium VI	µg/g	0.2	10	< 0.2	0.3	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05

Client: Terraprobe Inc

Project: 1-18-0718-42

Project Manager: Prakash Patel

Samplers: T.Greer

PACKAGE: **REG153 - PAHs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number				9	11	12	14	16	18	21	24
Sample Name				BH 104/SS2	BH 104/SS4B	BH 106/SS1	BH 106/SS3	BH 107/SS1	BH 107/SS3	Dup 2	BH 105/SS2
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
PAHs											
Acenaphthene	µg/g	0.05	58	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/g	0.05	0.17	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	µg/g	0.05	0.74	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05
Benzo(a)anthracene	µg/g	0.05	0.63	0.13	< 0.05	0.06	0.07	0.15	< 0.05	0.20	0.13
Benzo(a)pyrene	µg/g	0.05	0.3	0.10	< 0.05	< 0.05	< 0.05	0.12	< 0.05	0.15	0.12
Benzo(b)fluoranthene	µg/g	0.05	0.78	0.15	< 0.05	0.06	0.07	0.21	< 0.05	0.27	0.17
Benzo(ghi)perylene	µg/g	0.1	7.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.07	< 0.05
Chrysene	µg/g	0.05	7.8	0.14	< 0.05	0.06	0.06	0.15	< 0.05	0.19	0.13
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	µg/g	0.05	0.69	0.25	0.06	0.12	0.15	0.26	< 0.05	0.41	0.24
Fluorene	µg/g	0.05	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	0.1	0.48	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene, 2-(1-)	µg/g	0.05	3.4	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05
Naphthalene	µg/g	0.05	0.75	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/g	0.05	7.8	0.14	0.06	0.08	0.12	0.14	< 0.05	0.25	0.14
Pyrene	µg/g	0.05	78	0.22	0.05	0.10	0.12	0.25	< 0.05	0.35	0.22

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - PAHs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	25	27	29
Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS4
Sample Matrix	Soil	Soil	Soil
Sample Date	25/01/2019	25/01/2019	25/01/2019

Parameter	Units	RL	L1	Result	Result	Result
PAHs						
Acenaphthene	µg/g	0.05	58	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/g	0.05	0.17	< 0.05	< 0.05	< 0.05
Anthracene	µg/g	0.05	0.74	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/g	0.05	0.63	0.08	0.07	< 0.05
Benzo(a)pyrene	µg/g	0.05	0.3	0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	µg/g	0.05	0.78	0.07	0.07	< 0.05
Benzo(ghi)perylene	µg/g	0.1	7.8	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05
Chrysene	µg/g	0.05	7.8	0.07	0.06	< 0.05
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	< 0.06	< 0.06	< 0.06
Fluoranthene	µg/g	0.05	0.69	0.19	0.16	< 0.05
Fluorene	µg/g	0.05	69	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.48	< 0.1	< 0.1	< 0.1
1-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05
Methylnaphthalene, 2-(1-)	µg/g	0.05	3.4	< 0.05	< 0.05	< 0.05
Naphthalene	µg/g	0.05	0.75	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/g	0.05	7.8	0.08	0.17	< 0.05
Pyrene	µg/g	0.05	78	0.15	0.13	< 0.05

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - PHCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	10	11	13	15	17	19	22	24
	Sample Name	BH 104/SS3	BH 104/SS4B	BH 106/SS2	BH 106/SS4	BH 107/SS2	BH 107/SS4	Dup 3	BH 105/SS2
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
PHCs											
F1 (C6-C10)	µg/g	10	65	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	150	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F3 (C16-C34)	µg/g	50	1300	< 50	< 50	< 50	< 50	60	< 50	< 50	< 50
F4 (C34-C50)	µg/g	50	5600	< 50	< 50	< 50	< 50	134	< 50	< 50	< 50
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES	YES	YES	YES	YES	YES

PACKAGE: **REG153 - PHCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	25	27	30
	Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS5
	Sample Matrix	Soil	Soil	Soil
	Sample Date	25/01/2019	25/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
PHCs						
F1 (C6-C10)	µg/g	10	65	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	150	< 10	< 10	< 10
F3 (C16-C34)	µg/g	50	1300	124	< 50	< 50
F4 (C34-C50)	µg/g	50	5600	276	< 50	< 50
F4G-sg (GHH)	µg/g	200	5600	925		
Chromatogram returned to baseline at nC50	Yes / No	-		NO	YES	YES

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - SVOC Surrogates** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

			Sample Number	9	11	12	14	16	18	21	24
			Sample Name	BH 104/SS2	BH 104/SS4B	BH 106/SS1	BH 106/SS3	BH 107/SS1	BH 107/SS3	Dup 2	BH 105/SS2
			Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
SVOC Surrogates											
Surr Nitrobenzene-d5	Surr Rec %	-		74	78	84	92	83	85	80	81
Surr 2-Fluorobiphenyl	Surr Rec %	-		77	77	74	86	74	75	69	76
Surr 4-Terphenyl-d14	Surr Rec %	-		81	84	83	92	75	86	82	89
Surr 2-Fluorophenol	Surr Rec %	-		76	83	80	90	78	87	82	82
Surr Phenol-d6	Surr Rec %	-		79	87	89	90	84	88	83	89
Surr 2,4,6-Tribromophenol	Surr Rec %	-		79	76	83	74	89	89	90	88

PACKAGE: **REG153 - SVOC Surrogates** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

			Sample Number	25	27	29
			Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS4
			Sample Matrix	Soil	Soil	Soil
			Sample Date	25/01/2019	25/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
SVOC Surrogates						
Surr Nitrobenzene-d5	Surr Rec %	-		85	78	83
Surr 2-Fluorobiphenyl	Surr Rec %	-		79	76	79
Surr 4-Terphenyl-d14	Surr Rec %	-		87	99	81
Surr 2-Fluorophenol	Surr Rec %	-		85	81	88
Surr Phenol-d6	Surr Rec %	-		84	86	95
Surr 2,4,6-Tribromophenol	Surr Rec %	-		76	73	62

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - THMs (VOC)** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

				Sample Number	10	11	13	15	17	19	22	24
				Sample Name	BH 104/SS3	BH 104/SS4B	BH 106/SS2	BH 106/SS4	BH 107/SS2	BH 107/SS4	Dup 3	BH 105/SS2
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
THMs (VOC)												
Bromodichloromethane	µg/g	0.05	13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.05	0.26	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	0.05	9.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - THMs (VOC)** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

				Sample Number	25	27	30
				Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS5
				Sample Matrix	Soil	Soil	Soil
				Sample Date	25/01/2019	25/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
THMs (VOC)						
Bromodichloromethane	µg/g	0.05	13	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.05	0.26	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	0.05	9.4	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - VOC Surrogates** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

				Sample Number	10	11	13	15	17	19	22	24
				Sample Name	BH 104/SS3	BH 104/SS4B	BH 106/SS2	BH 106/SS4	BH 107/SS2	BH 107/SS4	Dup 3	BH 105/SS2
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates												
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		104	105	105	105	104	105	107	106
Surr 4-Bromofluorobenzene	Surr Rec %	-		93	92	92	92	92	92	92	92
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		90	91	91	91	91	91	91	92

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - VOC Surrogates** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

			Sample Number	25	27	30	
			Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS5	
			Sample Matrix	Soil	Soil	Soil	
			Sample Date	25/01/2019	25/01/2019	25/01/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	
VOC Surrogates							
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		105	105	105	
Surr 4-Bromofluorobenzene	Surr Rec %	-		91	91	91	
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		91	91	91	

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

			Sample Number	10	11	13	15	17	19	22	24	
			Sample Name	BH 104/SS3	BH 104/SS4B	BH 106/SS2	BH 106/SS4	BH 107/SS2	BH 107/SS4	Dup 3	BH 105/SS2	
			Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
			Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	
VOCs												
Acetone	µg/g	0.5	28	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Bromomethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Carbon tetrachloride	µg/g	0.05	0.12	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Chlorobenzene	µg/g	0.05	2.7	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Chloroform	µg/g	0.05	0.18	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,2-Dichlorobenzene	µg/g	0.05	4.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,3-Dichlorobenzene	µg/g	0.05	6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,4-Dichlorobenzene	µg/g	0.05	0.097	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Dichlorodifluoromethane	µg/g	0.05	25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,1-Dichloroethane	µg/g	0.05	11	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,2-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,1-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
trans-1,2-Dichloroethylene	µg/g	0.05	0.75	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

