FINAL REPORT

Phase Two Environmental Site Assessment

30 Cleary Avenue, Ottawa Ontario

Attention to: **Scott Bentley**

Submitted to:

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1.0 EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by Theia Partners Inc. (Theia) to conduct a Phase Two Environmental Site Assessment (Phase Two ESA) of the property located at 30 Cleary Avenue, Ottawa, Ontario ("Site"). The Site location and plan are provided in Figure 1.

WSP previously completed a Phase One Environmental Site Assessment (Phase One ESA) for the Site, the results of which were documented in the report titled "*Phase One Environmental Site Assessment, 30 Cleary Avenue, Ottawa, Ontario*", dated November 2023. Based on the findings of the Phase One ESA, WSP completed this Phase Two ESA investigation.

The analytical results from the sampling and analysis program indicate that the reported concentrations of barium in soil at the Phase Two Property do not meet the applicable Ministry of Environment, Conservation and Parks (MECP) Table 7 site condition standards (residential/institutional land use, coarse textured soil)[1].

The reported results for sodium adsorption ratio (SAR) and electrical conductivity (EC) also exceeded the MECP Table 7 standards. However, both of these exceedances are considered to be due to the application of salt products to the ground for de-icing and safety and are therefore not considered as an exceedance of MECP Table 7 standards as per O. Reg 153/04 section 49.1.

The reported concentrations of all other parameters tested in soil and groundwater were below the Table 7 site condition standards.

The exceedance of barium is considered to be most likely of natural origin. However, given that it is in fill it may be attributed to the importation of fill to the Site. As such, the fill at this location may need to be managed separately from the remaining fill during development. Given the nature of the contaminant which is commonly found across the city at these concentrations in natural soils and the expectation that the fill will likely be excavated to accommodate the development, no further investigation is recommended.

2.0 INTRODUCTION

2.1 Site Description

WSP was retained by Theia to conduct a Phase Two Environmental Site Assessment (Phase Two ESA) of the following property:

Municipal Address	Part of 30 Cleary Avenue, Ottawa
Property Identification Number	04751-0119
Legal Description	Not available
Size of the Phase Two Property	1.09 hectares

The location of the Phase Two Property is provided in Figure 1. The boundaries of the Phase Two Property are provided in Figure 2.

[1] *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, Ministry of the Environment, April 15, 2011 (PIBS# 7382e01)

2.2 Property Ownership

The Phase Two Property is owned by the First Unitarian Congregation of Ottawa. Authorization to proceed with this investigation was received on August 1, 2023, from Scott Bentley, Capital Projects Director for Theia Partners Inc., acting on behalf of the Site Owner as the Phase Two ESA Site Representative. The contact information for Scott Bentley is as follows:

Client	Address	Contact Information
Theia Partners Inc.	1554 Carling Ave, Suite 55 Ottawa, Ontario, K1Z 7M4	Telephone: 343-596-7596 bentley@theiapartners.com

2.3 Current and Proposed Future Uses

The Phase Two Property is currently developed with a parking lot (partially gravel, partially paved), reportedly constructed in 1982. The proposed future use of the Phase Two Property is residential.

2.4 Applicable Site Condition Standard

The analytical results were compared to the Table 7 generic site condition standards for shallow soils in a non-potable groundwater condition (residential property use, coarse soil texture) presented in the MECP document "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", dated April 15, 2011. The applicable site condition standards were selected based on the following rationale:

- The Phase Two Property and all other properties located, in whole or in part, within 250 metres of the Phase Two Property are supplied by the City of Ottawa municipal drinking water system. No wells were identified that are used or intended for use as a source of potable water.
- The Phase Two Property is not located in an area designated in a municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of ground water.
- More than two thirds of the soil materials are considered to be coarse-textured (Section 6.4).
- The closest permanent water body is the Ottawa River, located 130 metres ("m") north of the Phase Two Property.
- No features have been identified at the Phase Two Property that would meet the conditions of an environmentally sensitive site, as described in Section 41 of O. Reg 153/04.
- The pH of surface soil meets the requirement that 5≤pH≤9 (Section 6.4).
- The intended use of the Phase Two Property is residential.
- The overburden thickness is less than 2 metres over more than two-thirds of the Phase Two Property. The reported depth to water is greater than 3 metres over the entire Phase Two Property.

3.0 BACKGROUND INFORMATION

This section presents the background conditions of the Phase Two Property including a description of the physical setting and a summary of past investigations conducted.

The objectives of the Phase Two ESA were to obtain information about environmental conditions in the soil and groundwater on, in or under the Site. The objectives of this Phase Two ESA were achieved by:

- Developing an understanding of the geological and hydrogeological conditions at the Phase Two Property.
- Conducting field sampling for all contaminants of potential concern ("COPCs") associated with each area of potential environmental concern ("APEC").

3.1 Physical Setting

The nearest surface water body is the Ottawa River, located 130 m north of the Phase Two Property. There are no areas of natural significance within the Phase Two Study area. Land uses surrounding the Phase Two Property include parkland, institutional, residential, and commercial, as shown in Figure 2.

Based on geological mapping, the regional overburden around the Phase Two Property is stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain.

The Phase Two Property is located on a topographic flat area with an elevation of approximately 62 m above sea level (masl). The Site is sloping slightly down to the north from Richmond Rd, with the gravel parking area to the south being higher elevation than the paved portion of the parking area to the north. There are no surface water drainage features on the Site.

3.2 Past Investigations

3.2.1 Phase One ESA

WSP conducted a Phase One ESA entitled, "*Phase One Environmental Site Assessment, 30 Cleary Avenue, Ottawa, Ontario*", dated November 2023, to assess the likelihood of soil and/or groundwater contamination resulting from historical or present activities at the Site and surrounding area. This included a review of available historical information on the Site and surrounding area, interviews with persons familiar with the Site and a Site reconnaissance. The APECs identified in the 2023 Phase One ESA are summarized in the following table:

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	PCA No.[2]	PCA – on-site or off-site	Contaminants of Potential Concern (COPCs)[3]	Media Potentially Impacted
APEC-1 Southeast gravel parking area - Former railway on-site - Multiple gasoline service stations off-site - Auto repair shop off-site	Southeast corner of Property.	46, 28, 10,	On-site and off-site	PHCs BTEX PAHs Metals	Soil and Groundwater
APEC-2 Entire Phase One Property - Fill material of unknown quality - Application of salt to parking areas for de-icing purposes[1]	Entire Phase One Property	30	On-site	PHCs BTEX PAHs Metals Inorganics	Soil

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	PCA No.[2]	PCA – on-site or off-site	Contaminants of Potential Concern (COPCs)[3]	Media Potentially Impacted
APEC-3 Southwest corner of Property - Multiple gasoline USTs and ASTs off-site - Multiple gasoline service stations off-site	L-shaped section in the southwest corner of the Property, extending halfway up the western boundary and the same distance along a portion of the southern boundary.	28	Off-site	PHCs BTEX	Soil and Groundwater

1 - Based on information gathered through historical information review, WSP understands that the Site is not used, and has not been used, for manufacturing, processing, or bulk storage of salt. Further, Golder understands that salt has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both within the parking lot at the Site. It is therefore the Qualified Person's opinion, as per Section 49(1) of O. Reg. 153/04, as amended, that the site condition standards for electrical conductivity and sodium adsorption ratio are considered not to be exceeded within the Phase Two Property. Salt application to the parking lot has been included as an APEC for completeness.

This report was prepared by a Qualified Person and will be relied upon for the Phase Two investigation.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

The Phase Two ESA investigation activities were completed between carried out over August 24, August 25, September 5, September 29, and October 12, 2023, and included the following tasks:

- **Health and Safety Plan**: Preparation of a Health and Safety Plan for internal and subcontractor use prior to initiating any field work at the Site.
- **Utility Clearances**: Coordination of utility clearances with local utility companies along with retaining the services of a private locator to assess for possible services in the areas of the proposed test locations.
- **Borehole Advancement and Monitoring Well Installation**: The borehole drilling and monitoring well installation program included drilling of nine boreholes and the installation of four groundwater monitoring wells, which were used for groundwater sampling at the Site. The locations of the boreholes and monitoring wells are provided in Figure 5. The monitoring well construction details are presented in Appendix A.
- **Soil Sampling**: Soil samples were collected on August 24th and 25th, 2023 from six of the boreholes. Selected soil samples were submitted for analysis of the COPCs (Table 1).
- **Groundwater Monitoring and Sampling**: Groundwater samples were collected on September 5th, 2023, and October 12th, 2023. Groundwater samples were submitted for analysis of the COPCs (Table 2).
- **Surveying**: An elevation survey for boreholes and monitoring wells was completed using a Trimble R8.
- **Reporting**: WSP compiled and assessed the field and laboratory results from the above noted activities into this report.

The Phase Two investigation was carried out in general accordance with WSP's standard operating procedures, which conform to the requirements of Ontario Regulation 153/04 (O. Reg. 153/04). The data from the Phase Two ESA investigation completed by WSP were incorporated into a single Phase Two ESA report following the Phase Two ESA report format required by O. Reg. 153/04.

There were no impediments or access limitations that in the opinion of the Qualified Person would affect the conclusions of this Phase Two ESA report.

4.2 Media Investigated

The Phase Two ESA included sampling and analysis of soil and groundwater. No sediment was present and therefore sediment sampling was not required. Summaries of the sampling and analysis completed for soil and groundwater are provided in Tables 1 and 2.

4.3 Phase One Conceptual Site Model

The following key Site features (where applicable) are presented in Figures 1, 2, 3 and 4:

As part of the requirements of Part V in Schedule D of O. Reg. 153/04, a phase one conceptual site model (CSM) was developed as part of the review and evaluation.

The phase one CSM consists of a figure and narrative descriptions that are intended to illustrate the results of the Phase One ESA and to provide a basis of further work if required.

The phase one CSM is illustrated in Figures 3 and 4. The narrative is provided below, in accordance with the mandatory requirements of Table 1 of Schedule D.

4.3.1 Areas of PCAs Potentially Affecting the Phase One Property

Refer to Section 7.2 for a description of areas of PCAs identified on the Phase One Property and in the Phase One Study Area. Refer to Section 7.3 for a description of APECs on the Phase One Property based on the identified PCAs.

4.3.2 Potential Influence of Underground Utilities

COPCs have the potential to preferentially migrate in utility backfills at and surrounding the Phase One Property. It is possible that potential impacts associated with off-site PCAs could be intercepted by intervening underground utilities, however; they remain a concern due to their proximity to the Phase One Property and potential for impacts that may extend deeper than utility trenches.

4.3.3 Regional or Site Specific Geological/Hydrogeological Information

Based on the records review the following is likely true of the Phase One Property:

- Based on geological mapping, the Phase One Property overburden is stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain. The thickness of this till ranges from approximately 0.3 – 1.7 m. Monitoring well records associated with the Phase One Property indicate that unconsolidated material beneath the Phase One Property consists primarily of packed till materials.
- Bedrock is expected to be Middle Ordovician limestone and shale from the Ottawa and Simcoe Groups and the Shadow Lake Formation.

- The Phase One Property is located on a topographic flat area with and elevation of approximately 62 m above sea level (masl). The Site is sloping down to the north from Richmond Rd, with the gravel parking area to the south being higher elevation than the paved portion of the parking area to the north.
- Based on monitoring wells developed as part of this Phase Two ESA, depth to groundwater ranges from approximately 3.39 to 3.59 mbgs.
- There are no permanent surface water bodies or areas of standing water on the Phase One Property. The nearest open water body is the Ottawa River, which is to the north and west of the Property. The closest part of the river to the Site is about 130 metres to the north.
- Surface runoff is directed to five storm sewer manholes located on the Phase One Property.
- Based on topography and orientation of surface water bodies shallow groundwater at the Site is expected to flow toward the northwest. However, shallow groundwater flow on the Phase One Property and in the Phase One Study Area may be variable and influenced by the presence of subsurface utilities. Regional groundwater flow is expected to be toward the Ottawa River, located to the northwest of the Phase One Property.

4.3.4 Uncertainties Associated with CSM

Uncertainties associated with the Phase One ESA are identified in Section 7.3.3 of the Phase One report and can also be considered for the phase one CSM.

Additional uncertainties to consider from the context of the CSM include:

- Site utilities and unknown effect of utilities on migration patterns of COPCs.

