

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT  
79 COLLIER STREET, BARRIE, ONTARIO**

**Prepared For:**

**Vitmont Holdings (Barrie) Inc.  
c/o Marydel Homes  
100 Caster Avenue, Woodbridge, Ontario**

**Attention: Ms. Krystina Chang**

**Prepared By:**

**SIRATI & PARTNERS CONSULTANTS LTD.**

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12700- Keele Street, King City  
ON L7B 1H5  
Tel: (905) 833-1582  
Fax: (905) 833-5360  
[www.sirati.ca](http://www.sirati.ca)

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## 1.0 EXECUTIVE SUMMARY

Sirati and Partners Consultants Ltd. (SIRATI) was retained by Vitmont Holding (Barrie) Inc. c/o Marydel Homes (hereinafter referred to as the 'Client') to conduct a Phase Two Environmental Site Assessment (Phase Two ESA) of the property located at 79 Collier Street, Toronto, Ontario (hereinafter referred to as the "Phase Two Property" or the "Site").

The Phase Two ESA was conducted in accordance with the Phase Two ESA Standard as defined by the Ontario Regulation (O. Reg.) 153/04, as amended, and is intended to support the filing of a Record of Site Condition (RSC) for the Site.

The Phase Two Property is located on the southwest corner of Collier Street and Mulcaster Street, in the City of Barrie. The total area of the Phase Two Property is approximately 0.41 acres. The Phase Two Property is developed with a twenty-five (25) space grade level municipal parking lot. The Phase Two Property is bounded by Collier Street to the north, a residential/commercial building to the south, a driveway and a residential/commercial building to the west, a museum to the southeast and Mulcaster Street to the east.

SIRATI understands that there is a proposal to construct a 15 storey building with one (1) level of basement at Phase Two Property.

Based on available physiography, geology and topography information, the Phase One Study Area is located in an area with a physiography of Simcoe Lowlands with a surficial geology of littoral deposits of sand, gravelly minor silt and clay, over bedrock of limestone, dolostone, shale, arkose and sandstone from the Shadow Lake Formation. These soils have a relative moderate to high permeability; hence, the Phase Two Property is susceptible to contaminant migration from adjacent properties. According to the Bedrock Topography of Barrie Area map it is anticipated that the Bedrock is at an elevation of approximately 130 metres above mean sea level (mAMSL), approximately 100 metres below ground surface (mbgs).

According to the topographic maps, the inferred groundwater flow direction in the area is likely to flow towards the southeast in a similar manner as the topography of the area.

The interactive natural heritage area map, published by the Ministry of Natural Resources and Forestry (MNRF) (2015), indicates no areas of natural significance within the Phase One Study Area. No surface water, lagoon, or standing water was observed on the Phase Two Property; Lake Simcoe is located approximately 200 m to the south of Phase Two Property. A request made to the MECP indicated no records were located in their database regarding the Phase One Property.

The nearest surface water body to the Phase Two Property is Lake Simcoe, located approximately 200 south of the Phase Two Property. As part of the Phase One ESA conducted at the Phase Two Property by SIRATI in August 19, 2020 (SIRATI 2020 Phase One ESA), a Phase One Conceptual Site Model (CSM) was prepared for the Phase Two Property, including Drawings depicting the potentially contaminating activities (PCAs) within the Phase One Study Area and the areas of potential environmental concern (APECs) on the Site.

A total of eleven (11) PCAs were identified within the Phase One Study Area. Two (2) of these PCAs are considered to be APECs for the Phase Two Property. The PCAs and APECs are summarized in the Table 1 and Table 2, respectively, below:

**Table 1: PCAs Identified within the Phase One Study Area**

| Potentially Contaminating Activity                                                                                                                                                                                                                                                                                                                                                                          | Location of PCA     |                   |                                | Source of Information                            | Considered an APEC                                                              | Potentially Impacted Media (Ground Water, Soil and/or Sediment) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|--------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                             | On-site or off-site | Up-gradient (Y/N) | Proximity to Site              |                                                  |                                                                                 |                                                                 |
| (1) #30. Importation of Fill Material of Unknown Quality across the Site.                                                                                                                                                                                                                                                                                                                                   | On-Site             | N/A               | N/A                            | Site Reconnaissance (Section 6.2)                | Yes.                                                                            | Soil                                                            |
| (2) (Other) Gasoline spill at the corner of Mulcaster Street and Collier Street                                                                                                                                                                                                                                                                                                                             | Off-Site            | Y                 | Approximately 20 m NE of Site  | Environmental source information (Section 4.2.3) | Yes                                                                             | Soil and Groundwater                                            |
| (3) (Other) waste generation including pathological wastes, photo processing wastes and inorganic laboratory chemicals, at 75 Collier Street.                                                                                                                                                                                                                                                               | Off-Site            | N                 | Adjacent west of Site          | Environmental source information (Section 4.2.4) | No, due nature of regulated activity                                            | N/A                                                             |
| (4) (Other) waste generation including petroleum distillates, light fuels, paint/pigment/coating residues, inorganic laboratory chemicals, oil skimmings' & sludges, waste oils & lubricants, detergents/soaps, organic laboratory chemical, photoprocessing wastes, waste compressed gases, acid waste-heavy metals, other inorganic acid wastes and alkaline wastes - other metals, at 70 Collier Street. | Off-Site            | Y                 | Approximately 36 m N of Site   | Environmental source information (Section 4.2.4) | No, due to nature of regulated activity (offices)                               | N/A                                                             |
| (5) (Other) waste generation including photoprocessing wastes, at 17 Mulcaster Street.                                                                                                                                                                                                                                                                                                                      | Off-Site            | N                 | Approximately 47 m SE of Site  | Environmental source information (Section 4.2.4) | No, due to inferred down -gradient location relative to the Site.               | N/A                                                             |
| (6) (Other) waste generation including alkaline wastes, at 57 Collier Street.                                                                                                                                                                                                                                                                                                                               | Off-Site            | N                 | Approximately 76 m W of Site   | Environmental source information (Section 4.2.4) | No, due to inferred cross -gradient location and distance relative to the Site. | N/A                                                             |
| (7) #37. Operation of Dry-Cleaning Equipment (where chemicals are used)                                                                                                                                                                                                                                                                                                                                     | Off-Site            | N                 | Approximately 100 m NE of Site | Other Historical Information (Section 4.1.6)     | No, due to inferred cross-gradient location and the surface slope of the Site.  | N/A                                                             |

| Potentially Contaminating Activity                                                                                                                                                                                                             | Location of PCA     |                   |                                | Source of Information                            | Considered an APEC                                                              | Potentially Impacted Media (Ground Water, Soil and/or Sediment) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|--------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------|
|                                                                                                                                                                                                                                                | On-site or off-site | Up-gradient (Y/N) | Proximity to Site              |                                                  |                                                                                 |                                                                 |
| (8) #49 Rail Yards, Tracks and Spurs                                                                                                                                                                                                           | Off-Site            | N                 | Approximately 150 m S of Site  | 1880 Ontario Base Map (Section 6.2.16)           | No, due to inferred down -gradient location and distance relative to the Site.  | N/A                                                             |
| (9) (Other) waste generation including waste oils and lubricants, at 114 Worsley Street.                                                                                                                                                       | Off-Site            | N                 | Approximately 188 m NE of Site | Environmental source information (Section 4.2.4) | No, due to inferred cross -gradient location and distance relative to the Site. | N/A                                                             |
| (10) #28. Gasoline and Associated Products Storage in Fixed Tanks. Presence of gasoline tank in Site Building                                                                                                                                  | Off-Site            | N                 | Approximately 250 m E of Site  | Environmental source information (Section 4.2.4) | No, due to inferred cross -gradient location and distance relative to the Site. | N/A                                                             |
| (11) #53. Tannery<br>87 and then 87–89 Collier Street 1942 and 1963 N.M Meyer Hides and Shins. Although the nature of the operations in not known, the potential does exist for tanning activities to have been undertaken at these locations. |                     | N                 | Approximately 40 m E of Site   | Environmental source information (Section 4.2.4) | No, due to inferred cross -gradient location and distance relative to the Site. | N/A                                                             |

The location of PCAs are presented in Figure 2

**Table 2: APECs Identified on the Phase One Property**

| 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) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 1) APEC-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Entire Site                                                                   | #30. Importation of Fill Material of Unknown Quality.                       | PCA#1 On-Site                         | PHCs, PAHs, PCBs, metals and inorganic parameters (As, Sb, Se, B-HWS, CN-, Cr-VI, Hg, low or high pH, EC and SAR) | Soil                                                            |
| 2) APEC-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Northeast portion of Site                                                     | (Other) Gasoline spill at the corner of Mulcaster Street and Collier Street | PCA#3 Off-Site                        | PHCs, VOCs                                                                                                        | Soil and Groundwater                                            |
| Notes: PHCs – Petroleum Hydrocarbons<br>BTEX – Benzene, Toluene, Ethylbenzene and Xylenes<br>PAHs – Polycyclic Aromatic Hydrocarbons<br>VOCs – Volatile Organic Compounds<br>Metals and Inorganics - 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 Sodium and Other Regulated Parameters (Hot Water Soluble Boron, chloride, Electrical Conductivity, Cr (VI), Low or high pH, Hg, SAR, CN-) as per O. Reg 153/04 Analytical Method, amended July 1, 2011. |                                                                               |                                                                             |                                       |                                                                                                                   |                                                                 |

The location of the APECs are presented in Figure 3.

Based on the information obtained, during the Phase One ESA, SIRATI recommends conducting a Phase Two ESA at the Phase Two Property to investigate the above APECs.

Subsequently, this Phase Two ESA was conducted to address the APECs identified on the Phase Two Property and listed in the above table.

The field investigations for the Phase Two ESA were carried out by a licensed driller, Pontil Drilling (Pontil), on July 15 and 16, 2020. Five (5) boreholes (BH1, BH/MW2, BH/MW3 BH4 and BH5), were advanced to depths ranging between 2.1 mbgs and 12.2 mbgs. Two (2) of the borehole (BH/MW2 and BH/MW3) were instrumented with monitoring wells. Nine (9) soil samples, including one duplicate, were collected from the boreholes, six (6) groundwater samples, including one (1) duplicate and one (1) trip blank, were collected from the two (2) newly installed monitoring wells and two (2) existing monitoring wells (MW6 and MW7).

For assessment purposes, SIRATI selected the Ontario Ministry of the Environment, Conservation and Parks (MECP) 2011 Table 2 Full Depth Generic Site Condition Standards in a potable ground water condition for residential/parkland/institutional property use with coarse textured soils (MECP Table 2 Standards) based on the observed heterogeneity of the subsurface strata at the Phase Two Property.

In general, the surface at the borehole locations were covered by topsoil or asphalt. The subsurface soil stratigraphy at the borehole locations comprised of fill material, underlain by sand.

Groundwater levels were measured on July 16 and 27, 2020. No free product or oily sheen was observed in any of the monitoring wells. Based on the measured groundwater elevations, the interpreted groundwater flow direction was determined to be in the southwest direction.

Based on the groundwater measurements, the calculated horizontal hydraulic gradient for the investigated aquifer at the Phase Two Property is between 0.0017 m/m and 0.0097 m/m (average 0.006 m/m). The vertical hydraulic gradient was not calculated as the second aquifer was not encountered at the depths investigated during this Phase Two ESA.

Soil and groundwater samples, including duplicate samples and QA/QC samples, were submitted to AGAT Laboratories Ltd. (AGAT) for analysis of one or more of the following contaminants of potential concern (COCs): petroleum hydrocarbons Fractions 1 to 4 (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals, As, Sb, Se, B-HWS, Na, Hg, Cl-, CN-, Cr-VI, pH, EC and SAR.

Based on the review of the soil sample analytical results, the following soil exceedances were identified at the Phase Two Property:

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit  |
|-----------|-----------------------------------|--------------|----------------------|---------------|------------------------|-------|
| MW2/SS2   | BH/MW2                            | 0.8 - 1.5    | Benz(a)anthracene    | 0.74          | 0.5                    | µg/g  |
|           |                                   |              | Benzo(a)pyrene       | 0.68          | 0.3                    | µg/g  |
|           |                                   |              | Benzo(b)fluoranthene | 0.86          | 0.78                   | µg/g  |
|           |                                   |              | Fluoranthene         | 1.9           | 0.69                   | µg/g  |
|           |                                   |              | PHC F3 (C16 to C34)  | 520           | 300                    | µg/g  |
|           |                                   |              | SAR                  | 15            | 5                      | mS/cm |
|           |                                   |              | EC                   | 1.1           | 0.7                    | N/A   |
| MW3/SS1   | BH/MW3                            | 0.3 - 0.6    | SAR                  | 5.9           | 5                      | mS/cm |

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit  |
|-----------|-----------------------------------|--------------|----------------------|---------------|------------------------|-------|
| BH4/SS1   | BH4                               | 0.3 - 0.6    | Barium               | 448           | 390                    | µg/g  |
|           |                                   |              | Cadmium              | 2.4           | 1.2                    | µg/g  |
|           |                                   |              | Copper               | 639           | 140                    | µg/g  |
|           |                                   |              | Lead                 | 608           | 120                    | µg/g  |
|           |                                   |              | Mercury              | 0.43          | 0.27                   | µg/g  |
|           |                                   |              | Zinc                 | 1160          | 340                    | µg/g  |
|           |                                   |              | SAR                  | 9.87          | 5                      | mS/cm |
| BH5/SS3   | BH5                               | 1.5 - 2.2    | Benzo(a)pyrene       | 0.46          | 0.3                    | µg/g  |
|           |                                   |              | Fluoranthene         | 0.71          | 0.69                   | µg/g  |
|           |                                   |              | SAR                  | 34            | 5                      | mS/cm |
|           |                                   |              | EC                   | 2.53          | 0.7                    | N/A   |

The remaining tested parameters in soil samples met the MECP Table 2 Standards.

Based on the review of the groundwater sample analytical results during the investigation for the Phase Two ESA, the following groundwater exceedances were identified at the Phase Two Property:

| Sample ID | Borehole/Monitoring well Location | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|----------------------|---------------|------------------------|------|
| MW2       | BH/MW2                            | Chloride             | 14500000      | 790000                 | µg/L |
|           |                                   | Dissolved Barium     | 1800          | 1000                   | µg/L |
|           |                                   | Dissolved Silver     | 1.90          | 1.5                    | µg/L |
|           |                                   | Dissolved Sodium     | 7720000       | 490000                 | µg/L |
| MW3       | BH/MW3                            | Chloride             | 7680000       | 790000                 | µg/L |
|           |                                   | Dissolved Sodium     | 3570000       | 490000                 | µg/L |
|           |                                   | Benzo(a)pyrene       | 0.04          | 0.01                   | µg/L |
| MW6       | MW6                               | Chloride             | 5940000       | 790000                 | µg/L |
|           |                                   | Dissolved Cobalt     | 3.89          | 3.8                    | µg/L |
|           |                                   | Dissolved Sodium     | 2320000       | 490000                 | µg/L |
|           |                                   | Chloroform           | 4.5           | 2.4                    | µg/L |

The remaining tested parameters in groundwater samples met the MECP Table 2 Standards.

Elevated values of EC and SAR in soil and chloride and sodium in groundwater, at the Phase Two Property, are attributed to the usage of de-icing salt at the sampling location (municipal parking lot) for pedestrian and vehicle safety. The exemption from meeting the MECP Table 2 Standards on the basis that road salt was applied in an area for pedestrian and vehicle safety (as per the O. Reg. 407/19 published on December 4, 2019, amending the O. Reg. 153/04) is applied for this assessment.

Based on the information of the Phase Two ESA, SIRATI is of the opinion that the Phase Two Property is not in compliance with the applicable MECP Table 2 Standards. A delineation program is recommended to establish the vertical and lateral extend of the impacted material in the soil and groundwater at each sampling location. Once the extent of contamination is known, contaminated soil and groundwater would require to be addressed by remediation or risk assessment, prior to filing a RSC for the Site.

The statements made in this Executive Summary are subject to the same limitations as contained in the report and should be read in conjunction with the entire report.

## 2.0 INTRODUCTION

Sirati and Partners Consultants Ltd. (SIRATI) was retained by Vitmont Holding (Barrie) Inc. C/O Marydel Homes (the “Client”) to conduct a Phase Two Environmental Site Assessment (Phase Two ESA) at 79 Colliers Street, Barrie, Ontario (hereinafter referred to as the “Phase Two Property” or the “Site”). The Phase Two Property is intended to be redeveloped from a municipal parking lot to a residential property. A Site Location Plan is shown on Figure 1.

The assessment consisted of a program of drilling, monitoring well installations, soil and groundwater sampling and testing, and evaluation of analytical results which characterized the subsurface conditions beneath the Phase Two Property to establish any environmental contamination affecting the Phase Two Property. The Phase Two ESA was conducted in accordance with the Phase Two ESA Standard, as defined by the Ontario Regulation (O. Reg.) 153/04, as amended.

Conditions noted in this report are general in nature. This report presents the results of the investigation and the conclusions we have drawn regarding the possible impact of the conditions observed.

### 2.1 Objective

The purpose of this Phase Two ESA was to investigate soil and groundwater quality at the Phase Two Property in accordance with the procedures and requirements of the O. Reg. 153/04, as amended, to support of site plan approval and the filing of a Record of Site Condition (RSC) for the Phase Two Property.

### 2.2 Site Description

The Phase Two Property is located on the southwest corner of Collier Street and Mulcaster Street, in the City of Barrie. The Phase Two Property is irregular in shape with a total property area of 0.41 acres and it is developed with a twenty-five (25) space grade level municipal parking lot. The surface of parking lot is covered with asphalt and grassed/vegetated areas are located to the north portion of the Phase Two Property.

The Phase Two Property is located at the municipal address of 79 Collier Street, Barrie, Ontario. Figure 1 shows the Site Location. A survey plan showing the limits of the Phase Two Property is provided in Appendix A. The information for the Phase One Property is provided in the Table 3:

**Table 3: PINs and Legal Description**

| Municipal Address             | Legal Description                                                                                                                                                                                                                                                                                               | Property Identification number (PIN) | Zoning                  | UTM Coordinates - Centre Point of the Site |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------|--------------------------------------------|
| 79 Collier Street, Barrie, ON | Part Market Block on Plan 2 Barrie, Being Parts 2 to 6 on Plan 51R39976; Subject to an Easement over Part 2 ON Plan 51R39976 As In RO1167938; Subject to An Easement Over Part 6 On Plan 51R39976 As In SC1216519; Subject to an Easement in Gross Over Part 4 ON Plan 51R39976 As In SC1216520; City of Barrie | 58817-0421 (LT)                      | Central Area Commercial | Easting: 604663m<br>Northing: 4916041 m.   |



## 2.3 Property Ownership

At the time of the Phase Two ESA, the Phase Two Property was owned by Vitmont Holdings (Barrie) Inc. The contact information is as follows:

Company Name: Vitmont Holdings (Barrie) Inc  
Company Address: 100 Caster Avenue, Woodbridge, Ontario  
Contact Name: Ben Murray  
Contact Telephone: (416) 419-2829  
Contact email: ben@marydelhomes.com

## 2.4 Current and Proposed Future Use

The Phase Two Property is currently developed with a twenty-five (25) space grade level municipal parking lot. SIRATI understands that there is a proposal for a 15 storey building with one level of basement to be constructed at the Phase Two Property. A plan showing the location of the proposed building is included in Appendix A.

## 2.5 Applicable Site Condition Standards

The 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 the 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 upon several site-specific conditions, such as the existing/proposed property use, the existing/potential groundwater use, the depth of clean-up, soil texture, depth to bedrock and proximity to the nearest body of water or areas of natural significance.

The MECP SCS applicable to the Phase Two Property have been evaluated based on the following rationale:

- The proposed future property use is residential.
- The Phase Two Property is located in an area of the City of Barrie which is serviced by the municipal water supply. As such, groundwater is not expected to be used as a source of potable water; however, the provincial Well Information System (WWIS) database has identified a well, located approximately 146 m southwest of the Phase Two Property, described as a "public water supply wells", two (2) wells located approximately 175 and 214 m southeast of the Phase Two Property, described as "industrial water supply" wells, and one (1) municipal water supply well is located approximately 233 m east of the Phase Two Property.
- A grain size analysis conducted by SIRATI on a soil sample determined that 31.75% by mass of the soil sample passed through a 75 µm sieve. A copy of the results of the grain-size analysis is included in Appendix B of this report. However, the SIRATI qualified person (QP) is of the opinion that based on the

observed heterogeneity of the subsurface strata at the Phase Two Property, one (1) soil sample is not sufficient to characterize the overall soil grain at the Site. For assessment purposes in this report, coarse textured soils standards have been selected to be the appropriate standards.

- 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 Phase Two Property;
- 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 the O. Reg. 153/04; the Site is not within 30 m of a water body;
- Borehole investigations identified that the Phase Two Property is not in an area of shallow soil, as bedrock was not encountered within 2.0 mbgs during the investigation; and
- There is no intention to carry out a stratified restoration at the Site.
- A search of the WWIS database through the EcoLog ERIS report and the MECP online database has identified 25 well records within the Phase One Study Area. Four (4) of the well were described as municipal/industrial water supply wells.

Based on the above noted characterization of the Phase Two Property and surrounding area, the MECP Table 2 Full Depth Generic Site Condition Standards in a potable groundwater condition for residential/parkland/institutional property use with coarse textured soils were selected to be applicable for assessing the soil and groundwater quality at the Phase Two Property (MECP Table 2 Standards).

### **3.0 BACKGROUND INFORMATION**

The environmental investigations for this Phase Two ESA conducted at the Phase Two Property and the details of findings are outlined in Section 3.2. The Phase Two ESA was conducted to address the APECs identified in the recent Phase One ESA.

#### **3.1 Physical Setting**

##### **3.1.1 Water Bodies**

The Phase Two Property is located approximately 200 m north of Lake Simcoe. The local hydrogeology is likely controlled by this water body.

##### **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) (2015), identified no areas of natural significance within the Phase One Study Area. Furthermore, no land that would be considered to be an area of natural significance was observed in the Phase One Study Area, during the Site reconnaissance

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

According to the topographic maps, the inferred groundwater flow direction in the area is likely to the southeast 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**

A review of the source water intake map of City of Barrie determined that the Phase Two Property is located in Well Head Protection Area “B. This means it will two (2) years for surface water to infiltrate the subsurface and migrate to a potential drinking water well.

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

The Phase Two Property is surrounded by the following properties:

- North: Collier Street followed by offices
- East: Mulcaster Street followed by retail businesses
- Southeast: Regimental Museum (adjacent)
- South: Driveway followed by residential/commercial properties
- West: Residential/commercial properties (adjacent).

##### **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**

The “Water Well Information System” (WWIS) is a provincial database that covers well records data from 1899 – 2019. The database describes locations and characteristics of water wells found in Ontario in accordance with the Ontario Regulation 903. A search of the WWIS database through the EcoLog ERIS report and the MECP online database has identified 25 well records within the Phase One Study Area. None of the records are related to the Phase Two Property.

A well located approximately 146 m southwest of the Phase Two Property is described as a “public water supply wells”, two (2) well located approximately 175 and 214 m southeast of the Phase Two Property are described as “industrial water supply” wells and one (1) municipal water supply well is located approximately 233 m east of the Phase Two Property.

The remain well records are described as abandoned, monitoring, an/or test holes

### **3.2 Past Investigations**

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

1. *Phase I Environmental Site Assessment, 36 Mulcaster Street, Barrie, Ontario,*” prepared by Spice Environmental Inc, for EDEV Real Estate Advisors Inc, dated February 2015 (Spice Environmental 2015 Phase I ESA Report).
2. *“Phase II Environmental Site Assessment, 36 Mulcaster Street, Barrie, Ontario,”* prepared by PGL Environmental Consultants, for Grant Thornton Limited as Court Appointed Receiver of PACC Mulcaster Corporation, dated June 2019 (PGL 2019 Phase II ESA Report); and
3. *“Soil Analytical Testing, 36 Mulcaster Street, Barrie, Ontario,”* prepared by V.A.Wood Associates Limited, for Edgecon Inc, dated April 8, 2016 (V.A.Woods 2016 Soil Analytical Testing Report)

“The significant findings of these environmental reports are as follows:

#### Spice Environmental 2015 Phase I ESA Report

According to this report, the Site had the municipal address of 36 Mulcaster Street at that time. The Site was occupied by a twenty-five (25) space grade level pay parking lot. Around 2,500 m<sup>3</sup> of fill material have been placed on the Phase One Property. Based on the Phase 1 ESA, Potentially Contaminating Activities (PCAs) were identified on the entire Property as follow:

- #30. Importation of Fill Material of Unknown Quality (On-Site)
- #28. Gasoline and Associated Storage in Fixed Tanks (Off-Site)
- #53. Tannery (Off-Site)

#### PGL 2019 Phase II ESA Report

According to this report, six (6) boreholes were advanced and five (5) of them were completed as monitoring wells. Soil and groundwater results were compared against the O.Reg 153/04 Table 2 Site Condition Standards (SCS).

Impacts of polycyclic aromatic hydrocarbon (PAHs), and metals parameters were identified in the fill material on the west side of the Site.

Groundwater samples were collected from two (2) out of five (5) monitoring wells. The results of the groundwater samples met the applicable Table 2 SCS for both industrial/commercial/community and residential/parkland/institutional land uses.

### V.A.Woods 2016 Soil Analytical Testing Report

According to this report, six (6) soil samples were submitted for analysis for Petroleum hydrocarbons (PHCs), PAHs, and Metals and Inorganic parameters. The test results show that some of soil the samples have elevated concentrations of PAHs, metals, and de-icing salt related parameters that exceed the Table 1, 2 and 3 SCS

## 4.0 SCOPE OF INVESTIGATION

The Phase Two ESA was conducted in order to determine the location and concentration of one or more contaminants in soil or water on, in or under the Phase Two Property. The Phase Two ESA was completed in accordance with the O. Reg. 153/04, as amended, and subject to the limitations outlined in Section **Error! Reference source not found.** 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 C.

### 4.1 Overview of Site Investigation

To address the APECs identified in the SIRATI August 19, 2020 Phase One ESA, SIRATI conducted this Phase Two ESA consisting of drilling boreholes, installing monitoring wells, remediating contaminated soil, and sampling and testing of soil and groundwater samples during the Phase Two ESA investigations.

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

**Table 4: Borehole/Monitoring Well Rationale**

| Area of Potential Environmental Concern                                           | Location on Site                           | Borehole/MW ID                         |
|-----------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------|
| (1) Fill material of unknown environmental quality (APEC 1)                       | Entire Phase Two Property                  | BH1, B/MW2, BH/MW3, BH4, BH5, MW6, MW7 |
| (2) Gasoline spill at the corner of Mulcaster Street and Collier Street (APEC 2). | Northeast corner of the Phase Two Property | BH/MW2, BH/MW3, MW6 and MW7            |

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 C);
- 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 drilling of the boreholes;
- Drilled and collected soil samples at five (5) borehole locations (BH1, BH/MW2, BH/MW3, BH4 and BH5), 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;
- Installed monitoring wells in two (2) of the boreholes (BH/MW2 and BH/MW3)
- 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 the 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 the 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.

## **4.2 Media Investigated**

The media investigated for the Phase Two ESA included soil and groundwater at the Phase Two Property. As there was no surface water body on the Phase Two Property, no sediment sampling was conducted.

Soil and groundwater samples were selected for chemical analysis to determine whether any COCs were present in the soil and groundwater at the locations of the APECs outlined in the SIRATI August 19, 2020 Phase One ESA.

## **4.3 Phase One Conceptual Site Model**

This Phase One Conceptual Site Model is prepared as part of a Phase One Environmental Site Assessment (Phase One ESA) for the property located at 79 Colliers Str, Toronto, Ontario (hereinafter referred to as the “Phase One Property” or the “Site”). The Site Location Plan is included on Figure 1.

Based on the records review, the Phase One Property has been used for mixed institutional/commercial purposes since 1907. At the time of the Site reconnaissance, the Phase One Property was developed as a parking lot. Adjacent to the east of the Site is Mulcaster Street, and to the north at Collier Street. The Grey & Simcoe Foresters – Regimental Museum is located along the southeast boundary of Phase One Property. SIRATI understands that the Phase One Property is proposed for the development of a 15 storey building with one (1) level of basement.

The Phase One Property is approximately 0.41 acres in area and is located on the southwest corner of Collier Street and of Mulcaster Street, City of Barrie. The municipal address of the Phase One Property is 79 Collier Street. The Property Identification Number of the Phase One Property is 58817-0421(LT). The legal description of the Phase One Property is:

Part Market Block on Plan 2 Barrie, Being Parts 2 to 6 on Plan 51R39976; Subject to an Easement over Part 2 ON Plan 51R39976 As In RO1167938; Subject to An Easement Over Part 6 On Plan 51R39976 As In SC1216519; Subject to an Easement in Gross Over Part 4 ON Plan 51R39976 As In SC1216520; City of Barrie.

The Phase One Property is surrounded by the following properties:

North: Collier Street followed by offices

East: Mulcaster Street followed by retail businesses

Southeast: Regimental Museum (adjacent)

South: Driveway followed by Residential/Commercial properties

West: Residential/Commercial properties (adjacent).

#### **4.3.1 Any Existing Buildings and Structures**

At the time of the Site reconnaissance, the Phase One Property was developed with a municipal parking lot. There is no building structure at the Phase One Property.

#### **4.3.2 Water Bodies Located within the Phase One Study Area**

Based on the Phase One ESA, no surface water, lagoon, or standing water was observed on the Phase One Property. Lake Simcoe is located approximately 200 m south of the Phase One Property and within the Phase One Study Area.

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

The interactive natural heritage area map, published by the Ministry of Natural Resources and Forestry (MNR) (2015), indicates no areas of natural significance within the Phase One Study Area. No surface water, lagoon, or standing water was observed on the Phase One Property. A request made to the MECP indicated no records were located in their database regarding the Phase One Property.

#### **4.3.4 Drinking Water Wells Located at the Phase One Property**

A well located approximately 146 m southwest of the Phase Two Property is described as a “public water supply wells”, two (2) well located approximately 175 and 214 m southeast of the Phase Two Property are described as an “industrial water supply” well and one (1) municipal water supply well is located approximately 233 m east of the Phase Two Property.

#### **4.3.5 Roads within the Phase One Study Area**

The Phase One Property is located on the southwest corner of Collier Street and Mulcaster Street in the City of Barrie. Access to the Phase One Property is provided from designated paved driveway from Mulcaster Street, east of the Phase Two Property. The Phase One Study Area extends roughly to McDonald Street to the north, Simcoe Street to the south, Poyntz Street to the east, and Clapperton Street to the west.

The names of roads within the Phase One Study Area are indicated on Figure 1 and Figure 2.

#### **4.3.6 Uses of Properties Adjacent to the Phase One Property**

The Phase Two Property is surrounded by the following properties:

North: Collier Street followed by offices

East: Mulcaster Street followed by retail businesses

Southeast: Regimental Museum (adjacent)

South: Driveway followed by Residential/Commercial properties

West: Residential/Commercial properties (adjacent).

#### **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 at properties within



the Phase One Study Area based on the records review, interviews, and Site reconnaissance. The PCAs identified within the Phase One Study Area are listed in Table 1 in Executive Summary of this report and shown on Figure 2.

#### **4.3.8 Identify and Locate any Areas of Potential Environmental Concern**

The Areas of Potential Environmental Concern (APECs) identified on the Phase One Property that may have resulted from the PCAs identified within the Phase One Study Area are included in Table 2 in Executive Summary of this report and shown on Figure 3.

#### **4.3.9 Potential Underground Utilities to Affect Contaminant Distribution and Transport**

At the time of the assessment, the Phase One Property was occupied by an above grade, asphalt designated municipal parking lot. Other subsurface structures such as underground utilities are not expected at the Phase One Property.

The proposed new development at the Phase One Property will be designed with a single level basement.

#### **4.3.10 Regional or Site Specific Geological and Hydrological Information**

Based on available physiography, geology and topography information, the Phase One Study Area is located in an area with a physiography region of Simcoe Lowlands with a surficial geology of littoral deposits of sand, gravelly minor silt and clay, over bedrock of limestone, dolostone, shale, arkose and sandstone from the Shadow Lake Formation. These soils have a relative moderate to high permeability; hence, the Phase One Property is susceptible to contaminant migration from adjacent properties. According to the Bedrock Topography of Barrie Area map it is anticipated that the bedrock is at an elevation of 130 mAMSL, approximately 100 mbgs.

The Phase One Property is located within the larger hydrogeological region known as the Lake Simcoe Watershed. The ground surface at the Phase One Property slopes towards the southeast. Shallow groundwater flow is expected to flow towards the southeast.

#### **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 Phase One ESA findings recommend that a Phase Two ESA be conducted at the Phase One Property to investigate the soil and groundwater quality as per procedures and requirements outlined in the 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. No deviations were made from the original SAP were encountered during the Phase Two ESA.

#### **4.5 Impediments**

The sampling location BH/MW3 was moved approximately 3 m south of the ideal drilling location, within APEC2, on the northeast corner of the Phase Two Property due to impediments of trees.

## **5.0 INVESTIGATION METHOD**

### **5.1 General**

This section of the report describes the various investigation methods used in the Phase Two ESA, including 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 C.

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, Pontil Drilling (Ponti), under the supervision of SIRATI staff. Drilling activity was carried out on July 15 and 16, 2020. Five (5) boreholes (BH1, BH/MW2, BH/MW3, BH4 and BH5), were advanced to depths ranging from 2.1 and 12.2 mbgs. Two (2) of the borehole (BH/MW2 and BH/MW3) were instrumented with monitoring wells.

No petroleum-based greases or solvents were used during drilling and remediation activities. Preventive measures were carried out to minimize cross contamination between borehole locations. Details are discussed in the SAP in Appendix C.

The details of soil stratigraphy are outlined in borehole logs included in Appendix D.

SIRATI monitored the drilling activities, collected soil samples at 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 activities and by grab samples during remedial excavation activities and screened in the field for selection of soil samples for laboratory analysis.

### **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 C.

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 and/or VOCs 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 of Mississauga, Ontario. The samples were transported and submitted to AGAT following Chain of Custody protocols for chemical analysis.

A total of nine (9) soil samples, including one (1) duplicate sample, were submitted to AGAT for the analysis of one or more of the following parameters: petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals and inorganic parameters (As, Sb, Se, Na, B-HWS, CN-, Cr-VI, Hg, low or high pH, EC and SAR). 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 5 below:

**Table 5: Soil Samples and Chemical Analysis Performed**

| Sample ID          | Borehole / Monitoring Well ID | Date          | Sample Depth (mbgs) | Soil Vapour Reading (ppm) | Chemical Analysis Performed                     |
|--------------------|-------------------------------|---------------|---------------------|---------------------------|-------------------------------------------------|
| BH1/SS1            | BH1                           | July 16, 2020 | 0.3 - 0.6           |                           | Metals and Inorganics                           |
| BH1/SS3            |                               |               | 1.5 - 2.2           |                           | PHCs (F1-F4), BTEX, PAHs, PCBs                  |
| MW2/SS2            | BH/MW2                        | July 15, 2020 | 0.8 - 1.5           |                           | Metals and inorganics, PHCs (F1-F4), PAHs, VOCs |
| MW3/SS1            | BH/MW3                        |               | 0.3 - 0.6           |                           | Metals and Inorganics, PAHs                     |
| MW3/SS13           |                               |               | 9.1 - 9.9           |                           | PHCs (F1-F4), VOCs                              |
| BH4/SS1            | BH/MW4                        | July 16, 2020 | 0.3 - 0.6           |                           | Metals and Inorganics                           |
| BH4/SS3            |                               |               | 1.5 - 2.2           |                           | PHCs (F1-F4), BTEX, PAHs, PCBs                  |
| BH5/SS3            | BH5                           |               | 1.5 - 2.2           |                           | Metals and inorganics, PHCs (F1-F4), PAHs, VOCs |
| DUP-0715 (BH3/SS1) | BH/MW3                        | July 15, 2020 | 0.3 - 0.6           |                           | Metals                                          |

Soil Sample MW2-SS6 was provided to the SIRATI Laboratory in King City for soil grain size analysis.

## 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  $\pm 5\%$ . 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 outline 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.

The field screening measurements ranged from 0.0 to 15 parts per million (ppm) indicating insignificant to moderate vapour readings.

## **5.5 Groundwater Monitoring Well Installation**

A total of two (2) groundwater monitoring wells (BH/MW2 and BH/MW3) were installed at the Phase Two Property on July 15 and 16, 2020. The monitoring wells were installed in general accordance with the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to the O. Reg. 128/03, and were installed by licensed well contractors, Kodiak Drilling. As indicated in section 3.2, other monitoring wells had been installed at the Phase Two Property. Two (2) of the existing wells were used for this assessment.

The new 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. The monitoring wells were completed with aboveground flush-mount well protective casings at ground surface with cement grout in the surrounding annular space to complete the seal.

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 the O. Reg. 128/03.

## **5.6 Field Measurement of Groundwater Quality Parameters**

The 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 and a SS Monsoon low-flow pump were 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. Well development details were documented on a well development log sheet.

## **5.7 Groundwater Sampling**

Groundwater monitoring activities at the Phase Two Property consisted of measuring the depth to groundwater level in each monitoring well so that groundwater flow direction below the Phase Two Property could be assessed. 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.

A total of six (6) groundwater samples, including one (1) duplicate samples and one (1) trip blank sample were submitted to the laboratory for the analysis of one or more of the following compounds: PHCs, PCBs, PAHs,

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 Waterra filters to remove any sediment in the groundwater samples as required by the Analytical Protocol.

Table 6, below details the details of groundwater samples.

**Table 6: Groundwater Samples and Chemical Analysis Performed**

| Sample ID  | Monitoring Well ID | Date          | Chemical Analysis Performed                        |
|------------|--------------------|---------------|----------------------------------------------------|
| MW2        | BH/MW2             | July 27, 2020 | Metals and Inorganics, PHCs(F1-F4), VOCs, and PAHs |
| MW3        | BH/MW3             | July 27, 2020 | Metals and Inorganics, PHCs(F1-F4), VOCs, and PAHs |
| MW6        | MW6                | July 27, 2020 | Metals and Inorganics, PHCs(F1-F4), VOCs, and PAHs |
| MW7        | MW7                | July 27, 2020 | PHCs(F1-F4), BTEX                                  |
| Dup-0727   | BH/MW3             | July 27, 2020 | Metals                                             |
| Trip Blank | -                  | July 27, 2020 | VOCs                                               |

## 5.8 Sediment Sampling

As no water body was present at the Phase Two Property, sediment sampling was not within the scope of this Phase Two ESA.

## 5.9 Analytical Testing

AGAT Laboratories Ltd. performed chemical analysis on soil and groundwater samples collected from boreholes/monitoring wells at the Phase Two Property. AGAT is accredited laboratories 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 the 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 elevations of boreholes and monitoring wells (ground surface and top of casing) were surveyed by SIRATI personnel, using a handheld device (Sokkia SHC500) and referenced to a geodetic benchmark. The elevations at the borehole and monitoring well locations are presented in the borehole log (Appendix D).

## 5.12 Quality Assurance and Quality Control Measures

A Quality Assurance and Quality Control (QA/QC) program, developed as part of the SAP (see Appendix C), 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 E and F.

As discussed in Section 5.5 above, the monitoring wells were installed by a licensed driller, Pontil 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 RKI Instruments, Eagle Potable Multi-gas detector.

Field duplicate samples for both soil and groundwater were submitted to AGAT for chemical analysis. For soil samples, one (1) duplicate samples (Dup-0715, a duplicate of BH3/SS1) was submitted to AGAT for analysis of metals. For groundwater samples, one (1) duplicate groundwater samples (Dup-0727, a duplicate of BH103 W1) was submitted to AGAT, respectively, for analysis of metals. One (1) trip blank sample was also submitted for analysis of VOCs.

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 E and F.

## **6.0 REVIEW AND EVALUATION**

### **6.1 Geology**

The detailed soil stratigraphy encountered in each borehole is provided on the borehole logs in Appendix D. 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 soils retrieved during the borehole drilling were observed. The soils encountered at the borehole locations generally consisted of asphalt/topsoil below which was fill materials. The fill material was found to consist mainly of sand with trace of stone and silt, which extended to the maximum depth of 2.1 mbgs. Below the fill material was a layer of native sandy material. No bedrock was encountered at the Phase Two Property at the maximum explored depth of 12.2 mbgs.

The main soil types encountered at the Phase Two Property included the following:

- Asphalt: encountered at BH/MW2, BH/MW3, BH4, and BH5 was 70 mm to 100 mm thick.
- Topsoil: found at BH1 was 150 mm thick,
- Fill materials: encountered in all the borehole locations, mainly consisting of granular fill, sand and sandy silt, extending to a maximum depth of 2.3 mbgs at BH/MW2. BH1, BH4 and BH5 were terminated within this layer.
- Sand: encountered at BH/MW2 and BH/MW3, from depths of 1.5 mbgs to 12.2 mbgs.

Bedrock was not encountered at the maximum drilling depth of 12.2 mbgs. According to the Bedrock Topography of Barrie Area map it is anticipated that the Bedrock is at an elevation of 130 mAMSL, approximately 100 mbgs.

### **6.2 Groundwater Elevations and Flow Direction**

Two (2) monitoring wells were installed and screened primarily within the lower sand deposit, in the unconfined aquifer.

On July 16 and 27, 2020, 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 Table 7, and are presented in the borehole logs in Appendix D.

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

In order to better interpret the groundwater flow direction, two (2) existing monitoring wells (MW6 and MW7), installed in previous investigations, were also measured along with the monitoring wells installed during this investigation. Based on the measured groundwater elevations, the interpreted groundwater flow direction was determined to be in the direction. Groundwater elevation and contours of the Phase One Property are presented on Figure 6.

Based on the Site conditions, the depth of the groundwater level at the Site range from 8.80 mbgs to 9.88 mbgs. The top of the unconfined aquifer is within sand deposits, the potential for temporal variability in groundwater flow direction is expected to be high. Also, due to depth of groundwater level, it is unlikely that the underground utilities lines expected to be present at the Phase Two Property would influence the groundwater flow direction.

**Table 7: Summary of Final Groundwater Conditions**

| Monitoring Well ID | Top of Casing (TOC) Elevation (mAMSL) | Well Depth (mbgs) | July 16, 2020      |                  | July 27, 2020      |                  |
|--------------------|---------------------------------------|-------------------|--------------------|------------------|--------------------|------------------|
|                    |                                       |                   | Depth to GW (mbgs) | GW Elev. (mAMSL) | Depth to GW (mbgs) | GW Elev. (mAMSL) |
| BH/MW2             | 231.75                                | 10.7              | 9.48               | 222.27           | 9.51               | 222.24           |
| BH/MW3             | 232.10                                | 12.2              | 9.88               | 222.22           | 9.82               | 222.28           |
| MW6                | 231.36                                | 13.82             | 8.81               | 222.55           | 8.89               | 222.47           |
| MW7                | 230.77                                | 13.48             | 8.80               | 221.97           | 8.87               | 221.90           |

### 6.3 Groundwater Hydraulic Gradient

The horizontal hydraulic gradient was estimated for the water table of the aquifer based on the July 16, 2020 groundwater elevations.

The horizontal hydraulic gradient is calculated using the following equation:

$$i = \Delta h / \Delta s$$

Where,

$i$  = horizontal hydraulic gradient

$\Delta h$  (m) = groundwater elevation difference; and,

$\Delta s$  (m) = separation distance.

The horizontal hydraulic gradient was calculated based on three (3) sets of monitoring wells records of July 16, 2020, summarized below:

- 0.0017 m/m BH/MW2 to BH/MW3 (north)
- 0.0097 m/m [BH/MW2 to MW7] (west)
- 0.0074 m/m [BH/MW3 to BH/MW7] (northeast to southwest)

The average horizontal hydraulic gradient is approximately 0.006 m/m. These hydraulic gradient values indicate that the groundwater generally flows in an east-southeasterly direction.

It should be noted that vertical hydraulic gradients were not evaluated for the Phase Two Property as a second water bearing unit was not encountered at the depths investigated at the Site.

### 6.4 Soil Texture

A grain size analysis conducted by SIRATI on a soil sample MW2-SS6 determined that 31.75% by mass of the



soil sample passed through a 75 µm sieve. A copy of the results of the grain-size analysis is included in Appendix B of this report.

The QP is of the opinion that based on the observed heterogeneity of the subsurface strata at the Site, one (1) soil sample is not sufficient to characterize the overall soil grain at the Site. For assessment purposes of this report, coarse textured soils standards have been selected to be the appropriate standards.

## 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 15 ppm, which are considered to be insignificant to moderate.

## 6.6 Soil Quality

In accordance with 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 and visual and/or olfactory evidence of impacts, and the presence of potential water bearing zones. Copies of the laboratory Certificates of Analysis for the analyzed soil samples are provided in Appendix E.

A total of nine (9) soil samples, including one (1) field duplicate soil samples, were submitted to AGAT for analysis of one or more of the following compounds: PHCs, VOCs, PCBs, PAHs, metals & inorganics (As, Sb, Se, Na, B-HWS, CN-, Cr-VI, Hg, low or high pH, EC, and SAR).

The pH values in the analyzed soil samples ranged between 7.30 and 7.74 for surface and subsurface soil, respectively. 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 Phase Two Property was not considered to be environmentally sensitive, as per criteria in Section 41 of the O. Reg. 153/04, and the MECP Table 2 Standards were applicable for assessing the soil and groundwater quality at the Site.

