PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
340 ARDAGH ROAD, CITY OF BARRIE, ONTARIO

Prepared For:

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Project: SP22-01117-00
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1. EXECUTIVE SUMMARY

Sirati and Partners Consultants Ltd. (SIRATI) was retained by Evans Planning (hereinafter referred to as the 'Client') to conduct a Phase Two Environmental Site Assessment (Phase Two ESA) of the property located at 340 Ardagh Road, Barrie, Ontario (hereinafter referred to as the "Phase Two Property' or the "Site"). It was understood that a residential townhouse redevelopment was proposed for the Site.

The Phase Two ESA was conducted in accordance with the Phase Two ESA Standard as defined by Ontario Regulation (O. Reg.) 153/04, as amended.

The Phase Two Property is located at 340 Ardagh Road, in Barrie, Ontario. The Property is located in the southwest quadrant of the City of Barrie in a residential land use setting. 340 Ardagh Road is located on the north side of Ardagh Road, northwest of the Ardagh Road and Neva Road intersection. The overall proposed residential development will include 334 Ardagh Road and 340 Ardagh Road.

The Phase Two Property is currently owned by King Rich Homes Group Ltd. The Site is rectangular in shape, each with a total property area of approximately 0.15 ha (approximately 1,478 m^2), sourced from Simcoe County Interactive Map web site. Based on aerial photography, the Site has been used for residential purposes since development in early 1970's. Currently, the Site has been developed with one (1) single storey (brick) residential dwelling (with basement level), garage and landscaped area. The general Site location is presented on Figure 1.

The Phase One Study Area consists of roadways, residential properties, including municipal parkland areas to the south, southwest and vacant undeveloped properties to the north and northwest and a school (institutional) to the north within the radius of 250 meters from the site boundaries.

The Phase Two ESA was completed based on the findings of the Phase One ESA completed by SIRATI:

- Phase One Environmental Site Assessment, 340 Ardagh Road, Barrie, Ontario, SIRATI, November. 23, 2022

The Phase One ESA identified three (3) areas of potential environmental concern (APECs) associated with historical potentially contaminating activities (PCAs) within the Phase One Study Area and recommended a Phase Two ESA investigation for the APECs.

APEC-1: Entire Property, PCA#-40 pesticide (including herbicides, fungicides and ant-fouling agents) manufacturing, processing, bulk storage and large-scale applications. Potential use of pesticides as a part of historical agricultural activities in the majority of the subject site.

APEC-2: Southwest area of Property, PCA#-28 Gasoline and Associated Products Storage in Fixed Tanks. Historical presence of heating oil AST in basement, southwest portion of structure/property.

APEC-3: East portion of the Property, PCA# Spill – Other. Unknown quantity of furnace oil spilled at 334 Ardagh Rd., located approximately 30 m east of 340 Ardagh Rd.

The Phase Two field investigation at the Site included drilling two (2) track mounted boreholes (BH/MW-03 and BH/MW-04). Groundwater monitoring wells were installed into two (2) borehole locations (BH/MW-03 and BH/MW-04). The advanced boreholes/monitoring wells extended to a maximum depth of 8.3 m below ground surface (mbgs). The groundwater was sampled from BH/MW-03 and BH/MW-04. The soil was

sampled form both of the borehole locations. The field investigation for the Phase Two ESA was carried out between January 20 to January 24, 2023 for drilling and soil sampling, February 27, 2023 for groundwater sampling.

A total of five (5) soil samples were submitted to AGAT for the analysis of one or more of the following parameters: petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), metals and inorganic (M&I) parameters (As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr-VI, Hg, low or high pH, EC and SAR), organochlorine pesticides (OCPs).

Three (3) groundwater samples (including one duplicate sample) were submitted to the laboratory for the analysis of one or more of the following compounds: PHCs, VOCs, metals, As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr (VI) and Hg. One (1) trip blank sample was submitted to analyses VOCs along with the groundwater samples for QA/QC purposes.

Based on the site conditions including land use and observed heterogeneity of the subsurface strata at the Site, the criteria of Table 2 Full Depth Generic Site Condition Standards in a potable ground water condition for Residential/ Parkland/ Institutional property use with course grained soils, *Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, Conservation and Parks (MECP) 2011 (MECP Table 2 RPI Standards or Criteria) was applied for the Site.

The analytical results of the soil samples indicated that all tested samples met the MECP Table 2 RPI (course) Standards for the tested parameters.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene.

Chloroform and Trichloroethylene are parameters of VOCs, found in two groundwater wells onsite. The Bromodichloromethane parameter (of VOCs) was also found in groundwater well BH/MW-03. It is recommended that the groundwater wells be monitored and resampled after sufficient purging and charging before sampling. The samples will be tested for these VOC parameters and the test results will confirm if the groundwater has been contaminated.

2. INTRODUCTION

Sirati and Partners Consultants Ltd. (SIRATI) was retained by Evans Planning (hereinafter referred to as the 'Client') to conduct a Phase Two Environmental Site Assessment (Phase Two ESA) of the property located at 340 Ardagh Road, Barrie, Ontario (hereinafter referred to as the "Phase Two Property' or the "Site"). It was understood that a residential townhouse redevelopment was proposed for the Site.

The Phase Two ESA consisted of a program of drilling, monitoring well installations, soil and groundwater sampling and testing and evaluation of analytical results to characterize soil and groundwater quality at the Site. The Phase Two ESA was conducted in accordance with the Phase Two ESA Standard as defined by Ontario Regulation (O. Reg.) 153/04, as amended.

2.1. Objective

The purpose of this Phase Two ESA was to investigate soil and groundwater quality at the Site based on the findings of the Phase One ESA completed by SIRATI (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022) in accordance with the procedures and requirements of O. Reg. 153/04, as amended.

2.2. Site Description

The Phase Two Property is located at 340 Ardagh Road, in Barrie, Ontario. The Site is located in the southwest quadrant of the City of Barrie in a residential land use setting. The Site is located on the north side of Ardagh Road, northwest of the Ardagh Road and Neva Road intersection. The overall proposed residential development will include the Properties 334 Ardagh Road and 340 Ardagh Road.

The Phase Two Property is currently owned by King Rich Homes Group Ltd. The Site is rectangular in shape, each with a total property area of approximately 0.15 ha (approximately 1,478 m^2), sourced from Simcoe County Interactive Map web site. Based on aerial photography, the Site has been used for residential purposes since development in early 1970's. Currently, The Site has been developed with one (1) single storey (brick) residential dwelling (with basement level), garage and landscaped area. The general Site location plan is presented on Figure 1.

Detail information of the Phase Two Property including the address, property identification number (PIN), legal description, zoning, and the Universal Transit Mercator (UTM) zone 17 T coordinates provided from Parcel Register for Property Identifier, dated 2022/11/08 and from the Client was listed in the following Table:

Table 1: PIN and Legal Description

Municipal Address	**Legal Description**	**(PIN)**	UTM Coordinates - Centre Point of the Site
340 Ardagh Road, Barrie, Ontario	Part of Lot 5, Registered Plan 1192, Except PT 17 & 23, 51R29800, City of Barrie, County of Simcoe	58763-1016 (LT)	Easting: 601600.74 m E Northing: 4911854.87 m N

At the time of the investigations for the Phase Two ESA, the Site was owned by King Rich Homes Group Ltd. The contact information is provided below:

Company Name:	King Rich Homes Group Ltd.
Company Address:	4 Dairy Avenue, Richmond Hill, ON, L4E 4X5
Contact Name:	Mr. Eugene Sturino
Contact Telephone:	647-991-7653
Contact email:	eugstu@hotmail.com

2.3. Current and Proposed Future Use

The Site is rectangular in shape, each with a total property area of approximately 0.15 ha (approximately 1,4786 m^2), sourced from Simcoe County Interactive Map web site. Based on aerial photography, the Site has been used for residential purposes since development in early 1970's. Currently, the Site has been developed with one (1) single storey (brick) residential dwelling (with basement level), garage and landscaped area.

Based on Preliminary Plan Drawings as provided by the client (334 & 340 Ardagh Road, Barrie, ON; Vulcan Design Inc.; September 21/22), ten (10) residential townhouse units (3-storeys with one basement level) will be constructed (see Appendix G for Preliminary Plan Drawings).

2.4. Applicable Site Condition Standards

Ontario Regulation 153/04 - Record of Site Condition, Part XV.1 of the Environmental Protection Act as amended - "O. Reg. 153/04, as amended" - establishes the legislative and regulatory requirements for contaminated sites in Ontario. The Ministry of the Environment, Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act," dated April 15, 2011, sets out the prescribed contaminants and applicable Site Condition Standards (SCS) for those contaminants for the purposes of O. Reg. 153/04, as amended. The MECP SCS are set out in Tables 1 to 9 criteria applicable for various site conditions.

The selection of the appropriate MECP SCS for a Phase Two ESA is dependent on several site-specific conditions, such as the existing/proposed property use, the existing/potential groundwater use, soil texture, depth to bedrock and proximity to the nearest body of water or areas of natural significance.

The MECP SCS applicable to the Site have been evaluated on the basis of the following rationale:

- The proposed future property use is residential.
- The Site is serviced by the municipal water supply. As such, groundwater is not expected to be used as a source of potable water.
- The predominant soil type on the Site is considered to be course textured.
- A search of the Areas of Natural and Scientific Interest (ANSI) map (2015), published by the Ministry of Natural Resources and Forestry (MNRF), identified no areas of natural significance at the Site.
- The pH values of soil samples collected from surface soil for depths less than 1.5 mbgs and for subsurface

soil for depths greater than 1.5 mbgs, respectively, were within the acceptable ranges of 5 to 9 for surface soil, and 5 to 11 for subsurface soil;

- The Phase Two Property is not environmentally sensitive as per the criteria in Section 41 of O. Reg. 153/04; the Site is not within 30 m of a water body.
- Borehole investigation identified that the Site is not in an area of shallow soil, as the bedrock was not encountered within 2.0 mbgs during the investigation; and
- Course textured soils standards are selected for the purpose of this assessment based on the grain size analysis

Based on the above noted characterization of the Site, the MECP Table 2 Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil Standard (course) - Residential/ Parkland/ Institutional Property Use were selected to be applicable for assessing the soil and groundwater quality at the Site (MECP Table 2 RPI Standards).

3. BACKGROUND INFORMATION

Based on the findings of the Phase One ESA completed by SIRATI (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022), the general physical setting of the subject site is summarized in Section 3.1. The Phase Two ESA was conducted to determine the soil and groundwater quality within each APEC. The Phase One ESA, Conceptual Site Model Plan showing the PCA's and APEC's is presented on Figure 2.

3.1. Physical Setting

3.1.1. Water Bodies

No surface water, lagoon, or standing water were observed on the Site. The nearest waterbody is Bear Creek, located approximately 320 m north, northwest the Phase One Property.

3.1.2. Areas of Natural Significance

A review of the interactive natural heritage area map published by the Ministry of Natural Resources and Forestry (MNRF) (2022) identified no areas of natural significance within the Phase Two Property.

3.1.3. Topography and Surface Water Drainage Features on the Phase Two Property

The topography of the site is relatively flat with a gentle slope rising in grade toward the north. According to Toporama, an online mapping database provided by the Government of Canada, the Site is situated at an approximate elevation of 246 to 248 meters above mean sea level (mAMSL). The inferred groundwater flow direction in the area is to the north, in a similar manner as the topography of the area.

3.1.4. Well-head Protection Areas or Other Municipal Designated Protection of Ground Water

The Site is located at wellhead protection area of D, which indicates that water and any pollution that may be present can reach the well within 25 years. Whether or not a human activity is or would become a significant drinking water threat depends on:

- where it is located in the WHPA (WHPA-A, B, C, D or E) and the vulnerability score of that area; and
- the type of materials and hazard rating of the activity.

Significant drinking water threats are likely to be in areas closest to the well (100-metre, 2-year and 5-year time-of-travel zones).

3.1.5. Properties Within the Phase One Study Area Served by Municipal Drinking Water System

Based on the information obtained from the SIRATI Phase One ESA report (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022), one (1) water well was located on the Site. No MECP water well records were available for the identified water well. No well tag was attached to the well.

A total of ten (10) water well records are listed within a 250m radius of the Site.

The Phase One study area is supplied by municipal drinking water.

3.1.6. Presence of Any Well for Human Consumption or an Agricultural use, where all properties in the Phase One Study Area are served by Municipal Drinking Water System

Based on the information obtained from the SIRATI Phase One ESA report (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022), one (1) water well was located on the 340 Ardagh Rd. Phase Two Property. No MECP water well records were available for the identified water well. No well tag was attached to the well. The well is not in use for the property according to the Client.

A total of ten (10) water well records are listed within a 250m radius of the Site.

The Phase One study area is supplied by municipal drinking water.

3.2. Past Investigations

The previous environmental investigation conducted at the Site are as follows:

Phase One Environmental Site Assessment, 340 Ardagh, Barrie, Ontario, Evans Planning, SIRATI FILE: SP22-01117-00, November 23, 2022.

The Phase One ESA identified following APECs and PCAs in the Phase Two Property:

APEC-1: Entire Property, PCA#-40 pesticide (including herbicides, fungicides and ant-fouling agents) manufacturing, processing, bulk storage and large-scale applications. Potential use of pesticides as a part of historical agricultural activities in the majority of the subject site.

APEC-2: Southwest area of Property, PCA#-28 Gasoline and Associated Products Storage in Fixed Tanks. Historical presence of heating oil AST in basement, southwest portion of structure/property.

APEC-3: East portion of the Property, PCA# Spill – Other. Unknown quantity of furnace oil spilled at 334 Ardagh Rd., located approximately 30 m east of 340 Ardagh Rd.

The Phase One ESA recommended a Phase Two ESA to investigate the APECs onsite.

Geotechnical Investigation Draft Report for Proposed Development at 334 Ardagh Road, Barrie, Ontario; file SP220117-00-A; March 10, 2023.

The geotechnical investigation involved the drilling of two (2) boreholes at the Property to a depth of 8.3 mbgs, as well as the installation of two (2) monitoring wells (BH/MW-03 and BH/MW-04) carried out between January 20 to January 24, 2023. Groundwater was identified to be 4.9mBGL and to 5.0 mBGL. The site soils generally consisted of an upper layer of topsoil and fill material (1.8 m to 2.7 m a maximum depth) over native soils. Native soils consisted of sand deposits with varied amounts of silt and varied amounts of gravel at BH/MW-03 and underlain by lean clay deposits interbedded with silt and sand at BH/MW-04. No bedrock was encountered at the maximum explored depth of 8.3 mbgs. No stained soil was encountered, no petroleum hydrocarbon impacted soils were encountered during borehole advancement.

Draft Hydrogeological Investigation Report, Proposed Development at 334 & 340 Ardagh Road, City of Barrie, Ontario; SIRATI File SP22-01117-00, April 2023.

The boreholes as completed during the geotechnical investigation were used for hydrogeological purposes. As reported, groundwater samples were collected from location BH/MW-04 and were analyzed for select parameters referenced in the City of Barrie Sewer Use By-Law 2021-002 (hydrogeological use). Based on the

reported laboratory results, detectable concentrations of some metals were reported, with concentrations of the analyzed select PHC, VOC and PAH parameters, reported below the laboratory detection limits with the exception of Phenols.

4. SCOPE OF INVESTIGATION

The Phase Two ESA was conducted to determine the soil and ground water quality within the Site. The Phase Two ESA was completed in accordance with the O. Reg. 153/04, as amended, and subject to the limitations outlined in Section 10 of this report.

The field work for this Phase Two ESA followed the procedures outlined in the Sampling and Analysis Plan (SAP) included in Appendix A.

4.1. Overview of Site Investigation

To address the APECs identified in the 2022 Phase One ESA conducted by SIRATI, The Phase Two ESA consisted of drilling two (2) machine advanced boreholes, monitoring well installations, soil and groundwater sample collection. The field investigation for the Phase Two ESA was carried out between January 20 to January 24, 2023 for drilling and soil sampling, February 27, 2023 and March 13, 2023 for groundwater sampling.

The field investigation included drilling two (2) (BH/MW-03 and BH/MW-04). Groundwater monitoring wells were installed into two (2) borehole locations (BH/MW-03 and BH/MW-04). The advanced boreholes/monitoring wells extended to a maximum depth of 8.3m below ground surface (mbgs). The groundwater was sampled from BH/MW-03 and BH/MW-04. The soil was sampled form both of the borehole locations. The soil and groundwater samples were collected from boreholes/monitoring wells and analyzed for one or more of the following parameters: PHCs, BETX, VOCs, OCP, and metals and inorganics.

The approximate locations of the boreholes/monitoring wells were shown on Figure 4. The rationale for the selection of boreholes and monitoring wells were shown in the table below:

Table 2: Borehole/Monitoring Well Rationale

Property Location	Area of Potential Environmental Concern	Location on Site	Borehole/ MW ID
340 Ardagh Road	APEC-1 #40. Pesticides (including herbicides, fungicides and anti-fouling agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications Potential use of pesticides as a part of historical agricultural activities in the majority of the subject site.	Entire Property	BH/MW-04
	APEC-2 #28. Gasoline and Associated Products Storage in Fixed Tanks The potential historical presence of heating oil AST in the basement of a residential building located southwest portion of the Phase One Property.	Southwest area of a dwelling	BH/MW-03
	APEC-3 #Spill - Other Presence of an unknown quantity of Furnace Oil spilled at 334 Ardagh Rd. Located approximately 30m east of the Phase One Property.	East portion of the Phase One Property	BH/MW-04

The scope of work for this Phase Two ESA included, but was not limited to the following tasks:

- Planned a site investigation through the preparation of a Sampling and Analysis Plan (refer to

Appendix A).

- Utility Locates was completed on site prior to subsurface investigation including electrical (hydro), natural gas, water supply, sanitary and storm sewer, telephone, cable and communication. Underground utilities were marked by local utility locates company representatives, and a private locator was retained to clear the borehole locations prior to drilling of the boreholes.
- Drilled and collected soil samples at all borehole locations (BH/MW-03, BH/MW-04), logged and field screened the soil samples through visual inspection and field measurement of total organic vapors (TOV) of the soil samples, and the selection of soil samples for laboratory analysis. Boreholes BH/MW-03 and BH/MW-04 were instrumented with a groundwater monitoring well.
- Developed the monitoring wells BH/MW-03 and BH/MW-04.
- Purge and collected groundwater samples from BH/MW-03 and BH/MW-04 for laboratory analysis.
- Submitted soil and groundwater samples under the Chain of Custody protocol to the accredited laboratories to carry out chemical analyses for contaminants of potential concern (COCs) in accordance with O. Reg. 153/04 - "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the MOE and dated March 9, 2004, as amended by O. Reg. 511/09, s. 22 ("Analytical Protocol")
- Reviewed and interpreted laboratory results of chemical analysis data and observations made during the site investigations.
- Prepared a Phase Two Conceptual Site Model (CSM) to identify locations and concentrations of contaminants (if any) above the applicable Site Condition Standards at the Site; and
- Prepared a Phase Two ESA report of the investigation findings, conclusions and recommendations.

4.2. Media Investigated

The media investigated for the Phase Two ESA included soil and groundwater at the Site. No sediment sampling was conducted as part of this Phase Two ESA.

Soil and groundwater samples were selected for chemical analysis to determine whether any COCs were present in the soil and groundwater in the locations of the APECs outlined in the SIRATI Phase One ESA (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022).

4.3. Phase One Conceptual Site Model

This Phase One Conceptual Site Model was prepared as part of the SIRATI Phase One Environmental Site Assessment (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022) conducted for the property located at 340 Ardagh Road, Barrie, Ontario. The Site Location Plan is included on Figure 1.

Based on the SIRATI 2022 Phase One, the Phase Two Property is located at 340 Ardagh Road, in Barrie, Ontario. The Property is located in the southwest quadrant of the City of Barrie in a residential land use setting, on the north side of Ardagh Road, northwest of the Ardagh Road and Neva Road intersection.

The Phase Two Property is currently owned by King Rich Homes Group Ltd. The Site is rectangular in shape

with a total property area of approximately 0.15 ha (approximately 1,478 m^2), sourced from Simcoe County Interactive Map web site. Based on aerial photography, the Site has been used for residential purposes since development in early 1970's. Currently, the Site has been developed with one (1) single storey (brick) residential dwelling (with basement level), garage and landscaped area. The Property Identification Numbers (PINs) and the legal description of the Phase One Property are listed in Table 1, Section 2.2 of this report.

The topography of the Site is relatively flat with a gentle slope rising in grade to the south. According to Toporama, an online mapping database provided by the Government of Canada, the Site is situated at an approximate elevation of 246 to 248 meters above mean sea level (mAMSL).

The Phase One Study Area consists of residential properties, including municipal parkland areas to the south, southwest and vacant undeveloped properties to the north and northwest and a school (institutional) to the north within the radius of 250 meters from the site boundaries.

The Site is surrounded by the following Properties:

- North – Residential properties
- East – Neva Rd., followed by residential properties
- South – Ardagh Road followed by residential properties
- West – Residential properties

4.3.1. Any Existing Buildings and Structures

The Phase Two Property at 340 Ardagh Rd. has been developed with one (1) single storey (brick) residential dwelling (with basement level), garage and landscaped area.

4.3.2. Water Bodies Located within the Phase One Study Area

No surface water, lagoon, or standing water were observed on the Site. The nearest waterbody is Bear Creek, located approximately 320 m north of the Phase One Property.

4.3.3. Areas of Natural Significance Located within the Phase One Study Area

A review of Ministry of Natural Resources and Forestry mapping (2022), indicates that that there are no Areas of Natural or Scientific Interest (ANSI) identified at the Phase One property. Lands identified as ANSI are located approximately 0.35 km south of the Phase One property (Allandale Lake Algonquin Bluffs).

4.3.4. Drinking Water Wells Located at the Phase One Property

Based on the SIRATI 2022 Phase One ESA an upon the information obtained from the "Water Well Information System" (WWIS) database and the MECP online database, no drinking water well information was available for the Site.

Based on the site reconnaissance completed during the Phase One ESA, one (1) water well was located at 340 Ardagh Rd., no well tag was attached to the well.

4.3.5. Roads within the Phase One Study Area

The Site is located adjacent to Ardagh Road and adjacent to Neva Road, in the City of Barrie, Ontario. The

neighboring lands to the north, east, west and south are residential use and roadways within the Phase One study area are assumed to be low density and residential.

4.3.6. Uses of Properties Adjacent to the Phase One Property

Adjacent properties consist of residential land use, municipal roadways, parkland and school (institutional) use within the radius of 250 meters, from the Site boundaries.

The Site is surrounded by the following Properties:

- North – Residential properties
- East – Neva Rd., followed by residential properties
- South – Ardagh Road followed by residential properties
- West – Residential properties

4.3.7. Identify and Locate Areas Where any Potentially Contaminating Activity Has Occurred

Potentially Contaminating Activities (PCAs) were identified at the Phase One Property and other properties within the Phase One Study Area based on the records review, interviews, and site reconnaissance. The PCAs identified are listed in Section 6 of this report in Table 6. The locations of PCAs are shown on Figure 2.

4.3.8. Identify and Locate any Areas of Potential Environmental Concern

The Areas of Potential Environmental Concern (APECs) identified at the Phase One Property that may have resulted from the PCAs identified within the Phase One Study Area are presented in Section 6 of this report in Table 7. The locations of APECs are shown on Figure 3.

4.3.9. Potential Underground Utilities to Affect Contaminant Distribution and Transport

The Phase One ESA site is serviced with municipal water and sewage services. The Site is also serviced with natural gas, communication and electricity services; as such, there is a likelihood of underground utilities within the Site. No other subsurface structures were observed or expected at the Property.

4.3.10. Regional or Site Specific Geological and Hydrological Information

According to Chapman and Putnam (1984), the Site is located within the Simcoe Lowlands, sand plain physiographic region (Nottawasaga Basin, bordering the Camp Borden Sand Plain). According to the Surficial Geology of Southern Ontario (Ontario Geological Survey, 2003) the Site is covered by Glaciolacustrine coarse-grained sediment, consisting of silt and sand matrix (secondary soil materials of clay and silt). Based on Map P.3212 Bedrock Topography Barrie Area (OGS, 1993), the overburden thickness in the area of the Site is approximately 170 m. According to the Paleozoic Geology of Southern Ontario (Ontario Geological Survey, 2007), the Site is underlain by the Middle Ordovician, Simcoe Group, Shadow Lake Formation and Lindsay Formation including limestone, dolostone, shale, arkose and sandstone (see Appendix H).

The topography of the Site is relatively flat with a gentle slope rising in grade to the south. According to Toporama, an online mapping database provided by the Government of Canada, the Site is situated at an approximate elevation of 246 to 248 meters above mean sea level (mAMSL).

4.3.11. Any Uncertainty or Absence of Information Obtained Could Affect the Validity of the Model

No uncertainty or absence of information noted in the Phase One ESA could affect the validity of this conceptual site model.

The SIRATI 2022 Phase One ESA findings recommend a Phase Two ESA at the Site to determine the soil and groundwater quality as per procedures and requirements outlined in O.Reg 153/04, as amended.

4.4. Deviations from Sampling and Analysis Plan

The field investigative and sampling program was carried out following the requirements of the SAP and no deviation occurred during the Phase Two ESA.

4.5. Impediments

The Phase Two Property was accessible at the time of the investigations and no physical impediments were encountered during the field investigations.

5. INVESTIGATION METHOD

5.1. General

This section of the report describes the various investigation methods used in the Phase Two ESA, including borehole drilling, soil sampling, monitoring well installation, groundwater sampling, analytical testing and remediation activities. All field work was conducted in accordance with the SAP in Appendix A.

Prior to initiating the drilling program, SIRATI arranged for underground utility locates. Private locates, including telephone, natural gas and electrical lines were completed by All Clear Locates under the supervision of SIRATI personnel. Each borehole location was also cleared. SIRATI also arranged for public locates to be conducted through Ontario One Call.

5.2. Drilling and Excavating

Drilling work was conducted by a licensed well contractor, Atcost Drilling Inc. under the supervision of SIRATI staff.

The field work (drilling) for this assessment was carried out on January 20, 2023. The drilling program consisted of drilling two (2) boreholes/monitoring wells advanced buy a trackmount Geoprobe (BH/MW-03 and BH/MW-04) to a maximum depth 8.3 mbgs. The advanced boreholes were instrumented with groundwater monitoring wells to collect soil and groundwater samples as well as performing groundwater monitoring.

Preventive measures were carried out to minimize cross contamination between borehole locations. Details are discussed in the SAP in Appendix A. The details of soil stratigraphy are outlined in borehole logs included in Appendix B and the geologic cross section profile in Figure 6.

SIRATI supervised the drilling activities, collected soil samples as discrete intervals, and recorded the physical characteristics of the soil, depth of soil samples and total depth of boreholes. Representative soil samples were recovered at regular intervals by taking split spoon samples during drilling.

5.3. Soil Sampling

The soil sampling for geological characterization and chemical analysis during this Phase Two ESA investigation was undertaken in accordance with the SAP in Appendix A.

Decontamination and other protocols were followed during sample collection and handling to minimize the potential for sample cross-contamination. New, dedicated disposable nitrile gloves were used for the handling and sampling of each retrieved soil core. The soil core samplers were decontaminated between sampling intervals by the drilling contractor using a potable water/phosphate-free detergent solution followed by rinses with potable water and de-ionized water. Wash and rinse waters were collected in sealed, labeled containers. Drill cuttings were placed in sealed drums upon completion of sampling activities.

Upon retrieval of the soil samples from the sampler, a portion of the soil sample was immediately transferred to the laboratory supplied containers, another portion was transferred to a Ziploc bag for the measurement of vapour concentrations, and the remaining sample was used for lithological observations and visual examination in the field. Measures for quality control were taken in the field and during transport to preserve sample integrity prior to chemical analysis. Recommended volumes of soil samples selected for chemical analysis were collected from the recovered cores into pre-cleaned, laboratory-supplied glass sample jars/vials identified

for the specified analytical test group. Samples intended for analysis of BTEX, PHC F1 to F4, VOCs, Metals & Inorganics, OCPs were collected using a laboratory-supplied soil core sampler, placed into vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. Soil samples were placed in clean coolers containing ice prior to and during transportation to AGAT Laboratories - Mississauga, Ontario (AGAT). The samples were transported and submitted to AGAT following Chain of Custody protocols for chemical analysis.

A total of five (5) soil samples were submitted to AGAT for the analysis of one or more of the following parameters: petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), metals and inorganic (M&I) parameters (As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr-VI, Hg, low or high pH, EC and SAR), organochlorine pesticides (OCPs). The rationale for the selection of the soil samples for analysis was based on the location, depth, texture, classifications and soil vapour concentrations of the samples, as summarized in the Table below:

Table 3: Soil Samples and Chemical Analysis Performed

Sample ID	Borehole / Monitoring Well ID	Date	Sample Depth (mbgs)	Soil Vapour Reading (ppm)	Chemical Analysis Performed
BH/MW-03-SS5	BH/MW-03	23-Jan-23	3.1-3.7	4	PHCs, BTEX, VOCs, M&I
BH/MW-03-SS8			7.6-8.2	1	PHCs, BTEX, VOCs, M&I
BH/MW-04-SS1	BH/MW-04	23-Jan-23	0.0-0.6	2	M&I, OCPs
BH/MW-04-SS6			4.6-5.2	0	PHCs, BTEX, VOCs, M&I
BH/MW-04-SS8			7.6-8.2	0	PHCs, BTEX, VOCs, M&I

5.4. Field Screening Measurements

A portion of each soil core was placed in a sealed Ziploc plastic bag and allowed to reach ambient temperature prior to field screening, using a RKI Instruments, Eagle Potable Multi-gas detector (with Methane Elimination Switch), S/N E2F426, operated in the methane elimination mode. The instrument measures combustible gases in the atmosphere. The monitor has a range of 0 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 outlines by RKI Instruments in “Instruction Manual Eagle Series Portable Multi-Gas Detector 71-0154RK” released March 11, 2016. The instrument was calibrated to hexane standards for both ppm and LEL prior to each use in accordance with the calibration procedures outlined in the instruction manual for the instrument. Our technician was trained by the supplier for the proper calibration procedure. The instrument is calibrated or tuned up by the supplier (Rice Environmental Engineering) seasonally. The measurements were 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 combustible vapors encountered in the subsurface during drilling and are used to aid in the assessment of the vertical and horizontal extent of contamination and the selection of soil samples for laboratory analysis.

5.5. Groundwater Monitoring Well Installation

A total of two (2) boreholes were converted into groundwater monitoring wells (BH/MW-03 and BH/MW-04) were installed at the Site. The monitoring wells were installed in general accordance with the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03, and were installed by licensed well contractors, Atcost Drilling Inc.

The monitoring wells consisted of a 3.0 m length of 50 mm diameter PVC screen and an appropriate length of PVC riser pipe. All pipe connections were factory machined threaded flush couplings. The annular space around the wells was backfilled with sand to an average height of 0.3 m to 0.6 m above the top of the screen. A bentonite seal was added from the top of the sand pack to approximately 0.3 mbgs. All the monitoring wells were completed with the above ground risers protected by steel monument casings that have been sealed into the ground with concrete.

When the monitoring wells are no longer required, they must be decommissioned in accordance with the procedure outlined in the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03.

5.6. Field Measurement of Groundwater Quality Parameters

The installed monitoring wells were developed to remove fine sediment particles potentially lodged in the sand pack and well screen to enhance hydraulic response with the surrounding formation water. Dedicated Waterra inertial lift pumps, low density polyethylene tubing was used for well development and groundwater sampling.

Well development continued until all standing water or a minimum of three (3) well volumes of groundwater had been removed.

5.7. Groundwater Sampling

Groundwater monitoring activities at the Site consisted of measuring the depth to groundwater level in each monitoring well so that groundwater flow direction could be determined. Water levels were measured with respect to the top of the casing by means of an electronic water level meter equipped with an interface probe. The water level measurements were recorded in a bound field notebook. The interface probe was decontaminated between monitoring well locations.

Three (3) groundwater samples (including one duplicate sample) were submitted to the laboratory for the analysis of one or more of the following compounds: PHCs, VOCs, metals, As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr (VI) and Hg.

During the groundwater sampling, groundwater samples proposed for analysis of dissolved metals were field filtered using dedicated 0.45-micron Water filters to remove any sediment in the groundwater samples as required by the Analytical Protocol.

Table 4: Groundwater Samples and Chemical Analysis Performed

Sample ID	Monitoring Well ID	Date	Chemical Analysis Performed
BH/MW-03	BH/MW-03	27-Feb-23	Metals and Inorganics, PHCs(F1-F4), VOCs, BTEX
BH/MW-04 (Duplicate)	BH/MW-04	27-Feb-23	Metals and Inorganics, PHCs(F1-F4), VOCs, BTEX
BH/MW-04	BH/MW-04	13-Mar-23	Metals and Inorganics, PHCs(F1-F4), VOCs, BTEX

5.8. Sediment Sampling

Sediment sampling was not within the scope of this Phase Two ESA.

5.9. Analytical Testing

AGAT performed chemical analysis on soil and groundwater samples collected from boreholes/monitoring wells at the Site. AGAT is an accredited laboratory under the Standards Council of Canada (SCC) and the Canadian Association for Laboratory Accreditation (CALA), in accordance with the international standard ISO/IEC 17025:2005 – General Requirements for the Competence of Testing and Calibration Laboratories. AGAT is accredited for all parameters required under Ontario Regulation 153/04 – Record of Site Condition, as outlined in the MECP Technical Update entitled "Laboratory Accreditation Requirements under the New Record of Site Condition Regulation (O. Reg. 153/04)."

5.10. Residue Management Procedures

The residue materials produced during the soil and groundwater sampling programs consisted of soil cuttings from drilling activities, decontamination fluids from equipment cleaning, and water from well development and purging. The soil cuttings generated from the drilling program were placed in labeled, sealed drums. All residue fluids (i.e., wash water and purged groundwater) generated during the sampling programs were also collected and left on-Site in these sealed drums.

The drums of soil cuttings and excess purged water will be hauled off-site by a licensed waste disposal contractor.

5.11. Elevation Surveying

The borehole elevations and monitoring wells (ground surface and top of casing) were surveyed by SIRATI personnel using a handheld device (Sokkia SHC500) which transmits signals from a constellation of satellites to determine the position and elevation of the boreholes/monitoring wells. The elevations at the borehole and monitoring well locations were presented in the borehole logs (Appendix B).