Client: Terraprobe Inc

Project: 1-18-0718-42

Project Manager: Prakash Patel

Samplers: T.Greer

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	10	11	13	15	17	19	22	24
	Sample Name	BH 104/SS3	BH 104/SS4B	BH 106/SS2	BH 106/SS4	BH 107/SS2	BH 107/SS4	Dup 3	BH 105/SS2
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	22/01/2019	22/01/2019	23/01/2019	23/01/2019	23/01/2019	24/01/2019	22/01/2019	25/01/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)											
cis-1,2-Dichloroethylene	µg/g	0.05	30	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichloropropane	µg/g	0.05	0.085	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
trans-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
1,3-dichloropropene (total)	µg/g	0.05	0.083	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ethylenedibromide	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
n-Hexane	µg/g	0.05	34	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methyl ethyl ketone	µg/g	0.5	44	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl isobutyl ketone	µg/g	0.5	4.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl-t-butyl Ether	µg/g	0.05	1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylene Chloride	µg/g	0.05	0.96	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Styrene	µg/g	0.05	2.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	0.05	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	µg/g	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	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	µg/g	0.05	3.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.05	0.52	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	0.05	5.8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.02	0.022	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	25	27	30
Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS5
Sample Matrix	Soil	Soil	Soil
Sample Date	25/01/2019	25/01/2019	25/01/2019

VOCs

Parameter	Units	RL	L1	Result	Result	Result
Acetone	µg/g	0.5	28	< 0.5	< 0.5	< 0.5
Bromomethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Carbon tetrachloride	µg/g	0.05	0.12	< 0.05	< 0.05	< 0.05
Chlorobenzene	µg/g	0.05	2.7	< 0.05	< 0.05	< 0.05
Chloroform	µg/g	0.05	0.18	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/g	0.05	4.3	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/g	0.05	6	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/g	0.05	0.097	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	µg/g	0.05	25	< 0.05	< 0.05	< 0.05
1,1-Dichloroethane	µg/g	0.05	11	< 0.05	< 0.05	< 0.05
1,2-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
trans-1,2-Dichloroethylene	µg/g	0.05	0.75	< 0.05	< 0.05	< 0.05
cis-1,2-Dichloroethylene	µg/g	0.05	30	< 0.05	< 0.05	< 0.05
1,2-Dichloropropane	µg/g	0.05	0.085	< 0.05	< 0.05	< 0.05
cis-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03
trans-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03
1,3-dichloropropene (total)	µg/g	0.05	0.083	< 0.05	< 0.05	< 0.05
Ethylenedibromide	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
n-Hexane	µg/g	0.05	34	< 0.05	< 0.05	< 0.05
Methyl ethyl ketone	µg/g	0.5	44	< 0.5	< 0.5	< 0.5
Methyl isobutyl ketone	µg/g	0.5	4.3	< 0.5	< 0.5	< 0.5
Methyl-t-butyl Ether	µg/g	0.05	1.4	< 0.05	< 0.05	< 0.05

Client: Terraprobe Inc
Project: 1-18-0718-42
Project Manager: Prakash Patel
Samplers: T.Greer

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	25	27	30
Sample Name	BH 105/SS3	BH 108/SS2	BH 108/SS5
Sample Matrix	Soil	Soil	Soil
Sample Date	25/01/2019	25/01/2019	25/01/2019

Parameter	Units	RL	L1	Result	Result	Result
VOCs (continued)						
Methylene Chloride	µg/g	0.05	0.96	< 0.05	< 0.05	< 0.05
Styrene	µg/g	0.05	2.2	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	0.05	2.3	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	µg/g	0.05	3.4	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.05	0.52	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	0.05	5.8	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.02	0.022	< 0.02	< 0.02	< 0.02

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / SOIL / FINE - TABLE 3 - Residential/Parkland - UNDEFINED L1
BH 104/SS1				
Conductivity	EPA 6010/SM 2510	mS/cm	1.4	0.7
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	12.4	5
BH 104/SS4B				
Conductivity	EPA 6010/SM 2510	mS/cm	1.5	0.7
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	8.0	5
BH 106/SS2				
Conductivity	EPA 6010/SM 2510	mS/cm	2.6	0.7
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	41.9	5
BH 106/SS3				
Conductivity	EPA 6010/SM 2510	mS/cm	1.9	0.7
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	37.3	5
BH 107/SS1				
Lead	EPA 3050/EPA 200.8	µg/g	280	120
Conductivity	EPA 6010/SM 2510	mS/cm	1.1	0.7
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	5.8	5
BH 107/SS3				
Conductivity	EPA 6010/SM 2510	mS/cm	1.5	0.7
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	21.0	5
Dup 1				
Beryllium	EPA 3050/EPA 200.8	µg/g	5.4	5
Selenium	EPA 3050/EPA 200.8	µg/g	2.6	2.4
Conductivity	EPA 6010/SM 2510	mS/cm	1.3	0.7
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	11.1	5
BH 108/SS1				
Lead	EPA 3050/EPA 200.8	µg/g	140	120
Conductivity	EPA 6010/SM 2510	mS/cm	3.1	0.7

QC SUMMARY

Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0008-FEB19	mS/cm	0.002	<0.002	0	10	99	90	110	NA		

Cyanide by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5072-JAN19	µg/g	0.05	<0.05	ND	20	106	80	120	88	75	125

Hexavalent Chromium by IC

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-IENVIIC-LAK-AN-008

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	DIO0004-FEB19	µg/g	0.2	<0.2	ND	20	99	80	120	92	75	125

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0164-JAN19	µg/g	0.05	<0.05	ND	20	106	80	120	99	70	130

Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0002-FEB19	mg/L	0.09	<0.09	2	20	91	80	120	93	70	130
SAR Magnesium	ESG0002-FEB19	mg/L	0.02	<0.02	8	20	100	80	120	108	70	130
SAR Sodium	ESG0002-FEB19	mg/L	0.15	<0.15	6	20	100	80	120	105	70	130

QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0164-JAN19	ug/g	0.05	<0.05	NV	20	102	70	130	105	70	130
Arsenic	EMS0164-JAN19	µg/g	0.5	<0.5	7	20	110	70	130	101	70	130
Barium	EMS0164-JAN19	ug/g	0.1	<0.1	3	20	105	70	130	95	70	130
Beryllium	EMS0164-JAN19	µg/g	0.02	<0.02	4	20	107	70	130	101	70	130
Boron	EMS0164-JAN19	µg/g	1	<1	7	20	105	70	130	91	70	130
Cadmium	EMS0164-JAN19	µg/g	0.02	<0.02	NV	20	108	70	130	111	70	130
Cobalt	EMS0164-JAN19	µg/g	0.01	<0.01	4	20	107	70	130	110	70	130
Chromium	EMS0164-JAN19	µg/g	0.5	<0.5	5	20	106	70	130	111	70	130
Copper	EMS0164-JAN19	µg/g	0.1	<0.1	5	20	106	70	130	104	70	130
Molybdenum	EMS0164-JAN19	µg/g	0.1	<0.1	NV	20	102	70	130	93	70	130
Nickel	EMS0164-JAN19	ug/g	0.5	<0.5	0	20	106	70	130	109	70	130
Lead	EMS0164-JAN19	µg/g	0.1	<0.1	9	20	109	70	130	105	70	130
Antimony	EMS0164-JAN19	µg/g	0.8	<0.8	ND	20	103	70	130	118	70	130
Selenium	EMS0164-JAN19	µg/g	0.7	<0.7	ND	20	108	70	130	100	70	130
Thallium	EMS0164-JAN19	µg/g	0.02	<0.02	17	20	102	70	130	101	70	130
Uranium	EMS0164-JAN19	µg/g	0.002	<0.002	0	20	106	70	130	101	70	130
Vanadium	EMS0164-JAN19	µg/g	3	<3	2	20	106	70	130	108	70	130
Zinc	EMS0164-JAN19	µg/g	0.7	<0.7	2	20	105	70	130	103	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0392-JAN19	µg/g	10	<10	ND	30	107	80	120	98	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0376-JAN19	µg/g	10	<10	ND	30	113	80	120	117	60	140
F3 (C16-C34)	GCM0376-JAN19	µg/g	50	<50	ND	30	113	80	120	117	60	140
F4 (C34-C50)	GCM0376-JAN19	µg/g	50	<50	ND	30	113	80	120	117	60	140