4.4 Impediments

No physical impediments to the Phase Two ESA investigation were encountered. Access to the Phase Two Property was not denied or restricted.

5.0 INVESTIGATION METHOD

5.1 General

The following sections describe the field investigation methodology employed during the Phase Two ESA. The field work was carried out over August 24, August 25, September 5, September 29, and October 12, 2023

Prior to initiating the field work, WSP developed and implemented Site-specific protocols to protect the health and safety of its employees and subcontractors through the preparation of a Site-specific Health and Safety Plan. An assessment of potential health and safety hazards at the Phase Two Property and those associated with the proposed work was completed each day of the field program. A health and safety tail gate meeting was held with WSP's subcontractors each day prior to completion of the field work. The document was reviewed and signed on-Site by field personnel prior to commencing work. Additionally, prior to any intrusive investigations, including drilling, WSP completed public and private utility clearances.

5.2 Drilling

Borehole drilling and monitoring well installation were completed on August 24, August 25, and September 29, 2023, by Downing using a CME-75 truck mounted drill. A power auger was used to bore through fill material at all locations. At locations where bedrock was also drilled (BH23-01, BH23-05, and BH23-07), a rotary diamond drill was used for that portion of the drilling. Nine boreholes were advanced with depths ranging from 1.30 to 7.99 metres below ground surface (mbgs). Drilling depth was based on the geotechnical requirements as the investigation was being conducted in combination with the geotechnical investigation for the development.

5.3 Soil: Sampling

At each borehole location, regular soil samples were collected using a 0.6 m split spoon sampler for field screening (including visual inspection and field measurement of headspace concentration), soil sample collection, and stratigraphic logging by a WSP field supervisor. A portion of each soil sample was placed in a sealed plastic bag, as well as a pre-cleaned laboratory-supplied sample container for potential laboratory analysis. Soil headspace concentrations of samples were measured using a photoionization detector (PID) and a combustible gas detector, calibrated using isobutylene and hexane, respectively, to determine total organic vapour and combustible gas concentrations.

One soil sample representing “worst-case” conditions at each sampling location was selected for laboratory analysis based on the field headspace screening measurements, visual observations (e.g., staining, discoloration and/or free product, if any), and olfactory observations (if any). Soil samples were submitted to the analytical laboratory under chain of custody procedures. A summary of the soil samples submitted for analysis is provided in Table 1.

Geologic descriptions, visual and olfactory observations, and results of field headspace measurements are presented in the borehole logs (Appendix A).

A description of the quality assurance/quality control measures taken to minimize the potential for cross-contamination between sampling locations is provided in Section 5.12.

5.4 Field Screening Measurements

Field measurements of sample headspace concentration were made using the following equipment:

Equipment	Parameters Detected	Detection Limit	Precision	Accuracy	Calibration Standard
RKI Eagle 2	Combustible gas	0-50,000 ppm	NA	±5%	Hexane (100 ppm)
RKI Eagle 2	Total organic vapour	0-2,000 ppm	NA	±5%	Isobutylene (100 ppm)

Instruments were calibrated before use with daily calibration checks.

5.5 Groundwater: Monitoring Well Installation

Monitoring wells were installed in two boreholes (BH23-05 and BH23-07), each adjacent to the off-Site PCAs upgradient of the Phase Two Property to the south-southeast and southwest. A total of four monitoring wells were installed. At both BH23-05 and BH23-07, two wells were installed, one shallower and one deeper to get information on groundwater quality at different depths. Both shallower wells at each location were found to be dry and therefore not sampled from for groundwater. Monitoring wells were constructed of 32 millimetre inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) casings equipped with Schedule 40 PVC well screens (1.5 m in length, #10 slot size). The sand pack surrounding the screen was constructed using #3 silica sand. A bentonite seal consisting of bentonite solids (e.g., Holeplug™) was placed above the filter pack with a minimum thickness of 0.6 m. Each monitoring well was completed at ground surface with a flush-mount protective casing set in concrete and the casing was sealed with a PVC j-plug. Monitoring wells were developed on September 5 and 29, 2023. Well construction details are provided in Appendix A.

5.6 Groundwater: Sampling

Groundwater samples were collected from all new monitoring wells on September 5 and October 12, 2023. Depths to water were determined using an electric water level meter. Groundwater monitoring was completed by purging three well volumes of groundwater from each monitoring well using dedicated Waterra® inertial samplers and collecting groundwater samples into pre-cleaned laboratory-supplied sample containers.

Groundwater samples were placed in laboratory-prepared containers and stored in a cooler until delivery to the analytical laboratory under chain of custody procedures. A summary of the groundwater samples submitted for analysis is presented in Table 2.

5.7 Analytical Testing

Two analytical laboratories were used during this Phase Two ESA. The contact information for Bureau Veritas Laboratories is: 36 Antares Dr., Nepean, Ontario, K2E 7W5, 613-274-0573. The contact information for AGAT Laboratories is: 1690 Woodward Dr., unit 1630, Ottawa, Ontario, 613-225-8668.

Both analytical laboratories are accredited in accordance with the International Standard ISO/IEC 17025 (General Requirement for the Competence of Testing and Calibration Laboratories, May 5, 2005, as amended) and the standards for proficiency testing developed by the Standards Council of Canada, the Canadian Association for Laboratory Accreditation or another accreditation body accepted by the MECP.

5.8 Residue Management Procedures

All residues produced during the investigation (e.g., soil cuttings from drilling, groundwater from well development purging, wash water from equipment decontamination) were placed in sealed drums and stored at the Phase Two Property for disposal by the owner.

5.9 Elevation Surveying

WSP used a Trimble R8 to complete a geodetic survey of each drilling location. The survey included the location and elevation (both the top of the flush-mounted well cap and the top of the riser pipe) for each monitoring well.

5.10 Quality Assurance and Quality Control Measures

WSP's quality assurance program for environmental investigations was implemented to ensure that analytical data obtained by the investigation were valid and representative. The quality assurance program included the following measures:

- The use of standard operating procedures for all field investigation activities.
- All monitoring wells were developed following installation to remove fine particles from the filter pack and any fluids introduced during drilling.
- Monitoring wells were appropriately purged prior to groundwater sample collection to remove stagnant water from the well bore and improve sample representativeness, minimizing sample agitation and aeration to the extent practicable.
- Daily checks of calibration were completed for field equipment using a standard of known concentration.
- Soil and groundwater samples were handled and stored in accordance with the sample collection and preservation requirement of the MECP "*Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.I of the Environmental Protection Act and Excess Soil Quality"*, July 1, 2011 (as amended February 19, 2021). Samples were collected directly into pre-cleaned, laboratory-supplied sample containers with the appropriate preservative for the analyte group. Upon collection, samples were placed in insulated coolers with ice for storage and transport to the analytical laboratory under chain of custody protocols.
- Dedicated sampling equipment (tubing and foot valves) and clean disposable Nitrile™ gloves were used at each sampling location to prevent cross-contamination. All non-dedicated sampling equipment (e.g., water level meters, split spoons) was decontaminated between sampling locations. Sampling equipment in contact with soil, groundwater, or sediment was: cleaned by mechanical means; washed with a phosphate-free, laboratory-grade detergent and, if necessary, an appropriate desorbing wash solution; and thoroughly rinsed with analyte-free water.
- Detailed field records documenting the methods and circumstances of collection for each field sample were prepared at the time of sample collection. Each sample was assigned a unique sample identification number recorded in the field notes, along with the date and time of sample collection, the sample matrix, and the requested analyses.
- The submission of samples to the analytical laboratory in accordance with standard chain of custody procedures.

Below is a summary of the soil and groundwater samples.

Date Sampled	Sample Location	Sample ID	Media
August 24, 2023	BH23-01	1-1	Soil
August 24, 2023	BH23-05	5-2	Soil
August 24, 2023	BH23-09	9-2	Soil

Date Sampled	Sample Location	Sample ID	Media
August 25, 2023	BH23-03	3-1	Soil
August 25, 2023	BH23-04	4-1	Soil
August 25, 2023	BH23-07	7-2	Soil
September 5, 2023	BH23-05	23-05A and 23-05A (field duplicate of 23-05)	Groundwater
October 12, 2023	BH23-07	BH23-07	Groundwater

6.0 REVIEW AND EVALUATION

This section of the report presents a review and evaluation of the results of the drilling, monitoring and sampling activities conducted as part of the Phase Two ESA.

6.1 Geology

The soil and bedrock conditions encountered during the borehole drilling programs are presented in the borehole logs (Appendix A). The following presents a summary of the subsurface soil conditions encountered during the investigation.

In general, the soil conditions encountered in the boreholes consisted of 1-3 inches of asphalt, underlain by a layer of fill material, followed by a layer of native silty sand to clayey silt and glacial till, followed by limestone and shale bedrock. The fill material generally consisted of sand and gravel, which ranged from depths of approximately 0 to 0.86 mbgs. The native soil layer consisted of silty sand to sandy silt mixed with compact glacial till, which ranged from depths of 0.25 to 2.44 mbgs. The limestone and shale bedrock layer was drilled at three borehole locations (BH23-01, BH23-05, and BH23-07) and the start of the bedrock was found at 0.86, 1.93, and 2.43 mbgs, respectively.

6.2 Groundwater: Elevations, Hydraulic Gradients, and Flow Direction

Water level measurements were obtained from two of the on-Site monitoring wells on September 5 (BH23-05) and October 12 (BH23-07), 2023 using a Solinst water level meter. The depth to groundwater ranged from 3.39 mbgs (BH23-05) to 3.59 mbgs (BH23-07). The elevation of the water table was 58.74 meters above sea level (masl) at BH23-05 and 59.79 masl at BH23-07.

The approximate horizontal gradient of the water table between BH23-05 and BH23-07 is 0.015 m/m. As shown on Figure 5, BH23-05 is to the north of BH23-07. Therefore, it can be inferred that the groundwater flow at the Property is northerly.

Any temporary fluctuation in water levels on the Phase Two Property is not anticipated to affect the conclusions of the Phase Two ESA. Seasonal fluctuation in water levels should be expected. Given the limited number of monitoring events, seasonal trends could not be identified; however shallow groundwater water levels are typically highest following the spring recharge and decline throughout the summer and fall months into the winter.

Vertical hydraulic gradients were not determined since the reported concentrations of all COPCs in groundwater met the applicable site condition standards and shallow wells were dry at the time of sampling.

6.3 Coarse Soil Texture and pH

Based on field observations, more than 50% of particles (by mass) in the soil were equal to or greater than 75 µm in mean diameter. Accordingly, soil at the Phase Two Property is considered to be coarse-textured.

Soil samples were collected from surface soil and submitted to AGAT laboratories for pH determination. A summary of the test results is presented below.

Location ID	Sample ID	Sample Depth (mbgs)	Surface/ Subsurface Soil	pH
BH23-01	1-1	0.02-0.3	Surface soil	7.05
BH23-03	3-1	0.06-0.3	Surface soil	7.11
BH23-04	4-1	0.08-0.6	Surface soil	7.20
BH23-05	5-2	0-0.6	Surface soil	7.12
BH23-07	7-2	0.6-1.2	Surface soil	7.16
BH23-09	9-2	0.7-1.3	Surface soil	7.09

The reported pH of all samples of surface soil meets the requirement that 5≤pH≤9.

6.4 Soil: Field Screening

gas vapour ranged from 0 to 85 ppm (highest reading at BH23-07 between 0.6-1.2 mbgs) and organic vapour measurements were 0 ppm at all locations.

6.5 Soil: Quality

A list of soil samples submitted for laboratory analysis is provided in Table 1. The analytical results for soil samples are summarized in Tables 3 to 5. Certificates of analysis are provided in Appendix B.

The reported concentrations of all soil samples met the applicable site condition standards with the exception of the following:

- **BH23-01**—The reported concentration of barium in soil sample BH23-01 1-1 (410 µg/g) was above the Table 7 standard (390 µg/g).
- **BH23-04**—The sodium adsorption ratio (SAR) of soil sample BH23-04 4-1 (6.82) was above the Table 7 standard (5).
- **BH23-07**—The reported electrical conductivity of soil sample BH23-07 7-2 (0.785 mS/cm) was above the Table 7 standard (0.7 mS/cm). The sodium adsorption ratio (SAR) of soil sample BH23-07 7-2 (9.17) was above the Table 7 standard (5).
- **BH23-09**—The reported electrical conductivity of soil sample BH23-09 9-2 (1.17 mS/cm) was above the Table 7 standard (0.7 mS/cm). The sodium adsorption ratio (SAR) of soil sample BH23-09 9-2 (15.9) was above the Table 7 standard (5).