5.12. Quality Assurance and Quality Control Measures

A Quality Assurance and Quality Control (QA/QC) program, developed as part of the SAP (Appendix A), was followed by SIRATI to ensure that the integrity of the soil and groundwater samples was maintained and that they were representative of the site conditions. The QA/QC program was developed in accordance with the Analytical Protocol.

The jars and preservatives (where applicable) used in the collection of soil and groundwater samples were supplied by AGAT. The soil samples intended to be submitted for analysis of VOCs and PHC F1 were immediately preserved in laboratory provided methanol vials to sequester the volatile compounds.

The soil samples from the boreholes which were advanced using hollow stem augers were collected with split spoon samplers, which were decontaminated after the extraction of each sample.

The soil and groundwater samples were labelled as they were collected. Samples were stored in ice-packed coolers, until the samples were transported to the laboratory for chemical analysis.

The soil and groundwater samples were handed over to the laboratory by SIRATI personnel. Chains of Custody of the samples were logged with Chain of Custody forms. Copies of the forms are included in Appendices C and D.

As discussed in Section 5.5 above, the monitoring wells were installed by a licensed driller, direct drilling, with hollow stem augers. The hollow stem augers arrived at the Site in a pre-cleaned condition. The augers were cleaned with a brush and washed with a high-pressure water jet between monitoring well locations.

The stainless-steel sampling tools were decontaminated between sampling locations in the following sequence: cleaned with a brush to remove adhered soil and/or debris, washed with a dilute solution of Alconox, rinsed with potable water and distilled water, rinsed with methanol and allowed to air dry.

TOV concentrations were measured in the headspaces of the Ziploc bags containing soil samples to facilitate the selection of soil samples for analysis of VOCs and PHCs. The TOV measurements were performed using a MiniRAE 3000 Photoionization Detector (PID).

The laboratory quality assurance program included the analysis of laboratory duplicate samples, method blanks, matrix spikes and samples of reference materials, in accordance with the Analytical Protocol. These analytical results comprise portions of the Certificates of Analysis in Appendices C and D.

6. REVIEW AND EVALUATION

6.1. Geology

The detailed soil stratigraphy encountered in each borehole is provided on the borehole logs in Appendix B.

The general stratigraphy at the Site, as observed in the boreholes, consisted of an upper layer of sandy fill material (to a maximum depth of 2.7 m at 340 Ardagh Rd.) over native soils. Native soils consisted of sand deposits with varied amounts of silt and varied amounts of gravel underlain by lean clay deposits interbedded with silt and sand. No bedrock (auger refusal) was encountered at the maximum explored depth of 8.3 mbgs. A brief description of the soil stratigraphy at the Site is summarized as follows:

Asphalt: A 40 mm thick surficial layer of asphalt was encountered in borehole BH/MW-03.

Topsoil: A 230 mm thick surficial layer of topsoil was encountered at borehole BH/MW-04.

It should be noted that the thickness of topsoil observed at the borehole locations may not be representative for the entire site and should not be relied on to calculate the amount of topsoil that need to be stripped from the site.

Granular fill: A 200 mm thick layer of granular fill material consist of sand and gravel was observed directly below the surficial asphalt layer at borehole BH/MW-03.

Fill Material: A layer of fill material was observed underneath the granular fill layer in borehole BH/MW-03 and below the surficial topsoil layer in borehole BH/MW-04. The fill material mainly consists of sand to gravelly sand, trace to some silt, trace organics, and trace rootlets. Fill material was generally moist and brown and dark brown in color and extending to depths 1.8 m and 2.7 m below the existing grade.

The measured SPT 'N' values in the fill material ranged was 1 and 10 blows per 300 mm penetration, indicating very loose to loose compacted state.

Cohesionless Soil Deposits: A layer of native cohesionless soil soils consist of sand/ poorly graded sand with gravel to silty sand/ silty sand with gravel, trace cobbles, and trace clay was encountered in both boreholes underlaying the fill material. Native cohesionless deposits extend to depths ranging between 6.1 m below the existing grade (in BH/MW-04) and the termination depth (8.3 m) of the borehole (in BH/MW-03). Native cohesionless soil deposits were generally brown in color and moist to wet.

The measured SPT 'N' values in the cohesionless soil materials ranged from 10 to over 50 blows per 300 mm penetration, indicating compact to very dense material condition.

Grain size and Hydrometer analysis of cohesionless soil samples (BH/MW-03/SS4, BH/MW-04/SS7, and BH/MW-04/ SS5) was conducted, and the result is presented with the following fractions:

Clay: 1%
Silt: 6% to 30%
Sand: 57% to 68%
Gravel: 1% to 37%

Lean Clay: Native cohesive soil comprising of lean clay with sand, and trace gravel was encountered in borehole BH/MW-04 underlaying the cohesionless soils and extending to the termination depth (8.2 m) of the borehole.

The measured SPT 'N' values in the cohesive strata ranged from 14 to 21 blows per 300 mm penetration, indicating stiff to very stiff consistency.

Grain size analysis of two (2) cohesive soil samples (BH/MW-04/ SS7, and BH/MW-04/ SS8) were conducted, and the results are presented with the following fractions:

Clay: 14% and 30%
Silt: 44% and 57%
Sand: 25% and 29%
Gravel: 0% and 1%

One soil sample (BH/MW-04/ SS7) was also subjected to Atterberg limits testing. The liquid limit was found to be 25% and the plastic limit was measured at 15%. As such, the plasticity index of the tested soil is a 10% indicating an inorganic low plastic clay (cohesive). The average soil moisture content of the cohesive deposits at the borehole is at approximately 25% by weight and is equal to the liquid limit.

The approximate locations of the boreholes and monitoring wells are shown in Figure 4.

6.2. Groundwater Elevations and Flow Direction

As part of the SIRATI 2023 hydrogeological Investigation/Geotechnical Investigation for the overall development Site (334 and 340 Ardagh Road) and as part of this Phase Two ESA, four (4) monitoring wells (BH/MW-01, BH/MW-02A, BH/MW-03 and BH/MW-04) were installed and screened within the native soil in the upper aquifer. All four (4) of the groundwater monitoring wells installed by Sirati in January 2023 for the geotechnical and hydrogeological investigations were used to calculate groundwater flow direction. The groundwater flow direction at the Site appears to be towards the north. The groundwater contours and interpreted groundwater flow direction are shown on Figure 5.

On February 27, 2023 and March 13, 2023, groundwater levels were measured in the monitoring wells using an electronic oil/water interface probe. The groundwater levels of all monitoring wells were measured and documented in the Table below and are presented in the borehole logs in Appendix B.

The interface probe did not detect any free product within the monitoring wells. No visual evidence was observed that suggested the existence of free products within the groundwater.

Based on the groundwater elevations obtained from the geodetic ground elevation and the groundwater depth, the interpreted groundwater flow direction was expected to the north, similar to the topographical gradient of the area. Groundwater elevation and contours are presented in Figure 5.

Table 5: Summary of Groundwater Conditions

Monitoring Well	Ground Elevation (m)	Monitoring Well Depth (mbgs)	Screen Interval (mbgs)	MW Diameter (m)	Groundwater Level (mASL)	
					27/02/2023	13/03/2023
BH/MW-03	247.21	7.6	4.6 ~ 7.6	0.051	242.30	242.30
BH/MW-04	246.61	7.6	4.6 ~ 7.6	0.051	241.57	241.57

Note: mbgs- Meters Below Ground Surface, mASL meters above sea level

Based on groundwater elevations measured on March 13, 2023, the groundwater levels measured at BH/MW-03 and BH/MW-04 ranged from 4.91 mbgs at BH/MW-03 and to 5.04 mbgs at BH/MW-04, while elevations ranged from 241.57 mAMSL to 242.30 mASL.

6.3. Groundwater Hydraulic Gradient

The horizontal hydraulic gradient was estimated for the water table of the aquifer based on groundwater elevations.

The horizontal hydraulic gradient is calculated using the following equation:

$i = \Delta h/\Delta s$

Where,

i = horizontal hydraulic gradient

Δh (m) = groundwater elevation difference; and,

Δs (m) = separation distance.

Based on the groundwater records collected on February 27, 2023 and March 13, 2023, the horizontal hydraulic gradient was estimated for the aquifer water table based on the groundwater elevation contours map prepared for the Site to determine the groundwater flow direction. Based on the available information, the horizontal hydraulic gradient of the groundwater flow for the Site is 0.024 m/m (BH/MW-03 to BH/MW-04), and groundwater flow is toward the north.

6.4. Soil Texture

As part of the SIRATI 2023 geotechnical and hydrogeological investigations, grain size analyses was completed on soil samples BH/MW-03/SS4, BH/MW-04/SS7, BH/MW-04/ SS5 BH/MW-04/ SS7, and BH/MW-04/SS8 (see Section 6.1). The upper level cohesionless native soils are classified as being silty sand with gravel to poorly graded sand with trace gravel, trace cobbles. The lower-level native soils are classified as being interbedded lean clay and silty sand with trace gravel (see Appendix B for grain size distribution). The site condition standards for coarse textured soils were used in the assessment.

6.5. Soil Field Screening

The TOV concentrations measured in the headspaces of Ziploc sample bags returned readings ranging from 0.0 ppm to a maximum of 8 ppm, which are considered to be similar to background conditions.

6.6. Soil Quality

Following the scope of work, chemical analysis was performed on selected soil samples recovered from the boreholes. The selection of representative "worst case" soil samples was based on field screening, visual and/or olfactory evidence of impacts, and potential water-bearing zones. Copies of the laboratory Certificates of Analysis for the analyzed soil samples are provided in Appendix C.

A total of total of five (5) soil samples soil samples were submitted to AGAT for the analysis of one or more of the following parameters: petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), metals and inorganic (M&I) parameters (As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr-VI, Hg, low or high pH, EC and SAR), organochlorine pesticides (OCPs).

The pH values in the analyzed soil samples ranged between 7.14 and 7.28 for surface and subsurface soil. The pH values are within the acceptable range of 5 to 9 for surface soil (<1.5 mbgs) or 5 to 11 for subsurface soil (>1.5 mbgs), respectively. Therefore, the Site was not considered to be environmentally sensitive, as per criteria in Section 41 of O. Reg. 153/04, and the MECP Table 2 RPI (course) Standards were applicable for assessing the soil and groundwater quality at the Site. The analytical results indicated that the concentrations of the tested parameters for the analyzed soil samples met the MECP Table 2 RPI (course) Standards.

A summary of the analytical results and maximum concentrations for each contaminant of concern in soil samples was included in Appendix F.

6.7. Groundwater Quality

Copies of the laboratory Certificates of Analysis for the analyzed groundwater samples, together with the applicable MECP 2 RPI (course) Standards, are provided in Appendix D.

No evidence of free product (i.e., visible film or sheen) or odour was observed during monitoring well purging and groundwater sampling from the sampled wells. Additionally, no indications of non-aqueous phase liquids were identified by the water level meter, equipped with an interface probe, during groundwater level measurements. Groundwater samples to be analyzed for metal parameters were field filtered at the time of collection.

Three (3) groundwater samples (including one duplicate sample) were submitted to the laboratory for the analysis of one or more of the following compounds: PHCs, VOCs, metals, As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr (VI) and Hg. One (1) trip blank sample was submitted to analyses VOCs along with the groundwater samples for QA/QC purposes.

A review of the analytical results indicated that the concentrations of the tested parameters for the analysed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene. A summary of the analytical results and maximum concentrations for each contaminant of concern in groundwater samples is summarized in the below table and included within Appendix F. In addition, a plan view of chemical concentrations in groundwater was presented in Figure 7.

Table 6: Summary of Groundwater Exceedances

Borehole Location	Groundwater Sample ID	Sample Date	Exceeding Parameters	Concentration	Unit	MECP Table 2 RPI Standards
BH/MW-03	BH/MW-03	27-02-2023	Trichloroethylene	2.46	µg/L	1.6
			Chloroform	48.5	µg/L	2.4
			Bromodichloromethane	17.8	µg/L	16
BH/MW-04	BH/MW-04	13-03-2023	Trichloroethylene	2.18	µg/L	1.6
			Chloroform	13.9	µg/L	2.4
Dup	BH/MW-04	27-02-2023	Trichloroethylene	3.67	µg/L	1.6

The concentrations of the tested parameters for the remaining groundwater samples were below the MECP Table 2 RPI Standards.

6.8. Sediment Quality

As no surface water body was situated on-Site, the Phase Two ESA did not include sediment sampling.

6.9. Quality Assurance and Quality Control Results

The QA/QC samples for the Phase Two ESA investigation, that included the overall proposed development Site (334 Ardagh Road and 340 Ardagh Road) included field duplicates for soil (Dup 1 BH-01-SS7 from 334 Ardagh Road) and plus a set of trip blank samples for groundwater. The trip blank samples were submitted with groundwater samples for analysis of VOCs.

The purpose of the duplicate samples is to measure the precision or reproducibility of the field and laboratory methodology used in the collection and analysis of the samples. The precision is evaluated in terms of the relative percent difference (RPD). The RPDs of the primary and duplicate samples were not calculated in situations where both primary and duplicate samples were below the laboratory Reporting Detection Limits (RDLs) for all parameters analyzed.

Laboratory quality control limits for duplicate, method blank, method blank spike, matrix spike and surrogate recoveries were within the acceptable limits.

No tested parameters were detected in the trip blank samples.

All samples were handled in accordance with the Analytical Protocol, with respect to preservation methods, storage requirements or container type without any exception. Holding times were met for all samples.

The Relative Percent Difference (RPD) between the involved samples is calculated using the following formula:

$$RPD = \{(A–B) \div [(A+B)/2]\} \times 100$$

Where:

A = concentration of compound in the primary sample

B = concentration of compound in the duplicate sample

Notes:

- RPD is calculated only for result pairs with concentrations greater than 5 times of the method detection limit in both samples.

- RPDs are not calculated where results are below the laboratory minimum detection limits for sample pair.

The RPDs for the primary and duplicate samples were calculated (Appendix E).

The RPDs for the primary and duplicate samples were calculated, at less than recommended RPD listed above with the exception of the Vanadium parameter. All the soil parameters analyzed were below the applicable criteria including Vanadium concentrations at all borehole locations, and the RPD of 33% for the field duplicate comparing with the selected sample was only slightly over the 30% RPD threshold, and both sample results were less that the criteria. Therefore, no significant issue was present in the system and the results can be qualified.

The RPDs for all reported concentrations were not calculated considering that the soil and duplicate results were all below the laboratory minimum method detection limits or lesser than 5 times of the method detection limits in both samples. No other QA/QC concerns were noted.

Based on the review of QA/QC results of soil and groundwater samples, it is certified that:

All Certificates of Analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47 (3);

A Certificate of Analysis report has been received for each sample submitted for analysis; and;

All Certificates of Analysis or analytical reports received have been included in full in Appendices C and D of this Phase Two ESA report.

AGAT certified that the analytical methods and data met the requirements of the Analytical Protocol and that holding times were met for all samples.

Laboratory quality control limits for duplicate, method blank, method blank spike, matrix spike and surrogate recoveries were within the acceptable limits.

The data quality objectives (DQOs) of this investigation, as stated in the SAP (Appendix A), are as follows:

"DQOs for this Sampling and Analysis Plan are to obtain chemical analysis results of soil and groundwater samples which are unbiased and representative of the Site conditions and decisions regarding the compliance of the Site with applicable Site Condition Standards can be made with confidence.

To this end, all field activities for this investigation will be conducted in accordance with the procedures described in the SAP. Laboratory analyses will be performed in accordance with the MOE "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" amended as of July 1, 2011 ("Analytical Protocol"). The laboratory analytical data will be reviewed to ensure that the laboratory QA/QC is satisfactory; the RDLs of all parameters are below the applicable Site Condition Standards. These measures will ensure that the analytical data can be relied upon for required decision making."

The sampling and testing program was carried out in accordance with the SAP.

In summary, decision making was not affected by the quality of the data obtained and the overall objectives of the assessment were met.

6.10. Phase Two Conceptual Site Model

This Phase Two Conceptual Site Model (Phase Two CSM) was prepared as a part of the Phase Two Environmental Site Assessment (Phase Two ESA) by SIRATI.

6.10.1. Description and Assessment

The Phase Two Property is located at 340 Ardagh Road, in Barrie, Ontario. The Site is located in the southwest quadrant of the City of Barrie in a residential land use setting. The Site is located on the north side of Ardagh Road, northwest of the Ardagh Road and Neva Road intersection. The overall proposed residential development will include Properties at 334 Ardagh Road and 340 Ardagh Road.

The Phase Two Property is currently owned by King Rich Homes Group Ltd. The Site is rectangular in shape, with a total property area of approximately 0.15 ha (approximately 1,478 m^2), sourced from Simcoe County Interactive Map web site. Based on aerial photography, the Site has been used for residential purposes since development in early 1970's. Currently, the Site has been developed with one (1) single storey (brick) residential dwelling (with basement level), garage and landscaped area. The general Site location plan is presented on Figure 1.

The Property Identification Number (PIN) and the legal description of the Phase Two Property are listed as follows, (same as Table 1):

Municipal Address	**Legal Description**	**(PIN)**	UTM Coordinates - Centre Point of the Site
340 Ardagh Road, Barrie, Ontario	Part of Lot 5, Registered Plan 1192, Except PT 17 & 23, 51R29800, City of Barrie, County of Simcoe	58763-1016 (LT)	Easting: 601600.74 m E Northing: 4911854.87 m N

Source: Parcel Register (Abbreviated) For Property Identifier, dated 2022/11/08 as provided by the client.

6.10.1.1. Areas Where Potentially Contaminating Activity Has Occurred

The Phase One ESA completed by SIRATI (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022) identified two (2) on site and two (2) off site Potentially Contaminating Activities (PCA's) in the Phase One Study Area. The PCAs identified are listed in the table below and are shown on Figure 2.

Table 7: Potential Contaminating Activities (PCA) 340 Ardagh Road

Potentially Contaminating Activity	Location of PCA			Source of Information	Contributing to an APEC	Potentially Impacted Media (Ground Water, Soil and/or Sediment)
	On-site or off-site	Up-gradient (Y/N)	Proximity to Site Distance /Direction			
PCA -1 #40. Pesticides (including herbicides, fungicides and anti-fouling agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications Based on aerial photography, the Phase One Property was historically used for agriculture until 1965.	On -Site	NA	NA	Aerial Photography	Yes	Soil
PCA - 2 #28. Gasoline and Associated Products Storage in Fixed Tanks The potential historical presence of heating oil AST in the basement of the residential building, located southwest portion of the Phase One Property.	On-Site	NA	NA	Site reconnaissance	Yes	Soil and Groundwater
PCA - 3 #Other-Spill An unknown quantity of Furnace Oil spilled at 334 Ardagh Rd.	Off-Site	N	30 m east	ERIS	Yes	Soil
PCA - 4 #Other-Spill An unknown quantity of asphalt residue spilled from paving equipment near 15 Auburn Crt.	Off-Site	N	90 m west-northwest	ERIS	No	NA (Based on the distance and the location downgradient from the Phase One Property. It is not considered to influence the environmental condition of the Phase One Property.)

6.10.1.2. Areas of Potential Environmental Concern

Areas of Potential Environmental Concern (APECs) identified at the Phase Two Property that may have resulted from the PCAs identified within the Phase One Study Area are listed in table below and are shown on Figure 3.

Table 8: Area of Potential Environmental Concern (APEC) 340 Ardagh Road

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on the 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 Based on aerial photography, the 340 Ardagh Rd. Property has historically been used for agricultural purposes.	Entire Phase One Property	#40. Pesticides (including herbicides, fungicides and anti-fouling agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site	OCPs, M&I	Soil
APEC-2 340 Ardagh Road, observed filled holes in the foundation wall and abandoned venting.	Southwest area of a dwelling	#28. Gasoline and Associated Products Storage in Fixed Tanks	On-Site	M&I, PHCs, VOCs, and PAHs	Soil and Groundwater
APEC-3 Presence of an unknown quantity of Furnace Oil spilled at 334 Ardagh Rd. Located approximately 30m east of the Phase One Property.	East portion of the Phase One Property	#Spill - Other	Off-Site	M&I, PHCs,BTEX VOCs	Soil

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on the 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)
Notes: PHCs – Petroleum Hydrocarbons Fractions 1 to 4 (F1-F4) PAHs – Polycyclic Aromatic Hydrocarbons VOCs – Volatile Organic Compounds PCBs – Polychlorinated Biphenyls OCs - Organochlorine Pesticides Metals (Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni, Ag, Tl, U, V and Zn), Hydride forming metals (Sb, As, Se), as well as Na and Other Regulated Parameters (B-HWS, Cl-, CN-, Electric Conductivity, Cr-VI, Hg, Low or high pH, SAR) as per O. Reg 153/04 Analytical Method, amended July 1, 2011.					

6.10.1.3. Any Subsurface Structures and Utilities on, in or under the Phase Two Property that May Affect Contaminant Distribution and Transport

At the time of the assessment, the Phase Two Property was occupied by residential structures. Underground utilities and corridors are expected to be present in the Site.

6.10.2. Description of and, as Appropriate, Figures illustrating, Physical Setting of the Phase Two Property

6.10.2.1. Stratigraphy from Ground Surface to the Deepest Aquifer or Aquitard Investigated

According to Chapman and Putnam (1984), the Site is located within the Simcoe Lowlands, sand plain physiographic region (Nottawasaga Basin, bordering the Camp Borden Sand Plain). According to the Surficial Geology of Southern Ontario (Ontario Geological Survey, 2003) the Site is covered by Glaciolacustrine coarse-grained sediment, consisting of silt and sand matrix (secondary soil materials of clay and silt). Based on Map P.3212 Bedrock Topography Barrie Area (OGS, 1993), the overburden thickness in the area of the Site is approximately 170 m. According to the Paleozoic Geology of Southern Ontario (Ontario Geological Survey, 2007), the Site is underlain by the Middle Ordovician, Simcoe Group, Shadow Lake Formation and Lindsay Formation including limestone, dolostone, shale, arkose and sandstone (see Appendix H).

The detailed soil stratigraphy encountered in each borehole is provided on the borehole logs in Appendix B. Boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change.

The general stratigraphy at the Site, as observed in the boreholes, consisted of an upper layer of sandy fill material (to a maximum depth of 2.7 m) over native soils. Native soils consisted of sand deposits with varied amounts of silt and varied amounts of gravel underlain by lean clay deposits interbedded with silt and sand.

No bedrock (auger refusal) was encountered at the maximum explored depth of 8.3 mbgs. A brief description of the soil stratigraphy at the Site is summarized as follows.

A brief description of the soil stratigraphy at the Site is summarized as follows:

Asphalt: A 40 mm thick surficial layer of asphalt was encountered in borehole BH/MW-03.

Topsoil: A 230 mm thick surficial layer of topsoil was encountered at borehole BH/MW-04.

It should be noted that the thickness of topsoil observed at the borehole locations may not be representative for the entire site and should not be relied on to calculate the amount of topsoil that need to be stripped from the site.

Granular fill: A 200 mm thick layer of granular fill material consist of sand and gravel was observed directly below the surficial asphalt layer at borehole BH/MW-03.

Fill Material: A layer of fill material was observed underneath the granular fill layer in borehole BH/MW-03 and below the surficial topsoil layer in borehole BH/MW-04. The fill material mainly consists of sand to gravelly sand, trace to some silt, trace organics, and trace rootlets. Fill material was generally moist and brown and dark brown in color and extending to depths 1.8 m and 2.7 m below the existing grade.

The measured SPT 'N' values in the fill material ranged was 1 and 10 blows per 300 mm penetration, indicating very loose to loose compacted state.

Cohesionless Soil Deposits: A layer of native cohesionless soil soils consist of sand/ poorly graded sand with gravel to silty sand/ silty sand with gravel, trace cobbles, and trace clay was encountered in both boreholes underlaying the fill material. Native cohesionless deposits extend to depths ranging between 6.1 m below the existing grade (in BH/MW-04) and the termination depth (8.3 m) of the borehole (in BH/MW-03). Native cohesionless soil deposits were generally brown in color and moist to wet.

The measured SPT 'N' values in the cohesionless soil materials ranged from 10 to over 50 blows per 300 mm penetration, indicating compact to very dense material condition.

Grain size and Hydrometer analysis of cohesionless soil samples (BH/MW-03/SS4, BH/MW-04/SS7, and BH/MW-04/ SS5) was conducted, and the result is presented with the following fractions:

Clay: 1%
Silt: 6% to 30%
Sand: 57% to 68%
Gravel: 1% to 37%

Lean Clay: Native cohesive soil comprising of lean clay with sand, and trace gravel was encountered in borehole BH/MW-04 underlaying the cohesionless soils and extending to the termination depth (8.2 m) of the borehole.

The measured SPT 'N' values in the cohesive strata ranged from 14 to 21 blows per 300 mm penetration, indicating stiff to very stiff consistency.

Grain size analysis of two (2) cohesive soil samples (BH/MW-04/ SS7, and BH/MW-04/ SS8) were conducted, and the results are presented with the following fractions:

Clay: 14% and 30%
Silt: 44% and 57%
Sand: 25% and 29%
Gravel: 0% and 1%

One soil sample (BH/MW-04/ SS7) was also subjected to Atterberg limits testing. The liquid limit was found to be 25% and the plastic limit was measured at 15%. As such, the plasticity index of the tested soil is a 10% indicating an inorganic low plastic clay (cohesive). The average soil moisture content of the cohesive deposits at the borehole is at approximately 25% by weight and is equal to the liquid limit.

The approximate locations of the boreholes and monitoring wells are shown on Figure 4.

6.10.2.2. Hydrogeological Characteristics, including aquifers, aquitards and, in Each Hydrostratigraphic Unit, Where Contaminants Are Present, Lateral and Vertical Hydraulic Gradients

The Phase Two Property is located within the within the Nottawasaga Valley (S.P.A.) Source Protection Area which is located in the Nottawasaga Valley Source Protection Area. A watershed map provided by the Nottawasaga Valley Conservation Authority (NVCA) shows the Phase Two Property is situated within the Nottawasaga Valley (S.P.A.) Source Protection Area.

The topography of the Site is relatively flat with a gentle slope rising in grade to the south. According to Toporama, an online mapping database provided by the Government of Canada, the Site is situated at an approximate elevation of 246 to 248 meters above mean sea level (mAMSL). Groundwater flow is expected to flow towards the north, similar to the topographical grades.

As part of the SIRATI 2023 hydrogeological Investigation/Geotechnical Investigation for the overall development Site (334 and 340 Ardagh Road) and as part of this Phase Two ESA, four (4) monitoring wells (BH/MW-01, BH/MW-02A, BH/MW-03 and BH/MW-04) were installed and screened within the native soil in the upper aquifer. All four (4) of the groundwater monitoring wells installed by Sirati in January 2023 for the geotechnical and hydrogeological investigations were used to calculate groundwater flow direction. The groundwater flow direction at the Site appears to be towards the north. The groundwater contours and interpreted groundwater flow direction are shown on Figure 5.

Based on the groundwater records collected on February 27, 2023 and March 13, 2023, the horizontal hydraulic gradient was estimated for the aquifer water table based on the groundwater elevation contours map prepared for the Site to determine the groundwater flow direction. Based on the available information, the horizontal hydraulic gradient of the groundwater flow for the Site is 0.024 m/m (BH/MW-03 to BH/MW-04), and groundwater flow is toward the north.

6.10.2.3. Approximate Depth to Bedrock

No auger refusal occurred at the time of drilling to the maximum depth of 9.5 mbgs. Depth to bedrock is unknown. Based on Map P.3212 Bedrock Topography Barrie Area (OGS, 1993), the overburden thickness in the area of the Site is approximately 170 m.

6.10.2.4. Approximate Depth to Water Table

Based on groundwater elevations measured on March 13, 2023, the groundwater levels measured at BH/MW-

03 and BH/MW-04 ranged from 4.91 mbgs at BH/MW-03 and to 5.04 mbgs at BH/MW-04, while elevations ranged from 241.57 mAMSL to 242.30 mASL.

6.10.2.5. Any Respect in Which Section 35, 41 or 43.1 of the Regulation Applies to the Phase Two Property

MECP Table 2 Standards, with course textured soils, for Residential/ Parkland/ Institutional Property Use in a Potable groundwater condition was used to evaluate the environmental condition at the Phase Two Property. Therefore, Section 35 does apply to the Phase Two Property.

Based on the information obtained from the SIRATI Phase One ESA reports (Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; dated Nov. 23, 2022), no drinking water wells are located on the Phase Two Property. A total of ten (10) water well records are listed within a 250m radius of the Site. One (1) unlisted water well was located at 340 Ardagh Road during the SIRATI Phase One ESA reporting site reconnaissance. The well did not have a well tag.

Based on review of the MECP's Source Protection Information Atlas, the Site is in The City of Barrie, Ontario, Wellhead Protection Areas for Quantity (WHPA-Q1 and Q2) with low stress. The Site is greater than 1 km southwest of the nearest municipal groundwater supply well head. The Phase One study area is supplied by municipal drinking water.

Section 41 of the O. Reg. 153/04 does not apply due to the following:

The Phase Two Property is not within an area of natural significance,

The Phase Two Property does not include and is not adjacent to an area of natural significance or part of such an area.

The Phase Two Property does not include land that is within 30 m of an area of natural significance or part of such an area.

The pH values in the analysed soil samples ranged between 7.14 and 7.28 for surface and subsurface soil. The pH values are within the acceptable range of 5 to 9 for surface soil (<1.5 mbgs) or 5 to 11 for subsurface soil (>1.5 mbgs), respectively. Therefore, the Site was not considered to be environmentally sensitive, as per criteria in Section 41 of O. Reg. 153/04, and the MECP Table 2 RPI (course) Standards were applicable for assessing the soil and groundwater quality at the Site. The analytical results of soil samples met the MECP Table 2 RPI (course) Standards.

The Phase Two Property is not a shallow soil property, as the bedrock was not encountered within 2 mbgs during the investigation. There is no water body at the Site or within 30 m from the Site boundaries. Therefore, Section 43.1 of O. Reg. 153/04 (Site Condition Standards, Shallow Soil Property or Water Body) does not apply to the Phase Two Property.

6.10.2.6. Areas on, in or under the Phase Two Property Where Excess Soil is Finally Placed

At the time of investigation, no soil of unknown quality was brought from another property and placed on, in or under the phase two property for backfilling and/or grading purpose.

6.10.2.7. Approximate Locations of Any Proposed Buildings and Other Structures

Based on the information provided by the Client, SIRATI understood that the proposed redevelopment is for

residential use. Based on Preliminary Plan Drawings as provided by the client (334 & 340 Ardagh Road, Barrie, ON; Vulcan Design Inc.; September 21/22), ten (10) residential townhouse units (3-storeys with one basement level) will be constructed at the Site (see Appendix G for Preliminary Plan Drawings).

6.10.3. Contaminants Greater Than the Applicable Standards

Based on the information obtained from the Phase One ESA and Phase Two ESA, the Ministry of the Environment, Conservation and Parks (MECP) Table 2, Full Depth Generic Site Condition Standards in a 2 Potable Groundwater Condition for Residential/ Parkland/ Institutional property use with course textured soils under Part XV.1 of EPA (MECP Table 2 RPI Standards) was selected for assessing the soil and groundwater condition at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed soil samples met the MECP Table 2 RPI (course) Standards.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene (same as Table 6 in Section 6.7).

Borehole Location	Groundwater Sample ID	Sample Date	Exceeding Parameters	Concentration	Unit	MECP Table 2 RPI Standards
BH/MW-03	BH/MW-03	27-02-2023	Trichloroethylene	2.46	µg/L	1.6
			Chloroform	48.5	µg/L	2.4
			Bromodichloromethane	17.8	µg/L	16
BH/MW-04	BH/MW-04	13-03-2023	Trichloroethylene	2.18	µg/L	1.6
			Chloroform	13.9	µg/L	2.4
Dup	BH/MW-04	27-02-2023	Trichloroethylene	3.67	µg/L	1.6

6.10.3.1. Each Area Where A Contaminant Is Present on, in or under the Phase Two Property

There is no soil contamination greater than the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04.

The BH/MW-03 is located in the southwest area of the Site, adjacent to the residential structure and is associated with APEC-2. The BH/MW-04 is located in the central east area of the Site, near the east property boundary and is associated with APEC-1 and APEC-3.

6.10.3.2. The Contaminants Associated with Each Contaminated Area

There was no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04.

6.10.3.3. Each Medium in Which a Contaminant is Present

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04.

6.10.3.4. A Description and Assessment of What is Known About Each of the Contaminated Areas

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The BH/MW-03 is located in the southwest area of the Site, adjacent to the residential structure (driveway location) and is associated with APEC-2. No surface staining was noted during the PH1ESA site reconnaissance or during the PH2ESA site investigation. A 40 mm thick asphalt driveway surface over sandy fill soils extending to a depth of 1.8 mbgs (245.4 mASL) was encountered. Native sand to a depth of 6.1 mbgs (241.1 mASL) and native silty sand extending to the borehole termination depth of 8.3 mbgs (238.9 mASL) was encountered. The groundwater level was 4.91 mbgs (242.3 mASL) on March 13, 2023. No soil staining, no odours, no surface sheen identified.

The BH/MW-04 is located in the central east area of the Site (landscaped area of residential back-yard), near the east property boundary and is associated with APEC-3. No surface staining was noted during the PH1ESA site reconnaissance or during the PH2ESA site investigation. Topsoil with a thickness of 230mm over sand fill soils extending to a depth of 2.7 mbgs (243.94 mASL) was encountered. Native deposits of sand and gravel to a depth of 6.1 mbgs (240.5 mASL) over lean clay with sand extending to the borehole termination depth of 8.2 mbgs (238.4 mASL) was encountered. The groundwater level was 5.04 mbgs (241.57 mASL) on March 13, 2023. No soil staining, no odours, no surface sheen identified.

6.10.3.5. Distribution of Each Parameter Group, in Each Contaminated Area, for each Medium in Which the Contaminant is Present, Together with Figures Showing the Distribution

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04. The groundwater exceedance information can be found in Figure 7.

6.10.3.6. The Reason for Discharge of Contaminants Present at the Phase Two Property

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane,

Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04. The groundwater was within the groundwater monitoring wells without being discharged.

6.10.3.7. Migration of Contaminants Present at the Phase Two Property, including any Preferential Pathways

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property. No migration took place regarding sand soils.

The analytical results indicated that the concentrations of the tested parameters for the analysed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04. Migration within the groundwater may have taken place.

6.10.3.8. Climatic or Meteorological Conditions That May Have Influenced Distribution and Migration of the Contaminants

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property; as such, the climatic and meteorological condition has no effect on the contaminant's migration.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04.