QC SUMMARY

Petroleum Hydrocarbons (F4G)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F4G-sg (GHH)	GCM0015-FEB19	µg/g	200	<200	NA	30	99	80	120	NA	60	140

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0111-JAN19	pH Units	0.05		0	20	100	80	120			

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3541/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	86	50	140	81	50	140
2-Methylnaphthalene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	84	50	140	80	50	140
Acenaphthene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	91	50	140	92	50	140
Acenaphthylene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	88	50	140	87	50	140
Anthracene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	91	50	140	93	50	140
Benzo(a)anthracene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	93	50	140	91	50	140
Benzo(a)pyrene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	85	50	140	97	50	140
Benzo(b)fluoranthene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	95	50	140	86	50	140
Benzo(ghi)perylene	GCM0396-JAN19	µg/g	0.1	< 0.1	ND	40	99	50	140	107	50	140
Benzo(k)fluoranthene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	85	50	140	93	50	140
Chrysene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	92	50	140	92	50	140
Dibenzo(a,h)anthracene	GCM0396-JAN19	µg/g	0.06	< 0.06	ND	40	115	50	140	110	50	140
Fluoranthene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	96	50	140	99	50	140
Fluorene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	97	50	140	99	50	140
Indeno(1,2,3-cd)pyrene	GCM0396-JAN19	µg/g	0.1	< 0.1	ND	40	116	50	140	110	50	140
Naphthalene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	89	50	140	90	50	140
Phenanthrene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	93	50	140	95	50	140
Pyrene	GCM0396-JAN19	µg/g	0.05	< 0.05	ND	40	103	50	140	102	50	140

QC SUMMARY

Volatile Organics

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	97	50	140
1,1,1-Trichloroethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	96	50	140
1,1,2,2-Tetrachloroethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	88	60	130	98	50	140
1,1,2-Trichloroethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	92	60	130	98	50	140
1,1-Dichloroethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	85	60	130	95	50	140
1,1-Dichloroethylene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	96	50	140
1,2-Dichlorobenzene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	95	50	140
1,2-Dichloroethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	85	60	130	96	50	140
1,2-Dichloropropane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	97	50	140
1,3-Dichlorobenzene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	94	50	140
1,4-Dichlorobenzene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	85	60	130	92	50	140
Acetone	GCM0391-JAN19	µg/g	0.5	< 0.5	ND	50	88	50	140	109	50	140
Benzene	GCM0391-JAN19	µg/g	0.02	< 0.02	ND	50	86	60	130	95	50	140
Bromodichloromethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	98	50	140
Bromoform	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	98	50	140
Bromomethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	85	50	140	81	50	140
Carbon tetrachloride	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	95	50	140
Chlorobenzene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	95	50	140
Chloroform	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	97	50	140
cis-1,2-Dichloroethylene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	94	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-dichloropropene	GCM0391-JAN19	µg/g	0.03	< 0.03	ND	50	89	60	130	97	50	140
Dibromochloromethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	97	50	140
Dichlorodifluoromethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	66	50	140	61	50	140
Ethylbenzene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	97	50	140
Ethylenedibromide	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	88	60	130	97	50	140
n-Hexane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	78	60	130	75	50	140
m/p-xylene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	84	60	130	94	50	140
Methyl ethyl ketone	GCM0391-JAN19	µg/g	0.5	< 0.5	ND	50	90	50	140	111	50	140
Methyl isobutyl ketone	GCM0391-JAN19	µg/g	0.5	< 0.5	ND	50	90	50	140	111	50	140
Methyl-t-butyl Ether	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	91	60	130	108	50	140
Methylene Chloride	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	98	50	140
o-xylene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	97	50	140
Styrene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	97	50	140
Tetrachloroethylene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	92	50	140
Toluene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	85	60	130	94	50	140
trans-1,2-Dichloroethylene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	87	60	130	97	50	140
trans-1,3-dichloropropene	GCM0391-JAN19	µg/g	0.03	< 0.03	ND	50	86	60	130	92	50	140
Trichloroethylene	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	86	60	130	95	50	140
Trichlorofluoromethane	GCM0391-JAN19	µg/g	0.05	< 0.05	ND	50	84	50	140	90	50	140
Vinyl Chloride	GCM0391-JAN19	µg/g	0.02	< 0.02	ND	50	81	50	140	85	50	140

QC SUMMARY

Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0079-JAN19	µg/g	0.5	<0.5	ND	20	98	80	120	100	70	130

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

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

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

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

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-- End of Analytical Report --

SGS Request for Laboratory Services and CHAIN OF CUSTODY

No: 003525

Page 1 of 2

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

Laboratory Information Section - Lab use only

Received By: Email
Received Date (mm/dd/yyyy): 01/29/19 (mm\dd\yy)
Received Time: 03:25
Received By (signature):
Custody Seal Present: ☐
Custody Seal Intact: ☐
Cooling Agent Present: ☑
Temperature Upon Receipt (°C): 2,3,2 1x3 · LAB LIMS #: CA14591-Jan19.

REPORT INFORMATION

Company: Terraprobe
Contact: Kash Patel
Address: 11 Indell Ln
Brampton
Phone: 905-796-2650
Email: ppatel@terraprobe.ca
Email:

INVOICE INFORMATION

☒ (same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

PROJECT INFORMATION

Quotation #:
P.O. #:
Project #: 1-18-0718-42
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:
Rush Confirmation ID:

REGULATIONS

Regulation 153/04:
☐ Table 1 ☒ R/P/I Soil Texture: ☒ Coarse
☐ Table 2 ☐ I/C/C ☐ Medium
☒ Table 3 ☐ A/O ☐ Fine
☐ Table ____

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☒ YES ☐ NO

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PAH ☒ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	PHC F1-F4 ☒ VOC ☒ BTEX ☐ BTEX/F1 ☐ F2-F4 ☐	VOC ☐ BTEX ☐ THM ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	COMMENTS:
1	BH104/SS1	01/22/19		1	SOIL		X									
2	SS2			1				X								
3	SS3			3						X						
4	SS4B			5			X	X		X						
5	BH106/SS1	01/23/19		1				X								
6	SS2			4			X			X						
7	SS3			2			X	X								
8	SS4			3						X						
9	BH107/SS1	01/24/19		2			X	X								
10	SS2			3						X						
11	SS3			2			X	X								
12	SS4			3						X						

Observations/Comments/Special Instructions

Sampled By (NAME): T. Greer	Signature:	Date: 01/28/19 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): T Greer	Signature:	Date: 01/28/19 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018

SGS Request for Laboratory Services and CHAIN OF CUSTODY

No: 003423

Page 2 of 2

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

Laboratory Information Section - Lab use only

Received By: Ismail
Received Date (mm/dd/yyyy): 01/29/19 (mm\dd\yy)
Received Time: 03:15
Received By (signature):
Custody Seal Present: ☐
Custody Seal Intact: ☐
Cooling Agent Present: ☑
Temperature Upon Receipt (°C) _____
LAB LIMS #: _____

REPORT INFORMATION

Company: Terraprobe
Contact: Rash Patel
Address: Brampton
Phone:
Email:
Email:

INVOICE INFORMATION

☒ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email:

PROJECT INFORMATION

Quotation #:
P.O. #:
Project #: 1-18-0718-42
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:
Rush Confirmation ID:

REGULATIONS

Regulation 153/04:
☐ Table 1 ☒ R/P/I Soil Texture: ☑ Coarse
☐ Table 2 ☐ I/C/C ☐ Medium
☒ Table 3 ☐ A/O ☐ Fine
☐ Table _____

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

RECORD OF SITE CONDITION (RSC) ☑ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PAH ☒ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	PHC F1-F4 ☒ VOC ☑ BTEX ☐ BTEX/F1 ☐ F2-F4 ☐	VOC ☐ BTEX ☐ THM ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	COMMENTS:
1	DUP 1	01/22/19		1	SOIL		X									
2	DUP 2	↓		1				X								
3	DUP 3			3						X						
4	BH105/SS1	01/25/19		1			X									
5	↓ SS2	↓		4				X		X						
6	↓ SS3			5			X	X		X						
7	BH108/SS1			1			X									
8	SS2			4				X		X						
9	SS3			1			X									
10	SS4			1				X								
11	SS5	↓		3	↓					X						
12																