Sodium adsorption ratio (SAR) and electrical conductivity (EC) are considered to be due to the application of salt products to the ground for de-icing and safety and are therefore not considered as an exceedance of MECP Table 7 standards as per O. Reg 153/04 section 49.1. They are referenced above for consideration with respect to future excavation and off-site management where the EC and SAR may need to be considered.

6.6 Groundwater: Quality

The analytical results for groundwater samples are summarized in Table 6. Certificates of analysis are provided in Appendix B.

The reported concentrations of all groundwater samples met the applicable site condition standards.

In addition to the numerical standards, the MECP sets out aesthetic standards relating to the presence of petroleum hydrocarbon product. Specifically, a property does not meet the site condition standards if there is evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on groundwater, surface water or in any groundwater or surface water samples. Monitoring for free phase product was conducted during groundwater sample collection. No evidence of free product or sheen in groundwater was observed.

A property does not meet an applicable potable ground water site condition standard unless the qualified person has determined that there is no indication of objectionable petroleum hydrocarbon odour and taste associated with the ground water. There was no evidence of objectionable petroleum hydrocarbon odour or taste associated with groundwater.

6.7 Data Quality Review

The quality assurance assessment of the groundwater field duplicate sample results was conducted according to the MECP document "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality*", March 9, 2004 (amended February 19, 2021) ("Analytical Protocol"). The laboratories' data quality review findings are presented in the Certificates of Analysis, found in Appendix B. WSP calculated the Relative Percent Difference (RPD) between the groundwater duplicate and parent samples, and found the RPD to be within acceptable criteria limits. Based on this review, the analytical data generated during the investigation are valid and may be used in this Phase Two ESA without further qualification.

All certificates of analysis or analytical reports received pursuant to clause 47(2)(b) of O. Reg. 153/04 comply with subsection 47(3). A certificate of analysis or analytical report has been received for each sample submitted for analysis and is provided in Appendix B.

6.8 Phase Two Conceptual Site Model

The Phase Two conceptual site model is presented in the following sections. The location of the Phase Two Property is provided in Figure 1.

POTENTIAL SOURCES OF CONTAMINATION

Potentially Contaminating Activities

Based on the information obtained as part of the Phase One ESA, the following potentially contaminating activities ("PCAs") were identified. The location of each PCA is provided in Figure 3. Given the high volume of PCAs in the

Phase One Study Area, those that have been carried forward in consideration of APECs have been shaded light grey.

Potentially Contaminating Activity	Address	Rationale for Potential Contribution of the PCA to an APEC
From approximately the late 1940s to mid 1960s, a rail track traversed the southeast portion of the Phase One Property, adjacent to a row of northeast-southwest oriented rectangular commercial buildings on the far side of the rail track.	Phase One Property	The PCA is located on the Phase One Property and must be identified as an APEC. (APEC 1)
Fill quality is unknown and therefore of concern. Multiple redevelopments of Site have happened in the past, fill quality not documented.	Phase One Property	The PCA is located on the Phase One Property and must be identified as an APEC. (APEC 2)
Gasoline UST (4540 L) and coal yard – Leafloor Bros Coal and Wood Dave Rennie's Auto Repair shop	801 Richmond Rd	PCA is upgradient of Site. Given nature of chemicals used in auto garages, and former storage of coal, PCA is carried forward as contributing to APEC 1.
Fuel Oil UST (9080 L) – Unitarian Church of Ottawa	Unitarian Church of Ottawa (adjacent to east of Property)	UST is cross gradient/downgradient location with respect to groundwater flow direction. As such, PCA is not considered to result in an APEC.
Two gasoline USTs – Gasoline Service Station (unnamed)	775 Richmond Rd	PCA is in close proximity and is upgradient of Site. PCA is carried forward as contributing to APEC 1.
Ottawa Electric Railway – streetcar public transit system. Ran parallel to Richmond Rd, adjacent to Byron Ave.	Between Richmond Rd and Byron Ave	Given distance from the Site and relatively immobile nature of the contaminants associated with this PCA (railway fill), this PCA is not considered to result in an APEC. As well, this infrastructure has been removed as part of the current LRT construction.
Four gasoline storage tanks (total 13,000 gal, unspecified whether AST or UST), three fuel oil tanks (total 1000+ gal, two are USTs), one waste oil tank (1000 gal) – Gasoline Service Station – Sunoco Energy Inc.	75 Cleary Ave	PCA is upgradient of Site with respect to groundwater flow direction. Given high volume of contaminant storage, PCA is carried forward as contributing to APECs 1.
Hydraulic oil leak from crane (Kiewit Eurovia Vinci (KEV))	Kichi Zībī Mīkan Parkway and Cleary Ave	Spill is downgradient of Site with respect to groundwater flow direction. As such, spill is not considered to result in an APEC.
Gasoline ASTs (Sunlight Oil Co.) Three gasoline USTs (three 13,620 L tanks) - BP Canada Gas Station	851 Richmond Rd	PCA is cross gradient/upgradient of Site with respect to groundwater flow direction. Given large quantities of gasoline USTs, PCA is carried forward as contributing to APECs 3.
Two USTs (unknown product type or size) – BP Canada Gas Station	865 Richmond	Based on groundwater flow direction and distance from the Site, this PCA is not considered to result in an APEC.

Potentially Contaminating Activity	Address	Rationale for Potential Contribution of the PCA to an APEC
Spill – 5L hydraulic oil spill to ground (KEV) Spill – 2L diesel exhaust fluid spill to soil (KEV) Spill – 20L hydraulic oil spill to rock floor of tunnel (KEV) Spill – 1L diesel spill to soil (KEV)	Sherbourne Rd and Byron Ave	Given distance from the Site and small quantities of spills, these are not considered to result in an APEC.
Multiple gasoline and fuel oil USTs – Shell Gas Station Dry cleaning depot (unnamed)	747 Richmond Rd	Based on distance from the Site and cross gradient location with respect to groundwater flow direction, these PCAs are not considered to result in an APEC.
Spill – 0.5L unknown hydrocarbons (KEV)	Just east of 75 Cleary Ave	Given low quantity of spill and distance from Site, spill is not considered to result in an APEC.
Spill – 20L hydraulic oil to land (Lehigh Hanson Canada ULC)	2122 Wayne Ave	Given low quantity of spill and distance from Site, spill is not considered to result in an APEC.
Spill – 1L hydraulic oil to soil and rock (KEV)	Byron Park to the east across from 851 Richmond Rd	Given low quantity of spill and distance from Site, spill is not considered to result in an APEC.
Two USTs (unknown product type or size) – Unnamed Gasoline Service Station	739 Richmond Rd	Based on the distance from the Site and cross gradient location with respect to groundwater flow direction, this PCA is not considered to result in an APEC.
Spill – 100L diesel to ground (no client name given) Spill – 20L hydraulic oil to asphalt and walkway (unnamed client) Spill – 1L grease spill (KEV) Spill – 5L hydraulic oil to ground (KEV)	Clearly Ave and Richmond Rd	Based on distance from sit and quantity of spills, these are not considered to result in an APEC. As well, any spill reported in the last 15 years would have required action by MECP.
Spill – 2L hydraulic oil to excavated pit with snow melt (KEV)	Near 100 Byron Ave	Given low quantity of spill and distance from Site, spill is not considered to result in an APEC.
Three gasoline USTs – Capital City Gas Gasoline Service Stations: - Saveway Gas Little Oil Company Ltd.	875 Richmond Rd	Based on distance from the Site and cross gradient location relative to groundwater flow direction, these PCAs are not considered to result in an APEC.
Spill – 1L hydraulic oil spill	Richmond Rd and Redwood Ave	Given low quantity of spill and distance from Site, this spill is not considered to result in an APEC.

Areas of Potential Environmental Concern

The following APECs were identified at the Phase Two Property. The location of each APEC is presented in Figure 4.

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	PCA No.[2]	PCA – on-site or off-site	Contaminants of Potential Concern (COPCs)[3]	Media Potentially Impacted
APEC-1 Southeast gravel parking area - Former railway on-site - Multiple gasoline service stations off-site - Auto repair shop off-site	Southeast corner of Property.	46, 28, 10,	On-site and off-site	PHCs BTEX PAHs Metals	Soil and Groundwater
APEC-2 Entire Phase One Property - Fill material of unknown quality - Application of salt to parking areas for de-icing purposes[1]	Entire Phase One Property	30	On-site	PHCs BTEX PAHs Metals Inorganics	Soil
APEC-3 Southwest corner of Property - Multiple gasoline USTs and ASTs off-site - Multiple gasoline service stations off-site	L-shaped section in the southwest corner of the Property, extending halfway up the western boundary and the same distance along a portion of the southern boundary.	28	Off-site	PHCs BTEX	Soil and Groundwater

1 - Based on information gathered through historical information review, WSP understands that the Site is not used, and has not been used, for manufacturing, processing, or bulk storage of salt. Further, Golder understands that salt has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both within the parking lot at the Site. It is therefore the Qualified Person's opinion, as per Section 49(1) of O. Reg. 153/04, as amended, that the site condition standards for electrical conductivity and sodium adsorption ratio are considered not to be exceeded within the Phase Two Property. Salt application to the parking lot has been included as an APEC for completeness.

Subsurface Structures and Utilities

With the exception of sewers and other buried utilities, there are no known below ground structures at the Phase One Property.

PHYSICAL SETTING

Geological Characteristics

In general, the subsurface soil conditions encountered in the boreholes consisted of 1-3 inches of asphalt, underlain by a layer fill material, followed by a layer of native silty sand to clayey silt and glacial till, followed by limestone and shale bedrock. The fill material generally consisted of sand and gravel, which ranged from depths

of approximately 0 to 0.86 mbgs. The native soil layer consisted of silty sand to sandy silt mixed with compact glacial till, which ranged from depths of 0.25 to 2.44 mbgs. The limestone and shale bedrock layer was drilled at three borehole locations (BH23-01, BH23-05, and BH23-07) and the start of the bedrock was found at 0.86, 1.93, and 2.43 mbgs, respectively.

Hydrogeological Characteristics

Based on topography and orientation of surface water bodies shallow groundwater at the Site is expected to flow toward the northwest. However, shallow groundwater flow on the Phase One Property and in the Phase One Study Area may be variable and influenced by the presence of subsurface utilities. Regional groundwater flow is expected to be toward the Ottawa River, located to the northwest of the Phase One Property.

The approximate horizontal gradient of the water table between BH23-05 and BH23-07 is 0.015 m/m. As shown on Figure 5, BH23-05 is to the north of BH23-07. Therefore, it can be inferred that the groundwater flow at the Property is northerly.

Depth to groundwater ranges from approximately 3.39 to 3.59 mbgs.

Non-potable Standards (Section 35)

The Phase Two Property, and all other properties located, in whole or in part, within 250 metres of the boundaries of the Property, are supplied by a municipal drinking water system. The intended use of the Property does not include agricultural use.

The Property is not located in an area designated in the municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of groundwater. There are no wells at the Property or one of the properties in the phase one study area that are used or intended for use as a source of water for human consumption or agriculture. According, there is no requirement to submit written notice to the City of Ottawa of the owner's intention to apply non-potable standards.

Environmentally Sensitive Areas (Section 41)

The Qualified Person is not aware of any conditions by which section 41 of the Regulation applies to the Property. No areas of natural significance were identified on or within 30 m of the Property. At the locations tested the pH of surface soil meets the requirement that 5≤pH≤9. Accordingly, Section 41 of O. Reg. 153/04 does not apply to the RSC Property.

Shallow Soil Property or Water Body (Section 43.1)

Bedrock was encountered at depths of 0.86 – 2.43 mbgs. The Property does not include all or part of a water body and is not adjacent to a water body or include land that is within 30 metres of a water body. Accordingly, Section 43.1 of the Regulation does not apply to the Property.

Excess Soil

No soil has been brought from another property and placed on, in or under the Property as part of the Phase Two ESA.

Site Condition Standards

The analytical results were compared to Table 7 site condition standards (residential property use, coarse textured soil) listed in 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"*, April 2011.