Groundwater levels are subject to seasonal fluctuations and in response to weather events. Seasonal groundwater fluctuations and weather events may have an effect on the contaminant's migration.

6.10.3.9. Information Concerning Soil Vapour Intrusion of Contaminants into Buildings

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property. No vapour intrusion is expected from soil.

No vapour intrusion was encountered from the groundwater.

6.10.4. Cross-sections Showing Contaminants Greater than Standards, by Parameter Group

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property, however the groundwater had a few VOC parameters exceeding the criteria.

6.10.4.1. The Lateral and Vertical Distribution of Contaminants in Each Area and for Each Medium

The lateral and vertical distribution of contaminants in groundwater was not determined.

6.10.4.2. Approximate Depth to Water Table in Each Contaminated Area

The depth to the water table in each area can be found in Table 5.

6.10.4.3. Stratigraphy from Ground Surface to the Deepest Aquifer or Aquitard Investigated

The general stratigraphy at the Site, as observed in the boreholes, consisted of an upper layer of sandy fill material (to a maximum depth of 2.7 m) over native soils. Native soils consisted of sand deposits with varied

amounts of silt and varied amounts of gravel underlain by lean clay deposits interbedded with silt and sand. No bedrock (auger refusal) was encountered at the maximum explored depth of 8.3 mbgs.

6.10.4.4. Any Subsurface Structures and Utilities That May Affect Contaminant Distribution and Transport in Each Contaminated Area

The Site contained residential buildings, and the subsurface structures and utilities underground may affect contaminant distribution and transportation.

6.10.5. Potential Contaminant Sources, Transport Pathways, Human and Ecological Receptors, Receptor Exposure Point and Routes of Exposure

There is no soil parameter with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04.

- Potential contaminant sources are unclear at this time.
- Transport pathways include groundwater.
- Human and ecological receptors may potentially include an MECP unlisted groundwater well located on the Site.
- Receptor exposure point may include an MECP unlisted groundwater well located on the Site.

Routs of exposure may include an MECP unlisted groundwater well located on the Site and residential dwelling basement.

6.10.5.1. The Release Mechanisms

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property; as such, no release mechanism exists for soil media at this time.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04. The potential release mechanisms may include migration of the impacts in the groundwater.

6.10.5.2. Contaminant Transport Pathway

There is no soil parameter with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04. The impacts may transport via groundwater.

6.10.5.3. The Human and Ecological Receptors Located on, in or under the Phase Two Property

There is no soil contaminant with concentrations in excess of the applicable MECP Table 2 RPI (course) Standards at the Phase Two Property.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene at BH/MW-03 and Chloroform and Trichloroethylene at BH/MW-04. The Site is in the residential area with buildings, grassland and trees, however the groundwater is not likely to impact the human and ecological receptors due to the groundwater levels and the local drinking water being supplied by the city.

6.10.5.4. Receptor Exposure Point

The receptor exposure was not expected due to the groundwater levels and the local drinking water being supplied by the city.

6.10.5.5. Routes of Exposure

The impact could be exposed from the routes of groundwater, however it is not expected due to the groundwater levels and the local drinking water being supplied by the city.

6.10.6. Non-Standard Delineation

The groundwater wells are required to re-sample, to confirm the presence of contaminations. Delineation of the impact will be determined on the later stage.

6.10.7. Application of Exemption set in Paragraph 1, 1.1 or 2 of Section 49

The exemption set in Paragraph 1, 1.1 or 2 of Section 49 exemption does not apply to this investigation.

6.10.8. Application of Exemption set in Paragraph 3 of Section 49

The exemption set in Paragraph 3 of Section 49 exemption does not apply to this investigation.

7. CONCLUSIONS

Sirati and Partners Consultants Ltd. (SIRATI) was retained by Evans Planning (hereinafter referred to as the 'Client') to conduct a Phase Two Environmental Site Assessment (Phase Two ESA) of the property located at 340 Ardagh Road, Barrie, Ontario (hereinafter referred to as the "Phase Two Property' or the "Site"). It was understood that a residential townhouse redevelopment was proposed for the Site.

The Phase Two ESA was conducted in accordance with the Phase Two ESA Standard as defined by Ontario Regulation (O. Reg.) 153/04, as amended.

The Phase Two Property is located at 340 Ardagh Road, in Barrie, Ontario. The Property is located in the southwest quadrant of the City of Barrie in a residential land use setting. 340 Ardagh Road is located on the north side of Ardagh Road, northwest of the Ardagh Road and Neva Road intersection. The overall proposed residential development will include 334 Ardagh Road and 340 Ardagh Road.

The Phase Two Property is currently owned by King Rich Homes Group Ltd. The Site is rectangular in shape, each with a total property area of approximately 0.15 ha (approximately 1,478 m^2), sourced from Simcoe County Interactive Map web site. Based on aerial photography, the Site has been used for residential purposes since development in early 1970's. Currently, the Site has been developed with one (1) single storey (brick) residential dwelling (with basement level), garage and landscaped area. The general Site location is presented on Figure 1.

The Phase One Study Area consists of roadways, residential properties, including municipal parkland areas to the south, southwest and vacant undeveloped properties to the north and northwest and a school (institutional) to the north within the radius of 250 meters from the site boundaries.

The Phase Two ESA was completed based on the findings of the Phase One ESA completed by SIRATI:

- Phase One Environmental Site Assessment, 340 Ardagh Road, Barrie, Ontario, SIRATI, November. 23, 2022

The Phase One ESA identified three (3) areas of potential environmental concern (APECs) associated with historical potentially contaminating activities (PCAs) within the Phase One Study Area and recommended a Phase Two ESA investigation for the APECs.

APEC-1: Entire Property, PCA#-40 pesticide (including herbicides, fungicides and ant-fouling agents) manufacturing, processing, bulk storage and large-scale applications. Potential use of pesticides as a part of historical agricultural activities in the majority of the subject site.

APEC-2: Southwest area of Property, PCA#-28 Gasoline and Associated Products Storage in Fixed Tanks. Historical presence of heating oil AST in basement, southwest portion of structure/property.

APEC-3: East portion of the Property, PCA# Spill – Other. Unknown quantity of furnace oil spilled at 334 Ardagh Rd., located approximately 30 m east of 340 Ardagh Rd.

The Phase Two field investigation at the Site included drilling two (2) track mounted boreholes (BH/MW-03 and BH/MW-04). Groundwater monitoring wells were installed into two (2) borehole locations (BH/MW-03 and BH/MW-04). The advanced boreholes/monitoring wells extended to a maximum depth of 8.3 m below ground surface (mbgs). The groundwater was sampled from BH/MW-03 and BH/MW-04. The soil was

sampled form both of the borehole locations. The field investigation for the Phase Two ESA was carried out between January 20 to January 24, 2023 for drilling and soil sampling, February 27, 2023 for groundwater sampling.

A total of five (5) soil samples were submitted to AGAT for the analysis of one or more of the following parameters: petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), metals and inorganic (M&I) parameters (As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr-VI, Hg, low or high pH, EC and SAR), organochlorine pesticides (OCPs).

Three (3) groundwater samples (including one duplicate sample) were submitted to the laboratory for the analysis of one or more of the following compounds: PHCs, VOCs, metals, As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr (VI) and Hg. One (1) trip blank sample was submitted to analyses VOCs along with the groundwater samples for QA/QC purposes.

Based on the site conditions including land use and observed heterogeneity of the subsurface strata at the Site, the criteria of Table 2 Full Depth Generic Site Condition Standards in a potable ground water condition for Residential/ Parkland/ Institutional property use with course grained soils, *Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, Conservation and Parks (MECP) 2011 (MECP Table 2 RPI Standards or Criteria) was applied for the Site.

The analytical results of the soil samples indicated that all tested samples met the MECP Table 2 RPI (course) Standards for the tested parameters.

The analytical results indicated that the concentrations of the tested parameters for the analyzed groundwater samples were below the MECP Table 2 RPI (course) Standards with the exception of Bromodichloromethane, Chloroform and Trichloroethylene.

Chloroform and Trichloroethylene are parameters of VOCs, found in two groundwater wells onsite. The Bromodichloromethane parameter (of VOCs) was found in groundwater well BH/MW-03. It is recommended that the groundwater wells be monitored and resampled after sufficient purging and charging before sampling. The samples will be tested for these VOC parameters and the test results will confirm if the groundwater has been contaminated.

8. REFERENCES AND SUPPORTING DOCUMENTATION

• Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act., 2011

• Phase One Environmental Site Assessment 334 Ardagh Road, Barrie, Ontario; SIRATI & Partners, SP22-0117-00, dated Nov. 23, 2022

• Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario; SIRATI & Partners, SP22-0117-00, dated Nov. 23, 2022

• Geotechnical Investigation Draft Report for Proposed Development at 334 Ardagh Road, Barrie, Ontario; SIRATI & Partners, file SP220117-00-A; March 10, 2023

• Draft Hydrogeological Investigation Report, Proposed Development at 334 & 340 Ardagh Road, City of Barrie, Ontario; SIRATI File SP22-01117-00, April 2023

• Ministry of Natural Resources, Ontario Geologic Survey, 1984, The Physiography of Southern Ontario, Third Edition, L. J. Chapman and D. F. Putnam

• Ontario Geological Survey, Industrial Minerals Report 38, by D.F. Hewitt, S.E. Yundt, 1971

• Ministry of Northern Development and Mines, Map P.3212 Bedrock Topography Barrie Area, Holden, Thomas, Karrow, 1993

• Surficial Geology of Southern Ontario; Ontario Ministry of Northern Development, Mines and Forestry; https://www.geologyontario.mndm.gov.on.ca/ogsearth.html

• Bedrock Geology; Ontario Ministry of Northern Development, Mines and Forestry; https://www.geologyontario.mndm.gov.on.ca/ogsearth.html

• City of Barrie Sewer Use By-Law 2021-002

• Topographic map generator https://www.lioapplications.lrc.gov.on.ca/MakeATopographicMap/index.html?viewer=Make_A_Topographic_Map.MATM

• MECP Source Protection Information Atlas (Web Mapping, https://www.lioapplications.lrc.gov.on.ca/SourceWaterProtection/index.html?viewer=SourceWaterProtection.SWPViewer&locale=en-CA

• Nottawasaga Valley Conservation Authority, Web Mapping, https://www.nvca.on.ca/

• Ministry of the Environment, Conservation and Parks (MECP), Map: Well Records – Ontario.ca https://www.ontario.ca/page/map-well-records

• County of Simcoe Interactive Map https://opengis.simcoe.ca/

9. SIGNATURES

The Phase Two ESA was completed under the supervision of the Qualified Person (QP), Simon Xian, P.Eng., QP_{ESA}, as defined by O. Reg. 153/04, as amended, in accordance with O. Reg. 153/04 to the best knowledge. Should you have any questions regarding the information presented or limitations set in this report, please do not hesitate to contact our office.

Yours truly,

Sirati and Partners Consultants Ltd.

Sean O'Mara, P.Geo.

Manager - North

Simon Xian, P.Eng.

Senior Environmental Engineer
Environmental Services

10. LIMITATIONS AND USE OF THE REPORT

This report was produced for the sole use of the Client and may not be relied upon by any other person or entity without the written authorization of SIRATI.

This report was prepared by SIRATI for the sole purpose of identifying potential environmental constraints pertinent to the western portion of the above-listed property, including likelihood of environmental impacts on the soil and groundwater as a result of current and past uses of the Property. This report shall not be relied upon or transferred to any other party without the express written authorisation of SIRATI. It may contain material subject to copyright or obtained subject to license; unauthorised copying of this report will be in breach of copyright/license.

The findings and opinions provided in this document are given in good faith and are subject to the limitations imposed by employing assessment methods and techniques, appropriate to the time of derivation and within the limitations and constraints defined within this document. The findings and opinions are relevant to the dates when the report was written but should not necessarily be relied upon to be appropriate at a substantially later date. In particular, changes to model algorithms and input parameters as a result of more recent publication by the authorities such as MECP, may affect the conceptual understanding upon which the Assessment Criteria (AC) were derived. The assessment should therefore not be considered as a comprehensive audit that would eliminate all environmental risks associated with the subject Property. The conclusions arrived at and assessment of subsurface conditions were based on information collected at the time of conducting the fieldwork at specific borehole/test-pit/ sampling points and/or monitoring well locations. The actual subsurface conditions may vary.

Factual information has largely been obtained from authoritative sources; however, where authoritative information is unavailable or is in draft format, modification to the input data maybe required as and when authoritative information is published. Where such information might impact upon stated opinions, SIRATI reserves the right to modify such opinions expressed herein.

The findings and opinions conveyed, via this report, are based on information obtained from a variety of sources as detailed in this report, and which SIRATI assumes to be reliable, but have not been independently confirmed. Therefore, SIRATI cannot and does not guarantee the authenticity or reliability of third-party information it has relied upon.

Where opinions expressed in this report are based on current available guidelines and legislation, no liability can be accepted by SIRATI for the effects of any future changes to such guidelines and legislation.

This information given herein should be read in conjunction with the contract documents. Any contradiction in sampling regime should be addressed by the project leader or contract manager.

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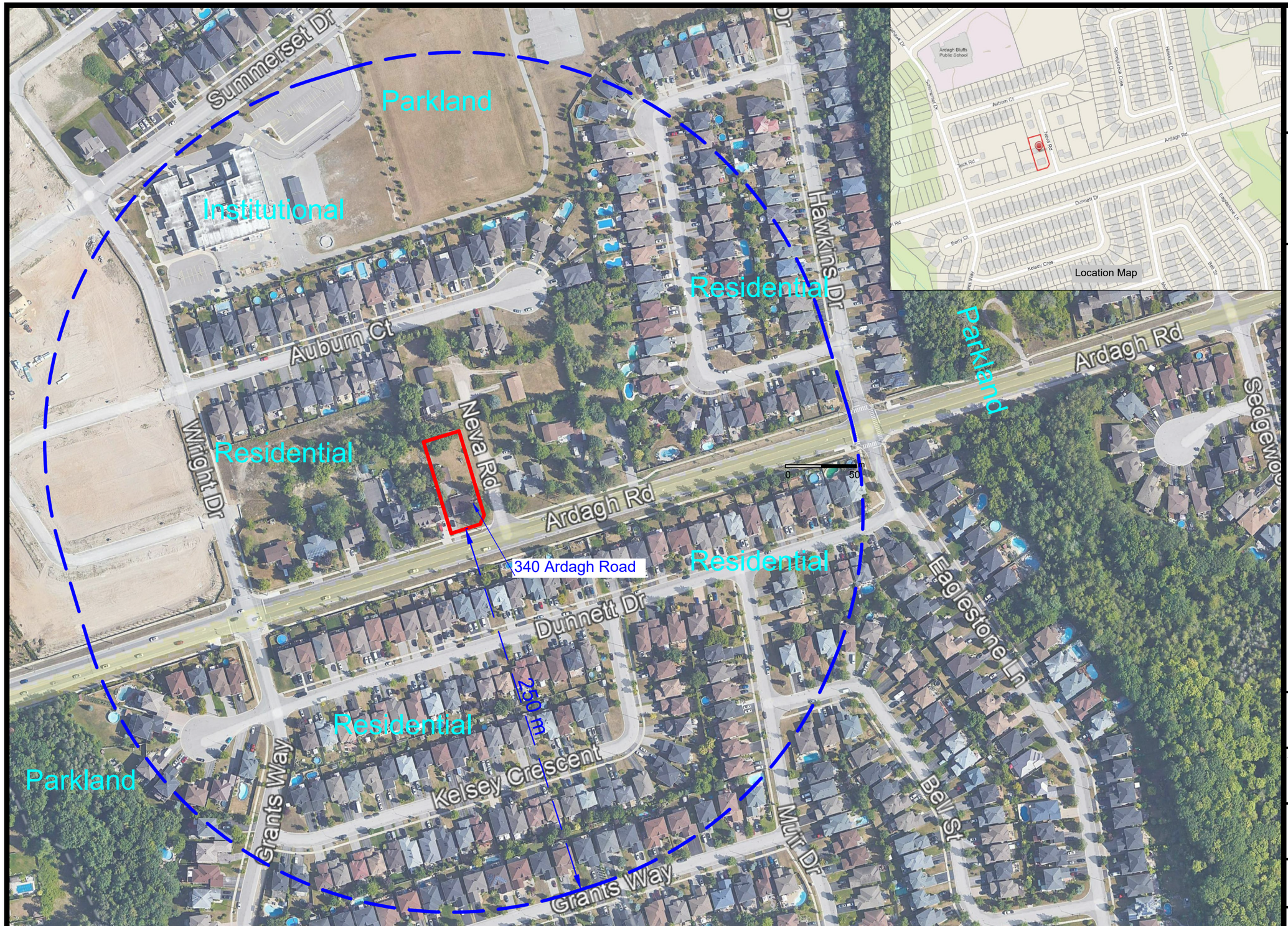
FIGURES

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions



Source: Google Earth Map

SIRATI & PARTNERS
160 Konrad Crescent
Markham, ON. L7B 1H5
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

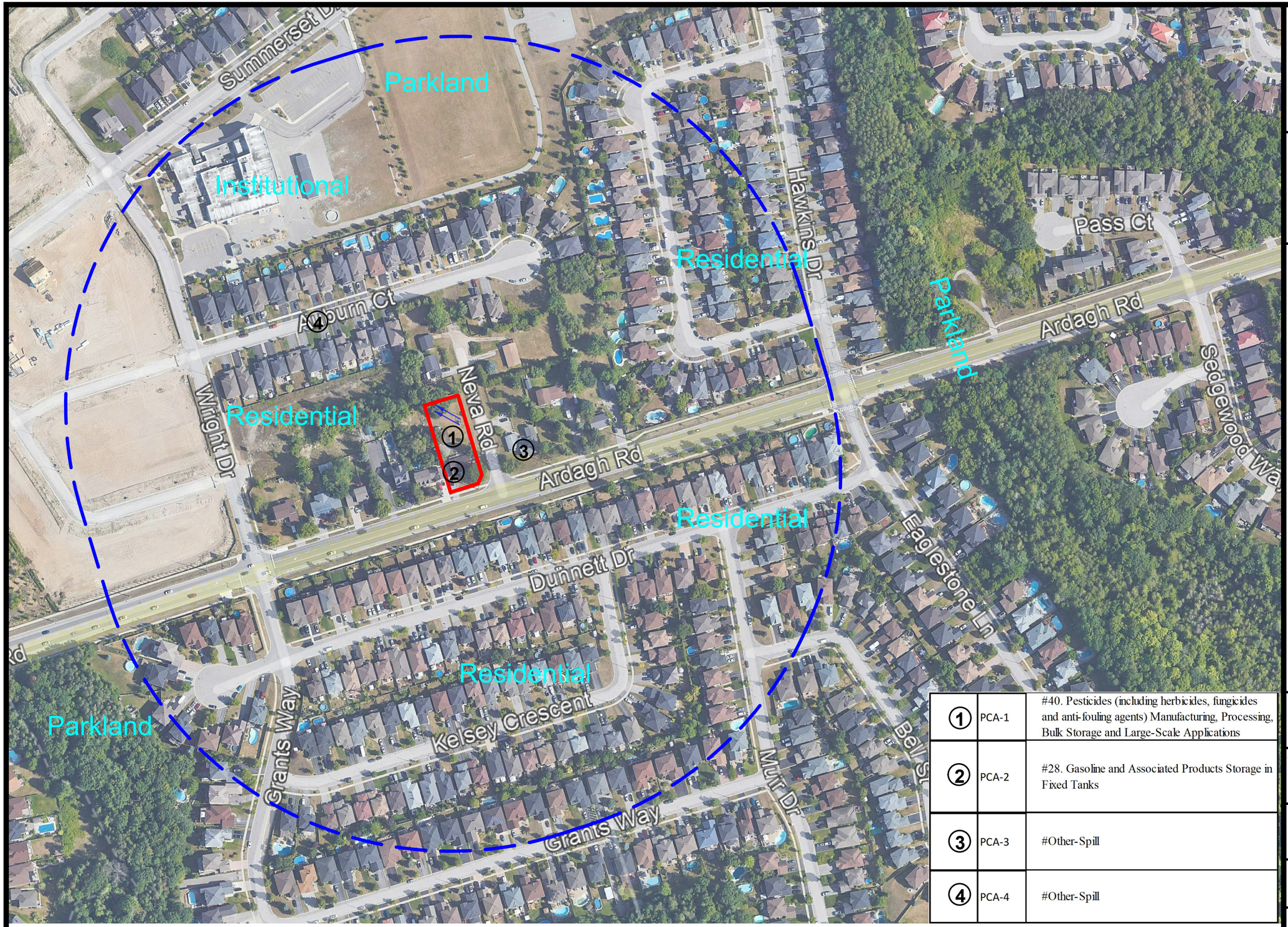
- Approximate Property Boundary
- 250 M Study Area

Project Title:
Phase One Environmental Site Assesment

Site Location:
340 Ardagh Road, Barrie, Ontario

Figure Title:
Site Location Plan

Scale:	Project Number:
As Shown	SP22-01117-0B
Date:	**Figure Number:**
November, 2022	1



①	PCA-1	#40. Pesticides (including herbicides, fungicides and anti-fouling agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
②	PCA-2	#28. Gasoline and Associated Products Storage in Fixed Tanks
③	PCA-3	#Other-Spill
④	PCA-4	#Other-Spill

Source: Google Earth Map

0 50 m

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160 Konrad Crescent
Markham, ON. L7B 1H5
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

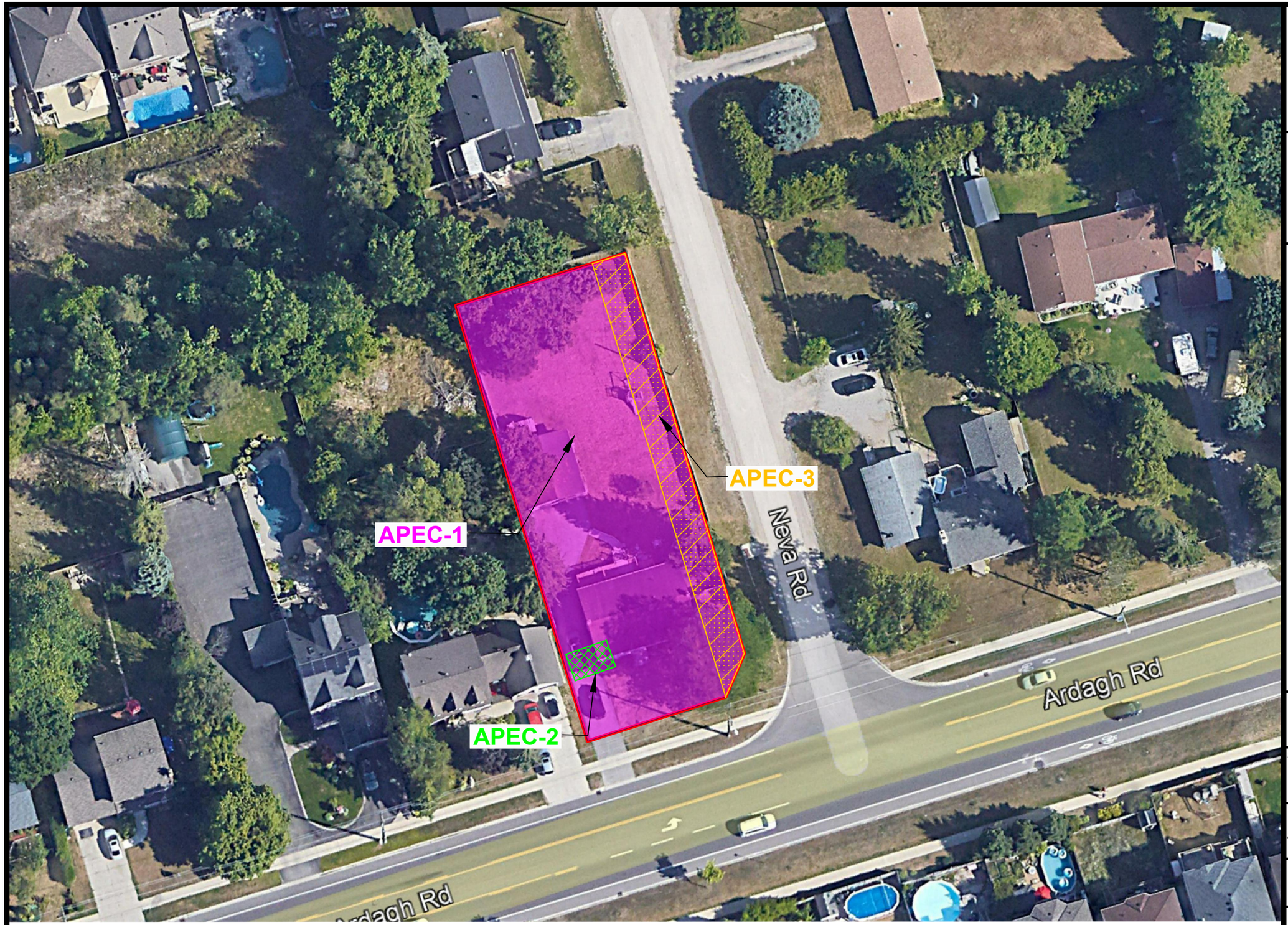
- Approximate Property Boundary
- 250 M Study Area
- Ground Water Flow Direction

Project Title:
Phase One Environmental Site Assesment

Site Location:
340 Ardagh Road, Barrie, Ontario

Figure Title:
Potentially Contamiating Activities (PCA's)

Scale:	Project Number:
As Shown	SP22-01117-0B
Date:	**Figure Number:**
November, 2022	2



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160 Konrad Crescent
Markham, ON. L7B 1H5
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

Approximate Property Boundary

340 Ardagh Road, Barrie, Ontario		
APEC-1		#40. Pesticides (including herbicides, fungicides and anti-fouling agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
APEC-2		#28. Gasoline and Associated Products Storage in Fixed Tanks
APEC-3		#Other-Spill

Project Title:

Phase One Environmental Site Assesment

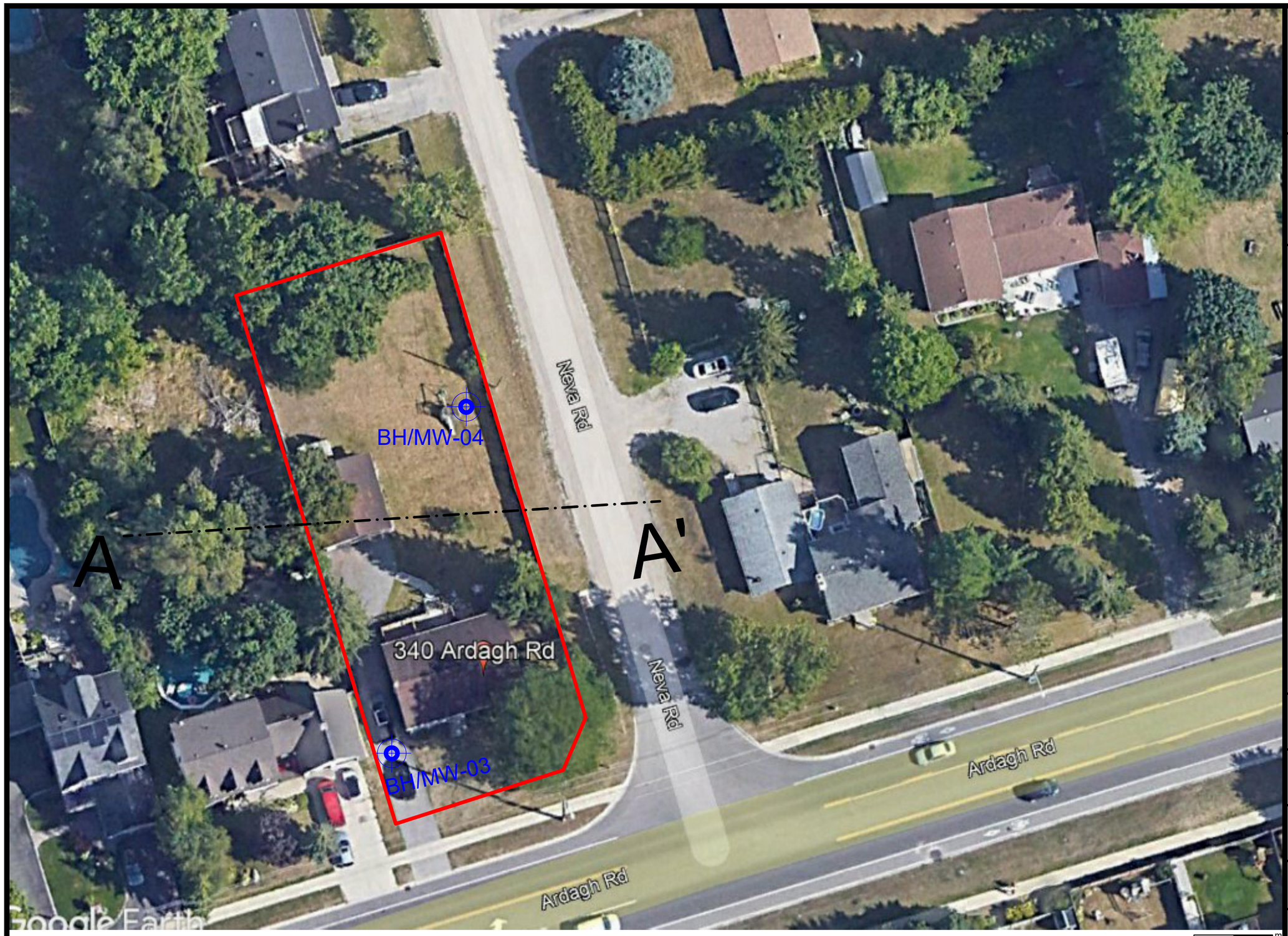
Site Location:

340 Ardagh Road, Barrie, Ontario

Figure Title:

Area of Potential Environmental Concerns (APECs)

Scale:	Project Number:
As Shown	SP22-01117-0B
Date:	**Figure Number:**
November, 2022	3



Source: Google Earth Map

0 10 m

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160 Konrad Crescent
Markham, ON. L7B 1H5
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

Approximate Property Boundary

Borehole/Monitoring well

Project Title:

Phase Two Environmental Site Assesment

Site Location:

340 Ardagh Road, Barrie, Ontario

Figure Title:

Borehole/Monitoring Well and Cross Section Location Plan

Scale:	Project Number:
As Shown	SP22-01117-0B
Date:	**Figure Number:**
January, 2023	4

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160 Konrad Crescent
Markham, ON. L3R 9T9
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

- Approximate Property Boundary
- Contour Line
- Inferred Shallow Groundwater Flow Direction
- Monitoring well

Note: Groundwater Elevation were obtained on March 13, 2023

Project Title:

Phase Two Environmental Site Assesment

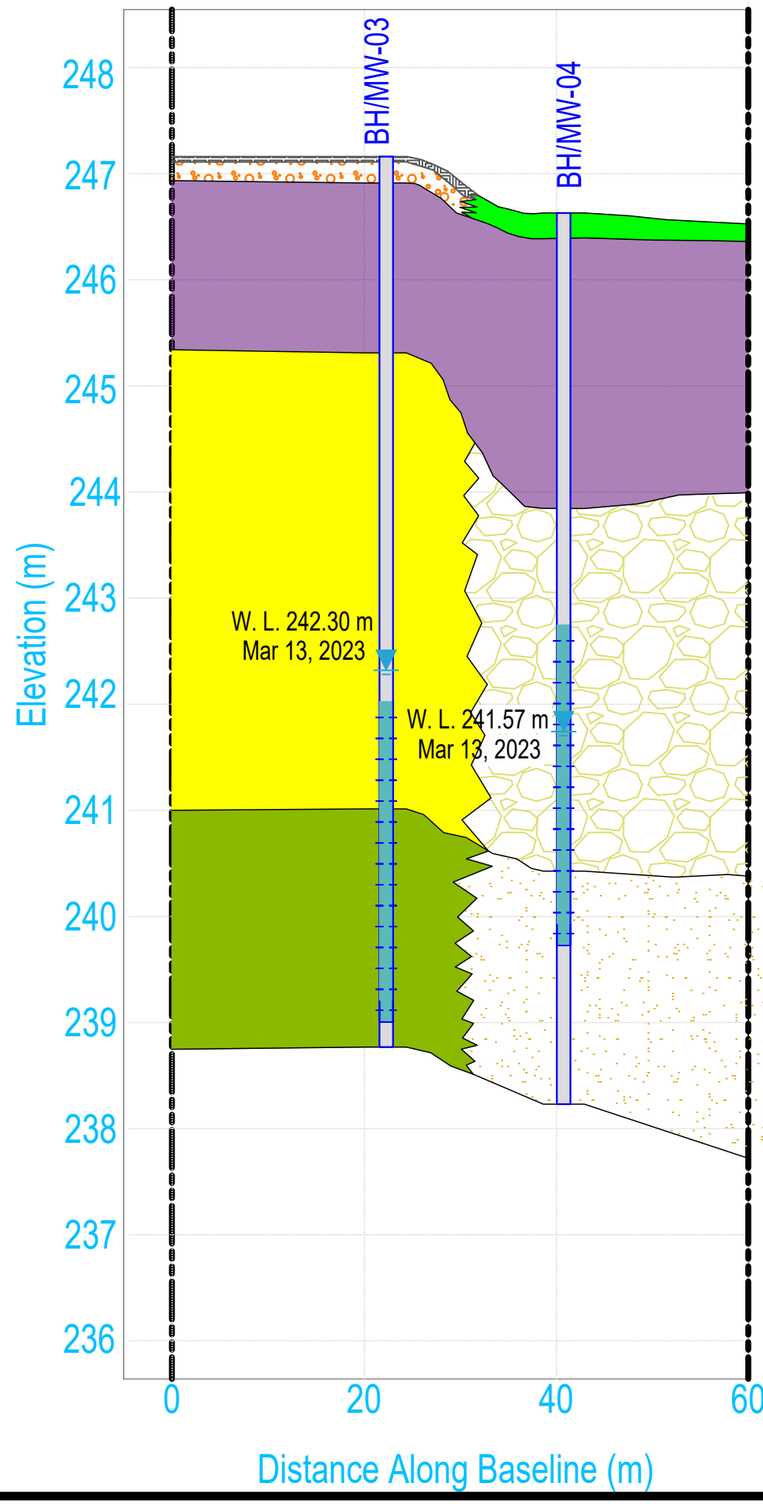
Site Location:

340 Ardagh Road,
Barrie, Ontario

Figure Title:

Inferred Groundwater Flow Direction Map

Scale:	Project Number:
As Shown	SP22-01117-00
Date:	**Figure Number:**
March, 2023	5



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160 Konrad Crescent
Markham, ON. L3R 9T9
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

- Topsoil
- Asphalt
- Granular Fill
- Fill
- Sand
- Silty Sand
- Gravelly Sand
- Lean Clay with Sand

BH/MW-XX
- Borehole / Well ID
- Water Level
- Well Screen

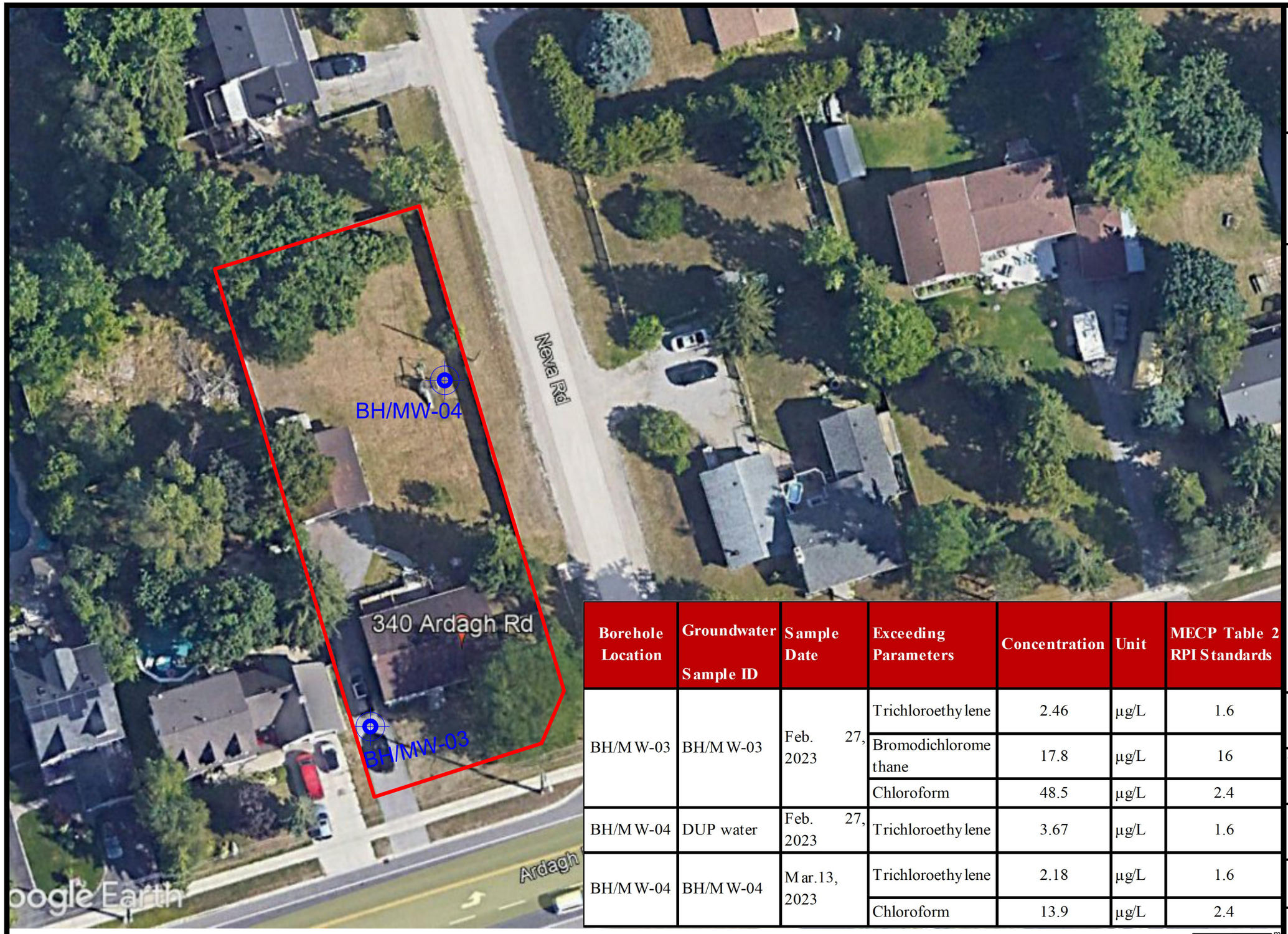
Note: Groundwater Elevation were obtained on March 13, 2023

Project Title:
Phase Two Environmental Site Assessment

Site Location:
340 Ardagh Road,
Barrie, Ontario

Figure Title:
Geologic Cross Section profile A-A'

Scale:	Project Number:
N.T.S	SP22-01117-00
Date:	**Figure Number:**
March, 2023	6



Source: Google Earth Map

Borehole Location	Groundwater Sample ID	Sample Date	Exceeding Parameters	Concentration	Unit	MECP Table 2 RPI Standards
BH/MW-03	BH/MW-03	Feb. 27, 2023	Trichloroethylene	2.46	µg/L	1.6
			Bromodichloromethane	17.8	µg/L	16
			Chloroform	48.5	µg/L	2.4
BH/MW-04	DUP water	Feb. 27, 2023	Trichloroethylene	3.67	µg/L	1.6
BH/MW-04	BH/MW-04	Mar.13, 2023	Trichloroethylene	2.18	µg/L	1.6
			Chloroform	13.9	µg/L	2.4

0 10 m

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160 Konrad Crescent
Markham, ON. L7B 1H5
Phone# 905 940 1582, Fax# 905 940 2440

North:

N

Legend:

Approximate Property Boundary

Borehole/Monitoring well

Project Title:
Phase Two Environmental Site Assesment

Site Location:
340 Ardagh Road, Barrie, Ontario

Figure Title:
Plan View of Chemical Concentrations in Groundwater

Scale:	Project Number:
As Shown	SP22-01117-00
Date:	**Figure Number:**
April, 2023	7

APPENDICES

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

APPENDIX A

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

SAMPLING AND ANALYSIS PLAN

This Sampling and Analysis Plan is prepared for a Phase Two Environmental Site Assessment (Phase Two ESA) as defined by Ontario Regulation (O. Reg.) 153/04, as amended. The Phase Two Property is located at 340 Ardagh Road, Barrie, , Ontario. The total area of the Phase Two Property is approximately 1,456m^2 (0.15 ha). Phase Two Property is occupied by residential dewling. The Site features and the location of the Phase Two Property is shown in Figure 1.

The Sampling and Analysis Plan is prepared based on the findings of our Phase One Environmental Site Assessments prepared by SIRATI for the Site, dated November 23, 2022 ("SIRATI 2022 Phase One ESA") in accordance with O.Reg.153/04, based on the Phase I ESA completed by SIRATI in 2022 follwing CSA criterian.:

- Phase One Environmental Site Assessment 340 Ardagh Road, Barrie, Ontario, prepared by SIRATI, for Evans Planning. Dated November 23, 2022 (SIRATI 2022 Phase One ESA).

1) OBJECTIVE

The objective of Phase Two ESA was to determine the soil quality at the Property, as related to the following Areas of Potential Environmental Concerns (APECs) identified in Phase One by SIRATI:

- APEC-1: The potential use of pesticides as a part of historical agricultural activities in the majority of the subject site..
- APEC-2: The potential historical presence of heating oil AST in the basement of a residential building located southwest portion of the Phase One Property.
- APEC-3: The presence of an unknown quantity of Furnace Oil spilled at 334 Ardagh Rd. Located approximately 30m east of the Phase One Property.

2) SCOPE OF WORK

The environmental fieldwork was conducted in conjunction with geotechnical and hydrogeological investigations

The scope of work for this Phase Two ESA included, but was not limited to, the following tasks:

- Utility Locates: Prior to the advancement of the boreholes, arranged for the location of underground and overhead utilities, including electrical (hydro), natural gas, water supply, sanitary and storm sewer, telephone, cable and communication. Underground utilities were marked by local utility locates company representatives, and a private locator was retained to clear the borehole locations prior to the drilling of the boreholes;
- Drilled and collected soil samples at two (2) borehole locations (BH/MW-3 and BH/MW-4), logged and field screened the soil samples through visual inspection and field measurement of total organic vapours (TOV) of the soil samples, and the selection of soil samples for

laboratory analysis;

- Two (2) boreholes were instrumented and converted into monitoring wells (BH/MW-3, and BH/MW-4). The monitoring wells were installed in general accordance with the Ontario Water Resources Act - RRO 1990, Regulation 903 - Amended to O. Reg. 128/03, by licensed well contractors Atcost Drilling Inc.);
- Developed the monitoring wells, purged and collected groundwater samples for laboratory analysis;
- Submitted soil and groundwater samples under the Chain of Custody protocol to the accredited laboratories to carry out chemical analyses for contaminants of potential concern (COCs) in accordance with O. Reg. 153/04 - "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the MECP and dated March 9, 2004, as amended by O. Reg. 511/09, s. 22 ("Analytical Protocol");
- Reviewed and interpreted laboratory results of chemical analysis data and observations made during the site investigations.
- Completed an evaluation of the information from the above and prepared a Phase Two Conceptual Site Model (CSM) to identify locations and concentrations of contaminants (if any) above the applicable Site Condition Standards at the Site; and
- Prepared a Phase Two ESA report of the investigation findings, conclusions and recommendations.

3) RATIONALE OF BOREHOLE AND MONITORING WELL LOCATIONS

The rationale for the selection of the borehole locations is presented in the Table below:

Area of Potential Environmental Concern	Location on Phase Two Property	Borehole ID
Potential use of pesticides as a part of historical agricultural activities in the majority of the subject site. (APEC1)	Entire Site	BH/MW-3
Potential of a former/historical use of AST for heating oil at the Phase One Property, southwest area of dwelling (APEC 2)	Southwest area of dwelling	BH/MW-3
The presence of an unknown quantity of furnace Oil spilled at 334 Ardagh Rd., located approximately 30m east of the Phase One Property (APEC 3)	South-Central portion	BH/MW-4

4) SAMPLES (INCLUDING QA/QC SAMPLES) ANALYTICAL SCHEDULE

A summary of soil and groundwater samples (including QA/QC samples) submitted for chemical analysis is presented in the Table below:

Sampling Media	Borehole/ Monitoring well	M & I	PHCs/BTEX	VOCs	OCPs
Soil	BH/MW-3	2	2	2	-
	BH/MW-4	3	2	2	1
Groundwater	BH/MW-3	1	1	1	-
	BH/MW-4	1	1	1	-

5) SOIL AND GROUNDWATER SAMPLING PROCEDURES

SIRATI's Standard Operation Procedures (SOPs) will be followed throughout the field investigation (sampling, decontamination of equipment, observation and documentation), including the field QA/QC program. SPCL's Standard Operating Procedure is presented in section 7 of this sampling and analysis plan.

6) DATA QUALITY OBJECTIVES

Sampling and decontamination procedures, including QA/QC program, should be carried out in accordance with the following:

• SIRATI's Standard Operating Procedures, as presented in section 7 below Sampling and Analysis Plan.

• The "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures should be carried out in accordance with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O.Reg. 1531/04 and O. Reg. 269/11.

Standard Operating Procedure

This Sampling and Analysis Plan is prepared for a Phase Two Environmental Site Assessment (Phase Two) as defined by Ontario Regulation (O. Reg.) 153/04, as amended.

STANDARD OPERATING PROCEDURES (SOPs)

1. Drilling and Test Pit Excavation

1.1 Underground Utilities

Prior to drilling or test pit excavation, the public utility service (One Call) and private utility services are contacted. The underground utility services are located and marked out in the field.

1.2 Test Pit and Trenches

Test pits and trenches are the simplest methods of observing subsurface soils. They consist of excavations performed by hand, backhoe, or dozer. Hand excavations are often performed with posthole diggers or shovels. They offer the advantages of speed and ready access for sampling. They are severely hampered by limitations of depth, and they cannot be used in soft or loose soils, boulders or below the water table.

Upon completion, the excavated test pit should be backfilled with the excavated material or other suitable soil material. The backfilled material should be compacted to avoid excessive future settlements. Tampers or rolling equipment may be used to facilitate the compaction of the backfill. Excavations within existing roadways should be backfilled with granular material and compacted in lifts to restore subgrade support, and the pavement should be properly patched.

Any test pit or excavated area located near planned structure footings or pavement must be surveyed to determine the precise location of the excavation. This information must be presented in Construction Plans and Special Provisions to ensure the area will be re-excavated and properly compacted to the extent required. In the case of test pits excavated through existing pavements, the pavement should be properly patched. The backfilled material should be compacted to avoid excessive future settlements. Tampers or rolling equipment may be used to facilitate the compaction of the backfill. Excavations within existing roadways should be backfilled with granular material and compacted in lifts to restore subgrade support.

Where pits are located in agricultural areas or other areas used to support plant growth, the backhoe operator should be instructed to keep the topsoil (or at least the finer upper layer of the profile) and overburden separate from any gravel encountered in the pit. Upon completion of the pit, the operator should backfill in a sequence (generally with the coarsest material in the bottom of the pit) such that the backfilled pit area is re-established to support vegetation.

1.3 Drilling Methods

Solid Flight Auger Borings

Auger borings are advanced into the ground by rotating the auger while simultaneously applying a downward force using either hydraulic or mechanical pressure. The auger is advanced to the desired depth and then withdrawn. Samples of cuttings can be removed from the auger; however, the depth of the sample can only be approximated. These samples are disturbed and should be used only for material identification. This method is generally used to establish shallow soil strata and water table elevations or to advance to the desired stratum before Standard Penetration Testing (SPT) or undisturbed sampling is performed. However, it cannot be used effectively in soft or loose soils below the water table. In addition, this method has limited capabilities in dense, rocky material where it may encounter refusal. See ASTMD 1452 (AASHTO T 203).

A solid stem auger consists of a pipe with spiral flanges welded to the pipe. Each section of an auger is referred to as a flight. Flights are typically 1.5 m long but may be longer, depending on the manufacturer. A pin is placed at the junction of each auger flight connecting one to the next.

Solid stem augers capable of drilling a hole as large as 1m in diameter are available; however, these larger sizes are not common.

The first auger flight is equipped with a bit of cutter or teeth for cutting through hard, usually consolidated formations. The cutter head is usually slightly larger than the flights.

The auger flights are turned by means of a rotary drive head mounted on a hydraulic feed system that pushes down or pulls back on the flight. The cuttings are brought to the surface by the flights, which act as a screw conveyor. As the hole is advanced, more auger flights are added until the hole reaches the desired depth.

To obtain split-spoon samples from solid stem auger borings. The augers must be completely withdrawn at each sampling depth.

Solid stem augers are usually used to advance a hole in stable formations. This method is not effective in unconsolidated material or below the water table because the borehole will collapse when the flights are removed. Solid stem augers are generally not used for the installation of monitoring wells, and the PM must be consulted if a solid stem auger must be used for well installation.

Hollow- Stem Auger Borings

A hollow-stem auger consists of a continuous flight auger surrounding a hollow drill stem. A central “plug”, or “butterfly” bit, at the end of a drill rod, is used to prevent soil from entering the hollow stem as the hole is advanced between samples. The hollow-stem auger is advanced in a manner similar to Solid Flight Auger; however, removal of the hollow-stem auger is not necessary for sampling. The “plug”, or “butterfly” bit, is removed, and samples are obtained through the hollow drill stem, which acts like a casing to hold the hole open. This increases the usage of hollow-stem augers in soft and loose soil. Usually, no drilling mud is required, which could otherwise interfere with accurate groundwater level readings. In addition, this method of drilling is extremely fast, cost-effective, and requires little to no water.

Below the water table, the removal of the center “plug” or “butterfly” bit can disturb the sand and affect the validity of the SPT. When this condition develops leading to questionable SPT results, you may add water

or drill mud to the inside of the stem to create a reverse head of water and prevent heaving. Water should also be added to the borehole while auguring clayey soils to help prevent the "baking" of the material due to the heat generated during the rapid advancement of the augers. This "baking" of clay soils can adversely affect the permeability of the subsurface material. Another disadvantage of this method is that refusal may prematurely be encountered in boulders or dense rocky soils. See ASTM D 6151 (AASHTO T 251).

The flights of a hollow stem auger are welded onto a larger diameter pipe which allows drill rods to pass through the centre of the flight. The flights are typically 1.5 m long. A centre plug, or pilot assembly, is inserted in the hollow centre to prevent soil from coming up into the auger during drilling. The centre plug can have a bit attached that helps to advance the auger.

The first auger flight is equipped with a bit of cutter or teeth for cutting through hard formations. The cutter teeth are usually significantly larger than the flights. The centre plug and drill rods can connect through the auger flights to the top-head drive in order to assure that the drill rods and plug rotate with the flights. If using a split-spoon sampler as a centre plug, the sampler must be removed and cleaned prior to sampling. Hollow stem auger flights are advanced in the same manner as solid stem augers. Hollow stem augers are available with OD diameters ranging from approximately 15 cm to 55cm.

Hollow stem augers are more versatile than solid stem augers because: they can act as a temporary casing to prevent caving and sloughing of the borehole wall; they allow soil samples to be obtained more easily and accurately; small diameter monitoring wells can be installed and sand/gravel packed without the use of casing or drilling fluids; they can be used to drill through unconsolidated formations and below the water table.

Wash Borings

In this method, the boring is advanced by a combination of the chopping action of a light "Fishtail" bit and the jetting action of water flowing through the bit. This method is used only when precise soil information is not required between sample intervals in loose, fine granular material. Generally, the casing is required to stabilize the walls of the borehole. Large quantities of water are required for this method of drilling. Generally, there are better, more efficient methods available to drill a borehole.

Mud Rotary Drilling

This method consists of using a rotary drill with rotating thick-walled, hollow drill rods usually attached to a tri-cone bit. Drilling mud is circulated from a mud tub and then through the drilling rods as the drill rod is advanced. The drilling mud lifts the drilling cuttings out of the borehole while maintaining hole stability. The drill cuttings are screened and separated from the drilling mud, which is then recirculated. To collect a sample, the drill rods and bits are pulled out of the hole and replaced with drill rods and the required sampling device. This method is fast and provides excellent sampling and in situ testing data due to minimal disturbance to the soils at the bottom of the borehole prior to sampling. It is effective in all soil types except for very gravelly material with cobbles and boulders. No information can be reliably obtained about

groundwater levels during the drilling operation, and the soil material between sampling intervals is difficult to observe from the drilling mud return.

Air Drilling

This type of drilling uses compressed air to remove cuttings from the borehole as the drill bit is advanced. Both rotary or percussion techniques can be utilized and either open hole (rotary reverse circulation) or under-reamed casing advancement (ODEX) can be used in the drilling process. SPT samples can be obtained; however, the materials between samples are highly disturbed. This type of drilling is generally fast, but expensive, and is most useful when drilling deep holes in dense gravels and boulders where traditional Hollow Stem Auger and Mud Rotary techniques cannot drill or sample.

Direct Push

Direct push is a drilling and sampling technique where the tools are driven into the ground. No rotation is involved so all the samples are uncontaminated and there is no drilling debris on the surface. The main application for this method is for drilling various soils, clays and sands both consolidated and unconsolidated. It allows the driller to take a core sample sealed inside a plastic tube so that no handling of the sample takes place. Clean disposal samples tubes must be used for every sample and never reused. Installation of monitoring wells in direct push drilling boreholes where casing is used is acceptable. This method does have limitation when drilling at depth and in hard/stiff formations. Generally, SPT is not completed using a direct push drilling rig and as such is generally not used for geotechnical investigations.

Drilling Techniques for Heaving /Flowing Sand

The drilling techniques used to advance the auger column within heaving sands may vary greatly from those techniques used when drilling in unsaturated materials. Problems may occur when a borehole is advanced to a desired depth without the use of drilling fluids for the purpose of either sampling the formation or installing a monitoring well. As the pilot assembly, or centre plug, is retracted, the hydrostatic pressure within the saturated sand forces water and loose sediments to rise inside the hollow centre of the auger column. These sediments can rise several metres inside the lower auger sections. The resulting “plug” of sediment inside the hollow auger column can interfere with the collection of formation samples, the installation of the monitoring well or even additional drilling.

The difficulties with heaving sands may be overcome by maintaining a positive pressure head within the auger column. A positive pressure head can be created by adding a sufficient amount of clean water or other drilling fluid inside the hollow stem. Clean ‘potable’ water (e.g., water that does not contain analytes of concern to a monitoring program) is usually preferred as the drilling fluid in order to minimize potential interference with samples collected from the completed well.

The head of clean water inside the auger column must exceed the hydrostatic pressure within the sand formation to limit the rise of loose sediments inside the hollow-stem. Where the saturated sand formation is unconfined, the water level inside the auger column is maintained above the elevation of the water table.

Where the saturated sand formation is confined, the water level inside the auger column is maintained above the potentiometric surface of the formation. If the potentiometric surface of the formation rises above the ground elevation, however, the heaving sand problem may be very difficult to counteract and may represent a limitation to the use of the drilling method.

1.4 Occupational Health and Safety

Prior to drilling, the Site is inspected to ensure that no potentially hazardous material is present near/around the drilling area. Safety procedures are reviewed and a safety check of the equipment is conducted including locating the emergency stop button on the drill rig, checking personal protective equipment (hard hats, safety shoes, eye/ear protection), locating the first aid kit and confirming the location of the nearest hospital, and verifying the standard procedure in case of injury.

1.5 Drilling Spoils

Excess soil generated during sampling and drilling procedure is stored at the Site in metal barrels. If the analytical results indicate the soil is contaminated, a licensed disposal company is notified to collect the barrels of soil for proper disposal

1.6 Borehole Abandonment

After drilling, logging and/or sampling, boreholes will be backfilled by the method described below:

- Bentonite is thoroughly mixed into the grout within the specified percentage range. The tremie grout is usually placed into the hole; however, for selected boreholes (e.g., shallow borings well above the water table) at certain sites, the grout may be allowed to free fall, taking care to ensure the grout does not bridge and form gaps or voids in the grout column.
- The volume of the borehole is calculated and compared to the grout volume used during grouting to aid in verifying that bridging did not occur.
- When using a tremie to place grout in the borehole, the bottom of the tremie is submerged into the grout column and withdrawn slowly as the hole fills with grout. If allowing the grout to free fall (and not using a tremie), the grout is poured slowly into the boring. The rise of the grout column is visually monitored or sounded with a weighted tape.
- If the method used to drill the boring utilized a drive casing, the casing is slowly extracted during grouting such that the bottom of the casing does not come above the top of the grout column.
- During the grouting process, no contaminating material (oil, grease, or fuels from gloves, pumps, hoses, et. al) is permitted to enter the grout mix and personnel wear personal protective equipment as specified in the Project Health and Safety Plan.

- Following grouting, barriers are placed over grouted boreholes as the grout is likely to settle in time, creating a physical hazard. Grouted boreholes typically require at least a second visit to 'top off' the hole.
- The surface hole condition should match the pre-drilling condition (asphalt, concrete, or smoothed flush with native surface), unless otherwise specified in the project work plans.

1.7 Subsurface Obstruction

Where refusal to drilling occurs due to rock, foundation or underground services, and the borehole is relocated within 2.0 m downstream from the original borehole location.

2. Soil Sampling

2.1 Introduction

Soil sampling is conducted in accordance with the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, May 1996" as revised December 1996 (MOE Guidance Manual) and as amended by O. Reg. 366/05, 66/08, 511/09, 245/10, 179/11, 269/11 and 333/13. The sampling procedures are described herein.

2.2 Drilling Rig Decontamination

- Geoprobe

One-time use Shelby tube (thin-walled) samples are recovered from the boreholes in clear disposable PVC liners to prevent cross-contamination.

- CME 55

Drilling equipment such as drill rigs, augers, drill pipes, drilling rods and split-spoons are decontaminated prior to initial use, between borehole locations and at the completion of drilling activities. The drilling equipment is manually scrubbed with a brush using a phosphate-free solution and thoroughly steam cleaned and/or power washed to remove any foreign material and potential contaminants. In addition, the spilt-spoon sampler and any sub-sampling equipment are decontaminated prior to each usage. Various solutions are used for sampling equipment decontamination as described below:

- Phosphate-free soap solution (i.e., Alconox), tap water and distilled water are used for suspected petroleum hydrocarbon soil sampling.
- A reagent-grade methanol solution and distilled water are used for suspected VOCs soil sampling. The reinstate waste is collected.
- Reagent-grade 10% nitric acid solution and distilled water are used for suspected metals soil sampling. The reinstate waste will be collected.

2.3 Sample Logging and Field Screening

Samples are typically collected at 1.5 m intervals in the overburden. Tactile examination of the samples is made to classify the soil, and a log is recorded for each borehole detailing the physical characteristics of the soil including colour, soil type, structure, and any observed staining or odour. The organic vapour readings, the moisture content of the samples as determined in the laboratory, the groundwater and cave-in levels measured at the time of investigation, and the groundwater monitoring well construction details are given on the borehole logs.

2.4 Field Screening and Calibration Procedures

The soil samples are classified based on physical characteristics including colour, soil type, moisture, and visible observation of staining and/or odour. In addition, the organic vapour reading for each soil sample is determined using a gas detector. Based on the overall soil physical characteristics, representative soil sample are selected for chemical analysis.

The organic vapour readings are measured using a portable RKI Eagle gas detector, TYPE 101 set to include all gases, and having a minimum detection of 2 ppm. Prior to Sampling and Analysis Plan measurement, the detector is calibrated using a Hexane 40% LEL gas. The allowable range of calibration is 38% to 42%.

2.5 Soil Sampling

The soil from the disposable sampler liner is handled using new disposable gloves in order to avoid the risk of cross-contamination between the samples. Sufficient amounts of the soil samples are placed into clean glass jars with Teflon lined lids for analyses of polychlorinated biphenyls, polyaromatic hydrocarbons, moisture content, medium to heavy PHCs, and metals and inorganics.

Small amounts of the soil samples are collected using a disposable 'T'-shaped Terracore sampler and stored in methanol or sodium bisulfate vials for light PHCs (CCME F1) and VOCs analysis, respectively; the remainder of the samples is placed into a sealable bag for vapour measurement and soil classification. The samples are stored in an insulated container with ice after sampling and during shipment to the laboratory.

The minimum requirements for the number, type and frequency of field quality control are given below:

- Field Blanks: Field blank samples for VOCs analysis are prepared to confirm that no contamination takes place during the soil sampling procedure.
- Field Duplicates: At least 1 field duplicate sample is collected and submitted for laboratory analysis for every 10 soil samples that are collected to ensure the soil sampling technique is accurate.

3. Well Installation and Groundwater Sampling

3.1 Introduction

Well installations will be conducted by a licensed well driller, in accordance to O.Reg. 903. The well installation procedures are described herein.

3.2 Screen and Riser Pipe

Monitoring wells are constructed from individually wrapped 38 or 50 mm inside diameter (ID) schedule 40 polyvinyl chloride (PVC) flush threaded casing equipped with O-rings. The screen consists of casing material which is factory slotted (slot width = 0.25 mm) to permit the entry of water into the well. The bottom of the screens is equipped with threaded end caps. The appropriate number of risers is coupled with the screen section(s) via threaded joints to construct the well. The top of the wells are tightly capped using a locking well cap, which prevents the infiltration of surface water and foreign material into the well and also provides security. A watertight, traffic-rated protective casing is installed over each monitoring well within a concrete pad extending approximately 0.5 mbgs. No PVC cements or other solvent based cements are used in the construction of the monitoring wells.

3.3 Well Materials Decontamination

Dedicated sampling equipment, such as submersible pumps, are decontaminated prior to installation inside monitoring wells. Where factory-cleaned, hermetically sealed materials are used, no decontamination is conducted.

Setting Screen, Riser Casings and Filter Materials

At total depth, the soil cuttings are removed through circulation or rapidly spinning the augers prior to constructing the well. The drill pipe and bit or centre bit boring is removed. The well construction materials are then installed inside the open borehole or through the centre of the drive casing or augers.

After the monitoring well assembly is lowered to the bottom of the borehole, the filter pack is added until its height is approximately two feet above the top of the screen, and placement is verified. The filter pack is then surged using a surge block or swab in order to settle the pack material and reduce the possibility of bridging.

Setting Seals and Grouting

Once the top of the filter pack is verified to be in the correct position, a bentonite seal is placed above the filter pack. The seal is allowed to hydrate for at least one hour before proceeding with the grouting operation.

After hydration of the bentonite seal, grout is then pumped through a tremie pipe and filled from the top of the bentonite seal upward. The bottom of the tremie pipe should be maintained below the top of the grout to prevent free fall and bridging. When using drive casing or hollow-stem auger techniques, the drive casing/augers should be raised in incremental intervals, keeping the bottom of the drive casing/augers below the top of the grout. Grouting will cease when the grout level has risen to within approximately one to two feet of the ground surface, depending on the surface completion type (flush-mount versus above-ground). Grout levels are monitored to assure that grout taken into the formation is replaced by additional grout.

Capping the Wells

For above-ground completions, the protective steel casing will be centered on the well casing and inserted into the grouted annulus. Prior to installation, a 2-inch deep temporary spacer may be placed between the PVC well cap and the bottom of the protective casing cover to keep the protective casing from settling onto the well cap. A minimum of 24 hours after grouting should elapse before installation of the concrete pad and steel guard posts for aboveground completions, or street boxes or vaults for flush mount completions. For above-ground completions, a concrete pad, usually 3-foot by 3-foot by 4-inch thick, is constructed at ground surface around the protective steel casing. The concrete is sloped away from the protective casing to promote surface drainage from the well.

For flush-mount (or subgrade) completions, a street box or vault is set and cemented in position. The top of the street box or vault will be raised slightly above grade and the cement sloped to grade to promote surface drainage away from the well.

Documentation of Monitoring Well Configuration

The following information is recorded:

- Length of well screen
- Total depth of well boring
- Depth from ground surface to top of grout or bentonite plug in bottom of borehole (if present)
- Depth to base of well string
- Depth to top and bottom of well screen

APPENDIX B

SIRATI & PARTNERS

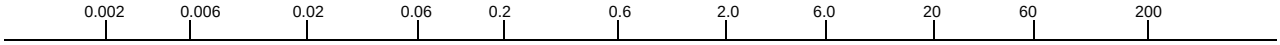
Geotechnical Hydrogeological & Environmental Solutions

Drawing Notes on Sample Descriptions

1. All sample descriptions included in this report follow the Canadian Foundations Engineering Manual soil classification system. This system follows the standard proposed by the International Society for Soil Mechanics and Foundation Engineering. Laboratory grain size analyses provided by Sirati & Partners Consultants Limited also follow the same system. Different classification systems may be used by others; one such system is the Unified Soil Classification. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

ISSMFE SOIL CLASSIFICATION

CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE		



EQUIVALENT GRAIN DIAMETER IN MILLIMETRES

CLAY (PLASTIC) TO	FINE	MEDIUM	CRS.	FINE	COARSE
SILT (NONPLASTIC)	SAND			GRAVEL	

UNIFIED SOIL CLASSIFICATION

2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional geotechnical site investigation.

3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

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LOG OF BOREHOLE BH/MW-03

PROJECT: Geotechnical and Hydrogeological Investigations
CLIENT: Evans Planning
PROJECT LOCATION: 340 Ardagh Road, Barrie, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4911854.316 E 601572.832

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Jan-20-2023

REF. NO.: SP22-01117-00
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
247.2												
247.0 0.2	**ASPHALT:** 40 mm **GRANULAR FILL:** sand and gravel, 200 mm			AUGER			247					
	FILL: sand, trace to some silt, trace gravel, trace organics, brown, moist, loose		1	SS	27				○			
1			2	SS	4		246		○			
245.4			3	SS	41				○			
1.8	**SAND:** trace to some gravel, trace silt, brown, moist, dense, trace cobbles											
2	becoming poorly graded sand with gravel, trace silt, very dense		4	SS	54		245		○			36 57 6 1
3	dense		5	SS	33		244		○			
4							243					
	wet		6	SS	47	▽			○			
5							W. L. 242.3 m Feb 27, 2023					
241.1							242					
6.1	**SILTY SAND:** trace gravel, trace clay, brown, very moist to wet, very dense grey		7	SS	74		241		○			1 68 30 1
7							240					
238.9			8	SS	50/ 100mm		239		○			
8.3	**END OF BOREHOLE:** 1. Borehole was open upon completion of drilling. 2. Groundwater was encountered at 4.57 mbgs upon completion of drilling. 3. Monitoring well was installed in the borehole upon completion of drilling. 4. Groundwater level was measured at 4.9 mbgs on February 27, 2023.											

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

SPCL SOIL LOG-DRAFT SP22-01117-00 - B.GPJ SPCL.GDT 23-3-27

SIRATI & PARTNERS

LOG OF BOREHOLE BH/MW-04

PROJECT: Geotechnical and Hydrogeological Investigations
CLIENT: Evans Planning
PROJECT LOCATION: 340 Ardagh Road, Barrie, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4911881.359 E 601581.8

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Jan-20-2023

REF. NO.: SP22-01117-00
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
246.6						
0.0 / 246.4	**TOPSOIL:** 230 mm					
0.2	**FILL:** sand, trace to some silt, trace gravel, trace organics, trace rootlets, brown, moist, loose	1	SS	1	246	
		2	SS	1		
	gravelly sand, trace silt	3	SS	3	245	
243.9		4	SS	10	244	
2.7	**POORLY GRADED SAND WITH GRAVEL:** trace cobbles, trace silt, brown, moist, dense trace cobbles	5	SS	37	243	37 57 (6)
	very dense	6	SS	53	242	
	wet					
240.5						
6.1	**LEAN CLAY WITH SAND:** trace gravel, grey, wet, very stiff	7	SS	21	241	1 25 44 30
	stiff	8	SS	14	240	29 57 14
238.4					239	
8.2	**END OF BOREHOLE:** 1. Borehole was open upon completion of drilling. 2. Groundwater was encountered at 5.79 mbgs upon completion of drilling. 3. Monitoring well was installed in the borehole upon completion of drilling. 4. Groundwater level was measured at 5.04 mbgs on February 27, 2023.					