Observations/Comments/Special Instructions

Sampled By (NAME): T. Greer	**Signature:**	Date: 01/28/19 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): T. Greer	**Signature:**	Date: 01/28/19 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018

SGS

SAMPLE INTEGRITY REPORT

Project Number: 1-18-6718-42

ONTARIO REGULATION 153/04

SGS Sample ID CA14591-Jan19

Date / Time Sampled Jan 22-25 2019

Client Sample ID See cof C

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

Sample Specific Sample Integrity Violations							
Sample received past hold time	☐	☐	☐	☐	☐	☐	☐
Incorrect preservation (including no preservation where required)	☐	☐	☐	☐	☐	☐	☐
Headspace present in VOC vial (aqueous)	☐	☐	☐	☐	☐	☐	☐
Sample(s) received frozen	☐	☐	☐	☐	☐	☐	☐
Bottle(s) broken or damaged in transport	☐	☐	☐	☐	☐	☐	☐
Discrepancy between sample label and chain of custody	☑	☐	☐	☐	☐	☐	☐
Analysis requirements absent / unclear	☐	☐	☐	☐	☐	☐	☐
Missing or incorrect sample label(s)	☐	☐	☐	☐	☐	☐	☐
Inappropriate sample container used	☐	☐	☐	☐	☐	☐	☐
Insufficient number of bottles received	☐	☐	☐	☐	☐	☐	☐
Limited sample volume	☐	☐	☐	☐	☐	☐	☐
Insufficient sample volume	☐	☐	☐	☐	☐	☐	☐
Sample contains multiple phases	☐	☐	☐	☐	☐	☐	☐

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

Additional Comments/Remarks:

No issues upon receipt ☐ Initials: [signature]

BH105/SS1 just said "BH105/SS" but was ID'd as SS1 as it was the only ID missing + was packaged w/ the rest of 105





FINAL REPORT

CA14204-FEB19 R1

1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Prepared for

Terraprobe Inc

FINAL REPORT

First Page

CLIENT DETAILS

Client	Terraprobe Inc
Address	11 Indell Lane Brampton, ON L6T 3Y3. Canada
Contact	Prakash Patel
Telephone	(905) 796-2650
Facsimile	(905) 796-2250
Email	ppatel@terraprobe.ca
Project	1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario
Order Number	
Samples	Ground Water (5)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA14204-FEB19
Received	02/08/2019
Approved	02/14/2019
Report Number	CA14204-FEB19 R1
Date Reported	05/19/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Temperature of Sample upon Receipt: 1 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:NA

MW 106 - 4-Terphenyl-d14 surrogate low and outside control limits due to sample matrix. The overall quality control for this analysis has been assessed and meets method acceptability criteria.

RL raised for Cr6 on sample #8 due to SM

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

First Page..... 1
Index..... 2
Results..... 3-10
Exceedance Summary..... 11
QC Summary..... 12-20
Legend..... 21
Annexes..... 22-23

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - BTEX** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10	11		
	Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
BTEX								
Benzene	µg/L	0.5	430	< 0.5	0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	2300	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	18000	34.3	1.7	0.5	0.5	< 0.5
Xylene (total)	µg/L	0.5	4200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - Hydrides** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	MW 104	MW 106	MW 107	Dup		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Hydrides							
Antimony	µg/L	0.02	20000	1.2	0.96	0.52	0.53
Arsenic	µg/L	0.2	1900	5.6	2.8	2.1	2.0
Selenium	µg/L	0.04	63	0.48	0.29	0.24	0.27

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - Metals and Inorganics** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	MW 104	MW 106	MW 107	Dup		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics							
Barium	µg/L	0.02	29000	86.2	351	153	163
Beryllium	µg/L	0.007	67	0.007	0.010	< 0.007	< 0.007
Boron	µg/L	2	45000	1210	4690	836	849
Cadmium	µg/L	0.003	2.7	0.043	0.112	0.034	0.029
Chromium	µg/L	0.03	810	0.05	0.13	< 0.03	0.04
Cobalt	µg/L	0.004	66	0.232	1.57	1.03	1.02
Copper	µg/L	0.02	87	0.75	3.79	0.67	0.38
Lead	µg/L	0.01	25	0.03	0.20	0.08	0.03
Molybdenum	µg/L	0.01	9200	73.3	51.9	28.6	28.7
Nickel	µg/L	0.1	490	2.1	6.8	6.8	7.0
Silver	µg/L	0.002	1.5	0.003	0.020	0.004	0.002
Thallium	µg/L	0.005	510	0.015	0.160	0.048	0.042
Uranium	µg/L	0.002	420	5.22	2.82	1.87	2.04
Vanadium	µg/L	0.01	250	0.68	0.64	0.14	0.13
Zinc	µg/L	2	1100	< 2	5	6	6

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - Na** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	MW 104	MW 106	MW 107	Dup
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Na							
Sodium	µg/L	10	2.3e+006	554000	8150000	632000	639000

PACKAGE: **REG153 - Other (ORP)** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	MW 104	MW 106	MW 107	Dup
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Other (ORP)							
Mercury (total)	µg/L	0.01	2.8	< 0.01	< 0.01	< 0.01	< 0.01
pH	no unit	0.05		7.97	7.25	8.00	8.06
Chloride	µg/L	200	2.3e+006	930000	25000000	2100000	2200000
Chromium VI	µg/L	0.2	140	< 0.2	< 2↑	< 0.2	< 0.2
Cyanide (free)	µg/L	2	66	< 2	< 2	< 2	< 2

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	MW 104	MW 106	MW 107	Dup
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PAHs							
Acenaphthene	µg/L	0.1	1700	1.0	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	0.1	1.8	0.31	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

Sample Number	7	8	9	10	
Sample Name	MW 104	MW 106	MW 107	Dup	
Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	
Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PAHs (continued)							
Anthracene	µg/L	0.1	2.4	0.17	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	0.1	4.7	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	0.01	0.81	< 0.01	0.03	0.01	0.01
Benzo(b)fluoranthene	µg/L	0.1	0.75	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	µg/L	0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	0.1	1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	µg/L	0.1	0.52	< 0.1	< 0.1	< 0.1	< 0.1
Fluroanthene	µg/L	0.1	130	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	0.1	400	1.6	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
1-Methylnaphthalene	µg/L	0.5		7.8	< 0.5	< 0.5	< 0.5
2-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
Methylnaphthalene, 2-(1-)	µg/L	0.5	1800	8.1	< 0.5	< 0.5	< 0.5
Naphthalene	µg/L	0.5	6400	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	µg/L	0.1	580	3.0	0.10	< 0.1	< 0.1
Pyrene	µg/L	0.1	68	< 0.1	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8	9	10	11
				Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank
				Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
				Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	
PHCs									
F1 (C6-C10)	µg/L	25	750	42	< 25	< 25	< 25	< 25	
F1-BTEX (C6-C10)	µg/L	25		< 25	< 25	< 25	< 25	< 25	
F2 (C10-C16)	µg/L	100	150	715	2010	< 100	< 100		
F3 (C16-C34)	µg/L	200	500	363	325	693	550		
F4 (C34-C50)	µg/L	200	500	< 200	< 200	265	215		
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES	YES		

PACKAGE: **REG153 - SVOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8	9	10
				Sample Name	MW 104	MW 106	MW 107	Dup
				Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
				Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	
SVOC Surrogates								
Surr Nitrobenzene-d5	Surr Rec %	-		90	87	81	84	
Surr 2-Fluorobiphenyl	Surr Rec %	-		63	59	74	80	
Surr 4-Terphenyl-d14	Surr Rec %	-		59	20	51	59	
Surr 2-Fluorophenol	Surr Rec %	-		44	48	46	45	
Surr 2,4,6-Tribromophenol	Surr Rec %	-		70	73	83	87	

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - THMs (VOC)** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10	11
			Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
THMs (VOC)								
Bromodichloromethane	µg/L	0.5	85000	1.0	< 0.5	2.0	2.0	< 0.5
Bromoform	µg/L	0.5	770	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L	0.5	82000	< 0.5	< 0.5	1.5	1.4	< 0.5