Based on the review of the soil sample analytical results during the investigation for the Phase Two ESA, the following soil exceedances relative to MECP Table 2 Standards were identified at the Phase Two Property:

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters    | Concentration | MECP Table 2 Standards | Unit  |
|-----------|-----------------------------------|--------------|-------------------------|---------------|------------------------|-------|
| MW2/SS2   | BH/MW2                            |              | Electrical Conductivity | 1.10          | 0.7                    | mS/cm |
|           |                                   |              | Sodium Adsorption Ratio | 15.0          | 5                      | NA    |
|           |                                   |              | Benz(a)anthracene       | 0.74          | 0.5                    | µg/g  |
|           |                                   |              | Benzo(a)pyrene          | 0.68          | 0.3                    | µg/g  |
|           |                                   |              | Benzo(b)fluoranthene    | 0.86          | 0.78                   | µg/g  |
|           |                                   |              | Fluoranthene            | 1.9           | 0.69                   | µg/g  |
|           |                                   |              | PHC F3 (C16 to C34)     | 520           | 300                    | µg/g  |
| MW3/SS1   | BH/MW3                            |              | Sodium Adsorption Ratio | 5.59          | 5                      | NA    |
| BH5/SS3   | BH5                               |              | Electrical Conductivity | 2.53          | 0.7                    | mS/cm |
|           |                                   |              | Sodium Adsorption Ratio | 34.0          | 5                      | NA    |
|           |                                   |              | Benzo(a)pyrene          | 0.46          | 0.3                    | µg/g  |
|           |                                   |              | Fluoranthene            | 0.71          | 0.69                   | µg/g  |
| BH4/SS1   | BH4                               |              | Barium                  | 448           | 390                    | µg/g  |
|           |                                   |              | Cadmium                 | 2.4           | 1.2                    | µg/g  |
|           |                                   |              | Copper                  | 639           | 140                    | µg/g  |
|           |                                   |              | Lead                    | 608           | 120                    | µg/g  |

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters    | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|--------------|-------------------------|---------------|------------------------|------|
|           |                                   |              | Mercury                 | 0.43          | 120                    | µg/g |
|           |                                   |              | Sodium Adsorption Ratio | 9.87          | 5                      | µg/g |
|           |                                   |              | Zinc                    | 1160          | 5                      | µg/g |

Elevated values of EC and SAR in BH/MW2 and BH5, and SAR in BH/MW3 and BH4 are attributed to the usage of de-icing salt at the sampling location (municipal parking lot) for pedestrian and vehicle safety. The exemption from meeting the MECP Table 2 Standards on the basis that road salt was applied in an area for pedestrian and vehicle safety (as per the O. Reg. 407/19 published on December 4, 2019, amending the O. Reg. 153/04) is applied for this assessment. Therefore, the exceedances of relevance to the Phase Two Property include.

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|--------------|----------------------|---------------|------------------------|------|
| MW2/SS2   | BH/MW2                            |              | Benz(a)anthracene    | 0.74          | 0.5                    | µg/g |
|           |                                   |              | Benzo(a)pyrene       | 0.68          | 0.3                    | µg/g |
|           |                                   |              | Benzo(b)fluoranthene | 0.86          | 0.78                   | µg/g |
|           |                                   |              | Fluoranthene         | 1.9           | 0.69                   | µg/g |
|           |                                   |              | PHC F3 (C16 to C34)  | 520           | 300                    | µg/g |
| BH4/SS1   | BH4                               |              | Barium               | 448           | 390                    | µg/g |
|           |                                   |              | Cadmium              | 2.4           | 1.2                    | µg/g |
|           |                                   |              | Copper               | 639           | 140                    | µg/g |
|           |                                   |              | Lead                 | 608           | 120                    | µg/g |
|           |                                   |              | Mercury              | 0.43          | 120                    | µg/g |
|           |                                   |              | Zinc                 | 1160          | 5                      | µg/g |
| BH5/SS3   | BH5                               |              | Benzo(a)pyrene       | 0.46          | 0.3                    | µg/g |
|           |                                   |              | Fluoranthene         | 0.71          | 0.69                   | µg/g |

The analytical results for the remaining tested parameters in soil samples met the MECP Table 2 Standards.

The plain representation of the concentration of the parameters test in soil samples is shown on Figure 7. A summary of the parameters tested and their concentrations is presented on tables in Appendix H. The maximum concentrations table for each parameter tested in soil is present in Appendix I.

## 6.7 Groundwater Quality

Copies of the laboratory Certificates of Analysis for the analyzed groundwater samples, together with the applicable MECP Table 2 Standards, are provided in Appendix F.

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 analysed for metal parameters were field filtered at the time of collection.

A total of five (5) groundwater samples, including one (1) duplicate samples and one (1) trip blank, were submitted to the laboratory for the analysis of one or more of the following compounds: PHCs, PCBs, PAHs, VOCs, metals, As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr(VI) and Hg.

Based on the review of the groundwater sample analytical results during the investigation for the Phase Two

ESA, the following soil exceedances were identified at the Phase Two Property:

| Sample ID | Borehole/Monitoring well Location | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|----------------------|---------------|------------------------|------|
| MW2       | BH/MW2                            | Chloride             | 14500000      | 790000                 | µg/L |
|           |                                   | Dissolved Barium     | 1800          | 1000                   | µg/L |
|           |                                   | Dissolved Silver     | 1.90          | 1.5                    | µg/L |
|           |                                   | Dissolved Sodium     | 7720000       | 490000                 | µg/L |
| MW3       | BH/MW3                            | Chloride             | 7680000       | 790000                 | µg/L |
|           |                                   | Dissolved Sodium     | 3570000       | 490000                 | µg/L |
|           |                                   | Benzo(a)pyrene       | 0.04          | 0.01                   | µg/L |
| MW6       | MW6                               | Chloride             | 5940000       | 790000                 | µg/L |
|           |                                   | Dissolved Cobalt     | 3.89          | 3.8                    | µg/L |
|           |                                   | Dissolved Sodium     | 2320000       | 490000                 | µg/L |
|           |                                   | Chloroform           | 4.5           | 2.4                    | µg/L |

Elevated values of chloride and sodium in MW2, MW3 and MW6 are attributed to the usage of de-icing salt at the sampling location (municipal parking lot) for pedestrian and vehicle safety. The exemption from meeting the MECP Table 2 Standards on the basis that road salt was applied in an area for pedestrian and vehicle safety (as per the O. Reg. 407/19 published on December 4, 2019, amending the O. Reg. 153/04) is applied for this assessment. Therefore, the exceedances of relevance to the Phase Two Properties include

| Sample ID | Borehole/Monitoring well Location | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|----------------------|---------------|------------------------|------|
| MW2       | BH/MW2                            | Dissolved Barium     | 1800          | 1000                   | µg/L |
|           |                                   | Dissolved Silver     | 1.90          | 1.5                    | µg/L |
| MW3       | BH/MW3                            | Benzo(a)pyrene       | 0.04          | 0.01                   | µg/L |
| MW6       | MW6                               | Dissolved Cobalt     | 3.89          | 3.8                    | µg/L |
|           |                                   | Chloroform           | 4.5           | 2.4                    | µg/L |

The remaining tested parameters in groundwater samples met the MECP Table 2 Standards.

The concentrations of VOCs in the tested trip blank sample was below the laboratory minimum method detection limits, which meet the MECP Table 2 Standards.

The plan view representation of the concentration of the parameters test in groundwater samples is shown on Figure 7. A summary of the parameters tested and their concentrations is presented on tables in Appendix H. The maximum concentrations table for each parameter tested in soil is present in Appendix I.

## 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 this Phase Two ESA investigation included field duplicates for soil and groundwater, and a 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.

The trip blank sample was created at the laboratory by completely filling the volatile vial container with lab grade deionized water and sealing the container. The trip blank vials were never opened until they were returned to the laboratory. The purpose of the trip blank was to detect and identify any VOCs influence of the samples due to travelling to and from the laboratory. Analytical testing did not detect any VOC parameter in the trip blank sample.

All of the 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

However, the RPD is significant only for result pairs with concentrations greater than 5 times the analytical method detection limit in both samples and are not calculated when concentrations are below minimum detection limits. The calculated RPD and the acceptable RPD limits for analyzed parameters in the duplicate soil and groundwater samples are included in Appendix G.

A review of the calculated RPD indicated that the RPD for the original and their respective duplicate samples in soil indicated that the RPD for barium, cobalt, lead and zinc were not within an acceptable range for the primary and duplicate samples. This discrepancy can be attributed to the heterogeneous nature of the fill material at the sampling location. These discrepancies do not influence the overall results of the tested parameters as the concentration of the barium, cobalt, lead and zinc in the primary and duplicated samples are below the concentration of the Table 2 standards.

A review of the calculated RPD indicated that the RPD for the primary and their respective duplicate samples in groundwater were within the acceptable range for the evaluated parameters.

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 E

and F of this Phase Two ESA report.

AGAT certified that the analytical methods and data meet 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 (see Appendix C), 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 describe 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 were 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) is prepared as a part of the Phase Two Environmental Site Assessment (Phase Two ESA) by Sirati and Partners Consultants Ltd. (SIRATI) in support of filing a Record of Site Condition (RSC) for a property located at 79 Collier Street, Barrie, Ontario (hereinafter referred to as the “Phase Two Property” or the “Site”).

This Phase Two CSM is based on the findings of the recent Phase One Environmental Site Assessment (Phase One ESA, Project No. SP20-666-20) and the Phase Two ESA completed for the Phase Two Property.

### 6.10.1 Description and Assessment

The Phase Two Property is located on the southwest corner of Collier Street and Mulcaster Street, in the City of Barrie. The Phase Two Property is irregular in shape with a total property area of 0.41 acres and it is developed with a twenty-five (25) space grade level municipal parking lot. The surface of parking lot was asphalt and grassed/vegetated areas are located to the north portion of the Phase Two Property.

The Phase Two Property is located at the municipal address of 79 Collier Street, Barrie, Ontario. Figure 1 shows the Site Location. A survey plan is provided in Appendix A. The Property Identification Numbers (PINs) and the legal description of the Phase Two Property are listed as follows:

| Municipal Address             | Legal Description                                                                                                                                                                                                                                                                                               | Property Identification number (PIN) | Zoning                  | UTM Coordinates - Centre Point of the Site |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------|--------------------------------------------|
| 79 Collier Street, Barrie, ON | Part Market Block on Plan 2 Barrie, Being Parts 2 to 6 on Plan 51R39976; Subject to an Easement over Part 2 ON Plan 51R39976 As In RO1167938; Subject to An Easement Over Part 6 On Plan 51R39976 As In SC1216519; Subject to an Easement in Gross Over Part 4 ON Plan 51R39976 As In SC1216520; City of Barrie | 58817-0421 (LT)                      | Central Area Commercial | Easting: 604663m<br>Northing: 4916041m.    |

The Phase Two Property is surrounded by the following properties:

North: Collier Street followed by offices

East: Mulcaster Street/ followed by retail businesses

Southeast: Regimental Museum (adjacent)

South: Driveway followed by Residential/Commercial properties

West: Residential/Commercial properties (adjacent).

#### 6.10.1.1 Areas Where Potentially Contaminating Activity Has Occurred

Eleven (11) Potentially Contaminating Activities (PCAs) were identified at the Phase One Property and at properties within the Phase One Study Area based on the records review, interviews, and Site reconnaissance.

The PCAs identified within the Phase One Study Area are listed in Table 1 in Executive Summary of this report and shown on Figure 2.

#### **6.10.1.2 Areas of Potential Environmental Concern**

Two (2) of the PCAs were considered to cause Areas of Potential Environmental Concern (APECs) on the Phase One Property. Detail so the APECs are presented in Table 2 in Executive Summary of this report. The locations of the APECs are shown on Figure 3.

#### **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 One Property was occupied by a parking lot. Other subsurface structures such as underground utilities are expected to be present at the Phase One Property. Based on the groundwater level at the Phase Two Property (8.80 to 9.98 mbgs), these underground utilities are unlikely to influence the direction of distribution of any groundwater contaminants.

### ***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**

The soils retrieved during the borehole drilling were observed. The soils encountered at the borehole locations generally consisted of asphalt/topsoil below which was fill materials. The fill material was found to consist mainly of sand with trace of stone and silt, which extended to the maximum depth of 2.1 mbgs. Below the fill material was a layer of native sandy material. No bedrock was encountered at the Phase Two Property at the maximum explored depth of 12.2 mbgs.

The main soil types encountered at the Phase Two Property included the following:

- Asphalt: encountered at BH/MW2, BH/MW3, BH4, and BH5 was 70 mm to 100 mm thick.
- Topsoil: found at BH1 is 150 mm thick,
- Fill materials: encountered in all the borehole locations, mainly consisting of granular fill, sand and sandy silt, extending to a maximum depth of 2.3 mbgs at BH/MW2. BH1, BH4 and BH5 were terminated within this layer.
- Sand: encountered at BH/MW2 and BH/MW3, from depths of 1.5 mbgs to 12.2 mbgs.

Bedrock was not encountered at the maximum drilling depth of 12.2 mbgs. According to the Bedrock Topography of Barrie Area map it is anticipated that the Bedrock is at an elevation of 130 mAMSL, approximately 100 mbgs.

The locations of cross-sections for soil stratigraphy at the Phase Two Property are presented on Figure 4. And geological cross-sections, are shown on Figure 5.

Based on the groundwater level measurements of July 16 and 27, 2020, the depth of the groundwater level at the Phase Two Property range from 8.80 to 9.88 mbgs. The top of the unconfined aquifer is within sand deposits. The potential for temporal variability in groundwater flow direction is expected to be high.

#### **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 One Property is located within the larger hydrogeological region known as the Lake Simcoe Watershed. The ground surface at the Phase One Property slopes towards the southeast.

In order to better interpret the groundwater flow direction, existing monitoring wells MW6 and MW7, installed in previous investigations, were also measured along with the monitoring wells installed during this investigation. Based on the measured groundwater elevations, the interpreted groundwater flow direction was determined to be in the southwest direction. Groundwater elevation and contours are presented on Figure 6

Based on groundwater elevations measured on June 16, 2020, the estimated horizontal gradient for the investigated aquifer ranges between 0.0017 m/m and 0.0097 m/m (average 0.006 m/m). Vertical hydraulic gradients were not evaluated for the Phase Two Property as a second aquifer was not encountered at the depths investigated during this Phase Two ESA.

#### **6.10.2.3 Approximate Depth to Bedrock**

Bedrock was not encountered at the maximum drilling depth of 12.2 mbgs. According to the Bedrock Topography of Barrie Area map it is anticipated that the Bedrock is at an elevation of 130 mAMSL, approximately 100 mbgs.

#### **6.10.2.4 Approximate Depth to Water Table**

Based on the groundwater level measurements of July 16 and 27, 2020, the depth of the groundwater level at the Phase Two Property range from 8.80 to 9.88 mbgs. The top of the unconfined aquifer is within sand deposits, the potential for temporal variability in groundwater flow direction is expected to be high. Also, due to depth of groundwater level, it is unlikely that the underground utility would influence the groundwater flow direction.

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

The Phase Two Property is not part of/adjacent/within 30 m of an area of natural significance and the analytical results indicated that the pH values of the tested soil samples are between 5 and 9 for the surface soil (<1.5 mbgs) and between 5 and 11 for the subsurface soil (>1.5 mbgs). Therefore, Section 41 of the O. Reg. 153/04 (Site Condition Standards, Environmental Sensitive Areas) does not apply to the Phase Two Property.

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 Phase Two Property or within 30 m from the Phase Two Property boundaries. Therefore, Section 43.1 of the 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**

The findings of the Phase Two ESA indicate the presence of fill material across the Phase Two Property. The encountered fill material was assessed during the Phase Two ESA.



### 6.10.2.7 Approximate Locations of Any Proposed Buildings and Other Structures

There is no building or other structures at the Phase Two Property. A plan showing the location of the propose building is included in Appendix A.

### 6.10.3 Contaminants Greater Than the Applicable Standards

Based on the review of the soil sample analytical results during the investigation for the Phase Two ESA, the following parameters had concentrations in soil greater than the Applicable MECP Table 2 Standards:

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters    | Concentration | MECP Table 2 Standards | Unit  |
|-----------|-----------------------------------|--------------|-------------------------|---------------|------------------------|-------|
| MW2/SS2   | BH/MW2                            |              | Electrical Conductivity | 1.10          | 0.7                    | mS/cm |
|           |                                   |              | Sodium Adsorption Ratio | 15.0          | 5                      | NA    |
|           |                                   |              | Benz(a)anthracene       | 0.74          | 0.5                    | µg/g  |
|           |                                   |              | Benzo(a)pyrene          | 0.68          | 0.3                    | µg/g  |
|           |                                   |              | Benzo(b)fluoranthene    | 0.86          | 0.78                   | µg/g  |
|           |                                   |              | Fluoranthene            | 1.9           | 0.69                   | µg/g  |
|           |                                   |              | PHC F3 (C16 to C34)     | 520           | 300                    | µg/g  |
| MW3/SS1   | BH/MW3                            |              | Sodium Adsorption Ratio | 5.59          | 5                      | NA    |
| BH5/SS3   | BH5                               |              | Electrical Conductivity | 2.53          | 0.7                    | mS/cm |
|           |                                   |              | Sodium Adsorption Ratio | 34.0          | 5                      | NA    |
|           |                                   |              | Benzo(a)pyrene          | 0.46          | 0.3                    | µg/g  |
|           |                                   |              | Fluoranthene            | 0.71          | 0.69                   | µg/g  |
| BH4/SS1   | BH4                               |              | Barium                  | 448           | 390                    | µg/g  |
|           |                                   |              | Cadmium                 | 2.4           | 1.2                    | µg/g  |
|           |                                   |              | Copper                  | 639           | 140                    | µg/g  |
|           |                                   |              | Lead                    | 608           | 120                    | µg/g  |
|           |                                   |              | Mercury                 | 0.43          | 120                    | µg/g  |
|           |                                   |              | Sodium Adsorption Ratio | 9.87          | 5                      | µg/g  |
|           |                                   |              | Zinc                    | 1160          | 5                      | µg/g  |

Based on the review of the groundwater sample analytical results during the investigation for the Phase Two ESA, the following parameters had concentrations in groundwater greater than the Applicable MECP Table 2 Standards:

| Sample ID | Borehole/Monitoring well Location | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|----------------------|---------------|------------------------|------|
| MW2       | BH/MW2                            | Chloride             | 14500000      | 790000                 | µg/L |
|           |                                   | Dissolved Barium     | 1800          | 1000                   | µg/L |
|           |                                   | Dissolved Silver     | 1.90          | 1.5                    | µg/L |
|           |                                   | Dissolved Sodium     | 7720000       | 490000                 | µg/L |
| MW3       | BH/MW3                            | Chloride             | 7680000       | 790000                 | µg/L |
|           |                                   | Dissolved Sodium     | 3570000       | 490000                 | µg/L |
|           |                                   | Benzo(a)pyrene       | 0.04          | 0.01                   | µg/L |
| MW6       | MW6                               | Chloride             | 5940000       | 790000                 | µg/L |
|           |                                   | Dissolved Cobalt     | 3.89          | 3.8                    | µg/L |
|           |                                   | Dissolved Sodium     | 2320000       | 490000                 | µg/L |
|           |                                   | Chloroform           | 4.5           | 2.4                    | µg/L |

Elevated values of EC and SAR in soil and chloride and sodium in groundwater, at the Phase Two Property, are attributed to the usage of de-icing salt at the sampling location (municipal parking lot) for pedestrian and vehicle safety. The exemption from meeting the MECP Table 2 Standards on the basis that road salt was applied in an

area for pedestrian and vehicle safety (as per the O. Reg. 407/19 published on December 4, 2019, amending the O. Reg. 153/04) is applied for this assessment.

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

The investigations for the Phase Two ESA identified the following:

- Fill material is impacted with PAHs [benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene] and PHCs [PHC F3 (C16 to C34)] parameters and groundwater is impacted with metals (barium and silver) parameters on the west-central portion of the Phase Two Property (BH/MW2).
- Groundwater is impacted with PAHs [benzo(a)pyrene] parameter, on the east-central portion of the Phase Two Property (BH/MW3).
- Groundwater is impacted with cobalt at the central portion of the Phase Two property (MW6).
- Fill material at the sampling location on the central-east portion of the Phase Two Property (BH4), is impacted with metals (barium, cadmium copper, lead, mercury, zinc) and.
- Fill material, at the sampling location on the southwest portion of the Phase Two Property (BH5), is impacted with PAHs [benzo(a)pyrene and fluoranthene] parameters.

#### **6.10.3.2 The Contaminants Associated with Each Contaminated Area**

The investigations for the Phase Two ESA identified the following:

- Fill material is impacted with PAHs [benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene] and PHCs [PHC F3 (C16 to C34)] parameters and groundwater is impacted with metals (barium and silver) parameters on the west-central portion of the Phase Two Property (BH/MW2).
- Groundwater is impacted with PAHs [benzo(a)pyrene] parameter, on the east-central portion of the Phase Two Property (BH/MW3).
- Groundwater is impacted with cobalt at the central portion of the Phase Two property (MW6).
- Fill material at the sampling location on the central-east portion of the Phase Two Property (BH4), is impacted with metals (barium, cadmium copper, lead, mercury, zinc) and.
- Fill material, at the sampling location on the southwest portion of the Phase Two Property (BH5), is impacted with PAHs [benzo(a)pyrene and fluoranthene] parameters.

#### **6.10.3.3 Each Medium in Which a Contaminant is Present**

Soil contamination was identified at sampling locations BH/MW2, BH/MW3, BH4 and BH5.

Groundwater contamination was identified at sampling locations BH/MW2, BH/MW3 and MW6.

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

Soil impact is likely due to import of fill from an unknown source.

Groundwater is likely impacted by leaching of contaminants from fill material into groundwater.

**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**

The Site investigations for the Phase Two ESA identified fill material impacted with PAH, PHC and heavy metal parameters above the MECP Table 2 Standards at three (3) sampling locations (BH/MW2, BH4 and BH5). The impacted soil material is expected to extend to at least 2.1 mbgs in some areas.

The groundwater on the west central portion of the Site (BH/MW2) is impacted with heavy metals (Barium and Silver), groundwater on the central portion of the Site (BH/MW6) is impacted with benzo(a)pyrene, and the groundwater on the southwest portion of the Site (MW6) is impacted with cobalt.

A delineation program is required to establish the vertical and lateral extent of the impacted material in the soil and groundwater at each sampling location.

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

The discharge point of the contaminants identified in the tested soil and groundwater samples is attributed to the historic presence of fill material of unknown environmental quality at the Phase Two Property.

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

The native material encountered during the drilling exercise consists mainly of sand, which has a relatively high permeability. There is a possibility for the contaminants in soil to leach on to the groundwater. The migration pathway will depend on factors including difference in specific gravity, solubility and capillary action of the subsurface soil. The contaminants in groundwater will migrate in the groundwater flow direction.

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

The distribution of the contaminants in soil and groundwater are not expected to be strongly influenced by climatic or meteorological conditions.

**6.10.3.9 Information Concerning Soil Vapour Intrusion of Contaminants into Buildings**

Concentration of mercury exceeding the MECP Table 2 Standards was identified in soil sample collected from the sampling location BH4. This sampling location is covered with 100 mm thick asphalt. Asphalt is documented to operate as an efficient vapour barrier membrane. There is no building at the Phase Two Property where indoor inhalation could occur. It is unlikely that mercury vapour will be of any concern to the public at this time.

The remaining contaminants identified at the Phase Two Property are non-volatile parameters and are unlikely to release vapours under ambient conditions.

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

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

Based on available information the impacted fill material extends to at least 2.1 mbgs in some locations. A delineation program is required to determine the lateral and vertical extent of the contaminants identified in the soil and groundwater.

#### **6.10.4.2 Approximate Depth to Water Table in Each Contaminated Area**

Based on groundwater tables measured on the July 16 and 27, 2020, the depth to the water table at the Phase Two Property ranges from 8.80 mbgs to 9.88 mbgs.

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

The main soil types encountered at the Phase Two Property included the following:

- Asphalt: encountered at BH/MW2, BH/MW3, BH4, and BH5 was 70 mm to 100 mm thick.
- Topsoil: found at BH1 is 150 mm thick,
- Fill materials: encountered in all the borehole locations, mainly consisting of granular fill, sand and sandy silt, extending to a maximum depth of 2.3 mbgs at BH/MW2. BH1, BH4 and BH5 were terminated within this layer.
- Sand: encountered at BH/MW2 and BH/MW3, from depths of 1.5 mbgs to 12.2 mbgs.

Based on the Site conditions, the depth of the groundwater level at the Phase Two Property range from 8.80 to 9.88 mbgs. The top of the unconfined aquifer is within sand deposits.

Geological Cross Sections A-A' and B-B', illustrating the soil profile, monitoring well constructions and groundwater elevations, are shown on **Error! Reference source not found..**

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

At the time of the assessment, the Phase One Property was occupied by a parking lot. Other subsurface structures such as underground utilities are expected at the Phase One Property. The impacted soil is estimated to extend to 2.1 mbgs. There is a possibility that subsurface utilities and conduits at the Phase Two Property may influence the soil contamination distribution at the property.

The groundwater table is below 8.80 mbgs. No subsurface utility or conduits are expected to be present at that depth. The distribution of the contaminants identified in the groundwater is unlikely to be influenced by any subsurface utility or conduit.

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

The potential source of the contaminants identified in soil and groundwater at the Phase Two Property is associated with the historic fill material of unknown environmental quality at the Phase Two Property.

The locations of the identified contaminants at the Phase Two Property is covered with asphalt, and impermeable vapour membrane. It is unlikely that any contaminants will be release into the air and inhaled by humans at the Phase Two Property. The contaminants are expected to have several release mechanisms via soil and groundwater exposure pathways to humans and ecological receptors at or in the vicinity of the Phase Two Property. The contaminant exposure/transport pathways are discussed below in the Human and Ecological Receptor Conceptual Model Plan is presented on Figure 9.

#### **6.10.5.1 The Release Mechanisms**

Contaminants in soil [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, PHC F3 (C16 to C34), barium, cadmium, copper, lead, mercury, and zinc] and groundwater [barium, silver, benzo(a)pyrene, cobalt and chloroform] were identified at the Phase Two Property. The high concentration of these substances in soil and groundwater are attributable to the presence of fill material of unknown environmental quality at the Phase Two Property.

#### **6.10.5.2 Contaminant Transport Pathway**

The contaminants identified are not expected to migrate into the atmosphere (air) as the impacted layers are below asphalt paved surfaces which prevent any migration onto the surface (air).

Based on the porous and coarse texture of the subsurface soil material at the Phase Two Property, it is expected that contaminants can leach out of the fill material into the groundwater. The distribution of the contaminants in groundwater will be influenced by the groundwater flow direction.

The Phase Two Property and Phase One Study Area are serviced with portable drinking water by the City of Barrie. There is no potential for contaminants in the groundwater to migrate into a domestic well.

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

The identified contaminants in soil and groundwater at the Phase Two Property can get into the human body during excavation activities at the Phase Two Property or through ingestion by excavation workers.

A human and ecological receptor model showing the possible pathways is attached as Figure 9.

#### **6.10.5.4 Receptor Exposure Point**

The potential exposure points for the soil and groundwater contaminants is dermal contact or ingestion by excavation worker.

#### **6.10.5.5 Routes of Exposure**

The routes of exposure for the identified soil and groundwater contaminants at the Phase Two Property would be dermal contact, or ingestion. As no significant ecological habitat was identified at the Phase Two Property, the risk to ecological receptors is expected to be minimal. Workers may have come into contact with the impacted soil during the remedial excavation, but this is expected to be minimal as excavation workers usually use personal protective equipment (PPE) when handling the impacted soil, which would be excavated and removed from the Phase Two Property using the excavation machines.

#### **6.10.6 Non-Standard Delineation**

An environmental risk assessment has not been filled for the Phase Two Property. Therefore, a non-standard delineation is not applicable for this investigation.

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

Elevated values of EC and SAR in soils and chloride and sodium in groundwater are attributed to the usage of de-icing salt at the sampling location (municipal parking lot) for pedestrian and vehicle safety. The exemption from meeting the MECP Table 2 Standards on the basis that road salt was applied in an area for pedestrian and

vehicle safety (as per the O. Reg. 407/19 published on December 4, 2019, amending the O. Reg. 153/04) is applied for this assessment.

**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.

## 7.0 CONCLUSIONS

A Phase One ESA report was prepared by SIRATI for the Site, dated August 19, 2020 (“SIRATI 2020 Phase One ESA”). As part of the SIRATI August 19, 2020 Phase One ESA, a conceptual site model (CSM) was prepared for the Phase Two Property, including Figures depicting the potential contaminant activities (PCAs) within the Phase One Study Area and the areas of potential environmental concern (APECs) on the Site. The SIRATI 2020 Phase One ESA recommended a Phase Two ESA to investigate the APECs identified on the Phase Two Property.

The field investigations for the Phase Two ESA were carried out by a licensed driller, Pontil Drilling (Pontil), on July 15 and 16, 2020. Five (5) boreholes (BH1, BH/MW2, BH/MW3 BH4 and BH5), were advanced to depths ranging between 2.1 mbgs and 12.2 mbgs. Two (2) of the borehole (BH/MW2 and BH/MW3) were instrumented with monitoring wells. Nine (9) soil samples, including one duplicate, were collected from the boreholes, six (6) groundwater samples, including one (1) duplicate and one (1) trip blank, were collected from the two (2) newly installed monitoring wells and two (2) existing monitoring wells (MW6 and MW7).

For assessment purposes, SIRATI selected the Ontario Ministry of the Environment, Conservation and Parks (MECP) 2011 Table 2 Full Depth Generic Site Condition Standards in a potable ground water condition for residential/parkland/institutional property use with coarse textured soils (MECP Table 2 Standards) based on the observed heterogeneity of the subsurface strata at the Phase Two Property.

In general, the surface at the borehole locations were covered by topsoil or asphalt. The subsurface soil stratigraphy at the borehole locations comprised of fill material, underlain by sand.

Groundwater levels were measured on July 16 and 27, 2020. No free product or oily sheen was observed in any of the monitoring wells. Based on the measured groundwater elevations, the interpreted groundwater flow direction was determined to be in the southwest direction.

Based on the groundwater measurements, the calculated horizontal hydraulic gradient for the investigated aquifer at the Phase Two Property is between 0.0017 m/m and 0.0097 m/m (average 0.006 m/m). The vertical hydraulic gradient was not calculated as the second aquifer was not encountered at the depths investigated during this Phase Two ESA.

Soil and groundwater samples, including duplicate samples and QA/QC samples, were submitted to AGAT Laboratories Ltd. (AGAT) for analysis of one or more of the following contaminants of potential concern (COCs): petroleum hydrocarbons Fractions 1 to 4 (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals, As, Sb, Se, B-HWS, Na, Hg, Cl-, CN-, Cr-VI, pH, EC and SAR.

Based on the review of the soil sample analytical results, the following soil exceedances were identified at the Phase Two Property:

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|--------------|----------------------|---------------|------------------------|------|
| MW2/SS2   | BH/MW2                            | 0.8 - 1.5    | Benz(a)anthracene    | 0.74          | 0.5                    | µg/g |
|           |                                   |              | Benzo(a)pyrene       | 0.68          | 0.3                    | µg/g |
|           |                                   |              | Benzo(b)fluoranthene | 0.86          | 0.78                   | µg/g |

| Sample ID | Borehole/Monitoring well Location | Depth (mbgs) | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit  |
|-----------|-----------------------------------|--------------|----------------------|---------------|------------------------|-------|
|           |                                   |              | Fluoranthene         | 1.9           | 0.69                   | µg/g  |
|           |                                   |              | PHC F3 (C16 to C34)  | 520           | 300                    | µg/g  |
|           |                                   |              | SAR                  | 15            | 5                      | mS/cm |
|           |                                   |              | EC                   | 1.1           | 0.7                    | N/A   |
| MW3/SS1   | BH/MW3                            | 0.3 - 0.6    | SAR                  | 5.9           | 5                      | mS/cm |
| BH4/SS1   | BH4                               | 0.3 - 0.6    | Barium               | 448           | 390                    | µg/g  |
|           |                                   |              | Cadmium              | 2.4           | 1.2                    | µg/g  |
|           |                                   |              | Copper               | 639           | 140                    | µg/g  |
|           |                                   |              | Lead                 | 608           | 120                    | µg/g  |
|           |                                   |              | Mercury              | 0.43          | 0.27                   | µg/g  |
|           |                                   |              | Zinc                 | 1160          | 340                    | µg/g  |
|           |                                   |              | SAR                  | 9.87          | 5                      | mS/cm |
| BH5/SS3   | BH5                               | 1.5 - 2.2    | Benzo(a)pyrene       | 0.46          | 0.3                    | µg/g  |
|           |                                   |              | Fluoranthene         | 0.71          | 0.69                   | µg/g  |
|           |                                   |              | SAR                  | 34            | 5                      | mS/cm |
|           |                                   |              | EC                   | 2.53          | 0.7                    | N/A   |

The remaining tested parameters in soil samples met the MECP Table 2 Standards.

Based on the review of the groundwater sample analytical results during the investigation for the Phase Two ESA, the following groundwater exceedances were identified at the Phase Two Property:

| Sample ID | Borehole/Monitoring well Location | Exceeding Parameters | Concentration | MECP Table 2 Standards | Unit |
|-----------|-----------------------------------|----------------------|---------------|------------------------|------|
| MW2       | BH/MW2                            | Chloride             | 14500000      | 790000                 | µg/L |
|           |                                   | Dissolved Barium     | 1800          | 1000                   | µg/L |
|           |                                   | Dissolved Silver     | 1.90          | 1.5                    | µg/L |
|           |                                   | Dissolved Sodium     | 7720000       | 490000                 | µg/L |
| MW3       | BH/MW3                            | Chloride             | 7680000       | 790000                 | µg/L |
|           |                                   | Dissolved Sodium     | 3570000       | 490000                 | µg/L |
|           |                                   | Benzo(a)pyrene       | 0.04          | 0.01                   | µg/L |
| MW6       | MW6                               | Chloride             | 5940000       | 790000                 | µg/L |
|           |                                   | Dissolved Cobalt     | 3.89          | 3.8                    | µg/L |
|           |                                   | Dissolved Sodium     | 2320000       | 490000                 | µg/L |
|           |                                   | Chloroform           | 4.5           | 2.4                    | µg/L |

The remaining tested parameters in groundwater samples met the MECP Table 2 Standards.

Elevated values of EC and SAR in soil and chloride and sodium in groundwater, at the Phase Two Property, are attributed to the usage of de-icing salt at the sampling location (municipal parking lot) for pedestrian and vehicle safety. The exemption from meeting the MECP Table 2 Standards on the basis that road salt was applied in an area for pedestrian and vehicle safety (as per the O. Reg. 407/19 published on December 4, 2019, amending the O. Reg. 153/04) is applied for this assessment.

Based on the information of the Phase Two ESA, SIRATI is of the opinion that the Phase Two Property is not in compliance with the applicable MECP Table 2 Standards. A delineation program is recommended to establish the vertical and lateral extent of the impacted material in the soil and groundwater at each sampling location. Once the extent of contamination is known, contaminated soil and groundwater would require to be addressed by remediation or risk assessment, prior to filing a RSC for the Site.



## 8.0 SIGNATURES

All activities of this Phase Two ESA were completed under the supervision of the Qualified Person (QP), Bob Gordanifar, P. Eng., QP<sub>ESA</sub> and RA, as defined by the O.Reg. 153/04, as amended. In addition, the QP prepared the Conceptual Site Model, in accordance with Part VII of the Regulation.

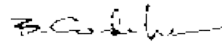
Should you have any questions regarding the information presented or limitation set in this report, please do not hesitate to contact our office.

Yours truly,

**Sirati and Partners Consultants Ltd.**



**Efuange Khumbah, M.Sc**  
Project Manager, Environmental Services



**Bob Gordanifar, P.Eng., QP<sub>ESA</sub> and RA**  
VP, Environmental and Hydrogeological Services

## 9.0 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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SIRATI accepts no responsibility or liability for the consequences of the use of this document, wholly or in part, for any other purpose than that for which it was completed. Any persons so using or relying upon this document for such other purpose do so at their own risk.

# FIGURES





North:



Legend:

Approximate Property Boundary

Project Title:

Phase Two Environmental Site Assessment

Site Location:

79 Collier Street, Barrie, ON

Figure Title:

Site Location Plan

Scale:

As Shown

Project Number:

SP20-666-00

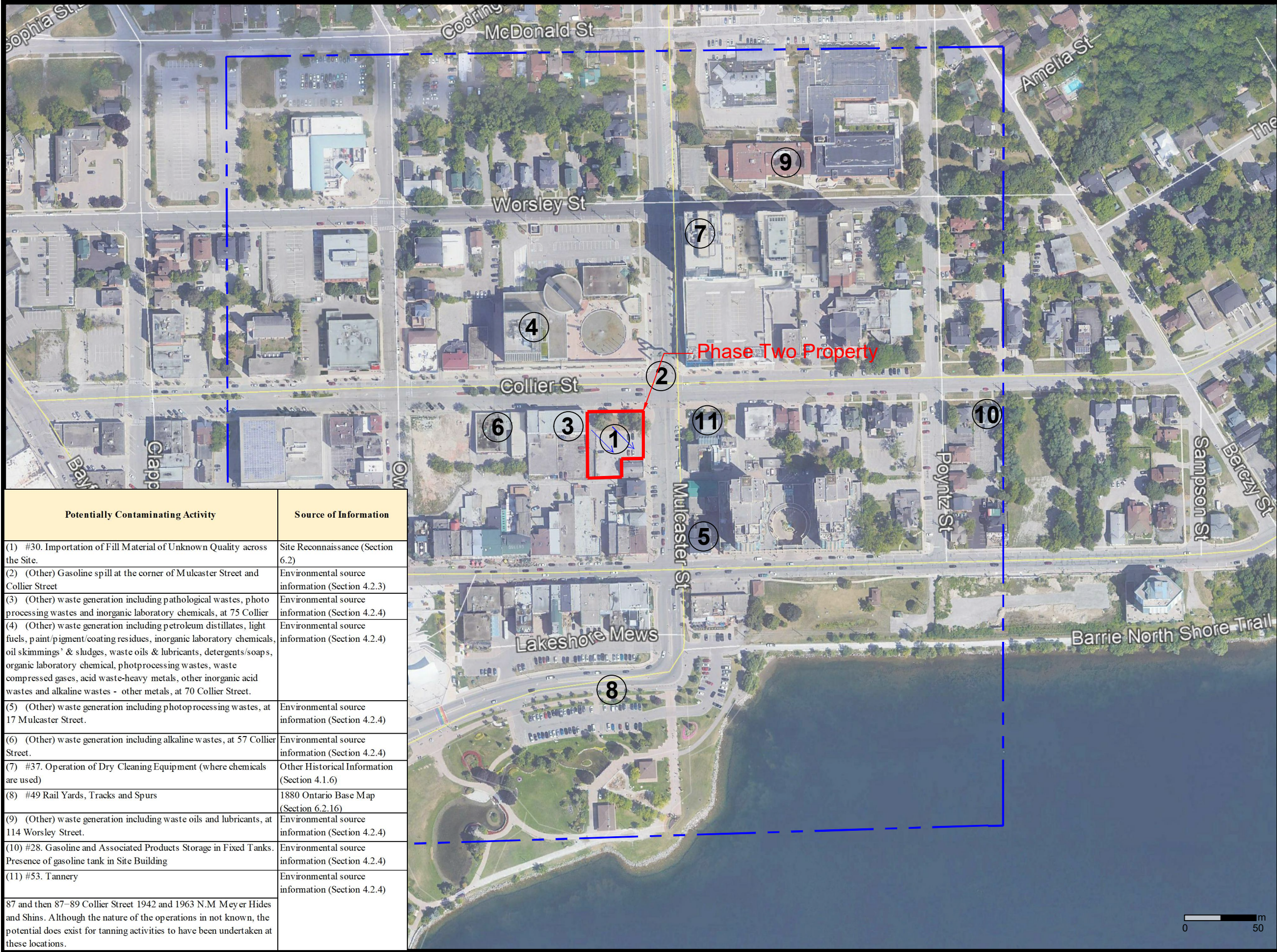
Date:

September 2020

Figure Number:

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| Potentially Contaminating Activity                                                                                                                                                                                                                                                                                                                                                                          | Source of Information                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| (1) #30. Importation of Fill Material of Unknown Quality across the Site.                                                                                                                                                                                                                                                                                                                                   | Site Reconnaissance (Section 6.2)                |
| (2) (Other) Gasoline spill at the corner of Mulcaster Street and Collier Street                                                                                                                                                                                                                                                                                                                             | Environmental source information (Section 4.2.3) |
| (3) (Other) waste generation including pathological wastes, photo processing wastes and inorganic laboratory chemicals, at 75 Collier                                                                                                                                                                                                                                                                       | Environmental source information (Section 4.2.4) |
| (4) (Other) waste generation including petroleum distillates, light fuels, paint/pigment/coating residues, inorganic laboratory chemicals, oil skimmings* & sludges, waste oils & lubricants, detergents/soaps, organic laboratory chemical, photoprocessing wastes, waste compressed gases, acid waste-heavy metals, other inorganic acid wastes and alkaline wastes - other metals, at 70 Collier Street. | Environmental source information (Section 4.2.4) |
| (5) (Other) waste generation including photoprocessing wastes, at 17 Mulcaster Street.                                                                                                                                                                                                                                                                                                                      | Environmental source information (Section 4.2.4) |
| (6) (Other) waste generation including alkaline wastes, at 57 Collier Street.                                                                                                                                                                                                                                                                                                                               | Environmental source information (Section 4.2.4) |
| (7) #37. Operation of Dry Cleaning Equipment (where chemicals are used)                                                                                                                                                                                                                                                                                                                                     | Other Historical Information (Section 4.1.6)     |
| (8) #49 Rail Yards, Tracks and Spurs                                                                                                                                                                                                                                                                                                                                                                        | 1880 Ontario Base Map (Section 6.2.16)           |
| (9) (Other) waste generation including waste oils and lubricants, at 114 Worsley Street.                                                                                                                                                                                                                                                                                                                    | Environmental source information (Section 4.2.4) |
| (10) #28. Gasoline and Associated Products Storage in Fixed Tanks. Presence of gasoline tank in Site Building                                                                                                                                                                                                                                                                                               | Environmental source information (Section 4.2.4) |
| (11) #53. Tannery                                                                                                                                                                                                                                                                                                                                                                                           | Environmental source information (Section 4.2.4) |
| 87 and then 87–89 Collier Street 1942 and 1963 N.M Meyer Hides and Shins. Although the nature of the operations in not known, the potential does exist for tanning activities to have been undertaken at these locations.                                                                                                                                                                                   |                                                  |

North:



Legend:

- Approximate Property Boundary
- 250m Study Area
- Inferred Shallow Groundwater Flow Direction

Project Title:

Phase Two Environmental Site Assessment

Site Location:

79 Collier Street, Barrie, ON

Figure Title:

Potentially Contaminating Activities

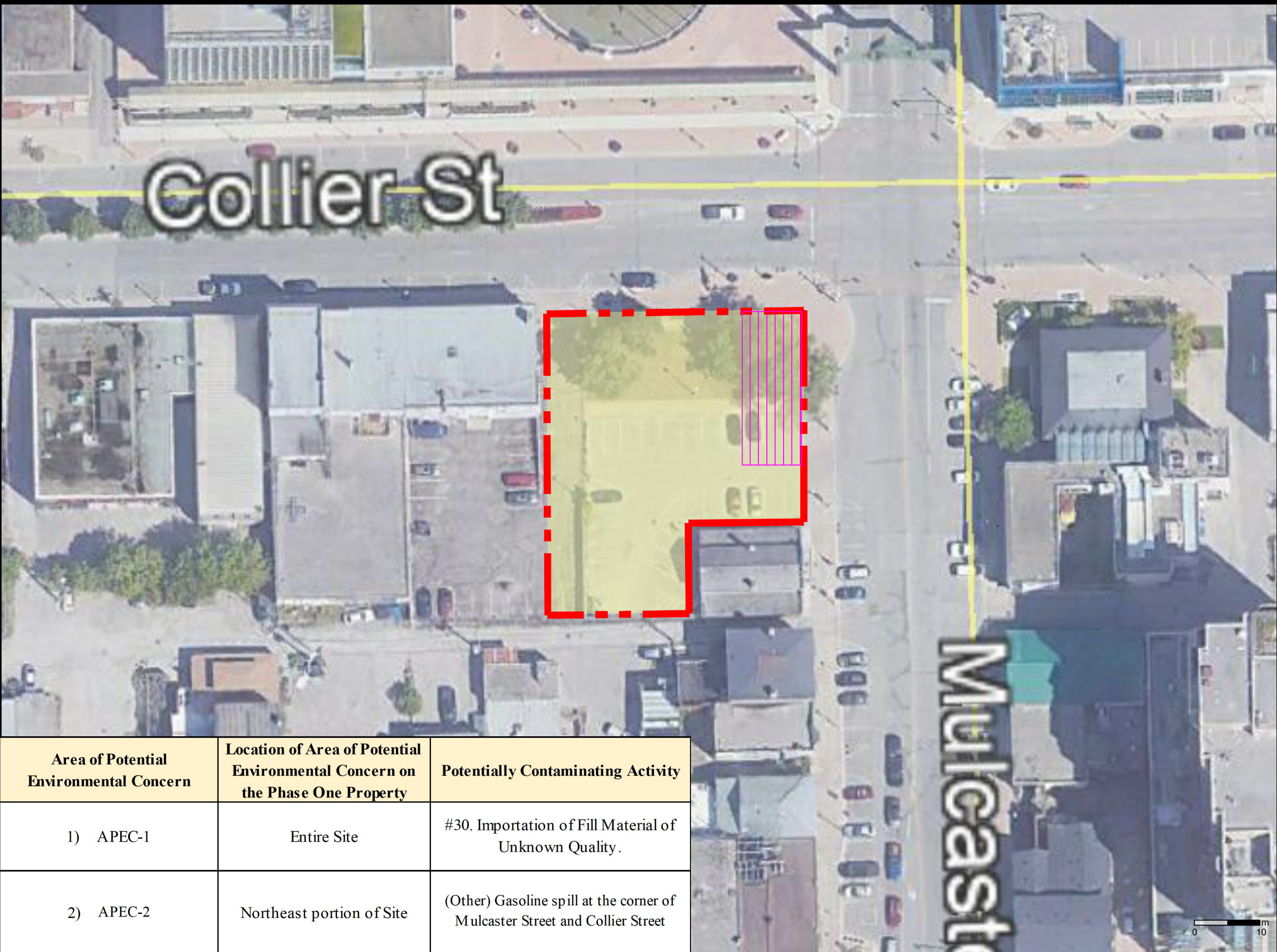
Scale:  
As Shown

Project Number:  
SP20-666-00

Date:  
September 2020

Figure Number:  
2





North:



Legend:

— Approximate Property Boundary

|        |  |
|--------|--|
| APEC-1 |  |
| APEC-2 |  |

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
79 Collier Street, Barrie, ON

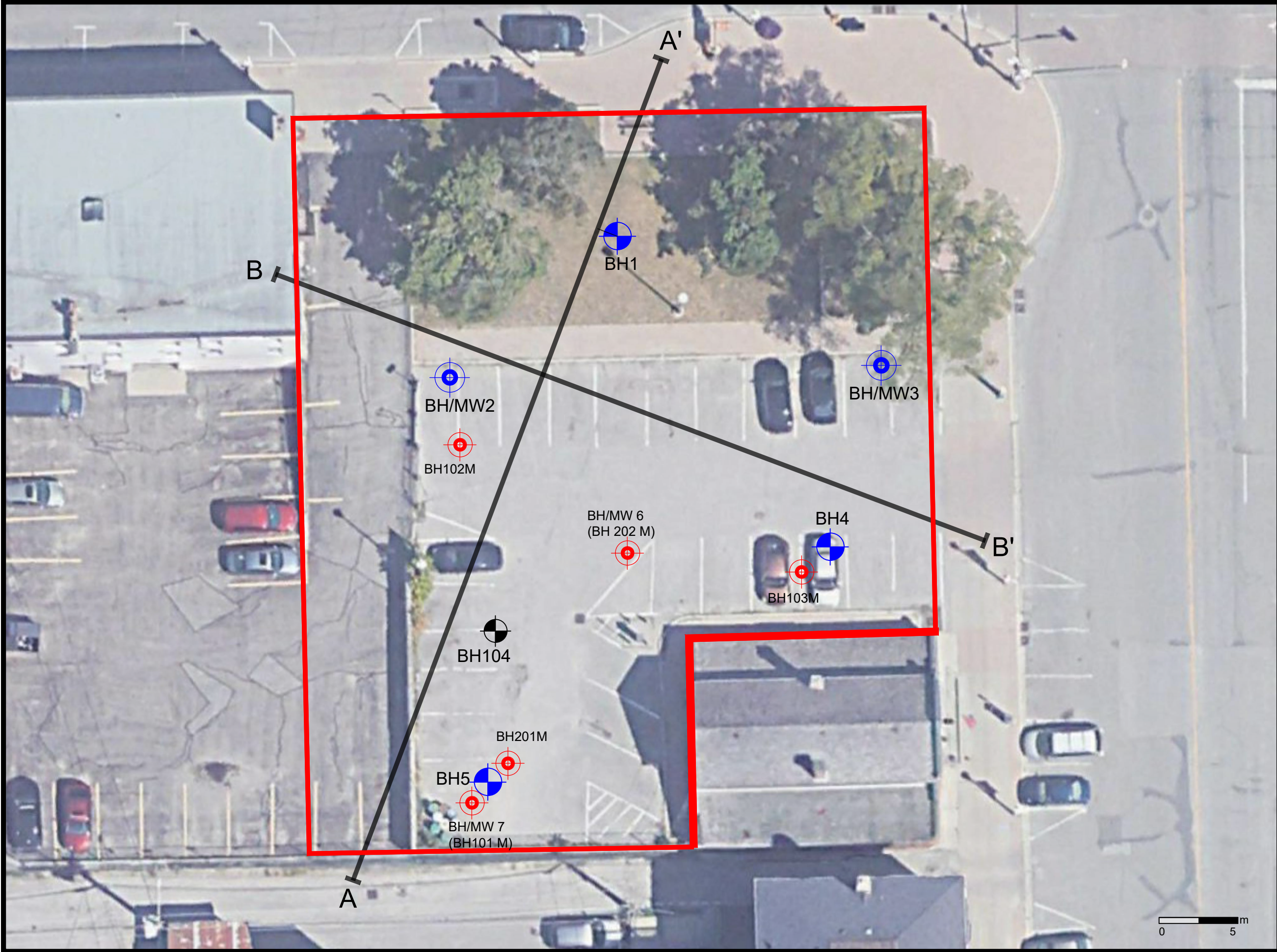
**Figure Title:**  
Area of Potential Environmental Concern (APEC)

|                           |                                       |
|---------------------------|---------------------------------------|
| <b>Scale:</b><br>As Shown | <b>Project Number:</b><br>SP20-666-00 |
|---------------------------|---------------------------------------|

|                                |                            |
|--------------------------------|----------------------------|
| <b>Date:</b><br>September 2020 | <b>Figure Number:</b><br>3 |
|--------------------------------|----------------------------|

| Area of Potential Environmental Concern | Location of Area of Potential Environmental Concern on the Phase One Property | Potentially Contaminating Activity                                          |
|-----------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) APEC-1                               | Entire Site                                                                   | #30. Importation of Fill Material of Unknown Quality.                       |
| 2) APEC-2                               | Northeast portion of Site                                                     | (Other) Gasoline spill at the corner of Mulcaster Street and Collier Street |





- Legend:**
- Approximate Property Boundary
  - Monitoring Wells (2020 by Sirati)
  - Boreholes (2020 by Sirati)
  - Boreholes (2019 by PGL)
  - Monitoring Wells (2019 by PGL)

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
79 Collier Street, Barrie, ON

**Figure Title:**  
Borehole/Monitoring Wells Location Map

|                           |                                       |
|---------------------------|---------------------------------------|
| <b>Scale:</b><br>As Shown | <b>Project Number:</b><br>SP20-666-00 |
|---------------------------|---------------------------------------|

|                                |                           |
|--------------------------------|---------------------------|
| <b>Date:</b><br>September 2020 | <b>Figure Number</b><br>4 |
|--------------------------------|---------------------------|

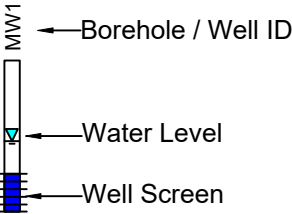


North:



Legend:

- Asphalt
- Topsoil
- Fill
- Sand



Note: Groundwater Elevation were obtained on July 27, 2020

Project Title:

Phase Two Environmental Site Assessment

Site Location:

79 Collier Street, Barrie, ON

Figure Title:

Cross Section A-A

Scale:

As Shown

Project Number:

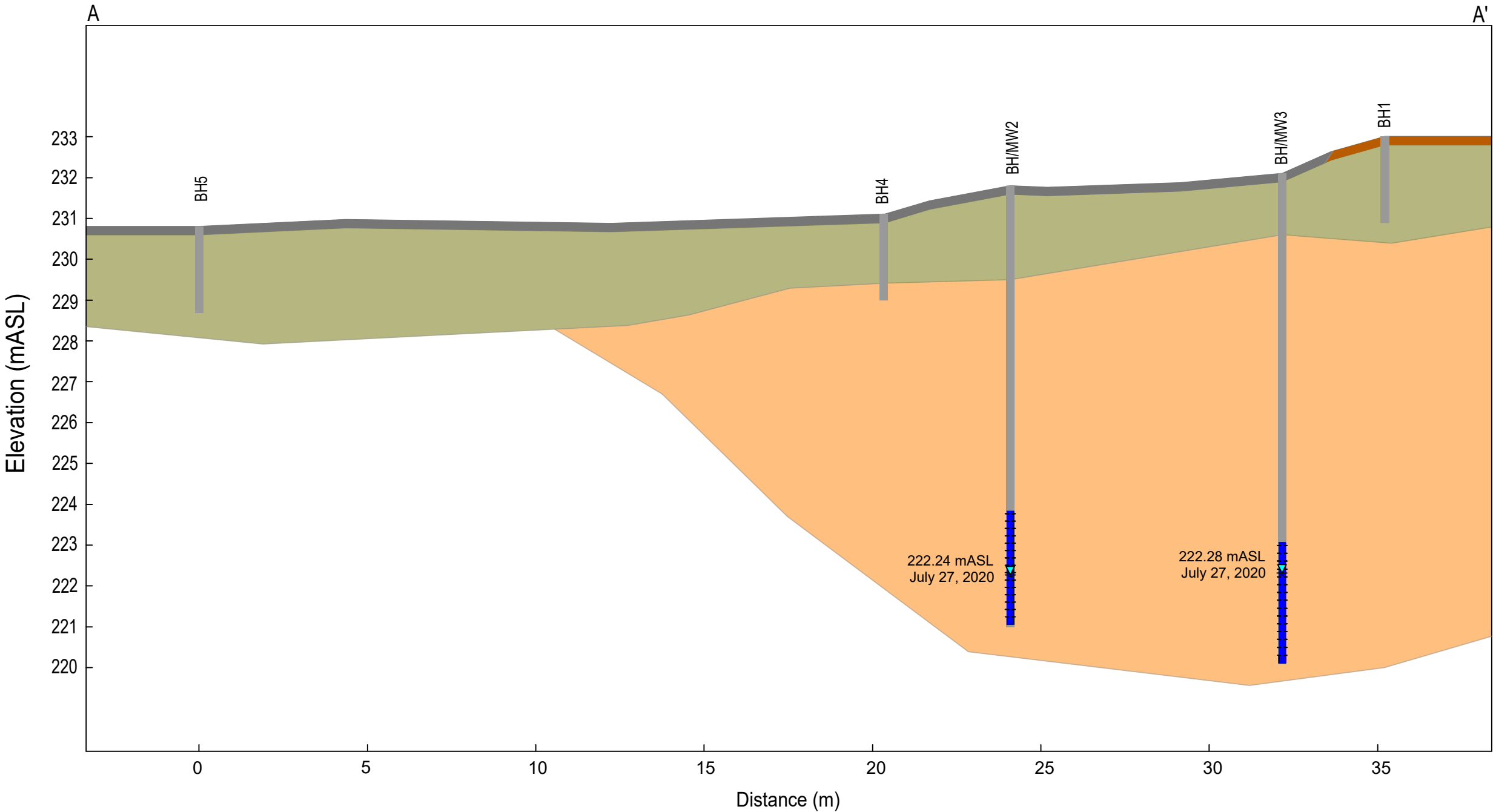
SP20-666-00

Date:

September 2020

Figure Number

5-1



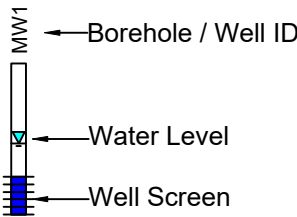


North:



Legend:

- Asphalt
- Topsoil
- Fill
- Sand



Note: Groundwater Elevation were obtained on July 27, 2020

Project Title:

Phase Two Environmental Site Assessment

Site Location:

79 Collier Street, Barrie, ON

Figure Title:

Cross Section B-B'

Scale:

As Shown

Project Number:

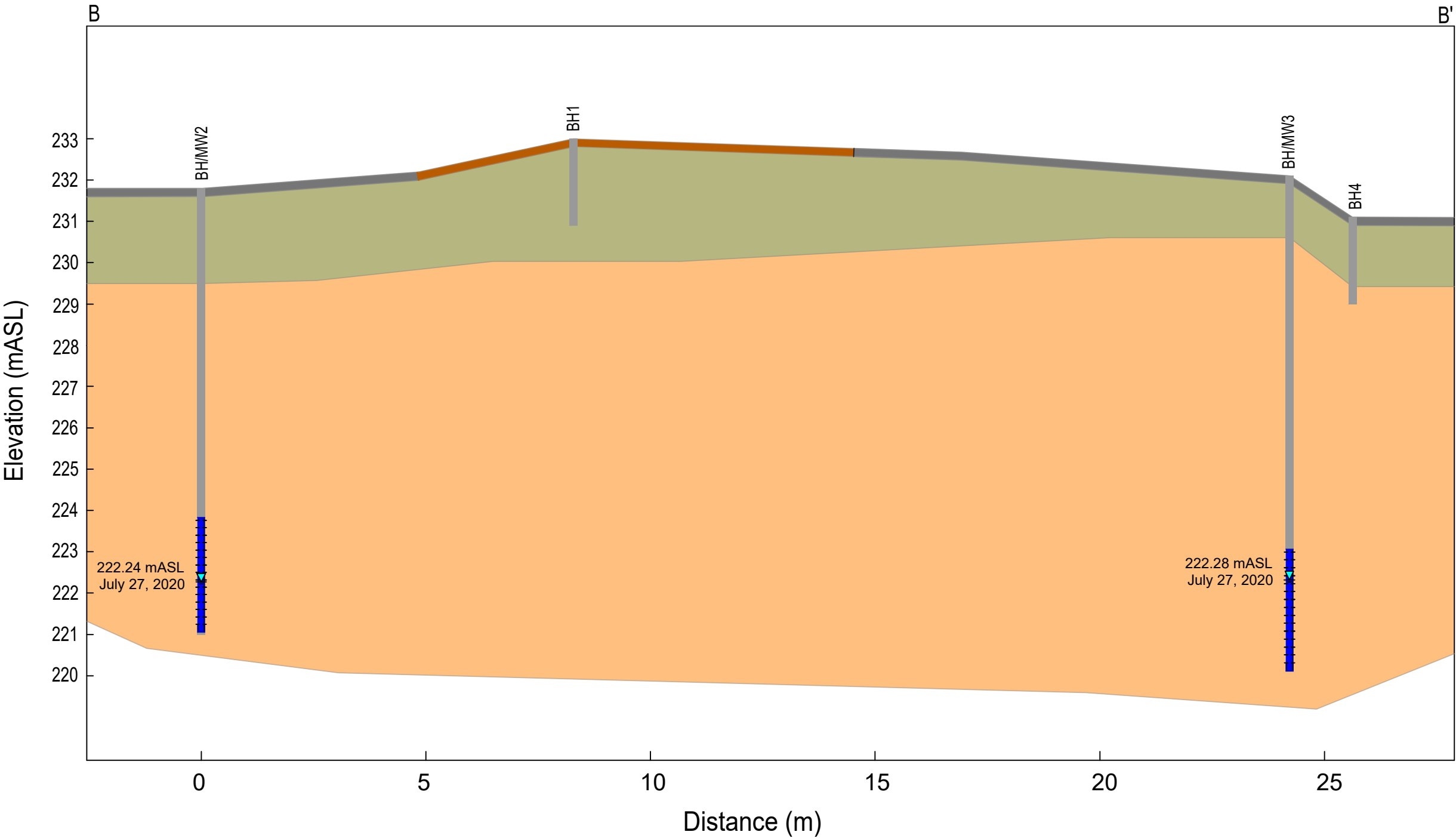
SP20-666-00

Date:

September 2020

Figure Number

5-2







North:



**Legend:**

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)
- Contour Line
- Inferred Shallow Groundwater Flow Direction

Note: Groundwater Elevation were obtained on July 27, 2020

**Project Title:**

Phase Two Environmental Site Assessment

**Site Location:**

79 Collier Street, Barrie, ON

**Figure Title:**

Groundwater Contour Map

**Scale:**

As Shown

**Project Number:**

SP20-666-00

**Date:**

September 2020

**Figure Number**

6



North:



Legend:

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

Project Title:  
Phase Two Environmental Site Assessment

Site Location:  
79 Collier Street, Barrie, ON

Figure Title:  
Plan View of Chemical Concentrations in Soil (M & I)

Scale:  
As Shown

Project Number:  
SP20-666-00

Date:  
September 2020

Figure Number  
7-1

| Sample ID                     | BH1/SS1   |
|-------------------------------|-----------|
| DATE                          | 16-Jul-20 |
| DEPTH(mbgs)                   | 0.3 - 0.6 |
| Antimony[μg/g]                | <0.8      |
| Arsenic[μg/g]                 | 1         |
| Barium[μg/g]                  | 46        |
| Beryllium[μg/g]               | <0.5      |
| Boron[μg/g]                   | <5        |
| Boron (H. W. E.)[μg/g]        | 0.19      |
| Cadmium[μg/g]                 | <0.5      |
| Chromium[μg/g]                | 9         |
| Cobalt[μg/g]                  | 3.1       |
| Copper[μg/g]                  | 12        |
| Lead[μg/g]                    | 55        |
| Molybdenum[μg/g]              | <0.5      |
| Nickel[μg/g]                  | 4         |
| Selenium[μg/g]                | <0.4      |
| Silver[μg/g]                  | <0.2      |
| Thallium[μg/g]                | <0.4      |
| Uranium[μg/g]                 | <0.5      |
| Vanadium[μg/g]                | 21        |
| Zinc[μg/g]                    | 39        |
| Chromium, Hexavalent[μg/g]    | <0.2      |
| Cyanide, Free[μg/g]           | <0.040    |
| Mercury[μg/g]                 | 0.2       |
| El. Conductivity (2:1)[mS/cm] | 0.204     |
| Sodium Adsorption Ratio       | 2.71      |
| pH, 2:1 CaCl2 Ext.[pH Units]  | 7.47      |

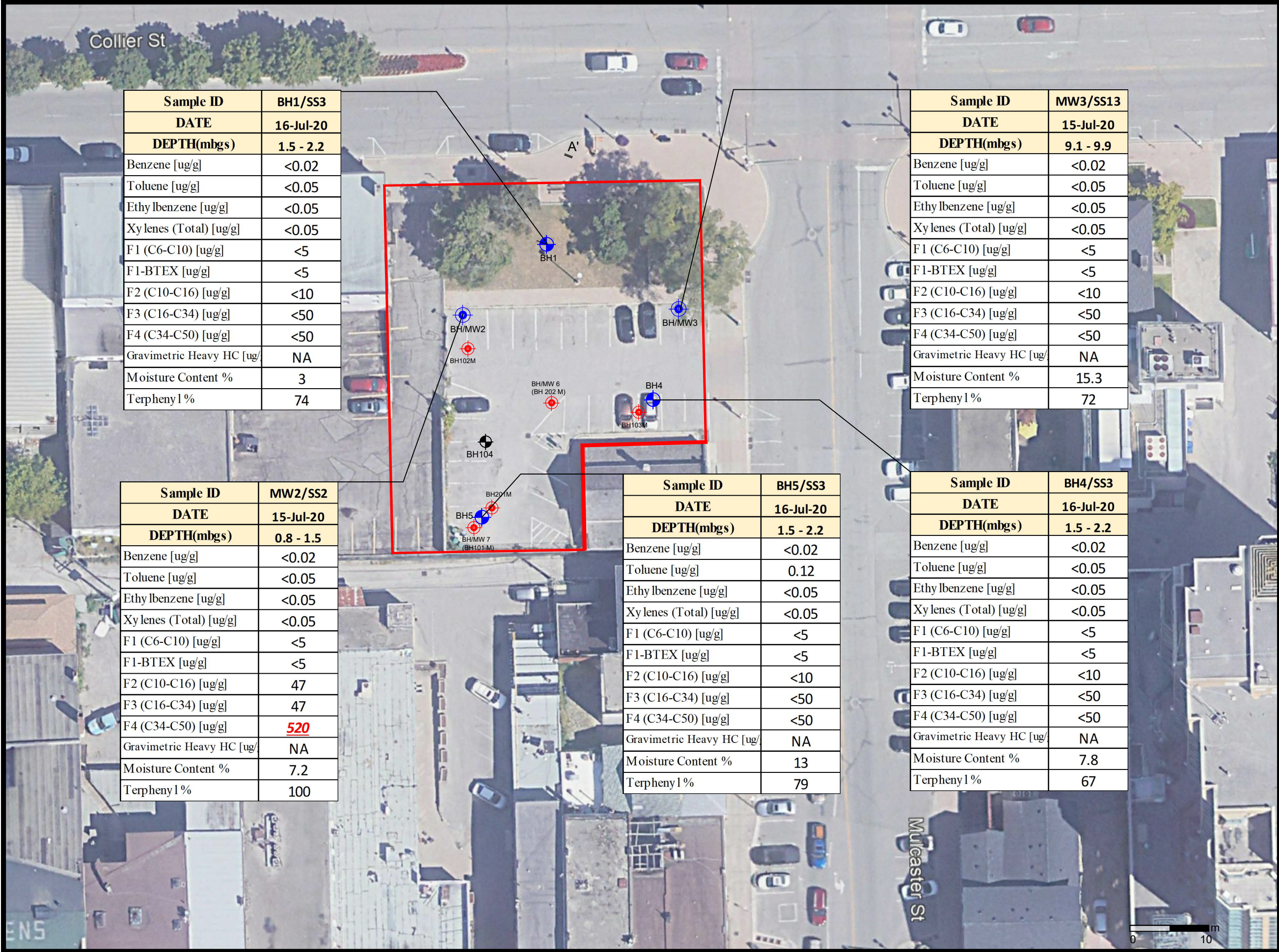
| Sample ID                     | MW2/SS2   |
|-------------------------------|-----------|
| DATE                          | 15-Jul-20 |
| DEPTH(mbgs)                   | 0.8 - 1.5 |
| Antimony[μg/g]                | <0.8      |
| Arsenic[μg/g]                 | 1         |
| Barium[μg/g]                  | 30        |
| Beryllium[μg/g]               | <0.5      |
| Boron[μg/g]                   | <5        |
| Boron (H. W. E.)[μg/g]        | 0.13      |
| Cadmium[μg/g]                 | <0.5      |
| Chromium[μg/g]                | 8         |
| Cobalt[μg/g]                  | 2.4       |
| Copper[μg/g]                  | 7         |
| Lead[μg/g]                    | 28        |
| Molybdenum[μg/g]              | <0.5      |
| Nickel[μg/g]                  | 5         |
| Selenium[μg/g]                | <0.4      |
| Silver[μg/g]                  | <0.2      |
| Thallium[μg/g]                | <0.4      |
| Uranium[μg/g]                 | <0.5      |
| Vanadium[μg/g]                | 26        |
| Zinc[μg/g]                    | 31        |
| Chromium, Hexavalent[μg/g]    | <0.2      |
| Cyanide, Free[μg/g]           | <0.040    |
| Mercury[μg/g]                 | 0.11      |
| El. Conductivity (2:1)[mS/cm] | 1.1       |
| Sodium Adsorption Ratio       | 15        |
| pH, 2:1 CaCl2 Ext.[pH Units]  | 7.69      |

| Sample ID                     | BH5/SS3   |
|-------------------------------|-----------|
| DATE                          | 16-Jul-20 |
| DEPTH(mbgs)                   | 1.5 - 2.2 |
| Antimony[μg/g]                | <0.8      |
| Arsenic[μg/g]                 | 1         |
| Barium[μg/g]                  | 27        |
| Beryllium[μg/g]               | <0.5      |
| Boron[μg/g]                   | <5        |
| Boron (H. W. E.)[μg/g]        | 0.31      |
| Cadmium[μg/g]                 | <0.5      |
| Chromium[μg/g]                | 8         |
| Cobalt[μg/g]                  | 2.2       |
| Copper[μg/g]                  | 69        |
| Lead[μg/g]                    | 24        |
| Molybdenum[μg/g]              | 0.5       |
| Nickel[μg/g]                  | 5         |
| Selenium[μg/g]                | <0.4      |
| Silver[μg/g]                  | <0.2      |
| Thallium[μg/g]                | <0.4      |
| Uranium[μg/g]                 | <0.5      |
| Vanadium[μg/g]                | 17        |
| Zinc[μg/g]                    | 195       |
| Chromium, Hexavalent[μg/g]    | <0.2      |
| Cyanide, Free[μg/g]           | <0.040    |
| Mercury[μg/g]                 | 0.15      |
| El. Conductivity (2:1)[mS/cm] | 2.53      |
| Sodium Adsorption Ratio       | 34        |
| pH, 2:1 CaCl2 Ext.[pH Units]  | 7.54      |

| Sample ID                     | BH4/SS1   |
|-------------------------------|-----------|
| DATE                          | 16-Jul-20 |
| DEPTH(mbgs)                   | 0.0 - 0.6 |
| Antimony[μg/g]                | 1.8       |
| Arsenic[μg/g]                 | 9         |
| Barium[μg/g]                  | 448       |
| Beryllium[μg/g]               | <0.5      |
| Boron[μg/g]                   | 12        |
| Boron (H. W. E.)[μg/g]        | 0.17      |
| Cadmium[μg/g]                 | 2.4       |
| Chromium[μg/g]                | 17        |
| Cobalt[μg/g]                  | 4.3       |
| Copper[μg/g]                  | 639       |
| Lead[μg/g]                    | 608       |
| Molybdenum[μg/g]              | 1.3       |
| Nickel[μg/g]                  | 11        |
| Selenium[μg/g]                | 0.6       |
| Silver[μg/g]                  | 0.2       |
| Thallium[μg/g]                | <0.4      |
| Uranium[μg/g]                 | <0.5      |
| Vanadium[μg/g]                | 22        |
| Zinc[μg/g]                    | 1160      |
| Chromium, Hexavalent[μg/g]    | <0.2      |
| Cyanide, Free[μg/g]           | <0.040    |
| Mercury[μg/g]                 | 0.43      |
| El. Conductivity (2:1)[mS/cm] | 0.457     |
| Sodium Adsorption Ratio       | 9.87      |
| pH, 2:1 CaCl2 Ext.[pH Units]  | 7.75      |

| Sample ID                     | MW3/SS1   | Dup-0715  |
|-------------------------------|-----------|-----------|
| DATE                          | 15-Jul-20 | 16-Jul-20 |
| DEPTH(mbgs)                   | 0.0 - 0.6 | 0.3 - 0.6 |
| Antimony[μg/g]                | <0.8      | <0.8      |
| Arsenic[μg/g]                 | 2         | 2         |
| Barium[μg/g]                  | 57        | 36        |
| Beryllium[μg/g]               | <0.5      | <0.5      |
| Boron[μg/g]                   | <5        | <5        |
| Boron (H. W. E.)[μg/g]        | 0.15      |           |
| Cadmium[μg/g]                 | <0.5      | <0.5      |
| Chromium[μg/g]                | 15        | 9         |
| Cobalt[μg/g]                  | 3.9       | 2.7       |
| Copper[μg/g]                  | 11        | 10        |
| Lead[μg/g]                    | 53        | 38        |
| Molybdenum[μg/g]              | <0.5      | <0.5      |
| Nickel[μg/g]                  | 7         | 5         |
| Selenium[μg/g]                | 0.4       | 0.4       |
| Silver[μg/g]                  | <0.2      | <0.2      |
| Thallium[μg/g]                | <0.4      | <0.4      |
| Uranium[μg/g]                 | <0.5      | <0.5      |
| Vanadium[μg/g]                | 24        | 26        |
| Zinc[μg/g]                    | 68        | 38        |
| Chromium, Hexavalent[μg/g]    | <0.2      | ***       |
| Cyanide, Free[μg/g]           | <0.040    | ***       |
| Mercury[μg/g]                 | <0.10     | ***       |
| El. Conductivity (2:1)[mS/cm] | 0.366     | ***       |
| Sodium Adsorption Ratio       | 5.59      | ***       |
| pH, 2:1 CaCl2 Ext.[pH Units]  | 7.55      | ***       |





North:



Legend:

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

Project Title:

Phase Two Environmental Site Assessment

Site Location:

79 Collier Street, Barrie, ON

Figure Title:

Plan View of Chemical Concentrations in Soil (PHCs & BTEX)

Scale:

As Shown

Project Number:

SP20-666-00

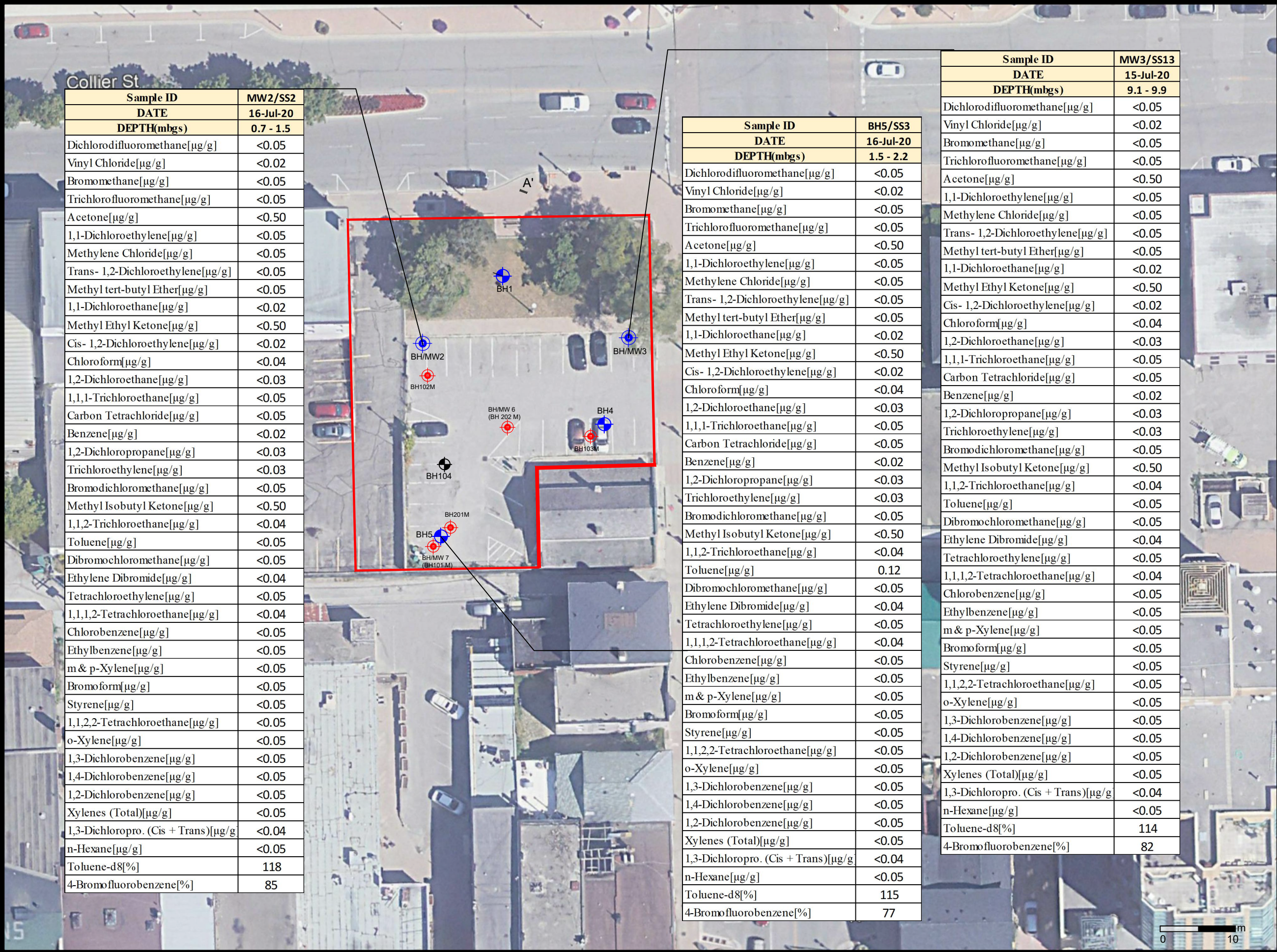
Date:

September 2020

Figure Number

7-2





North:



**Legend:**

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

**Project Title:**

Phase Two Environmental Site Assessment

**Site Location:**

79 Collier Street, Barrie, ON

**Figure Title:**

Plan View of Chemical Concentrations in Soil (VOCs)

Scale:

As Shown

Project Number:

SP20-666-00

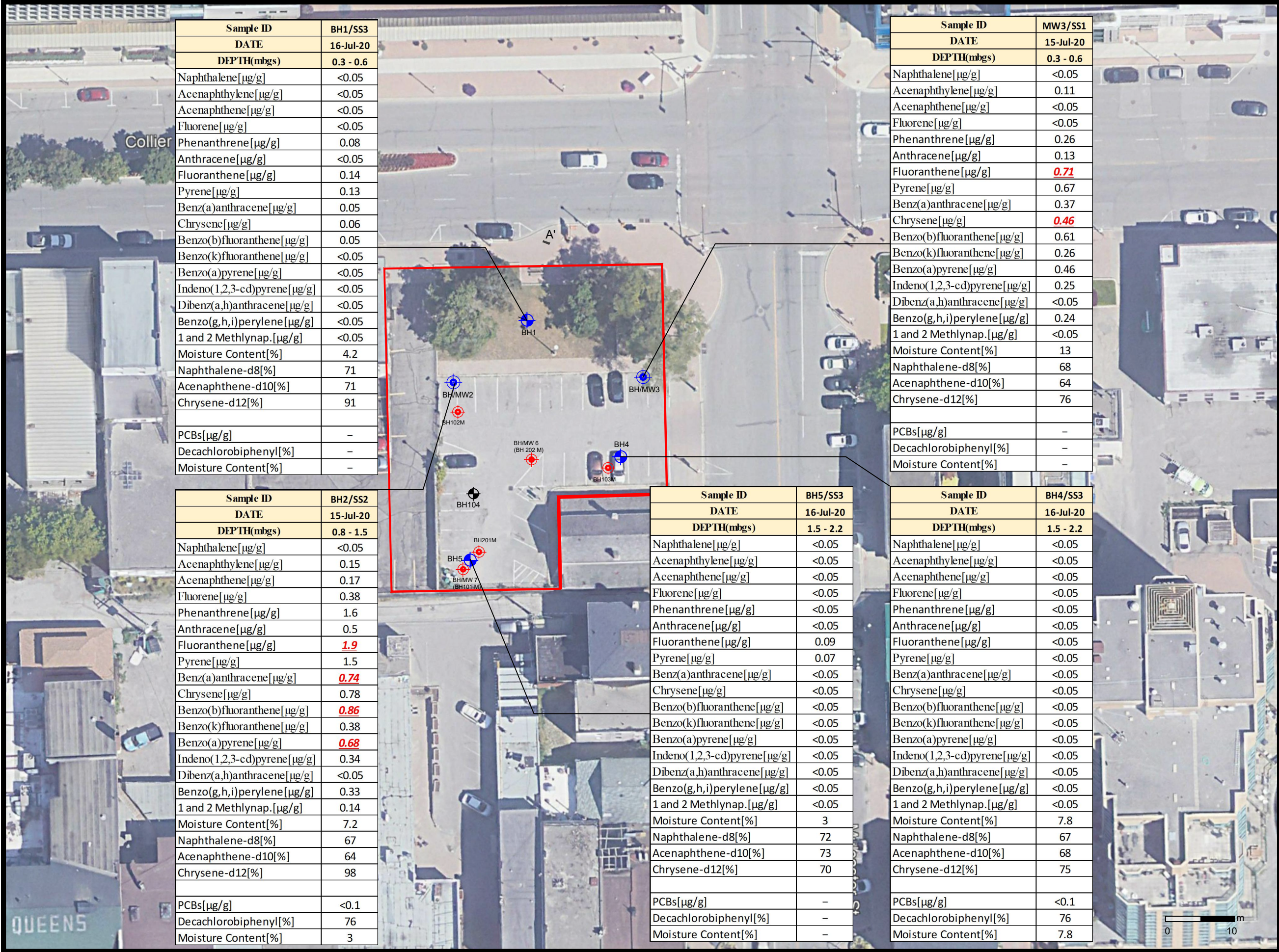
Date:

September 2020

Figure Number

7-3





# SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions  
12700- Keele Street  
King City, ON. L7B 1H5  
Phone# 905 833 1582, Fax# 905 833 5360

North:



## Legend:

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

**Project Title:**  
Phase Two Environmental Site Assessment

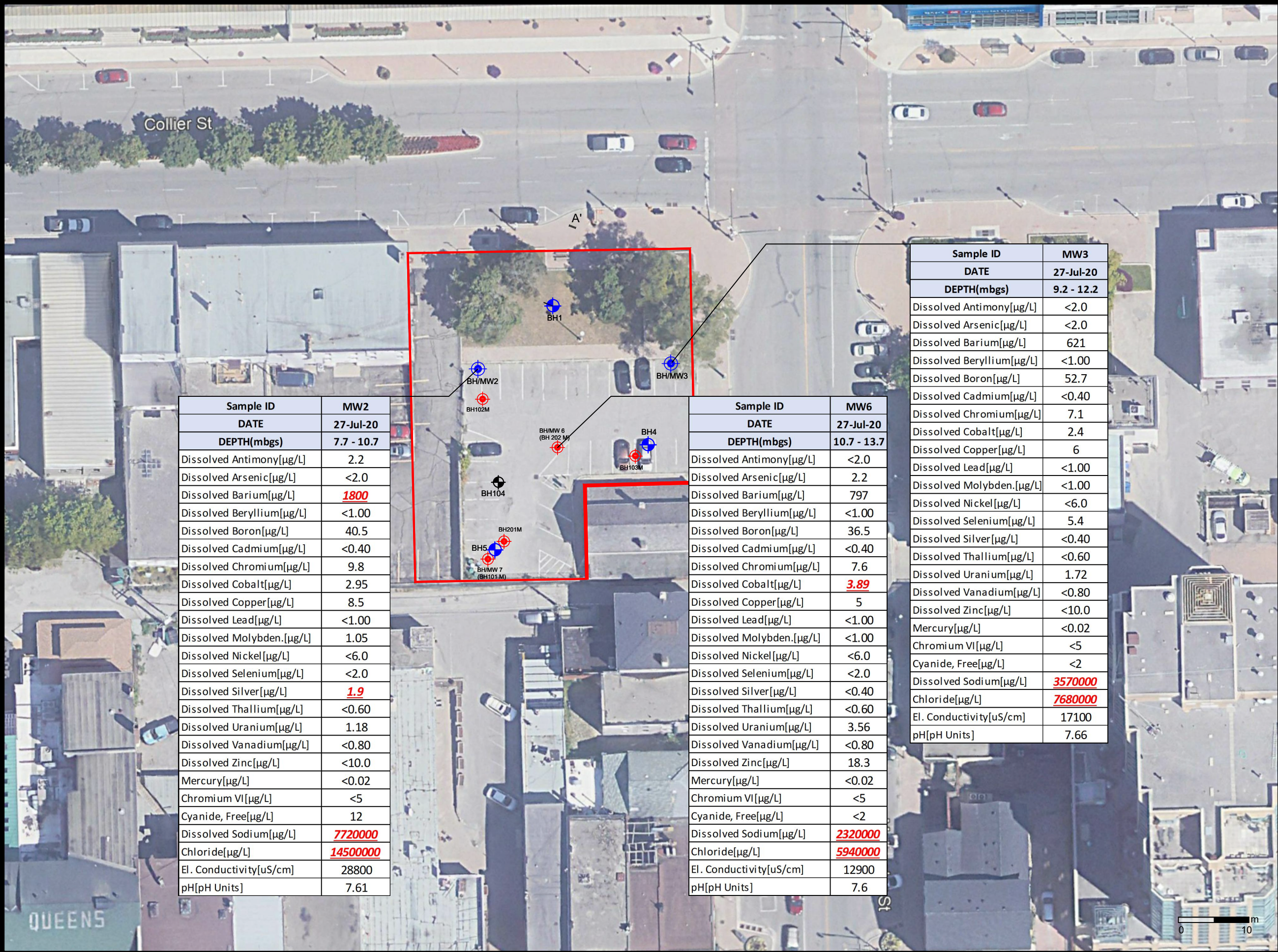
**Site Location:**  
79 Collier Street, Barrie, ON

**Figure Title:**  
Plan View of Chemical Concentrations in Soil (PHCs & PCBs)

**Scale:** As Shown  
**Project Number:** SP20-666-00

**Date:** September 2020  
**Figure Number** 7-4





North:



Legend:

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
79 Collier Street, Barrie, ON

**Figure Title:**  
Plan View of Chemical Concentrations in GW (M & I)

**Scale:** As Shown  
**Project Number:** SP20-666-00

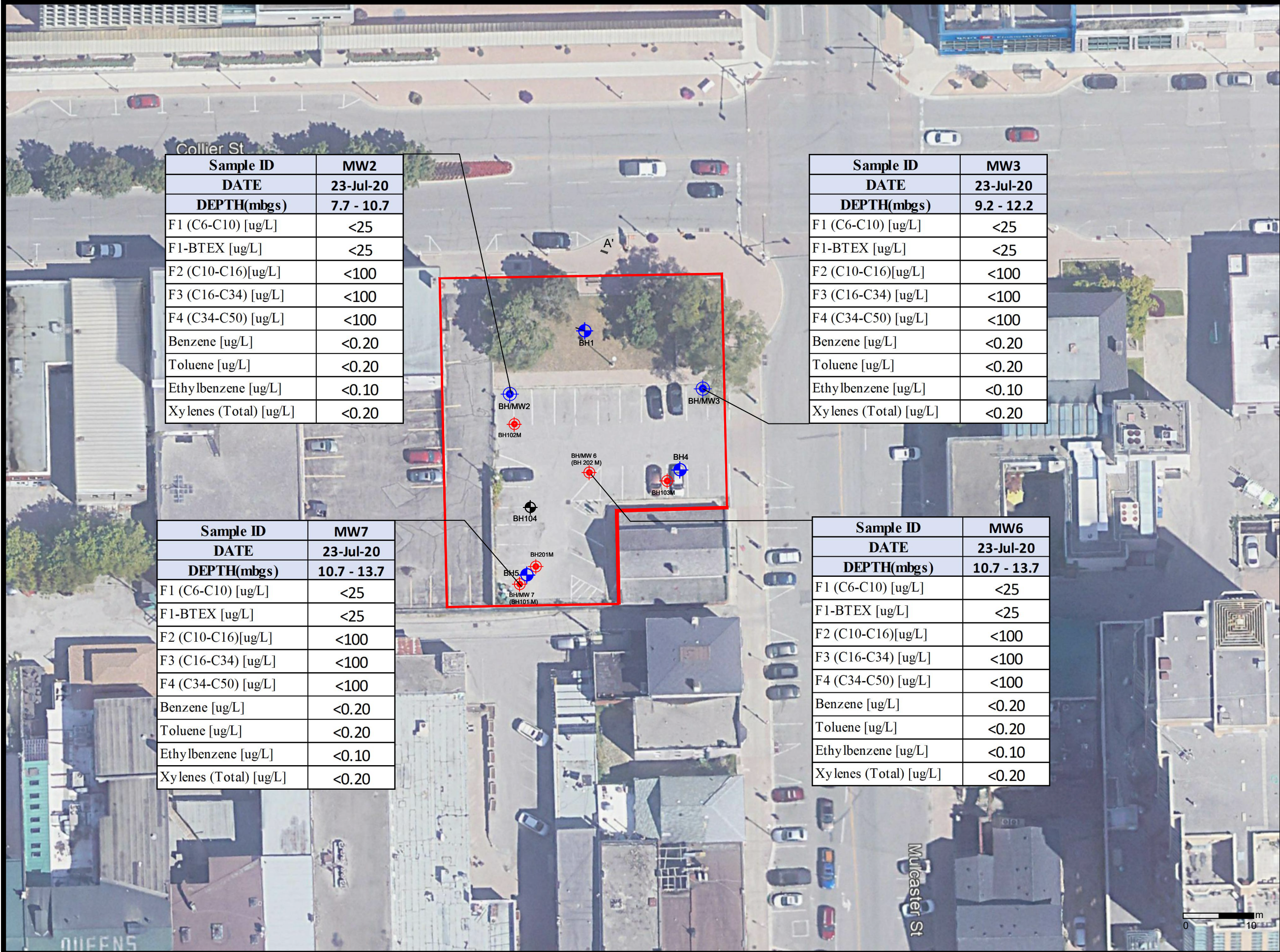
**Date:** September 2020  
**Figure Number** 8-1

| Sample ID                 | MW2        |
|---------------------------|------------|
| DATE                      | 27-Jul-20  |
| DEPTH(mbgs)               | 7.7 - 10.7 |
| Dissolved Antimony[µg/L]  | 2.2        |
| Dissolved Arsenic[µg/L]   | <2.0       |
| Dissolved Barium[µg/L]    | 1800       |
| Dissolved Beryllium[µg/L] | <1.00      |
| Dissolved Boron[µg/L]     | 40.5       |
| Dissolved Cadmium[µg/L]   | <0.40      |
| Dissolved Chromium[µg/L]  | 9.8        |
| Dissolved Cobalt[µg/L]    | 2.95       |
| Dissolved Copper[µg/L]    | 8.5        |
| Dissolved Lead[µg/L]      | <1.00      |
| Dissolved Molybden.[µg/L] | 1.05       |
| Dissolved Nickel[µg/L]    | <6.0       |
| Dissolved Selenium[µg/L]  | <2.0       |
| Dissolved Silver[µg/L]    | 1.9        |
| Dissolved Thallium[µg/L]  | <0.60      |
| Dissolved Uranium[µg/L]   | 1.18       |
| Dissolved Vanadium[µg/L]  | <0.80      |
| Dissolved Zinc[µg/L]      | <10.0      |
| Mercury[µg/L]             | <0.02      |
| Chromium VI[µg/L]         | <5         |
| Cyanide, Free[µg/L]       | 12         |
| Dissolved Sodium[µg/L]    | 7720000    |
| Chloride[µg/L]            | 14500000   |
| El. Conductivity[uS/cm]   | 28800      |
| pH[pH Units]              | 7.61       |

| Sample ID                 | MW6         |
|---------------------------|-------------|
| DATE                      | 27-Jul-20   |
| DEPTH(mbgs)               | 10.7 - 13.7 |
| Dissolved Antimony[µg/L]  | <2.0        |
| Dissolved Arsenic[µg/L]   | 2.2         |
| Dissolved Barium[µg/L]    | 797         |
| Dissolved Beryllium[µg/L] | <1.00       |
| Dissolved Boron[µg/L]     | 36.5        |
| Dissolved Cadmium[µg/L]   | <0.40       |
| Dissolved Chromium[µg/L]  | 7.6         |
| Dissolved Cobalt[µg/L]    | 3.89        |
| Dissolved Copper[µg/L]    | 5           |
| Dissolved Lead[µg/L]      | <1.00       |
| Dissolved Molybden.[µg/L] | <1.00       |
| Dissolved Nickel[µg/L]    | <6.0        |
| Dissolved Selenium[µg/L]  | <2.0        |
| Dissolved Silver[µg/L]    | <0.40       |
| Dissolved Thallium[µg/L]  | <0.60       |
| Dissolved Uranium[µg/L]   | 3.56        |
| Dissolved Vanadium[µg/L]  | <0.80       |
| Dissolved Zinc[µg/L]      | 18.3        |
| Mercury[µg/L]             | <0.02       |
| Chromium VI[µg/L]         | <5          |
| Cyanide, Free[µg/L]       | <2          |
| Dissolved Sodium[µg/L]    | 2320000     |
| Chloride[µg/L]            | 5940000     |
| El. Conductivity[uS/cm]   | 12900       |
| pH[pH Units]              | 7.6         |

| Sample ID                 | MW3        |
|---------------------------|------------|
| DATE                      | 27-Jul-20  |
| DEPTH(mbgs)               | 9.2 - 12.2 |
| Dissolved Antimony[µg/L]  | <2.0       |
| Dissolved Arsenic[µg/L]   | <2.0       |
| Dissolved Barium[µg/L]    | 621        |
| Dissolved Beryllium[µg/L] | <1.00      |
| Dissolved Boron[µg/L]     | 52.7       |
| Dissolved Cadmium[µg/L]   | <0.40      |
| Dissolved Chromium[µg/L]  | 7.1        |
| Dissolved Cobalt[µg/L]    | 2.4        |
| Dissolved Copper[µg/L]    | 6          |
| Dissolved Lead[µg/L]      | <1.00      |
| Dissolved Molybden.[µg/L] | <1.00      |
| Dissolved Nickel[µg/L]    | <6.0       |
| Dissolved Selenium[µg/L]  | 5.4        |
| Dissolved Silver[µg/L]    | <0.40      |
| Dissolved Thallium[µg/L]  | <0.60      |
| Dissolved Uranium[µg/L]   | 1.72       |
| Dissolved Vanadium[µg/L]  | <0.80      |
| Dissolved Zinc[µg/L]      | <10.0      |
| Mercury[µg/L]             | <0.02      |
| Chromium VI[µg/L]         | <5         |
| Cyanide, Free[µg/L]       | <2         |
| Dissolved Sodium[µg/L]    | 3570000    |
| Chloride[µg/L]            | 7680000    |
| El. Conductivity[uS/cm]   | 17100      |
| pH[pH Units]              | 7.66       |