W. L. 241.6 m
Feb 27, 2023

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
$+^3$, $\times^3$: Numbers refer to Sensitivity
○ ε_f=3% Strain at Failure

SPCL SOIL LOG-DRAFT SP22-01117-00 - B.GPJ SPCL.GDT 23-3-27

SIRATI & PARTNERS
Geotechnical Hydrogeological & Environmental Solutions

Grain Size Analysis

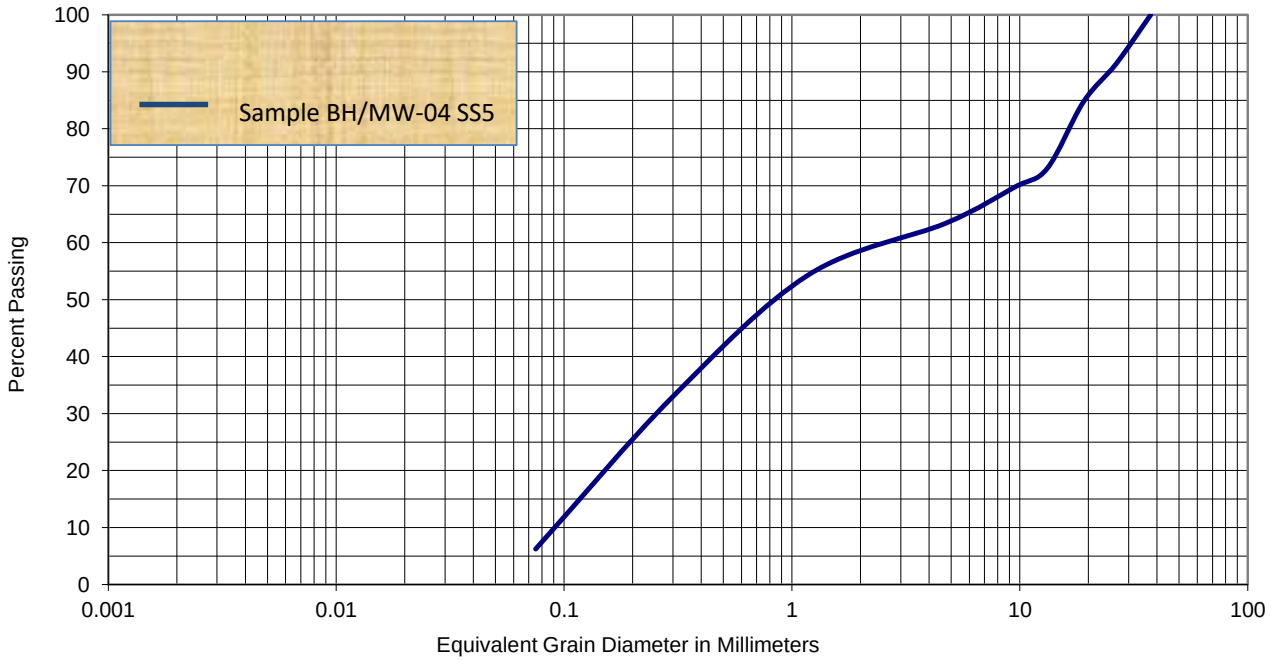
(Granular Material)

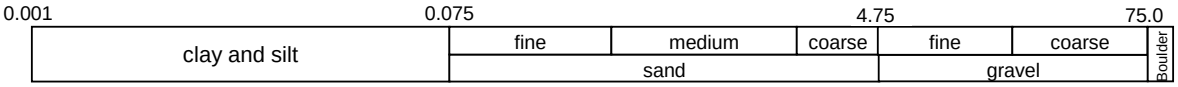
MTO LS-602

FIGURE NUMBER:
SAMPLE NUMBER: 22S1624 **Date Tested:** 3 Feb 2023
PROJECT NUMBER: SP22-1117-00
PROJECT NAME:
CLIENT: 334 – 340 Ardagh Road, Barrie, ON
PROJECT LOCATION:
SAMPLED BY:
DATE SAMPLED:
SUPPLIER:
SAMPLE LOCATION:
DESCRIPTION: Sample BH/MW-04 SS5
SPECIFICATION: OPSS 1010 Granular A
COMMENTS:

SIEVE SIZE	PERCENT PASSING	SPECIFICATIONS
37.5 mm	100.00	Upper limit
26.5 mm	91.44	100
19.0 mm	84.70	85-100
13.2 mm	73.06	65-90
9.5 mm	69.77	50-73
4.75 mm	63.45	35-55
1.18 mm	54.35	15-40
300 µm	32.98	5-22
75 µm	6.23	2-8

		Percentage of		
Sample No.	BH-SS	Gravel	Sand	Fines(Silt and Clay)
22S1624	BH/MW-04 SS5	37	57	6



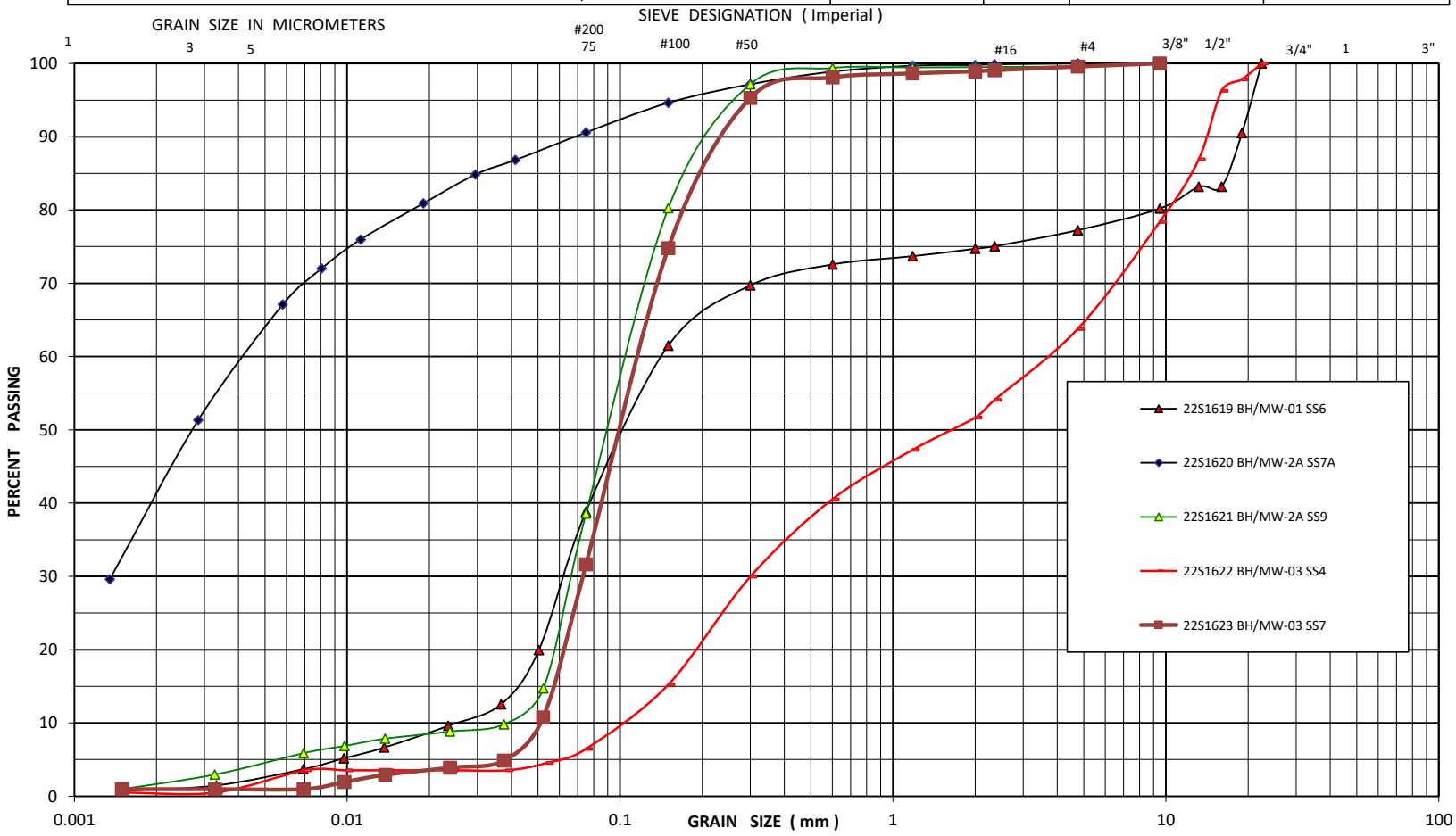


SIRATI & PARTNERS

GRAIN SIZE DISTRIBUTION

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse



Project No.	:	SP22-01117-00
Date	:	08 February 2023
Figure No.	:	7

APPENDIX C

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

AGAT Laboratories

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

CLIENT NAME: AGAT CLIENT ON
160 KONRAD CRESCENT UNIT 4
MARKHAM, ON L3R 9T9
(905) 833-1582
ATTENTION TO: Fuzail Patel
PROJECT: SP22-01117-00
AGAT WORK ORDER: 23T993535
SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
TRACE ORGANICS REVIEWED BY: Radhika Chakraberty, Trace Organics Lab Manager
DATE REPORTED: Apr 19, 2023
PAGES (INCLUDING COVER): 20
VERSION*: 1

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

Notes

VERSION 1:Revised report with guideline updated. 04/19

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- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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AGAT Laboratories

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FAX (905)712-5122
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Certificate of Analysis

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

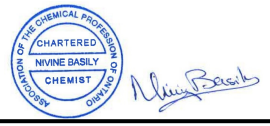
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH-01 / SS4	BH-1 / SS7	BH-2 / SS1	BH-2 / SS3	BH-2A / SS6	BH-3 / SS5	BH-3 / SS8	BH-4 / SS1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-01-20	2023-01-20	2023-01-24	2023-01-24	2023-01-20	2023-01-23	2023-01-23	2023-01-20
Parameter	Unit	G / S	RDL	4736434	4736447	4736449	4736460	4736461	4736472	4736473	4736475
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1	1	1	<1	<1	<1	2
Barium	µg/g	390	2.0	13.5	10.1	44.7	23.2	15.0	15.0	20.2	30.7
Beryllium	µg/g	4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron	µg/g	120	5	<5	<5	<5	<5	<5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10	<0.10	0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	5	<5	<5	8	10	7	8	8	10
Cobalt	µg/g	22	0.5	2.1	1.3	2.4	2.9	2.0	2.6	2.2	3.1
Copper	µg/g	140	1.0	3.8	2.4	3.8	4.6	3.6	4.4	4.0	3.8
Lead	µg/g	120	1	<1	<1	7	2	1	1	1	5
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	2	1	4	5	2	3	2	5
Selenium	µg/g	2.4	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	µg/g	20	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g	23	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	12.1	9.3	13.0	20.7	17.0	22.7	16.6	18.3
Zinc	µg/g	340	5	10	5	27	14	8	14	9	23
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide, WAD	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	0.072	0.163	0.100	0.112	0.157	0.083	0.118	0.124
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	N/A	0.022	0.236	0.079	0.051	0.215	0.127	0.109	0.084
pH, 2:1 CaCl2 Extraction	pH Units	5.0-9.0	NA	7.17	7.17	6.55	6.91	7.14	7.14	7.18	7.25

Certified By:



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

AGAT Laboratories

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FAX (905)712-5122
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Certificate of Analysis

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

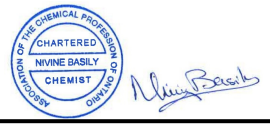
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH-4 / SS6	BH-4 / SS8	DUPLICATE-1
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2023-01-20	2023-01-20	2023-01-20
Parameter	Unit	G / S	RDL	4736476	4736477	4736478
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1	<1
Barium	µg/g	390	2.0	19.2	66.7	7.9
Beryllium	µg/g	4	0.4	<0.4	<0.4	<0.4
Boron	µg/g	120	5	<5	8	<5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	5	11	13	<5
Cobalt	µg/g	22	0.5	2.7	4.2	1.0
Copper	µg/g	140	1.0	4.9	7.4	1.9
Lead	µg/g	120	1	1	2	<1
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	2	5	<1
Selenium	µg/g	2.4	0.8	<0.8	<0.8	<0.8
Silver	µg/g	20	0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5
Uranium	µg/g	23	0.50	<0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	27.2	22.0	6.7
Zinc	µg/g	340	5	12	20	<5
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2	<0.2
Cyanide, WAD	µg/g	0.051	0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	0.101	0.138	0.122
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	N/A	0.085	0.436	0.164
pH, 2:1 CaCl2 Extraction	pH Units	5.0-9.0	NA	7.26	7.28	7.35

Certified By:



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

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AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-02-01 **DATE REPORTED: 2023-04-19**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils **pH range listed applies to surface soil only**
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4736434-4736478 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH-2 / SS1	BH-4 / SS1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2023-01-24	2023-01-20
Parameter	**Unit**	**G / S**	**RDL**	**4736449**	**4736475**
Hexachloroethane	µg/g	0.07	0.005	<0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g	0.063	0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007
op'-DDE	ug/g		0.005	<0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005	<0.005
DDE	µg/g	0.33	0.007	<0.007	<0.007
op'-DDD	µg/g		0.005	<0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005	<0.005
DDD	µg/g	3.3	0.007	<0.007	<0.007
op'-DDT	µg/g		0.005	<0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005	<0.005
DDT (Total)	µg/g	1.4	0.007	<0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.014	0.01	<0.01	<0.01
Moisture Content	%		0.1	22.2	12.4
wet weight OC	g		0.005	10.7	10.6
Surrogate	**Unit**	**Acceptable Limits**			
TCMX	%	50-140		105	110
Decachlorobiphenyl	%	50-140		110	118

Certified By: R. Chakraberty

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AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils **pH range listed applies to surface soil only**
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4736449-4736475 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: R. Chakraberty

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AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH-01 / SS4	BH-1 / SS7	BH-2 / SS3	BH-2A / SS6	BH-3 / SS5	BH-3 / SS8	BH-4 / SS6	BH-4 / SS8
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-01-20	2023-01-20	2023-01-24	2023-01-20	2023-01-23	2023-01-23	2023-01-20	2023-01-20
Parameter	**Unit**	**G / S**	**RDL**	**4736434**	**4736447**	**4736460**	**4736461**	**4736472**	**4736473**	**4736476**	**4736477**
F1 (C6 - C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	6.6	18.0	7.1	15.5	4.6	14.7	8.9	20.0
Surrogate	**Unit**	**Acceptable Limits**									
Toluene-d8	%	50-140		105	120	116	112	112	119	110	115
Terphenyl	%	60-140		65	69	71	66	75	68	75	74

		SAMPLE DESCRIPTION:		DUPLICATE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2023-01-20
Parameter	**Unit**	**G / S**	**RDL**	**4736478**
F1 (C6 - C10)	µg/g	55	5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5
F2 (C10 to C16)	µg/g	98	10	<10
F3 (C16 to C34)	µg/g	300	50	<50
F4 (C34 to C50)	µg/g	2800	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA
Moisture Content	%		0.1	15.4
Surrogate	**Unit**	**Acceptable Limits**		
Toluene-d8	%	50-140		116
Terphenyl	%	60-140		69

Certified By: R. Chakraberty

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AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-02-01 **DATE REPORTED: 2023-04-19**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils **pH range listed applies to surface soil only**
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4736434-4736478 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified without the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: R. Chakraberty

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AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH-01 / SS4	BH-1 / SS7	BH-2 / SS3	BH-2A / SS6	BH-3 / SS5	BH-3 / SS8	BH-4 / SS6	BH-4 / SS8
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-01-20	2023-01-20	2023-01-24	2023-01-20	2023-01-23	2023-01-23	2023-01-20	2023-01-20
Parameter	Unit	G / S	RDL	4736434	4736447	4736460	4736461	4736472	4736473	4736476	4736477
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.084	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.75	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.47	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	1.9	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.061	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	1.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	1.7	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	ug/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.28	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By: R. Chakraberty

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Certificate of Analysis

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH-01 / SS4	BH-1 / SS7	BH-2 / SS3	BH-2A / SS6	BH-3 / SS5	BH-3 / SS8	BH-4 / SS6	BH-4 / SS8
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-01-20	2023-01-20	2023-01-24	2023-01-20	2023-01-23	2023-01-23	2023-01-20	2023-01-20
Parameter	**Unit**	**G / S**	**RDL**	**4736434**	**4736447**	**4736460**	**4736461**	**4736472**	**4736473**	**4736476**	**4736477**
Bromoform	ug/g	0.27	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.7	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	1.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	ug/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	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	2.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	6.6	18.0	7.1	15.5	4.6	14.7	8.9	20.0
Surrogate	**Unit**	**Acceptable Limits**									
Toluene-d8	% Recovery	50-140		105	120	116	112	112	119	110	115
4-Bromofluorobenzene	% Recovery	50-140		85	90	91	83	79	75	82	82

Certified By: R. Chakraberty

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Certificate of Analysis

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		DUPLICATE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2023-01-20
Parameter	Unit	G / S	RDL	4736478
Dichlorodifluoromethane	µg/g	16	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05
Acetone	ug/g	16	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.1	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.084	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.75	0.05	<0.05
1,1-Dichloroethane	ug/g	0.47	0.02	<0.02
Methyl Ethyl Ketone	ug/g	16	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	1.9	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.21	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.061	0.03	<0.03
Bromodichloromethane	ug/g	1.5	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	1.7	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	2.3	0.05	<0.05
Dibromochloromethane	ug/g	2.3	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.28	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05
Ethylbenzene	ug/g	1.1	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

Certified By: R. Chakraberty

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Certificate of Analysis

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

CLIENT NAME: AGAT CLIENT ON

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-02-01

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		DUPLICATE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2023-01-20
Parameter	**Unit**	**G / S**	**RDL**	**4736478**
Bromoform	ug/g	0.27	0.05	<0.05
Styrene	ug/g	0.7	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.05
1,2-Dichlorobenzene	ug/g	1.2	0.05	<0.05
Xylenes (Total)	ug/g	3.1	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.05	<0.05
n-Hexane	µg/g	2.8	0.05	<0.05
Moisture Content	%		0.1	15.4
Surrogate	**Unit**	**Acceptable Limits**		
Toluene-d8	% Recovery	50-140		116
4-Bromofluorobenzene	% Recovery	50-140		84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils **pH range listed applies to surface soil only**
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4736434-4736478 The sample was analyzed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: R. Chakraberty

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Quality Assurance

CLIENT NAME: AGAT CLIENT ON

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Apr 19, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	4736434	4736434	<0.8	<0.8	NA	< 0.8	92%	70%	130%	95%	80%	120%	85%	70%	130%
Arsenic	4736434	4736434	<1	<1	NA	< 1	122%	70%	130%	107%	80%	120%	117%	70%	130%
Barium	4736434	4736434	13.5	13.5	0.0%	< 2.0	101%	70%	130%	102%	80%	120%	96%	70%	130%
Beryllium	4736434	4736434	<0.4	<0.4	NA	< 0.4	110%	70%	130%	100%	80%	120%	111%	70%	130%
Boron	4736434	4736434	<5	<5	NA	< 5	88%	70%	130%	100%	80%	120%	111%	70%	130%
Boron (Hot Water Soluble)	4738242		0.10	0.11	NA	< 0.10	93%	60%	140%	101%	70%	130%	110%	60%	140%
Cadmium	4736434	4736434	<0.5	<0.5	NA	< 0.5	81%	70%	130%	105%	80%	120%	109%	70%	130%
Chromium	4736434	4736434	<5	<5	NA	< 5	112%	70%	130%	105%	80%	120%	114%	70%	130%
Cobalt	4736434	4736434	2.1	2.0	NA	< 0.5	109%	70%	130%	106%	80%	120%	117%	70%	130%
Copper	4736434	4736434	3.8	3.9	NA	< 1.0	105%	70%	130%	101%	80%	120%	105%	70%	130%
Lead	4736434	4736434	<1	<1	NA	< 1	100%	70%	130%	96%	80%	120%	93%	70%	130%
Molybdenum	4736434	4736434	<0.5	<0.5	NA	< 0.5	102%	70%	130%	100%	80%	120%	109%	70%	130%
Nickel	4736434	4736434	2	2	NA	< 1	106%	70%	130%	97%	80%	120%	105%	70%	130%
Selenium	4736434	4736434	<0.8	<0.8	NA	< 0.8	79%	70%	130%	109%	80%	120%	125%	70%	130%
Silver	4736434	4736434	<0.5	<0.5	NA	< 0.5	95%	70%	130%	96%	80%	120%	94%	70%	130%
Thallium	4736434	4736434	<0.5	<0.5	NA	< 0.5	94%	70%	130%	106%	80%	120%	99%	70%	130%
Uranium	4736434	4736434	<0.50	<0.50	NA	< 0.50	105%	70%	130%	102%	80%	120%	97%	70%	130%
Vanadium	4736434	4736434	12.1	12.6	4.0%	< 0.4	129%	70%	130%	100%	80%	120%	116%	70%	130%
Zinc	4736434	4736434	10	10	NA	< 5	110%	70%	130%	112%	80%	120%	119%	70%	130%
Chromium, Hexavalent	4735910		<0.2	<0.2	NA	< 0.2	99%	70%	130%	96%	80%	120%	89%	70%	130%
Cyanide, WAD	4740752		<0.040	<0.040	NA	< 0.040	100%	70%	130%	95%	80%	120%	85%	70%	130%
Mercury	4736434	4736434	<0.10	<0.10	NA	< 0.10	106%	70%	130%	106%	80%	120%	103%	70%	130%
Electrical Conductivity (2:1)	4736434	4736434	0.072	0.066	8.7%	< 0.005	97%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	4736434	4736434	0.022	0.019	14.6%	NA									
pH, 2:1 CaCl2 Extraction	4738180		7.05	7.25	2.8%	NA	101%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

O. Reg. 153(511) - Metals & Inorganics (Soil)															
pH, 2:1 CaCl2 Extraction	4736460	4736460	6.91	6.98	1.0%	NA	101%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

Certified By:

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Quality Assurance

CLIENT NAME: AGAT CLIENT ON

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Apr 19, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (with VOC) (Soil)															
F1 (C6 - C10)	4736478	4736478	<5	<5	NA	< 5	97%	60%	140%	92%	60%	140%	82%	60%	140%
F2 (C10 to C16)	4736477	4736477	<10	<10	NA	< 10	101%	60%	140%	121%	60%	140%	108%	60%	140%
F3 (C16 to C34)	4736477	4736477	<50	<50	NA	< 50	121%	60%	140%	114%	60%	140%	103%	60%	140%
F4 (C34 to C50)	4736477	4736477	<50	<50	NA	< 50	104%	60%	140%	113%	60%	140%	103%	60%	140%
O. Reg. 153(511) - VOCs (with PHC) (Soil)															
Dichlorodifluoromethane	4736478	4736478	<0.05	<0.05	NA	< 0.05	89%	50%	140%	117%	50%	140%	73%	50%	140%
Vinyl Chloride	4736478	4736478	<0.02	<0.02	NA	< 0.02	73%	50%	140%	98%	50%	140%	97%	50%	140%
Bromomethane	4736478	4736478	<0.05	<0.05	NA	< 0.05	85%	50%	140%	111%	50%	140%	80%	50%	140%
Trichlorofluoromethane	4736478	4736478	<0.05	<0.05	NA	< 0.05	117%	50%	140%	101%	50%	140%	83%	50%	140%
Acetone	4736478	4736478	<0.50	<0.50	NA	< 0.50	113%	50%	140%	71%	50%	140%	87%	50%	140%
1,1-Dichloroethylene	4736478	4736478	<0.05	<0.05	NA	< 0.05	84%	50%	140%	95%	60%	130%	106%	50%	140%
Methylene Chloride	4736478	4736478	<0.05	<0.05	NA	< 0.05	79%	50%	140%	79%	60%	130%	91%	50%	140%
Trans- 1,2-Dichloroethylene	4736478	4736478	<0.05	<0.05	NA	< 0.05	99%	50%	140%	80%	60%	130%	80%	50%	140%
Methyl tert-butyl Ether	4736478	4736478	<0.05	<0.05	NA	< 0.05	101%	50%	140%	102%	60%	130%	72%	50%	140%
1,1-Dichloroethane	4736478	4736478	<0.02	<0.02	NA	< 0.02	84%	50%	140%	81%	60%	130%	110%	50%	140%
Methyl Ethyl Ketone	4736478	4736478	<0.50	<0.50	NA	< 0.50	107%	50%	140%	81%	50%	140%	82%	50%	140%
Cis- 1,2-Dichloroethylene	4736478	4736478	<0.02	<0.02	NA	< 0.02	85%	50%	140%	84%	60%	130%	73%	50%	140%
Chloroform	4736478	4736478	<0.04	<0.04	NA	< 0.04	83%	50%	140%	90%	60%	130%	97%	50%	140%
1,2-Dichloroethane	4736478	4736478	<0.03	<0.03	NA	< 0.03	76%	50%	140%	77%	60%	130%	93%	50%	140%
1,1,1-Trichloroethane	4736478	4736478	<0.05	<0.05	NA	< 0.05	73%	50%	140%	98%	60%	130%	97%	50%	140%
Carbon Tetrachloride	4736478	4736478	<0.05	<0.05	NA	< 0.05	79%	50%	140%	95%	60%	130%	100%	50%	140%
Benzene	4736478	4736478	<0.02	<0.02	NA	< 0.02	98%	50%	140%	84%	60%	130%	76%	50%	140%
1,2-Dichloropropane	4736478	4736478	<0.03	<0.03	NA	< 0.03	82%	50%	140%	96%	60%	130%	81%	50%	140%
Trichloroethylene	4736478	4736478	<0.03	<0.03	NA	< 0.03	77%	50%	140%	112%	60%	130%	105%	50%	140%
Bromodichloromethane	4736478	4736478	<0.05	<0.05	NA	< 0.05	114%	50%	140%	95%	60%	130%	86%	50%	140%
Methyl Isobutyl Ketone	4736478	4736478	<0.50	<0.50	NA	< 0.50	101%	50%	140%	97%	50%	140%	97%	50%	140%
1,1,2-Trichloroethane	4736478	4736478	<0.04	<0.04	NA	< 0.04	75%	50%	140%	101%	60%	130%	91%	50%	140%
Toluene	4736478	4736478	<0.05	<0.05	NA	< 0.05	98%	50%	140%	118%	60%	130%	105%	50%	140%
Dibromochloromethane	4736478	4736478	<0.05	<0.05	NA	< 0.05	100%	50%	140%	88%	60%	130%	73%	50%	140%
Ethylene Dibromide	4736478	4736478	<0.04	<0.04	NA	< 0.04	73%	50%	140%	106%	60%	130%	113%	50%	140%
Tetrachloroethylene	4736478	4736478	<0.05	<0.05	NA	< 0.05	85%	50%	140%	96%	60%	130%	107%	50%	140%
1,1,1,2-Tetrachloroethane	4736478	4736478	<0.04	<0.04	NA	< 0.04	84%	50%	140%	93%	60%	130%	112%	50%	140%
Chlorobenzene	4736478	4736478	<0.05	<0.05	NA	< 0.05	85%	50%	140%	108%	60%	130%	115%	50%	140%
Ethylbenzene	4736478	4736478	<0.05	<0.05	NA	< 0.05	73%	50%	140%	109%	60%	130%	100%	50%	140%
m & p-Xylene	4736478	4736478	<0.05	<0.05	NA	< 0.05	81%	50%	140%	114%	60%	130%	114%	50%	140%
Bromoform	4736478	4736478	<0.05	<0.05	NA	< 0.05	74%	50%	140%	95%	60%	130%	76%	50%	140%
Styrene	4736478	4736478	<0.05	<0.05	NA	< 0.05	78%	50%	140%	105%	60%	130%	107%	50%	140%
1,1,2,2-Tetrachloroethane	4736478	4736478	<0.05	<0.05	NA	< 0.05	70%	50%	140%	71%	60%	130%	98%	50%	140%
o-Xylene	4736478	4736478	<0.05	<0.05	NA	< 0.05	82%	50%	140%	110%	60%	130%	108%	50%	140%

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Quality Assurance

CLIENT NAME: AGAT CLIENT ON

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Apr 19, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
1,3-Dichlorobenzene	4736478	4736478	<0.05	<0.05	NA	< 0.05	103%	50%	140%	101%	60%	130%	117%	50%	140%
1,4-Dichlorobenzene	4736478	4736478	<0.05	<0.05	NA	< 0.05	99%	50%	140%	80%	60%	130%	94%	50%	140%
1,2-Dichlorobenzene	4736478	4736478	<0.05	<0.05	NA	< 0.05	93%	50%	140%	83%	60%	130%	100%	50%	140%
n-Hexane	4736478	4736478	<0.05	<0.05	NA	< 0.05	91%	50%	140%	116%	60%	130%	115%	50%	140%
O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	4735110		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	79%	50%	140%	74%	50%	140%
Gamma-Hexachlorocyclohexane	4735110		< 0.005	< 0.005	NA	< 0.005	107%	50%	140%	93%	50%	140%	82%	50%	140%
Heptachlor	4735110		< 0.005	< 0.005	NA	< 0.005	114%	50%	140%	86%	50%	140%	87%	50%	140%
Aldrin	4735110		< 0.005	< 0.005	NA	< 0.005	102%	50%	140%	95%	50%	140%	91%	50%	140%
Heptachlor Epoxide	4735110		< 0.005	< 0.005	NA	< 0.005	100%	50%	140%	88%	50%	140%	82%	50%	140%
Endosulfan I	4735110		< 0.005	< 0.005	NA	< 0.005	108%	50%	140%	80%	50%	140%	84%	50%	140%
Endosulfan II	4735110		< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	82%	50%	140%	86%	50%	140%
Alpha-Chlordane	4735110		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	84%	50%	140%	83%	50%	140%
gamma-Chlordane	4735110		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	88%	50%	140%	85%	50%	140%
op'-DDE	4735110		< 0.005	< 0.005	NA	< 0.005	100%	50%	140%	94%	50%	140%	92%	50%	140%
pp'-DDE	4735110		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	94%	50%	140%	98%	50%	140%
op'-DDD	4735110		< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	91%	50%	140%	80%	50%	140%
pp'-DDD	4735110		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	93%	50%	140%	86%	50%	140%
op'-DDT	4735110		< 0.005	< 0.005	NA	< 0.005	66%	50%	140%	80%	50%	140%	86%	50%	140%
pp'-DDT	4735110		< 0.005	< 0.005	NA	< 0.005	75%	50%	140%	87%	50%	140%	86%	50%	140%
Dieldrin	4735110		< 0.005	< 0.005	NA	< 0.005	100%	50%	140%	82%	50%	140%	88%	50%	140%
Endrin	4735110		< 0.005	< 0.005	NA	< 0.005	70%	50%	140%	96%	50%	140%	92%	50%	140%
Methoxychlor	4735110		< 0.005	< 0.005	NA	< 0.005	77%	50%	140%	88%	50%	140%	98%	50%	140%
Hexachlorobenzene	4735110		< 0.005	< 0.005	NA	< 0.005	112%	50%	140%	108%	50%	140%	96%	50%	140%
Hexachlorobutadiene	4735110		< 0.01	< 0.01	NA	< 0.01	70%	50%	140%	102%	50%	140%	82%	50%	140%

Comments: Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: R. Chakraberty

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

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

AGAT Laboratories

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Method Summary

CLIENT NAME: AGAT CLIENT ON

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE

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Method Summary

CLIENT NAME: AGAT CLIENT ON

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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Method Summary

CLIENT NAME: AGAT CLIENT ON

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE
F1 (C6 - C10)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
Toluene-d8	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AGAT CLIENT ON

AGAT WORK ORDER: 23T993535

PROJECT: SP22-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Toluene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS

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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 23T495535

Cooler Quantity: 1 cooler

Arrival Temperatures: 4.1 | 3.7 | 4.5
4.6 | 4.9 | 5.2

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: IGF

Report Information:

Company: Sirati
Contact: Fuzail @ sirati.ca
Address: 160 Konrad Crescent, Markham, L3R 9T9
Phone: 905940-1552 Fax:
Reports to be sent to:
1. Email: fuzail @ sirati.ca
2. Email: simon @ sirati.ca

Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture (Check One)
☐ Coarse
☐ Fine

☒ Excess Soils R406
Table ~~1 2~~ (Indicate One)

☐ Regulation 558

☐ CCME

☐ Sewer Use
☐ Sanitary ☐ Storm
Region

☐ Prov. Water Quality Objectives (PWQO)

☐ Other
Indicate One

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surchargos Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: SP22-01117-00
Site Location: Ardagh Road
Sampled By: Sean
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC Y/N	O. Reg 153: Metals & Inorganics	Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	BTEX, F1-F4 PHCs	PAHs	PCBs	VOC	Aroclors	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach ☐ Metals ☐ VOCs ☐ SVOCs	Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: Include Moisture ☐ Sulphide ☐	OCPs						Potentially Hazardous or High Concentration (Y/N)
BH-01 / SS4	20JAN/23	AM PM	3				✓		✓			✓						✓						
BH-1 / SS7	20JAN/23	AM PM	3				✓		✓			✓												
BH-2 / SS1	24JAN/23	AM PM	2				✓					✓						✓						
BH-2 / SS3	24JAN/23	AM PM	3				✓		✓			✓												
BH-2A / SS6	20JAN/23	AM PM	3				✓		✓			✓												
BH-3 / SS5	23JAN/23	AM PM	3				✓		✓			✓												
BH-3 / SS8	23JAN/23	AM PM	3				✓		✓			✓												
BH-4 / SS1	20JAN/23	AM PM	2				✓											✓						
BH-4 / SS6	20JAN/23	AM PM	3				✓		✓			✓												
BH-4 / SS8	20JAN/23	AM PM	3				✓		✓			✓												
Duplicate-1	20JAN/23	AM PM	3				✓		✓			✓												

OCPs

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Fuzail Patel. Patel.F.F.					
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

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Nº: T - 142637

Document ID: DIV-78-1511.022

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

APPENDIX D

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

AGAT Laboratories

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CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD
160 KONRAD CRESCENT UNIT 4
MARKHAM, ON L3R 9T9
(905) 833-1582
ATTENTION TO: Fuzail Patel
PROJECT: SP21-01117-00
AGAT WORK ORDER: 23T001251
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
DATE REPORTED: Apr 19, 2023
PAGES (INCLUDING COVER): 17
VERSION*: 1

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

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*
- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with VOC) (Water)

DATE RECEIVED: 2023-02-28

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH/MW-01	BH/MW-02	BH/MW-03	DUP
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2023-02-27	2023-02-27	2023-02-27	2023-02-27
Parameter	**Unit**	**G / S**	**RDL**	**4810771**	**4810782**	**4810783**	**4810786**
F1 (C6 - C10)	µg/L	750	25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	NA	NA	NA
Sediment				2	2	2	2
Surrogate	**Unit**	**Acceptable Limits**					
Toluene-d8	%	50-140		105	99	102	93
Terphenyl	% Recovery	60-140		66	68	73	69

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4810771-4810786 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Legend: 1 = no sediment present; 2 = sediment present; 3 = sediment present in trace amounts