PACKAGE: **REG153 - VOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10	11
			Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates								
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		104	112	105	105	102
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		94	95	92	96	89
Surr 4-Bromofluorobenzene	Surr Rec %	-		96	97	93	95	93

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10	11
			Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs								
Acetone	µg/L	30	130000	< 30	< 30	< 30	< 30	< 30
Bromomethane	µg/L	0.5	56	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon tetrachloride	µg/L	0.2	8.4	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	630	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontario

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10	11		
	Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)								
Chloroform	µg/L	0.5	22	6.9	0.9	2.7	2.9	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	9600	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	9600	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	67	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2.0	4400	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	3100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	µg/L	0.5	12	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	0.5	17	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	17	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	17	< 0.5	< 0.5	0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	140	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5	45	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.83	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0	520	< 1	< 1	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	1.5e+006	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	580000	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	1400	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	µg/L	0.5	5500	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	9100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	17	< 0.5	< 0.5	0.6	0.6	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 to 551 Bant Stre, Burlington, Ontari

Project Manager: Prakash Patel

Samplers: Tarak A

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10	11		
	Sample Name	MW 104	MW 106	MW 107	Dup	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	08/02/2019	08/02/2019	08/02/2019	08/02/2019	08/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)								
1,1,1,2-Tetrachloroethane	µg/L	0.5	28	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	6700	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	30	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	17	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5.0	2500	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	1.7	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED L1
MW 104				
F2 (C10 to C16)	CCME Tier 1	µg/L	715	150
MW 106				
F2 (C10 to C16)	CCME Tier 1	µg/L	2010	150
Chloride	EPA300/MA300-Ions1.3	µg/L	25000000	2.3e+006
Sodium	SM 3030/EPA 200.8	µg/L	8150000	2.3e+006
MW 107				
F3 (C16 to C34)	CCME Tier 1	µg/L	693	500
Dup				
F3 (C16 to C34)	CCME Tier 1	µg/L	550	500

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0115-FEB19	µg/L	200	<200	1	20	97	80	120	NV	75	125
Chloride	DIO0133-FEB19	µg/L	200	<200	ND	20	93	80	120	102	75	125

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0072-FEB19	µg/L	2	<2	ND	10	101	90	110	99	75	125

QC SUMMARY

Hexavalent Chromium by IC

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]IC-LAK-AN-008

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	DIO0131-FEB19	ug/L	0.2	<0.2	1	20	94	80	120	94	75	125
Chromium VI	DIO0136-FEB19	ug/L	0.2	<0.2	1	20	108	80	120	87	75	125

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0013-FEB19	ug/L	0.01	<0.01	ND	20	90	80	120	98	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0060-FEB19	µg/L	0.002	<0.002	ND	20	96	90	110	90	70	130
Arsenic	EMS0060-FEB19	µg/L	0.2	<0.2	ND	20	98	90	110	101	70	130
Barium	EMS0060-FEB19	µg/L	0.02	<0.02	9	20	97	90	110	NV	70	130
Beryllium	EMS0060-FEB19	µg/L	0.007	<0.007	ND	20	102	90	110	99	70	130
Boron	EMS0060-FEB19	µg/L	2	<2	13	20	98	90	110	NV	70	130
Cadmium	EMS0060-FEB19	µg/L	0.003	<0.003	ND	20	94	90	110	94	70	130
Cobalt	EMS0060-FEB19	µg/L	0.004	<0.004	ND	20	97	90	110	96	70	130
Chromium	EMS0060-FEB19	µg/L	0.03	<0.03	0	20	97	90	110	100	70	130
Copper	EMS0060-FEB19	µg/L	0.02	<0.02	2	20	97	90	110	76	70	130
Molybdenum	EMS0060-FEB19	µg/L	0.01	<0.01	8	20	92	90	110	89	70	130
Sodium	EMS0060-FEB19	µg/L	10	< 10	1	20	92	90	110	NV	70	130
Nickel	EMS0060-FEB19	µg/L	0.1	<0.1	6	20	98	90	110	94	70	130
Lead	EMS0060-FEB19	µg/L	0.01	<0.01	ND	20	97	90	110	93	70	130
Antimony	EMS0060-FEB19	µg/L	0.02	<0.02	18	20	102	90	110	102	70	130
Selenium	EMS0060-FEB19	µg/L	0.04	<0.04	ND	20	98	90	110	108	70	130
Thallium	EMS0060-FEB19	µg/L	0.005	<0.005	ND	20	98	90	110	95	70	130
Uranium	EMS0060-FEB19	µg/L	0.002	<0.002	10	20	95	90	110	101	70	130
Vanadium	EMS0060-FEB19	µg/L	0.01	<0.01	6	20	97	90	110	102	70	130
Zinc	EMS0060-FEB19	µg/L	2	<2	2	20	98	90	110	95	70	130
Sodium	EMS0071-FEB19	µg/L	10	< 10	ND	20	92	90	110	NV	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0145-FEB19	µg/L	25	<25	2	30	111	60	140	99	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0148-FEB19	µg/L	100	<100	8	30	108	60	140	110	60	140
F3 (C16-C34)	GCM0148-FEB19	µg/L	200	<200	10	30	108	60	140	110	60	140
F4 (C34-C50)	GCM0148-FEB19	µg/L	200	<200	ND	30	108	60	140	110	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0144-FEB19	no unit	0.05	NA	1		101			NA		

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0129-FEB19	µg/L	0.5	< 0.5	NSS	30	73	50	140	NSS	50	140
2-Methylnaphthalene	GCM0129-FEB19	µg/L	0.5	< 0.5	NSS	30	70	50	140	NSS	50	140
Acenaphthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	80	50	140	NSS	50	140
Acenaphthylene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	85	50	140	NSS	50	140
Anthracene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	92	50	140	NSS	50	140
Benzo(a)anthracene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	100	50	140	NSS	50	140
Benzo(a)pyrene	GCM0129-FEB19	ug/L	0.01	< 0.01	NSS	30	95	50	140	NSS	50	140
Benzo(b)fluoranthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	95	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0129-FEB19	µg/L	0.2	< 0.2	NSS	30	99	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	101	50	140	NSS	50	140
Chrysene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	97	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140
Fluroanthene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	99	50	140	NSS	50	140
Fluorene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	88	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0129-FEB19	µg/L	0.2	< 0.2	NSS	30	98	50	140	NSS	50	140
Naphthalene	GCM0129-FEB19	µg/L	0.5	< 0.5	NSS	30	72	50	140	NSS	50	140
Phenanthrene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	92	50	140	NSS	50	140
Pyrene	GCM0129-FEB19	µg/L	0.1	< 0.1	NSS	30	95	50	140	NSS	50	140

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,1,1-Trichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1,2,2-Tetrachloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1,2-Trichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	99	60	130	NSS	50	140
1,1-Dichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
1,1-Dichloroethylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,2-Dichlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,2-Dichloroethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
1,2-Dichloropropane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
1,3-Dichlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
1,4-Dichlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Acetone	GCM0131-FEB19	µg/L	30	<30	NSS	30	91	60	130	NSS	50	140
Benzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
Bromodichloromethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Bromoform	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Bromomethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	89	50	140	NSS	50	140
Carbon tetrachloride	GCM0131-FEB19	µg/L	0.2	<0.2	NSS	30	97	60	130	NSS	50	140
Chlorobenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Chloroform	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
cis-1,2-Dichloroethene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140