North:



**Legend:**

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

**Project Title:**

Phase Two Environmental Site Assessment

**Site Location:**

79 Collier Street, Barrie, ON

**Figure Title:**

Plan View of Chemical Concentrations in GW (PHCs & BTEX)

**Scale:**

As Shown

**Project Number:**

SP20-666-00

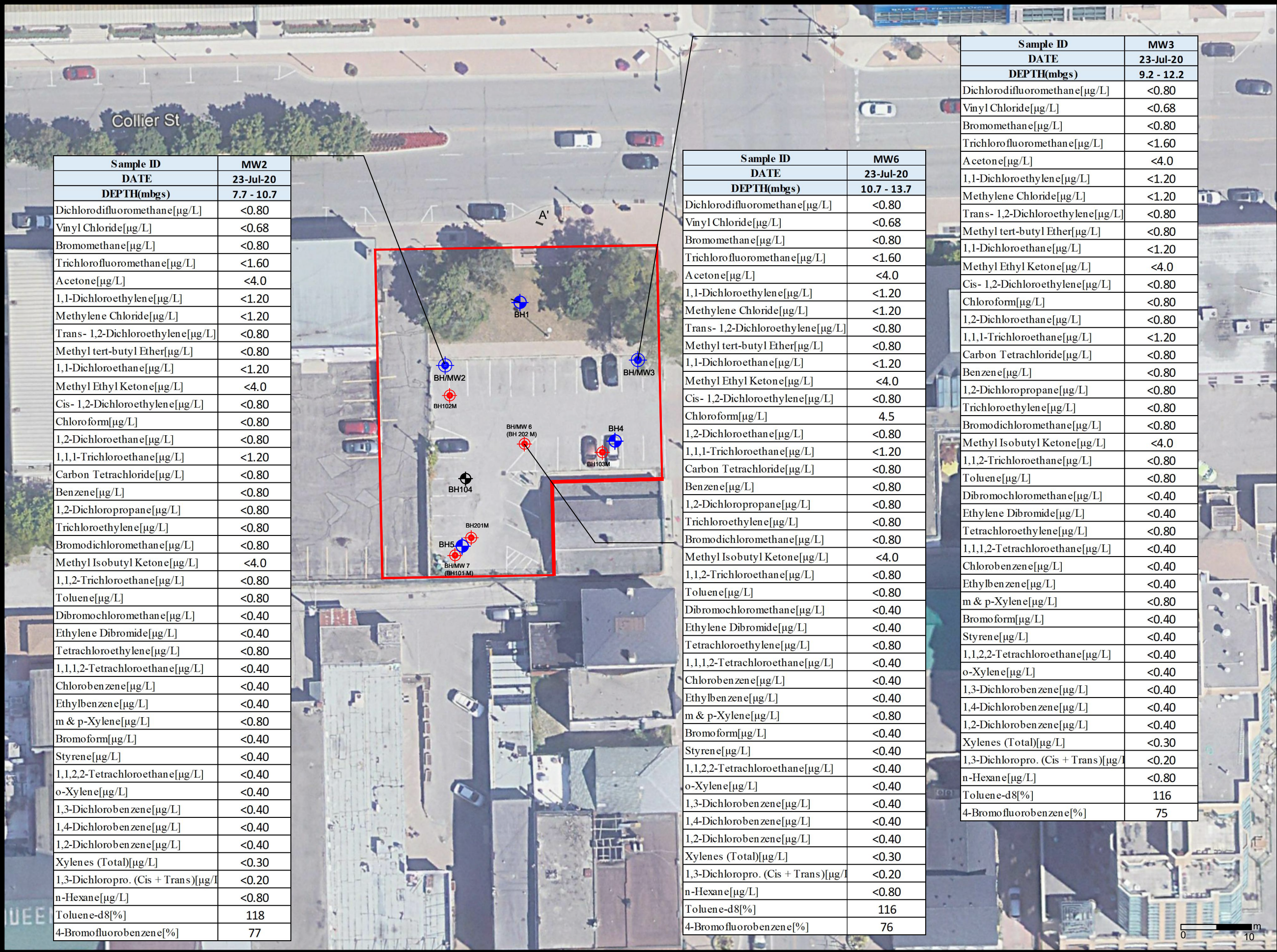
**Date:**

September 2020

**Figure Number**

8-2





| Sample ID                            | MW2        |
|--------------------------------------|------------|
| DATE                                 | 23-Jul-20  |
| DEPTH(mbgs)                          | 7.7 - 10.7 |
| Dichlorodifluoromethane[µg/L]        | <0.80      |
| Vinyl Chloride[µg/L]                 | <0.68      |
| Bromomethane[µg/L]                   | <0.80      |
| Trichlorofluoromethane[µg/L]         | <1.60      |
| Acetone[µg/L]                        | <4.0       |
| 1,1-Dichloroethylene[µg/L]           | <1.20      |
| Methylene Chloride[µg/L]             | <1.20      |
| Trans- 1,2-Dichloroethylene[µg/L]    | <0.80      |
| Methyl tert-butyl Ether[µg/L]        | <0.80      |
| 1,1-Dichloroethane[µg/L]             | <1.20      |
| Methyl Ethyl Ketone[µg/L]            | <4.0       |
| Cis- 1,2-Dichloroethylene[µg/L]      | <0.80      |
| Chloroform[µg/L]                     | <0.80      |
| 1,2-Dichloroethane[µg/L]             | <0.80      |
| 1,1,1-Trichloroethane[µg/L]          | <1.20      |
| Carbon Tetrachloride[µg/L]           | <0.80      |
| Benzene[µg/L]                        | <0.80      |
| 1,2-Dichloropropane[µg/L]            | <0.80      |
| Trichloroethylene[µg/L]              | <0.80      |
| Bromodichloromethane[µg/L]           | <0.80      |
| Methyl Isobutyl Ketone[µg/L]         | <4.0       |
| 1,1,2-Trichloroethane[µg/L]          | <0.80      |
| Toluene[µg/L]                        | <0.80      |
| Dibromochloromethane[µg/L]           | <0.40      |
| Ethylene Dibromide[µg/L]             | <0.40      |
| Tetrachloroethylene[µg/L]            | <0.80      |
| 1,1,1,2-Tetrachloroethane[µg/L]      | <0.40      |
| Chlorobenzene[µg/L]                  | <0.40      |
| Ethylbenzene[µg/L]                   | <0.40      |
| m & p-Xylene[µg/L]                   | <0.80      |
| Bromoform[µg/L]                      | <0.40      |
| Styrene[µg/L]                        | <0.40      |
| 1,1,2,2-Tetrachloroethane[µg/L]      | <0.40      |
| o-Xylene[µg/L]                       | <0.40      |
| 1,3-Dichlorobenzene[µg/L]            | <0.40      |
| 1,4-Dichlorobenzene[µg/L]            | <0.40      |
| 1,2-Dichlorobenzene[µg/L]            | <0.40      |
| Xylenes (Total)[µg/L]                | <0.30      |
| 1,3-Dichloropro. (Cis + Trans)[µg/L] | <0.20      |
| n-Hexane[µg/L]                       | <0.80      |
| Toluene-d8[%]                        | 118        |
| 4-Bromofluorobenzene[%]              | 77         |

| Sample ID                            | MW6         |
|--------------------------------------|-------------|
| DATE                                 | 23-Jul-20   |
| DEPTH(mbgs)                          | 10.7 - 13.7 |
| Dichlorodifluoromethane[µg/L]        | <0.80       |
| Vinyl Chloride[µg/L]                 | <0.68       |
| Bromomethane[µg/L]                   | <0.80       |
| Trichlorofluoromethane[µg/L]         | <1.60       |
| Acetone[µg/L]                        | <4.0        |
| 1,1-Dichloroethylene[µg/L]           | <1.20       |
| Methylene Chloride[µg/L]             | <1.20       |
| Trans- 1,2-Dichloroethylene[µg/L]    | <0.80       |
| Methyl tert-butyl Ether[µg/L]        | <0.80       |
| 1,1-Dichloroethane[µg/L]             | <1.20       |
| Methyl Ethyl Ketone[µg/L]            | <4.0        |
| Cis- 1,2-Dichloroethylene[µg/L]      | <0.80       |
| Chloroform[µg/L]                     | 4.5         |
| 1,2-Dichloroethane[µg/L]             | <0.80       |
| 1,1,1-Trichloroethane[µg/L]          | <1.20       |
| Carbon Tetrachloride[µg/L]           | <0.80       |
| Benzene[µg/L]                        | <0.80       |
| 1,2-Dichloropropane[µg/L]            | <0.80       |
| Trichloroethylene[µg/L]              | <0.80       |
| Bromodichloromethane[µg/L]           | <0.80       |
| Methyl Isobutyl Ketone[µg/L]         | <4.0        |
| 1,1,2-Trichloroethane[µg/L]          | <0.80       |
| Toluene[µg/L]                        | <0.80       |
| Dibromochloromethane[µg/L]           | <0.40       |
| Ethylene Dibromide[µg/L]             | <0.40       |
| Tetrachloroethylene[µg/L]            | <0.80       |
| 1,1,1,2-Tetrachloroethane[µg/L]      | <0.40       |
| Chlorobenzene[µg/L]                  | <0.40       |
| Ethylbenzene[µg/L]                   | <0.40       |
| m & p-Xylene[µg/L]                   | <0.80       |
| Bromoform[µg/L]                      | <0.40       |
| Styrene[µg/L]                        | <0.40       |
| 1,1,2,2-Tetrachloroethane[µg/L]      | <0.40       |
| o-Xylene[µg/L]                       | <0.40       |
| 1,3-Dichlorobenzene[µg/L]            | <0.40       |
| 1,4-Dichlorobenzene[µg/L]            | <0.40       |
| 1,2-Dichlorobenzene[µg/L]            | <0.40       |
| Xylenes (Total)[µg/L]                | <0.30       |
| 1,3-Dichloropro. (Cis + Trans)[µg/L] | <0.20       |
| n-Hexane[µg/L]                       | <0.80       |
| Toluene-d8[%]                        | 116         |
| 4-Bromofluorobenzene[%]              | 76          |

| Sample ID                            | MW3        |
|--------------------------------------|------------|
| DATE                                 | 23-Jul-20  |
| DEPTH(mbgs)                          | 9.2 - 12.2 |
| Dichlorodifluoromethane[µg/L]        | <0.80      |
| Vinyl Chloride[µg/L]                 | <0.68      |
| Bromomethane[µg/L]                   | <0.80      |
| Trichlorofluoromethane[µg/L]         | <1.60      |
| Acetone[µg/L]                        | <4.0       |
| 1,1-Dichloroethylene[µg/L]           | <1.20      |
| Methylene Chloride[µg/L]             | <1.20      |
| Trans- 1,2-Dichloroethylene[µg/L]    | <0.80      |
| Methyl tert-butyl Ether[µg/L]        | <0.80      |
| 1,1-Dichloroethane[µg/L]             | <1.20      |
| Methyl Ethyl Ketone[µg/L]            | <4.0       |
| Cis- 1,2-Dichloroethylene[µg/L]      | <0.80      |
| Chloroform[µg/L]                     | <0.80      |
| 1,2-Dichloroethane[µg/L]             | <0.80      |
| 1,1,1-Trichloroethane[µg/L]          | <1.20      |
| Carbon Tetrachloride[µg/L]           | <0.80      |
| Benzene[µg/L]                        | <0.80      |
| 1,2-Dichloropropane[µg/L]            | <0.80      |
| Trichloroethylene[µg/L]              | <0.80      |
| Methyl Isobutyl Ketone[µg/L]         | <4.0       |
| 1,1,2-Trichloroethane[µg/L]          | <0.80      |
| Toluene[µg/L]                        | <0.80      |
| Dibromochloromethane[µg/L]           | <0.40      |
| Ethylene Dibromide[µg/L]             | <0.40      |
| Tetrachloroethylene[µg/L]            | <0.80      |
| 1,1,1,2-Tetrachloroethane[µg/L]      | <0.40      |
| Chlorobenzene[µg/L]                  | <0.40      |
| Ethylbenzene[µg/L]                   | <0.40      |
| m & p-Xylene[µg/L]                   | <0.80      |
| Bromoform[µg/L]                      | <0.40      |
| Styrene[µg/L]                        | <0.40      |
| 1,1,2,2-Tetrachloroethane[µg/L]      | <0.40      |
| o-Xylene[µg/L]                       | <0.40      |
| 1,3-Dichlorobenzene[µg/L]            | <0.40      |
| 1,4-Dichlorobenzene[µg/L]            | <0.40      |
| 1,2-Dichlorobenzene[µg/L]            | <0.40      |
| Xylenes (Total)[µg/L]                | <0.30      |
| 1,3-Dichloropro. (Cis + Trans)[µg/L] | <0.20      |
| n-Hexane[µg/L]                       | <0.80      |
| Toluene-d8[%]                        | 116        |
| 4-Bromofluorobenzene[%]              | 75         |

North:



Legend:

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

Project Title:

Phase Two Environmental Site Assessment

Site Location:

79 Collier Street, Barrie, ON

Figure Title:

Plan View of Chemical Concentrations in GW (VOCs)

Scale:

As Shown

Project Number:

SP20-666-00

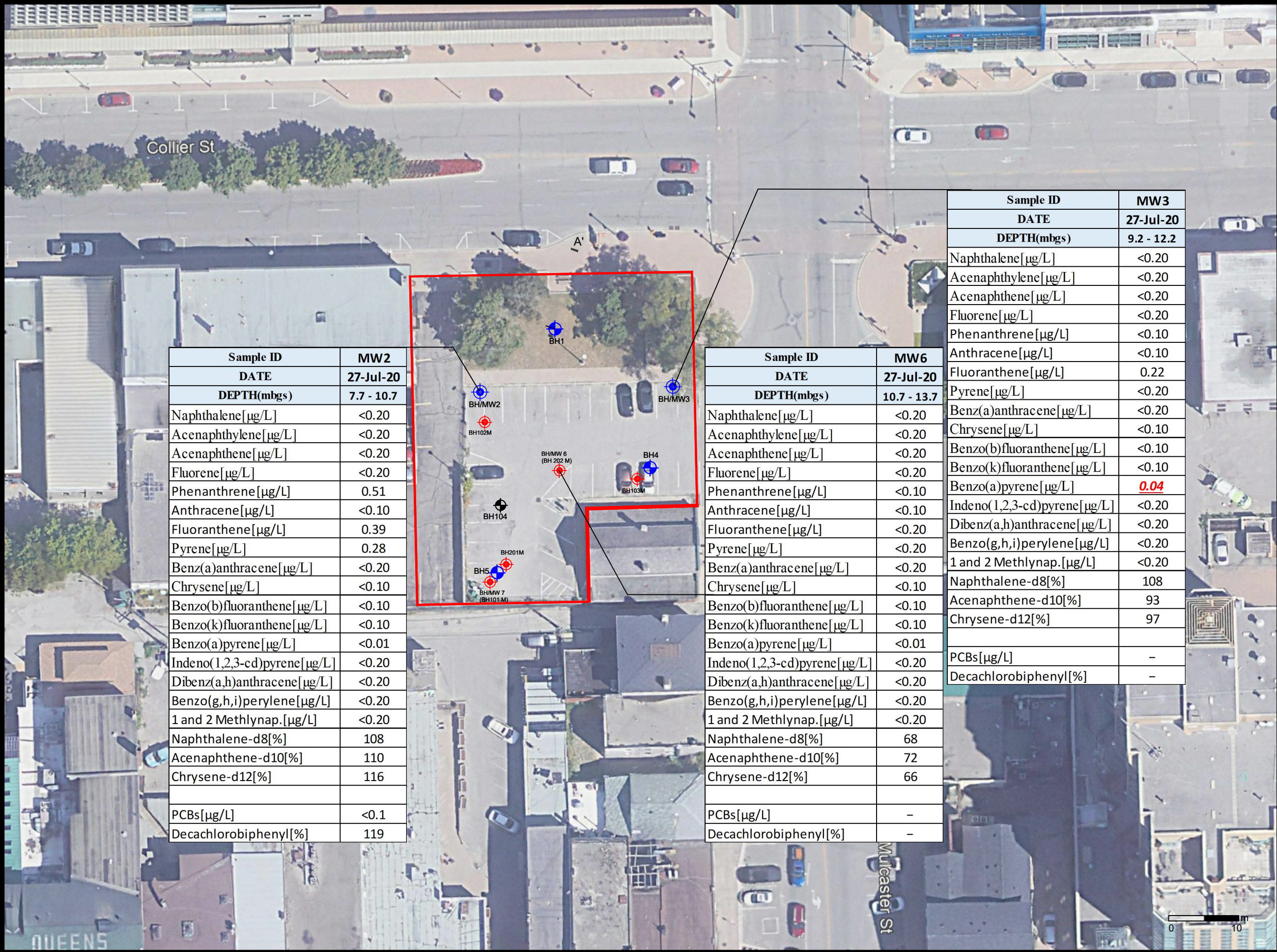
Date:

September 2020

Figure Number

8-3





North:



**Legend:**

- Approximate Property Boundary
- Monitoring Wells (2020 by Sirati)
- Boreholes (2020 by Sirati)
- Boreholes (2019 by PGL)
- Monitoring Wells (2019 by PGL)

NOTE: All results exceeding the applicable site condition standard are shown in red

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
79 Collier Street, Barrie, ON

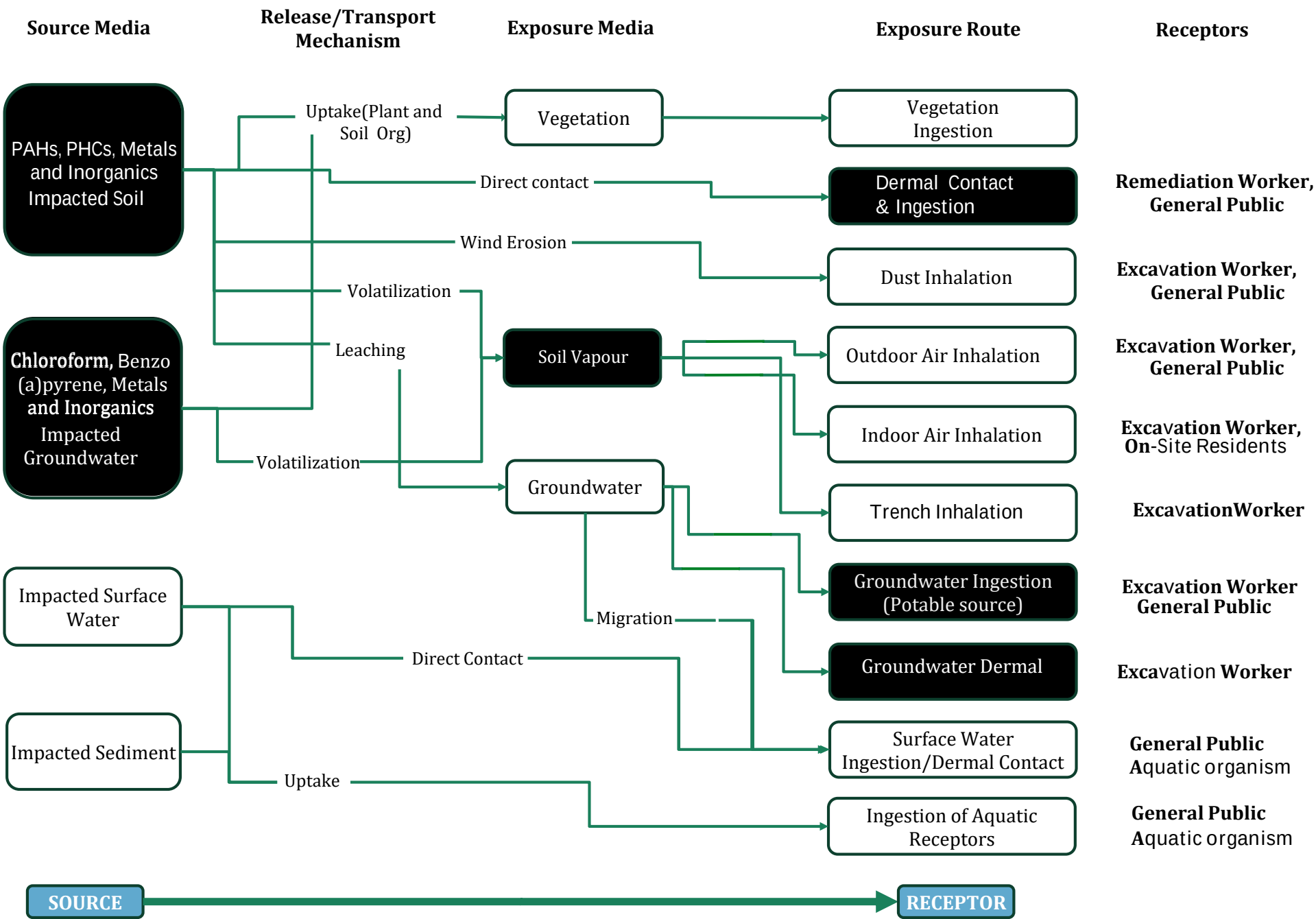
**Figure Title:**  
Plan View of Chemical Concentrations in GW (PAHs & PCBs)

**Scale:** As Shown  
**Project Number:** SP20-666-00

**Date:** September 2020  
**Figure Number** 8-4



Human and Ecological Receptor Conceptual Site Model



**Legend:**

**BOLD** Complete Exposure Pathway

Not bolded Incomplete Exposure Pathway

**Project Title:**

Phase Two Environmental Site Assessment

**Site Location:**

79 Collier Street. Barrie, Ontario

**Figure Title:**

Human and Ecological Receptor Conceptual Site Model

**Scale:** Not Available

**Project Number:** SP20-666-00

**Date:** August 2020

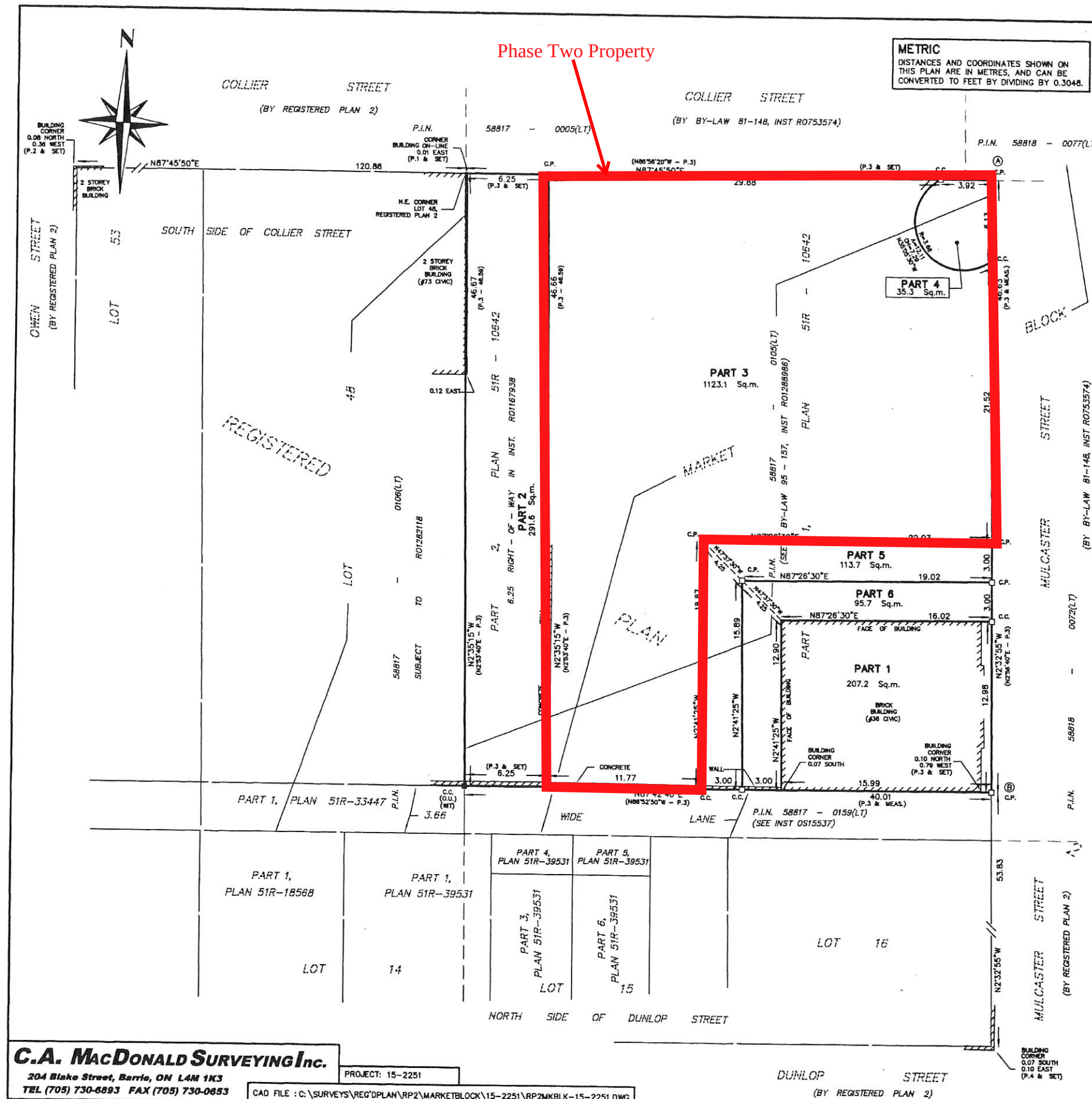
**Figure Number:** 9



# APPENDICES

# APPENDIX A





#410 Collier St.

# PLAN MATERIAL

PLASTIC MATERIAL - MYLAR  
GAUGE - 0.076 mm  
INK - 50 SPECIAL

## PLAN AND FIELD NOTES OF SURVEY OF PART OF MARKET BLOCK REGISTERED PLAN N° 2

CITY OF BARRIE  
COUNTY OF SIMCOE

SCALE : 1 : 300  
R. C. KIRKPATRICK, O.L.S.  
1981



SCALE - 1 : 300

I REQUIRE THIS PLAN TO BE  
DEPOSITED UNDER THE  
REGISTRY ACT.

DATE : SEPTEMBER 9, 1981

*R.C. Kirkpatrick*  
R.C. KIRKPATRICK  
ONTARIO LAND SURVEYOR

PLAN 51R-10642

RECEIVED AND DEPOSITED

DATE : SEPT. 25, 1981

*John Allan Graves*  
DEPUTY LAND REGISTRAR FOR  
THE REGISTRY DIVISION OF  
SIMCOE (N° 51)

PARTS 1&2 - MARKET SQUARE, R.P. N° 2  
- INST. N° 15537 & 746473  
PART 2 - SUBJECT TO RIGHT-OF-WAY IN  
INST. N° 375313

### CAUTION

THIS PLAN IS NOT A PLAN  
OF SUBDIVISION WITHIN THE  
MEANING OF THE PLANNING ACT.

### LEGEND

CC-----DENOTES A CUT CROSS.  
SS.I.B.-----DENOTES A SQ. SHORT STANDARD IRON BAR.  
■-----DENOTES MONUMENT FOUND.  
□-----DENOTES MONUMENT PLANTED.

BEARINGS ARE ASTRONOMIC, DERIVED FROM THE NORTH  
LIMIT OF COLLIER STREET, SHOWN AS N86°56'20"W  
ON PLAN 51R-10107.

### SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN  
ACCORDANCE WITH THE SURVEYS ACT AND THE  
REGISTRY ACT AND THE REGULATIONS MADE  
THEREUNDER.
2. THE SURVEY WAS COMPLETED ON THE 21st DAY  
OF AUGUST, 1981.

SEPTEMBER 9, 1981

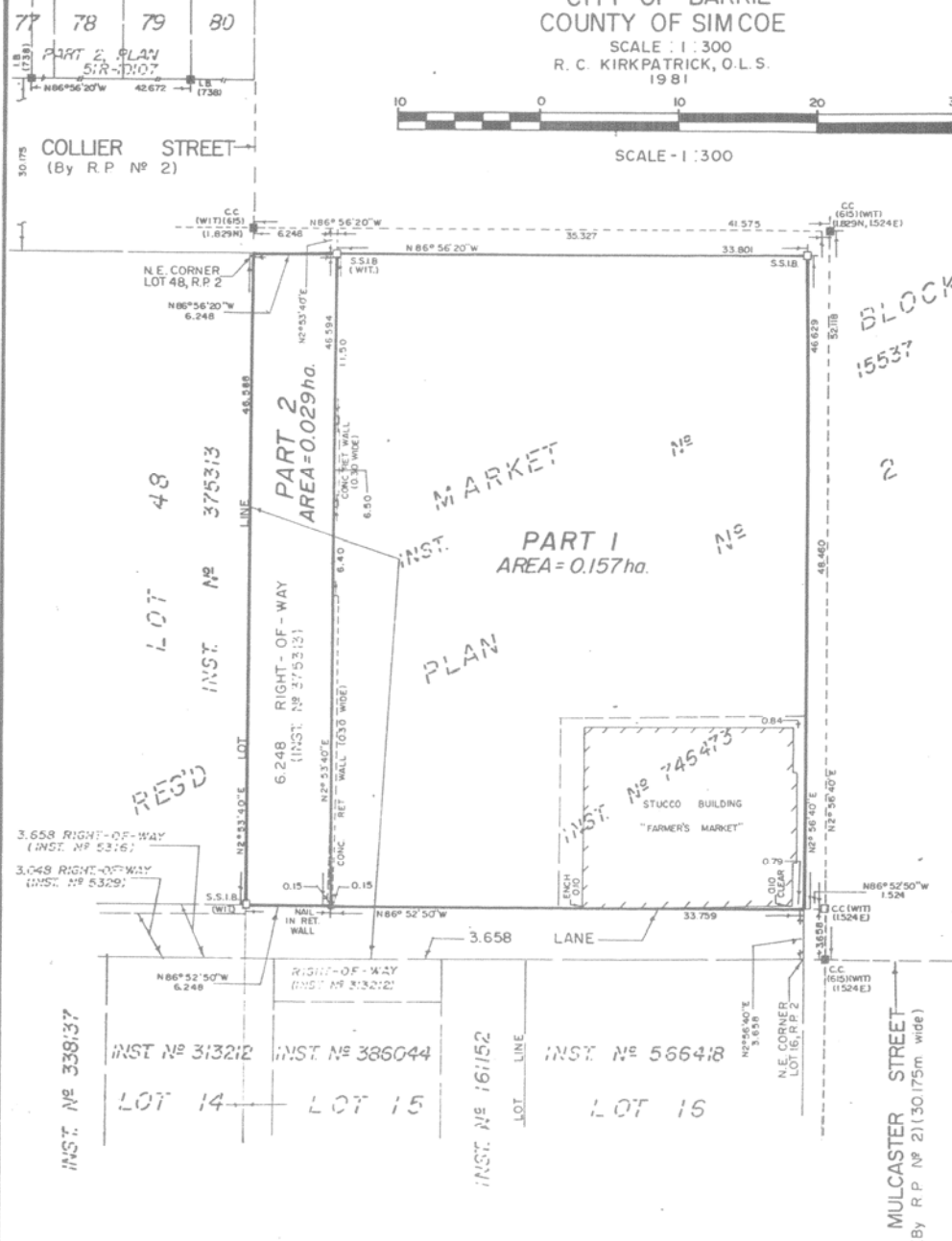
*R.C. Kirkpatrick*  
R.C. KIRKPATRICK  
ONTARIO LAND SURVEYOR

R. C. KIRKPATRICK  
ONTARIO LAND SURVEYOR  
110 DUNLOP STREET WEST  
BARRIE : ONTARIO  
PHONE : 728-1255

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

|                          |             |
|--------------------------|-------------|
| DRAWN B S                | CHK'D E J E |
| DATE : SEPTEMBER 8, 1981 | JOB N°      |
| SCALE : 1 : 300          | RK-722      |

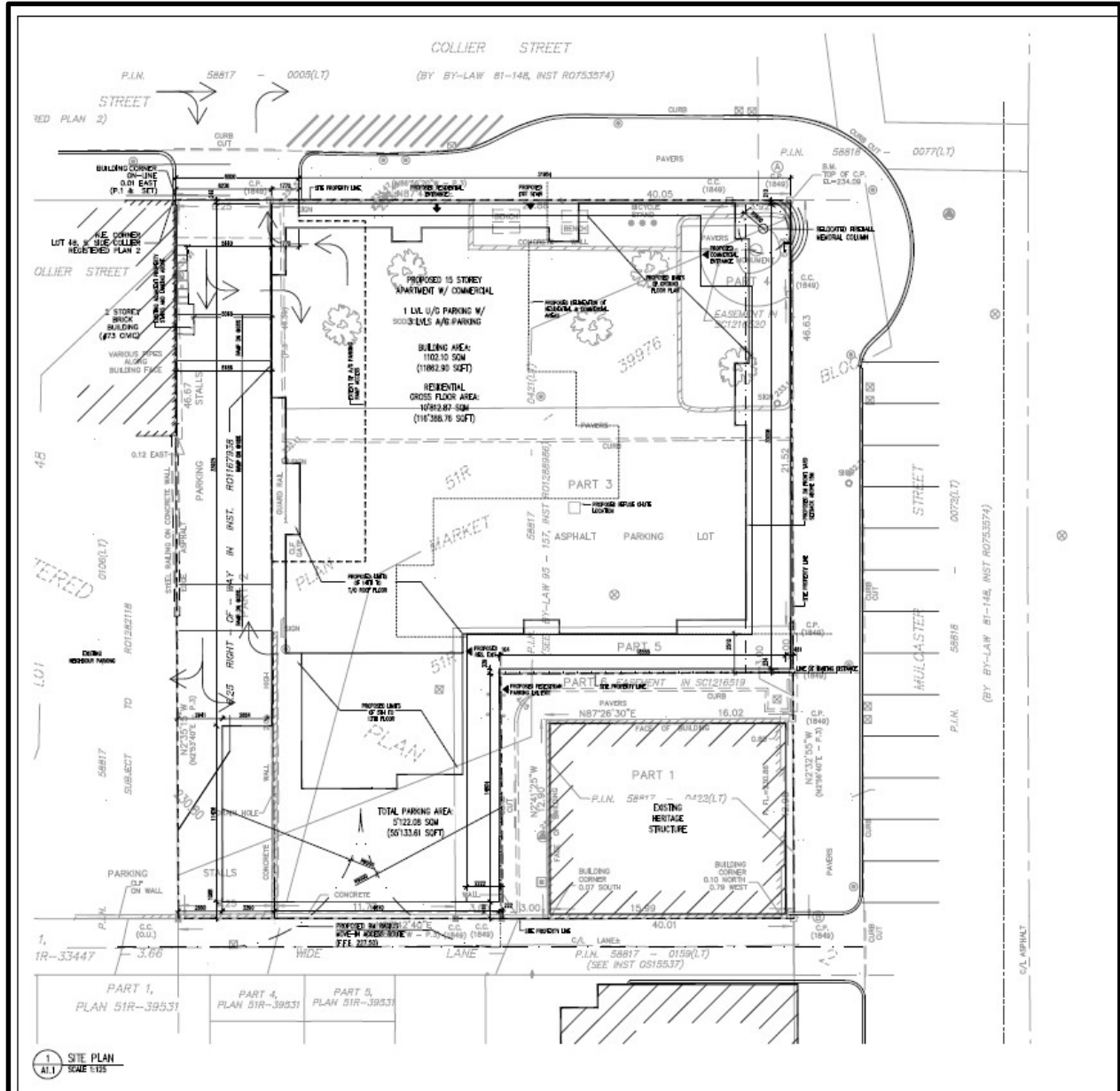
#410



79 Collier Street, Barrie Ontario

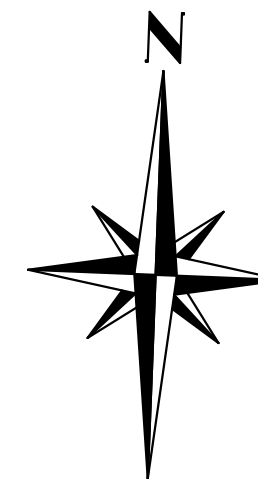
Site Plan

One Level of Underground Garage



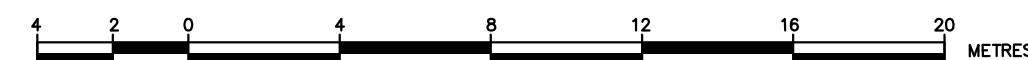


**METRIC**  
DISTANCES AND COORDINATES SHOWN ON  
THIS PLAN ARE IN METRES, AND CAN BE  
CONVERTED TO FEET BY DIVIDING BY 0.3048.



TOPOGRAPHIC SURVEY  
OF PART OF  
**MARKET BLOCK**  
**REGISTERED PLAN 2**  
**CITY OF BARRIE**  
**COUNTY OF SIMCOE**

SCALE 1:200



© C.A. MACDONALD SURVEYING INC. 2015.

**SURVEYOR'S CERTIFICATE**

I CERTIFY THAT:

(1) THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH  
THE SURVEYS ACT AND THE SURVEYORS ACT AND THE REGULATIONS  
MADE UNDER THEM.

(2) THE SURVEY WAS COMPLETED ON JUNE 4, 2015.

JUNE 9, 2015

BARRIE, ONTARIO

C.A. MacDONALD  
ONTARIO LAND SURVEYOR

**LEGEND**

|          |                                                               |
|----------|---------------------------------------------------------------|
| ■        | DENOTES SURVEY MONUMENT FOUND                                 |
| □        | SURVEY MONUMENT SET                                           |
| S.I.B.   | STANDARD IRON BAR                                             |
| I.B.     | IRON BAR                                                      |
| S.S.I.B. | SHORT STANDARD IRON BAR                                       |
| C.P.     | CONCRETE PIN                                                  |
| C.C.     | CUT CROSS                                                     |
| P.I.N.   | PROPERTY IDENTIFICATION NUMBER                                |
| (1849)   | C.A. MACDONALD O.L.S.                                         |
| O.U.     | ORIGIN UNKNOWN                                                |
| P.1      | PLAN OF SURVEY BY J. DIAMOND O.L.S., DATED JULY 27, 1965.     |
| P.2      | PLAN OF SURVEY BY R. WELSMAN O.L.S., DATED FEBRUARY 12, 1965. |
| P.3      | PLAN 51R-10642                                                |
| P.4      | PLAN 51R-39531                                                |
| PM       | PARKING METER                                                 |
| LS       | LIGHT STANDARD                                                |
| MH       | MANHOLE                                                       |
| CB       | CATCH BASIN                                                   |
| UP       | UTILITY POLE                                                  |
| OHW      | OVER HEAD WIRES                                               |
| GM       | GAS METER                                                     |
| ANC      | ANCHOR                                                        |
| CLF      | CHAIN LINK FENCE                                              |
| WV       | WATER VALVE                                                   |
| FFL      | FINISHED FLOOR                                                |
| DT       | DECIDUOUS TREE                                                |

**DISTANCE NOTE:**  
DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES  
AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING  
BY A COMBINED SCALE FACTOR OF 0.999699.

**BEARING NOTE:**  
BEARINGS ARE UTM GRID BEARINGS AND ARE REFERRED  
TO THE CENTRAL MERIDIAN ZONE 17 (NAD 83) (81°W) AND  
ARE DERIVED FROM OBSERVATIONS ON CITY OF BARRIE  
HORIZONTAL CONTROL MONUMENTS 03120040004 AND 00119673109.

**OBSERVED REFERENCE POINTS:**

UTM ZONE 17, NAD83 (ORIGINAL)  
COORDINATES TO URBAN ACCURACY PER SEC.14(2)  
OF O.REG. 216/10

| STATION | NORTHING   | EASTING   |
|---------|------------|-----------|
| ORP A   | 4916065.92 | 604682.25 |
| ORP B   | 4916019.35 | 604684.33 |

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

**ELEVATION NOTES:**

ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM GPS  
OBSERVATIONS AND ARE RELATED TO MNR CONTROL  
MONUMENT 00119673109.  
BRASS TABLET SET FLUSH WITH CONCRETE ON THE  
GOVERNMENT WHARF AT END OF BAYFIELD STREET, BARRIE.  
HAVING AN ELEVATION OF 220.21 (CGVD-1928-1978)

LOCAL BENCHMARK - TOP OF C.P. AT N.E. CORNER OF PART 4,  
PLAN 51R-39976  
ELEVATION = 234.09

ASSOCIATION OF ONTARIO  
LAND SURVEYORS  
PLAN SUBMISSION FORM

1939550



THIS PLAN IS NOT VALID  
UNLESS IT IS AN EMBOSSED  
ORIGINAL COPY  
ISSUED BY THE SURVEYOR  
In accordance with  
Regulation 1028, Section 29(3).