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

O. Reg. 153(511) - PHCs F1/BTEX (Water)

DATE RECEIVED: 2023-02-28

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-02-27
Parameter	**Unit**	**G / S**	**RDL**	**4810787**
Benzene	µg/L	5.0	0.20	<0.20
Toluene	µg/L	24	0.20	<0.20
Ethylbenzene	µg/L	2.4	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20
o-Xylene	µg/L		0.10	<0.10
Xylenes (Total)	µg/L	300	0.20	<0.20
F1 (C6-C10)	µg/L	750	25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25
Surrogate	**Unit**	**Acceptable Limits**		
Toluene-d8	% Recovery	60-140		104

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4810787 The C6-C10 fraction is calculated using Toluene response factor.
Total C6-C10 results are corrected for BTEX contributions.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
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.
Extraction and holding times were met for this sample.
NA = Not Applicable

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Certified By: N Popnikolof

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AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

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

DATE RECEIVED: 2023-02-28

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-02-27
Parameter	Unit	G / S	RDL	4810787
Dichlorodifluoromethane	µg/L	590	0.40	<0.40
Vinyl Chloride	µg/L	0.5	0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30
Methylene Chloride	µg/L	50	0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20
Chloroform	µg/L	2.4	0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20
Benzene	µg/L	5.0	0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	<0.20
Bromodichloromethane	µg/L	16	0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20
Toluene	µg/L	24	0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10
Chlorobenzene	µg/L	30	0.10	<0.10
Ethylbenzene	µg/L	2.4	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

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

DATE RECEIVED: 2023-02-28

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-02-27
Parameter	**Unit**	**G / S**	**RDL**	**4810787**
Bromoform	µg/L	25	0.10	<0.10
Styrene	µg/L	5.4	0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10
o-Xylene	µg/L		0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30
Xylenes (Total)	µg/L	300	0.20	<0.20
n-Hexane	µg/L	51	0.20	<0.20
Surrogate	**Unit**	**Acceptable Limits**		
Toluene-d8	% Recovery	50-140		104
4-Bromofluorobenzene	% Recovery	50-140		76

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4810787 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

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Certificate of Analysis

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

O. Reg. 153(511) - VOCs (with PHC) (Water)

DATE RECEIVED: 2023-02-28

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH/MW-01	BH/MW-02	BH/MW-03	DUP
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2023-02-27	2023-02-27	2023-02-27	2023-02-27
Parameter	Unit	G / S	RDL	4810771	4810782	4810783	4810786
Dichlorodifluoromethane	µg/L	590	0.40	<0.40	<0.40	<0.40	<0.40
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	<0.40	<0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	50	0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	2.4	0.20	**4.17**	<0.20	**48.5**	1.74
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20	<0.20	<0.20	<0.20
Benzene	µg/L	5.0	0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	**2.80**	**1.78**	**2.46**	**3.67**
Bromodichloromethane	µg/L	16	0.20	<0.20	<0.20	**17.8**	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	24	0.20	<0.20	0.51	<0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10	<0.10	3.40	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	30	0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	2.4	0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20

Certified By: N Popnikolof

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

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Certificate of Analysis

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

O. Reg. 153(511) - VOCs (with PHC) (Water)

DATE RECEIVED: 2023-02-28 **DATE REPORTED: 2023-04-19**

		SAMPLE DESCRIPTION:		BH/MW-01	BH/MW-02	BH/MW-03	DUP
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2023-02-27	2023-02-27	2023-02-27	2023-02-27
Parameter	Unit	G / S	RDL	4810771	4810782	4810783	4810786
Bromoform	µg/L	25	0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	5.4	0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30
Xylenes (Total)	µg/L	300	0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	51	0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	**Unit**	**Acceptable Limits**					
Toluene-d8	% Recovery	50-140		105	99	102	93
4-Bromofluorobenzene	% Recovery	50-140		94	92	83	86

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4810771-4810786 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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

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Certificate of Analysis

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

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

DATE RECEIVED: 2023-02-28

DATE REPORTED: 2023-04-19

		SAMPLE DESCRIPTION:		BH/MW-01	BH/MW-02	BH/MW-03	DUP
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2023-02-27	2023-02-27	2023-02-27	2023-02-27
Parameter	Unit	G / S	RDL	4810771	4810782	4810783	4810786
Dissolved Antimony	µg/L	6	1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Arsenic	µg/L	25	1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Barium	µg/L	1000	2.0	66.6	103	104	58.6
Dissolved Beryllium	µg/L	4	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Boron	µg/L	5000	10.0	25.2	28.2	15.9	53.1
Dissolved Cadmium	µg/L	2.7	0.20	<0.20	<0.20	<0.20	<0.20
Dissolved Chromium	µg/L	50	2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Cobalt	µg/L	3.8	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Copper	µg/L	87	1.0	<1.0	1.9	6.2	<1.0
Dissolved Lead	µg/L	10	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Molybdenum	µg/L	70	0.50	<0.50	<0.50	0.93	<0.50
Dissolved Nickel	µg/L	100	1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Selenium	µg/L	10	1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Silver	µg/L	1.5	0.20	<0.20	<0.20	<0.20	<0.20
Dissolved Thallium	µg/L	2	0.30	<0.30	<0.30	<0.30	<0.30
Dissolved Uranium	µg/L	20	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Vanadium	µg/L	6.2	0.40	0.56	0.78	<0.40	<0.40
Dissolved Zinc	µg/L	1100	5.0	<5.0	<5.0	<5.0	<5.0
Mercury	µg/L	0.29	0.02	<0.02	0.06	0.04	0.03
Chromium VI	µg/L	25	2	<2	<2	<2	<2
Cyanide, WAD	µg/L	66	2	<2	<2	<2	<2
Dissolved Sodium	µg/L	490000	50	199000	305000	365000	154000
Chloride	µg/L	790000	100	268000	494000	710000	214000
Electrical Conductivity	uS/cm	NA	2	1470	2130	2680	1230
pH	pH Units		NA	7.98	7.82	7.88	7.91

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4810771-4810786 Metals analysis completed on a filtered sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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

AGAT Laboratories

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Exceedance Summary

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4810771	BH/MW-01	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Chloroform	µg/L	2.4	4.17
4810771	BH/MW-01	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Trichloroethylene	µg/L	1.6	2.80
4810782	BH/MW-02	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Trichloroethylene	µg/L	1.6	1.78
4810783	BH/MW-03	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Bromodichloromethane	µg/L	16	17.8
4810783	BH/MW-03	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Chloroform	µg/L	2.4	48.5
4810783	BH/MW-03	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Trichloroethylene	µg/L	1.6	2.46
4810786	DUP	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Trichloroethylene	µg/L	1.6	3.67

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

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

Trace Organics Analysis

RPT Date: Apr 19, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (with VOC) (Water)															
F1 (C6 - C10)	4807501		<25	<25	NA	< 25	75%	60%	140%	109%	60%	140%	103%	60%	140%
F2 (C10 to C16)	4807499		<100	<100	NA	< 100	103%	60%	140%	85%	60%	140%	78%	60%	140%
F3 (C16 to C34)	4807499		<100	<100	NA	< 100	102%	60%	140%	76%	60%	140%	73%	60%	140%
F4 (C34 to C50)	4807499		<100	<100	NA	< 100	99%	60%	140%	94%	60%	140%	104%	60%	140%
O. Reg. 153(511) - VOCs (with PHC) (Water)															
Dichlorodifluoromethane	4810771	4810771	<0.40	<0.40	NA	< 0.40	81%	50%	140%	96%	50%	140%	98%	50%	140%
Vinyl Chloride	4810771	4810771	<0.17	<0.17	NA	< 0.17	74%	50%	140%	84%	50%	140%	77%	50%	140%
Bromomethane	4810771	4810771	<0.20	<0.20	NA	< 0.20	77%	50%	140%	96%	50%	140%	74%	50%	140%
Trichlorofluoromethane	4810771	4810771	<0.40	<0.40	NA	< 0.40	100%	50%	140%	114%	50%	140%	88%	50%	140%
Acetone	4810771	4810771	<1.0	<1.0	NA	< 1.0	97%	50%	140%	115%	50%	140%	109%	50%	140%
1,1-Dichloroethylene	4810771	4810771	<0.30	<0.30	NA	< 0.30	106%	50%	140%	93%	60%	130%	94%	50%	140%
Methylene Chloride	4810771	4810771	<0.30	<0.30	NA	< 0.30	108%	50%	140%	99%	60%	130%	102%	50%	140%
trans- 1,2-Dichloroethylene	4810771	4810771	<0.20	<0.20	NA	< 0.20	93%	50%	140%	85%	60%	130%	83%	50%	140%
Methyl tert-butyl ether	4810771	4810771	<0.20	<0.20	NA	< 0.20	101%	50%	140%	91%	60%	130%	79%	50%	140%
1,1-Dichloroethane	4810771	4810771	<0.30	<0.30	NA	< 0.30	106%	50%	140%	104%	60%	130%	88%	50%	140%
Methyl Ethyl Ketone	4810771	4810771	<1.0	<1.0	NA	< 1.0	96%	50%	140%	93%	50%	140%	101%	50%	140%
cis- 1,2-Dichloroethylene	4810771	4810771	<0.20	<0.20	NA	< 0.20	104%	50%	140%	96%	60%	130%	89%	50%	140%
Chloroform	4810771	4810771	4.17	3.75	10.6%	< 0.20	112%	50%	140%	94%	60%	130%	107%	50%	140%
1,2-Dichloroethane	4810771	4810771	<0.20	<0.20	NA	< 0.20	118%	50%	140%	103%	60%	130%	104%	50%	140%
1,1,1-Trichloroethane	4810771	4810771	<0.30	<0.30	NA	< 0.30	91%	50%	140%	91%	60%	130%	72%	50%	140%
Carbon Tetrachloride	4810771	4810771	<0.20	<0.20	NA	< 0.20	104%	50%	140%	82%	60%	130%	75%	50%	140%
Benzene	4810771	4810771	<0.20	<0.20	NA	< 0.20	96%	50%	140%	82%	60%	130%	81%	50%	140%
1,2-Dichloropropane	4810771	4810771	<0.20	<0.20	NA	< 0.20	82%	50%	140%	74%	60%	130%	97%	50%	140%
Trichloroethylene	4810771	4810771	2.80	2.24	22.2%	< 0.20	79%	50%	140%	72%	60%	130%	70%	50%	140%
Bromodichloromethane	4810771	4810771	<0.20	<0.20	NA	< 0.20	106%	50%	140%	96%	60%	130%	80%	50%	140%
Methyl Isobutyl Ketone	4810771	4810771	<1.0	<1.0	NA	< 1.0	93%	50%	140%	90%	50%	140%	102%	50%	140%
1,1,2-Trichloroethane	4810771	4810771	<0.20	<0.20	NA	< 0.20	113%	50%	140%	114%	60%	130%	106%	50%	140%
Toluene	4810771	4810771	<0.20	<0.20	NA	< 0.20	88%	50%	140%	117%	60%	130%	95%	50%	140%
Dibromochloromethane	4810771	4810771	<0.10	<0.10	NA	< 0.10	95%	50%	140%	102%	60%	130%	82%	50%	140%
Ethylene Dibromide	4810771	4810771	<0.10	<0.10	NA	< 0.10	97%	50%	140%	102%	60%	130%	96%	50%	140%
Tetrachloroethylene	4810771	4810771	<0.20	<0.20	NA	< 0.20	87%	50%	140%	103%	60%	130%	89%	50%	140%
1,1,1,2-Tetrachloroethane	4810771	4810771	<0.10	<0.10	NA	< 0.10	92%	50%	140%	89%	60%	130%	74%	50%	140%
Chlorobenzene	4810771	4810771	<0.10	<0.10	NA	< 0.10	80%	50%	140%	87%	60%	130%	73%	50%	140%
Ethylbenzene	4810771	4810771	<0.10	<0.10	NA	< 0.10	101%	50%	140%	120%	60%	130%	94%	50%	140%
m & p-Xylene	4810771	4810771	<0.20	<0.20	NA	< 0.20	90%	50%	140%	118%	60%	130%	97%	50%	140%
Bromoform	4810771	4810771	<0.10	<0.10	NA	< 0.10	88%	50%	140%	90%	60%	130%	81%	50%	140%
Styrene	4810771	4810771	<0.10	<0.10	NA	< 0.10	111%	50%	140%	120%	60%	130%	92%	50%	140%
1,1,2,2-Tetrachloroethane	4810771	4810771	<0.10	<0.10	NA	< 0.10	100%	50%	140%	111%	60%	130%	107%	50%	140%
o-Xylene	4810771	4810771	<0.10	<0.10	NA	< 0.10	114%	50%	140%	95%	60%	130%	108%	50%	140%

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Apr 19, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
1,3-Dichlorobenzene	4810771	4810771	<0.10	<0.10	NA	< 0.10	115%	50%	140%	104%	60%	130%	116%	50%	140%
1,4-Dichlorobenzene	4810771	4810771	<0.10	<0.10	NA	< 0.10	117%	50%	140%	102%	60%	130%	113%	50%	140%
1,2-Dichlorobenzene	4810771	4810771	<0.10	<0.10	NA	< 0.10	101%	50%	140%	105%	60%	130%	99%	50%	140%
n-Hexane	4810771	4810771	<0.20	<0.20	NA	< 0.20	77%	50%	140%	95%	60%	130%	76%	50%	140%
O. Reg. 153(511) - VOCs (Water)															
Dichlorodifluoromethane	4810786	4810786	<0.40	<0.40	NA	< 0.40	80%	50%	140%	96%	50%	140%	98%	50%	140%
Vinyl Chloride	4810786	4810786	<0.17	<0.17	NA	< 0.17	84%	50%	140%	84%	50%	140%	77%	50%	140%
Bromomethane	4810786	4810786	<0.20	<0.20	NA	< 0.20	78%	50%	140%	96%	50%	140%	74%	50%	140%
Trichlorofluoromethane	4810786	4810786	<0.40	<0.40	NA	< 0.40	89%	50%	140%	114%	50%	140%	88%	50%	140%
Acetone	4810786	4810786	<1.0	<1.0	NA	< 1.0	87%	50%	140%	115%	50%	140%	109%	50%	140%
1,1-Dichloroethylene	4810786	4810786	<0.30	<0.30	NA	< 0.30	102%	50%	140%	93%	60%	130%	94%	50%	140%
Methylene Chloride	4810786	4810786	<0.30	<0.30	NA	< 0.30	108%	50%	140%	99%	60%	130%	102%	50%	140%
trans- 1,2-Dichloroethylene	4810786	4810786	<0.20	<0.20	NA	< 0.20	93%	50%	140%	85%	60%	130%	83%	50%	140%
Methyl tert-butyl ether	4810786	4810786	<0.20	<0.20	NA	< 0.20	101%	50%	140%	91%	60%	130%	79%	50%	140%
1,1-Dichloroethane	4810786	4810786	<0.30	<0.30	NA	< 0.30	106%	50%	140%	104%	60%	130%	88%	50%	140%
Methyl Ethyl Ketone	4810786	4810786	<1.0	<1.0	NA	< 1.0	96%	50%	140%	93%	50%	140%	101%	50%	140%
cis- 1,2-Dichloroethylene	4810786	4810786	<0.20	<0.20	NA	< 0.20	104%	50%	140%	96%	60%	130%	89%	50%	140%
Chloroform	4810786	4810786	1.74	1.45	18.2%	< 0.20	112%	50%	140%	94%	60%	130%	107%	50%	140%
1,2-Dichloroethane	4810786	4810786	<0.20	<0.20	NA	< 0.20	118%	50%	140%	103%	60%	130%	104%	50%	140%
1,1,1-Trichloroethane	4810786	4810786	<0.30	<0.30	NA	< 0.30	91%	50%	140%	91%	60%	130%	72%	50%	140%
Carbon Tetrachloride	4810786	4810786	<0.20	<0.20	NA	< 0.20	104%	50%	140%	82%	60%	130%	75%	50%	140%
Benzene	4810786	4810786	<0.20	<0.20	NA	< 0.20	96%	50%	140%	82%	60%	130%	81%	50%	140%
1,2-Dichloropropane	4810786	4810786	<0.20	<0.20	NA	< 0.20	82%	50%	140%	74%	60%	130%	97%	50%	140%
Trichloroethylene	4810786	4810786	3.67	4.82	27.1%	< 0.20	79%	50%	140%	72%	60%	130%	70%	50%	140%
Bromodichloromethane	4810786	4810786	<0.20	<0.20	NA	< 0.20	106%	50%	140%	96%	60%	130%	80%	50%	140%
Methyl Isobutyl Ketone	4810786	4810786	<1.0	<1.0	NA	< 1.0	93%	50%	140%	90%	50%	140%	102%	50%	140%
1,1,2-Trichloroethane	4810786	4810786	<0.20	<0.20	NA	< 0.20	113%	50%	140%	114%	60%	130%	106%	50%	140%
Toluene	4810786	4810786	<0.20	<0.20	NA	< 0.20	88%	50%	140%	117%	60%	130%	95%	50%	140%
Dibromochloromethane	4810786	4810786	<0.10	<0.10	NA	< 0.10	95%	50%	140%	102%	60%	130%	82%	50%	140%
Ethylene Dibromide	4810786	4810786	<0.10	<0.10	NA	< 0.10	97%	50%	140%	102%	60%	130%	96%	50%	140%
Tetrachloroethylene	4810786	4810786	<0.20	<0.20	NA	< 0.20	87%	50%	140%	103%	60%	130%	89%	50%	140%
1,1,1,2-Tetrachloroethane	4810786	4810786	<0.10	<0.10	NA	< 0.10	92%	50%	140%	89%	60%	130%	74%	50%	140%
Chlorobenzene	4810786	4810786	<0.10	<0.10	NA	< 0.10	80%	50%	140%	87%	60%	130%	73%	50%	140%
Ethylbenzene	4810786	4810786	<0.10	<0.10	NA	< 0.10	101%	50%	140%	120%	60%	130%	94%	50%	140%
m & p-Xylene	4810786	4810786	<0.20	<0.20	NA	< 0.20	90%	50%	140%	118%	60%	130%	97%	50%	140%
Bromoform	4810786	4810786	<0.10	<0.10	NA	< 0.10	88%	50%	140%	90%	60%	130%	81%	50%	140%
Styrene	4810786	4810786	<0.10	<0.10	NA	< 0.10	111%	50%	140%	120%	60%	130%	92%	50%	140%
1,1,2,2-Tetrachloroethane	4810786	4810786	<0.10	<0.10	NA	< 0.10	100%	50%	140%	111%	60%	130%	107%	50%	140%
o-Xylene	4810786	4810786	<0.10	<0.10	NA	< 0.10	114%	50%	140%	95%	60%	130%	108%	50%	140%

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Apr 19, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
1,3-Dichlorobenzene	4810786	4810786	<0.10	<0.10	NA	< 0.10	115%	50%	140%	104%	60%	130%	116%	50%	140%
1,4-Dichlorobenzene	4810786	4810786	<0.10	<0.10	NA	< 0.10	117%	50%	140%	102%	60%	130%	113%	50%	140%
1,2-Dichlorobenzene	4810786	4810786	<0.10	<0.10	NA	< 0.10	101%	50%	140%	105%	60%	130%	99%	50%	140%
n-Hexane	4810786	4810786	<0.20	<0.20	NA	< 0.20	77%	50%	140%	95%	60%	130%	76%	50%	140%
O. Reg. 153(511) - PHCs F1/BTEX (Water)															
Benzene	4811886		<0.20	<0.20	NA	< 0.20	91%	60%	140%	95%	60%	140%	101%	60%	140%
Toluene	4811886		<0.20	<0.20	NA	< 0.20	93%	60%	140%	107%	60%	140%	101%	60%	140%
Ethylbenzene	4811886		<0.10	<0.10	NA	< 0.10	113%	60%	140%	97%	60%	140%	100%	60%	140%
m & p-Xylene	4811886		<0.20	<0.20	NA	< 0.20	107%	60%	140%	101%	60%	140%	100%	60%	140%
o-Xylene	4811886		<0.10	<0.10	NA	< 0.10	91%	60%	140%	96%	60%	140%	97%	60%	140%
F1 (C6-C10)	4811886		<25	<25	NA	< 25	84%	60%	140%	84%	60%	140%	88%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

Water Analysis

RPT Date: Apr 19, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Water)															
Dissolved Antimony	4811554		<1.0	<1.0	NA	< 1.0	108%	70%	130%	109%	80%	120%	109%	70%	130%
Dissolved Arsenic	4811554		<1.0	1.0	NA	< 1.0	97%	70%	130%	98%	80%	120%	105%	70%	130%
Dissolved Barium	4811554		144	144	0.1%	< 2.0	102%	70%	130%	101%	80%	120%	100%	70%	130%
Dissolved Beryllium	4811554		<0.50	<0.50	NA	< 0.50	91%	70%	130%	97%	80%	120%	104%	70%	130%
Dissolved Boron	4811554		43.3	42.4	NA	< 10.0	91%	70%	130%	97%	80%	120%	100%	70%	130%
Dissolved Cadmium	4811554		<0.20	<0.20	NA	< 0.20	99%	70%	130%	100%	80%	120%	108%	70%	130%
Dissolved Chromium	4811554		<2.0	<2.0	NA	< 2.0	100%	70%	130%	104%	80%	120%	108%	70%	130%
Dissolved Cobalt	4811554		1.32	1.32	NA	< 0.50	100%	70%	130%	103%	80%	120%	106%	70%	130%
Dissolved Copper	4811554		2.7	2.4	NA	< 1.0	100%	70%	130%	101%	80%	120%	101%	70%	130%
Dissolved Lead	4811554		<0.50	0.51	NA	< 0.50	98%	70%	130%	96%	80%	120%	90%	70%	130%
Dissolved Molybdenum	4811554		1.99	2.14	NA	< 0.50	104%	70%	130%	108%	80%	120%	113%	70%	130%
Dissolved Nickel	4811554		2.2	1.9	NA	< 1.0	97%	70%	130%	99%	80%	120%	98%	70%	130%
Dissolved Selenium	4811554		<1.0	1.7	NA	< 1.0	110%	70%	130%	108%	80%	120%	117%	70%	130%
Dissolved Silver	4811554		<0.20	<0.20	NA	< 0.20	99%	70%	130%	101%	80%	120%	93%	70%	130%
Dissolved Thallium	4811554		<0.30	<0.30	NA	< 0.30	97%	70%	130%	98%	80%	120%	91%	70%	130%
Dissolved Uranium	4811554		1.05	1.04	NA	< 0.50	96%	70%	130%	103%	80%	120%	100%	70%	130%
Dissolved Vanadium	4811554		1.68	1.69	NA	< 0.40	100%	70%	130%	104%	80%	120%	113%	70%	130%
Dissolved Zinc	4811554		10.2	7.6	NA	< 5.0	99%	70%	130%	100%	80%	120%	106%	70%	130%
Mercury	4810771	4810771	<0.02	<0.02	NA	< 0.02	102%	70%	130%	98%	80%	120%	100%	70%	130%
Chromium VI	4814195		<2	<2	NA	< 2	102%	70%	130%	106%	80%	120%	99%	70%	130%
Cyanide, WAD	4810771	4810771	<2	<2	NA	< 2	97%	70%	130%	90%	80%	120%	106%	70%	130%
Dissolved Sodium	4811554		358000	357000	0.3%	< 50	101%	70%	130%	102%	80%	120%	NA	70%	130%
Chloride	4811526		50900	51800	1.7%	< 100	92%	70%	130%	98%	80%	120%	103%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

Certified By:

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Method Summary

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD | **AGAT WORK ORDER: 23T001251**

PROJECT: SP21-01117-00 | **ATTENTION TO: Fuzail Patel**

SAMPLING SITE:Barrie | **SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
F1 (C6 - C10)	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
Toluene-d8	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	modified from MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Sediment			N/A
Benzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F1 (C6-C10)	VOL-91-5010	modified from MOE E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE E3421	(P&T)GC/FID
Toluene-d8	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

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

AGAT Laboratories
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http://www.agatlabs.com

Method Summary

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD | **AGAT WORK ORDER: 23T001251**

PROJECT: SP21-01117-00 | **ATTENTION TO: Fuzail Patel**

SAMPLING SITE:Barrie | **SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,1-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

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

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Method Summary

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T001251

PROJECT: SP21-01117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:Barrie

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Chromium VI	INOR-93-6073	modified from SM 3500-CR B	LACHAT FIA
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Dissolved Sodium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP/MS
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 23T001251

Cooler Quantity: 2

Arrival Temperatures: 1.7 | 12.8 | 7.5
1.5 | 1.7 | 1.9

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: Loose ice

Report Information:

Company: Sirati

Contact: fuzail @ sirati.ca

Address: 100 Konrad Crescent, Markham

Phone: Fax:

Reports to be sent to:

1. Email: fuzail @ sirati.ca
2. Email: simon @ sirati.ca ; tariq @ sirati.ca

Regulatory Requirements:

(Please check all applicable boxes)

☑ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Com
☑ Res/Park
☐ Agriculture

Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Excess Soils R406
Table ____ (Indicate One)

☐ Regulation 558

☐ CCME

☐ Sewer Use
☐ Sanitary ☐ Storm
____ (Region)

☐ Prov. Water Quality Objectives (PWQO)

☐ Other
____ (Indicate One)

Is this submission for a **Record of Site Condition**? ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☑ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT

**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: SP21-01117-MV

Site Location: Bronte

Sampled By:

AGAT Quote #: PO:

Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:

Contact:

Address:

Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC, F1-F4 PHCs (VOC + Modified BTEX)	O. Reg 153: Aroclors	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: Include Moisture ☐ Sulphide ☐	Potentially Hazardous or High Concentration (Y/N)
BH/MW-01	27/2/23	AM PM					✓					✓						
BH/MW-02	27/2/23	AM PM					✓					✓						
BH/MW-03	27/2/23	AM PM					✓					✓						
BH/MW-04	27/2/23	AM PM					✓					✓						
DUP		AM PM					✓					✓						
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Fuzail Patel Patel	28/2/23			Feb 28/23	12:30 pm
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

'23FEB28 12:19PM

Page 1 of 1

N°: T-139029

AGAT Laboratories

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CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD
160 KONRAD CRESCENT UNIT 4
MARKHAM, ON L3R 9T9
(905) 833-1582
ATTENTION TO: Fuzail Patel
PROJECT: SP22-1117-00
AGAT WORK ORDER: 23T005483
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer
DATE REPORTED: Apr 20, 2023
PAGES (INCLUDING COVER): 14
VERSION*: 1

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

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*
- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

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Certificate of Analysis

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

O. Reg. 153(511) - PHCs F1 - F4 (with VOC) (Water)

DATE RECEIVED: 2023-03-14

DATE REPORTED: 2023-04-20

		SAMPLE DESCRIPTION:		BH/MW-04
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-03-13
Parameter	**Unit**	**G / S**	**RDL**	**4851355**
F1 (C6 - C10)	µg/L	750	25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25
F2 (C10 to C16)	µg/L	150	100	<100
F3 (C16 to C34)	µg/L	500	100	<100
F4 (C34 to C50)	µg/L	500	100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA
Sediment				3
Surrogate	**Unit**	**Acceptable Limits**		
Toluene-d8	%	50-140		104
Terphenyl	% Recovery	60-140		79

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4851355 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Legend: 1 = no sediment present; 2 = sediment present; 3 = sediment present in trace amounts

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

O. Reg. 153(511) - VOCs (with PHC) (Water)

DATE RECEIVED: 2023-03-14

DATE REPORTED: 2023-04-20

		SAMPLE DESCRIPTION:		BH/MW-04
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-03-13
Parameter	Unit	G / S	RDL	4851355
Dichlorodifluoromethane	µg/L	590	0.40	<0.40
Vinyl Chloride	µg/L	0.5	0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30
Methylene Chloride	µg/L	50	0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20
Chloroform	µg/L	2.4	0.20	**13.9**
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20
Benzene	µg/L	5.0	0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	**2.18**
Bromodichloromethane	µg/L	16	0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20
Toluene	µg/L	24	0.20	0.51
Dibromochloromethane	µg/L	25	0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10
Chlorobenzene	µg/L	30	0.10	<0.10
Ethylbenzene	µg/L	2.4	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20

Certified By: N Popnikolof

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

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Certificate of Analysis

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

O. Reg. 153(511) - VOCs (with PHC) (Water)

DATE RECEIVED: 2023-03-14 **DATE REPORTED: 2023-04-20**

		SAMPLE DESCRIPTION:		BH/MW-04
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-03-13
Parameter	**Unit**	**G / S**	**RDL**	**4851355**
Bromoform	µg/L	25	0.10	<0.10
Styrene	µg/L	5.4	0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10
o-Xylene	µg/L		0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30
Xylenes (Total)	µg/L	300	0.20	<0.20
n-Hexane	µg/L	51	0.20	<0.20
Surrogate	**Unit**	**Acceptable Limits**		
Toluene-d8	% Recovery	50-140		104
4-Bromofluorobenzene	% Recovery	50-140		86

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4851355 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

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

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AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

O. Reg. 153(511) - Metals & Inorganics (Water) - Lab Filtered

DATE RECEIVED: 2023-03-14

DATE REPORTED: 2023-04-20

		SAMPLE DESCRIPTION:		BH/MW-04
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2023-03-13
Parameter	Unit	G / S	RDL	4851355
Dissolved Antimony	µg/L	6	1.0	<1.0
Dissolved Arsenic	µg/L	25	1.0	<1.0
Dissolved Barium	µg/L	1000	2.0	65.8
Dissolved Beryllium	µg/L	4	0.50	<0.50
Dissolved Boron	µg/L	5000	10.0	49.1
Dissolved Cadmium	µg/L	2.7	0.20	<0.20
Dissolved Chromium	µg/L	50	2.0	2.3
Dissolved Cobalt	µg/L	3.8	0.50	<0.50
Dissolved Copper	µg/L	87	1.0	1.6
Dissolved Lead	µg/L	10	0.50	<0.50
Dissolved Molybdenum	µg/L	70	0.50	<0.50
Dissolved Nickel	µg/L	100	1.0	1.1
Dissolved Selenium	µg/L	10	1.0	<1.0
Dissolved Silver	µg/L	1.5	0.20	<0.20
Dissolved Thallium	µg/L	2	0.30	<0.30
Dissolved Uranium	µg/L	20	0.50	<0.50
Dissolved Vanadium	µg/L	6.2	0.40	<0.40
Dissolved Zinc	µg/L	1100	5.0	6.8
Mercury	µg/L	0.29	0.02	<0.02
Chromium VI	µg/L	25	2.000	<2.000
Cyanide, WAD	µg/L	66	2	<2
Dissolved Sodium	µg/L	490000	50	133000
Chloride	µg/L	790000	100	220000
Electrical Conductivity	uS/cm	NA	2	1160
pH	pH Units		NA	7.90
Lab Filtration Performed				2023/03/17

Certified By: Iris Verástegui

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

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

O. Reg. 153(511) - Metals & Inorganics (Water) - Lab Filtered

DATE RECEIVED: 2023-03-14 **DATE REPORTED: 2023-04-20**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4851355 Metals analysis completed on a lab filtered sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

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Exceedance Summary

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

ATTENTION TO: Fuzail Patel

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4851355	BH/MW-04	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Chloroform	µg/L	2.4	13.9
4851355	BH/MW-04	ON T2 PGW CT	O. Reg. 153(511) - VOCs (with PHC) (Water)	Trichloroethylene	µg/L	1.6	2.18

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

Trace Organics Analysis

RPT Date: Apr 20, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (with VOC) (Water)															
F1 (C6 - C10)	4851355	4851355	<25	<25	NA	< 25	98%	60%	140%	93%	60%	140%	102%	60%	140%
F2 (C10 to C16)	4850125		<100	<100	NA	< 100	107%	60%	140%	70%	60%	140%	72%	60%	140%
F3 (C16 to C34)	4850125		<100	<100	NA	< 100	109%	60%	140%	72%	60%	140%	63%	60%	140%
F4 (C34 to C50)	4850125		<100	<100	NA	< 100	95%	60%	140%	78%	60%	140%	84%	60%	140%
O. Reg. 153(511) - VOCs (with PHC) (Water)															
Dichlorodifluoromethane	4851355	4851355	<0.40	<0.40	NA	< 0.40	79%	50%	140%	74%	50%	140%	82%	50%	140%
Vinyl Chloride	4851355	4851355	<0.17	<0.17	NA	< 0.17	108%	50%	140%	86%	50%	140%	118%	50%	140%
Bromomethane	4851355	4851355	<0.20	<0.20	NA	< 0.20	72%	50%	140%	73%	50%	140%	76%	50%	140%
Trichlorofluoromethane	4851355	4851355	<0.40	<0.40	NA	< 0.40	107%	50%	140%	81%	50%	140%	82%	50%	140%
Acetone	4851355	4851355	<1.0	<1.0	NA	< 1.0	105%	50%	140%	110%	50%	140%	116%	50%	140%
1,1-Dichloroethylene	4851355	4851355	<0.30	<0.30	NA	< 0.30	74%	50%	140%	73%	60%	130%	82%	50%	140%
Methylene Chloride	4851355	4851355	<0.30	<0.30	NA	< 0.30	86%	50%	140%	104%	60%	130%	114%	50%	140%
trans- 1,2-Dichloroethylene	4851355	4851355	<0.20	<0.20	NA	< 0.20	105%	50%	140%	75%	60%	130%	77%	50%	140%
Methyl tert-butyl ether	4851355	4851355	<0.20	<0.20	NA	< 0.20	86%	50%	140%	86%	60%	130%	83%	50%	140%
1,1-Dichloroethane	4851355	4851355	<0.30	<0.30	NA	< 0.30	91%	50%	140%	98%	60%	130%	103%	50%	140%
Methyl Ethyl Ketone	4851355	4851355	<1.0	<1.0	NA	< 1.0	103%	50%	140%	95%	50%	140%	86%	50%	140%
cis- 1,2-Dichloroethylene	4851355	4851355	<0.20	<0.20	NA	< 0.20	112%	50%	140%	85%	60%	130%	97%	50%	140%
Chloroform	4851355	4851355	13.9	13.7	1.5%	< 0.20	114%	50%	140%	91%	60%	130%	106%	50%	140%
1,2-Dichloroethane	4851355	4851355	<0.20	<0.20	NA	< 0.20	91%	50%	140%	83%	60%	130%	113%	50%	140%
1,1,1-Trichloroethane	4851355	4851355	<0.30	<0.30	NA	< 0.30	96%	50%	140%	96%	60%	130%	76%	50%	140%
Carbon Tetrachloride	4851355	4851355	<0.20	<0.20	NA	< 0.20	70%	50%	140%	79%	60%	130%	79%	50%	140%
Benzene	4851355	4851355	<0.20	<0.20	NA	< 0.20	75%	50%	140%	81%	60%	130%	94%	50%	140%
1,2-Dichloropropane	4851355	4851355	<0.20	<0.20	NA	< 0.20	110%	50%	140%	93%	60%	130%	91%	50%	140%
Trichloroethylene	4851355	4851355	2.18	2.61	18.0%	< 0.20	98%	50%	140%	99%	60%	130%	88%	50%	140%
Bromodichloromethane	4851355	4851355	<0.20	<0.20	NA	< 0.20	71%	50%	140%	109%	60%	130%	91%	50%	140%
Methyl Isobutyl Ketone	4851355	4851355	<1.0	<1.0	NA	< 1.0	97%	50%	140%	124%	50%	140%	100%	50%	140%
1,1,2-Trichloroethane	4851355	4851355	<0.20	<0.20	NA	< 0.20	116%	50%	140%	106%	60%	130%	109%	50%	140%
Toluene	4851355	4851355	0.51	0.49	NA	< 0.20	90%	50%	140%	91%	60%	130%	116%	50%	140%
Dibromochloromethane	4851355	4851355	<0.10	<0.10	NA	< 0.10	83%	50%	140%	73%	60%	130%	86%	50%	140%
Ethylene Dibromide	4851355	4851355	<0.10	<0.10	NA	< 0.10	117%	50%	140%	101%	60%	130%	116%	50%	140%
Tetrachloroethylene	4851355	4851355	<0.20	<0.20	NA	< 0.20	82%	50%	140%	91%	60%	130%	112%	50%	140%
1,1,1,2-Tetrachloroethane	4851355	4851355	<0.10	<0.10	NA	< 0.10	85%	50%	140%	86%	60%	130%	113%	50%	140%
Chlorobenzene	4851355	4851355	<0.10	<0.10	NA	< 0.10	105%	50%	140%	94%	60%	130%	118%	50%	140%
Ethylbenzene	4851355	4851355	<0.10	<0.10	NA	< 0.10	72%	50%	140%	71%	60%	130%	92%	50%	140%
m & p-Xylene	4851355	4851355	<0.20	<0.20	NA	< 0.20	72%	50%	140%	74%	60%	130%	94%	50%	140%
Bromoform	4851355	4851355	<0.10	<0.10	NA	< 0.10	94%	50%	140%	71%	60%	130%	88%	50%	140%
Styrene	4851355	4851355	<0.10	<0.10	NA	< 0.10	76%	50%	140%	81%	60%	130%	74%	50%	140%
1,1,2,2-Tetrachloroethane	4851355	4851355	<0.10	<0.10	NA	< 0.10	112%	50%	140%	112%	60%	130%	101%	50%	140%
o-Xylene	4851355	4851355	<0.10	<0.10	NA	< 0.10	80%	50%	140%	80%	60%	130%	101%	50%	140%