QC SUMMARY

Volatile Organics (continued)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dibromochloromethane	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dichlorodifluoromethane	GCM0131-FEB19	µg/L	2.0	<2	NSS	30	68	50	140	NSS	50	140
Ethylbenzene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Ethylenedibromide	GCM0131-FEB19	µg/L	0.2	<0.2	NSS	30	99	60	130	NSS	50	140
n-Hexane	GCM0131-FEB19	µg/L	1.0	<1	NSS	30	88	60	130	NSS	50	140
m/p-xylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
Methyl ethyl ketone	GCM0131-FEB19	µg/L	20	<20	NSS	30	95	60	130	NSS	50	140
Methyl Isobutyl Ketone	GCM0131-FEB19	µg/L	20	<20	NSS	30	96	50	140	NSS	50	140
Methyl-t-butyl Ether	GCM0131-FEB19	µg/L	2.0	<2	NSS	30	96	60	130	NSS	50	140
Methylene Chloride	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
o-xylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Styrene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Tetrachloroethylene (perchloroethylene)	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Toluene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	94	60	130	NSS	50	140
trans-1,2-Dichloroethene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
trans-1,3-Dichloropropene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	101	60	130	NSS	50	140
Trichloroethylene	GCM0131-FEB19	µg/L	0.5	<0.5	NSS	30	94	60	130	NSS	50	140
Trichlorofluoromethane	GCM0131-FEB19	µg/L	5.0	<5	NSS	30	100	50	140	NSS	50	140
Vinyl Chloride	GCM0131-FEB19	µg/L	0.2	<0.2	NSS	30	90	60	130	NSS	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

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

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

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

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

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-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No:

Page __1__ of __1__

Laboratory Information Section - Lab use only

Received By: Stephanie Vaithilingam
Received Date (mm/dd/yyyy): 02/08/19 (mm\dd\yy)
Received Time: 15:37
Received By (signature):
Custody Seal Present: ☑
Custody Seal Intact: ☑
Cooling Agent Present: ☑ ICE
Temperature Upon Receipt (°C) 5°6°8° 1x3
LAB LIMS #: CA14704-Feb19.

REPORT INFORMATION

Company: Terraprobe Inc
Contact: Prakash Patel
Address: 11 Indell Lane
Brampton, ON, L6T 3Y3
Phone:[905) 796-2650
Fax:(905) 796-2250
Email: ppatel@terraprobe.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email:

PROJECT INFORMATION

Quotation #: 2017-272
P.O. #:
Project #: 1-18-0718-42 535 to 551 Brant Stre Site Location/ID: Burlington, Ontario

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:
Rush Confirmation ID:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

Regulation 153/04:
☐ Table 1 ☑ Res/Park Soil Texture:
☑ Table 2 ☐ Ind/Com ☒ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium
☐ Table _____ ☐ Fine

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☒ MISA

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☒ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PHC F1-F4 ☐ BTEX ☐ BTEX/F1 ☐ F2-F4 ☐	VOC ☐	PAH ☐ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	Metals & Inorganics	PHC F1 to F4	BTEX	VOC	PAH		COMMENTS:
1	MW BH 104	8-Feb-18		12	GW											X	X	X	X	X		
2	MW BH 106	8-Feb-18		12	GW											X	X	X	X	X		
3	MW BH 107	8-Feb-18		12	GW											X	X	X	X	X		
4	~~Duplicate~~ DUP	8-Feb-18		12	GW											X	X	X	X	X		
5	Trip Blank	8-Feb-18		~~4~~	GW												X		X			
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Observations/Comments/Special Instructions

Sampled By (NAME): Tarak A.	Signature:	Date: _02__ / _08_ / _19_	(mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): ~~Prakash P.~~ Tarak A.	Signature:	Date: _02__ / _08_ / _19_	(mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018

SGS

SAMPLE INTEGRITY REPORT

Project Number: 1-18-0718-42

ONTARIO REGULATION 153/04

SGS Sample ID CA14204-Feb19

Date / Time Sampled Feb 8, 2019

Client Sample ID See CofC

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

All except Trip Blank

Sample Specific Sample Integrity Violations							
Sample received past hold time	☐	☐	☐	☐	☐	☐	☐
Incorrect preservation (including no preservation where required)	☐	☐	☐	☐	☐	☐	☐
Headspace present in VOC vial (aqueous)	☐	☐	☐	☐	☐	☐	☐
Sample(s) received frozen	☐	☐	☐	☐	☐	☐	☐
Bottle(s) broken or damaged in transport	☐	☐	☐	☐	☐	☐	☐
Discrepancy between sample label and chain of custody	☐	☐	☐	☐	☐	☐	☐
Analysis requirements absent / unclear	☐	☐	☐	☐	☐	☐	☐
Missing or incorrect sample label(s)	☐	☐	☐	☐	☐	☐	☐
Inappropriate sample container used	☐	☐	☐	☐	☐	☐	☐
Insufficient number of bottles received	☐	☐	☐	☐	☐	☐	☐
Limited sample volume	☐	☐	☐	☐	☐	☐	☐
Insufficient sample volume	☐	☐	☐	☐	☐	☐	☐
Sample contains multiple phases	☐	☐	☐	☐	☐	☐	☐
Sediment Log							
Groundwater samples contain visible sediment / particulate	☑	☐	☐	☐	☐	☐	☐
Groundwater contains greater than 1cm of sediment / particulate matter in bottle	☐	☐	☐	☐	☐	☐	☐

Additional Comments/Remarks:

No issues upon receipt ☐ Initials: KH





FINAL REPORT

CA14529-FEB19 R1

1-18-0718-42 535 Brant St. Burlington

Prepared for

Terraprobe Inc

FINAL REPORT

CA14529-FEB19 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Terraprobe Inc	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	11 Indell Lane Brampton, ON L6T 3Y3. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Prakash Patel	Telephone	705-652-2143
Telephone	(905) 796-2650	Facsimile	705-652-6365
Facsimile	(905) 796-2250	Email	brad.moore@sgs.com
Email	ppatel@terraprobe.ca	SGS Reference	CA14529-FEB19
Project	1-18-0718-42 535 Brant St. Burlington	Received	02/21/2019
Order Number		Approved	02/27/2019
Samples	Ground Water (4)	Report Number	CA14529-FEB19 R1
		Date Reported	05/19/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Temperature of Sample upon Receipt: 1 degrees C
Cooling Agent Present: Yes
Custody Seal Present: No

Chain of Custody Number: 002424

BH 106 - 4-Terphenyl-d14 surrogate recovery is outside control limits due to sample matrix. The overall quality control for this analysis has been assessed and meets method acceptability criteria.

RL raised for Cr(VI) on sampke #8 due to SM interference

SIGNATORIES

Brad Moore Hon. B.Sc

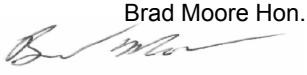


TABLE OF CONTENTS

First Page..... 1
Index..... 2
Results..... 3-10
Exceedance Summary..... 11
QC Summary..... 12-20
Legend..... 21
Annexes..... 22-23

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - BTEX** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	BH 104	BH 106	DUP	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
BTEX							
Benzene	µg/L	0.5	430	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	2300	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	18000	5.5	0.7	5.1	< 0.5
Xylene (total)	µg/L	0.5	4200	< 0.5	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
o-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - Hydrides** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9		
	Sample Name	BH 104	BH 106	DUP		
	Sample Matrix	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Hydrides						
Antimony	µg/L	0.02	20000	0.34	1.6	0.33
Arsenic	µg/L	0.2	1900	1.4	1.7	1.4
Selenium	µg/L	0.04	63	0.85	0.35	0.73

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - Metals and Inorganics** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9		
	Sample Name	BH 104	BH 106	DUP		
	Sample Matrix	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Metals and Inorganics						
Barium	µg/L	0.02	29000	106	509	112
Beryllium	µg/L	0.007	67	< 0.007	0.007	< 0.007
Boron	µg/L	2	45000	428	4930	451
Cadmium	µg/L	0.003	2.7	0.005	0.075	0.011
Chromium	µg/L	0.03	810	0.11	0.18	0.12
Cobalt	µg/L	0.004	66	0.219	1.47	0.221
Copper	µg/L	0.02	87	0.99	1.70	1.06
Lead	µg/L	0.01	25	0.02	0.22	0.06
Molybdenum	µg/L	0.01	9200	12.4	41.6	12.1
Nickel	µg/L	0.1	490	2.6	5.0	2.4
Silver	µg/L	0.002	1.5	< 0.002	0.040	0.004
Thallium	µg/L	0.005	510	0.009	0.170	0.020
Uranium	µg/L	0.002	420	3.81	5.70	3.84
Vanadium	µg/L	0.01	250	0.28	0.56	0.28
Zinc	µg/L	2	1100	5	6	6

Client: Terraprobe Inc
Project: 1-18-0718-42 535 Brant St. Burlington
Project Manager: Prakash Patel
Samplers: Nathan Brandt