Proposed Buildings and Other Structures

It is understood that the Property is to be redeveloped as two multi-story residential buildings. It is noted that the proposed development plan is subject to change.

DELINEATION OF CONTAMINANT IMPACTS

APEC Where Contaminants are Present at a Concentration Above the Applicable Site Condition Standard

APEC 1 – The investigation included the collection of one soil sample and one groundwater sample from APEC 1. The reported concentrations of all COPCs met the applicable site condition standards.

APEC 2 – The investigation included the collection of six soil samples and two groundwater samples from APEC 2. The reported concentrations of all COPCs met the applicable site condition standards with the exception of the reported barium concentration at BH23-01.

APEC 3 – The investigation included the collection of two soil samples and one groundwater sample from APEC 3. The reported concentrations of all COPCs met the applicable site condition standards.

Contaminant Distribution

The only contaminant present at levels higher than the applicable site standards was barium at BH23-01.

Potential Reason for Discharge into the Environment at the Site

No discharge of contaminants has occurred on, in or under the Phase Two property which has resulted in impacts at concentrations greater than the applicable site condition standards.

Contaminant Migration

None of the contaminants of potential concern were detected in groundwater samples at concentrations exceeding the applicable site condition standards and therefore contaminant migration in groundwater is not relevant to the Site.

Meteorological and Climatic Considerations

Seasonal fluctuation in water levels on the Site should be expected. Given the limited number of monitoring events seasonal trends could not be identified; however shallow groundwater water levels are typically highest following the spring recharge and decline throughout the summer and fall months into the winter.

POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS

The one barium concentration exceedance at the Site is considered to be most likely of natural origin, therefore potential release and transport mechanisms, exposure pathways and human and ecological receptors are not considered further.

NON-STANDARD DELINEATION

Non-standard delineation conducted in accordance with section 7.1 of Schedule E was not part of preparing the phase two environmental site assessment report.

STANDARDS DEEMED TO BE MET

The reported concentrations of electrical conductivity and sodium adsorption ratio in soil samples collected from BH23-04, BH23-07, and BH23-09 exceed the applicable site condition standards. In accordance with paragraph 1 of section 49.1, the Qualified Person has determined that salt application to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both is solely responsible for these exceedances due to the use of the Property as a parking lot for several years.

Accordingly, the applicable site condition standards for electrical conductivity and sodium adsorption ratio in soil are deemed not to be exceeded.

The Phase Two ESA investigated the three APECs identified in the 2023 Phase One ESA.

The reported concentrations of all groundwater samples met the applicable site condition standards. Monitoring for free phase product was conducted during groundwater sample collection. No evidence of free product or sheen in groundwater was observed.

The reported concentrations of all soil samples met the applicable site condition standards with the exception of the following:

- **BH23-01**—The reported concentration of barium in soil sample BH23-01 1-1 (410 µg/g) was above the Table 7 standard (390 µg/g).
- **BH23-04**—The sodium adsorption ratio (SAR) of soil sample BH23-04 4-1 (6.82) was above the Table 7 standard (5).
- **BH23-07**—The reported electrical conductivity of soil sample BH23-07 7-2 (0.785 mS/cm) was above the Table 7 standard (0.7 mS/cm). The sodium adsorption ratio (SAR) of soil sample BH23-07 7-2 (9.17) was above the Table 7 standard (5).
- **BH23-09**—The reported electrical conductivity of soil sample BH23-09 9-2 (1.17 mS/cm) was above the Table 7 standard (0.7 mS/cm). The sodium adsorption ratio (SAR) of soil sample BH23-09 9-2 (15.9) was above the Table 7 standard (5).

Sodium adsorption ratio (SAR) and electrical conductivity (EC) are considered to be due to the application of salt products to the ground for de-icing and safety and are therefore not considered as an exceedance of MECP Table 7 standards as per O. Reg 153/04 section 49.1. They are referenced above for consideration with respect to future excavation and off-site management where the EC and SAR may need to be considered.

The exceedance of barium is considered to be most likely of natural origin. However, given that it is in fill it may be attributed to the importation of fill to the Site. As such, the fill at this location may need to be managed separately from the remaining fill during development. Given the nature of the contaminant which is commonly found across the city at these concentrations in natural soils and the expectation that the fill will likely be excavated to accommodate the development, no further investigation is recommended.

The data presented in this report follows the O. Reg. 153/04 Phase Two ESA report format.

7.0 REFERENCES

Chapman, L.J. and Putnam, D.F. 2007. Physiography of Southern Ontario; Ontario Geological Survey, Miscellaneous Release — Data 22.

City of Ottawa Conservation Areas website. Accessed 2023.

ERIS Report – obtained by ERIS on behalf of WSP. August 23, 2023.

WSP Canada Inc., 2023. Phase One Environmental Site Assessment, 30 Cleary Avenue, Ottawa, Ontario.

Ontario Geological Survey (OGS), 2010. Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release— Data 128 – Revised.

Ontario Geological Survey (OGS), 2011. 1:250 000 scale bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous Release---Data 126-Revision 1.

Ontario Ministry of Natural Resources. Areas of Natural and Scientific Interest (ANSI) map. Accessed 2023.

8.0 LIMITATIONS

This report was prepared for the exclusive use of Theia and First Unitarian Congregation of Ottawa. The report, which specifically includes all tables, figures and appendices, is based on data and information, collected during conducting the Phase Two ESA, and is based solely on the conditions of the property at the time of conducting investigations, supplemented by historical information and data obtained by WSP Canada Inc. as described in this report.

The assessment of environmental conditions at this Site has been made using the results of field screening techniques and chemical analysis of soil and groundwater samples at a limited number of locations. The Site conditions between sampling locations have been inferred based on conditions observed at the sampling locations. Conditions may vary from these sample locations. Additional study, including further investigation, can reduce the inherent uncertainties associated with this type of study. However, it is never possible, even with exhaustive sampling and testing, to dismiss the possibility that part of a Site may be contaminated and remain undetected.

The services performed as described in this report were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. WSP Canada Inc. accepts no responsibility for damages, if any, suffered by any third party (other than as noted above) as a result of decisions made or actions based on this report.

The content of this report is based on information collected during the drilling, soil and groundwater sampling activities, our present understanding of the Site conditions, and our professional judgement in light of such information at the time of this report. This report provides a professional opinion and therefore no warranty is expressed, implied, or made as to the conclusions, advice and recommendations offered in this report. This report does not provide a legal opinion regarding compliance with applicable laws. With respect to regulatory compliance issues, it should be noted that regulatory statutes and the interpretation of regulatory statutes are subject to change.

The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings or other studies, WSP Canada Inc. should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

The monitoring wells installed as part of this project have been constructed using licensed drilling/well contractors employing licensed well technicians. It is owner's responsibility to have a licensed well technician properly abandon all monitoring wells, if required.

9.0 SIGNATURES

The undersigned Qualified Person confirms that he/she was responsible for conducting and/or supervising this Phase Two ESA and the associated findings and conclusions.

We trust that you will find the contents of this report satisfactory for your current needs. Should you require clarification of the information provided, please do not hesitate to contact the undersigned.

Signature Page

WSP Canada Inc.



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Tables

Table 1 – Summary of Soil Samples Submitted for Analysis

Sample Locations	Sample ID	Sample Date	Sample Depth (mbgs)	Soil Sample Description	Headspace Readings		Parameters Analyzed
					Hexane (ppm)	Isobutylene (ppm)	
BH23-01	1-1	August 24, 2023	0.02-0.3	SAND and GRAVEL, trace silt, angular, brown-grey (FILL)	15	0	BTEX, PHC, PAH, metals, inorganics
BH23-03	3-1	August 25, 2023	0.06-0.3	SAND and GRAVEL, trace silt, angular, brown-grey (FILL)	0	0	
BH23-04	4-1	August 25, 2023	0.08-0.6	Sandy GRAVEL, trace silt, angular, brown-grey (FILL)	0	0	
BH23-05	5-2	August 24, 2023	0-0.6	SAND and GRAVEL, trace silt, angular, brown-grey (FILL)	65	0	
BH23-07	7-2	August 25, 2023	0.6-1.2	SAND and GRAVEL, trace silt, angular, brown-grey (FILL)	85	0	
BH23-09	9-2	August 24, 2023	0.7-1.3	SAND and GRAVEL, trace silt, angular, brown-grey (FILL)	0	0	

Notes:

mbgs = metres below ground surface
ppm = parts per million

Table 2 – Summary of Groundwater Samples Submitted for Analysis

Sample Location	Sample ID	Sample Date	Total Well Depth (mbgs)	Depth to Water (mbgs)	Observations	Parameters Analyzed
BH23-05	23-05A	September 5, 2023	7.57	3.39	Light grey colour, high turbidity, no odour or sheen	BTEX, PHC
BH23-07	BH23-07	October 12, 2023	9.55	3.59	Light grey colour, medium turbidity, no odour or sheen.	

Notes:

mbgs = metres below ground surface

Table 3: Soil Analytical Results (BTEX, PHC)

Sample Location	Units	MECP Table 7	RDL	BH23-01	BH23-03	BH23-04	BH23-05	BH23-07	BH23-09
Sample ID				1-1	3-1	4-1	5-2	7-2	9-2
Date Sampled				08/24/2023	08/25/2023	08/25/2023	08/24/2023	08/25/2023	08/24/2023
BTEX									
Benzene	µg/g	0.21	0.02	<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	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g	-	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g	-	0.05	<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	<0.05
PHCs									
F1 (C6 - C10)	µg/g	-	5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthale	µg/g	-	10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	123	245	<50	125	<50	92
F3 (C16 to C34) minus PAHs	µg/g	-	50	123	245	<50	125	<50	92
F4 (C34 to C50)	µg/g	2800	50	157	333	<50	<50	<50	<50

Notes:

µg/g = microgram per gram.
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 and o-Xylene.
Total C6 - C50 results are corrected for BTEX and PAH contributions.

MECP Table 7	Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition, coarse soils, residential/industrial land use, of the MECP document “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, April 2011.
Bolded	Parameter concentration exceeds applicable criteria.
RDL	Laboratory Reported Detection Limit.
<	Indicates parameter analyzed was below laboratory Reported Detection Limit (RDL).
NA	Not applicable.
NV	No value given in standards.

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Table 4: Soil Analytical Results (PAH)

Sample Location	Units	MECP Table 7	RDL	BH23-01	BH23-03	BH23-04	BH23-05	BH23-07	BH23-09
Sample ID				1-1	3-1	4-1	5-2	7-2	9-2
Date Sampled				08/24/2023	08/25/2023	08/25/2023	08/24/2023	08/25/2023	08/24/2023
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	<0.05	0.09	<0.05	0.08	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	0.10	0.14	0.17	<0.05
Pyrene	µg/g	78	0.05	<0.05	<0.05	0.15	0.11	0.14	<0.05
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Chrysene	µg/g	7	0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<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	<0.05	<0.05	<0.05	<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:
µg/g = microgram per gram.
Results are based on the dry weight of the soil.
The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC co
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

MECP Table 7	Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition, coarse soils, residential/industrial land use, of the MECP document “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, April 2011.
Bolded	Parameter concentration exceeds applicable criteria.
RDL	Laboratory Reported Detection Limit.
"<"	Indicates parameter analyzed was below laboratory Reported Detection Limit (RDL).
NV	No value given in standards.