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Quality Assurance

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

Trace Organics Analysis (Continued)

RPT Date: Apr 20, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
1,3-Dichlorobenzene	4851355	4851355	<0.10	<0.10	NA	< 0.10	94%	50%	140%	90%	60%	130%	113%	50%	140%
1,4-Dichlorobenzene	4851355	4851355	<0.10	<0.10	NA	< 0.10	95%	50%	140%	92%	60%	130%	115%	50%	140%
1,2-Dichlorobenzene	4851355	4851355	<0.10	<0.10	NA	< 0.10	96%	50%	140%	86%	60%	130%	109%	50%	140%
n-Hexane	4851355	4851355	<0.20	<0.20	NA	< 0.20	91%	50%	140%	113%	60%	130%	119%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

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Quality Assurance

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AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

Water Analysis

RPT Date: Apr 20, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Water) - Lab Filtered															
Dissolved Antimony	4860078		<1.0	<1.0	NA	< 1.0	104%	70%	130%	107%	80%	120%	104%	70%	130%
Dissolved Arsenic	4860078		<1.0	<1.0	NA	< 1.0	97%	70%	130%	106%	80%	120%	111%	70%	130%
Dissolved Barium	4860078		207	203	2.0%	< 2.0	101%	70%	130%	103%	80%	120%	105%	70%	130%
Dissolved Beryllium	4860078		<2.50	<2.50	NA	< 0.50	99%	70%	130%	108%	80%	120%	101%	70%	130%
Dissolved Boron	4860078		111	103	7.5%	< 10.0	99%	70%	130%	100%	80%	120%	93%	70%	130%
Dissolved Cadmium	4860078		<0.20	<0.20	NA	< 0.20	100%	70%	130%	99%	80%	120%	100%	70%	130%
Dissolved Chromium	4860078		<2.0	<2.0	NA	< 2.0	98%	70%	130%	99%	80%	120%	104%	70%	130%
Dissolved Cobalt	4860078		1.38	1.27	NA	< 0.50	98%	70%	130%	100%	80%	120%	100%	70%	130%
Dissolved Copper	4860078		2.6	4.2	NA	< 1.0	102%	70%	130%	102%	80%	120%	91%	70%	130%
Dissolved Lead	4860078		<0.50	<0.50	NA	< 0.50	97%	70%	130%	97%	80%	120%	87%	70%	130%
Dissolved Molybdenum	4860078		<0.50	<0.50	NA	< 0.50	100%	70%	130%	104%	80%	120%	106%	70%	130%
Dissolved Nickel	4860078		2.5	6.3	NA	< 1.0	97%	70%	130%	98%	80%	120%	93%	70%	130%
Dissolved Selenium	4860078		1.0	<1.0	NA	< 1.0	103%	70%	130%	105%	80%	120%	115%	70%	130%
Dissolved Silver	4860078		<0.20	<0.20	NA	< 0.20	95%	70%	130%	94%	80%	120%	84%	70%	130%
Dissolved Thallium	4860078		<0.30	<0.30	NA	< 0.30	99%	70%	130%	99%	80%	120%	92%	70%	130%
Dissolved Uranium	4860078		1.31	1.30	NA	< 0.50	91%	70%	130%	100%	80%	120%	91%	70%	130%
Dissolved Vanadium	4860078		<0.40	<0.40	NA	< 0.40	98%	70%	130%	103%	80%	120%	110%	70%	130%
Dissolved Zinc	4860078		5.6	<5.0	NA	< 5.0	98%	70%	130%	104%	80%	120%	92%	70%	130%
Mercury	4851355	4851355	<0.02	<0.02	NA	< 0.02	104%	70%	130%	101%	80%	120%	97%	70%	130%
Chromium VI	4857592		<2.000	<2.000	NA	< 2	101%	70%	130%	107%	80%	120%	106%	70%	130%
Cyanide, WAD	4857179		<2	<2	NA	< 2	102%	70%	130%	97%	80%	120%	108%	70%	130%
Dissolved Sodium	4860078		812000	747000	8.3%	< 50	97%	70%	130%	94%	80%	120%	NA	70%	130%
Chloride	4851355	4851355	220000	222000	0.9%	< 100	100%	70%	130%	103%	80%	120%	NA	70%	130%
Electrical Conductivity	4850817		358	358	0.0%	< 2	94%	90%	110%						
pH	4850817		7.75	7.89	1.8%	NA	100%	90%	110%						

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

Certified By: Iris Verástegui

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Method Summary

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD | **AGAT WORK ORDER: 23T005483**

PROJECT: SP22-1117-00 | **ATTENTION TO: Fuzail Patel**

SAMPLING SITE:340 Ardagh Road, Barrie | **SAMPLED BY:HE**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
F1 (C6 - C10)	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
Toluene-d8	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	modified from MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Sediment			N/A
Dichlorodifluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

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

Method Summary

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD

AGAT WORK ORDER: 23T005483

PROJECT: SP22-1117-00

ATTENTION TO: Fuzail Patel

SAMPLING SITE:340 Ardagh Road, Barrie

SAMPLED BY:HE

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Toluene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

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

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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Method Summary

CLIENT NAME: SIRATI & PARTNERS CONSULTANTS LTD | **AGAT WORK ORDER: 23T005483**

PROJECT: SP22-1117-00 | **ATTENTION TO: Fuzail Patel**

SAMPLING SITE:340 Ardagh Road, Barrie | **SAMPLED BY:HE**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Chromium VI	INOR-93-6073	modified from SM 3500-CR B	LACHAT FIA
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Dissolved Sodium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP/MS
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Lab Filtration Performed			FILTRATION

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

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 23T005483

Cooler Quantity: 1 cooler

Arrival Temperatures: 2.6 | 3.1 | 2.4

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: no ice

Report Information:

Company: Sirati and Partners
Contact: Fuzail@Sirati.ca
Address: 160 Konrad Cres., Markham L3R 9T9
Phone: 905 940 1582 Fax: 905 940 2440
Reports to be sent to:
1. Email: Fuzail@Sirati.Ca
2. Email: Simon@Sirati.Ca

Regulatory Requirements:

(Please check all applicable boxes)

☑ Regulation 153/04 — Table 2 (Indicate One) — ☐ Ind/Com ☑ Res/Park ☐ Agriculture
Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Excess Soils R406 — Table ____ (Indicate One)
☐ Regulation 558
☐ CCME

☐ Sewer Use ☐ Sanitary ☐ Storm — Region ____
☐ Prov. Water Quality Objectives (PWQO)
☐ Other — Indicate One

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): ____

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: SP22-1117-00
Site Location: 340 Ardagh Road, Barrie
Sampled By: Hiva Elhami
AGAT Quote #: ____ PO: ____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐

Company:
Contact:
Address: Fuzail@Sirati.Ca
Email: Firuze@Sirati.Ca

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC (F1-F4, PHC, BTEX) (including Vocs)	O. Reg 153: Arocolors	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: Include Moisture ☐ Sulphide ☐	Potentially Hazardous or High Concentration (Y/N)
BH/MW-04	13/March/2023	AM		GW	Not filtered	N	✓					✓						
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																

Samples Relinquished By (Print Name and Sign): Hiva Elhami	Date: 13/3/2023	Time:	Samples Received By (Print Name and Sign): GWYNET	Date: 13/14/23	Time: 12:30pm
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page ____ of ____

№: T-135672

Document ID: DIV-78-1811.022

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Date Issued: Aug 21, 2022

APPENDIX E

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

Project No.: SP22-1117-00

Phase Two Environmental Site Assessment
340 Ardagh Road, Barrie, ON

Soil Sample Analytical Protocol

Sample Location	Sample ID	Date of Sampling	Sample Depth (mbgs)	Chemical Analysis	Rationale
BH-3	SS5	23-01-2023	3 - 3.5	M&I, PHC, BTEX, VOC	To assess soil quality
	SS8	23-01-2023	7.6 - 8.1	M&I, PHC, BTEX, VOC	To assess soil quality
BH-4	SS1	20-01-2023	0 - 0.6	M&I, OCPs	To assess soil quality
	SS6	20-01-2023	4.6 - 5	M&I, PHC, BTEX, VOC	To assess soil quality
	SS8	20-01-2023	7.6 - 8.1	M&I, PHC, BTEX, VOC	To assess soil quality

Notes: M&I = metals and inorganics
PHCs = petroleum hydrocarbons
VOCs = volatile organic compounds
PAHs = polycyclic aromatic hydrocarbons

Project No.: SP22-1117-00
Phase Two Environmental Site Assessment
340 Ardagh Road, Barrie, ON

Table 1: Soil Analytical Results -Petroleum Hydrocarbons & BTEX

Sample Location				BH-3		BH-4	
Sample ID				BH-3 / SS5	BH-3 / SS8	BH-4 / SS6	BH-4 / SS8
Sampling Date				01/23/2023	01/23/2023	01/20/2023	01/20/2023
Laboratory ID				4736472	4736473	4736476	4736477
Parameter	Unit	MECP Table 2 RPI Standards	RDL				
F1 (C6 - C10)	µg/g	55	5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5
Toluene-d8	%		1	112	119	110	115
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA
Moisture Content	%		0.1	4.6	14.7	8.9	20.0
Terphenyl	%		1	75	68	75	74

MECP Table 2 RPI Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil Standards (course) - Residential/ Parkland/ Institutional Property Use
RDL = Report Detection Limit

Project No.: SP22-1117-00
Phase Two Environmental Site Assessment
340 Ardagh Road, Barrie, ON

Table 2: Soil Analytical Result - Metals and Inorganics

Sample Location				BH-3		BH-4		
Sample ID				BH-3 SS5	BH-3 SS8	BH-4 SS1	BH-4 SS6	BH-4 SS8
Sampling Date				23-01-2023	23-01-2023	20-01-2023	20-01-2023	20-01-2023
Laboratory ID				4736472	4736473	4736475	4736476	4736477
Parameter	**Unit**	**MECP Table 2 RPI Standards**	**RDL**					
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1	2	<1	<1
Barium	µg/g	390	2.0	15.0	20.2	30.7	19.2	66.7
Beryllium	µg/g	4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron	µg/g	120	5	<5	<5	<5	<5	8
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	5	8	8	10	11	13
Cobalt	µg/g	22	0.5	2.6	2.2	3.1	2.7	4.2
Copper	µg/g	140	1.0	4.4	4.0	3.8	4.9	7.4
Lead	µg/g	120	1	1	1	5	1	2
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	3	2	5	2	5
Selenium	µg/g	2.4	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	µg/g	20	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g	23	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	22.7	16.6	18.3	27.2	22.0
Zinc	µg/g	340	5	14	9	23	12	20
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide, WAD	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	0.083	0.118	0.124	0.101	0.138
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	N/A	0.127	0.109	0.084	0.085	0.436
pH, 2:1 CaCl2 Extraction	pH Units	5.0-9.0	NA	7.14	7.18	7.25	7.26	7.28

MECP Table 2 RPI Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil Standards (course) - Residential/ Parkland/ Institutional Property Use

RDL = Report Detection Limit

Project No.: SP22-1117-00

Phase Two Environmental Site Assessment
340 Ardagh Road, Barrie, ON
Table 3: Soil Analytical Result - OC Pesticides

Sample Location				BH-4
Sample ID				BH-4 / SS1
Sampling Date				01/20/2023
Sample Depth (mbgs)				0 - 0.6
Laboratory ID				4736475
Parameter	**Unit**	**MECP Table 2 RPI Standards**	**RDL**	
Hexachloroethane	µg/g	0.07	0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g	0.063	0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.33	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	3.3	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT (Total)	µg/g	1.4	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005
Hexachlorobutadiene	µg/g	0.014	0.01	<0.01
TCMX	%		1	110
Decachlorobiphenyl	%		1	118
Moisture Content	%		0.1	12.4
wet weight OC	g		0.005	10.6

MECP Table3 RPI Standards = Ministry of Environment, Conservation and Parks (MECP)
Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition -
Soil Standard (Coarse) - Industrial/ Commercial/ Community Property Use

RDL = Report Detection Limit

Project No.: SP22-1117-00
Phase Two Environmental Site Assessment
340 Ardagh Road, Barrie, ON
Table 4: Soil Analytical Result - Volatile Organic Compounds

Sample Location				BH-3		BH-4	
Sample ID				BH-3 / SS5	BH-3 / SS8	BH-4 / SS6	BH-4 / SS8
Sampling Date				01/23/2023	01/23/2023	01/20/2023	01/20/2023
Laboratory ID				4736472	4736473	4736476	4736477
Parameter	Unit	MECP Table 2 RPI Standards	RDL				
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.084	0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.75	0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.47	0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	1.9	0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.061	0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	1.5	0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	1.7	0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	ug/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.28	0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.27	0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.7	0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	1.2	0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	ug/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
n-Hexane	µg/g	2.8	0.05	<0.05	<0.05	<0.05	<0.05
Toluene-d8	% Recovery		1	112	119	110	115
4-Bromofluorobenzene	% Recovery		1	79	75	82	82
Moisture Content	%		0.1	4.6	14.7	8.9	20.0

MECP Table 2 RPI Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil Standards (course) - Residential/ Parkland/ Institutional Property Use

RDL = Report Detection Limit

Project No.: SP22-1117-00
Soil Characterization Report - Excess Soil Material
334 Ardagh Road, Barrie, ON
Table 6 - RPD

Sample Locaiton	RDL	Acceptable Limits (≤%)	BH1SS7		RPD (%)
Sample ID			BH1SS7	Dup1	
Date Sampled			20-Jan-23	2022-03-10	
Parameter			Metals	Metals	
Antimony	0.8	30	<0.8	<0.8	NC
Arsenic	1	30	<1	<1	NC
Barium	2	30	10.1	7.9	24
Beryllium	4	30	<0.4	<0.4	NC
Boron (Total)	5	30	<5.0	<5.0	NC
Cadmium	0.5	30	<0.5	<5.0	NC
Chromium (Total)	5	30	<5.0	<5.0	NC
Cobalt	0.5	30	1.3	1	26
Copper	1	30	2.4	1.9	23
Lead	1	30	<1	<1	NC
Molybdenum	0.5	30	<0.5	<0.5	NC
Nickel	1	30	1	<1	NC
Selenium	0.8	30	<0.8	<0.8	NC
Silver	0.5	30	<0.5	<0.5	NC
Thallium	0.5	30	<0.5	<0.5	NC
Uranium	0.5	30	<0.5	<0.5	NC
Vanadium	0.4	30	9.3	6.7	**33**
Zinc	5	30	5	<5.0	NC

Notes:

- RDL is the laboratory Reported Detection Limits.
- RPD is calculated only for result pairs with concentrations greater than 5 times of the method detection limit in both samples.
- RPDs are not calculated where results are below the laboratory minimum detection limits for sample pair.
- NC means Not calculated due to value(s) below five times RDL.
- Bold and underlined means original and duplicate samples values are not within acceptable RPD

APPENDIX F

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

Soil Maximum Concentration Data

Project No.: SP22-1117-00
Phase Two Environmental Site Assessment
340 Ardagh Road, Barrie, ON

Summary of Metals & Inorganics (M&I):

Parameter	Unit	MECP Table 2 RPI Standards	Maximum Concentration	Sample ID
Antimony	µg/g	7.5	<0.8	All soil Samples
Arsenic	µg/g	18	2	BH-4 / SS1
Barium	µg/g	390	66.7	BH-4 / SS8
Beryllium	µg/g	4	<0.4	All soil Samples
Boron	µg/g	120	8	BH-4 / SS8
Boron (Hot Water Soluble)	µg/g	1.5	0.10	BH-4 / SS1
Cadmium	µg/g	1.2	<0.5	All soil Samples
Chromium	µg/g	160	13	BH-4 / SS8
Cobalt	µg/g	22	4.2	BH-4 / SS8
Copper	µg/g	140	7.4	BH-4 / SS8
Lead	µg/g	120	5	BH-4 / SS1
Molybdenum	µg/g	6.9	<0.5	All soil Samples
Nickel	µg/g	100	5	BH-4 / SS1, BH-4 / SS8
Selenium	µg/g	2.4	<0.8	All soil Samples
Silver	µg/g	20	<0.5	All soil Samples
Thallium	µg/g	1	<0.5	All soil Samples
Uranium	µg/g	23	<0.50	All soil Samples
Vanadium	µg/g	86	27.2	BH-4 / SS6
Zinc	µg/g	340	23	BH-4 / SS1
Chromium, Hexavalent	µg/g	8	<0.2	All soil Samples
Cyanide, WAD	µg/g	0.051	<0.040	All soil Samples
Mercury	µg/g	0.27	<0.10	All soil Samples
Electrical Conductivity (2:1)	mS/cm	0.7	0.138	BH-4 / SS8
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	0.436	BH-4 / SS8
pH, 2:1 CaCl2 Extraction	pH Units	5.0-9.0	7.28	BH-4 / SS8

Summary of OC Pesticides

Parameter	Unit	MECP Table 2 RPI Standards	Maximum Concentration	Sample ID
Hexachloroethane	µg/g	0.07	<0.005	BH-4 / SS1
Gamma-Hexachlorocyclohexane	µg/g	0.063	<0.005	BH-4 / SS1
Heptachlor	µg/g	0.15	<0.005	BH-4 / SS1
Aldrin	µg/g	0.05	<0.005	BH-4 / SS1
Heptachlor Epoxide	µg/g	0.05	<0.005	BH-4 / SS1
Endosulfan I	µg/g		<0.005	BH-4 / SS1
Endosulfan II	µg/g		<0.005	BH-4 / SS1
Endosulfan	µg/g	0.04	<0.005	BH-4 / SS1
Alpha-Chlordane	µg/g		<0.005	BH-4 / SS1
gamma-Chlordane	µg/g		<0.005	BH-4 / SS1
Chlordane	µg/g	0.05	<0.007	BH-4 / SS1
op'-DDE	ug/g		<0.005	BH-4 / SS1
pp'-DDE	µg/g		<0.005	BH-4 / SS1
DDE	µg/g	0.33	<0.007	BH-4 / SS1
op'-DDD	µg/g		<0.005	BH-4 / SS1
pp'-DDD	µg/g		<0.005	BH-4 / SS1
DDD	µg/g	3.3	<0.007	BH-4 / SS1
op'-DDT	µg/g		<0.005	BH-4 / SS1
pp'-DDT	µg/g		<0.005	BH-4 / SS1
DDT (Total)	µg/g	1.4	<0.007	BH-4 / SS1
Dieldrin	µg/g	0.05	<0.005	BH-4 / SS1
Endrin	µg/g	0.04	<0.005	BH-4 / SS1
Methoxychlor	µg/g	0.13	<0.005	BH-4 / SS1
Hexachlorobenzene	µg/g	0.52	<0.005	BH-4 / SS1
Hexachlorobutadiene	µg/g	0.014	<0.01	BH-4 / SS1
TCMX	%		110	BH-4 / SS1
Decachlorobiphenyl	%		118	BH-4 / SS1
Moisture Content	%		12.4	BH-4 / SS1
wet weight OC	g		10.6	BH-4 / SS1

Soil Maximum Concentration Data

Project No.: SP22-1117-00
Phase Two Environmental Site Assessment
340 Ardagh Road, Barrie, ON

Summary of Petroleum Hydrocarbons & BTEX

Parameter	Unit	MECP Table 2 RPI Standards	Maximum Concentration	Sample ID
F1 (C6 - C10)	µg/g	55	<5	All soil Samples
F1 (C6 to C10) minus BTEX	µg/g	55	<5	All soil Samples
Toluene-d8	%		119	BH-3 / SS8
F2 (C10 to C16)	µg/g	98	<10	All soil Samples
F3 (C16 to C34)	µg/g	300	<50	All soil Samples
F4 (C34 to C50)	µg/g	2800	<50	All soil Samples
Gravimetric Heavy Hydrocarbons	µg/g	2800	NA	All soil Samples
Moisture Content	%		20	BH-4 / SS8
Terphenyl	%		75	BH-4 / SS6 , BH-3 / SS5

Summary of Volatile Organic Compounds (VOCs):

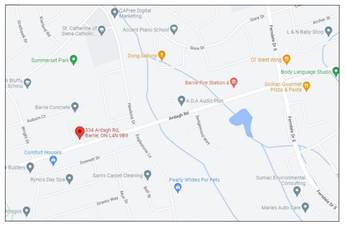
Parameter	Unit	MECP Table 2 RPI Standards	Maximum Concentration	Sample ID
Dichlorodifluoromethane	µg/g	16	<0.05	All soil Samples
Vinyl Chloride	ug/g	0.02	<0.02	All soil Samples
Bromomethane	ug/g	0.05	<0.05	All soil Samples
Trichlorofluoromethane	ug/g	4	<0.05	All soil Samples
Acetone	ug/g	16	<0.50	All soil Samples
1,1-Dichloroethylene	ug/g	0.05	<0.05	All soil Samples
Methylene Chloride	ug/g	0.1	<0.05	All soil Samples
Trans- 1,2-Dichloroethylene	ug/g	0.084	<0.05	All soil Samples
Methyl tert-butyl Ether	ug/g	0.75	<0.05	All soil Samples
1,1-Dichloroethane	ug/g	0.47	<0.02	All soil Samples
Methyl Ethyl Ketone	ug/g	16	<0.50	All soil Samples
Cis- 1,2-Dichloroethylene	ug/g	1.9	<0.02	All soil Samples
Chloroform	ug/g	0.05	<0.04	All soil Samples
1,2-Dichloroethane	ug/g	0.05	<0.03	All soil Samples
1,1,1-Trichloroethane	ug/g	0.38	<0.05	All soil Samples
Carbon Tetrachloride	ug/g	0.05	<0.05	All soil Samples
Benzene	ug/g	0.21	<0.02	All soil Samples
1,2-Dichloropropane	ug/g	0.05	<0.03	All soil Samples
Trichloroethylene	ug/g	0.061	<0.03	All soil Samples
Bromodichloromethane	ug/g	1.5	<0.05	All soil Samples
Methyl Isobutyl Ketone	ug/g	1.7	<0.50	All soil Samples
1,1,2-Trichloroethane	ug/g	0.05	<0.04	All soil Samples
Toluene	ug/g	2.3	<0.05	All soil Samples
Dibromochloromethane	ug/g	2.3	<0.05	All soil Samples
Ethylene Dibromide	ug/g	0.05	<0.04	All soil Samples
Tetrachloroethylene	ug/g	0.28	<0.05	All soil Samples
1,1,1,2-Tetrachloroethane	ug/g	0.058	<0.04	All soil Samples
Chlorobenzene	ug/g	2.4	<0.05	All soil Samples
Ethylbenzene	ug/g	1.1	<0.05	All soil Samples
m & p-Xylene	ug/g		<0.05	All soil Samples
Bromoform	ug/g	0.27	<0.05	All soil Samples
Styrene	ug/g	0.7	<0.05	All soil Samples
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.05	All soil Samples
o-Xylene	ug/g		<0.05	All soil Samples
1,3-Dichlorobenzene	ug/g	4.8	<0.05	All soil Samples
1,4-Dichlorobenzene	ug/g	0.083	<0.05	All soil Samples
1,2-Dichlorobenzene	ug/g	1.2	<0.05	All soil Samples
Xylenes (Total)	ug/g	3.1	<0.05	All soil Samples
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	<0.05	All soil Samples
n-Hexane	µg/g	2.8	<0.05	All soil Samples

APPENDIX G

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

KEYMAP:



Legend

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
IB	DENOTES	IRON BAR
OU	DENOTES	ORIGIN UNKNOWN
S	DENOTES	SET
M	DENOTES	MEASURED
WIT	DENOTES	WITNESS
N/S/E/W	DENOTES	NORTH/SOUTH/EAST/WEST
P	DENOTES	PLAN 51R–29800
P1	DENOTES	SURVEYOR'S REAL PROPERTY REPORT BY RUDY MAK SURVEYING LTD., O.L.S., DATED SEPTEMBER 21, 2000
P2	DENOTES	REGISTERED PLAN 51M–867
D	DENOTES	INSTRUMENT No.RO895296(PIN 58763–0301)
738	DENOTES	R.C. KIRKPATRICK, O.L.S.
974	DENOTES	T.C. SEAWRIGHT, O.L.S.
1546	DENOTES	RUDY MAK SURVEYING LTD., O.L.S.
ST	DENOTES	TIES TO STONE
FDN	DENOTES	TIES TO CONCRETE FOUNDATION
WD	DENOTES	TIES TO WOOD
BF	DENOTES	BOARD FENCE
CLF	DENOTES	CHAIN LINK FENCE
RF	DENOTES	RAIL FENCE
SRW	DENOTES	STONE RETAINING WALL
WRW	DENOTES	WOOD RETAINING WALL
BC	DENOTES	BOTTOM OF CURB ELEVATION
OHW	DENOTES	OVERHEAD WIRES
UP	DENOTES	UTILITY POLE
CB	DENOTES	CATCHBASIN
MH	DENOTES	MANHOLE
WV	DENOTES	WATER VALVE
FH	DENOTES	FIRE HYDRANT
Ø	DENOTES	DIAMETER (ROUND)
DS	DENOTES	DOOR SILL ELEVATION
	DENOTES	DECIDUOUS TREE WITH TRUNK DIAMETER
	DENOTES	CONIFEROUS TREE WITH TRUNK DIAMETER

SURVEYOR'S REAL PROPERTY REPORT–PART 1

PLAN OF SURVEY OF PART OF LOTS 5 & 6 REGISTERED PLAN 1192 CITY OF BARRIE COUNTY OF SIMCOE

SCALE 1:200

0 5 10 20 Metres

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PEARSON & PEARSON SURVEYING LTD. 2022

Ontario Land Surveyors

Metric

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

Part 2

DESCRIPTION OF LAND: PART OF LOTS 5 AND 6, REGISTERED PLAN 1192, CITY OF BARRIE, COUNTY OF SIMCOE.

REGISTERED EASEMENTS AND/OR RIGHTS OF WAY:

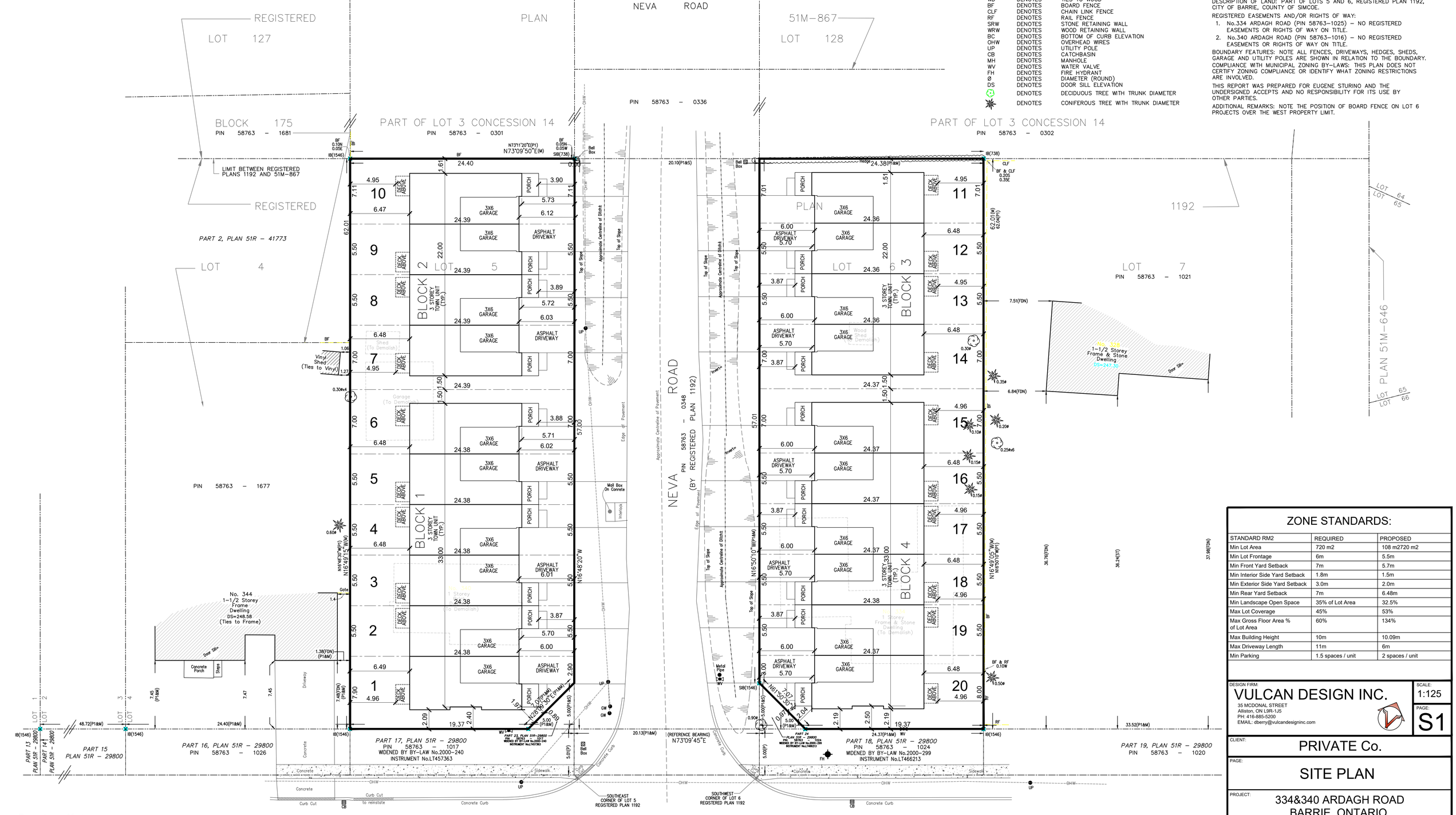
1. No.334 ARDAGH ROAD (PIN 58763–1025) – NO REGISTERED EASEMENTS OR RIGHTS OF WAY ON TITLE.
2. No.340 ARDAGH ROAD (PIN 58763–1016) – NO REGISTERED EASEMENTS OR RIGHTS OF WAY ON TITLE.

BOUNDARY FEATURES: NOTE ALL FENCES, DRIVEWAYS, HEDGES, SHEDS, GARAGE AND UTILITY POLES ARE SHOWN IN RELATION TO THE BOUNDARY.

COMPLIANCE WITH MUNICIPAL ZONING BY–LAWS: THIS PLAN DOES NOT CERTIFY ZONING COMPLIANCE OR IDENTIFY WHAT ZONING RESTRICTIONS ARE INVOLVED.

THIS REPORT WAS PREPARED FOR EUGENE STURINO AND THE UNDERSIGNED ACCEPTS AND NO RESPONSIBILITY FOR ITS USE BY OTHER PARTIES.

ADDITIONAL REMARKS: NOTE THE POSITION OF BOARD FENCE ON LOT 6 PROJECTS OVER THE WEST PROPERTY LIMIT.



Bearing Note

BEARINGS ARE UTM GRID AND THE NORTHERLY LIMIT OF ARDAGH ROAD AS WIDENED SHOWN ON PLAN 51R–29800 AS HAVING A BEARING OF N73°09'45"E.

Benchmark

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO A CITY OF TORONTO BENCHMARK.
Station# : 03120080013 ELEVATION = 284.792m(DATUM:CGVD28:78)

Note

TREE CALIPERS ARE NOT TO ARBORIST STANDARDS AND FOR ARBORIST CALIPER REFER TO ARBORIST REPORT.