**C.A. MacDONALD SURVEYING Inc.**

204 Blake Street, Barrie, ON L4M 1K3  
TEL (705) 730-6893 FAX (705) 730-0653

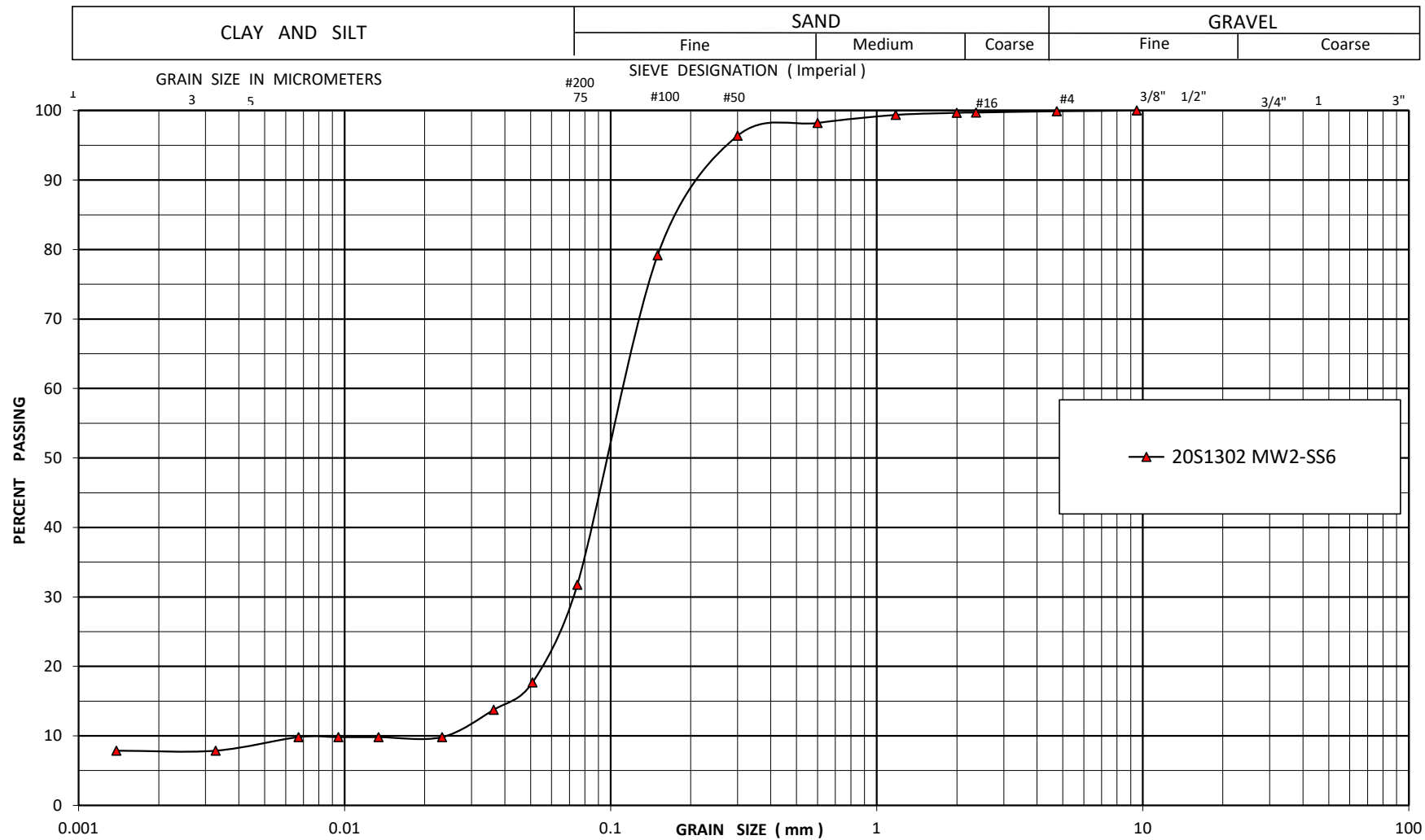
PROJECT: 15-2275

CAD FILE : C:\SURVEYS\REG'DPLAN\RP2\MARKETBLOCK\15-2275\RP2MKBLK-15-2275.DWG

# APPENDIX B

## GRAIN SIZE DISTRIBUTION

## UNIFIED SOIL CLASSIFICATION SYSTEM



|                    |   |                |
|--------------------|---|----------------|
| <b>Project No.</b> | : | SP20-666-00    |
| <b>Date</b>        | : | 21 August 2020 |
| <b>Figure No.</b>  | : |                |



# APPENDIX C

## **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 79 Collier Street, in the City of Barrie, Ontario. The total area of the Phase Two Property is approximately 0.41 acres. The Phase Two Property has been used for mixed institutional/commercial purposes since 1907. At the time of the Site reconnaissance, the Phase Two Property was developed as a parking lot. The site features and the location of the Phase Two Property are shown in Figure 1.

The Sampling and Analysis Plan is prepared based on the findings of our Phase One Environmental Site Assessment Update report:

- *“Phase One Environmental Site Assessment, 79 Collier Street, Barrie, Ontario”, dated August 19, 2020, prepared by SIRATI.*

### **1) OBJECTIVE**

The objective of the 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 the Phase One by SIRATI:

- APEC-1: Potential for contamination on the entire site due historic impartation of fill material of unknown quality to the Site.
- APEC-2: Potential for contamination on the northeast portion of the Site due to records for gasoline spilled at the corner of Mulcaster street and Collier street.

### **2) SCOPE OF WORK**

The environmental field work 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 drilling of the boreholes;
- Drilled and collected soil samples at five (5) borehole locations (BH1, BH/MW2, BH/MW3, BH4 and BH5), 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;
- Installed monitoring wells in two (2) of the boreholes (BH/MW2 and BH/MW3)
- 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 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;
- 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, TEST PIT AND MONITORING WELL LOCATIONS**

The rationale for the selection of the borehole, and monitoring well locations is presented in the Table below:

| Area of Potential Environmental Concern                                           | Location on Site                           | Borehole/MW ID                         |
|-----------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------|
| (1) Fill material of unknown environmental quality (APEC 1)                       | Entire Phase Two Property                  | BH1, B/MW2, BH/MW3, BH4, BH5, MW6, MW7 |
| (2) Gasoline spill at the corner of Mulcaster Street and Collier Street (APEC 2). | Northeast corner of the Phase Two Property | BH/MW3                                 |

### **4) SOIL 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/<br>Monitoring well | M & I | PHCs/<br>BTEX | VOCs | PAHS | PCB | Metals | Grain size |
|----------------|------------------------------|-------|---------------|------|------|-----|--------|------------|
| Soil           | BH1                          | 1     | 1             |      | 1    | 1   | —      | —          |
|                | BH/MW2                       | 1     | 1             | 1    | 1    | —   | —      | 1          |
|                | BH/MW3                       | 1     | 1             | 1    | 1    | —   | —      | —          |
|                | BH/MW4                       | 1     | 1             |      | 1    | 1   | —      | —          |
|                | BH5                          | 1     | 1             | 1    | 1    | —   | —      | —          |
|                | Duplicate                    | —     | —             | —    | —    | —   | 1      | —          |
| Groundwater    | BH/MW2                       | 1     | 1             | 1    | 1    | —   | —      | —          |
|                | BH/MW3                       | 1     | 1             | 1    | 1    | —   | —      | —          |
|                | MW6                          | 1     | 1             | 1    | 1    | —   | —      | —          |
|                | MW7                          | —     | 1             | —    | —    | —   | —      | —          |
|                | Trip Blank                   | —     | —             | 1    | —    | —   | —      | —          |
|                | Duplicate                    | —     | —             | —    | —    | —   | 1      | —          |



## **5) SOIL SAMPLING PROCEDURES**

SIRATI's Standard Operation Procedures (SOPs) will be followed throughout the field investigation (sampling, decontamination of equipment, observation and documentation) including 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:

- SIRATI's Standard Operating Procedures, as presented in the 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 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 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 ASTM D 1452 (AASHTO T 203).

A solid stem auger consists of a pipe with spiral flanges welded to the pipe. Each section of 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 with cutters 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 installation of monitoring wells and the PM must be consulted if 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 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, removal of the center “plug”, or “butterfly” bit, can disturb sand and affect the validity of the SPT. When this condition develops in 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 “baking” of the material due to the heat generated during 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 with cutters 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 are solid stem augers. Hollow stem augers are available with O.D. diameters ranging approximately 15 cm to 55cm.

Hollow stem augers are more versatile than solid stem augers because: they can act as 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, 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 bit are pulled out of the hole and are 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 split-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 reinstatement 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 m. 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 D

|                                         |  |  |  |  |                           |  |  |  |  |                       |  |  |  |  |
|-----------------------------------------|--|--|--|--|---------------------------|--|--|--|--|-----------------------|--|--|--|--|
| PROJECT:                                |  |  |  |  | DRILLING DATA             |  |  |  |  |                       |  |  |  |  |
| CLIENT:                                 |  |  |  |  | Method: Hollow Stem Auger |  |  |  |  |                       |  |  |  |  |
| PROJECT LOCATION: 79 Collier Street, ON |  |  |  |  | Diameter: 200 mm          |  |  |  |  | REF. NO.: SP20-666-20 |  |  |  |  |
| DATUM: Geodetic                         |  |  |  |  | Date: Jul-16-2020         |  |  |  |  | ENCL NO.: 2           |  |  |  |  |
| BH LOCATION:                            |  |  |  |  |                           |  |  |  |  |                       |  |  |  |  |

| SOIL PROFILE         |                                                               |             | SAMPLES |      |                    | GROUND WATER CONDITIONS | ELEVATION | Soil Head Space Vapors |                | PLASTIC LIMIT<br>W <sub>p</sub> | NATURAL MOISTURE CONTENT<br>W | LIQUID LIMIT<br>W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(kN/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%)<br>GR SA SI CL |
|----------------------|---------------------------------------------------------------|-------------|---------|------|--------------------|-------------------------|-----------|------------------------|----------------|---------------------------------|-------------------------------|--------------------------------|---------------------------|-----------------------------------------|--------------------------------------------------------|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION                                                   | STRATA PLOT | NUMBER  | TYPE | "N" BLOWS<br>0.3 m |                         |           | PID<br>(ppm)           | CGD<br>(% LEL) |                                 |                               |                                |                           |                                         |                                                        |
| 233.0                |                                                               |             |         |      |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 232.9                | <b>TOPSOIL:</b> 150 mm thick                                  |             | 1       | SS   |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         | SS1 - M&I                                              |
| 0.2                  | <b>FILL:</b> sandy silt, dark brown, brick debris, some stone |             |         |      |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
|                      | sand, brick debris                                            |             | 2       | SS   |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
|                      | piece of gravel (?), some stone, white/grey                   |             | 3       | SS   |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         | SS3 - PAH<br>PHC/OC<br>PCB                             |
| 230.9                |                                                               |             |         |      |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 2.1                  | <b>END OF BOREHOLE:</b>                                       |             |         |      |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
|                      | Note:                                                         |             |         |      |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, x 3: Numbers refer to Sensitivity

○ 3% Strain at Failure



|                                         |                           |                       |
|-----------------------------------------|---------------------------|-----------------------|
| PROJECT:                                | <b>DRILLING DATA</b>      |                       |
| CLIENT:                                 | Method: Hollow Stem Auger |                       |
| PROJECT LOCATION: 79 Collier Street, ON | Diameter: 200 mm          | REF. NO.: SP20-666-20 |
| DATUM: Geodetic                         | Date: Jul-15-2020         | ENCL NO.: 3           |
| BH LOCATION:                            |                           |                       |

| SOIL PROFILE |                                                  |             | SAMPLES |              |                 | GROUND WATER CONDITIONS | ELEVATION | Soil Head Space Vapors |             | PLASTIC LIMIT  | NATURAL MOISTURE CONTENT | LIQUID LIMIT   | POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) |
|--------------|--------------------------------------------------|-------------|---------|--------------|-----------------|-------------------------|-----------|------------------------|-------------|----------------|--------------------------|----------------|------------------------|--------------------------------------|-----------------------------------------|
| (m)          | DESCRIPTION                                      | STRATA PLOT | NUMBER  | TYPE         | "N" BLOWS 0.3 m |                         |           | PID (ppm)              | CGD (% LEL) | W <sub>p</sub> | W                        | W <sub>L</sub> |                        |                                      |                                         |
| 231.8        |                                                  |             |         |              |                 |                         |           |                        |             |                |                          |                |                        |                                      | GR SA SI CL                             |
| 230.0        | <b>ASPHALT:</b> 70 mm thick                      |             |         | <b>AUGER</b> |                 |                         |           |                        |             |                |                          |                |                        |                                      | SS2 - M&I, PHC/VOC PAH, PCB             |
| 230.0        | <b>FILL:</b> sand, some stone, trace silt, brown |             | 1       | SS           |                 |                         |           |                        |             |                |                          |                |                        |                                      |                                         |
|              | piece of brick                                   |             | 2       | SS           |                 |                         | 231       |                        |             |                |                          |                |                        |                                      |                                         |
|              |                                                  |             | 3       | SS           |                 |                         | 230       |                        |             |                |                          |                |                        |                                      |                                         |
| 229.5        | <b>SAND:</b> brown, moist                        |             | 4       | SS           |                 |                         | 229       |                        |             |                |                          |                |                        |                                      |                                         |
|              | some stone, trace gravel, white/grey             |             | 5       | SS           |                 |                         |           |                        |             |                |                          |                |                        |                                      |                                         |
|              | brown, moist                                     |             | 6       | SS           |                 |                         | 228       |                        |             |                |                          |                |                        |                                      |                                         |
|              |                                                  |             | 7       | SS           |                 |                         | 227       |                        |             |                |                          |                |                        |                                      |                                         |
|              |                                                  |             | 8       | SS           |                 |                         | 226       |                        |             |                |                          |                |                        |                                      |                                         |
|              | very moist                                       |             | 9       | SS           |                 |                         |           |                        |             |                |                          |                |                        |                                      |                                         |
|              | white/grey, dry                                  |             | 10      | SS           |                 |                         | 225       |                        |             |                |                          |                |                        |                                      |                                         |
|              | some stone                                       |             | 11      | SS           |                 |                         | 224       |                        |             |                |                          |                |                        |                                      |                                         |
|              | brown, moist                                     |             | 12      | SS           |                 |                         | 223       |                        |             |                |                          |                |                        |                                      |                                         |
|              | End of spoon sampling                            |             | 13      | <b>AUGER</b> |                 |                         | 222       |                        |             |                |                          |                |                        |                                      |                                         |

0-50 PPM AND 0-5% LEL-2016 SP20-666-20.GPJ SPCL.GDT 20-7-30

Continued Next Page

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ ●=3% Strain at Failure

| PROJECT:                                |                                                                                                                                                                                 |                                                                                   |         |      | DRILLING DATA             |                                                                                   |           |                        |                |                        |   |                |                           |                                         |                                          |  |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------|------|---------------------------|-----------------------------------------------------------------------------------|-----------|------------------------|----------------|------------------------|---|----------------|---------------------------|-----------------------------------------|------------------------------------------|--|
| CLIENT:                                 |                                                                                                                                                                                 |                                                                                   |         |      | Method: Hollow Stem Auger |                                                                                   |           |                        |                |                        |   |                |                           |                                         |                                          |  |
| PROJECT LOCATION: 79 Collier Street, ON |                                                                                                                                                                                 |                                                                                   |         |      | Diameter: 200 mm          |                                                                                   |           |                        |                | REF. NO.: SP20-666-20  |   |                |                           |                                         |                                          |  |
| DATUM: Geodetic                         |                                                                                                                                                                                 |                                                                                   |         |      | Date: Jul-15-2020         |                                                                                   |           |                        |                | ENCL NO.: 3            |   |                |                           |                                         |                                          |  |
| BH LOCATION:                            |                                                                                                                                                                                 |                                                                                   |         |      |                           |                                                                                   |           |                        |                |                        |   |                |                           |                                         |                                          |  |
| SOIL PROFILE                            |                                                                                                                                                                                 |                                                                                   | SAMPLES |      |                           |                                                                                   |           | Soil Head Space Vapors |                | PLASTIC NATURAL LIQUID |   |                |                           |                                         | REMARKS                                  |  |
| (m)                                     | DESCRIPTION                                                                                                                                                                     | STRATA PLOT                                                                       | NUMBER  | TYPE | "N" BLOWS<br>0.3 m        | GROUND WATER<br>CONDITIONS                                                        | ELEVATION | PID<br>(ppm)           | CGD<br>(% LEL) | W <sub>p</sub>         | W | W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(kN/m <sup>3</sup> ) | AND<br>GRAIN SIZE<br>DISTRIBUTION<br>(%) |  |
|                                         |                                                                                                                                                                                 |                                                                                   |         |      |                           |                                                                                   |           | 10 20 30 40            | 1 2 3 4        | WATER CONTENT (%)      |   |                |                           |                                         | GR SA SI CL                              |  |
| 221.1                                   | <b>SAND:</b> brown, moist(Continued)                                                                                                                                            |  |         |      |                           |  |           |                        |                |                        |   |                |                           |                                         |                                          |  |
| 10.7                                    | <b>END OF BOREHOLE:</b><br><br>Note:<br>1. Monitoring well was installed upon completion of drilling.<br>2. Monitoring well was covered with flush mount well cover protection. |                                                                                   |         |      |                           |                                                                                   |           |                        |                |                        |   |                |                           |                                         |                                          |  |

0-50 PPM AND 0-5% LEL-2016 SP20-666-20.GPJ SPCL.GDT 20-7-30

|                                         |                           |
|-----------------------------------------|---------------------------|
| PROJECT:                                | DRILLING DATA             |
| CLIENT:                                 | Method: Hollow Stem Auger |
| PROJECT LOCATION: 79 Collier Street, ON | Diameter: 200 mm          |
| DATUM: Geodetic                         | Date: Jul-15-2020         |
| BH LOCATION:                            | REF. NO.: SP20-666-20     |
|                                         | ENCL NO.: 4               |

| SOIL PROFILE         |                                                                |             | SAMPLES |              |                    | GROUND WATER<br>CONDITIONS | ELEVATION | Soil Head Space Vapors |                | PLASTIC<br>LIMIT<br>W <sub>p</sub> | NATURAL<br>MOISTURE<br>CONTENT<br>W | LIQUID<br>LIMIT<br>W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(kN/m <sup>3</sup> ) | REMARKS<br>AND<br>GRAIN SIZE<br>DISTRIBUTION<br>(%) |
|----------------------|----------------------------------------------------------------|-------------|---------|--------------|--------------------|----------------------------|-----------|------------------------|----------------|------------------------------------|-------------------------------------|-----------------------------------|---------------------------|-----------------------------------------|-----------------------------------------------------|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION                                                    | STRATA PLOT | NUMBER  | TYPE         | "N" BLOWS<br>0.3 m |                            |           | PID<br>(ppm)           | CGD<br>(% LEL) |                                    |                                     |                                   |                           |                                         |                                                     |
| 232.1                |                                                                |             |         |              |                    |                            |           |                        |                |                                    |                                     |                                   |                           |                                         | GR SA SI CL                                         |
| 232.0                | <b>ASPHALT:</b> 100 mm thick                                   |             |         | <b>AUGER</b> |                    |                            | 232       |                        |                |                                    |                                     |                                   |                           |                                         | SS1 - M&I,<br>PHC<br>DUP-0715                       |
| 0.1                  | <b>FILL:</b> sandy silt, trace stone<br>(cobbles?), trace clay |             | 1       | SS           |                    |                            |           |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      | more stone (some cobbles?)                                     |             | 2       | SS           |                    |                            | 231       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
| 230.6                | <b>SAND:</b> trace stone, white/brown,<br>moist                |             | 3       | SS           |                    |                            | 230       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      |                                                                |             | 4       | SS           |                    |                            |           |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      |                                                                |             | 5       | SS           |                    |                            | 229       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      |                                                                |             | 6       | SS           |                    |                            | 228       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      | more silt (some silt), dark grey,<br>more moist (very moist?)  |             | 7       | SS           |                    |                            | 227       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      |                                                                |             | 8       | SS           |                    |                            | 226       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      |                                                                |             | 9       | SS           |                    |                            | 225       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      | trace gravel, dry                                              |             | 10      | SS           |                    |                            | 224       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      |                                                                |             | 11      | SS           |                    |                            |           |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      |                                                                |             | 12      | SS           |                    |                            | 223       |                        |                |                                    |                                     |                                   |                           |                                         |                                                     |
|                      | End of spoon sampling                                          |             | 13      | SS           |                    |                            |           |                        |                |                                    |                                     |                                   |                           |                                         | SS13 -<br>PHC/OC                                    |

0-50 PPM AND 0-5% LEL-2016 SP20-666-20.GPJ SPCL.GDT 20-7-30

Continued Next Page

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH  
NOTES

+ 3, × 3: Numbers refer  
to Sensitivity

○ ●=3% Strain at Failure



|                                         |  |  |  |  |                           |  |  |  |  |                       |  |  |  |  |
|-----------------------------------------|--|--|--|--|---------------------------|--|--|--|--|-----------------------|--|--|--|--|
| PROJECT:                                |  |  |  |  | DRILLING DATA             |  |  |  |  |                       |  |  |  |  |
| CLIENT:                                 |  |  |  |  | Method: Hollow Stem Auger |  |  |  |  |                       |  |  |  |  |
| PROJECT LOCATION: 79 Collier Street, ON |  |  |  |  | Diameter: 200 mm          |  |  |  |  | REF. NO.: SP20-666-20 |  |  |  |  |
| DATUM: Geodetic                         |  |  |  |  | Date: Jul-15-2020         |  |  |  |  | ENCL NO.: 4           |  |  |  |  |
| BH LOCATION:                            |  |  |  |  |                           |  |  |  |  |                       |  |  |  |  |

| SOIL PROFILE         |                                                                                                                                                                                 |             | SAMPLES |       |                    | GROUND WATER CONDITIONS | ELEVATION | Soil Head Space Vapors |                | PLASTIC LIMIT<br>W <sub>p</sub> | NATURAL MOISTURE CONTENT<br>W | LIQUID LIMIT<br>W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(kN/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%)<br>GR SA SI CL |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------|-------|--------------------|-------------------------|-----------|------------------------|----------------|---------------------------------|-------------------------------|--------------------------------|---------------------------|-----------------------------------------|--------------------------------------------------------|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION                                                                                                                                                                     | STRATA PLOT | NUMBER  | TYPE  | "N" BLOWS<br>0.3 m |                         |           | PID<br>(ppm)           | CGD<br>(% LEL) |                                 |                               |                                |                           |                                         |                                                        |
| 219.9                | <b>SAND:</b> trace stone, white/brown, moist(Continued)                                                                                                                         |             |         | AUGER |                    |                         | 222       |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 221                  |                                                                                                                                                                                 |             |         |       |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 220                  |                                                                                                                                                                                 |             |         |       |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 12.2                 | <b>END OF BOREHOLE:</b><br><br>Note:<br>1. Monitoring well was installed upon completion of drilling.<br>2. Monitoring well was covered with flush mount well cover protection. |             |         |       |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |

GROUNDWATER ELEVATIONS

Measurement

GRAPH NOTES

 + <sup>3</sup> , × <sup>3</sup> : Numbers refer to Sensitivity

○ ● = 3% Strain at Failure

0-50 PPM AND 0-5% LEL-2016 SP20-666-20.GPJ SPCL.GDT 20-7-30

|                                                                                                                                      |                                                                                |                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------|
| <b>PROJECT:</b><br><b>CLIENT:</b><br><b>PROJECT LOCATION:</b> 79 Collier Street, ON<br><b>DATUM:</b> Geodetic<br><b>BH LOCATION:</b> | <b>DRILLING DATA</b><br>Method: Hollow Stem Auger<br>Diameter: 200 mm<br>Date: | <b>REF. NO.:</b> SP20-666-20<br><b>ENCL NO.:</b> 5 |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------|

| SOIL PROFILE         |                                                    |             | SAMPLES |              |                    | GROUND WATER CONDITIONS | ELEVATION | Soil Head Space Vapors |                | PLASTIC LIMIT<br>W <sub>p</sub> | NATURAL MOISTURE CONTENT<br>W | LIQUID LIMIT<br>W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(kN/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%)<br>GR SA SI CL |
|----------------------|----------------------------------------------------|-------------|---------|--------------|--------------------|-------------------------|-----------|------------------------|----------------|---------------------------------|-------------------------------|--------------------------------|---------------------------|-----------------------------------------|--------------------------------------------------------|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION                                        | STRATA PLOT | NUMBER  | TYPE         | "N" BLOWS<br>0.3 m |                         |           | PID<br>(ppm)           | CGD<br>(% LEL) |                                 |                               |                                |                           |                                         |                                                        |
| 231.1                |                                                    |             |         |              |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 230.0                | <b>ASPHALT:</b> 100 mm thick                       |             |         | <b>AUGER</b> |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 0.1                  | <b>FILL:</b> sand, some stone, trace gravel, brown |             | 1       | SS           |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         | SS1 - M&I                                              |
|                      | piece of brick                                     |             | 2       | SS           |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 229.4                |                                                    |             |         |              |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 1.7                  | <b>SAND:</b>                                       |             | 3       | SS           |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         | SS3 -<br>PHC/VOC,<br>PAH, PCB                          |
| 229.0                | <b>END OF BOREHOLE:</b>                            |             |         |              |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 2.1                  | Note:                                              |             |         |              |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |

**GROUNDWATER ELEVATIONS**

Measurement

**GRAPH NOTES** +<sup>3</sup> ×<sup>3</sup>: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

0-50 PPM AND 0-5% LEL-2016 SP20-666-20.GPJ SPCL.GDT 20-7-30

|                                                                                                   |                                                                                                                                    |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT:<br>CLIENT:<br>PROJECT LOCATION: 79 Collier Street, ON<br>DATUM: Geodetic<br>BH LOCATION: | <b>DRILLING DATA</b><br>Method: Hollow Stem Auger<br>Diameter: 200 mm<br>Date: Jul-16-2020<br>REF. NO.: SP20-666-20<br>ENCL NO.: 6 |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|

| SOIL PROFILE         |                                                          |             | SAMPLES |       |                    | GROUND WATER CONDITIONS | ELEVATION | Soil Head Space Vapors |                | PLASTIC LIMIT<br>W <sub>p</sub> | NATURAL MOISTURE CONTENT<br>W | LIQUID LIMIT<br>W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(kN/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%)<br>GR SA SI CL |
|----------------------|----------------------------------------------------------|-------------|---------|-------|--------------------|-------------------------|-----------|------------------------|----------------|---------------------------------|-------------------------------|--------------------------------|---------------------------|-----------------------------------------|--------------------------------------------------------|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION                                              | STRATA PLOT | NUMBER  | TYPE  | "N" BLOWS<br>0.3 m |                         |           | PID<br>(ppm)           | CGD<br>(% LEL) |                                 |                               |                                |                           |                                         |                                                        |
| 230.8                |                                                          |             |         |       |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 230.7                | ASPHALT: 80 mm thick                                     |             |         | AUGER |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 0.1                  | FILL: sand, some stone, some asphalt, gravel, dark brown |             | 1       | SS    |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
|                      |                                                          |             | 2       | SS    |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
|                      | some organics, dark brown                                |             | 3       | SS    |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
| 228.7                |                                                          |             |         |       |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         | SS3 - M&I, PHC/VOC, PAH, PCB                           |
| 2.1                  | END OF BOREHOLE:                                         |             |         |       |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |
|                      | Note:                                                    |             |         |       |                    |                         |           |                        |                |                                 |                               |                                |                           |                                         |                                                        |

GROUNDWATER ELEVATIONS  
 Measurement

GRAPH NOTES  
 + <sup>3</sup>, × <sup>3</sup>: Numbers refer to Sensitivity  
 ○ ●=3% Strain at Failure

0-50 PPM AND 0-5% LEL-2016 SP20-666-20.GPJ SPCL.GDT 20-7-30



# APPENDIX E

**CLIENT NAME: SIRATI & PARTNERS**  
**12700 KEELE STREET**  
**KING CITY, ON L7B1H5**  
**(905) 669**

**ATTENTION TO: Bujing Guan**

**PROJECT: SP20-666-00**

**AGAT WORK ORDER: 20T626910**

**SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician**

**TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist**

**DATE REPORTED: Jul 27, 2020**

**PAGES (INCLUDING COVER): 21**

**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 following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.
- 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.



# AGAT Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 20T626910

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

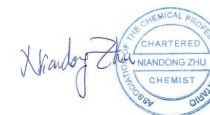
### O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

|                               |          | SAMPLE DESCRIPTION: |       | MW3/SS1     | MW2/SS2     | BH5/SS3             | BH4/SS1             | BH1/SS1             |
|-------------------------------|----------|---------------------|-------|-------------|-------------|---------------------|---------------------|---------------------|
|                               |          | SAMPLE TYPE:        |       | Soil        | Soil        | Soil                | Soil                | Soil                |
|                               |          | DATE SAMPLED:       |       | 2020-07-15  | 2020-07-15  | 2020-07-16<br>10:00 | 2020-07-16<br>10:00 | 2020-07-16<br>10:00 |
| Parameter                     | Unit     | G / S               | RDL   | 1281515     | 1281518     | 1281519             | 1281520             | 1281522             |
| Antimony                      | µg/g     | 7.5                 | 0.8   | <0.8        | <0.8        | <0.8                | 1.8                 | <0.8                |
| Arsenic                       | µg/g     | 18                  | 1     | 2           | 1           | 1                   | 9                   | 1                   |
| Barium                        | µg/g     | 390                 | 2     | 57          | 30          | 27                  | <b>448</b>          | 46                  |
| Beryllium                     | µg/g     | 4                   | 0.5   | <0.5        | <0.5        | <0.5                | <0.5                | <0.5                |
| Boron                         | µg/g     | 120                 | 5     | <5          | <5          | <5                  | 12                  | <5                  |
| Boron (Hot Water Extractable) | µg/g     | 1.5                 | 0.10  | 0.15        | 0.13        | 0.31                | 0.17                | 0.19                |
| Cadmium                       | µg/g     | 1.2                 | 0.5   | <0.5        | <0.5        | <0.5                | <b>2.4</b>          | <0.5                |
| Chromium                      | µg/g     | 160                 | 5     | 15          | 8           | 8                   | 17                  | 9                   |
| Cobalt                        | µg/g     | 22                  | 0.5   | 3.9         | 2.4         | 2.2                 | 4.3                 | 3.1                 |
| Copper                        | µg/g     | 140                 | 1     | 11          | 7           | 69                  | <b>639</b>          | 12                  |
| Lead                          | µg/g     | 120                 | 1     | 53          | 28          | 24                  | <b>608</b>          | 55                  |
| Molybdenum                    | µg/g     | 6.9                 | 0.5   | <0.5        | <0.5        | 0.5                 | 1.3                 | <0.5                |
| Nickel                        | µg/g     | 100                 | 1     | 7           | 5           | 5                   | 11                  | 4                   |
| Selenium                      | µg/g     | 2.4                 | 0.4   | 0.4         | <0.4        | <0.4                | 0.6                 | <0.4                |
| Silver                        | µg/g     | 20                  | 0.2   | <0.2        | <0.2        | <0.2                | 0.2                 | <0.2                |
| Thallium                      | µg/g     | 1                   | 0.4   | <0.4        | <0.4        | <0.4                | <0.4                | <0.4                |
| Uranium                       | µg/g     | 23                  | 0.5   | <0.5        | <0.5        | <0.5                | <0.5                | <0.5                |
| Vanadium                      | µg/g     | 86                  | 1     | 24          | 26          | 17                  | 22                  | 21                  |
| Zinc                          | µg/g     | 340                 | 5     | 68          | 31          | 195                 | <b>1160</b>         | 39                  |
| Chromium, Hexavalent          | µg/g     | 8                   | 0.2   | <0.2        | <0.2        | <0.2                | <0.2                | <0.2                |
| Cyanide, Free                 | 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       | 0.11        | 0.15                | <b>0.43</b>         | 0.20                |
| Electrical Conductivity (2:1) | mS/cm    | 0.7                 | 0.005 | 0.366       | <b>1.10</b> | <b>2.53</b>         | 0.457               | 0.204               |
| Sodium Adsorption Ratio       | NA       | 5                   | NA    | <b>5.59</b> | <b>15.0</b> | <b>34.0</b>         | <b>9.87</b>         | 2.71                |
| pH, 2:1 CaCl2 Extraction      | pH Units | 5.0-9.0             | NA    | 7.55        | 7.69        | 7.54                | 7.75                | 7.47                |

**Certified By:**







**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 20T626910

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

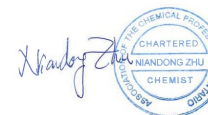
**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils

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.

**1281515-1281522** 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 CaCl<sub>2</sub> extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by \*)

**Certified By:**





# AGAT Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 20T626910

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

### O. Reg. 153(511) - Metals (Including Hydrides) (Soil)

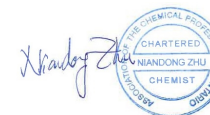
DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

|            |      | SAMPLE DESCRIPTION: |     | Dup-0715   |
|------------|------|---------------------|-----|------------|
|            |      | SAMPLE TYPE:        |     | Soil       |
|            |      | DATE SAMPLED:       |     | 2020-07-15 |
| Parameter  | Unit | G / S               | RDL | 1281516    |
| Antimony   | µg/g | 7.5                 | 0.8 | <0.8       |
| Arsenic    | µg/g | 18                  | 1   | 2          |
| Barium     | µg/g | 390                 | 2   | 36         |
| Beryllium  | µg/g | 4                   | 0.5 | <0.5       |
| Boron      | µg/g | 120                 | 5   | <5         |
| Cadmium    | µg/g | 1.2                 | 0.5 | <0.5       |
| Chromium   | µg/g | 160                 | 5   | 9          |
| Cobalt     | µg/g | 22                  | 0.5 | 2.7        |
| Copper     | µg/g | 140                 | 1   | 10         |
| Lead       | µg/g | 120                 | 1   | 38         |
| Molybdenum | µg/g | 6.9                 | 0.5 | <0.5       |
| Nickel     | µg/g | 100                 | 1   | 5          |
| Selenium   | µg/g | 2.4                 | 0.4 | 0.4        |
| Silver     | µg/g | 20                  | 0.2 | <0.2       |
| Thallium   | µg/g | 1                   | 0.4 | <0.4       |
| Uranium    | µg/g | 23                  | 0.5 | <0.5       |
| Vanadium   | µg/g | 86                  | 1   | 26         |
| Zinc       | µg/g | 340                 | 5   | 38         |

**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  
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.  
Analysis performed at AGAT Toronto (unless marked by \*)

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AGAT WORK ORDER: 20T626910

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

SAMPLING SITE:

ATTENTION TO: Bujing Guan

SAMPLED BY:

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

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

| SAMPLE DESCRIPTION:        |      |                   |      | MW3/SS1    | MW2/SS2     | BH5/SS3             | BH4/SS3             | BH1/SS3             |
|----------------------------|------|-------------------|------|------------|-------------|---------------------|---------------------|---------------------|
| SAMPLE TYPE:               |      |                   |      | Soil       | Soil        | Soil                | Soil                | Soil                |
| DATE SAMPLED:              |      |                   |      | 2020-07-15 | 2020-07-15  | 2020-07-16<br>10:00 | 2020-07-16<br>10:00 | 2020-07-16<br>10:00 |
| Parameter                  | Unit | G / S             | RDL  | 1281515    | 1281518     | 1281519             | 1281521             | 1281523             |
| Naphthalene                | µg/g | 0.6               | 0.05 | <0.05      | <0.05       | <0.05               | <0.05               | <0.05               |
| Acenaphthylene             | µg/g | 0.15              | 0.05 | <0.05      | 0.15        | 0.11                | <0.05               | <0.05               |
| Acenaphthene               | µg/g | 7.9               | 0.05 | <0.05      | 0.17        | <0.05               | <0.05               | <0.05               |
| Fluorene                   | µg/g | 62                | 0.05 | <0.05      | 0.38        | <0.05               | <0.05               | <0.05               |
| Phenanthrene               | µg/g | 6.2               | 0.05 | 0.08       | 1.6         | 0.26                | <0.05               | <0.05               |
| Anthracene                 | µg/g | 0.67              | 0.05 | <0.05      | 0.50        | 0.13                | <0.05               | <0.05               |
| Fluoranthene               | µg/g | 0.69              | 0.05 | 0.14       | <b>1.9</b>  | <b>0.71</b>         | <0.05               | 0.09                |
| Pyrene                     | µg/g | 78                | 0.05 | 0.13       | 1.5         | 0.67                | <0.05               | 0.07                |
| Benz(a)anthracene          | µg/g | 0.5               | 0.05 | 0.05       | <b>0.74</b> | 0.37                | <0.05               | <0.05               |
| Chrysene                   | µg/g | 7                 | 0.05 | 0.06       | 0.78        | 0.46                | <0.05               | <0.05               |
| Benzo(b)fluoranthene       | µg/g | 0.78              | 0.05 | 0.05       | <b>0.86</b> | 0.61                | <0.05               | <0.05               |
| Benzo(k)fluoranthene       | µg/g | 0.78              | 0.05 | <0.05      | 0.38        | 0.26                | <0.05               | <0.05               |
| Benzo(a)pyrene             | µg/g | 0.3               | 0.05 | <0.05      | <b>0.68</b> | <b>0.46</b>         | <0.05               | <0.05               |
| Indeno(1,2,3-cd)pyrene     | µg/g | 0.38              | 0.05 | <0.05      | 0.34        | 0.25                | <0.05               | <0.05               |
| Dibenz(a,h)anthracene      | µg/g | 0.1               | 0.05 | <0.05      | <0.05       | <0.05               | <0.05               | <0.05               |
| Benzo(g,h,i)perylene       | µg/g | 6.6               | 0.05 | <0.05      | 0.33        | 0.24                | <0.05               | <0.05               |
| 1 and 2 Methyl naphthalene | µg/g | 0.99              | 0.05 | <0.05      | 0.14        | <0.05               | <0.05               | <0.05               |
| Moisture Content           | %    |                   | 0.1  | 4.2        | 7.2         | 13.0                | 7.8                 | 3.0                 |
| Surrogate                  | Unit | Acceptable Limits |      |            |             |                     |                     |                     |
| Naphthalene-d8             | %    | 50-140            |      |            |             |                     |                     |                     |
| Acenaphthene-d10           | %    | 50-140            |      |            |             |                     |                     |                     |
| Chrysene-d12               | %    | 50-140            |      |            |             |                     |                     |                     |

**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  
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.

**1281515-1281523** Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&j)Fluoranthene isomers because the isomers co-elute on the GC column.

2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by \*)

**Certified By:**

*N Popmukolof*





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PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

|                                |      | SAMPLE DESCRIPTION: |     | MW3/SS13   |
|--------------------------------|------|---------------------|-----|------------|
|                                |      | SAMPLE TYPE:        |     | Soil       |
|                                |      | DATE SAMPLED:       |     | 2020-07-15 |
| Parameter                      | Unit | G / S               | RDL | 1281517    |
| F1 (C6 to C10)                 | µg/g | 55                  | 5   | <5         |
| F1 (C6 to C10) minus BTEX      | µg/g | 55                  | 5   | <5         |
| F2 (C10 to C16)                | µg/g | 98                  | 10  | <10        |
| 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 | 15.3       |
| Surrogate                      | Unit | Acceptable Limits   |     |            |
| Terphenyl                      | %    | 60-140              |     | 72         |

**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  
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.

**1281517** 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.

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

|                                   |      | SAMPLE DESCRIPTION: |     | MW2/SS2    | BH5/SS3    |
|-----------------------------------|------|---------------------|-----|------------|------------|
|                                   |      | SAMPLE TYPE:        |     | Soil       | Soil       |
|                                   |      | DATE SAMPLED:       |     | 2020-07-15 | 2020-07-16 |
|                                   |      |                     |     |            | 10:00      |
| Parameter                         | Unit | G / S               | RDL | 1281518    | 1281519    |
| F1 (C6 to C10)                    | µg/g | 55                  | 5   | <5         | <5         |
| F1 (C6 to C10) minus BTEX         | µg/g | 55                  | 5   | <5         | <5         |
| F2 (C10 to C16)                   | µg/g | 98                  | 10  | 47         | <10        |
| F2 (C10 to C16) minus Naphthalene | µg/g |                     | 10  | 47         | <10        |
| F3 (C16 to C34)                   | µg/g | 300                 | 50  | 520        | 130        |
| F3 (C16 to C34) minus PAHs        | µg/g |                     | 50  | 510        | 130        |
| F4 (C34 to C50)                   | µg/g | 2800                | 50  | 220        | 70         |
| Gravimetric Heavy Hydrocarbons    | µg/g | 2800                | 50  | NA         | NA         |
| Moisture Content                  | %    |                     | 0.1 | 7.2        | 13.0       |
| Surrogate                         | Unit | Acceptable Limits   |     |            |            |
| Terphenyl                         | %    | 60-140              |     | 100        | 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 - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils  
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

**1281518-1281519** 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 and PAH contributions.  
C>10 - C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.  
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).  
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.  
nC10, nC16 and nC34 response factors are within 10% of their average.  
C50 response factor is within 70% of nC10 + nC16 + nC34 average.  
Linearity is within 15%.  
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by \*)

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

|                                   |      | SAMPLE DESCRIPTION: |      | BH4/SS3             | BH1/SS3             |
|-----------------------------------|------|---------------------|------|---------------------|---------------------|
|                                   |      | SAMPLE TYPE:        |      | Soil                | Soil                |
|                                   |      | DATE SAMPLED:       |      | 2020-07-16<br>10:00 | 2020-07-16<br>10:00 |
| Parameter                         | Unit | G / S               | RDL  | 1281521             | 1281523             |
| Benzene                           | µg/g | 0.21                | 0.02 | <0.02               | <0.02               |
| Toluene                           | µg/g | 2.3                 | 0.05 | <0.05               | <0.05               |
| Ethylbenzene                      | µg/g | 1.1                 | 0.05 | <0.05               | <0.05               |
| Xylenes (Total)                   | µg/g | 3.1                 | 0.05 | <0.05               | <0.05               |
| F1 (C6 to C10)                    | µg/g | 55                  | 5    | <5                  | <5                  |
| F1 (C6 to C10) minus BTEX         | µg/g | 55                  | 5    | <5                  | <5                  |
| F2 (C10 to C16)                   | µg/g | 98                  | 10   | <10                 | <10                 |
| F2 (C10 to C16) minus Naphthalene | µg/g |                     | 10   | <10                 | <10                 |
| F3 (C16 to C34)                   | µg/g | 300                 | 50   | <50                 | <50                 |
| F3 (C16 to C34) minus PAHs        | µg/g |                     | 50   | <50                 | <50                 |
| F4 (C34 to C50)                   | µg/g | 2800                | 50   | <50                 | <50                 |
| Gravimetric Heavy Hydrocarbons    | µg/g | 2800                | 50   | NA                  | NA                  |
| Moisture Content                  | %    |                     | 0.1  | 7.8                 | 3.0                 |
| Surrogate                         | Unit | Acceptable Limits   |      |                     |                     |
| Terphenyl                         | %    | 60-140              |      | 67                  | 74                  |

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

**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  
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.

**1281521-1281523** Results are based on sample dry weight.  
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 n-C34.  
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.  
The chromatogram has returned to baseline by the retention time of nC50.  
Total C6 - C50 results are corrected for BTEX and PAH contributions.  
C>10 - C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.  
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).  
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.  
nC10, nC16 and nC34 response factors are within 10% of their average.  
C50 response factor is within 70% of nC10 + nC16 + nC34 average.  
Linearity is within 15%.  
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by \*)

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5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
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CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2020-07-17

DATE REPORTED: 2020-07-27

| Parameter                   | Unit | SAMPLE DESCRIPTION: |      | MW3/SS13   | MW2/SS2    | BH5/SS3    |
|-----------------------------|------|---------------------|------|------------|------------|------------|
|                             |      | SAMPLE TYPE:        |      | Soil       | Soil       | Soil       |
|                             |      | DATE SAMPLED:       |      | 2020-07-15 | 2020-07-15 | 2020-07-16 |
|                             |      |                     |      |            |            | 10:00      |
|                             |      | G / S               | RDL  | 1281517    | 1281518    | 1281519    |
| Dichlorodifluoromethane     | µg/g | 16                  | 0.05 | <0.05      | <0.05      | <0.05      |
| Vinyl Chloride              | ug/g | 0.02                | 0.02 | <0.02      | <0.02      | <0.02      |
| Bromomethane                | ug/g | 0.05                | 0.05 | <0.05      | <0.05      | <0.05      |
| Trichlorofluoromethane      | ug/g | 4                   | 0.05 | <0.05      | <0.05      | <0.05      |
| Acetone                     | ug/g | 16                  | 0.50 | <0.50      | <0.50      | <0.50      |
| 1,1-Dichloroethylene        | ug/g | 0.05                | 0.05 | <0.05      | <0.05      | <0.05      |
| Methylene Chloride          | ug/g | 0.1                 | 0.05 | <0.05      | <0.05      | <0.05      |
| Trans- 1,2-Dichloroethylene | ug/g | 0.084               | 0.05 | <0.05      | <0.05      | <0.05      |
| Methyl tert-butyl Ether     | ug/g | 0.75                | 0.05 | <0.05      | <0.05      | <0.05      |
| 1,1-Dichloroethane          | ug/g | 0.47                | 0.02 | <0.02      | <0.02      | <0.02      |
| Methyl Ethyl Ketone         | ug/g | 16                  | 0.50 | <0.50      | <0.50      | <0.50      |
| Cis- 1,2-Dichloroethylene   | ug/g | 1.9                 | 0.02 | <0.02      | <0.02      | <0.02      |
| Chloroform                  | ug/g | 0.05                | 0.04 | <0.04      | <0.04      | <0.04      |
| 1,2-Dichloroethane          | ug/g | 0.05                | 0.03 | <0.03      | <0.03      | <0.03      |
| 1,1,1-Trichloroethane       | ug/g | 0.38                | 0.05 | <0.05      | <0.05      | <0.05      |
| Carbon Tetrachloride        | ug/g | 0.05                | 0.05 | <0.05      | <0.05      | <0.05      |
| Benzene                     | ug/g | 0.21                | 0.02 | <0.02      | <0.02      | <0.02      |
| 1,2-Dichloropropane         | ug/g | 0.05                | 0.03 | <0.03      | <0.03      | <0.03      |
| Trichloroethylene           | ug/g | 0.061               | 0.03 | <0.03      | <0.03      | <0.03      |
| Bromodichloromethane        | ug/g | 1.5                 | 0.05 | <0.05      | <0.05      | <0.05      |
| Methyl Isobutyl Ketone      | ug/g | 1.7                 | 0.50 | <0.50      | <0.50      | <0.50      |
| 1,1,2-Trichloroethane       | ug/g | 0.05                | 0.04 | <0.04      | <0.04      | <0.04      |
| Toluene                     | ug/g | 2.3                 | 0.05 | <0.05      | <0.05      | 0.12       |
| Dibromochloromethane        | ug/g | 2.3                 | 0.05 | <0.05      | <0.05      | <0.05      |
| Ethylene Dibromide          | ug/g | 0.05                | 0.04 | <0.04      | <0.04      | <0.04      |
| Tetrachloroethylene         | ug/g | 0.28                | 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      |
| Chlorobenzene               | ug/g | 2.4                 | 0.05 | <0.05      | <0.05      | <0.05      |
| Ethylbenzene                | ug/g | 1.1                 | 0.05 | <0.05      | <0.05      | <0.05      |

Certified By:

*N Popmukolof*



## Certificate of Analysis

AGAT WORK ORDER: 20T626910

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

| O. Reg. 153(511) - VOCs (Soil)    |            |                   |            |                           |         |         |
|-----------------------------------|------------|-------------------|------------|---------------------------|---------|---------|
| DATE RECEIVED: 2020-07-17         |            |                   |            | DATE REPORTED: 2020-07-27 |         |         |
| SAMPLE DESCRIPTION:               |            | MW3/SS13          | MW2/SS2    | BH5/SS3                   |         |         |
| SAMPLE TYPE:                      |            | Soil              | Soil       | Soil                      |         |         |
| DATE SAMPLED:                     |            | 2020-07-15        | 2020-07-15 | 2020-07-16<br>10:00       |         |         |
| Parameter                         | Unit       | G / S             | RDL        | 1281517                   | 1281518 | 1281519 |
| m & p-Xylene                      | ug/g       |                   | 0.05       | <0.05                     | <0.05   | <0.05   |
| Bromoform                         | ug/g       | 0.27              | 0.05       | <0.05                     | <0.05   | <0.05   |
| Styrene                           | ug/g       | 0.7               | 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   |
| o-Xylene                          | ug/g       |                   | 0.05       | <0.05                     | <0.05   | <0.05   |
| 1,3-Dichlorobenzene               | ug/g       | 4.8               | 0.05       | <0.05                     | <0.05   | <0.05   |
| 1,4-Dichlorobenzene               | ug/g       | 0.083             | 0.05       | <0.05                     | <0.05   | <0.05   |
| 1,2-Dichlorobenzene               | ug/g       | 1.2               | 0.05       | <0.05                     | <0.05   | <0.05   |
| Xylenes (Total)                   | ug/g       | 3.1               | 0.05       | <0.05                     | <0.05   | <0.05   |
| 1,3-Dichloropropene (Cis + Trans) | µg/g       | 0.05              | 0.04       | <0.04                     | <0.04   | <0.04   |
| n-Hexane                          | µg/g       | 2.8               | 0.05       | <0.05                     | <0.05   | <0.05   |
| Surrogate                         | Unit       | Acceptable Limits |            |                           |         |         |
| Toluene-d8                        | % Recovery | 50-140            | 114        | 118                       | 115     |         |
| 4-Bromofluorobenzene              | % Recovery | 50-140            | 82         | 85                        | 77      |         |

**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

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.