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Table 5: Soil Analytical Results (Metals, Inorganics, and Other Regulated Parameters)

Sample Location	Units	MECP Table 7	RDL	BH23-01	BH23-03	BH23-04	BH23-05	BH23-07	BH23-09
Sample ID				1-1	3-1	4-1	5-2	7-2	9-2
Date Sampled				08/24/2023	08/25/2023	08/25/2023	08/24/2023	08/25/2023	08/24/2023
Metals									
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	1	<1	2	3	3	1
Barium	µg/g	390	2	**410**	313	271	154	378	118
Beryllium	µg/g	4	0.5	<0.5	<0.5	<0.5	0.8	0.7	<0.5
Boron	µg/g	120	5	44	41	43	40	36	33
Boron (Hot Water Soluble)	µg/g	1.5	0.1	<0.10	<0.10	0.23	0.36	0.10	0.27
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	5	12	10	18	37	26	21
Cobalt	µg/g	22	0.8	4.7	4.2	8.1	14.8	11.7	8.3
Copper	µg/g	140	1	5.9	4.3	12.7	34.6	67.3	15.9
Lead	µg/g	120	1	13	6	13	38	37	14
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	0.8	0.6	1.0	<0.5
Nickel	µg/g	100	1	6	5	12	32	21	14
Selenium	µg/g	2.4	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	µg/g	20	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g	23	0.5	<0.50	<0.50	<0.50	0.57	0.85	0.60
Vanadium	µg/g	86	2	18.7	17.5	17.9	31.1	34.9	28.4
Zinc	µg/g	340	5	12	8	34	72	116	58
Inorganics and Other Regulated Parameters									
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mercury	µg/g	0.27	0.1	<0.10	<0.10	<0.10	<0.10	0.25	<0.10
Cyanide, WAD	µg/g	-	0.04	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Electrical Conductivity (2:1)	mS/cm	0.7	0.01	0.263	0.276	0.512	0.571	**0.785**	**1.17**
Sodium Adsorption Ratio (2:1) (Calc.)	NA	5	NA	1.26	1.12	**6.82**	4.94	**9.17**	**15.9**
pH, 2:1 CaCl2 Extraction	pH Units	-	NA	7.05	7.11	7.20	7.12	7.16	7.09

Notes:
µg/g = microgram per gram.
mS/cm = millisiemens per centimeter.
Electrica Conductivity was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).
Sodium Adsorption Ratio is a calculated parameter.
pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

MECP Table 7	Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition, coarse soils, residential/industrial land use, of the MECP document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 2011.
Bolded	Parameter concentration exceeds applicable criteria.
RDL	Laboratory Reported Detection Limit.
NA	Not applicable.
<	Indicates parameter analyzed was below laboratory Reported Detection Limit (RDL).

Created by: OLE
Checked by: MS

Table 6: Groundwater Analytical Results (BTEX, PHC)

Sample Location	Units	MECP Table 7	RDL	BH23-05		BH23-07
Sample ID				23-05A	23-05A DUP (Field Duplicate)	BH23-07
Date Sampled				09/05/2023	09/05/2023	10/12/2023
BTEX						
Benzene	µg/L	0.5	0.2	<0.20	<0.20	<0.20
Toluene	µg/L	320	0.2	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	54	0.1	<0.10	<0.10	<0.20
m & p-Xylene	µg/L	-	0.2	<0.20	<0.20	<0.20
o-Xylene	µg/L	-	0.1	<0.10	<0.10	<0.40
Xylenes (Total)	µg/L	72	0.2	<0.20	<0.20	<0.40
PHC						
F1 (C6 - C10)	µg/L	-	25	<25	<25	<25
C6 - C10 (F1 minus BTEX)	µg/L	420	25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<200
F4 (C34 to C50)	µg/L	500	100	<100	<100	<200

Notes:
µg/L = microgram per litre.
Total C6-C50 results are corrected for BTEX contribution.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
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.

MECP Table 7	Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition, coarse soils, of the MECP document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 2011.
Bolded	Parameter concentration exceeds applicable criteria.
<	Indicates parameter analyzed was below laboratory Reported Detection Limit (RDL).
-	Criteria not defined or chemical not analyzed.
RDL	Laboratory Reported Detection Limit.
NA	Not applicable.
NV	No value given in standards.

Created by: OLE
Checked by: MS

Figures



LEGEND

PHASE TWO SITE

PHASE TWO STUDY AREA (250 m)

0 250 500 1,000

1:25,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. BASE MAP: CITY OF OTTAWA, VILLE DE GATINEAU, PROVINCE OF ONTARIO, ESRI CANADA, ESRI, HERE, GARMIN, INCREMENT P, USGS, METI/NASA, EPA, USDA, AAFC, NRCAN
3. COORDINATE SYSTEM: NAD 1983 MTM 9

CLIENT
THEIA PARTNERS INC.

PROJECT
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
30 CLEARY AVENUE, OTTAWA, ONTARIO

TITLE
KEY PLAN

CONSULTANT

wsp

YYYY-MM-DD	2023-11-10
DESIGNED	----
PREPARED	MG
REVIEWED	OLE
APPROVED	KPH

PROJECT NO.	CONTROL	REV.	FIGURE
CA0008376.9447	0003	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

0 25mm

PATH: S:\Clients\Theia Partners\Ottawa_30 Cleary Ave\99 PRO\CA0008376.9447 Theia Partners\40_PROD\0003_Phase II ESA\CA0008376.9447-0003-HS-0000.aprx PRINTED ON: AT 1:58:49 PM



LEGEND

- ROADWAY
- TOPOGRAPHIC CONTOUR, METRES
- WATERBODY
- PHASE TWO SITE
- PHASE TWO STUDY AREA (250 m)

0 50 100 200

1:3,500 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY: CITY OF OTTAWA, 2022
3. COORDINATE SYSTEM: NAD 1983 MTM 9

CLIENT
THEIA PARTNERS INC.

PROJECT
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
30 CLEARY AVENUE, OTTAWA, ONTARIO

TITLE
PHASE TWO STUDY AREA

CONSULTANT

wsp

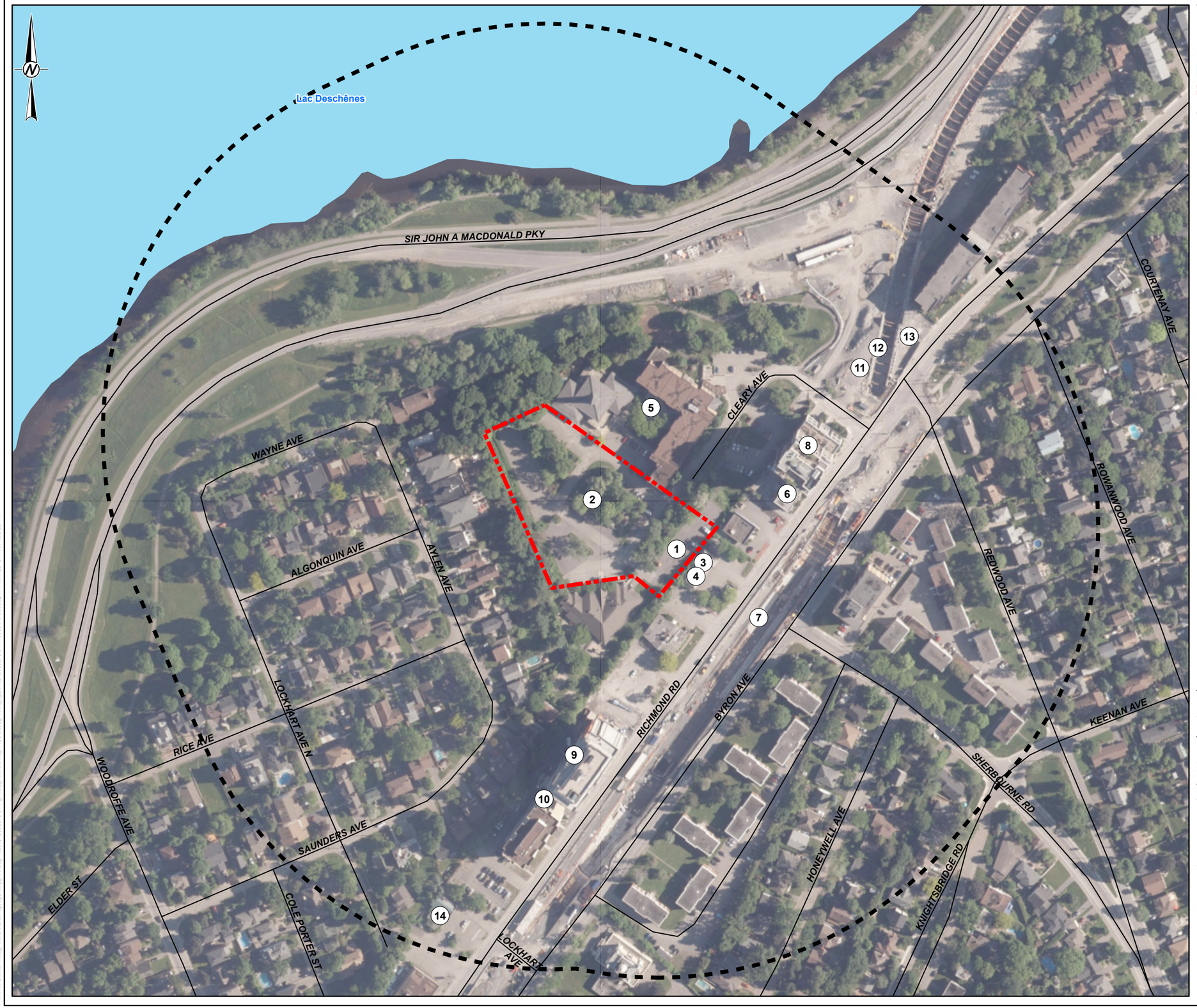
YYYY-MM-DD	2023-11-10
DESIGNED	----
PREPARED	MG
REVIEWED	OLE
APPROVED	KPH

PROJECT NO.	CONTROL	REV.	FIGURE
CA0008376.9447	0003	0	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: S:\Clients\Theia_Partners\Ottawa_30_Cleary_Ave\99_PROJ\CA0008376.9447_Theia_Partners\40_PROD\0003_Phase_II_ESA\CA0008376-9447-0003-HS-0000.aprx PRINTED ON: AT 1:55:08 PM



LEGEND

- POTENTIALLY CONTAMINATING ACTIVITY (PCA) LOCATION
- ROADWAY
- WATERBODY
- PHASE TWO SITE
- PHASE TWO STUDY AREA (250 m)

PCA ID	PCA Category	Description
1	46	Rail tracks
2	30	Fill of unknown quality
3	28	Gasoline UST
4	10	Auto repair shop
5	28	Fuel oil UST
6	28	Two gasoline USTs - Gas station
7	46	Ottawa Electric Railway
8	28	Multiple gasoline and oil tanks - Gas station
9	28	Gasoline USTs and ASTs
10	28	Two USTs - Gas Station
11	28	Multiple gasoline and fuel oil USTs
12	37	Dry cleaning depot
13	28	Two USTs - Gas station
14	28	Three gasoline USTs - Multiple gas stations

0 25 50 100

1:2,500 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE
2. SEVERAL SPILLS WERE NOTED IN THE PHASE ONE STUDY AREA THAT ARE NOT MAPPED, BUT THESE SPILLS ARE NOT CONSIDERED PCAS OR AS RESULTING IN AN APEC.

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY: CITY OF OTTAWA, 2022
3. COORDINATE SYSTEM: NAD 1983 MTM 9

CLIENT

THEIA PARTNERS INC.

PROJECT

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
30 CLEARY AVENUE, OTTAWA, ONTARIO

TITLE

POTENTIALLY CONTAMINATING ACTIVITIES

CONSULTANT

wsp

YYYY-MM-DD	2023-11-10
DESIGNED	----
PREPARED	MG
REVIEWED	OLE
APPROVED	KPH

PROJECT NO.	CONTROL	REV.	FIGURE
CA0008376.9447	0003	0	3

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0



LEGEND

- ROADWAY
- PHASE TWO SITE

AREA OF POTENTIAL ENVIRONMENTAL CONCERN (APEC) LOCATION

- APEC 1
- APEC 2 (SITE-WIDE)
- APEC 3

APEC ID	PCA Category	Description of PCAs attributing to APEC
APEC 1	10, 28, 46	PCA 1: Former railway on-site PCA 3, 6, 8: Multiple gasoline service stations and USTs/ASTs PCA 4: Auto repair shop off-site
APEC 2	30	PCA 2: Fill material of unknown quality
APEC 3	28	PCA 9, 10: Multiple gasoline service stations and USTs/ASTs

0 12.5 25 50

1:1,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY: CITY OF OTTAWA, 2022
3. COORDINATE SYSTEM: NAD 1983 MTM 9

CLIENT
THEIA PARTNERS INC.

PROJECT
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
30 CLEARY AVENUE, OTTAWA, ONTARIO

TITLE
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

CONSULTANT

wsp

YYYY-MM-DD	2023-11-10
DESIGNED	----
PREPARED	MG
REVIEWED	OLE
APPROVED	KPH

PROJECT NO.	CONTROL	REV.	FIGURE
CA0008376.9447	0003	0	4

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm



LEGEND

- BOREHOLE LOCATION
- BOREHOLE/MONITORING WELL LOCATION
- ROADWAY
- PHASE TWO SITE

0 12.5 25 50

1:750 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY: CITY OF OTTAWA, 2022
3. COORDINATE SYSTEM: NAD 1983 MTM 9

CLIENT

THEIA PARTNERS INC.