ZONE STANDARDS:

STANDARD RM2	REQUIRED	PROPOSED
Min Lot Area	720 m2	108 m2720 m2
Min Lot Frontage	6m	5.5m
Min Front Yard Setback	7m	5.7m
Min Interior Side Yard Setback	1.8m	1.5m
Min Exterior Side Yard Setback	3.0m	2.0m
Min Rear Yard Setback	7m	6.48m
Min Landscape Open Space	35% of Lot Area	32.5%
Max Lot Coverage	45%	53%
Max Gross Floor Area % of Lot Area	60%	134%
Max Building Height	10m	10.09m
Max Driveway Length	11m	6m
Min Parking	1.5 spaces / unit	2 spaces / unit

DESIGN FIRM:
VULCAN DESIGN INC.
35 MCDONAL STREET
Alliston, ON L9R-1J5
PH: 416-885-5200
EMAIL: dberry@vulcandesigninc.com

SCALE: 1:125

PAGE: S1

CLIENT: PRIVATE Co.

PAGE: SITE PLAN

PROJECT: 334&340 ARDAGH ROAD BARRIE, ONTARIO

NO.:	REVISION:	DATE:	DWN.	CHK.
1.	ISSUED FOR PERMIT	SEP 29/22	DCB	DCB

DESIGNER BCIN DECLARATION

I DANIEL BERRY DECLARE THAT I HAVE REVIEWED & TAKE DESIGN RESPONSIBILITY FOR THE DESIGN WORK UNDER DIVISION C, PART 3 SECTION 3.2 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND THE FIRM IS REGISTERED IN THE APPROPRIATE CATEGORIES.

FIRM BCIN: 36501

DESIGNER BCIN: 21107

SIGNATURE:_____ DATE: SEP 29/22

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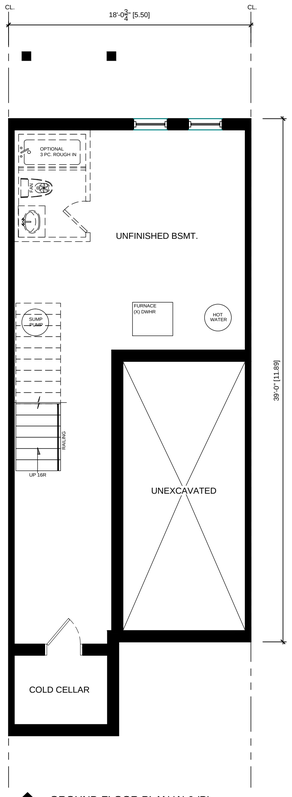
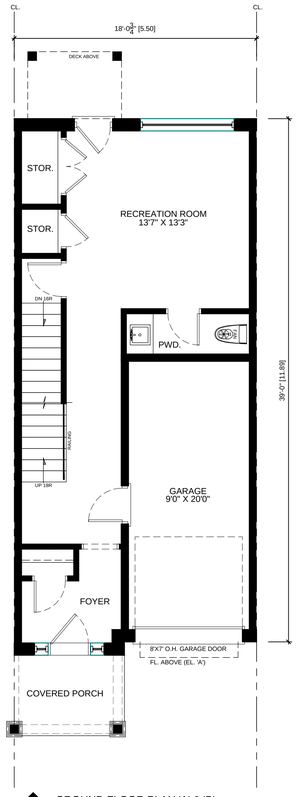
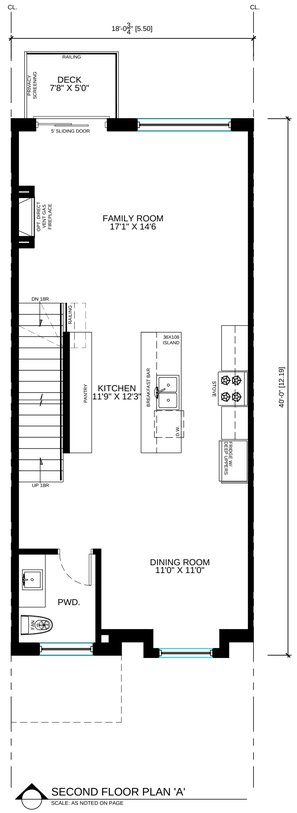
**ONLY HEX NOTES IDENTIFIED ON PLANS / ELEVATIONS SHALL APPLY
*NOTES / CONSTRUCTION TO CONFORM TO 2012 ONTARIO BUILDING CODE



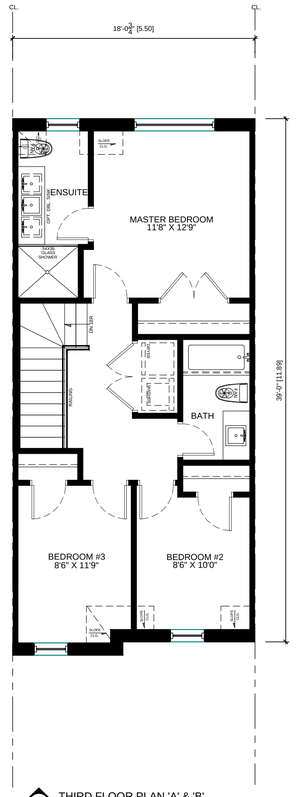
GROUND FLOOR PLAN 'A' & 'B'
SCALE: AS NOTED ON PAGE



GROUND FLOOR PLAN 'A' & 'B'
SCALE: AS NOTED ON PAGE



SECOND FLOOR PLAN 'A'
SCALE: AS NOTED ON PAGE



THIRD FLOOR PLAN 'A' & 'B'
SCALE: AS NOTED ON PAGE

AREA CALCULATIONS				
GROUND	sf	512	m2	47.565
SECOND	sf	720	m2	66.888
THIRD	sf	712	m2	66.145
< O.T.B.	sf	0	m2	0.000
TOTAL	sf	1944	m2	180.598
FIN. BASEMENT	sf	0	m2	0.000
TOTAL	sf	1944	m2	180.598

COVERAGE CALCULATIONS				
GROUND	sf	512	m2	47.565
GARAGE	sf	200	m2	18.580
FRONT PORCH	sf	49	m2	4.552
REAR PORCH	sf	0	m2	0.000
CON. W/O PORCH	sf	712	m2	66.145
CON. W/ PORCH	sf	761	m2	70.697

VULCAN DESIGN INC.
Professional Service, Exceptional Value

35 MCDONALD STREET
ALLISTON, ON L9R 1J5
PH: 416-885-5200

EMAIL: dberry@vulcandesigninc.com
CONTACT PERSON: DANIEL BERRY

BCIN DECLARATION:

I DANIEL BERRY DECLARE THAT I HAVE REVIEWED & TAKE DESIGN RESPONSIBILITY FOR THE DESIGN WORK UNDER DIVISION C, PART 3 SECTION 3.2 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND THE FIRM IS REGISTERED IN THE APPROPRIATE CATEGORIES.

FIRM BCIN: 36501

DESIGNER BCIN: 21107

SIGNATURE:_____ DATE: _____

LEGEND / LINTELS:

LINTELS:

WOOD

W1	2/2"X8"
W2	2/2"X10"
W3	2/2"X12"
W4	3/2"X8"
W5	3/2"X10"
W6	3/2"X12"

LVL (2.0E)

2-LVL 7	2- 1 3/4" X 7-1/4"
3-LVL 7	3- 1 3/4" X 7-1/4"
2-LVL 9	2- 1 3/4" X 9-1/2"
3-LVL 9	3- 1 3/4" X 9-1/2"
2-LVL 11	2- 1 3/4" X 11-7/8"
3-LVL 11	3- 1 3/4" X 11-7/8"
2-LVL 14	2- 1 3/4" X 14"
3-LVL 14	3- 1 3/4" X 14"

U.N.O. FASTEN MULTIPLE PLY LVL'S (2) ROWS @ 12" O.C. 3 1/4" (16d) NAILS OR SDW SCREWS

STEEL LINTELS

S1	<4'-0" L3-1/2" X 3-1/2" - 1/4"
S2	< 6'-0" L4" X 3-1/2" X 1/4"
S3	< 8'-0" L5" X 3-1/2" X 5/16"
S4	< 10'-0" L6" X 3-1/2" X 5/16"

-BEAR LINTELS MIN. 6" EACH END
-LINTELS SHALL BE PRIMED TO "CISC/CPMA 2-3"
-ORIENT ANGLES LONG LEG VERT.
-MAX. 1" BRICK OVERHANG
-WEEP HOLES @ 56" O.C. MAX

ABBREVIATIONS:

DJ	DOUBLE JOIST
TJ	TRIPLE JOIST
GT	GIRDER TRUSS
'DO'	DO OVER
RJ	ROOF JOISTS
STL.	STEEL
SB.	SOLID BEARING (SEE 'FRAMING REQ.'S')
PL.	POINT LOAD
(FL.)	FLUSH
(DR.)	DROPPED
FG.	FIXED GLASS
FDTN.	FOUNDATION
BG.	BLACK GLASS
JT	JACK TRUSS
U/S	UNDERSIDE
T/O	TOP OF
FG.	FIXED GLASS
CLG.	CEILING
BBFM	BEAM BY FLOOR MANUFACTURE

SB SOLID BEARING (SAME WIDTH AS SUPPORTED MEMBER)
PL CONCENTRATED POINT LOAD
FIRE PLACE VENT
DRYER VENT
STOVE VENT
CELLAR VENT
SMOKE ALRM SMOKE ALARM
CO ALRM CARBON MONOXIDE DETECTOR
HOSE BIB
WP WATERPROOF ELECTRICAL OUTLET
HOOD/CELLAR VENT
DRYER VENT
GAS LINE
CABLE LINE
PHONE JACK
FAN CEILING EXHAUST FAN
P.C. PULL CHAIN CLG. LIGHT
CEILING LIGHT
3 3 WAY SWITCH
S LIGHT SWITCH
120 VOLT RECEPTACLE
42" ELECTRIC RECEPTACLE (42" OFF FINISH FLOOR)
FD FLOOR DRAIN
CONDENSATE

NO.	REVISION :	DATE:	DWN.	CHK.
1	Issued for review	SEP21/22	dcb	dcb

PROJECT: V22-0677
334&340 ARDAGH ROAD
BARRIE, ON

PG. CONTENT: FLOOR PLANS
SCALE: 3/16" = 1'-0"
PAGE: A1

Preliminary
(Not for Construction)

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*NOTES / CONSTRUCTION TO CONFORM TO 2012 ONTARIO BUILDING CODE

BLOCK 1 TOWNHOUSE

PROPOSED EAST ELEVATION

SCALE: AS NOTED ON PAGE

BLOCK 1 TOWNHOUSE

PROPOSED WEST ELEVATION

SCALE: AS NOTED ON PAGE

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DESIGNER BCIN: 21107

SIGNATURE:_____ DATE: _____

LEGEND / LINTELS:

LINTELS:

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LVL (2.0E)

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3-LVL 11	3- 1 3/4" X 11-7/8"
2-LVL 14	2- 1 3/4" X 14"
3-LVL 14	3- 1 3/4" X 14"

U.N.O. FASTEN MULTIPLE PLY LVL'S (2) ROWS @ 12" O.C. 3 $\frac{1}{4}$" (16d) NAILS OR SDW SCREWS

STEEL LINTELS

S1	<4'-0" L3-1/2" X 3-1/2" - 1/4"
S2	< 6'-0" L4" X 3-1/2" X 1/4"
S3	< 8'-0" L5" X 3-1/2" X 5/16"
S4	< 10'-0" L6" X 3-1/2" X 5/16"

-BEAR LINTELS MIN. 6" EACH END
-LINTELS SHALL BE PRIMED TO "CISC/CPMA 2-3"
-ORIENT ANGLES LONG LEG VERT.
-MAX. 1" BRICK OVERHANG
-WEEP HOLES @ 56" O.C. MAX

ABBREVIATIONS:

DJ	DOUBLE JOIST
TJ	TRIPLE JOIST
GT	GIRDER TRUSS
'DO'	DO OVER
RJ	ROOF JOISTS
STL.	STEEL
SB.	SOLID BEARING (SEE 'FRAMING REQ.'S')
PL.	POINT LOAD
(FL.)	FLUSH
(DR.)	DROPPED
FG.	FIXED GLASS
FDTN.	FOUNDATION
BG.	BLACK GLASS
JT	JACK TRUSS
U/S	UNDERSIDE
T/O	TOP OF
FG.	FIXED GLASS
CLG.	CEILING
BBFM	BEAM BY FLOOR MANUFACTURE

SB. SOLID BEARING (SAME WIDTH AS SUPPORTED MEMBER)

PL. CONCENTRATED POINT LOAD

FIRE PLACE VENT

DRYER VENT

STOVE VENT

CELLAR VENT

SMOKE ALARM

CARBON MONOXIDE DETECTOR

HOSE BIB

WP WATERPROOF ELECTRICAL OUTLET

HOOD/CELLAR VENT

DRYER VENT

G GAS LINE

CABLE LINE

PHONE JACK

FAN CEILING EXHAUST FAN

P.C. PULL CHAIN CLG. LIGHT

CEILING LIGHT

3 WAY SWITCH

LIGHT SWITCH

120 VOLT RECEPTACLE

42" ELECTRIC RECEPTACLE (42" OFF FINISH FLOOR)

FD FLOOR DRAIN

NO.	REVISION :	DATE:	DWN.	CHK
1	Issued for review	SEP21/22	dcb	dcb

PROJECT: V22-0677

334&340 ARDAGH ROAD
BARRIE, ON

PG. CONTENT: ELEVATIONS

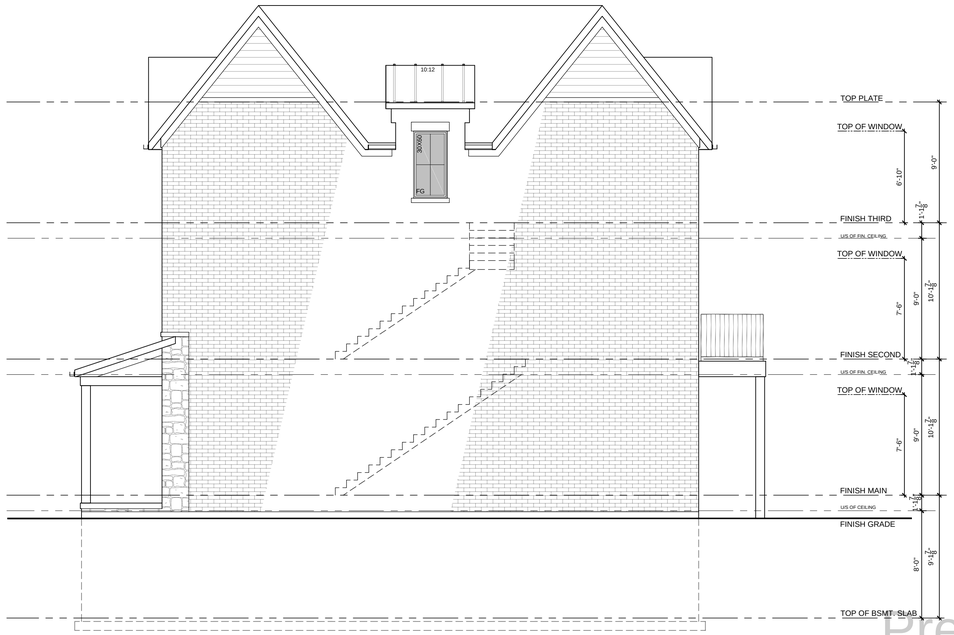
SCALE: 3/16" = 1'-0"

PAGE: A2

Preliminary
(Not for Construction)

*CONSTRUCTION NOTES ARE THE PROPERTY OF VULCAN DESIGN INC. AND MAY NOT BE DUPLICATED OR COPIED WITH OUT THE WRITTEN CONSENT OF VULCAN DESIGN INC.
*ANY SUBSTITUTE MATERIALS TO NOTES STATED SHALL CONFORM TO O.B.C. REGULATIONS AND MANUFACTURES SPECIFICATIONS SHALL BE SUPPLIED BY BUILDER
**ONLY HEX NOTES IDENTIFIED ON PLANS / ELEVATIONS SHALL APPLY
*NOTES / CONSTRUCTION TO CONFORM TO 2012 ONTARIO BUILDING CODE

PROPOSED SOUTH ELEVATION
SCALE: AS NOTED ON PAGE



PROPOSED NORTH ELEVATION
SCALE: AS NOTED ON PAGE

Preliminary
(Not for Construction)

VULCAN DESIGN INC.
Professional Service, Exceptional Value

35 MCDONALD STREET
ALLISTON, ON L9R 1J5
PH: 416-885-5200

EMAIL: dberry@vulcandesigninc.com
CONTACT PERSON: DANIEL BERRY

BCIN DECLARATION:

I DANIEL BERRY DECLARE THAT I HAVE REVIEWED & TAKE DESIGN RESPONSIBILITY FOR THE DESIGN WORK UNDER DIVISION C, PART 3 SECTION 3.2 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND THE FIRM IS REGISTERED IN THE APPROPRIATE CATEGORIES.

FIRM BCIN: 36501

DESIGNER BCIN: 21107

SIGNATURE:_____ DATE: _____

LEGEND / LINTELS:

LINTELS:

WOOD

W1	2/2"X8"
W2	2/2"X10"
W3	2/2"X12"
W4	3/2"X8"
W5	3/2"X10"
W6	3/2"X12"

LVL (2.0E)

2-LVL 7	2- 1 3/4" X 7-1/4"
3-LVL 7	3- 1 3/4" X 7-1/4"
2-LVL 9	2- 1 3/4" X 9-1/2"
3-LVL 9	3- 1 3/4" X 9-1/2"
2-LVL 11	2- 1 3/4" X 11-7/8"
3-LVL 11	3- 1 3/4" X 11-7/8"
2-LVL 14	2- 1 3/4" X 14"
3-LVL 14	3- 1 3/4" X 14"

U.N.O. FASTEN MULTIPLE PLY LVL'S (2) ROWS @ 12" O.C. 3 1/4" (16d) NAILS OR SDW SCREWS

STEEL LINTELS

S1	<4'-0" L3-1/2" X 3-1/2" - 1/4"
S2	< 6'-0" L4" X 3-1/2" X 1/4"
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3 3 WAY SWITCH
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120 VOLT RECEPTACLE
42" ELECTRIC RECEPTACLE (42" OFF FINISH FLOOR)
FD FLOOR DRAIN (SEE PLUMBING DRAWINGS)

NO.:	REVISION :	DATE:	DWN.	CHK.
1	Issued for review	SEP21/22	dcb	dcb

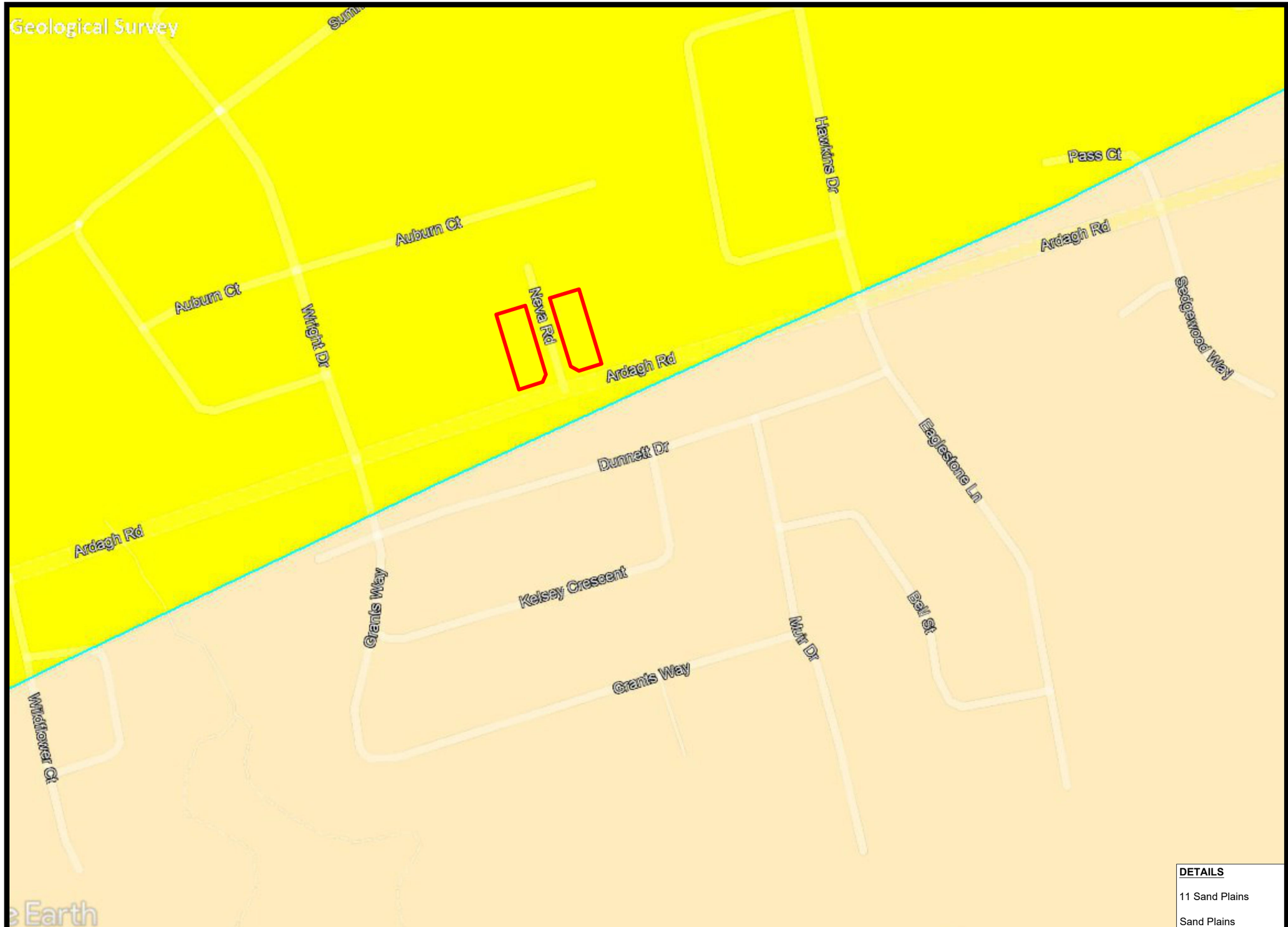
PROJECT: V22-0677
334&340 ARDAGH ROAD
BARRIE, ON

PG. CONTENT: ELEVATIONS
SCALE: 3/16" = 1'-0"
PAGE: A3

APPENDIX H

SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions



SIRATI & PARTNERS
160 Konrad Crescent
Markham, ON. L3R 9T9
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

Approximate Property Boundary

LEGEND
Physiographic Landforms

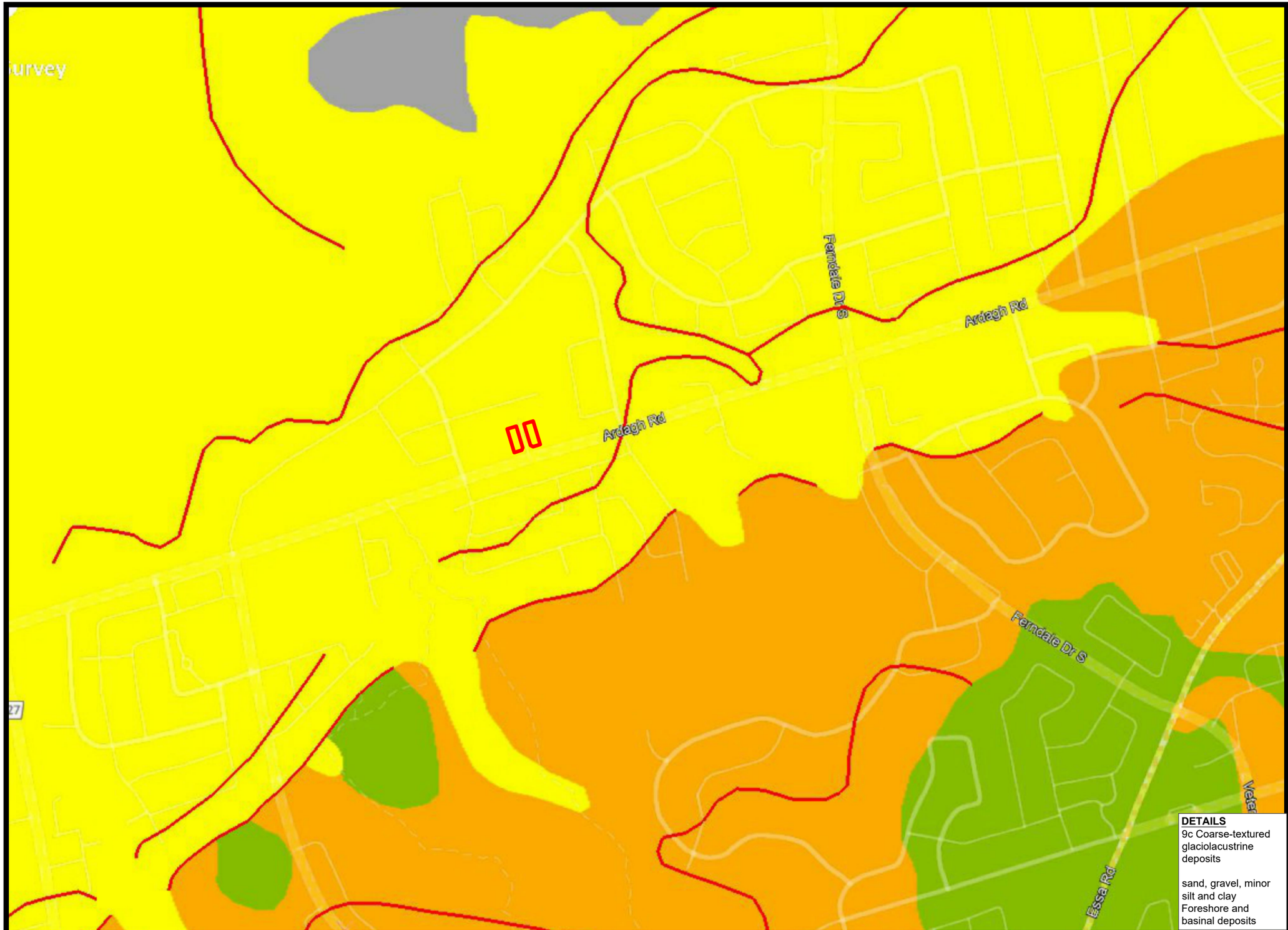
1	Escarpments
2	Till Moraines
3	Spillways
4	Kame Moraines
5	Till Plains (Undrumlinized)
6	Till Plains (Drumlinized)
7	Drumlins
8	Bevelled Till Plains
9	Limestone Plains
10	Shale Plains
11	Sand Plains
12	Clay Plains
13	Eskers
14	Beaches
15	Shallow Till And Rock Ridges
16	Bare Rock Ridges And Shallow Till
17	Peat And Muck

Project Title:
Hydrogeological Investigations

Site Location:
334-340 Ardagh Road,
Barrie, Ontario

Figure Title:
Physiography Map

Scale: As Shown	**Project Number:** SP22-01117-00
Date: March, 2023	**Figure Number:** 7



Source: Ontario Geological Survey (OGS) Google Earth

SIRATI & PARTNERS
160 Konrad Crescent
Markham, ON. L3R 9T9
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

Approximate Property Boundary

- Fill
- **Organic Deposits:** peat, muck and marl
- Silt
- Clay
- Sand
- Gravel
- Till (Diamicton)
- Sedimentary (Paleozoic) bedrock
- Precambrian bedrock
- 21 **Man-made deposits:** fill, sewage lagoon, landfill, urban development
- 20 **Organic Deposits:** peat, muck, marl
- 19 **Modern alluvial deposits:** clay, silt, sand, gravel, may contain organic remains
- 10 **Fine-textured glaciomarine deposits:** silt and clay, minor sand and gravel
  10a Massive to well laminated
  10b Interbedded silt and clay and gritty, pebbly flow till and rainout deposits
- 9 **Coarse-textured glaciolacustrine deposits:** sand, gravel, minor silt and clay
  9a Deltaic deposits
  9b Littoral deposits
  9c Foreshore and basinal deposits
- 8 **Fine-textured glaciolacustrine deposits:** silt and clay, minor sand and gravel
  8a Massive to well laminated
  8b Interbedded silt and clay and gritty, pebbly flow till and rainout deposits
- 7 **Glaciofluvial deposits:** river deposits and delta topset facies
  7a Sandy deposits
  7b Gravelly deposits
- 6 **Ice-contact stratified deposits:** sand and gravel, minor silt, clay and till
  6a In moraines, eskers, kames and crevasse fills
  6b In subaquatic fans

Project Title:

Hydrogeological Investigations

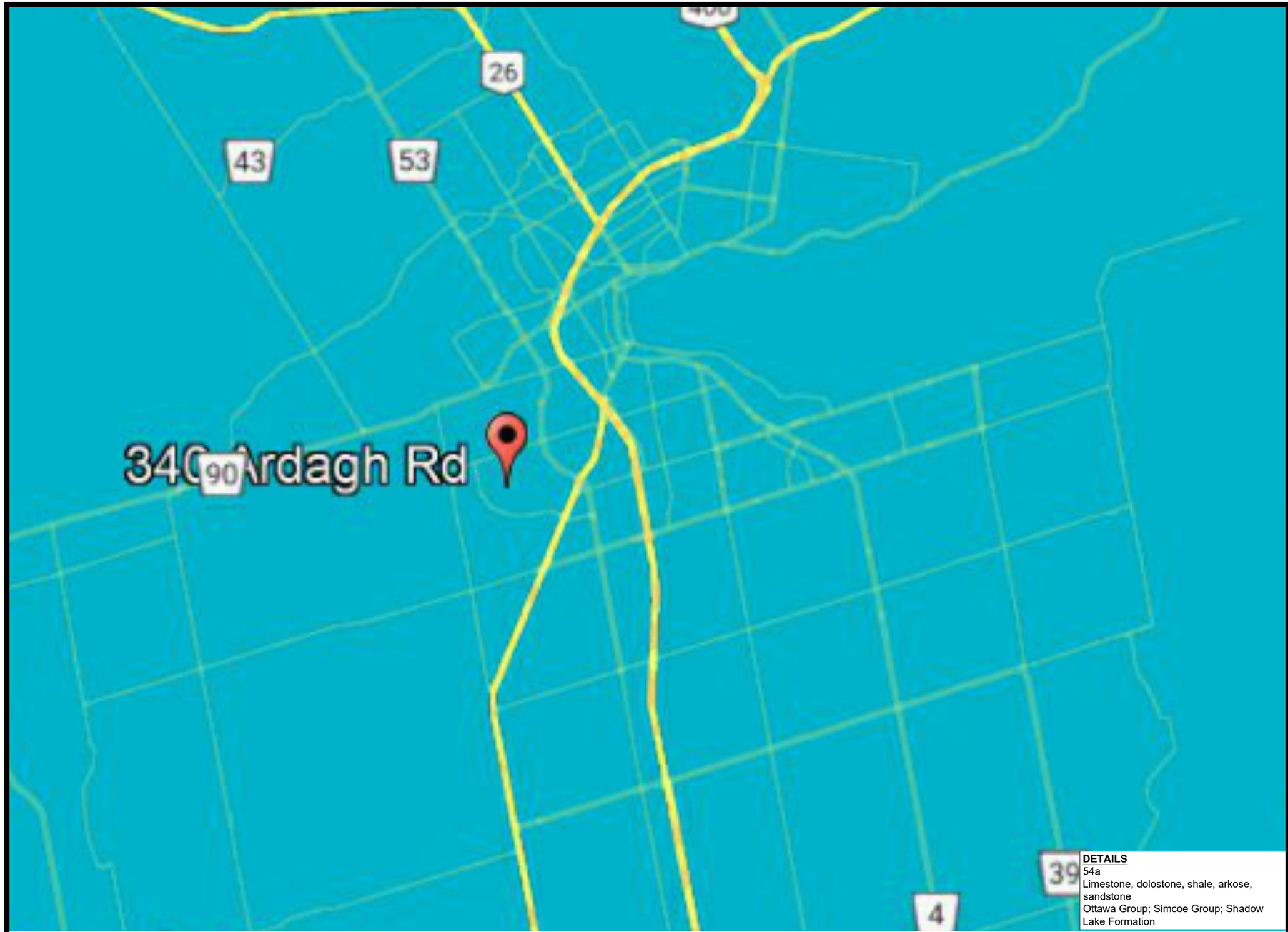
Site Location:

334-340 Ardagh Road,
Barrie, Ontario

Figure Title:

Surficial Geology Map

Scale:	Project Number:
As Shown	SP22-01117-00
Date:	**Figure Number:**
March, 2023	8



Source: Ontario Geological Survey (OGS) Google Earth

SIRATI & PARTNERS
160 Konrad Crescent
Markham, ON. L3R 9T9
Phone# 905 940 1582, Fax# 905 940 2440

North:

Legend:

Approximate Property Boundary

55 **Shale, limestone, dolostone, siltstone**
- 55a Queenston Fm.
- 55b Georgian Bay Fm.; Blue Mountain Fm.; Billings Fm.; Collingwood Mb.; Eastview Mb.
- 55c Linkseed Gp.
- 55d Red Head Rapids Fm.
- 55e Churchill River Gp.
- 55f Bad Cache Rapids Gp.

MIDDLE ORDOVICIAN

54 **Limestone, dolostone, shale, arkose, sandstone**
- 54a Ottawa Gp.; Simcoe Gp.; Shadow Lake Fm. (now considered Upper Ordovician)
- 54b Cherry Gp.; Rockcliffe Fm.

LOWER ORDOVICIAN

53 **Dolostone, sandstone:** Beekmantown Gp.

CAMBRIAN (488.3 Ma to 542.0 Ma)

52 **Conglomerate, sandstone, shale, dolostone:** Potsdam Gp.; Nepean Fm.; Covey Hill Fm.

UNCONFORMITY

PRECAMBRIAN[4] (0.542 Ga to <3.85 Ga)

GRENVILLE PROVINCE[4]

PROTEROZOIC (0.542 Ga to 2.50 Ga)

NEO- TO MESOPROTEROZOIC (0.542 Ga to 1.6 Ga)

Tectonite unit: tectonites, straight gneisses, porphyroclastic gneisses, unmubdivided gneisses in major deformation z protomylonites

CENTRAL METASEDIMENTARY BELT

Late felsic plutonic rocks[1] granodiorite, granite, syenite, pegmatite, alkalic granite, migmatitic gneisses
- 50a Granitic and syenitic gneisses
- 50b Granitic gneisses with metasedimentary xenoliths; migmatites, injection gneisses, pegmatites

Project Title:
Hydrogeological Investigations

Site Location:
334-340 Ardagh Road,
Barrie, Ontario

Figure Title:
Bedrock Geology Map

Scale:	Project Number:
As Shown	SP22-01117-00
Date:	**Figure Number:**
March, 2023	9