**1281517-1281519** 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:**

*N Popmukolof*



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 20T626910

PROJECT: SP20-666-00

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

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| Total PCBs (soil)         |      |                     |                           |                     |         |
|---------------------------|------|---------------------|---------------------------|---------------------|---------|
| DATE RECEIVED: 2020-07-17 |      |                     | DATE REPORTED: 2020-07-27 |                     |         |
| SAMPLE DESCRIPTION:       |      | BH4/SS3             |                           | BH1/SS3             |         |
| SAMPLE TYPE:              |      | Soil                |                           | Soil                |         |
| DATE SAMPLED:             |      | 2020-07-16<br>10:00 |                           | 2020-07-16<br>10:00 |         |
| Parameter                 | Unit | G / S               | RDL                       | 1281521             | 1281523 |
| PCBs                      | µg/g | 0.35                | 0.1                       | <0.1                | <0.1    |
| Moisture Content          | %    |                     | 0.1                       | 7.8                 | 3.0     |
| Surrogate                 | Unit | Acceptable Limits   |                           |                     |         |
| Decachlorobiphenyl        | %    | 60-130              | 76                        | 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 - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils  
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

**1281521-1281523** Results are based on the dry weight of soil extracted.

Analysis performed at AGAT Toronto (unless marked by \*)

**Certified By:**



## Guideline Violation

AGAT WORK ORDER: 20T626910

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

| SAMPLEID | SAMPLE TITLE | GUIDELINE      | ANALYSIS PACKAGE                                           | PARAMETER                     | UNIT  | GUIDEVALUE | RESULT |
|----------|--------------|----------------|------------------------------------------------------------|-------------------------------|-------|------------|--------|
| 1281515  | MW3/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Sodium Adsorption Ratio       | NA    | 5          | 5.59   |
| 1281518  | MW2/SS2      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Electrical Conductivity (2:1) | mS/cm | 0.7        | 1.10   |
| 1281518  | MW2/SS2      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Sodium Adsorption Ratio       | NA    | 5          | 15.0   |
| 1281518  | MW2/SS2      | ON T2 S RPI CT | O. Reg. 153(511) - PAHs (Soil)                             | Benz(a)anthracene             | µg/g  | 0.5        | 0.74   |
| 1281518  | MW2/SS2      | ON T2 S RPI CT | O. Reg. 153(511) - PAHs (Soil)                             | Benzo(a)pyrene                | µg/g  | 0.3        | 0.68   |
| 1281518  | MW2/SS2      | ON T2 S RPI CT | O. Reg. 153(511) - PAHs (Soil)                             | Benzo(b)fluoranthene          | µg/g  | 0.78       | 0.86   |
| 1281518  | MW2/SS2      | ON T2 S RPI CT | O. Reg. 153(511) - PAHs (Soil)                             | Fluoranthene                  | µg/g  | 0.69       | 1.9    |
| 1281518  | MW2/SS2      | ON T2 S RPI CT | O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil) | F3 (C16 to C34)               | µg/g  | 300        | 520    |
| 1281519  | BH5/SS3      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Electrical Conductivity (2:1) | mS/cm | 0.7        | 2.53   |
| 1281519  | BH5/SS3      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Sodium Adsorption Ratio       | NA    | 5          | 34.0   |
| 1281519  | BH5/SS3      | ON T2 S RPI CT | O. Reg. 153(511) - PAHs (Soil)                             | Benzo(a)pyrene                | µg/g  | 0.3        | 0.46   |
| 1281519  | BH5/SS3      | ON T2 S RPI CT | O. Reg. 153(511) - PAHs (Soil)                             | Fluoranthene                  | µg/g  | 0.69       | 0.71   |
| 1281520  | BH4/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Barium                        | µg/g  | 390        | 448    |
| 1281520  | BH4/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Cadmium                       | µg/g  | 1.2        | 2.4    |
| 1281520  | BH4/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Copper                        | µg/g  | 140        | 639    |
| 1281520  | BH4/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Lead                          | µg/g  | 120        | 608    |
| 1281520  | BH4/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Mercury                       | µg/g  | 0.27       | 0.43   |
| 1281520  | BH4/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Sodium Adsorption Ratio       | NA    | 5          | 9.87   |
| 1281520  | BH4/SS1      | ON T2 S RPI CT | O. Reg. 153(511) - Metals & Inorganics (Soil)              | Zinc                          | µg/g  | 340        | 1160   |



## Quality Assurance

CLIENT NAME: SIRATI &amp; PARTNERS

PROJECT: SP20-666-00

SAMPLING SITE:

AGAT WORK ORDER: 20T626910

ATTENTION TO: Bujing Guan

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| Soil Analysis                                 |         |           |           |        |       |              |                    |                   |       |                    |                   |       |              |                   |       |
|-----------------------------------------------|---------|-----------|-----------|--------|-------|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| RPT Date: Jul 27, 2020                        |         |           | DUPLICATE |        |       | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
| PARAMETER                                     | Batch   | Sample Id | Dup #1    | Dup #2 | RPD   |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                                               |         |           |           |        |       |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| O. Reg. 153(511) - Metals & Inorganics (Soil) |         |           |           |        |       |              |                    |                   |       |                    |                   |       |              |                   |       |
| Antimony                                      | 1281515 | 1281515   | <0.8      | <0.8   | NA    | < 0.8        | 89%                | 70%               | 130%  | 96%                | 80%               | 120%  | 79%          | 70%               | 130%  |
| Arsenic                                       | 1281515 | 1281515   | 2         | 2      | NA    | < 1          | 108%               | 70%               | 130%  | 108%               | 80%               | 120%  | 102%         | 70%               | 130%  |
| Barium                                        | 1281515 | 1281515   | 57        | 58     | 1.7%  | < 2          | 96%                | 70%               | 130%  | 99%                | 80%               | 120%  | 94%          | 70%               | 130%  |
| Beryllium                                     | 1281515 | 1281515   | <0.5      | <0.5   | NA    | < 0.5        | 73%                | 70%               | 130%  | 101%               | 80%               | 120%  | 91%          | 70%               | 130%  |
| Boron                                         | 1281515 | 1281515   | <5        | <5     | NA    | < 5          | 100%               | 70%               | 130%  | 101%               | 80%               | 120%  | 80%          | 70%               | 130%  |
| Boron (Hot Water Extractable)                 | 1281522 | 1281522   | 0.19      | 0.22   | NA    | < 0.10       | 113%               | 60%               | 140%  | 102%               | 70%               | 130%  | 103%         | 60%               | 140%  |
| Cadmium                                       | 1281515 | 1281515   | <0.5      | <0.5   | NA    | < 0.5        | 107%               | 70%               | 130%  | 103%               | 80%               | 120%  | 101%         | 70%               | 130%  |
| Chromium                                      | 1281515 | 1281515   | 15        | 14     | NA    | < 5          | 100%               | 70%               | 130%  | 102%               | 80%               | 120%  | 101%         | 70%               | 130%  |
| Cobalt                                        | 1281515 | 1281515   | 3.9       | 3.7    | 5.3%  | < 0.5        | 94%                | 70%               | 130%  | 103%               | 80%               | 120%  | 95%          | 70%               | 130%  |
| Copper                                        | 1281515 | 1281515   | 11        | 10     | 9.5%  | < 1          | 91%                | 70%               | 130%  | 109%               | 80%               | 120%  | 102%         | 70%               | 130%  |
| Lead                                          | 1281515 | 1281515   | 53        | 53     | 0.0%  | < 1          | 104%               | 70%               | 130%  | 110%               | 80%               | 120%  | 96%          | 70%               | 130%  |
| Molybdenum                                    | 1281515 | 1281515   | <0.5      | <0.5   | NA    | < 0.5        | 105%               | 70%               | 130%  | 109%               | 80%               | 120%  | 109%         | 70%               | 130%  |
| Nickel                                        | 1281515 | 1281515   | 7         | 6      | 15.4% | < 1          | 93%                | 70%               | 130%  | 101%               | 80%               | 120%  | 93%          | 70%               | 130%  |
| Selenium                                      | 1281515 | 1281515   | 0.4       | 0.4    | NA    | < 0.4        | 115%               | 70%               | 130%  | 103%               | 80%               | 120%  | 101%         | 70%               | 130%  |
| Silver                                        | 1281515 | 1281515   | <0.2      | <0.2   | NA    | < 0.2        | 102%               | 70%               | 130%  | 104%               | 80%               | 120%  | 98%          | 70%               | 130%  |
| Thallium                                      | 1281515 | 1281515   | <0.4      | <0.4   | NA    | < 0.4        | 108%               | 70%               | 130%  | 106%               | 80%               | 120%  | 98%          | 70%               | 130%  |
| Uranium                                       | 1281515 | 1281515   | <0.5      | <0.5   | NA    | < 0.5        | 104%               | 70%               | 130%  | 103%               | 80%               | 120%  | 98%          | 70%               | 130%  |
| Vanadium                                      | 1281515 | 1281515   | 24        | 23     | 4.3%  | < 1          | 98%                | 70%               | 130%  | 95%                | 80%               | 120%  | 95%          | 70%               | 130%  |
| Zinc                                          | 1281515 | 1281515   | 68        | 66     | 3.0%  | < 5          | 99%                | 70%               | 130%  | 111%               | 80%               | 120%  | 111%         | 70%               | 130%  |
| Chromium, Hexavalent                          | 1295173 |           | <0.2      | <0.2   | NA    | < 0.2        | 90%                | 70%               | 130%  | 85%                | 80%               | 120%  | 95%          | 70%               | 130%  |
| Cyanide, Free                                 | 1281406 |           | <0.040    | <0.040 | NA    | < 0.040      | 100%               | 70%               | 130%  | 108%               | 80%               | 120%  | 97%          | 70%               | 130%  |
| Mercury                                       | 1281515 | 1281515   | <0.10     | <0.10  | NA    | < 0.10       | 106%               | 70%               | 130%  | 107%               | 80%               | 120%  | 102%         | 70%               | 130%  |
| Electrical Conductivity (2:1)                 | 1281522 | 1281522   | 0.204     | 0.200  | 2.0%  | < 0.005      | 101%               | 80%               | 120%  |                    |                   |       |              |                   |       |
| Sodium Adsorption Ratio                       | 1281522 | 1281522   | 2.71      | 2.70   | 0.4%  | NA           |                    |                   |       |                    |                   |       |              |                   |       |
| pH, 2:1 CaCl2 Extraction                      | 1283549 |           | 7.44      | 7.66   | 2.9%  | NA           | 100%               | 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.

If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

### Certified By:



## Quality Assurance

CLIENT NAME: SIRATI &amp; PARTNERS

PROJECT: SP20-666-00

SAMPLING SITE:

AGAT WORK ORDER: 20T626910

ATTENTION TO: Bujing Guan

SAMPLED BY:

### Trace Organics Analysis

| RPT Date: Jul 27, 2020 |       |           | DUPLICATE |        |     | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
|------------------------|-------|-----------|-----------|--------|-----|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| PARAMETER              | Batch | Sample Id | Dup #1    | Dup #2 | RPD |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                        |       |           |           |        |     |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |

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

|                        |         |  |        |        |    |        |      |     |      |      |     |      |      |     |      |
|------------------------|---------|--|--------|--------|----|--------|------|-----|------|------|-----|------|------|-----|------|
| Naphthalene            | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 106% | 50% | 140% | 74%  | 50% | 140% | 76%  | 50% | 140% |
| Acenaphthylene         | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 106% | 50% | 140% | 81%  | 50% | 140% | 90%  | 50% | 140% |
| Acenaphthene           | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 100% | 50% | 140% | 80%  | 50% | 140% | 88%  | 50% | 140% |
| Fluorene               | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 113% | 50% | 140% | 80%  | 50% | 140% | 95%  | 50% | 140% |
| Phenanthrene           | 1287274 |  | 0.11   | 0.09   | NA | < 0.05 | 97%  | 50% | 140% | 74%  | 50% | 140% | 90%  | 50% | 140% |
| Anthracene             | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 117% | 50% | 140% | 93%  | 50% | 140% | 101% | 50% | 140% |
| Fluoranthene           | 1287274 |  | 0.18   | 0.21   | NA | < 0.05 | 109% | 50% | 140% | 90%  | 50% | 140% | 111% | 50% | 140% |
| Pyrene                 | 1287274 |  | 0.14   | 0.17   | NA | < 0.05 | 102% | 50% | 140% | 89%  | 50% | 140% | 110% | 50% | 140% |
| Benz(a)anthracene      | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 72%  | 50% | 140% | 92%  | 50% | 140% | 75%  | 50% | 140% |
| Chrysene               | 1287274 |  | 0.07   | 0.07   | NA | < 0.05 | 111% | 50% | 140% | 94%  | 50% | 140% | 111% | 50% | 140% |
| Benzo(b)fluoranthene   | 1287274 |  | 0.05   | 0.05   | NA | < 0.05 | 108% | 50% | 140% | 73%  | 50% | 140% | 79%  | 50% | 140% |
| Benzo(k)fluoranthene   | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 95%  | 50% | 140% | 103% | 50% | 140% | 112% | 50% | 140% |
| Benzo(a)pyrene         | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 99%  | 50% | 140% | 101% | 50% | 140% | 76%  | 50% | 140% |
| Indeno(1,2,3-cd)pyrene | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 80%  | 50% | 140% | 81%  | 50% | 140% | 80%  | 50% | 140% |
| Dibenz(a,h)anthracene  | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 94%  | 50% | 140% | 81%  | 50% | 140% | 77%  | 50% | 140% |
| Benzo(g,h,i)perylene   | 1287274 |  | < 0.05 | < 0.05 | NA | < 0.05 | 91%  | 50% | 140% | 75%  | 50% | 140% | 102% | 50% | 140% |

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

|                             |         |  |       |       |    |        |      |     |      |      |     |      |      |     |      |
|-----------------------------|---------|--|-------|-------|----|--------|------|-----|------|------|-----|------|------|-----|------|
| Dichlorodifluoromethane     | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 79%  | 50% | 140% | 94%  | 50% | 140% | 89%  | 50% | 140% |
| Vinyl Chloride              | 1281798 |  | <0.02 | <0.02 | NA | < 0.02 | 102% | 50% | 140% | 97%  | 50% | 140% | 95%  | 50% | 140% |
| Bromomethane                | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 90%  | 50% | 140% | 88%  | 50% | 140% | 96%  | 50% | 140% |
| Trichlorofluoromethane      | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 91%  | 50% | 140% | 101% | 50% | 140% | 97%  | 50% | 140% |
| Acetone                     | 1281798 |  | <0.50 | <0.50 | NA | < 0.50 | 100% | 50% | 140% | 99%  | 50% | 140% | 95%  | 50% | 140% |
| 1,1-Dichloroethylene        | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 90%  | 50% | 140% | 106% | 60% | 130% | 93%  | 50% | 140% |
| Methylene Chloride          | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 117% | 50% | 140% | 109% | 60% | 130% | 110% | 50% | 140% |
| Trans- 1,2-Dichloroethylene | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 90%  | 50% | 140% | 100% | 60% | 130% | 93%  | 50% | 140% |
| Methyl tert-butyl Ether     | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 81%  | 50% | 140% | 92%  | 60% | 130% | 74%  | 50% | 140% |
| 1,1-Dichloroethane          | 1281798 |  | <0.02 | <0.02 | NA | < 0.02 | 91%  | 50% | 140% | 85%  | 60% | 130% | 92%  | 50% | 140% |
| Methyl Ethyl Ketone         | 1281798 |  | <0.50 | <0.50 | NA | < 0.50 | 98%  | 50% | 140% | 100% | 50% | 140% | 90%  | 50% | 140% |
| Cis- 1,2-Dichloroethylene   | 1281798 |  | <0.02 | <0.02 | NA | < 0.02 | 113% | 50% | 140% | 102% | 60% | 130% | 87%  | 50% | 140% |
| Chloroform                  | 1281798 |  | <0.04 | <0.04 | NA | < 0.04 | 92%  | 50% | 140% | 106% | 60% | 130% | 97%  | 50% | 140% |
| 1,2-Dichloroethane          | 1281798 |  | <0.03 | <0.03 | NA | < 0.03 | 112% | 50% | 140% | 92%  | 60% | 130% | 111% | 50% | 140% |
| 1,1,1-Trichloroethane       | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 71%  | 50% | 140% | 72%  | 60% | 130% | 73%  | 50% | 140% |
| Carbon Tetrachloride        | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 78%  | 50% | 140% | 73%  | 60% | 130% | 75%  | 50% | 140% |
| Benzene                     | 1281798 |  | <0.02 | <0.02 | NA | < 0.02 | 117% | 50% | 140% | 93%  | 60% | 130% | 87%  | 50% | 140% |
| 1,2-Dichloropropane         | 1281798 |  | <0.03 | <0.03 | NA | < 0.03 | 85%  | 50% | 140% | 74%  | 60% | 130% | 84%  | 50% | 140% |
| Trichloroethylene           | 1281798 |  | <0.03 | <0.03 | NA | < 0.03 | 94%  | 50% | 140% | 93%  | 60% | 130% | 111% | 50% | 140% |
| Bromodichloromethane        | 1281798 |  | <0.05 | <0.05 | NA | < 0.05 | 91%  | 50% | 140% | 87%  | 60% | 130% | 88%  | 50% | 140% |
| Methyl Isobutyl Ketone      | 1281798 |  | <0.50 | <0.50 | NA | < 0.50 | 99%  | 50% | 140% | 89%  | 50% | 140% | 79%  | 50% | 140% |

## Quality Assurance

CLIENT NAME: SIRATI &amp; PARTNERS

PROJECT: SP20-666-00

SAMPLING SITE:

AGAT WORK ORDER: 20T626910

ATTENTION TO: Bujing Guan

SAMPLED BY:

### Trace Organics Analysis (Continued)

| RPT Date: Jul 27, 2020                             |         |           | DUPLICATE |        |     | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
|----------------------------------------------------|---------|-----------|-----------|--------|-----|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| PARAMETER                                          | Batch   | Sample Id | Dup #1    | Dup #2 | RPD |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                                                    |         |           |           |        |     |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| 1,1,2-Trichloroethane                              | 1281798 |           | <0.04     | <0.04  | NA  | < 0.04       | 101%               | 50%               | 140%  | 96%                | 60%               | 130%  | 103%         | 50%               | 140%  |
| Toluene                                            | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 86%                | 50%               | 140%  | 95%                | 60%               | 130%  | 111%         | 50%               | 140%  |
| Dibromochloromethane                               | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 93%                | 50%               | 140%  | 83%                | 60%               | 130%  | 96%          | 50%               | 140%  |
| Ethylene Dibromide                                 | 1281798 |           | <0.04     | <0.04  | NA  | < 0.04       | 98%                | 50%               | 140%  | 87%                | 60%               | 130%  | 88%          | 50%               | 140%  |
| Tetrachloroethylene                                | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 84%                | 50%               | 140%  | 98%                | 60%               | 130%  | 94%          | 50%               | 140%  |
| 1,1,1,2-Tetrachloroethane                          | 1281798 |           | <0.04     | <0.04  | NA  | < 0.04       | 110%               | 50%               | 140%  | 83%                | 60%               | 130%  | 99%          | 50%               | 140%  |
| Chlorobenzene                                      | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 83%                | 50%               | 140%  | 85%                | 60%               | 130%  | 94%          | 50%               | 140%  |
| Ethylbenzene                                       | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 110%               | 50%               | 140%  | 74%                | 60%               | 130%  | 95%          | 50%               | 140%  |
| m & p-Xylene                                       | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 99%                | 50%               | 140%  | 81%                | 60%               | 130%  | 95%          | 50%               | 140%  |
| Bromoform                                          | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 112%               | 50%               | 140%  | 73%                | 60%               | 130%  | 77%          | 50%               | 140%  |
| Styrene                                            | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 90%                | 50%               | 140%  | 78%                | 60%               | 130%  | 84%          | 50%               | 140%  |
| 1,1,2,2-Tetrachloroethane                          | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 107%               | 50%               | 140%  | 91%                | 60%               | 130%  | 85%          | 50%               | 140%  |
| o-Xylene                                           | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 114%               | 50%               | 140%  | 79%                | 60%               | 130%  | 85%          | 50%               | 140%  |
| 1,3-Dichlorobenzene                                | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 105%               | 50%               | 140%  | 82%                | 60%               | 130%  | 82%          | 50%               | 140%  |
| 1,4-Dichlorobenzene                                | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 117%               | 50%               | 140%  | 83%                | 60%               | 130%  | 79%          | 50%               | 140%  |
| 1,2-Dichlorobenzene                                | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 112%               | 50%               | 140%  | 78%                | 60%               | 130%  | 74%          | 50%               | 140%  |
| n-Hexane                                           | 1281798 |           | <0.05     | <0.05  | NA  | < 0.05       | 78%                | 50%               | 140%  | 100%               | 60%               | 130%  | 78%          | 50%               | 140%  |
| O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)     |         |           |           |        |     |              |                    |                   |       |                    |                   |       |              |                   |       |
| F2 (C10 to C16)                                    | 1281402 |           | < 10      | < 10   | NA  | < 10         | 74%                | 60%               | 140%  | 87%                | 60%               | 140%  | 78%          | 60%               | 140%  |
| F3 (C16 to C34)                                    | 1281402 |           | < 50      | < 50   | NA  | < 50         | 84%                | 60%               | 140%  | 85%                | 60%               | 140%  | 84%          | 60%               | 140%  |
| F4 (C34 to C50)                                    | 1281402 |           | < 50      | < 50   | NA  | < 50         | 75%                | 60%               | 140%  | 87%                | 60%               | 140%  | 76%          | 60%               | 140%  |
| O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil) |         |           |           |        |     |              |                    |                   |       |                    |                   |       |              |                   |       |
| Benzene                                            | 1281798 |           | < 0.02    | < 0.02 | NA  | < 0.02       | 104%               | 50%               | 140%  | 94%                | 60%               | 130%  | 82%          | 50%               | 140%  |
| Toluene                                            | 1281798 |           | < 0.05    | < 0.05 | NA  | < 0.05       | 101%               | 50%               | 140%  | 89%                | 60%               | 130%  | 92%          | 50%               | 140%  |
| Ethylbenzene                                       | 1281798 |           | < 0.05    | < 0.05 | NA  | < 0.05       | 107%               | 50%               | 140%  | 102%               | 60%               | 130%  | 107%         | 50%               | 140%  |
| Xylenes (Total)                                    | 1281798 |           | < 0.05    | < 0.05 | NA  | < 0.05       | 95%                | 50%               | 140%  | 96%                | 60%               | 130%  | 100%         | 50%               | 140%  |
| F1 (C6 to C10)                                     | 1281798 |           | < 5       | < 5    | NA  | < 5          | 91%                | 60%               | 140%  | 98%                | 60%               | 140%  | 108%         | 60%               | 140%  |
| Total PCBs (soil)                                  |         |           |           |        |     |              |                    |                   |       |                    |                   |       |              |                   |       |
| PCBs                                               | 1287275 |           | < 0.1     | < 0.1  | NA  | < 0.1        | 103%               | 60%               | 140%  | 89%                | 60%               | 140%  | 79%          | 60%               | 140%  |

Certified By:



## Method Summary

**CLIENT NAME: SIRATI & PARTNERS**
**PROJECT: SP20-666-00**
**SAMPLING SITE:**
**AGAT WORK ORDER: 20T626910**
**ATTENTION TO: Bujing Guan**
**SAMPLED BY:**

| PARAMETER                            | AGAT S.O.P   | LITERATURE REFERENCE                               | ANALYTICAL TECHNIQUE    |
|--------------------------------------|--------------|----------------------------------------------------|-------------------------|
| <b>Soil Analysis</b>                 |              |                                                    |                         |
| 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 Extractable)        | 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, Free                        | INOR-93-6052 | modified from ON MOECC E3015 and SM 4500-CN- I     | TECHNICON AUTO ANALYZER |
| Mercury                              | MET-93-6103  | modified from EPA 3050B and EPA 6020B and ON MOECC | ICP-MS                  |
| Electrical Conductivity (2:1)        | INOR-93-6036 | modified from MSA PART 3, CH 14 and SM 2510 B      | EC METER                |
| Sodium Adsorption Ratio              | INOR-93-6007 | McKeague 4.12 & 3.26 & EPA SW-846 6010C            | ICP/OES                 |
| pH, 2:1 CaCl <sub>2</sub> Extraction | INOR-93-6031 | modified from EPA 9045D and MCKEAGUE 3.11          | PH METER                |



## Method Summary

**CLIENT NAME: SIRATI & PARTNERS**
**PROJECT: SP20-666-00**
**SAMPLING SITE:**
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**ATTENTION TO: Bujing Guan**
**SAMPLED BY:**

| PARAMETER                         | AGAT S.O.P  | LITERATURE REFERENCE                         | ANALYTICAL TECHNIQUE |
|-----------------------------------|-------------|----------------------------------------------|----------------------|
| <b>Trace Organics Analysis</b>    |             |                                              |                      |
| Naphthalene                       | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Acenaphthylene                    | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Acenaphthene                      | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Fluorene                          | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Phenanthrene                      | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Anthracene                        | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Fluoranthene                      | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Pyrene                            | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Benz(a)anthracene                 | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Chrysene                          | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Benzo(b)fluoranthene              | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Benzo(k)fluoranthene              | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Benzo(a)pyrene                    | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Indeno(1,2,3-cd)pyrene            | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Dibenz(a,h)anthracene             | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Benzo(g,h,i)perylene              | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| 1 and 2 Methylnaphthalene         | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Moisture Content                  | ORG-91-5106 | Tier 1 Method                                | BALANCE              |
| Naphthalene-d8                    | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Acenaphthene-d10                  | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| Chrysene-d12                      | ORG-91-5106 | modified from EPA 3570 and EPA 8270E         | GC/MS                |
| F1 (C6 to C10)                    | VOL-91-5009 | modified from CCME Tier 1 Method, SW846 5035 | P&T GC/FID           |
| F1 (C6 to C10) minus BTEX         | VOL-91-5009 | modified from CCME Tier 1 Method, SW846 5035 | P&T GC/FID           |
| 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              |
| Moisture Content                  | VOL-91-5009 | modified from CCME Tier 1 Method             | BALANCE              |
| Terphenyl                         | VOL-91-5009 | modified from CCME Tier 1 Method             | GC/FID               |
| F1 (C6 to 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           |
| F2 (C10 to C16) minus Naphthalene | VOL-91-5009 | modified from CCME Tier 1 Method             | GC/FID               |

## Method Summary

**CLIENT NAME: SIRATI & PARTNERS**
**PROJECT: SP20-666-00**
**SAMPLING SITE:**
**AGAT WORK ORDER: 20T626910**
**ATTENTION TO: Bujing Guan**
**SAMPLED BY:**

| PARAMETER                   | AGAT S.O.P  | LITERATURE REFERENCE                   | ANALYTICAL TECHNIQUE |
|-----------------------------|-------------|----------------------------------------|----------------------|
| F3 (C16 to C34)             | VOL-91-5009 | modified from CCME Tier 1 Method       | GC/FID               |
| F3 (C16 to C34) minus PAHs  | VOL-91-5009 | modified from CCME Tier 1 Method       | GC/FID               |
| Benzene                     | VOL-91-5009 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Toluene                     | VOL-91-5009 | modified from EPA SW-846 5035C & 8260D | P&T GC/MS            |
| Ethylbenzene                | VOL-91-5009 | modified from EPA SW-846 5035C & 8260D | P&T GC/MS            |
| Xylenes (Total)             | VOL-91-5009 | modified from EPA SW-846 5035C & 8260D | P&T GC/MS            |
| Dichlorodifluoromethane     | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Vinyl Chloride              | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Bromomethane                | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Trichlorofluoromethane      | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Acetone                     | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| 1,1-Dichloroethylene        | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Methylene Chloride          | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Trans- 1,2-Dichloroethylene | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Methyl tert-butyl Ether     | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| 1,1-Dichloroethane          | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Methyl Ethyl Ketone         | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Cis- 1,2-Dichloroethylene   | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Chloroform                  | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| 1,2-Dichloroethane          | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| 1,1,1-Trichloroethane       | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Carbon Tetrachloride        | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Benzene                     | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| 1,2-Dichloropropane         | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Trichloroethylene           | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Bromodichloromethane        | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Methyl Isobutyl Ketone      | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| 1,1,2-Trichloroethane       | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |
| Toluene                     | VOL-91-5002 | modified from EPA 5035C and EPA 8260D  | (P&T)GC/MS           |

## Method Summary

**CLIENT NAME: SIRATI & PARTNERS**
**PROJECT: SP20-666-00**
**SAMPLING SITE:**
**AGAT WORK ORDER: 20T626910**
**ATTENTION TO: Bujing Guan**
**SAMPLED BY:**

| PARAMETER                         | AGAT S.O.P  | LITERATURE REFERENCE                  | ANALYTICAL TECHNIQUE |
|-----------------------------------|-------------|---------------------------------------|----------------------|
| Dibromochloromethane              | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Ethylene Dibromide                | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Tetrachloroethylene               | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| 1,1,1,2-Tetrachloroethane         | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Chlorobenzene                     | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Ethylbenzene                      | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| m & p-Xylene                      | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Bromoform                         | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Styrene                           | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| 1,1,2,2-Tetrachloroethane         | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| o-Xylene                          | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| 1,3-Dichlorobenzene               | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| 1,4-Dichlorobenzene               | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| 1,2-Dichlorobenzene               | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Xylenes (Total)                   | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| 1,3-Dichloropropene (Cis + Trans) | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| n-Hexane                          | VOL-91-5002 | modified from EPA 5035C and EPA 8260D | (P&T)GC/MS           |
| Toluene-d8                        | VOL-91-5002 | modified from EPA 5030B & EPA 8260D   | (P&T)GC/MS           |
| 4-Bromofluorobenzene              | VOL-91-5002 | modified from EPA 5030B & EPA 8260D   | (P&T)GC/MS           |
| PCBs                              | ORG-91-5113 | modified from EPA SW-846 3541 & 8082  | GC/ECD               |
| Decachlorobiphenyl                | ORG-91-5113 | modified from EPA SW-846 3541 & 8082  | GC/ECD               |
| Moisture Content                  |             | Tier 1 method                         | BALANCE              |





# APPENDIX F

**CLIENT NAME: SIRATI & PARTNERS**  
**12700 KEELE STREET**  
**KING CITY, ON L7B1H5**  
**(905) 669**

**ATTENTION TO: Bujing Guan**

**PROJECT: SP20-666-00**

**AGAT WORK ORDER: 20T630332**

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

**WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer**

**DATE REPORTED: Aug 05, 2020**

**PAGES (INCLUDING COVER): 23**

**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 following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.
- 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.



# AGAT Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 20T630332

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

### O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

|                            |      | SAMPLE DESCRIPTION: |      | MW2        | MW3         | MW6        |
|----------------------------|------|---------------------|------|------------|-------------|------------|
|                            |      | SAMPLE TYPE:        |      | Water      | Water       | Water      |
|                            |      | DATE SAMPLED:       |      | 2020-07-27 | 2020-07-27  | 2020-07-27 |
| Parameter                  | Unit | G / S               | RDL  | 1303508    | 1303511     | 1303512    |
| Naphthalene                | µg/L | 11                  | 0.20 | <0.20      | <0.20       | <0.20      |
| Acenaphthylene             | µg/L | 1                   | 0.20 | <0.20      | <0.20       | <0.20      |
| Acenaphthene               | µg/L | 4.1                 | 0.20 | <0.20      | <0.20       | <0.20      |
| Fluorene                   | µg/L | 120                 | 0.20 | <0.20      | <0.20       | <0.20      |
| Phenanthrene               | µg/L | 1                   | 0.10 | 0.51       | <0.10       | <0.10      |
| Anthracene                 | µg/L | 2.4                 | 0.10 | <0.10      | <0.10       | <0.10      |
| Fluoranthene               | µg/L | 0.41                | 0.20 | 0.39       | 0.22        | <0.20      |
| Pyrene                     | µg/L | 4.1                 | 0.20 | 0.28       | <0.20       | <0.20      |
| Benzo(a)anthracene         | µg/L | 1                   | 0.20 | <0.20      | <0.20       | <0.20      |
| Chrysene                   | µg/L | 0.1                 | 0.10 | <0.10      | <0.10       | <0.10      |
| Benzo(b)fluoranthene       | µg/L | 0.1                 | 0.10 | <0.10      | <0.10       | <0.10      |
| Benzo(k)fluoranthene       | µg/L | 0.1                 | 0.10 | <0.10      | <0.10       | <0.10      |
| Benzo(a)pyrene             | µg/L | 0.01                | 0.01 | <0.01      | <b>0.04</b> | <0.01      |
| Indeno(1,2,3-cd)pyrene     | µg/L | 0.2                 | 0.20 | <0.20      | <0.20       | <0.20      |
| Dibenz(a,h)anthracene      | µg/L | 0.2                 | 0.20 | <0.20      | <0.20       | <0.20      |
| Benzo(g,h,i)perylene       | µg/L | 0.2                 | 0.20 | <0.20      | <0.20       | <0.20      |
| 2-and 1-methyl Naphthalene | µg/L | 3.2                 | 0.20 | <0.20      | <0.20       | <0.20      |
| Sediment                   |      |                     |      | Trace      | Yes         | NO         |
| Surrogate                  | Unit | Acceptable Limits   |      |            |             |            |
| Naphthalene-d8             | %    | 50-140              |      |            |             |            |
| Acenaphthene-d10           | %    | 50-140              |      |            |             |            |
| Chrysene-d12               | %    | 50-140              |      |            |             |            |

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PROJECT: SP20-666-00

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FAX (905)712-5122  
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ATTENTION TO: Bujing Guan

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### O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

**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.

**1303508** Sediment present in sample.  
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.  
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.  
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

**1303511** Sample decanted due to sediment.  
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.  
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.  
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

**1303512** Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.  
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.  
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

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TEL (905)712-5100  
FAX (905)712-5122  
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### O. Reg. 153(511) - PHCs F1 - F4 (Water)

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

| SAMPLE DESCRIPTION: MW7        |      |                   |      |         |
|--------------------------------|------|-------------------|------|---------|
| SAMPLE TYPE: Water             |      |                   |      |         |
| DATE SAMPLED: 2020-07-27       |      |                   |      |         |
| Parameter                      | Unit | G / S             | RDL  | 1303516 |
| 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   |
| 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     |
| 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                       |      |                   |      | No      |
| Surrogate                      | Unit | Acceptable Limits |      |         |
| Terphenyl                      | %    | 60-140            |      | 79      |

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

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

**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.

**1303516** 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 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.

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FAX (905)712-5122  
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### O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

|                                   |      | SAMPLE DESCRIPTION: |     | MW2        | MW3        | MW6        |
|-----------------------------------|------|---------------------|-----|------------|------------|------------|
|                                   |      | SAMPLE TYPE:        |     | Water      | Water      | Water      |
|                                   |      | DATE SAMPLED:       |     | 2020-07-27 | 2020-07-27 | 2020-07-27 |
| Parameter                         | Unit | G / S               | RDL | 1303508    | 1303511    | 1303512    |
| F1 (C6-C10)                       | µg/L | 750                 | 25  | <25        | <25        | <25        |
| F1 (C6 to C10) minus BTEX         | µg/L | 750                 | 25  | <25        | <25        | <25        |
| F2 (C10 to C16)                   | µg/L | 150                 | 100 | <100       | <100       | <100       |
| F2 (C10 to C16) minus Naphthalene | µg/L |                     | 100 | <100       | <100       | <100       |
| F3 (C16 to C34)                   | µg/L | 500                 | 100 | <100       | <100       | <100       |
| F3 (C16 to C34) minus PAHs        | µg/L |                     | 100 | <100       | <100       | <100       |
| F4 (C34 to C50)                   | µg/L | 500                 | 100 | <100       | <100       | <100       |
| Gravimetric Heavy Hydrocarbons    | µg/L |                     | 500 | NA         | NA         | NA         |
| Sediment                          |      |                     |     | Trace      | Yes        | No         |
| Surrogate                         | Unit | Acceptable Limits   |     |            |            |            |
| Terphenyl                         | %    | 60-140              |     |            |            |            |

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FAX (905)712-5122  
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ATTENTION TO: Bujing Guan

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

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

**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.

1303508

Sediment present in sample.

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 and PAH contributions.

C>10 - C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.

C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

1303511

Sample decanted due to sediment.

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 and PAH contributions.

C>10 - C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.

C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

1303512

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.

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FAX (905)712-5122  
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ATTENTION TO: Bujing Guan

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

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

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

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

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TEL (905)712-5100  
FAX (905)712-5122  
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### O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

|                             |      | SAMPLE DESCRIPTION: |             | MW2        | MW3        | MW6        | Trip Blank |         |
|-----------------------------|------|---------------------|-------------|------------|------------|------------|------------|---------|
|                             |      | SAMPLE TYPE:        |             | Water      | Water      | Water      | Water      |         |
|                             |      | DATE SAMPLED:       |             | 2020-07-27 | 2020-07-27 | 2020-07-27 | 2020-07-27 |         |
| Parameter                   | Unit | G / S               | RDL         | 1303508    | 1303511    | 1303512    | RDL        | 1303599 |
| Dichlorodifluoromethane     | µg/L | 590                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Vinyl Chloride              | µg/L | 0.5                 | <b>0.68</b> | <0.68      | <0.68      | <0.68      | 0.17       | <0.17   |
| Bromomethane                | µg/L | 0.89                | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Trichlorofluoromethane      | µg/L | 150                 | 1.60        | <1.60      | <1.60      | <1.60      | 0.40       | <0.40   |
| Acetone                     | µg/L | 2700                | 4.0         | <4.0       | <4.0       | <4.0       | 1.0        | <1.0    |
| 1,1-Dichloroethylene        | µg/L | 1.6                 | 1.20        | <1.20      | <1.20      | <1.20      | 0.30       | <0.30   |
| Methylene Chloride          | µg/L | 50                  | 1.20        | <1.20      | <1.20      | <1.20      | 0.30       | <0.30   |
| trans- 1,2-Dichloroethylene | µg/L | 1.6                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Methyl tert-butyl ether     | µg/L | 15                  | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| 1,1-Dichloroethane          | µg/L | 5                   | 1.20        | <1.20      | <1.20      | <1.20      | 0.30       | <0.30   |
| Methyl Ethyl Ketone         | µg/L | 1800                | 4.0         | <4.0       | <4.0       | <4.0       | 1.0        | <1.0    |
| cis- 1,2-Dichloroethylene   | µg/L | 1.6                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Chloroform                  | µg/L | 2.4                 | 0.80        | <0.80      | <0.80      | <b>4.5</b> | 0.20       | <0.20   |
| 1,2-Dichloroethane          | µg/L | 1.6                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| 1,1,1-Trichloroethane       | µg/L | 200                 | 1.20        | <1.20      | <1.20      | <1.20      | 0.30       | <0.30   |
| Carbon Tetrachloride        | µg/L | 0.79                | <b>0.80</b> | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Benzene                     | µg/L | 5.0                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| 1,2-Dichloropropane         | µg/L | 5                   | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Trichloroethylene           | µg/L | 1.6                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Bromodichloromethane        | µg/L | 16                  | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Methyl Isobutyl Ketone      | µg/L | 640                 | 4.0         | <4.0       | <4.0       | <4.0       | 1.0        | <1.0    |
| 1,1,2-Trichloroethane       | µg/L | 4.7                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Toluene                     | µg/L | 24                  | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Dibromochloromethane        | µg/L | 25                  | 0.40        | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| Ethylene Dibromide          | µg/L | 0.2                 | <b>0.40</b> | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| Tetrachloroethylene         | µg/L | 1.6                 | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| 1,1,1,2-Tetrachloroethane   | µg/L | 1.1                 | 0.40        | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| Chlorobenzene               | µg/L | 30                  | 0.40        | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| Ethylbenzene                | µg/L | 2.4                 | 0.40        | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| m & p-Xylene                | µg/L |                     | 0.80        | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |

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CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
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SAMPLING SITE:

ATTENTION TO: Bujing Guan

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

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

|                           |            | SAMPLE DESCRIPTION: |      | MW2        | MW3        | MW6        | Trip Blank |         |
|---------------------------|------------|---------------------|------|------------|------------|------------|------------|---------|
|                           |            | SAMPLE TYPE:        |      | Water      | Water      | Water      | Water      |         |
|                           |            | DATE SAMPLED:       |      | 2020-07-27 | 2020-07-27 | 2020-07-27 | 2020-07-27 |         |
| Parameter                 | Unit       | G / S               | RDL  | 1303508    | 1303511    | 1303512    | RDL        | 1303599 |
| Bromoform                 | µg/L       | 25                  | 0.40 | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| Styrene                   | µg/L       | 5.4                 | 0.40 | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| 1,1,2,2-Tetrachloroethane | µg/L       | 1                   | 0.40 | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| o-Xylene                  | µg/L       |                     | 0.40 | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| 1,3-Dichlorobenzene       | µg/L       | 59                  | 0.40 | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| 1,4-Dichlorobenzene       | µg/L       | 1                   | 0.40 | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| 1,2-Dichlorobenzene       | µg/L       | 3                   | 0.40 | <0.40      | <0.40      | <0.40      | 0.10       | <0.10   |
| 1,3-Dichloropropene       | µg/L       | 0.5                 | 0.30 | <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       | <0.20   |
| n-Hexane                  | µg/L       | 51                  | 0.80 | <0.80      | <0.80      | <0.80      | 0.20       | <0.20   |
| Surrogate                 | Unit       | Acceptable Limits   |      |            |            |            |            |         |
| Toluene-d8                | % Recovery | 50-140              |      | 118        | 116        | 116        | 1          | 116     |
| 4-Bromofluorobenzene      | % Recovery | 50-140              |      | 77         | 75         | 76         | 1          | 78      |

**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.

**1303508-1303512**

Dilution factor=4

The sample was diluted because it was foamy. The reporting detection limit has been corrected for the dilution factor used.

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.