PACKAGE: **REG153 - Na** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH 104	BH 106	DUP
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Na						
Sodium	µg/L	10	2.3e+006	349000	9950000	334000

PACKAGE: **REG153 - Other (ORP)** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH 104	BH 106	DUP
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Other (ORP)						
Mercury (total)	µg/L	0.01	2.8	< 0.01	< 0.01	< 0.01
pH	no unit	0.05		7.09	6.82	7.17
Chloride	µg/L	200	2.3e+006	740000	28000000	780000
Chromium VI	µg/L	0.2	140	< 0.2	< 2.0↑	< 0.2
Cyanide (free)	µg/L	2	66	< 2	< 2	< 2

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH 104	BH 106	DUP
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
PAHs						
Acenaphthene	µg/L	0.1	1700	0.12	< 0.1	0.12
Acenaphthylene	µg/L	0.1	1.8	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9		
	Sample Name	BH 104	BH 106	DUP		
	Sample Matrix	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
PAHs (continued)						
Anthracene	µg/L	0.1	2.4	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	0.1	4.7	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	0.01	0.81	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/L	0.1	0.75	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	µg/L	0.1	0.4	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	0.1	1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	µg/L	0.1	0.52	< 0.1	< 0.1	< 0.1
Fluroanthene	µg/L	0.1	130	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	0.1	400	0.15	< 0.1	0.16
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
1-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5
2-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5
Methylnaphthalene, 2-(1-)	µg/L	0.5	1800	< 0.5	< 0.5	< 0.5
Naphthalene	µg/L	0.5	6400	< 0.5	< 0.5	< 0.5
Phenanthrene	µg/L	0.1	580	0.18	< 0.1	0.19
Pyrene	µg/L	0.1	68	< 0.1	< 0.1	< 0.1

Client: Terraprobe Inc
Project: 1-18-0718-42 535 Brant St. Burlington
Project Manager: Prakash Patel
Samplers: Nathan Brandt

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH 104	BH 106	DUP
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
PHCs						
F1 (C6-C10)	µg/L	25	750	< 25	< 25	< 25
F1-BTEX (C6-C10)	µg/L	25		< 25	< 25	< 25
F2 (C10-C16)	µg/L	100	150	< 100	181	< 100
F3 (C16-C34)	µg/L	200	500	< 200	< 200	< 200
F4 (C34-C50)	µg/L	200	500	< 200	< 200	< 200
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES

PACKAGE: **REG153 - SVOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH 104	BH 106	DUP
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
SVOC Surrogates						
Surr Nitrobenzene-d5	Surr Rec %	-		83	73	79
Surr 2-Fluorobiphenyl	Surr Rec %	-		72	67	74
Surr 4-Terphenyl-d14	Surr Rec %	-		90	48	89
Surr 2-Fluorophenol	Surr Rec %	-		42	44	40
Surr 2,4,6-Tribromophenol	Surr Rec %	-		86	54	88

Client: Terraprobe Inc
Project: 1-18-0718-42 535 Brant St. Burlington
Project Manager: Prakash Patel
Samplers: Nathan Brandt

PACKAGE: **REG153 - THMs (VOC)** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	BH 104	BH 106	DUP	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
THMs (VOC)							
Bromodichloromethane	µg/L	0.5	85000	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	770	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L	0.5	82000	< 0.5	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - VOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	BH 104	BH 106	DUP	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates							
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		102	111	100	101
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		96	98	96	94
Surr 4-Bromofluorobenzene	Surr Rec %	-		93	93	91	92

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10
			Sample Name	BH 104	BH 106	DUP	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOCs							
Acetone	µg/L	30	130000	< 30	< 30	< 30	< 30
Bromomethane	µg/L	0.5	56	< 0.5	< 0.5	< 0.5	< 0.5
Carbon tetrachloride	µg/L	0.2	8.4	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	630	< 0.5	< 0.5	< 0.5	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	BH 104	BH 106	DUP	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	21/02/2019	21/02/2019	21/02/2019	21/02/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)							
Chloroform	µg/L	0.5	22	1.3	< 0.5	1.3	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	9600	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	9600	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	67	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2.0	4400	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	3100	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	µg/L	0.5	12	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	0.5	17	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	17	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	17	0.9	< 0.5	0.9	< 0.5
1,2-Dichloropropane	µg/L	0.5	140	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5	45	< 0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.83	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0	520	< 1	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	1.5e+006	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	580000	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	1400	< 2	< 2	< 2	< 2
Methylene Chloride	µg/L	0.5	5500	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	9100	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	17	0.5	< 0.5	0.7	< 0.5

Client: Terraprobe Inc

Project: 1-18-0718-42 535 Brant St. Burlington

Project Manager: Prakash Patel

Samplers: Nathan Brandt

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH 104	BH 106	DUP	Trip Blank
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				21/02/2019	21/02/2019	21/02/2019	21/02/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)							
1,1,1,2-Tetrachloroethane	µg/L	0.5	28	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	15	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	6700	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	30	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	17	0.8	< 0.5	0.7	< 0.5
Trichlorofluoromethane	µg/L	5.0	2500	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	1.7	< 0.2	< 0.2	< 0.2	< 0.2

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / GROUND WATER / FINE - TABLE 3 - All Types of Property Uses - UNDEFINED L1
BH 106				
F2 (C10 to C16)	CCME Tier 1	µg/L	181	150
Chloride	EPA300/MA300-Ions1.3	µg/L	28000000	2.3e+006
Sodium	SM 3030/EPA 200.8	µg/L	9950000	2.3e+006

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0301-FEB19	µg/L	200	<200	2	20	95	80	120	99	75	125
Chloride	DIO0335-FEB19	µg/L	200	<200	10	20	97	80	120	107	75	125

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0176-FEB19	µg/L	2	<2	ND	10	103	90	110	NV	75	125

Hexavalent Chromium by IC

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]IC-LAK-AN-008

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	DIO0311-FEB19	ug/L	0.2	<0.2	ND	20	89	80	120	87	75	125

QC SUMMARY

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0028-FEB19	ug/L	0.01	<0.01	ND	20	113	80	120	111	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0103-FEB19	µg/L	0.002	<0.002	NV	20	NV	90	110	NV	70	130
Arsenic	EMS0103-FEB19	µg/L	0.2	<0.2	3	20	94	90	110	97	70	130
Barium	EMS0103-FEB19	µg/L	0.02	<0.02	4	20	97	90	110	NV	70	130
Beryllium	EMS0103-FEB19	µg/L	0.007	<0.007	ND	20	98	90	110	102	70	130
Boron	EMS0103-FEB19	µg/L	2	<2	2	20	92	90	110	NV	70	130
Cadmium	EMS0103-FEB19	µg/L	0.003	<0.003	ND	20	98	90	110	101	70	130
Cobalt	EMS0103-FEB19	µg/L	0.004	<0.004	20	20	96	90	110	93	70	130
Chromium	EMS0103-FEB19	µg/L	0.03	<0.03	4	20	95	90	110	98	70	130
Copper	EMS0103-FEB19	µg/L	0.02	<0.02	1	20	95	90	110	83	70	130
Molybdenum	EMS0103-FEB19	µg/L	0.01	<0.01	2	20	91	90	110	87	70	130
Sodium	EMS0103-FEB19	µg/L	10	< 10	0	20	98	90	110	NV	70	130
Nickel	EMS0103-FEB19	µg/L	0.1	<0.1	0	20	96	90	110	89	70	130
Lead	EMS0103-FEB19	µg/L	0.01	<0.01	0	20	95	90	110	96	70	130
Antimony	EMS0103-FEB19	µg/L	0.02	<0.02	ND	20	101	90	110	103	70	130
Selenium	EMS0103-FEB19	µg/L	0.04	<0.04	ND	20	97	90	110	100	70	130
Thallium	EMS0103-FEB19	µg/L	0.005	<0.005	ND	20	97	90	110	95	70	130
Uranium	EMS0103-FEB19	µg/L	0.002	<0.002	9	20	95	90	110	97	70	130
Vanadium	EMS0103-FEB19	µg/L	0.01	<0.01	ND	20	95	90	110	96	70	130
Zinc	EMS0103-FEB19	µg/L	2	<2	ND	20	96	90	110	96	70	130
Silver	EMS0118-FEB19	µg/L	0.002	<0.002	ND	20	106	90	110	107	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0278-FEB19	µg/L	25	<25	3	30	104	60	140	91	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0273-FEB19	µg/L	100	<100	NSS	30	78	60	140	120	60	140
F3 (C16-C34)	GCM0273-FEB19	µg/L	200	<200	NSS	30	78	60	140	120	60	140
F4 (C34-C50)	GCM0273-FEB19	µg/L	200	<200	NSS	30	78	60	140	120	60	140