PROJECT

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
30 CLEARY AVENUE, OTTAWA, ONTARIO

TITLE

INVESTIGATION LOCATIONS

CONSULTANT

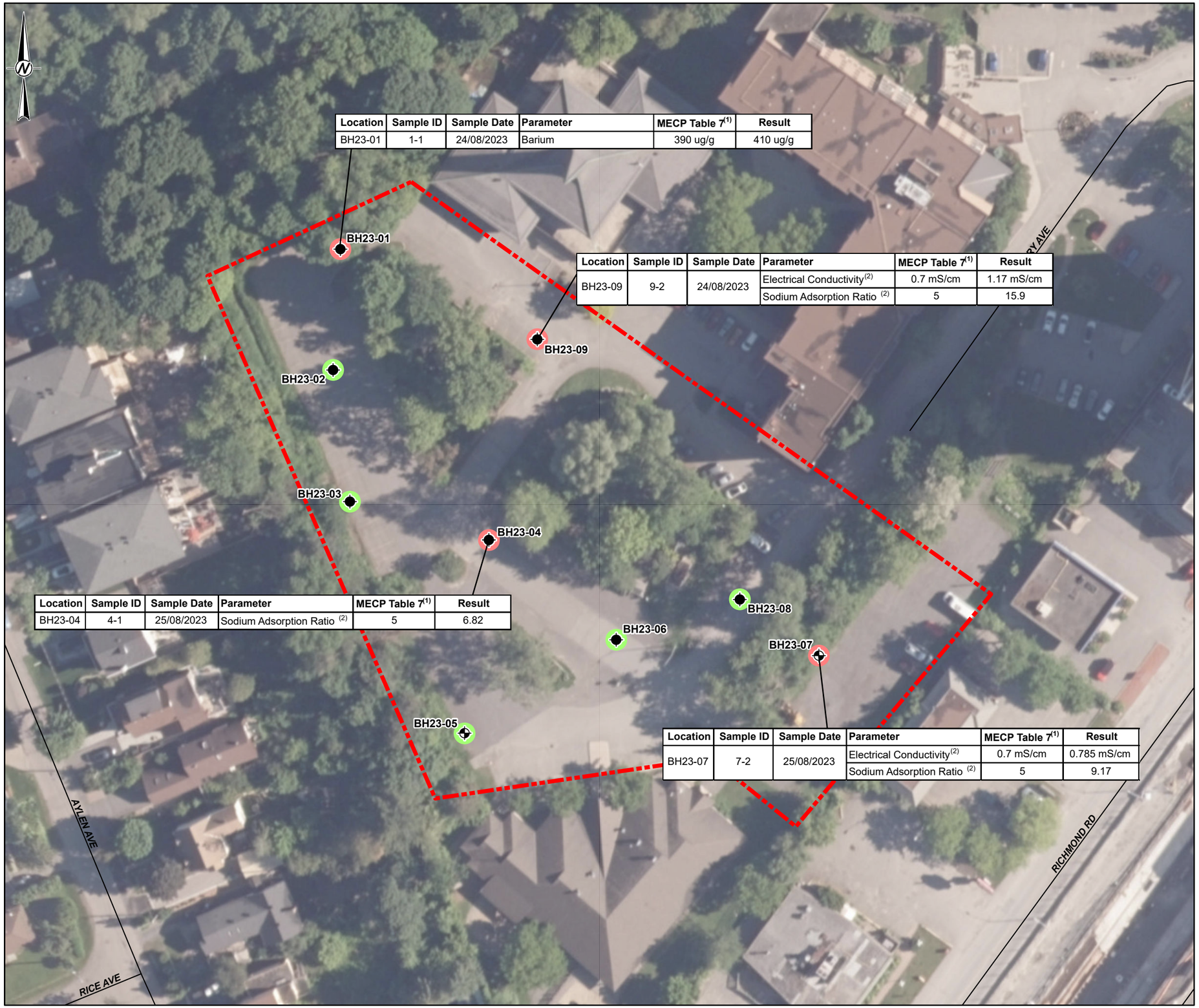
wsp

YYYY-MM-DD	2023-11-10
DESIGNED	----
PREPARED	MG
REVIEWED	OLE
APPROVED	KPH

PROJECT NO.	CONTROL	REV.	FIGURE
CA0008376.9447	0003	0	5

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0



Location	Sample ID	Sample Date	Parameter	MECP Table 7[1]	Result
BH23-01	1-1	24/08/2023	Barium	390 ug/g	410 ug/g

Location	Sample ID	Sample Date	Parameter	MECP Table 7[1]	Result
BH23-09	9-2	24/08/2023	Electrical Conductivity[2]	0.7 mS/cm	1.17 mS/cm
			Sodium Adsorption Ratio [2]	5	15.9

Location	Sample ID	Sample Date	Parameter	MECP Table 7[1]	Result
BH23-04	4-1	25/08/2023	Sodium Adsorption Ratio [2]	5	6.82

Location	Sample ID	Sample Date	Parameter	MECP Table 7[1]	Result
BH23-07	7-2	25/08/2023	Electrical Conductivity[2]	0.7 mS/cm	0.785 mS/cm
			Sodium Adsorption Ratio [2]	5	9.17

LEGEND

- BOREHOLE LOCATION
- BOREHOLE/MONITORING WELL LOCATION
- DOES NOT EXCEED APPLICABLE CRITERIA
- EXCEEDS APPLICABLE CRITERIA
- ROADWAY
- PHASE TWO SITE

0 12.5 25 50

1:750 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE
2. ug/g = MICROGRAM PER GRAM
3. mS/cm = MILLISIEMENS PER CENTIMETRE

(1): TABLE 7 OF THE MECP DOCUMENT SOIL, GROUND WATER AND SEDIMENT STANDARDS FOR USE UNDER PART XV.1 OF THE ENVIRONMENTAL PROTECTION ACT, APRIL 2011.

(2): SODIUM ADSORPTION RATIO (SAR) AND ELECTRICAL CONDUCTIVITY (EC) ARE CONSIDERED TO BE DUE TO THE APPLICATION OF SALT PRODUCTS TO THE GROUND FOR DE-ICING AND SAFETY AND ARE NOT CONSIDERED AS AN EXCEEDANCE OF MECP TABLE 7 STANDARDS AS PER O. REG 153/04 SECTION 49.1.

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY: CITY OF OTTAWA, 2022
3. COORDINATE SYSTEM: NAD 1983 MTM 9

CLIENT
THEIA PARTNERS INC.

PROJECT
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
30 CLEARY AVENUE, OTTAWA, ONTARIO

TITLE
SOIL EXCEEDANCES

CONSULTANT

wsp

YYYY-MM-DD	2023-11-10
DESIGNED	----
PREPARED	MG
REVIEWED	OLE
APPROVED	KPH

PROJECT NO.	CONTROL	REV.	FIGURE
CA0008376.9447	0003	0	6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: S:\Clients\Theia_Partners\Ottawa_30 Cleary Ave\99_PROJ\CA0008376-9447_Theia_Partners\40_PRO\0003_Phase_II_ESA\CA0008376-9447-0003-HIS-0000.apx, PRINTED ON: AT: 1:56:54 PM

APPENDIX A

Borehole Logs

PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-07

SHEET 1 OF 1

LOCATION: N 5025623.43; E 439573.43

BORING DATE: August 25, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		63.38							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular; non-cohesive, moist, loose		0.00	1A						Cuttings
				0.15	1B	SS	16	ND ND			Bentonite
		(SM) - SILTY SAND, some clay, some gravel; grey to black, cobbles and boulders, contains organic matter (GLACIAL TILL); moist, compact			2	SS	25	ND			Silica Sand
1					3	SS	7	ND			32 mm Diam. PVC #10 Slot Screen
		- fine grained SAND; moist to wet			4	SS	50/ 0.23	ND			
2				60.94							
		END OF BOREHOLE Auger Refusal		2.44							
		Note(s): 1. Borehole dry upon completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

S:\CLIENTS\THEIA_PARTNERS\OTTAWA_30_CLEARY_AVE\02_DATA\GINT\OTTAWA_30_CLEARY_AVE.GPJ GAL-MIS.GDT 11/3/23

GTA-BHS 005

PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-07A

SHEET 1 OF 1

LOCATION: N 5025621.99; E 439571.86

BORING DATE: September 29, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕; Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT Wp — W — Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		63.38									GR SA SI CL
0		FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular; non-cohesive, moist, loose		0.00									Bentonite
		(SM) - SILTY SAND, some clay, some gravel; grey to black, cobbles and boulders, contains organic matter (GLACIAL TILL); moist, compact		0.15									
1													
2		- fine grained SAND; moist to wet											Cuttings
		END OF BOREHOLE Auger Refusal											
3		Note(s): 1. Borehole dry upon completion of drilling. 2. Groundwater level measured at a depth of 3.59 m on October 12, 2023.											Oct. 12, 2023
4				58.93									Bentonite
		Borehole continued on Record Drillhole BH23-07A											
5													
6													
7													
8													
9													
10													

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

GTA-BHS 005 S:\CLIENTS\THEIA_PARTNERS\OTTAWA_30_CLEARY_AVE\02_DATA\GINT\OTTAWA_30_CLEARY_AVE.GPJ GAL-MIS.GDT 11/3/23

PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-01

SHEET 1 OF 2

LOCATION: N 5025707.68; E 439473.01

BORING DATE: August 24, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		59.91							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	ASPHALT		0.00							
		FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, loose			1	SS	9	ND			
				59.05	2	SS	50/ 0.05				
1		Borehole continued on Record Drillhole BH23-01									
2											
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

GTA-BHS 005 S:\CLIENTS\THEIA_PARTNERS\OTTAWA_30_CLEARY_AVE\02_DATA\GINT\OTTAWA_30_CLEARY_AVE.GPJ GAL-MIS.GDT 10/26/23

PROJECT: CA0008376.9447

RECORD OF DRILLHOLE: BH23-01

SHEET 2 OF 2

LOCATION: N 5025707.68 ;E 439473.01

DRILLING DATE: August 24, 2023

DATUM: Geodetic

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: CME 75

DRILLING CONTRACTOR: Downing

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. / DEPTH (m)	RUN No.	FLUSH RETURN	RECOVERY: TOTAL CORE %	RECOVERY: SOLID CORE %	R.Q.D. %	FRACT. INDEX PER	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	WEATH-ERING INDEX	Diametral Point Load Index (MPa)	FEATURES	PIEZOMETER
		Cont'd from Record of Borehole BH23-01		59.05															
1	Rotary Drill NQ Core	Fresh, thinly to medium bedded, grey, fine to medium grained, faintly porous, strong LIMESTONE bedrock with slightly weathered to fresh, porous, fine grained, medium strong, black shale		0.86	1													BC	
2																		BC	UCS=198 MPa
3					2													BC	
4																			
5					3													BC	
6																			
7					4														
8		END OF DRILLHOLE Note(s): 1. Borehole dry upon completion of drilling.		52.01 7.90	5														
9																			
10																			

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

GTA-RCK 046 S:\CLIENTS\THEIA_PARTNERS\OTTAWA_30_CLEARY_AVE\02_DATA\GINT\OTTAWA_30_CLEARY_AVE.GPJ GAL-MISS.GDT 10/26/23

PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-02

SHEET 1 OF 1

LOCATION: N 5025681.49; E 439478.54

BORING DATE: August 25, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		60.22							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	ASPHALT		0.00							
		FILL - (SP) gravelly SAND, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, compact,			1	SS	24	ND	○		
				59.46							
1		(SM) SILTY SAND, trace clay, trace gravel; grey to brown (GLACIAL TILL); non-cohesive, moist to wet, loose		0.76	2	SS	8		○		
				58.75							
		END OF BOREHOLE Auger Refusal		1.47							
2		Note(s): 1. Borehole dry upon completion of drilling.									
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9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-03