**1303599**

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 \*)

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## Certificate of Analysis

AGAT WORK ORDER: 20T630332

PROJECT: SP20-666-00

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FAX (905)712-5122  
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CLIENT NAME: SIRATI & PARTNERS

SAMPLING SITE:

ATTENTION TO: Bujing Guan

SAMPLED BY:

### Total PCBs (water)

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

|                    |      |                     |     |            |
|--------------------|------|---------------------|-----|------------|
|                    |      | SAMPLE DESCRIPTION: |     | MW6        |
|                    |      | SAMPLE TYPE:        |     | Water      |
|                    |      | DATE SAMPLED:       |     | 2020-07-27 |
| Parameter          | Unit | G / S               | RDL | 1303512    |
| PCBs               | µg/L | 3                   | 0.1 | <0.1       |
| Surrogate          | Unit | Acceptable Limits   |     |            |
| Decachlorobiphenyl | %    | 60-130              |     | 119        |

**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.

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MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
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FAX (905)712-5122  
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CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

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

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

| Parameter               | Unit     | SAMPLE DESCRIPTION: |       | MW2        |       | MW3        |       | MW6        |  |
|-------------------------|----------|---------------------|-------|------------|-------|------------|-------|------------|--|
|                         |          | SAMPLE TYPE:        |       | Water      |       | Water      |       | Water      |  |
|                         |          | DATE SAMPLED:       |       | 2020-07-27 |       | 2020-07-27 |       | 2020-07-27 |  |
|                         |          | G / S               | RDL   | 1303508    | RDL   | 1303511    | RDL   | 1303512    |  |
| Dissolved Antimony      | µg/L     | 6                   | 2.0   | 2.2        | 2.0   | <2.0       | 2.0   | <2.0       |  |
| Dissolved Arsenic       | µg/L     | 25                  | 2.0   | <2.0       | 2.0   | <2.0       | 2.0   | 2.2        |  |
| Dissolved Barium        | µg/L     | 1000                | 4.0   | 1800       | 4.0   | 621        | 4.0   | 797        |  |
| Dissolved Beryllium     | µg/L     | 4                   | 1.00  | <1.00      | 1.00  | <1.00      | 1.00  | <1.00      |  |
| Dissolved Boron         | µg/L     | 5000                | 20.0  | 40.5       | 20.0  | 52.7       | 20.0  | 36.5       |  |
| Dissolved Cadmium       | µg/L     | 2.7                 | 0.40  | <0.40      | 0.40  | <0.40      | 0.40  | <0.40      |  |
| Dissolved Chromium      | µg/L     | 50                  | 4.0   | 9.8        | 4.0   | 7.1        | 4.0   | 7.6        |  |
| Dissolved Cobalt        | µg/L     | 3.8                 | 1.00  | 2.95       | 1.00  | 2.40       | 1.00  | 3.89       |  |
| Dissolved Copper        | µg/L     | 87                  | 2.0   | 8.5        | 2.0   | 6.0        | 2.0   | 5.0        |  |
| Dissolved Lead          | µg/L     | 10                  | 1.00  | <1.00      | 1.00  | <1.00      | 1.00  | <1.00      |  |
| Dissolved Molybdenum    | µg/L     | 70                  | 1.00  | 1.05       | 1.00  | <1.00      | 1.00  | <1.00      |  |
| Dissolved Nickel        | µg/L     | 100                 | 6.0   | <6.0       | 6.0   | <6.0       | 6.0   | <6.0       |  |
| Dissolved Selenium      | µg/L     | 10                  | 2.0   | <2.0       | 2.0   | 5.4        | 2.0   | <2.0       |  |
| Dissolved Silver        | µg/L     | 1.5                 | 0.40  | 1.90       | 0.40  | <0.40      | 0.40  | <0.40      |  |
| Dissolved Thallium      | µg/L     | 2                   | 0.60  | <0.60      | 0.60  | <0.60      | 0.60  | <0.60      |  |
| Dissolved Uranium       | µg/L     | 20                  | 1.00  | 1.18       | 1.00  | 1.72       | 1.00  | 3.56       |  |
| Dissolved Vanadium      | µg/L     | 6.2                 | 0.80  | <0.80      | 0.80  | <0.80      | 0.80  | <0.80      |  |
| Dissolved Zinc          | µg/L     | 1100                | 10.0  | <10.0      | 10.0  | <10.0      | 10.0  | 18.3       |  |
| Mercury                 | µg/L     | 0.29                | 0.02  | <0.02      | 0.02  | <0.02      | 0.02  | <0.02      |  |
| Chromium VI             | µg/L     | 25                  | 5     | <5         | 5     | <5         | 5     | <5         |  |
| Cyanide, Free           | µg/L     | 66                  | 2     | 12         | 2     | <2         | 2     | <2         |  |
| Dissolved Sodium        | µg/L     | 490000              | 5000  | 7720000    | 5000  | 3570000    | 5000  | 2320000    |  |
| Chloride                | µg/L     | 790000              | 50000 | 14500000   | 20000 | 7680000    | 10000 | 5940000    |  |
| Electrical Conductivity | µS/cm    | NA                  | 2     | 28800      | 2     | 17100      | 2     | 12900      |  |
| pH                      | pH Units |                     | NA    | 7.61       | NA    | 7.66       | NA    | 7.60       |  |

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*Nvine Baskin*



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## Certificate of Analysis

AGAT WORK ORDER: 20T630332

PROJECT: SP20-666-00

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FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SIRATI & PARTNERS

SAMPLING SITE:

ATTENTION TO: Bujing Guan

SAMPLED BY:

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

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

**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.

**1303508-1303512** Metals analysis completed on a filtered sample.

Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by \*)

**Certified By:**



*Nivine Basly*



## Certificate of Analysis

AGAT WORK ORDER: 20T630332

PROJECT: SP20-666-00

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MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
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CLIENT NAME: SIRATI & PARTNERS

ATTENTION TO: Bujing Guan

SAMPLING SITE:

SAMPLED BY:

### O. Reg. 153(511) - Metals (Including Hydrides) (Water)

DATE RECEIVED: 2020-07-27

DATE REPORTED: 2020-08-05

|                      |      | SAMPLE DESCRIPTION: |      | DUP-0727   |
|----------------------|------|---------------------|------|------------|
|                      |      | SAMPLE TYPE:        |      | Water      |
|                      |      | DATE SAMPLED:       |      | 2020-07-27 |
| Parameter            | Unit | G / S               | RDL  | 1303596    |
| Dissolved Antimony   | µg/L | 6                   | 2.0  | <2.0       |
| Dissolved Arsenic    | µg/L | 25                  | 2.0  | <2.0       |
| Dissolved Barium     | µg/L | 1000                | 4.0  | 561        |
| Dissolved Beryllium  | µg/L | 4                   | 1.00 | <1.00      |
| Dissolved Boron      | µg/L | 5000                | 20.0 | 34.0       |
| Dissolved Cadmium    | µg/L | 2.7                 | 0.40 | <0.40      |
| Dissolved Chromium   | µg/L | 50                  | 4.0  | 7.9        |
| Dissolved Cobalt     | µg/L | 3.8                 | 1.00 | 1.91       |
| Dissolved Copper     | µg/L | 87                  | 2.0  | 3.9        |
| Dissolved Lead       | µg/L | 10                  | 1.00 | <1.00      |
| Dissolved Molybdenum | µg/L | 70                  | 1.00 | <1.00      |
| Dissolved Nickel     | µg/L | 100                 | 6.0  | <6.0       |
| Dissolved Selenium   | µg/L | 10                  | 2.0  | 4.1        |
| Dissolved Silver     | µg/L | 1.5                 | 0.40 | <0.40      |
| Dissolved Thallium   | µg/L | 2                   | 0.60 | <0.60      |
| Dissolved Uranium    | µg/L | 20                  | 1.00 | 1.32       |
| Dissolved Vanadium   | µg/L | 6.2                 | 0.80 | <0.80      |
| Dissolved Zinc       | µg/L | 1100                | 10.0 | <10.0      |

**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.

**1303596** Metals analysis completed on a filtered sample.

Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by \*)

**Certified By:**



*Nivine Basly*

**AGAT**

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## Guideline Violation

AGAT WORK ORDER: 20T630332

PROJECT: SP20-666-00

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

CLIENT NAME: SIRATI &amp; PARTNERS

ATTENTION TO: Bujing Guan

| SAMPLEID | SAMPLE TITLE | GUIDELINE    | ANALYSIS PACKAGE                               | PARAMETER        | UNIT | GUIDEVALUE | RESULT   |
|----------|--------------|--------------|------------------------------------------------|------------------|------|------------|----------|
| 1303508  | MW2          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Chloride         | µg/L | 790000     | 14500000 |
| 1303508  | MW2          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Dissolved Barium | µg/L | 1000       | 1800     |
| 1303508  | MW2          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Dissolved Silver | µg/L | 1.5        | 1.90     |
| 1303508  | MW2          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Dissolved Sodium | µg/L | 490000     | 7720000  |
| 1303511  | MW3          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Chloride         | µg/L | 790000     | 7680000  |
| 1303511  | MW3          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Dissolved Sodium | µg/L | 490000     | 3570000  |
| 1303511  | MW3          | ON T2 PGW CT | O. Reg. 153(511) - PAHs (Water)                | Benzo(a)pyrene   | µg/L | 0.01       | 0.04     |
| 1303512  | MW6          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Chloride         | µg/L | 790000     | 5940000  |
| 1303512  | MW6          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Dissolved Cobalt | µg/L | 3.8        | 3.89     |
| 1303512  | MW6          | ON T2 PGW CT | O. Reg. 153(511) - Metals & Inorganics (Water) | Dissolved Sodium | µg/L | 490000     | 2320000  |
| 1303512  | MW6          | ON T2 PGW CT | O. Reg. 153(511) - VOCs (Water)                | Chloroform       | µg/L | 2.4        | 4.5      |



## Quality Assurance

CLIENT NAME: SIRATI &amp; PARTNERS

PROJECT: SP20-666-00

SAMPLING SITE:

AGAT WORK ORDER: 20T630332

ATTENTION TO: Bujing Guan

SAMPLED BY:

### Trace Organics Analysis

| RPT Date: Aug 05, 2020          |         |           | DUPLICATE |        |     | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
|---------------------------------|---------|-----------|-----------|--------|-----|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| PARAMETER                       | Batch   | Sample Id | Dup #1    | Dup #2 | RPD |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                                 |         |           |           |        |     |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| O. Reg. 153(511) - VOCs (Water) |         |           |           |        |     |              |                    |                   |       |                    |                   |       |              |                   |       |
| Dichlorodifluoromethane         | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 96%                | 50%               | 140%  | 96%                | 50%               | 140%  | 109%         | 50%               | 140%  |
| Vinyl Chloride                  | 1302412 |           | <0.17     | <0.17  | NA  | < 0.17       | 106%               | 50%               | 140%  | 106%               | 50%               | 140%  | 111%         | 50%               | 140%  |
| Bromomethane                    | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 114%               | 50%               | 140%  | 116%               | 50%               | 140%  | 106%         | 50%               | 140%  |
| Trichlorofluoromethane          | 1302412 |           | <0.40     | <0.40  | NA  | < 0.40       | 112%               | 50%               | 140%  | 111%               | 50%               | 140%  | 91%          | 50%               | 140%  |
| Acetone                         | 1302412 |           | <1.0      | <1.0   | NA  | < 1.0        | 107%               | 50%               | 140%  | 100%               | 50%               | 140%  | 98%          | 50%               | 140%  |
| 1,1-Dichloroethylene            | 1302412 |           | <0.30     | <0.30  | NA  | < 0.30       | 108%               | 50%               | 140%  | 91%                | 60%               | 130%  | 102%         | 50%               | 140%  |
| Methylene Chloride              | 1302412 |           | <0.30     | <0.30  | NA  | < 0.30       | 98%                | 50%               | 140%  | 89%                | 60%               | 130%  | 92%          | 50%               | 140%  |
| trans- 1,2-Dichloroethylene     | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 110%               | 50%               | 140%  | 87%                | 60%               | 130%  | 93%          | 50%               | 140%  |
| Methyl tert-butyl ether         | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 76%                | 50%               | 140%  | 88%                | 60%               | 130%  | 73%          | 50%               | 140%  |
| 1,1-Dichloroethane              | 1302412 |           | 1.2       | 1.2    | NA  | < 0.30       | 100%               | 50%               | 140%  | 99%                | 60%               | 130%  | 87%          | 50%               | 140%  |
| Methyl Ethyl Ketone             | 1302412 |           | <1.0      | <1.0   | NA  | < 1.0        | 96%                | 50%               | 140%  | 93%                | 50%               | 140%  | 89%          | 50%               | 140%  |
| cis- 1,2-Dichloroethylene       | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 94%                | 50%               | 140%  | 99%                | 60%               | 130%  | 94%          | 50%               | 140%  |
| Chloroform                      | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 105%               | 50%               | 140%  | 99%                | 60%               | 130%  | 92%          | 50%               | 140%  |
| 1,2-Dichloroethane              | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 106%               | 50%               | 140%  | 92%                | 60%               | 130%  | 87%          | 50%               | 140%  |
| 1,1,1-Trichloroethane           | 1302412 |           | <0.30     | <0.30  | NA  | < 0.30       | 91%                | 50%               | 140%  | 89%                | 60%               | 130%  | 73%          | 50%               | 140%  |
| Carbon Tetrachloride            | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 96%                | 50%               | 140%  | 95%                | 60%               | 130%  | 83%          | 50%               | 140%  |
| Benzene                         | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 103%               | 50%               | 140%  | 104%               | 60%               | 130%  | 104%         | 50%               | 140%  |
| 1,2-Dichloropropane             | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 86%                | 50%               | 140%  | 96%                | 60%               | 130%  | 109%         | 50%               | 140%  |
| Trichloroethylene               | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 118%               | 50%               | 140%  | 112%               | 60%               | 130%  | 76%          | 50%               | 140%  |
| Bromodichloromethane            | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 96%                | 50%               | 140%  | 96%                | 60%               | 130%  | 94%          | 50%               | 140%  |
| Methyl Isobutyl Ketone          | 1302412 |           | <1.0      | <1.0   | NA  | < 1.0        | 94%                | 50%               | 140%  | 89%                | 50%               | 140%  | 105%         | 50%               | 140%  |
| 1,1,2-Trichloroethane           | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 99%                | 50%               | 140%  | 108%               | 60%               | 130%  | 109%         | 50%               | 140%  |
| Toluene                         | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 112%               | 50%               | 140%  | 108%               | 60%               | 130%  | 102%         | 50%               | 140%  |
| Dibromochloromethane            | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 99%                | 50%               | 140%  | 101%               | 60%               | 130%  | 103%         | 50%               | 140%  |
| Ethylene Dibromide              | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 91%                | 50%               | 140%  | 96%                | 60%               | 130%  | 96%          | 50%               | 140%  |
| Tetrachloroethylene             | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 108%               | 50%               | 140%  | 111%               | 60%               | 130%  | 80%          | 50%               | 140%  |
| 1,1,1,2-Tetrachloroethane       | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 100%               | 50%               | 140%  | 102%               | 60%               | 130%  | 102%         | 50%               | 140%  |
| Chlorobenzene                   | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 103%               | 50%               | 140%  | 98%                | 60%               | 130%  | 98%          | 50%               | 140%  |
| Ethylbenzene                    | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 91%                | 50%               | 140%  | 116%               | 60%               | 130%  | 82%          | 50%               | 140%  |
| m & p-Xylene                    | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 108%               | 50%               | 140%  | 106%               | 60%               | 130%  | 106%         | 50%               | 140%  |
| Bromoform                       | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 87%                | 50%               | 140%  | 94%                | 60%               | 130%  | 96%          | 50%               | 140%  |
| Styrene                         | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 93%                | 50%               | 140%  | 93%                | 60%               | 130%  | 74%          | 50%               | 140%  |
| 1,1,2,2-Tetrachloroethane       | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 94%                | 50%               | 140%  | 89%                | 60%               | 130%  | 107%         | 50%               | 140%  |
| o-Xylene                        | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 96%                | 50%               | 140%  | 92%                | 60%               | 130%  | 76%          | 50%               | 140%  |
| 1,3-Dichlorobenzene             | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 111%               | 50%               | 140%  | 110%               | 60%               | 130%  | 98%          | 50%               | 140%  |
| 1,4-Dichlorobenzene             | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 92%                | 50%               | 140%  | 114%               | 60%               | 130%  | 90%          | 50%               | 140%  |
| 1,2-Dichlorobenzene             | 1302412 |           | <0.10     | <0.10  | NA  | < 0.10       | 100%               | 50%               | 140%  | 109%               | 60%               | 130%  | 100%         | 50%               | 140%  |
| n-Hexane                        | 1302412 |           | <0.20     | <0.20  | NA  | < 0.20       | 116%               | 50%               | 140%  | 92%                | 60%               | 130%  | 85%          | 50%               | 140%  |

## Quality Assurance

CLIENT NAME: SIRATI &amp; PARTNERS

PROJECT: SP20-666-00

SAMPLING SITE:

AGAT WORK ORDER: 20T630332

ATTENTION TO: Bujing Guan

SAMPLED BY:

### Trace Organics Analysis (Continued)

| RPT Date: Aug 05, 2020 |       |           | DUPLICATE |        |     | Method Blank | REFERENCE MATERIAL |                   | METHOD BLANK SPIKE |          | MATRIX SPIKE      |       |          |                   |       |
|------------------------|-------|-----------|-----------|--------|-----|--------------|--------------------|-------------------|--------------------|----------|-------------------|-------|----------|-------------------|-------|
| PARAMETER              | Batch | Sample Id | Dup #1    | Dup #2 | RPD |              | Measured Value     | Acceptable Limits |                    | Recovery | Acceptable Limits |       | Recovery | Acceptable Limits |       |
|                        |       |           |           |        |     |              |                    | Lower             | Upper              |          | Lower             | Upper |          | Lower             | Upper |

#### O. Reg. 153(511) - PAHs (Water)

|                        |         |  |        |        |    |        |     |     |      |     |     |      |     |     |      |
|------------------------|---------|--|--------|--------|----|--------|-----|-----|------|-----|-----|------|-----|-----|------|
| Naphthalene            | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 74% | 50% | 140% | 87% | 50% | 140% | 78% | 50% | 140% |
| Acenaphthylene         | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 85% | 50% | 140% | 85% | 50% | 140% | 84% | 50% | 140% |
| Acenaphthene           | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 84% | 50% | 140% | 86% | 50% | 140% | 85% | 50% | 140% |
| Fluorene               | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 75% | 50% | 140% | 84% | 50% | 140% | 86% | 50% | 140% |
| Phenanthrene           | 1303925 |  | < 0.10 | < 0.10 | NA | < 0.10 | 86% | 50% | 140% | 86% | 50% | 140% | 84% | 50% | 140% |
| Anthracene             | 1303925 |  | < 0.10 | < 0.10 | NA | < 0.10 | 84% | 50% | 140% | 85% | 50% | 140% | 85% | 50% | 140% |
| Fluoranthene           | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 75% | 50% | 140% | 84% | 50% | 140% | 86% | 50% | 140% |
| Pyrene                 | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 85% | 50% | 140% | 85% | 50% | 140% | 84% | 50% | 140% |
| Benzo(a)anthracene     | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 84% | 50% | 140% | 86% | 50% | 140% | 78% | 50% | 140% |
| Chrysene               | 1303925 |  | < 0.10 | < 0.10 | NA | < 0.10 | 78% | 50% | 140% | 84% | 50% | 140% | 86% | 50% | 140% |
| Benzo(b)fluoranthene   | 1303925 |  | < 0.10 | < 0.10 | NA | < 0.10 | 86% | 50% | 140% | 86% | 50% | 140% | 84% | 50% | 140% |
| Benzo(k)fluoranthene   | 1303925 |  | < 0.10 | < 0.10 | NA | < 0.10 | 85% | 50% | 140% | 84% | 50% | 140% | 85% | 50% | 140% |
| Benzo(a)pyrene         | 1303925 |  | < 0.01 | < 0.01 | NA | < 0.01 | 84% | 50% | 140% | 87% | 50% | 140% | 86% | 50% | 140% |
| Indeno(1,2,3-cd)pyrene | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 85% | 50% | 140% | 85% | 50% | 140% | 84% | 50% | 140% |
| Dibenz(a,h)anthracene  | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 86% | 50% | 140% | 87% | 50% | 140% | 87% | 50% | 140% |
| Benzo(g,h,i)perylene   | 1303925 |  | < 0.20 | < 0.20 | NA | < 0.20 | 84% | 50% | 140% |     | 50% | 140% | 83% | 50% | 140% |

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

|                 |         |         |       |       |    |       |      |     |      |      |     |      |     |     |      |
|-----------------|---------|---------|-------|-------|----|-------|------|-----|------|------|-----|------|-----|-----|------|
| F1 (C6-C10)     | 1303516 | 1303516 | < 25  | < 25  | NA | < 25  | 105% | 60% | 140% | 122% | 60% | 140% | 91% | 60% | 140% |
| F2 (C10 to C16) | 1308694 |         | < 100 | < 100 | NA | < 100 | 104% | 60% | 140% | 72%  | 60% | 140% | 80% | 60% | 140% |
| F3 (C16 to C34) | 1308694 |         | < 100 | < 100 | NA | < 100 | 92%  | 60% | 140% | 85%  | 60% | 140% | 88% | 60% | 140% |
| F4 (C34 to C50) | 1308694 |         | < 100 | < 100 | NA | < 100 | 86%  | 60% | 140% | 82%  | 60% | 140% | 95% | 60% | 140% |

#### Total PCBs (water)

|      |         |  |       |       |    |       |      |     |      |     |     |      |      |     |      |
|------|---------|--|-------|-------|----|-------|------|-----|------|-----|-----|------|------|-----|------|
| PCBs | 1298247 |  | < 0.1 | < 0.1 | NA | < 0.1 | 103% | 60% | 140% | 94% | 60% | 140% | 108% | 60% | 140% |
|------|---------|--|-------|-------|----|-------|------|-----|------|-----|-----|------|------|-----|------|

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

|                 |         |         |        |        |    |        |      |     |      |      |     |      |     |     |      |
|-----------------|---------|---------|--------|--------|----|--------|------|-----|------|------|-----|------|-----|-----|------|
| Benzene         | 1303516 | 1303516 | < 0.20 | < 0.20 | NA | < 0.20 | 88%  | 50% | 140% | 94%  | 60% | 130% | 96% | 50% | 140% |
| Toluene         | 1303516 | 1303516 | < 0.20 | < 0.20 | NA | < 0.20 | 84%  | 50% | 140% | 91%  | 60% | 130% | 91% | 50% | 140% |
| Ethylbenzene    | 1303516 | 1303516 | < 0.10 | < 0.10 | NA | < 0.10 | 89%  | 50% | 140% | 96%  | 60% | 130% | 91% | 50% | 140% |
| Xylenes (Total) | 1303516 | 1303516 | < 0.20 | < 0.20 | NA | < 0.20 | 89%  | 50% | 140% | 101% | 60% | 130% | 96% | 50% | 140% |
| F1 (C6 - C10)   | 1303516 | 1303516 | < 25   | < 25   | NA | < 25   | 105% | 60% | 140% | 122% | 60% | 140% | 91% | 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:



## Quality Assurance

CLIENT NAME: SIRATI &amp; PARTNERS

PROJECT: SP20-666-00

SAMPLING SITE:

AGAT WORK ORDER: 20T630332

ATTENTION TO: Bujing Guan

SAMPLED BY:

| Water Analysis                                 |         |           |           |        |      |              |                    |                   |       |                    |                   |       |              |                   |       |
|------------------------------------------------|---------|-----------|-----------|--------|------|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| RPT Date: Aug 05, 2020                         |         |           | DUPLICATE |        |      | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
| PARAMETER                                      | Batch   | Sample Id | Dup #1    | Dup #2 | RPD  |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                                                |         |           |           |        |      |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| O. Reg. 153(511) - Metals & Inorganics (Water) |         |           |           |        |      |              |                    |                   |       |                    |                   |       |              |                   |       |
| Dissolved Antimony                             | 1303508 | 1303508   | 2.2       | <2.0   | NA   | < 1.0        | 103%               | 70%               | 130%  | 102%               | 80%               | 120%  | 100%         | 70%               | 130%  |
| Dissolved Arsenic                              | 1303508 | 1303508   | < 1.0     | < 1.0  | NA   | < 1.0        | 108%               | 70%               | 130%  | 109%               | 80%               | 120%  | 121%         | 70%               | 130%  |
| Dissolved Barium                               | 1303508 | 1303508   | 1800      | 1820   | 1.1% | < 2.0        | 99%                | 70%               | 130%  | 99%                | 80%               | 120%  | 101%         | 70%               | 130%  |
| Dissolved Beryllium                            | 1303508 | 1303508   | < 0.50    | < 0.50 | NA   | < 0.50       | 109%               | 70%               | 130%  | 112%               | 80%               | 120%  | 94%          | 70%               | 130%  |
| Dissolved Boron                                | 1303508 | 1303508   | 40.5      | 42.8   | NA   | < 10.0       | 108%               | 70%               | 130%  | 101%               | 80%               | 120%  | 84%          | 70%               | 130%  |
| Dissolved Cadmium                              | 1303508 | 1303508   | < 0.20    | < 0.20 | NA   | < 0.20       | 100%               | 70%               | 130%  | 105%               | 80%               | 120%  | 103%         | 70%               | 130%  |
| Dissolved Chromium                             | 1303508 | 1303508   | 9.8       | 10.6   | NA   | < 2.0        | 103%               | 70%               | 130%  | 101%               | 80%               | 120%  | 96%          | 70%               | 130%  |
| Dissolved Cobalt                               | 1303508 | 1303508   | 2.95      | 3.15   | 6.6% | < 0.50       | 104%               | 70%               | 130%  | 104%               | 80%               | 120%  | 97%          | 70%               | 130%  |
| Dissolved Copper                               | 1303508 | 1303508   | 8.5       | 8.7    | 2.3% | < 1.0        | 105%               | 70%               | 130%  | 107%               | 80%               | 120%  | 92%          | 70%               | 130%  |
| Dissolved Lead                                 | 1303508 | 1303508   | < 0.50    | < 0.50 | NA   | < 0.50       | 104%               | 70%               | 130%  | 106%               | 80%               | 120%  | 92%          | 70%               | 130%  |
| Dissolved Molybdenum                           | 1303508 | 1303508   | 1.05      | 1.60   | NA   | < 0.50       | 103%               | 70%               | 130%  | 102%               | 80%               | 120%  | 116%         | 70%               | 130%  |
| Dissolved Nickel                               | 1303508 | 1303508   | < 3.0     | < 3.0  | NA   | < 3.0        | 109%               | 70%               | 130%  | 108%               | 80%               | 120%  | 96%          | 70%               | 130%  |
| Dissolved Selenium                             | 1303508 | 1303508   | <1.0      | <1.0   | NA   | < 1.0        | 101%               | 70%               | 130%  | 104%               | 80%               | 120%  | 120%         | 70%               | 130%  |
| Dissolved Silver                               | 1303508 | 1303508   | 1.90      | 1.87   | 1.6% | < 0.20       | 108%               | 70%               | 130%  | 109%               | 80%               | 120%  | 101%         | 70%               | 130%  |
| Dissolved Thallium                             | 1303508 | 1303508   | < 0.30    | < 0.30 | NA   | < 0.30       | 105%               | 70%               | 130%  | 105%               | 80%               | 120%  | 92%          | 70%               | 130%  |
| Dissolved Uranium                              | 1303508 | 1303508   | 1.18      | 1.29   | NA   | < 0.50       | 100%               | 70%               | 130%  | 101%               | 80%               | 120%  | 94%          | 70%               | 130%  |
| Dissolved Vanadium                             | 1303508 | 1303508   | < 0.40    | < 0.40 | NA   | < 0.40       | 101%               | 70%               | 130%  | 101%               | 80%               | 120%  | 100%         | 70%               | 130%  |
| Dissolved Zinc                                 | 1303508 | 1303508   | < 5.0     | < 5.0  | NA   | < 5.0        | 101%               | 70%               | 130%  | 102%               | 80%               | 120%  | 90%          | 70%               | 130%  |
| Mercury                                        | 1303942 |           | <0.02     | <0.02  | NA   | < 0.02       | 101%               | 70%               | 130%  | 99%                | 80%               | 120%  | 101%         | 70%               | 130%  |
| Chromium VI                                    | 1303915 |           | <5        | <5     | NA   | < 5          | 102%               | 70%               | 130%  | 100%               | 80%               | 120%  | 102%         | 70%               | 130%  |
| Cyanide, Free                                  | 1303508 | 1303508   | 12        | 13     | 8.0% | < 2          | 100%               | 70%               | 130%  | 106%               | 80%               | 120%  | 98%          | 70%               | 130%  |
| Dissolved Sodium                               | 1303915 |           | 49300     | 49100  | 0.4% | < 50         | 97%                | 70%               | 130%  | 97%                | 80%               | 120%  | 96%          | 70%               | 130%  |
| Chloride                                       | 1300870 |           | 244000    | 243000 | 0.4% | < 100        | 90%                | 70%               | 130%  | 101%               | 80%               | 120%  | NA           | 70%               | 130%  |
| Electrical Conductivity                        | 1303512 | 1303512   | 12900     | 13000  | 0.8% | < 2          | 99%                | 90%               | 110%  |                    |                   |       |              |                   |       |
| pH                                             | 1303512 | 1303512   | 7.60      | 7.66   | 0.8% | NA           | 101%               | 90%               | 110%  |                    |                   |       |              |                   |       |

Comments: NA Signifies Not Applicable.

If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

**Certified By:**

*Nivine Basily*

## Method Summary

**CLIENT NAME: SIRATI & PARTNERS**
**PROJECT: SP20-666-00**
**SAMPLING SITE:**
**AGAT WORK ORDER: 20T630332**
**ATTENTION TO: Bujing Guan**
**SAMPLED BY:**

| PARAMETER                      | AGAT S.O.P   | LITERATURE REFERENCE                   | ANALYTICAL TECHNIQUE |
|--------------------------------|--------------|----------------------------------------|----------------------|
| <b>Trace Organics Analysis</b> |              |                                        |                      |
| Naphthalene                    | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Acenaphthylene                 | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Acenaphthene                   | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Fluorene                       | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Phenanthrene                   | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Anthracene                     | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Fluoranthene                   | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Pyrene                         | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Benzo(a)anthracene             | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Chrysene                       | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Benzo(b)fluoranthene           | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Benzo(k)fluoranthene           | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Benzo(a)pyrene                 | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Indeno(1,2,3-cd)pyrene         | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Dibenz(a,h)anthracene          | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Benzo(g,h,i)perylene           | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| 2-and 1-methyl Naphthalene     | ORG-91-5105  | modified from EPA 3510C and EPA 8270E  | GC/MS                |
| Naphthalene-d8                 | ORG-91-5105  | modified from EPA SW-846 3510C & 8270E | GC/MS                |
| Acenaphthene-d10               | ORG-91-5105  | modified from EPA SW-846 3510C & 8270E | GC/MS                |
| Chrysene-d12                   | ORG-91-5105  | modified from EPA SW-846 3510C & 8270E | GC/MS                |
| Sediment                       |              |                                        |                      |
| Benzene                        | VOL-91-5010  | modified from EPA SW-846 5230B & 8260  | (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            |
| 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 PHC-E3421            | P&T GC/FID           |
| F1 (C6 to C10) minus BTEX      | VOL-91-5010  | modified from MOE PHC-E3421            | P&T GC/FID           |
| 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               |



## Method Summary

**CLIENT NAME: SIRATI & PARTNERS**
**PROJECT: SP20-666-00**
**SAMPLING SITE:**
**AGAT WORK ORDER: 20T630332**
**ATTENTION TO: Bujing Guan**
**SAMPLED BY:**

| PARAMETER                         | AGAT S.O.P  | LITERATURE REFERENCE                | ANALYTICAL TECHNIQUE |
|-----------------------------------|-------------|-------------------------------------|----------------------|
| Gravimetric Heavy Hydrocarbons    | VOL-91-5010 | modified from MOE PHC-E3421         | BALANCE              |
| Terphenyl                         | VOL-91-5010 | modified from MOE PHC-E3421         | GC/FID               |
| F1 (C6-C10)                       | VOL-91-5010 | modified from MOE PHC-E3421         | P&T GC/FID           |
| F2 (C10 to C16) minus Naphthalene | VOL-91-5010 | modified from MOE PHC-E3421         | GC/FID               |
| F3 (C16 to C34)                   | VOL-91-5010 | modified from MOE PHC-E3421         | GC/FID               |
| F3 (C16 to C34) minus PAHs        | VOL-91-5010 | modified from MOE PHC-E3421         | GC/FID               |
| 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           |
| 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           |

## Method Summary

CLIENT NAME: SIRATI & PARTNERS

PROJECT: SP20-666-00

SAMPLING SITE:

AGAT WORK ORDER: 20T630332

ATTENTION TO: Bujing Guan

SAMPLED BY:

| PARAMETER                 | AGAT S.O.P  | LITERATURE REFERENCE                | ANALYTICAL TECHNIQUE |
|---------------------------|-------------|-------------------------------------|----------------------|
| 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           |
| PCBs                      | ORG-91-5112 | EPA SW-846 3510 & 8082              | GC/ECD               |
| Decachlorobiphenyl        | ORG-91-5112 | EPA SW-846 3510 & 8082              | GC/ECD               |

## Method Summary

**CLIENT NAME: SIRATI & PARTNERS**
**PROJECT: SP20-666-00**
**SAMPLING SITE:**
**AGAT WORK ORDER: 20T630332**
**ATTENTION TO: Bujing Guan**
**SAMPLED BY:**

| PARAMETER               | AGAT S.O.P   | LITERATURE REFERENCE                           | ANALYTICAL TECHNIQUE    |
|-------------------------|--------------|------------------------------------------------|-------------------------|
| <b>Water Analysis</b>   |              |                                                |                         |
| 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-93-6034 | modified from SM 3500-CR B                     | SPECTROPHOTOMETER       |
| Cyanide, Free           | INOR-93-6052 | modified from ON MOECC E3015 and SM 4500-CN- I | TECHNICON AUTO ANALYZER |
| Dissolved Sodium        | MET-93-6105  | modified from EPA 6010D                        | ICP/OES                 |
| 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              |



## Chain of Custody Record

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

### Report Information:

Company: Sirata & Partners  
Contact: Buyling Ethan  
Address: 12700 Keele St. King City  
Phone: 905-833-1582 Fax: \_\_\_\_\_  
Reports to be sent to:  
1. Email: buyling@sirata.ca  
2. Email: alice@sirata.ca ; efvange@sirata.ca

### Project Information:

Project: SP20-666-00  
Site Location: \_\_\_\_\_  
Sampled By: Alice  
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: \_\_\_\_\_

### Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04

Table 2 Indicate One

☐ Ipd/Com  
☒ Res/Park  
☐ Agriculture

Soil Texture (Check One)

☐ Coarse  
☐ Fine

☐ Excess Soils R406

Table \_\_\_\_\_ Indicate One

Sample from APEC?

☐ Yes  
☐ No  
☐ Stockpile ☐ In-situ

☐ Regulation 558

☐ Sewer Use  
☐ Sanitary ☐ Storm

Region \_\_\_\_\_  
☐ CCME

☐ Prov. Water Quality Objectives (PWQO)  
☐ Other

Indicate One

Is this submission for a Record of Site Condition?

☒ Yes ☐ No

Report Guideline on Certificate of Analysis

☒ Yes ☐ No

### Sample Matrix Legend

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

Field Filtered - Metals, Hg, CrVI, DOC

0. Reg 153

Metals & Inorganics, inc. EC/SAR

Metals - IC/PMS, CrVI, Hg, HWSB

BTEX, F1-F4 PHCS

Analyze F4G if required ☐ Yes ☐ No

PAHs

PCBs

VOC

Landfill Disposal Characterization TCLP:

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs

Excess Soils SPLP Rainwater Leach

SPLP: ☐ Metals ☐ VOCs ☐ SVOCs

Excess Soils Characterization Package

pH, IC/PMS Metals, BTEX, F1-F4

Salt - EC/SAR

Potentially Hazardous or High Concentration (Y/N)

| Sample Identification | Date Sampled | Time Sampled | # of Containers | Sample Matrix | Comments/<br>Special Instructions | Y / N | Metals & Inorganics, inc. EC/SAR    | Metals - IC/PMS, CrVI, Hg, HWSB     | BTEX, F1-F4 PHCS                    | Analyze F4G if required <input type="checkbox"/> Yes <input type="checkbox"/> No | PAHs                                | PCBs                                | VOC                                 | Landfill Disposal Characterization TCLP: | Excess Soils SPLP Rainwater Leach | Excess Soils Characterization Package | pH, IC/PMS Metals, BTEX, F1-F4 | Salt - EC/SAR | Potentially Hazardous or High Concentration (Y/N) |
|-----------------------|--------------|--------------|-----------------|---------------|-----------------------------------|-------|-------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------------|-----------------------------------|---------------------------------------|--------------------------------|---------------|---------------------------------------------------|
| MW2                   | 07/27        | AM           | 16              | GW            |                                   |       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |                                   |                                       |                                |               |                                                   |
| MW3                   | "            | PM           | 15              | "             |                                   |       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |                                   |                                       |                                |               |                                                   |
| MW6                   | "            | PM           | 19              | "             |                                   |       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |                                   |                                       |                                |               |                                                   |
| MW7                   | "            | PM           | 5               | "             |                                   |       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |                                   |                                       |                                |               |                                                   |
| DUP-0727              | "            | PM           | 2               | "             |                                   |       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |                                   |                                       |                                |               |                                                   |
| TRIP Blank            | "            | PM           | 5               | "             |                                   |       |                                     |                                     |                                     |                                                                                  |                                     |                                     | <input checked="" type="checkbox"/> |                                          |                                   |                                       |                                |               |                                                   |
|                       |              | AM           |                 |               |                                   |       |                                     |                                     |                                     |                                                                                  |                                     |                                     |                                     |                                          |                                   |                                       |                                |               |                                                   |
|                       |              | PM           |                 |               |                                   |       |                                     |                                     |                                     |                                                                                  |                                     |                                     |                                     |                                          |                                   |                                       |                                |               |                                                   |
|                       |              | AM           |                 |               |                                   |       |                                     |                                     |                                     |                                                                                  |                                     |                                     |                                     |                                          |                                   |                                       |                                |               |                                                   |
|                       |              | PM           |                 |               |                                   |       |                                     |                                     |                                     |                                                                                  |                                     |                                     |                                     |                                          |                                   |                                       |                                |               |                                                   |
|                       |              | AM           |                 |               |                                   |       |                                     |                                     |                                     |                                                                                  |                                     |                                     |                                     |                                          |                                   |                                       |                                |               |                                                   |
|                       |              | PM           |                 |               |                                   |       |                                     |                                     |                                     |                                                                                  |                                     |                                     |                                     |                                          |                                   |                                       |                                |               |                                                   |

|                                                                      |                         |                      |                                                                  |                         |                      |                                                  |
|----------------------------------------------------------------------|-------------------------|----------------------|------------------------------------------------------------------|-------------------------|----------------------|--------------------------------------------------|
| Samples Relinquished By (Print Name and Sign):<br><u>Alice Gray</u>  | Date:<br><u>July 27</u> | Time:<br><u>PM</u>   | Samples Received By (Print Name and Sign):<br><u>[Signature]</u> | Date:<br><u>7/27/20</u> | Time:<br><u>9:42</u> | Page <u>1</u> of <u>1</u><br>No: <b>T 106734</b> |
| Samples Relinquished By (Print Name and Sign):<br><u>[Signature]</u> | Date:<br><u>7/27/20</u> | Time:<br><u>1:10</u> | Samples Received By (Print Name and Sign):<br><u>[Signature]</u> | Date:<br><u>7/27/20</u> | Time:<br><u>1:10</u> |                                                  |
| Samples Relinquished By (Print Name and Sign):<br>_____              | Date:<br>_____          | Time:<br>_____       | Samples Received By (Print Name and Sign):<br>_____              | Date:<br>_____          | Time:<br>_____       |                                                  |



# APPENDIX G

**Soil Field Duplicates for Project : SP20-666-00**  
**Relative Percentage Difference (RPD) Metals and inorganics in Soil**

| Sample Description | RDL | Acceptable Limits (±%) | MW3/SS1   | Dup-0715  | RPD (%)   |
|--------------------|-----|------------------------|-----------|-----------|-----------|
| Date Sampled       |     |                        | 15-Jul-20 | 15-Jul-20 |           |
| Parameter          |     |                        | 1281515   | 1281516   |           |
| Antimony           | 0.8 | 30                     | <0.8      | <0.8      | NC        |
| Arsenic            | 1   | 30                     | 2         | 2         | 0         |
| Barium             | 2   | 30                     | 57        | 36        | <u>45</u> |
| Beryllium          | 0.5 | 30                     | <0.5      | <0.5      | NC        |
| Boron              | 5   | 30                     | <5        | <5        | NC        |
| Cadmium            | 0.5 | 40                     | <0.5      | <0.5      | NC        |
| Chromium           | 5   | 30                     | 15        | 9         | NC        |
| Cobalt             | 0.5 | 30                     | 3.9       | 2.7       | <u>36</u> |
| Copper             | 1   | 30                     | 11        | 10        | NC        |
| Lead               | 1   | 30                     | 53        | 38        | <u>33</u> |
| Molybdenum         | 0.5 | 30                     | <0.5      | <0.5      | NC        |
| Nickel             | 1   | 30                     | 7         | 5         | NC        |
| Selenium           | 0.4 | 30                     | 0.4       | 0.4       | 0         |
| Silver             | 0.2 | 30                     | <0.2      | <0.2      | NC        |
| Thallium           | 0.4 | 30                     | <0.4      | <0.4      | NC        |
| Uranium            | 0.5 | 30                     | <0.5      | <0.5      | NC        |
| Vanadium           | 1   | 30                     | 24        | 26        | -8        |
| Zinc               | 5   | 30                     | 68        | 38        | <u>57</u> |

**Soil Field Duplicates for Project : SP20-666-00**  
**Relative Percentage Difference (RPD) Dissolved Metals in Groundwater**

| Sample Description   | RDL  | Acceptable Limits (±%) | MW3       | DUP-0727  | RPD (%) |
|----------------------|------|------------------------|-----------|-----------|---------|
| Date Sampled         |      |                        | 27-Jul-20 | 27-Jul-20 |         |
| Parameter            |      |                        | 1303511   | 1303596   |         |
| Dissolved Antimony   | 2.0  | 30                     | <2.0      | <2.0      | NC      |
| Dissolved Arsenic    | 2.0  | 30                     | <2.0      | <2.0      | NC      |
| Dissolved Barium     | 4.0  | 30                     | 621       | 561       | 10      |
| Dissolved Beryllium  | 1.00 | 30                     | <1.00     | <1.00     | NC      |
| Dissolved Boron      | 20.0 | 30                     | 53        | 34        | NC      |
| Dissolved Cadmium    | 0.40 | 40                     | <0.40     | <0.40     | NC      |
| Dissolved Chromium   | 4.0  | 30                     | 7         | 8         | NC      |
| Dissolved Cobalt     | 1.00 | 30                     | 2         | 2         | NC      |
| Dissolved Copper     | 2.0  | 30                     | 6         | 4         | NC      |
| Dissolved Lead       | 1.00 | 30                     | <1.00     | <1.00     | NC      |
| Dissolved Molybdenum | 1.00 | 30                     | <1.00     | <1.00     | NC      |
| Dissolved Nickel     | 6.0  | 30                     | <6.0      | <6.0      | NC      |
| Dissolved Selenium   | 2.0  | 30                     | 5         | 4         | NC      |
| Dissolved Silver     | 0.40 | 30                     | <0.40     | <0.40     | NC      |
| Dissolved Thallium   | 0.60 | 30                     | <0.60     | <0.60     | NC      |
| Dissolved Uranium    | 1.00 | 30                     | 2         | 1         | NC      |
| Dissolved Vanadium   | 0.80 | 30                     | <0.80     | <0.80     | NC      |
| Dissolved Zinc       | 10.0 | 30                     | <10.0     | <10.0     | 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 meand original and duplicate samples values are not within acceptable RPD

# APPENDIX H

Project No.: SP20-666-00  
Phase Two Environmental Site Assessment  
79 Collier Sreet, Barrie, ON  
Table 1: Soil Analytical Results - Metals and Inorganics

| Sample Location               |          |                            |       | BH/MW2     | BH/MW3      |           | BH1       | BH4         | BH5         |
|-------------------------------|----------|----------------------------|-------|------------|-------------|-----------|-----------|-------------|-------------|
| Sample ID                     |          |                            |       | MW2/SS2    | MW3/SS1     | Dup-0715  | BH1/SS1   | BH4/SS1     | BH5/SS3     |
| Sampling Date                 |          |                            |       | 15-Jul-20  | 15-Jul-20   | 16-Jul-20 | 16-Jul-20 | 16-Jul-20   | 16-Jul-20   |
| Sample Depth (mbgs)           |          |                            |       | 0.8 - 1.5  | 0.0 - 0.6   | 0.3 - 0.6 | 0.3 - 0.6 | 0.0 - 0.6   | 1.5 - 2.2   |
| Laboratory ID                 |          |                            |       | 1281519    | 1281515     | 1281516   | 1281522   | 1281520     | 1281519     |
| Parameter                     | Unit     | MECP Table 2 RPI Standards | RDL   |            |             |           |           |             |             |
| Antimony                      | µg/g     | 7.5                        | 0.8   | <0.8       | <0.8        | <0.8      | <0.8      | 1.8         | <0.8        |
| Arsenic                       | µg/g     | 18                         | 1     | 1          | 2           | 2         | 1         | 9           | 1           |
| Barium                        | µg/g     | 390                        | 2     | 30         | 57          | 36        | 46        | <b>448</b>  | 27          |
| Beryllium                     | µg/g     | 4                          | 0.5   | <0.5       | <0.5        | <0.5      | <0.5      | <0.5        | <0.5        |
| Boron                         | µg/g     | 1.5                        | 5     | <5         | <5          | <5        | <5        | 12          | <5          |
| Boron (Hot Water Extractable) | µg/g     | 120                        | 0.1   | 0.13       | 0.15        |           | 0.19      | 0.17        | 0.31        |
| Cadmium                       | µg/g     | 1.2                        | 0.5   | <0.5       | <0.5        | <0.5      | <0.5      | <b>2.4</b>  | <0.5        |
| Chromium                      | µg/g     | 160                        | 5     | 8          | 15          | 9         | 9         | 17          | 8           |
| Cobalt                        | µg/g     | 22                         | 0.5   | 2.4        | 3.9         | 2.7       | 3.1       | 4.3         | 2.2         |
| Copper                        | µg/g     | 140                        | 1     | 7          | 11          | 10        | 12        | <b>639</b>  | 69          |
| Lead                          | µg/g     | 120                        | 1     | 28         | 53          | 38        | 55        | <b>608</b>  | 24          |
| Molybdenum                    | µg/g     | 6.9                        | 0.5   | <0.5       | <0.5        | <0.5      | <0.5      | 1.3         | 0.5         |
| Nickel                        | µg/g     | 100                        | 1     | 5          | 7           | 5         | 4         | 11          | 5           |
| Selenium                      | µg/g     | 2.4                        | 0.4   | <0.4       | 0.4         | 0.4       | <0.4      | 0.6         | <0.4        |
| Silver                        | µg/g     | 20                         | 0.2   | <0.2       | <0.2        | <0.2      | <0.2      | 0.2         | <0.2        |
| Thallium                      | µg/g     | 1                          | 0.4   | <0.4       | <0.4        | <0.4      | <0.4      | <0.4        | <0.4        |
| Uranium                       | µg/g     | 23                         | 0.5   | <0.5       | <0.5        | <0.5      | <0.5      | <0.5        | <0.5        |
| Vanadium                      | µg/g     | 86                         | 1     | 26         | 24          | 26        | 21        | 22          | 17          |
| Zinc                          | µg/g     | 340                        | 5     | 31         | 68          | 38        | 39        | <b>1160</b> | 195         |
| Chromium, Hexavalent          | µg/g     | 8                          | 0.2   | <0.2       | <0.2        | –         | <0.2      | <0.2        | <0.2        |
| Cyanide, Free                 | µg/g     | –                          | 0.04  | <0.040     | <0.040      | –         | <0.040    | <0.040      | <0.040      |
| Mercury                       | µg/g     | 0.27                       | 0.1   | 0.11       | <0.10       | –         | 0.2       | <b>0.43</b> | 0.15        |
| Electrical Conductivity (2:1) | mS/cm    | 0.7                        | 0.005 | <b>1.1</b> | 0.366       | –         | 0.204     | 0.457       | <b>2.53</b> |
| Sodium Adsorption Ratio       | NA       | 5                          | NA    | <b>15</b>  | <b>5.59</b> | –         | 2.71      | <b>9.87</b> | <b>34</b>   |
| pH, 2:1 CaCl2 Extraction      | pH Units | 5.0 - 9.0                  | NA    | 7.69       | 7.55        | –         | 7.47      | 7.75        | 7.54        |