QC SUMMARY

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0335-FEB19	no unit	0.05	NA	1		101			NA		

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0266-FEB19	µg/L	0.5	< 0.5	NSS	30	76	50	140	NSS	50	140
2-Methylnaphthalene	GCM0266-FEB19	µg/L	0.5	< 0.5	NSS	30	75	50	140	NSS	50	140
Acenaphthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	85	50	140	NSS	50	140
Acenaphthylene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	87	50	140	NSS	50	140
Anthracene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	90	50	140	NSS	50	140
Benzo(a)anthracene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140
Benzo(a)pyrene	GCM0266-FEB19	ug/L	0.01	< 0.01	NSS	30	92	50	140	NSS	50	140
Benzo(b)fluoranthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	88	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0266-FEB19	µg/L	0.2	< 0.2	NSS	30	102	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	96	50	140	NSS	50	140
Chrysene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	92	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140
Fluroanthene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	95	50	140	NSS	50	140
Fluorene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	91	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0266-FEB19	µg/L	0.2	< 0.2	NSS	30	98	50	140	NSS	50	140
Naphthalene	GCM0266-FEB19	µg/L	0.5	< 0.5	NSS	30	72	50	140	NSS	50	140
Phenanthrene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	91	50	140	NSS	50	140
Pyrene	GCM0266-FEB19	µg/L	0.1	< 0.1	NSS	30	98	50	140	NSS	50	140

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1,1-Trichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,1,2,2-Tetrachloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	91	60	130	NSS	50	140
1,1,2-Trichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
1,1-Dichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,1-Dichloroethylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	99	60	130	NSS	50	140
1,2-Dichlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	100	60	130	NSS	50	140
1,2-Dichloroethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	94	60	130	NSS	50	140
1,2-Dichloropropane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
1,3-Dichlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
1,4-Dichlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Acetone	GCM0275-FEB19	µg/L	30	<30	NSS	30	89	60	130	NSS	50	140
Benzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Bromodichloromethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Bromoform	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	95	60	130	NSS	50	140
Bromomethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	50	140	NSS	50	140
Carbon tetrachloride	GCM0275-FEB19	µg/L	0.2	<0.2	NSS	30	99	60	130	NSS	50	140
Chlorobenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Chloroform	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
cis-1,2-Dichloroethene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140

QC SUMMARY

Volatile Organics (continued)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dibromochloromethane	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Dichlorodifluoromethane	GCM0275-FEB19	µg/L	2.0	<2	NSS	30	93	50	140	NSS	50	140
Ethylbenzene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Ethylenedibromide	GCM0275-FEB19	µg/L	0.2	<0.2	NSS	30	97	60	130	NSS	50	140
n-Hexane	GCM0275-FEB19	µg/L	1.0	<1	NSS	30	91	60	130	NSS	50	140
m/p-xylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Methyl ethyl ketone	GCM0275-FEB19	µg/L	20	<20	NSS	30	94	60	130	NSS	50	140
Methyl Isobutyl Ketone	GCM0275-FEB19	µg/L	20	<20	NSS	30	95	50	140	NSS	50	140
Methyl-t-butyl Ether	GCM0275-FEB19	µg/L	2.0	<2	NSS	30	94	60	130	NSS	50	140
Methylene Chloride	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
o-xylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
Styrene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	99	60	130	NSS	50	140
Tetrachloroethylene (perchloroethylene)	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
Toluene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	96	60	130	NSS	50	140
trans-1,2-Dichloroethene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	98	60	130	NSS	50	140
trans-1,3-Dichloropropene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	97	60	130	NSS	50	140
Trichloroethylene	GCM0275-FEB19	µg/L	0.5	<0.5	NSS	30	102	60	130	NSS	50	140
Trichlorofluoromethane	GCM0275-FEB19	µg/L	5.0	<5	NSS	30	100	50	140	NSS	50	140
Vinyl Chloride	GCM0275-FEB19	µg/L	0.2	<0.2	NSS	30	98	60	130	NSS	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

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

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

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

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

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-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

No: 002424

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Stephanie Vaithilingam
Received By (signature):
Received Date (mm/dd/yyyy): 02/21/19 (mm\dd\yy)
Received Time: 16:11
Custody Seal Present: ☐ NO
Custody Seal Intact: ☐ NO
Cooling Agent Present: ☑ ICE
Temperature Upon Receipt (°C): 5.0 5.3 1X3
CA 14529 - Feb 19
LAB LIMS #:

REPORT INFORMATION	INVOICE INFORMATION	PROJECT INFORMATION
Company: Terraprobe	☒ (same as Report Information)	Quotation #:
Contact: Prakash Patel	Company:	P.O. #:
Address: 11 Indell Lane	Contact:	Project #: 1-18-0718-42
Brampton Ont.	Address:	Site Location/ID: 535 Brant st. Burlington
Phone: 905 796 2650	Phone:	
Fax: ppatel@terraprobe.ca	Email:	
Email:		

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days) — TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: Rush Confirmation ID:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

Regulation 153/04: ☐ Table 1 ☒ Res/Park ☐ Table 2 ☐ Ind/Com ☐ Table 3 ☐ Agri/Other ☐ Table ____ — Soil Texture: ☒ Coarse ☐ Medium ☐ Fine

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☒ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PHC F1-F4 ☒ VOC ☒ BTEX ☒ BTEX/F1 ☐ F2-F4 ☐	PAH ☒ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	COMMENTS:
1	BH 104	Feb 21/19		13	GW		X	X	X						
2	BH 106	↓		↓	↓		X	X	X						
3	DUP			↓	↓		X	X	X						
4	Trip Blank			2				X (VOC)							
5															
6															
7															
8															
9															
10															
11															
12															

Observations/Comments/Special Instructions

Sampled By (NAME):	Nathan Brandt	**Signature:**	Date: 02/21/19 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME):	Nathan Brandt	**Signature:**	Date: 02/21/19 (mm/dd/yy)	Yellow & White Copy - SGS

SGS

SAMPLE INTEGRITY REPORT

Project Number: 1-18-0718-42

ONTARIO REGULATION 153/04

SGS Sample ID: CA 14529-Feb19

Date / Time Sampled: Feb21/19

Client Sample ID: See CofC

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

All except trip blank

Sample Specific Sample Integrity Violations							
Sample received past hold time	☐	☐	☐	☐	☐	☐	☐
Incorrect preservation (including no preservation where required)	☐	☐	☐	☐	☐	☐	☐
Headspace present in VOC vial (aqueous)	☐	☐	☐	☐	☐	☐	☐
Sample(s) received frozen	☐	☐	☐	☐	☐	☐	☐
Bottle(s) broken or damaged in transport	☐	☐	☐	☐	☐	☐	☐
Discrepancy between sample label and chain of custody	☐	☐	☐	☐	☐	☐	☐
Analysis requirements absent / unclear	☐	☐	☐	☐	☐	☐	☐
Missing or incorrect sample label(s)	☐	☐	☐	☐	☐	☐	☐
Inappropriate sample container used	☐	☐	☐	☐	☐	☐	☐
Insufficient number of bottles received	☐	☐	☐	☐	☐	☐	☐
Limited sample volume	☑	☐	☐	☐	☐	☐	☐
Insufficient sample volume	☐	☐	☐	☐	☐	☐	☐
Sample contains multiple phases	☐	☐	☐	☐	☐	☐	☐
Sediment Log							
Groundwater samples contain visible sediment / particulate	☐	☑	☐	☐	☐	☐	☐
Groundwater contains greater than 1cm of sediment / particulate matter in bottle	☐	☐	☐	☐	☐	☐	☐

Additional Comments/Remarks:

No issues upon receipt ☐ Initials: KH

* 2 vials from BH104 + Dup were rec'd empty - 2 vials we did rec were labelled limited sample.