SHEET 1 OF 1

LOCATION: N 5025657.83; E 439481.27

BORING DATE: August 25, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		60.59							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	ASPHALT		0.00							
		FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, compact		0.06 / 59.92	1	SS	16	ND	○		47 45 (8)
1		(SP) SAND, trace to some silt, fine grained; brown; moist to wet, loose		0.67	2	SS	7	ND			
		(SM/GP) SILTY SAND and GRAVEL; dark to brown, contains organic matters (GLACIAL TILL); moist, very dense		59.07 / 1.52 / 58.76	3	SS	50/0.25	ND	○		
2		END OF BOREHOLE Auger Refusal Note(s): 1. Borehole dry upon completion of drilling.		1.83							
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9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-04

SHEET 1 OF 1

LOCATION: N 5025645.99; E 439508.24

BORING DATE: August 25, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		61.15							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	ASPHALT		0.00							
		FILL - (GP) sandy GRAVEL, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, dense		0.08	1	SS	32	ND	○		
				60.39							
1		(SM) SILTY SAND, trace clay, trace gravel; brown with black bedding (GLACIAL TILL); moist, very dense		0.76	2	SS	14		○		
				59.78							
		END OF BOREHOLE Auger Refusal		1.37							
2		Note(s): 1. Borehole dry upon completion of drilling.									
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DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-05

SHEET 1 OF 2

LOCATION: N 5025611.77; E 439503.11

BORING DATE: August 24, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		62.13							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, dense		0.00 / 61.88	1	SS	42	ND			Bentonite; Cuttings
				0.25							
		(SM) SILTY SAND, some gravel, trace clay; light brown (GLACIAL TILL); moist, compact			2	SS	21	ND			32 mm Diam. PVC #10 Slot Screen 'B'
1		- rock fragments, ground-up, bedrock; weathered rock			3	SS	50/0.13	ND			
				60.20							
2		Borehole continued on Record Drillhole BH23-05									
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10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF DRILLHOLE: BH23-05

SHEET 2 OF 2

LOCATION: N 5025611.77 ;E 439503.11

DRILLING DATE: August 24, 2023

DATUM: Geodetic

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: CME 75

DRILLING CONTRACTOR: Downing

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. / DEPTH (m)	RUN No.	FLUSH RETURN	RECOVERY TOTAL CORE %	RECOVERY SOLID CORE %	R.Q.D. %	FRACT. INDEX PER	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	WEATH-ERING INDEX	Diametral Point Load Index (MPa)	FEATURES	PIEZOMETER
		Cont'd from Record of Borehole BH23-05		60.20															
2	Rotary Drill NQ Core	Fresh, thinly to medium bedded, grey, fine to medium grained, faintly porous, strong LIMESTONE bedrock with slightly weathered to fresh, porous, fine grained, medium strong, black shale		1.93	1														BC/LC 32 mm Diam. PVC #10 Slot Screen 'B' Silica Sand
3																			
4					2														Bentonite
5																			UCS=187 MPa
6					3														Silica Sand
7					4														32 mm Diam. PVC #10 Slot Screen 'A'
8		END OF DRILLHOLE		54.16														BC	
9		Note(s):		7.97															
10		1. Groundwater measured in Screen 'B' at 0.90 m depth upon completion of drilling.																	
11		2. Groundwater measured in Screen 'A' at 3.03 m depth upon completion of drilling.																	

DEPTH SCALE
1 : 50

LOGGED: OB
CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-06

SHEET 1 OF 1

LOCATION: N 5025623.60; E 439532.36

BORING DATE: August 25, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		61.98							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	ASPHALT		0.00							
		FILL - (GP) sandy GRAVEL, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, dense		0.13	1	SS	65 ⊕ ND				
				61.17							
1		(SM/GP) SILTY SAND and GRAVEL; grey to brown, cobbles and boulders, contains strong petroleum odor (GLACIAL TILL); moist, compact		0.81	2	SS	23				38 41 (21)
					3	SS	50/ 0.20				
		- rock fragments		60.48							
		END OF BOREHOLE Auger Refusal		1.50							
2		Note(s): 1. Borehole dry upon completion of drilling.									
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DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-07

SHEET 1 OF 1

LOCATION: N 5025623.43; E 439573.43

BORING DATE: August 25, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		63.38							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular; non-cohesive, moist, loose		0.00	1A			ND			Cuttings
				0.15	1B	SS	16	ND			Bentonite
		(SM) - SILTY SAND, some clay, some gravel; grey to black, cobbles and boulders, contains organic matter (GLACIAL TILL); moist, compact			2	SS	25	ND			Silica Sand
1					3	SS	7	ND			
		- fine grained SAND; moist to wet			4	SS	50/ 0.23	ND			32 mm Diam. PVC #10 Slot Screen
2				60.94							
		END OF BOREHOLE Auger Refusal		2.44							
3		Note(s): 1. Borehole dry upon completion of drilling.									
4											
5											
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7											
8											
9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-07A

SHEET 1 OF 1

LOCATION: N ; E

BORING DATE:

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W WI) (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0		FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular; non-cohesive, moist, loose		0.00							Bentonite
		(SM) - SILTY SAND, some clay, some gravel; grey to black, cobbles and boulders, contains organic matter (GLACIAL TILL); moist, compact		0.15							
1											
2		- fine grained SAND; moist to wet									Cuttings
		END OF BOREHOLE Auger Refusal									
3		Note(s): 1. Borehole dry upon completion of drilling.									
4											Bentonite
		Borehole continued on Record Drillhole BH23-07A									
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF DRILLHOLE: BH23-07A

SHEET 1 OF 1

LOCATION: N ;E

DRILLING DATE:

DATUM: Geodetic

INCLINATION: -90° AZIMUTH: ---

DRILL RIG: CME 75

DRILLING CONTRACTOR: Downing

NOTE:
For abbreviations, symbols and descriptions refer to
LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. / DEPTH (m)	RUN No.	FLUSH RETURN	RECOVERY: TOTAL CORE %	RECOVERY: SOLID CORE %	R.Q.D. %	FRACT. INDEX PER	DISCONTINUITY DATA: DIP w.r.t. CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	Jr	Ja	Jcon	WEATH-ERING INDEX	Diametral Point Load Index (MPa)	FEATURES	PIEZOMETER
		Cont'd from Record of Borehole BH23-07A																	
5		Fresh, thinly to medium bedded, grey, fine to medium grained, faintly porous, strong LIMESTONE bedrock with slightly weathered to fresh, porous, fine grained, black shale		4.47	1														Bentonite Silica Sand
6					2														
7																			
8					3														32 mm Diam. PVC #10 Slot Screen
9					4														
10		END OF DRILLHOLE		9.94															
11																			
12																			
13																			
14																			

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-08

SHEET 1 OF 1

LOCATION: N 5025623.80; E 439505.34

BORING DATE: August 25, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		61.74							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	FILL - (GP) sandy GRAVEL, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, very dense		0.00	1	SS	71	□ ND ⊕	○		37 41 (22)
				61.04							
1		(SM/GP) SILTY SAND and GRAVEL; dark to brown, contains organic matter, rootlets and rock fragments (GLACIAL TILL); moist, very dense		0.70	2	SS	42		○		
				60.44	3	SS	50/ 0.08				
		END OF BOREHOLE Auger Refusal		1.30							
2		Note(s): 1. Borehole dry upon completion of drilling.									
3											
4											
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9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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PROJECT: CA0008376.9447

RECORD OF BOREHOLE: BH23-09

SHEET 1 OF 1

LOCATION: N 5025685.05; E 439517.69

BORING DATE: August 24, 2023

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: CME 75

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM] ⊕ ND = Not Detected (100 200 300 400) / HEADSPACE ORGANIC VAPOUR CONCENTRATIONS [PPM] □ ND = Not Detected (100 200 300 400)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE		59.68							GR SA SI CL
0	Power Auger 204 mm Diam. (Hollow Stem)	ASPHALT		0.00 / 0.06							
		FILL - (SP/GP) SAND and GRAVEL, trace silt; brown to grey, angular (PAVEMENT STRUCTURE); non-cohesive, moist, compact		59.43 / 0.25	1A			ND			
					1B		13	ND			
		FILL - (SP) SAND, some silt; brown to grey, angular; non-cohesive, moist, loose			2		6	ND			
1				58.38							
		TOPSOIL - (SM/ML) SILTY SAND to sandy SILT; black, contains rootlets and organic matter; non-cohesive		1.30 / 1.40	3A			ND			
		(SP/GP) SAND and GRAVEL, some silt; brown to light brown, angular (GLACIAL TILL); non-cohesive, moist, dense		57.81 / 1.87	3B		36	ND			41 39 (20)
2		END OF BOREHOLE									
		Note(s): 1. Borehole dry upon completion of drilling.									
3											
4											
5											
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8											
9											
10											

DEPTH SCALE

1 : 50

LOGGED: OB

CHECKED: AKP

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APPENDIX B

Certificates of Analysis

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
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CLIENT NAME: WSP CANADA INC.
1931 ROBERTSON ROAD
OTTAWA, ON K2H5B7
(613) 592-9600
ATTENTION TO: Keith Holmes
PROJECT: CA0008376.9447
AGAT WORK ORDER: 23Z063895
SOIL ANALYSIS REVIEWED BY: Sukhwinder Randhawa, Lab Team Leader
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
DATE REPORTED: Sep 08, 2023
PAGES (INCLUDING COVER): 13
VERSION*: 1

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

*Notes

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- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
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AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

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

DATE RECEIVED: 2023-08-31 **DATE REPORTED: 2023-09-08**

				SAMPLE DESCRIPTION:	1-1	3-1	4-1	5-2	7-2	9-2
				SAMPLE TYPE:	Soil	Soil	Soil	Soil	Soil	Soil
				DATE SAMPLED:	2023-08-24 12:00	2023-08-25 12:00	2023-08-25 12:00	2023-08-24 12:00	2023-08-25 12:00	2023-08-24 12:00
Parameter	Unit	G / S	RDL		5256368	5256369	5256370	5256371	5256372	5256373
Antimony	µg/g	7.5	0.8		<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1		1	<1	2	3	3	1
Barium	µg/g	390	2.0		**410**	313	271	154	378	118
Beryllium	µg/g	4	0.5		<0.5	<0.5	<0.5	0.8	0.7	<0.5
Boron	µg/g	120	5		44	41	43	40	36	33
Boron (Hot Water Soluble)	µg/g	1.5	0.10		<0.10	<0.10	0.23	0.36	0.10	0.27
Cadmium	µg/g	1.2	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	5		12	10	18	37	26	21
Cobalt	µg/g	22	0.8		4.7	4.2	8.1	14.8	11.7	8.3
Copper	µg/g	140	1.0		5.9	4.3	12.7	34.6	67.3	15.9
Lead	µg/g	120	1		13	6	13	38	37	14
Molybdenum	µg/g	6.9	0.5		<0.5	<0.5	0.8	0.6	1.0	<0.5
Nickel	µg/g	100	1		6	5	12	32	21	14
Selenium	µg/g	2.4	0.8		<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	µg/g	20	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g	23	0.50		<0.50	<0.50	<0.50	0.57	0.85	0.60
Vanadium	µg/g	86	2.0		18.7	17.5	17.9	31.1	34.9	28.4
Zinc	µg/g	340	5		12	8	34	72	116	58
Chromium, Hexavalent	µg/g	8	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide, WAD	µg/g	0.051	0.040		<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10		<0.10	<0.10	<0.10	<0.10	0.25	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	0.005		0.263	0.276	0.512	0.571	**0.785**	**1.17**
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	N/A		1.26	1.12	**6.82**	4.94	**9.17**	**15.9**
pH, 2:1 CaCl2 Extraction	pH Units	5.0-9.0	NA		7.05	7.11	7.20	7.12	7.16	7.09