Note:

MECP Table 2 RPI Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards for Residential/Parkland /Institutional Property use in a potable groundwater condition in coarse textured soils

**448** Value exceeding standard

RDL = Report Detection Limit



Project No.: SP20-666-00

Phase Two Environmental Site Assessment, 79 Collier Street, Barrie, ON

Table 2: Soil Analytical Results - PHCs

| Sample Location                |      |                            |      | BH1       | BH/MW2     | BH/MW3    | BH4       | BH5       |
|--------------------------------|------|----------------------------|------|-----------|------------|-----------|-----------|-----------|
| Sample ID                      |      |                            |      | BH1/SS3   | MW2/SS2    | MW3/SS13  | BH4/SS3   | BH5/SS3   |
| Sampling Date                  |      |                            |      | 16-Jul-20 | 15-Jul-20  | 15-Jul-20 | 16-Jul-20 | 16-Jul-20 |
| Sample Depth (mbgs)            |      |                            |      | 1.5 - 2.2 | 0.8 - 1.5  | 9.1 - 9.9 | 1.5 - 2.2 | 1.5 - 2.2 |
| Laboratory ID                  |      |                            |      | 1281523   | 1281518    | 1281517   | 1281521   | 1281519   |
| Parameter                      | Unit | MECP Table 2 RPI Standards | RDL  |           |            |           |           |           |
| Benzene                        | µg/g | 0.21                       | 0.02 | <0.02     | <0.02      | <0.02     | <0.02     | <0.02     |
| Toluene                        | µg/g | 2.3                        | 0.05 | <0.05     | <0.05      | <0.05     | <0.05     | 0.12      |
| Ethylbenzene                   | µg/g | 1.1                        | 0.05 | <0.05     | <0.05      | <0.05     | <0.05     | <0.05     |
| Xylenes (Total)                | µg/g | 3.1                        | 0.05 | <0.05     | <0.05      | <0.05     | <0.05     | <0.05     |
| F1 (C6 to C10)                 | µg/g | 55                         | 5    | <5        | <5         | <5        | <5        | <5        |
| F1 (C6 to C10) minus BTEX      | µg/g | 55                         | 5    | <5        | <5         | <5        | <5        | <5        |
| F2 (C10 to C16)                | µg/g | 98                         | 10   | <10       | 47         | <10       | <10       | <10       |
| F3 (C16 to C34)                | µg/g | 300                        | 50   | <50       | 47         | <50       | <50       | <50       |
| F4 (C34 to C50)                | µg/g | 2800                       | 50   | <50       | <b>520</b> | <50       | <50       | <50       |
| Gravimetric Heavy Hydrocarbons | µg/g | 2800                       | 50   | NA        | NA         | NA        | NA        | NA        |
| Moisture Content               | %    | –                          | 0.1  | 3         | 7.2        | 15.3      | 7.8       | 13        |
| Terphenyl                      | %    | –                          | –    | 74        | 100        | 72        | 67        | 79        |

Note:

MECP Table 2 RPI Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards for Residential/Parkland /Institutional Property use in a potable groundwater condition in coarse textured soils

RDL = Report Detection Limit

Project No.: SP20-666-00

Phase Two Environmental Site Assessment, 79 Collier Street, Barrie, ON

Table 3: Soil Analytical Results - VOCs

| Sample Location                   |            |                            |      | BH/MW3    | BH/MW2    | BH/MW5    |
|-----------------------------------|------------|----------------------------|------|-----------|-----------|-----------|
| Sample ID                         |            |                            |      | MW3/SS13  | MW2/SS2   | BH5/SS3   |
| Sampling Date                     |            |                            |      | 15-Jul-20 | 16-Jul-20 | 16-Jul-20 |
| Sample Depth (mbgs)               |            |                            |      | 9.1 - 9.9 | 0.7 - 1.5 | 1.5 - 2.2 |
| Laboratory ID                     |            |                            |      | 1281517   | 1281518   | 1281519   |
| Parameter                         | Unit       | MECP Table 2 RPI Standards | RDL  |           |           |           |
| Dichlorodifluoromethane           | µg/g       | 16                         | 0.05 | <0.05     | <0.05     | <0.05     |
| Vinyl Chloride                    | ug/g       | 0.02                       | 0.02 | <0.02     | <0.02     | <0.02     |
| Bromomethane                      | ug/g       | 0.05                       | 0.05 | <0.05     | <0.05     | <0.05     |
| Trichlorofluoromethane            | ug/g       | 4                          | 0.05 | <0.05     | <0.05     | <0.05     |
| Acetone                           | ug/g       | 16                         | 0.5  | <0.50     | <0.50     | <0.50     |
| 1,1-Dichloroethylene              | ug/g       | 0.05                       | 0.05 | <0.05     | <0.05     | <0.05     |
| Methylene Chloride                | ug/g       | 0.1                        | 0.05 | <0.05     | <0.05     | <0.05     |
| Trans- 1,2-Dichloroethylene       | ug/g       | 0.084                      | 0.05 | <0.05     | <0.05     | <0.05     |
| Methyl tert-butyl Ether           | ug/g       | 0.75                       | 0.05 | <0.05     | <0.05     | <0.05     |
| 1,1-Dichloroethane                | ug/g       | 0.47                       | 0.02 | <0.02     | <0.02     | <0.02     |
| Methyl Ethyl Ketone               | ug/g       | 16                         | 0.5  | <0.50     | <0.50     | <0.50     |
| Cis- 1,2-Dichloroethylene         | ug/g       | 1.9                        | 0.02 | <0.02     | <0.02     | <0.02     |
| Chloroform                        | ug/g       | 0.05                       | 0.04 | <0.04     | <0.04     | <0.04     |
| 1,2-Dichloroethane                | ug/g       | 0.05                       | 0.03 | <0.03     | <0.03     | <0.03     |
| 1,1,1-Trichloroethane             | ug/g       | 0.38                       | 0.05 | <0.05     | <0.05     | <0.05     |
| Carbon Tetrachloride              | ug/g       | 0.05                       | 0.05 | <0.05     | <0.05     | <0.05     |
| Benzene                           | ug/g       | 0.21                       | 0.02 | <0.02     | <0.02     | <0.02     |
| 1,2-Dichloropropane               | ug/g       | 0.05                       | 0.03 | <0.03     | <0.03     | <0.03     |
| Trichloroethylene                 | ug/g       | 0.061                      | 0.03 | <0.03     | <0.03     | <0.03     |
| Bromodichloromethane              | ug/g       | 1.5                        | 0.05 | <0.05     | <0.05     | <0.05     |
| Methyl Isobutyl Ketone            | ug/g       | 1.7                        | 0.5  | <0.50     | <0.50     | <0.50     |
| Dibromochloromethane              | ug/g       | 0.05                       | 0.05 | <0.05     | <0.05     | <0.05     |
| Ethylene Dibromide                | ug/g       | 2.3                        | 0.04 | <0.04     | <0.04     | <0.04     |
| Tetrachloroethylene               | ug/g       | 2.3                        | 0.05 | <0.05     | <0.05     | <0.05     |
| 1,1,1,2-Tetrachloroethane         | ug/g       | 0.05                       | 0.04 | <0.04     | <0.04     | <0.04     |
| Chlorobenzene                     | ug/g       | 0.28                       | 0.05 | <0.05     | <0.05     | <0.05     |
| Ethylbenzene                      | ug/g       | 0.058                      | 0.05 | <0.05     | <0.05     | <0.05     |
| m & p-Xylene                      | ug/g       | -                          | 0.05 | <0.05     | <0.05     | <0.05     |
| Bromoform                         | ug/g       | 0.27                       | 0.05 | <0.05     | <0.05     | <0.05     |
| Styrene                           | ug/g       | 0.7                        | 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     |
| o-Xylene                          | ug/g       |                            | 0.05 | <0.05     | <0.05     | <0.05     |
| 1,3-Dichlorobenzene               | ug/g       | 4.8                        | 0.05 | <0.05     | <0.05     | <0.05     |
| 1,4-Dichlorobenzene               | ug/g       | 0.083                      | 0.05 | <0.05     | <0.05     | <0.05     |
| 1,2-Dichlorobenzene               | ug/g       | 1.2                        | 0.05 | <0.05     | <0.05     | <0.05     |
| Xylenes (Total)                   | ug/g       | 3.1                        | 0.05 | <0.05     | <0.05     | <0.05     |
| 1,3-Dichloropropene (Cis + Trans) | µg/g       | 0.05                       | 0.04 | <0.04     | <0.04     | <0.04     |
| n-Hexane                          | µg/g       | 2.8                        | 0.05 | <0.05     | <0.05     | <0.05     |
| Toluene-d8                        | % Recovery | -                          | 1    | 114       | 118       | 115       |
| 4-Bromofluorobenzene              | % Recovery | -                          | 1    | 82        | 85        | 77        |

Note:

MECP Table 2 RPI Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards for Residential/Parkland /Institutional Property use in a potable groundwater condition in coarse textured soils

RDL = Report Detection Limit

Project No.: SP20-640-00  
Phase Two Environmental Site Assessment  
106, 118 & 124 Mary Street East, Whitby, ON  
Table 4: Soil Analytical Results - PAH & PCB

| Sample Location           |      |                            |      | BH1       | BH2         | BH/MW3      | BH4       | BH5       |
|---------------------------|------|----------------------------|------|-----------|-------------|-------------|-----------|-----------|
| Sample ID                 |      |                            |      | BH1/SS3   | BH2/SS2     | MW3/SS1     | BH4/SS3   | BH5/SS3   |
| Sampling Date             |      |                            |      | 16-Jul-20 | 15-Jul-20   | 15-Jul-20   | 16-Jul-20 | 16-Jul-20 |
| Sample Depth (mbgs)       |      |                            |      | 0.3 - 0.6 | 0.8 - 1.5   | 0.3 - 0.6   | 1.5 - 2.2 | 1.5 - 2.2 |
| Laboratory ID             |      |                            |      | 1281523   | 1281518     | 1281515     | 1281521   | 1281519   |
| Parameter                 | Unit | MECP Table 2 RPI Standards | RDL  |           |             |             |           |           |
| Naphthalene               | µg/g | 0.6                        | 0.05 | <0.05     | <0.05       | <0.05       | <0.05     | <0.05     |
| Acenaphthylene            | µg/g | 0.15                       | 0.05 | <0.05     | 0.15        | 0.11        | <0.05     | <0.05     |
| Acenaphthene              | µg/g | 7.9                        | 0.05 | <0.05     | 0.17        | <0.05       | <0.05     | <0.05     |
| Fluorene                  | µg/g | 62                         | 0.05 | <0.05     | 0.38        | <0.05       | <0.05     | <0.05     |
| Phenanthrene              | µg/g | 6.2                        | 0.05 | 0.08      | 1.6         | 0.26        | <0.05     | <0.05     |
| Anthracene                | µg/g | 0.67                       | 0.05 | <0.05     | 0.5         | 0.13        | <0.05     | <0.05     |
| Fluoranthene              | µg/g | 0.69                       | 0.05 | 0.14      | <u>1.9</u>  | <u>0.71</u> | <0.05     | 0.09      |
| Pyrene                    | µg/g | 78                         | 0.05 | 0.13      | 1.5         | 0.67        | <0.05     | 0.07      |
| Benz(a)anthracene         | µg/g | 0.5                        | 0.05 | 0.05      | <u>0.74</u> | 0.37        | <0.05     | <0.05     |
| Chrysene                  | µg/g | 7                          | 0.05 | 0.06      | 0.78        | <u>0.46</u> | <0.05     | <0.05     |
| Benzo(b)fluoranthene      | µg/g | 0.78                       | 0.05 | 0.05      | <u>0.86</u> | 0.61        | <0.05     | <0.05     |
| Benzo(k)fluoranthene      | µg/g | 0.78                       | 0.05 | <0.05     | 0.38        | 0.26        | <0.05     | <0.05     |
| Benzo(a)pyrene            | µg/g | 0.3                        | 0.05 | <0.05     | <u>0.68</u> | 0.46        | <0.05     | <0.05     |
| Indeno(1,2,3-cd)pyrene    | µg/g | 0.38                       | 0.05 | <0.05     | 0.34        | 0.25        | <0.05     | <0.05     |
| Dibenz(a,h)anthracene     | µg/g | 0.1                        | 0.05 | <0.05     | <0.05       | <0.05       | <0.05     | <0.05     |
| Benzo(g,h,i)perylene      | µg/g | 6.6                        | 0.05 | <0.05     | 0.33        | 0.24        | <0.05     | <0.05     |
| 1 and 2 Methylnaphthalene | µg/g | 0.99                       | 0.05 | <0.05     | 0.14        | <0.05       | <0.05     | <0.05     |
| Moisture Content          | %    | –                          | 0.1  | 4.2       | 7.2         | 13          | 7.8       | 3         |
| Naphthalene-d8            | %    | –                          |      | 71        | 67          | 68          | 67        | 72        |
| Acenaphthene-d10          | %    | –                          |      | 71        | 64          | 64          | 68        | 73        |
| Chrysene-d12              | %    | –                          | 1    | 91        | 98          | 76          | 75        | 70        |

|                    |      |     |     |   |      |   |      |   |
|--------------------|------|-----|-----|---|------|---|------|---|
| PCBs               | µg/g | 0.3 | 0.1 | – | <0.1 | – | <0.1 | – |
| Decachlorobiphenyl | %    | –   | –   | – | 76   | – | 76   | – |
| Moisture Content   | %    | –   | 0.1 | – | 3    | – | 7.8  | – |

MECP Table 3 RPI Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards for Residential/Parkland /Institutional Property use in a non-potable groundwater condition in coarse textured soils

RDL = Report Detection Limit

Project No.: SP20-666-00

Phase Two Environmental Site Assessment, 79 Collier Street, Barrie, ON

Table 1: Groundwater Analytical Results - Metals & Inorganics

| Sample Location         |          |                        |      | BH/MW2          | BH/MW3         | BH/MW6         |
|-------------------------|----------|------------------------|------|-----------------|----------------|----------------|
| Sample ID               |          |                        |      | MW2             | MW3            | MW6            |
| Sampling Date           |          |                        |      | 27-Jul-20       | 27-Jul-20      | 27-Jul-20      |
| Screen Depth (mbgs)     |          |                        |      | 7.7 - 10.7      | 9.2 - 12.2     | 10.7 - 13.7    |
| Laboratory ID           |          |                        |      | 1303508         | 1303511        | 1303512        |
| Parameter               | Unit     | MECP Table 2 Standards | RDL  |                 |                |                |
| Dissolved Antimony      | µg/L     | 6                      | 1    | 2.2             | <2.0           | <2.0           |
| Dissolved Arsenic       | µg/L     | 25                     | 1    | <2.0            | <2.0           | 2.2            |
| Dissolved Barium        | µg/L     | 1000                   | 2    | <b>1800</b>     | 621            | 797            |
| Dissolved Beryllium     | µg/L     | 4                      | 0.5  | <1.00           | <1.00          | <1.00          |
| Dissolved Boron         | µg/L     | 5000                   | 10   | 40.5            | 52.7           | 36.5           |
| Dissolved Cadmium       | µg/L     | 2.7                    | 0.2  | <0.40           | <0.40          | <0.40          |
| Dissolved Chromium      | µg/L     | 50                     | 2    | 9.8             | 7.1            | 7.6            |
| Dissolved Cobalt        | µg/L     | 3.8                    | 0.5  | 2.95            | 2.4            | <b>3.89</b>    |
| Dissolved Copper        | µg/L     | 87                     | 1    | 8.5             | 6              | 5              |
| Dissolved Lead          | µg/L     | 10                     | 0.5  | <1.00           | <1.00          | <1.00          |
| Dissolved Molybdenum    | µg/L     | 70                     | 0.5  | 1.05            | <1.00          | <1.00          |
| Dissolved Nickel        | µg/L     | 100                    | 3    | <6.0            | <6.0           | <6.0           |
| Dissolved Selenium      | µg/L     | 10                     | 1    | <2.0            | 5.4            | <2.0           |
| Dissolved Silver        | µg/L     | 1.5                    | 0.2  | <b>1.9</b>      | <0.40          | <0.40          |
| Dissolved Thallium      | µg/L     | 2                      | 0.3  | <0.60           | <0.60          | <0.60          |
| Dissolved Uranium       | µg/L     | 20                     | 0.5  | 1.18            | 1.72           | 3.56           |
| Dissolved Vanadium      | µg/L     | 6.2                    | 0.4  | <0.80           | <0.80          | <0.80          |
| Dissolved Zinc          | µg/L     | 1100                   | 5    | <10.0           | <10.0          | 18.3           |
| Mercury                 | µg/L     | 0.29                   | 0.02 | <0.02           | <0.02          | <0.02          |
| Chromium VI             | µg/L     | 25                     | 5    | <5              | <5             | <5             |
| Cyanide, Free           | µg/L     | 66                     | 2    | 12              | <2             | <2             |
| Dissolved Sodium        | µg/L     | 490000                 | 500  | <b>7720000</b>  | <b>3570000</b> | <b>2320000</b> |
| Chloride                | µg/L     | 790000                 | 2000 | <b>14500000</b> | <b>7680000</b> | <b>5940000</b> |
| Electrical Conductivity | µS/cm    | -                      | 2    | 28800           | 17100          | 12900          |
| pH                      | pH Units | -                      | NA   | 7.61            | 7.66           | 7.6            |

Note:

MECP Table 2 Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition

Standards for All Types of Property use in a potable groundwater condition

**1800**

Value Exceeding Standard

RDL = Report Detection Limit



**Project No.: SP20-666-00**

**Phase Two Environmental Site Assessment, 79 Collier Street, Barrie, ON**

**Table 2: Groundwater Analytical Results - PHCs**

| Sample Location     |      |                        |     | BH/MW2     | BH/MW3     | BH/MW6      | BH/MW7      |
|---------------------|------|------------------------|-----|------------|------------|-------------|-------------|
| Sample ID           |      |                        |     | MW2        | MW3        | MW6         | MW7         |
| Sampling Date       |      |                        |     | 23-Jul-20  | 23-Jul-20  | 23-Jul-20   | 23-Jul-20   |
| Screen Depth (mbgs) |      |                        |     | 7.7 - 10.7 | 9.2 - 12.2 | 10.7 - 13.7 | 10.7 - 13.7 |
| Laboratory ID       |      |                        |     | 1300151    | 1300151    | 1300146     | 1300148     |
| Parameter           | Unit | MECP Table 2 Standards | RDL |            |            |             |             |
| F1 (C6-C10)         | ug/L | 750                    | 25  | <25        | <25        | <25         | <25         |
| F1-BTEX             | ug/L | 750                    | 25  | <25        | <25        | <25         | <25         |
| F2 (C10-C16)        | ug/L | 150                    | 100 | <100       | <100       | <100        | <100        |
| F3 (C16-C34)        | ug/L | 500                    | 250 | <100       | <100       | <100        | <100        |
| F4 (C34-C50)        | ug/L | 500                    | 250 | <100       | <100       | <100        | <100        |
| Benzene             | ug/L | 5                      | 0.2 | <0.20      | <0.20      | <0.20       | <0.20       |
| Toluene             | ug/L | 24                     | 0.2 | <0.20      | <0.20      | <0.20       | <0.20       |
| Ethylbenze          | ug/L | 2.4                    | 0.1 | <0.10      | <0.10      | <0.10       | <0.10       |
| Xylenes             | ug/L | 300                    | 0.2 | <0.20      | <0.20      | <0.20       | <0.20       |

Note:

MECP Table 2 Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards for All Types of Property use in a potable groundwater condition

RDL = Report Detection Limit

Project No.: SP20-666-00  
Phase Two Environmental Site Assessment  
79 Collier Street, Barrie, ON

Table 3: Groundwater Analytical Results - VOCs

| Sample Location             |            |                        |      | BH/MW2     | BH/MW3     | BH/MW6      | Trip Blank  |
|-----------------------------|------------|------------------------|------|------------|------------|-------------|-------------|
| Sample ID                   |            |                        |      | MW2        | MW3        | MW6         | Trip Blank  |
| Sampling Date               |            |                        |      | 23-Jul-20  | 23-Jul-20  | 23-Jul-20   | 23-Jul-20   |
| Screen Depth (mbgs)         |            |                        |      | 7.7 - 10.7 | 9.2 - 12.2 | 10.7 - 13.7 | 10.7 - 13.7 |
| Laboratory ID               |            |                        |      | 1303508    | 1303511    | 1303512     | 1303599     |
| Parameter                   | Unit       | MECP Table 2 Standards | RDL  |            |            |             |             |
| Dichlorodifluoromethane     | µg/L       | 590                    | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| Vinyl Chloride              | µg/L       | 0.5                    | 0.02 | <0.68      | <0.68      | <0.68       | <0.17       |
| Bromomethane                | µg/L       | 0.89                   | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| Trichlorofluoromethane      | µg/L       | 150                    | 0.05 | <1.60      | <1.60      | <1.60       | <0.40       |
| Acetone                     | µg/L       | 2700                   | 0.5  | <4.0       | <4.0       | <4.0        | <1.0        |
| 1,1-Dichloroethylene        | µg/L       | 1.6                    | 0.05 | <1.20      | <1.20      | <1.20       | <0.30       |
| Methylene Chloride          | µg/L       | 50                     | 0.05 | <1.20      | <1.20      | <1.20       | <0.30       |
| trans- 1,2-Dichloroethylene | µg/L       | 1.6                    | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| Methyl tert-butyl ether     | µg/L       | 15                     | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| 1,1-Dichloroethane          | µg/L       | 5                      | 0.02 | <1.20      | <1.20      | <1.20       | <0.30       |
| Methyl Ethyl Ketone         | µg/L       | 1800                   | 0.5  | <4.0       | <4.0       | <4.0        | <1.0        |
| cis- 1,2-Dichloroethylene   | µg/L       | 1.6                    | 0.02 | <0.80      | <0.80      | <0.80       | <0.20       |
| Chloroform                  | µg/L       | 2.4                    | 0.04 | <0.80      | <0.80      | 4.5         | <0.20       |
| 1,2-Dichloroethane          | µg/L       | 1.6                    | 0.03 | <0.80      | <0.80      | <0.80       | <0.20       |
| 1,1,1-Trichloroethane       | µg/L       | 200                    | 0.05 | <1.20      | <1.20      | <1.20       | <0.30       |
| Carbon Tetrachloride        | µg/L       | 0.79                   | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| Benzene                     | µg/L       | 5                      | 0.02 | <0.80      | <0.80      | <0.80       | <0.20       |
| 1,2-Dichloropropane         | µg/L       | 5                      | 0.03 | <0.80      | <0.80      | <0.80       | <0.20       |
| Trichloroethylene           | µg/L       | 1.6                    | 0.03 | <0.80      | <0.80      | <0.80       | <0.20       |
| Bromodichloromethane        | µg/L       | 16                     | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| Methyl Isobutyl Ketone      | µg/L       | 640                    | 0.5  | <4.0       | <4.0       | <4.0        | <1.0        |
| Dibromochloromethane        | µg/L       | 25                     | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| Ethylene Dibromide          | µg/L       | 0.2                    | 0.04 | <0.40      | <0.40      | <0.40       | <0.10       |
| Tetrachloroethylene         | µg/L       | 1.6                    | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| 1,1,1,2-Tetrachloroethane   | µg/L       | 0.2                    | 0.04 | <0.40      | <0.40      | <0.40       | <0.10       |
| Chlorobenzene               | µg/L       | 30                     | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| Ethylbenzene                | µg/L       | 2.4                    | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| m & p-Xylene                | µg/L       |                        | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| Bromoform                   | µg/L       | 25                     | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| Styrene                     | µg/L       | 5.4                    | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| 1,1,2,2-Tetrachloroethane   | µg/L       | 1                      | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| o-Xylene                    | µg/L       |                        | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| 1,3-Dichlorobenzene         | µg/L       | 59                     | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| 1,4-Dichlorobenzene         | µg/L       | 1                      | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| 1,2-Dichlorobenzene         | µg/L       | 3                      | 0.05 | <0.40      | <0.40      | <0.40       | <0.10       |
| 1,3-Dichloropropene         | µg/L       | 0.5                    | 0.05 | <0.30      | <0.30      | <0.30       | <0.30       |
| Xylenes (Total)             | µg/L       | 300                    | 0.04 | <0.20      | <0.20      | <0.20       | <0.20       |
| n-Hexane                    | µg/L       | 51                     | 0.05 | <0.80      | <0.80      | <0.80       | <0.20       |
| Toluene-d8                  | % Recovery |                        | 1    | 118        | 116        | 116         | 116         |
| 4-Bromofluorobenzene        | % Recovery |                        | 1    | 77         | 75         | 76          | 78          |

Note:

MECP Table 2 Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition Standards for All Types of Property use in a potable groundwater condition

RDL = Report Detection Limit

Project No.: SP20-666-00

Phase Two Environmental Site Assessment

79 Collier Street, Barrie, ON

Table 7: Groundwater Analytical Results - PAH

| Sample Location            |      |                            |      | BH/MW2    | BH/MW3      | BH/MW6    |
|----------------------------|------|----------------------------|------|-----------|-------------|-----------|
| Sample ID                  |      |                            |      | MW2       | MW3         | MW6       |
| Sampling Date              |      |                            |      | 27-Jul-20 | 27-Jul-20   | 27-Jul-20 |
| Laboratory ID              |      |                            |      | 1303508   | 1303511     | 1303512   |
| Parameter                  | Unit | MECP Table 2 RPI Standards | RDL  |           |             |           |
| Naphthalene                | µg/L | 0.6                        | 0.2  | <0.20     | <0.20       | <0.20     |
| Acenaphthylene             | µg/L | 0.15                       | 0.2  | <0.20     | <0.20       | <0.20     |
| Acenaphthene               | µg/L | 7.9                        | 0.2  | <0.20     | <0.20       | <0.20     |
| Fluorene                   | µg/L | 62                         | 0.2  | <0.20     | <0.20       | <0.20     |
| Phenanthrene               | µg/L | 6.2                        | 0.1  | 0.51      | <0.10       | <0.10     |
| Anthracene                 | µg/L | 0.67                       | 0.1  | <0.10     | <0.10       | <0.10     |
| Fluoranthene               | µg/L | 0.69                       | 0.2  | 0.39      | 0.22        | <0.20     |
| Pyrene                     | µg/L | 78                         | 0.2  | 0.28      | <0.20       | <0.20     |
| Benzo(a)anthracene         | µg/L | 0.5                        | 0.2  | <0.20     | <0.20       | <0.20     |
| Chrysene                   | µg/L | 7                          | 0.1  | <0.10     | <0.10       | <0.10     |
| Benzo(b)fluoranthene       | µg/L | 0.78                       | 0.1  | <0.10     | <0.10       | <0.10     |
| Benzo(k)fluoranthene       | µg/L | 0.78                       | 0.1  | <0.10     | <0.10       | <0.10     |
| Benzo(a)pyrene             | µg/L | 0.3                        | 0.01 | <0.01     | <b>0.04</b> | <0.01     |
| Indeno(1,2,3-cd)pyrene     | µg/L | 0.38                       | 0.2  | <0.20     | <0.20       | <0.20     |
| Dibenz(a,h)anthracene      | µg/L | 0.1                        | 0.2  | <0.20     | <0.20       | <0.20     |
| Benzo(g,h,i)perylene       | µg/L | 6.6                        | 0.2  | <0.20     | <0.20       | <0.20     |
| 2-and 1-methyl Naphthalene | µg/L | 0.99                       | 0.2  | <0.20     | <0.20       | <0.20     |
| Naphthalene-d8             | %    |                            | 1    | 108       | 108         | 68        |
| Acenaphthene-d10           | %    |                            | 1    | 110       | 93          | 72        |
| Chrysene-d12               | %    |                            | 1    | 116       | 97          | 66        |

| Sample Location    |      |                           |     | BH/MW6    |
|--------------------|------|---------------------------|-----|-----------|
| Sample ID          |      |                           |     | MW6       |
| Sampling Date      |      |                           |     | 23-Jul-20 |
| Laboratory ID      |      |                           |     | 1300148   |
| Parameter          | Unit | MECP Table 2 RPI Standard | RDL | 1300148   |
| PCBs               | µg/g | 0.2                       | 0.1 | <0.1      |
| Decachlorobiphenyl | %    |                           |     | 119       |

Note:

MECP Table 2 Standards = Ministry of Environment, Conservation and Parks (MECP) Full Depth Generic Site Condition

RDL = Report Detection Limit

# APPENDIX H



## Soil Maximum Concentration Data

Address: 79 Collier Street, Barrie, ON

### Summary of Petroleum Hydrocarbon and BTEX [PHCs (F1-F4) & BTEX]:

| Parameter                      | Unit | Maximum Concentration | Sample ID        |
|--------------------------------|------|-----------------------|------------------|
| F1 (C6 to C10)                 | ug/g | <5                    | multiple samples |
| F1 (C6 to C10) minus BTEX      | ug/g | <5                    | multiple samples |
| F2 (C10 to C16)                | ug/g | 47                    | MW2/SS2          |
| F3 (C16 to C34)                | ug/g | <50                   | multiple samples |
| F4 (C34 to C50)                | ug/g | <50                   | multiple samples |
| Gravimetric Heavy Hydrocarbons | ug/g | NA                    | multiple samples |
| Benzene                        | ug/g | 0.21                  | multiple samples |
| Toluene                        | ug/g | 2.3                   | BH5/SS3          |
| Ethylbenzene                   | ug/g | 1.1                   | multiple samples |
| Xylenes (Total)                | ug/g | 3.1                   | multiple samples |

### Summary of Volatile Organic Compounds (VOCs):

| Parameter                         | Unit | Maximum Concentration | Sample ID        |
|-----------------------------------|------|-----------------------|------------------|
| Dichlorodifluoromethane           | ug/g | <0.05                 | multiple samples |
| Vinyl Chloride                    | ug/g | <0.02                 | multiple samples |
| Bromomethane                      | ug/g | <0.05                 | multiple samples |
| Trichlorofluoromethane            | ug/g | <0.05                 | multiple samples |
| Acetone                           | ug/g | <0.50                 | multiple samples |
| 1,1-Dichloroethylene              | ug/g | <0.05                 | multiple samples |
| Methylene Chloride                | ug/g | <0.05                 | multiple samples |
| Trans- 1,2-Dichloroethylene       | ug/g | <0.05                 | multiple samples |
| Methyl tert-butyl Ether           | ug/g | <0.05                 | multiple samples |
| 1,1-Dichloroethane                | ug/g | <0.02                 | multiple samples |
| Methyl Ethyl Ketone               | ug/g | <0.50                 | multiple samples |
| Cis- 1,2-Dichloroethylene         | ug/g | <0.02                 | multiple samples |
| Chloroform                        | ug/g | <0.04                 | multiple samples |
| 1,2-Dichloroethane                | ug/g | <0.03                 | multiple samples |
| 1,1,1-Trichloroethane             | ug/g | <0.05                 | multiple samples |
| Carbon Tetrachloride              | ug/g | <0.05                 | multiple samples |
| 1,2-Dichloropropane               | ug/g | <0.03                 | multiple samples |
| Trichloroethylene                 | ug/g | <0.03                 | multiple samples |
| Bromodichloromethane              | ug/g | <0.05                 | multiple samples |
| Methyl Isobutyl Ketone            | ug/g | <0.50                 | multiple samples |
| 1,1,2-Trichloroethane             | ug/g | <0.04                 | multiple samples |
| Dibromochloromethane              | ug/g | <0.05                 | multiple samples |
| Ethylene Dibromide                | ug/g | <0.04                 | multiple samples |
| Tetrachloroethylene               | ug/g | <0.05                 | multiple samples |
| 1,1,1,2-Tetrachloroethane         | ug/g | <0.04                 | multiple samples |
| Chlorobenzene                     | ug/g | <0.05                 | multiple samples |
| m & p-Xylene                      | ug/g | <0.05                 | multiple samples |
| Bromoform                         | ug/g | <0.05                 | multiple samples |
| Styrene                           | ug/g | <0.05                 | multiple samples |
| 1,1,2,2-Tetrachloroethane         | ug/g | <0.05                 | multiple samples |
| o-Xylene                          | ug/g | <0.05                 | multiple samples |
| 1,3-Dichlorobenzene               | ug/g | <0.05                 | multiple samples |
| 1,4-Dichlorobenzene               | ug/g | <0.05                 | multiple samples |
| 1,2-Dichlorobenzene               | ug/g | <0.05                 | multiple samples |
| 1,3-Dichloropropene (Cis + Trans) | ug/g | <0.04                 | multiple samples |
| n-Hexane                          | ug/g | <0.05                 | multiple samples |

**Summary of Metals & Inorganics (M&I):**

| Parameter                     | Unit     | Maximum Concentration | Sample ID        |
|-------------------------------|----------|-----------------------|------------------|
| Antimony                      | ug/g     | 1.8                   | BH4/SS1          |
| Arsenic                       | ug/g     | 9                     | BH4/SS1          |
| Barium                        | ug/g     | 448                   | BH4/SS1          |
| Beryllium                     | ug/g     | <0.5                  | multiple samples |
| Boron                         | ug/g     | 12                    | BH4/SS1          |
| Boron (Hot Water Extractable) | ug/g     | 0.31                  | BH5/SS3          |
| Cadmium                       | ug/g     | 2.4                   | BH4/SS1          |
| Chromium                      | ug/g     | 17                    | BH4/SS1          |
| Cobalt                        | ug/g     | 4.3                   | BH4/SS1          |
| Copper                        | ug/g     | 639                   | BH4/SS1          |
| Lead                          | ug/g     | 608                   | BH4/SS1          |
| Molybdenum                    | ug/g     | 1.3                   | BH4/SS1          |
| Nickel                        | ug/g     | 11                    | BH4/SS1          |
| Selenium                      | ug/g     | 0.6                   | BH4/SS1          |
| Silver                        | ug/g     | 0.2                   | BH4/SS1          |
| Thallium                      | ug/g     | <0.4                  | multiple samples |
| Uranium                       | ug/g     | <0.5                  | multiple samples |
| Vanadium                      | ug/g     | 26                    | multiple samples |
| Zinc                          | ug/g     | 1160                  | BH4/SS1          |
| Chromium, Hexavalent          | ug/g     | <0.2                  | multiple samples |
| Cyanide, Free                 | ug/g     | <0.040                | multiple samples |
| Mercury                       | ug/g     | 0.43                  | BH4/SS1          |
| Electrical Conductivity (2:1) | mS/cm    | 2.53                  | BH5/SS3          |
| Sodium Adsorption Ratio       | NA       | 34                    | BH5/SS3          |
| pH, 2:1 CaCl2 Extraction      | pH Units | 7.75                  | BH4/SS1          |

**Summary of Polycyclic Aromatic Hydrocarbons (PAHs):**

| Parameter                 | Unit | Maximum Concentration | Sample ID        |
|---------------------------|------|-----------------------|------------------|
| Naphthalene               | ug/g | <0.05                 | multiple samples |
| Acenaphthylene            | ug/g | 0.15                  | MW2/SS2          |
| Acenaphthene              | ug/g | 0.17                  | MW2/SS2          |
| Fluorene                  | ug/g | 0.38                  | MW2/SS2          |
| Phenanthrene              | ug/g | 1.6                   | MW2/SS2          |
| Anthracene                | ug/g | 0.5                   | MW2/SS2          |
| Fluoranthene              | ug/g | 1.9                   | MW2/SS2          |
| Moisture Content          | %    | 15.3                  | MW3/SS13         |
| Pyrene                    | ug/g | 1.5                   | MW2/SS2          |
| Benz(a)anthracene         | ug/g | 0.74                  | MW2/SS2          |
| Chrysene                  | ug/g | 0.78                  | MW2/SS2          |
| Benzo(b)fluoranthene      | ug/g | 0.86                  | MW2/SS2          |
| Benzo(k)fluoranthene      | ug/g | 0.38                  | MW2/SS2          |
| Benzo(a)pyrene            | ug/g | 0.68                  | MW2/SS2          |
| Indeno(1,2,3-cd)pyrene    | ug/g | 0.34                  | MW2/SS2          |
| Dibenz(a,h)anthracene     | ug/g | <0.05                 | multiple samples |
| Benzo(g,h,i)perylene      | ug/g | 0.33                  | MW2/SS2          |
| 1 and 2 Methylnaphthalene | ug/g | 0.14                  | MW2/SS2          |

**Summary of Polychlorinated Biphenyls (PCBs):**

| Parameter | Unit | Maximum Concentration | Sample ID        |
|-----------|------|-----------------------|------------------|
| PCBs      | ug/g | <0.1                  | multiple samples |

## Groundwater Maximum Concentration Data

Address: 79 Collier Street, Barrie, ON

### Summary of Petroleum Hydrocarbon and BTEX [PHCs (F1-F4) & BTEX]:

| Parameter                      | Unit | Maximum Concentration | Sample ID        |
|--------------------------------|------|-----------------------|------------------|
| F1 (C6 - C10)                  | ug/L | <25                   | multiple samples |
| F1 (C6 to C10) minus BTEX      | ug/L | <25                   | multiple samples |
| F2 (C10 to C16)                | ug/L | <100                  | multiple samples |
| F3 (C16 to C34)                | ug/L | <100                  | multiple samples |
| F4 (C34 to C50)                | ug/L | <100                  | multiple samples |
| Gravimetric Heavy Hydrocarbons | ug/L | NA                    | multiple samples |
| Benzene                        | ug/L | <0.20                 | multiple samples |
| Toluene                        | ug/L | <0.20                 | multiple samples |
| Ethylbenzene                   | ug/L | <0.10                 | multiple samples |
| Xylenes (Total)                | ug/L | <0.20                 | multiple samples |

### Summary of Volatile Organic Compounds (VOCs):

| Parameter                   | Unit | Maximum Concentration | Sample ID        |
|-----------------------------|------|-----------------------|------------------|
| Dichlorodifluoromethane     | ug/L | <0.80                 | multiple samples |
| Vinyl Chloride              | ug/L | <0.68                 | multiple samples |
| Bromomethane                | ug/L | <0.80                 | multiple samples |
| Trichlorofluoromethane      | ug/L | <1.60                 | multiple samples |
| Acetone                     | ug/L | <4.0                  | multiple samples |
| 1,1-Dichloroethylene        | ug/L | <1.20                 | multiple samples |
| Methylene Chloride          | ug/L | <1.20                 | multiple samples |
| trans- 1,2-Dichloroethylene | ug/L | <0.80                 | multiple samples |
| Methyl tert-butyl ether     | ug/L | <0.80                 | multiple samples |
| 1,1-Dichloroethane          | ug/L | <1.20                 | multiple samples |
| Methyl Ethyl Ketone         | ug/L | <4.0                  | multiple samples |
| cis- 1,2-Dichloroethylene   | ug/L | <0.80                 | multiple samples |
| Chloroform                  | ug/L | 4.5                   | MW6              |
| 1,2-Dichloroethane          | ug/L | <0.80                 | multiple samples |
| 1,1,1-Trichloroethane       | ug/L | <1.20                 | multiple samples |
| Carbon Tetrachloride        | ug/L | <0.80                 | multiple samples |
| 1,2-Dichloropropane         | ug/L | <0.80                 | multiple samples |
| Trichloroethylene           | ug/L | <0.80                 | multiple samples |
| Bromodichloromethane        | ug/L | <0.80                 | multiple samples |
| Methyl Isobutyl Ketone      | ug/L | <4.0                  | multiple samples |
| 1,1,2-Trichloroethane       | ug/L | <0.80                 | multiple samples |
| Dibromochloromethane        | ug/L | <0.40                 | multiple samples |
| Ethylene Dibromide          | ug/L | <0.40                 | multiple samples |
| Tetrachloroethylene         | ug/L | <0.80                 | multiple samples |
| 1,1,1,2-Tetrachloroethane   | ug/L | <0.40                 | multiple samples |
| Chlorobenzene               | ug/L | <0.40                 | multiple samples |
| m & p-Xylene                | ug/L | <0.80                 | multiple samples |
| Bromoform                   | ug/L | <0.40                 | multiple samples |
| Styrene                     | ug/L | <0.40                 | multiple samples |
| 1,1,2,2-Tetrachloroethane   | ug/L | <0.40                 | multiple samples |
| o-Xylene                    | ug/L | <0.40                 | multiple samples |
| 1,3-Dichlorobenzene         | ug/L | <0.40                 | multiple samples |
| 1,4-Dichlorobenzene         | ug/L | <0.40                 | multiple samples |
| 1,2-Dichlorobenzene         | ug/L | <0.40                 | multiple samples |
| 1,3-Dichloropropene         | ug/L | <0.30                 | multiple samples |
| n-Hexane                    | ug/L | <0.80                 | multiple samples |

**Summary of Metals & Inorganics (M&I):**

| Parameter               | Unit     | Maximum Concentration  | Sample ID        |
|-------------------------|----------|------------------------|------------------|
| Dissolved Antimony      | ug/L     | 2.2                    | MW2              |
| Dissolved Arsenic       | ug/L     | 2.2                    | MW6              |
| Dissolved Barium        | ug/L     | 1800                   | MW2              |
| Dissolved Beryllium     | ug/L     | <1.00                  | multiple samples |
| Dissolved Boron         | ug/L     | 52.7                   | MW3              |
| Dissolved Cadmium       | ug/L     | <0.40                  | multiple samples |
| Dissolved Chromium      | ug/L     | 9.8                    | MW2              |
| Dissolved Cobalt        | ug/L     | 3.89                   | MW6              |
| Dissolved Copper        | ug/L     | 8.5                    | MW2              |
| Dissolved Lead          | ug/L     | <1.00                  | multiple samples |
| Dissolved Molybdenum    | ug/L     | 1.05                   | MW2              |
| Dissolved Nickel        | ug/L     | <6.0                   | multiple samples |
| Dissolved Selenium      | ug/L     | 5.4                    | MW3              |
| Dissolved Silver        | ug/L     | 1.9                    | MW2              |
| Dissolved Thallium      | ug/L     | <0.60                  | multiple samples |
| Dissolved Uranium       | ug/L     | 3.56                   | MW6              |
| Dissolved Vanadium      | ug/L     | <0.80                  | multiple samples |
| Dissolved Zinc          | ug/L     | 18.3                   | MW6              |
| Mercury                 | ug/L     | <0.02                  | multiple samples |
| Chromium VI             | ug/L     | <5                     | multiple samples |
| Cyanide, Free           | ug/L     | 12                     | MW2              |
| Dissolved Sodium        | ug/L     | <b><u>7720000</u></b>  | MW2              |
| Chloride                | ug/L     | <b><u>14500000</u></b> | MW2              |
| Electrical Conductivity | uS/cm    | 28800                  | MW2              |
| pH                      | pH Units | 7.66                   | MW3              |

**Summary of Polycyclic Aromatic Hydrocarbons (PAHs):**

| Parameter                  | Unit | Maximum Concentration | Sample ID        |
|----------------------------|------|-----------------------|------------------|
| Naphthalene                | ug/g | <0.20                 | multiple samples |
| Acenaphthylene             | ug/g | <0.20                 | multiple samples |
| Acenaphthene               | ug/g | <0.20                 | multiple samples |
| Fluorene                   | ug/g | <0.20                 | multiple samples |
| Phenanthrene               | ug/g | <0.10                 | multiple samples |
| Anthracene                 | ug/g | <0.10                 | multiple samples |
| Fluoranthene               | ug/g | <0.20                 | multiple samples |
| Pyrene                     | %    | <0.20                 | multiple samples |
| Benzo(a)anthracene         | ug/g | <0.20                 | multiple samples |
| Chrysene                   | ug/g | <0.10                 | multiple samples |
| Benzo(b)fluoranthene       | ug/g | <0.10                 | multiple samples |
| Benzo(k)fluoranthene       | ug/g | <0.10                 | multiple samples |
| Benzo(a)pyrene             | ug/g | <0.01                 | multiple samples |
| Indeno(1,2,3-cd)pyrene     | ug/g | <0.20                 | multiple samples |
| Dibenz(a,h)anthracene      | ug/g | <0.20                 | multiple samples |
| Benzo(g,h,i)perylene       | ug/g | <0.20                 | multiple samples |
| 2-and 1-methyl Naphthalene | ug/g | <0.20                 | multiple samples |

**Summary of Polychlorinated Biphenyls (PCBs):**

| Parameter | Unit | Maximum Concentration | Sample ID        |
|-----------|------|-----------------------|------------------|
| PCBs      | ug/g | <0.1                  | multiple samples |