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

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

DATE RECEIVED: 2023-08-31 **DATE REPORTED: 2023-09-08**

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

5256368-5256373 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

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

DATE RECEIVED: 2023-08-31 **DATE REPORTED: 2023-09-08**

				SAMPLE DESCRIPTION:	1-1	3-1	4-1	5-2	7-2	9-2
				SAMPLE TYPE:	Soil	Soil	Soil	Soil	Soil	Soil
				DATE SAMPLED:	2023-08-24 12:00	2023-08-25 12:00	2023-08-25 12:00	2023-08-24 12:00	2023-08-25 12:00	2023-08-24 12:00
Parameter	**Unit**	**G / S**	**RDL**		**5256368**	**5256369**	**5256370**	**5256371**	**5256372**	**5256373**
Naphthalene	µg/g	0.6	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05		<0.05	<0.05	0.09	<0.05	0.08	<0.05
Anthracene	µg/g	0.67	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05		<0.05	<0.05	0.10	0.14	0.17	<0.05
Pyrene	µg/g	78	0.05		<0.05	<0.05	0.15	0.11	0.14	<0.05
Benz(a)anthracene	µg/g	0.5	0.05		<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Chrysene	µg/g	7	0.05		<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05		<0.05	<0.05	<0.05	<0.05	0.08	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05		<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	<0.05	<0.05	<0.05	<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.99	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1		2.9	2.8	4.3	12.6	9.4	14.8
Surrogate	**Unit**	**Acceptable Limits**								
Naphthalene-d8	%	50-140			90	85	85	90	85	75
Acridine-d9	%	50-140			75	95	115	95	70	90
Terphenyl-d14	%	50-140			70	75	75	80	95	90

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

5256368-5256373 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 Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

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

DATE RECEIVED: 2023-08-31

DATE REPORTED: 2023-09-08

				SAMPLE DESCRIPTION:	1-1	3-1	4-1	5-2	7-2	9-2
				SAMPLE TYPE:	Soil	Soil	Soil	Soil	Soil	Soil
				DATE SAMPLED:	2023-08-24 12:00	2023-08-25 12:00	2023-08-25 12:00	2023-08-24 12:00	2023-08-25 12:00	2023-08-24 12:00
Parameter	**Unit**	**G / S**	**RDL**		**5256368**	**5256369**	**5256370**	**5256371**	**5256372**	**5256373**
Benzene	µg/g	0.21	0.02		<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	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g		0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g		0.05		<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	<0.05
F1 (C6 - C10)	µg/g	55	5		<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5		<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10		<10	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10		<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50		123	245	<50	125	<50	92
F3 (C16 to C34) minus PAHs	µg/g		50		123	245	<50	125	<50	92
F4 (C34 to C50)	µg/g	2800	50		157	333	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50		NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1		2.9	2.8	4.3	12.6	9.4	14.8
Surrogate	**Unit**	**Acceptable Limits**								
Toluene-d8	% Recovery	60-140			78	78	80	80	85	78
Terphenyl	%	60-140			82	78	73	64	74	89

Certified By:

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AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

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

DATE RECEIVED: 2023-08-31 **DATE REPORTED: 2023-09-08**

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

5256368-5256373 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 *)

Certified By: N Popnikolof

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Exceedance Summary

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
5256368	1-1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Barium	µg/g	390	410
5256370	4-1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	6.82
5256372	7-2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	0.7	0.785
5256372	7-2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	9.17
5256373	9-2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	0.7	1.17
5256373	9-2	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	15.9

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Quality Assurance

CLIENT NAME: WSP CANADA INC.
AGAT WORK ORDER: 23Z063895
PROJECT: CA0008376.9447
ATTENTION TO: Keith Holmes
SAMPLING SITE:30 Cleary
SAMPLED BY:

Soil Analysis

RPT Date: Sep 08, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	5254967		<0.8	<0.8	NA	< 0.8	128%	70%	130%	112%	80%	120%	98%	70%	130%
Arsenic	5254967		5	5	0.0%	< 1	124%	70%	130%	111%	80%	120%	122%	70%	130%
Barium	5254967		52.2	52.4	0.4%	< 2.0	115%	70%	130%	110%	80%	120%	112%	70%	130%
Beryllium	5254967		<0.5	<0.5	NA	< 0.5	108%	70%	130%	106%	80%	120%	108%	70%	130%
Boron	5254967		26	26	0.0%	< 5	104%	70%	130%	108%	80%	120%	104%	70%	130%
Boron (Hot Water Soluble)	5255206		0.32	0.31	NA	< 0.10	111%	60%	140%	96%	70%	130%	97%	60%	140%
Cadmium	5254967		<0.5	<0.5	NA	< 0.5	86%	70%	130%	107%	80%	120%	104%	70%	130%
Chromium	5254967		16	16	NA	< 5	106%	70%	130%	108%	80%	120%	105%	70%	130%
Cobalt	5254967		5.4	5.3	1.9%	< 0.8	113%	70%	130%	110%	80%	120%	106%	70%	130%
Copper	5254967		13.8	13.9	0.7%	< 1.0	101%	70%	130%	104%	80%	120%	97%	70%	130%
Lead	5254967		30	29	3.4%	< 1	108%	70%	130%	103%	80%	120%	102%	70%	130%
Molybdenum	5254967		0.7	0.7	NA	< 0.5	121%	70%	130%	115%	80%	120%	117%	70%	130%
Nickel	5254967		10	10	0.0%	< 1	110%	70%	130%	109%	80%	120%	106%	70%	130%
Selenium	5254967		<0.8	<0.8	NA	< 0.8	92%	70%	130%	113%	80%	120%	116%	70%	130%
Silver	5254967		<0.5	<0.5	NA	< 0.5	121%	70%	130%	111%	80%	120%	109%	70%	130%
Thallium	5254967		<0.5	<0.5	NA	< 0.5	106%	70%	130%	106%	80%	120%	105%	70%	130%
Uranium	5254967		<0.50	0.52	NA	< 0.50	113%	70%	130%	101%	80%	120%	102%	70%	130%
Vanadium	5254967		38.4	37.5	2.4%	< 2.0	111%	70%	130%	109%	80%	120%	109%	70%	130%
Zinc	5254967		70	72	2.8%	< 5	107%	70%	130%	112%	80%	120%	122%	70%	130%
Chromium, Hexavalent	5258905		<0.2	<0.2	NA	< 0.2	93%	70%	130%	94%	80%	120%	87%	70%	130%
Cyanide, WAD	5258909		<0.040	<0.040	NA	< 0.040	90%	70%	130%	96%	80%	120%	97%	70%	130%
Mercury	5254967		<0.10	<0.10	NA	< 0.10	116%	70%	130%	107%	80%	120%	108%	70%	130%
Electrical Conductivity (2:1)	5254926		0.233	0.213	9.0%	< 0.005	110%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	5264540		2.70	2.85	5.4%	NA									
pH, 2:1 CaCl2 Extraction	5259332		6.40	6.57	2.6%	NA	101%	80%	120%						

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

Certified By:



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

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

Trace Organics Analysis

RPT Date: Sep 08, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	5258912		<0.02	<0.02	NA	< 0.02	108%	60%	140%	105%	60%	140%	95%	60%	140%
Toluene	5258912		<0.05	<0.05	NA	< 0.05	107%	60%	140%	103%	60%	140%	70%	60%	140%
Ethylbenzene	5258912		<0.05	<0.05	NA	< 0.05	99%	60%	140%	94%	60%	140%	112%	60%	140%
m & p-Xylene	5258912		<0.05	<0.05	NA	< 0.05	102%	60%	140%	96%	60%	140%	83%	60%	140%
o-Xylene	5258912		<0.05	<0.05	NA	< 0.05	106%	60%	140%	97%	60%	140%	75%	60%	140%
F1 (C6 - C10)	5258912		<5	<5	NA	< 5	103%	60%	140%	98%	60%	140%	96%	60%	140%
F2 (C10 to C16)	5254956		<10	<10	NA	< 10	98%	60%	140%	95%	60%	140%	85%	60%	140%
F3 (C16 to C34)	5254956		<50	<50	NA	< 50	97%	60%	140%	92%	60%	140%	97%	60%	140%
F4 (C34 to C50)	5254956		<50	<50	NA	< 50	88%	60%	140%	97%	60%	140%	92%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	5256368	5256368	<0.05	<0.05	NA	< 0.05	94%	50%	140%	83%	50%	140%	90%	50%	140%
Acenaphthylene	5256368	5256368	<0.05	<0.05	NA	< 0.05	100%	50%	140%	80%	50%	140%	90%	50%	140%
Acenaphthene	5256368	5256368	<0.05	<0.05	NA	< 0.05	107%	50%	140%	83%	50%	140%	90%	50%	140%
Fluorene	5256368	5256368	<0.05	<0.05	NA	< 0.05	111%	50%	140%	98%	50%	140%	93%	50%	140%
Phenanthrene	5256368	5256368	<0.05	<0.05	NA	< 0.05	91%	50%	140%	85%	50%	140%	95%	50%	140%
Anthracene	5256368	5256368	<0.05	<0.05	NA	< 0.05	107%	50%	140%	103%	50%	140%	98%	50%	140%
Fluoranthene	5256368	5256368	<0.05	<0.05	NA	< 0.05	105%	50%	140%	85%	50%	140%	73%	50%	140%
Pyrene	5256368	5256368	<0.05	<0.05	NA	< 0.05	104%	50%	140%	78%	50%	140%	78%	50%	140%
Benz(a)anthracene	5256368	5256368	<0.05	<0.05	NA	< 0.05	105%	50%	140%	80%	50%	140%	110%	50%	140%
Chrysene	5256368	5256368	<0.05	<0.05	NA	< 0.05	92%	50%	140%	85%	50%	140%	103%	50%	140%
Benzo(b)fluoranthene	5256368	5256368	<0.05	<0.05	NA	< 0.05	89%	50%	140%	118%	50%	140%	73%	50%	140%
Benzo(k)fluoranthene	5256368	5256368	<0.05	<0.05	NA	< 0.05	103%	50%	140%	80%	50%	140%	93%	50%	140%
Benzo(a)pyrene	5256368	5256368	<0.05	<0.05	NA	< 0.05	72%	50%	140%	105%	50%	140%	78%	50%	140%
Indeno(1,2,3-cd)pyrene	5256368	5256368	<0.05	<0.05	NA	< 0.05	88%	50%	140%	115%	50%	140%	115%	50%	140%
Dibenz(a,h)anthracene	5256368	5256368	<0.05	<0.05	NA	< 0.05	76%	50%	140%	80%	50%	140%	73%	50%	140%
Benzo(g,h,i)perylene	5256368	5256368	<0.05	<0.05	NA	< 0.05	108%	50%	140%	90%	50%	140%	93%	50%	140%

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

Certified By: N Popowkolof

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

AGAT Laboratories

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

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

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Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
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 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 - C10)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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

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Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 23Z063895

PROJECT: CA0008376.9447

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
F3 (C16 to C34) minus PAHs	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

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AGAT Laboratories

Have feedback? Scan here for a quick survey!

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webearth.agatlabs.com

Chain of Custody Record

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

Report Information:

Company: WSP
Contact: Keith Holmes
Address:
Phone: Fax:
Reports to be sent to:
1. Email: keith.p.holmes@wsp.com
2. Email:

Project Information:

Project: CA0008376.9447
Site Location: 30 Cleary
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:

(Please check all applicable boxes)

- ☒ Regulation 153/04 — Table 3 (Indicate One) — ☐ Ind/Com ☒ Res/Park ☐ Agriculture — Soil Texture (Check One): ☒ Coarse ☐ Fine
- ☐ Regulation 406 — Table (Indicate One)
- ☐ Regulation 558
- ☐ CCME
- ☐ Sewer Use ☐ Sanitary ☐ Storm — Region
- ☐ Prov. Water Quality Objectives (PWQO)
- ☐ Other — Indicate One

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

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

Sample Matrix Legend

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

Laboratory Use Only

Work Order #: 23Z063895

Cooler Quantity: one - bagged ice
Arrival Temperatures: 10.6 | 9.4 | 10.5 / 3.2 | 3.1 | 4.0
Custody Seal Intact: ☐ Yes ☐ No ☒ N/A
Notes: bagged ice

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	BTEX, F1-F4 PHCs	VOC	PAHs	PCBs	PCBs: Aroclors ☐	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Regulation 406 SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	Regulation 406 Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: ☐ Moisture ☐ Sulphide	Potentially Hazardous or High Concentration (Y/N)
1. 1-1	24-8-23	12 AM/PM	3	S			X		X		X							
2. 2-1	25-8-23																	
3. 4-1	25-8-23																	
4. 5-2	24-8-23																	
5. 7-2	25-8-23																	
6. 9-2	24-8-23																	
7.																		
8.																		
9.																		
10.																		
11.																		

Samples Relinquished By (Print Name and Sign): Keith Holmes	Date: 30-8-23	Time: 2:00	Samples Received By (Print Name and Sign): C. Cruttenden	Date: AUG 31 2023	Time: 11h30
Samples Relinquished By (Print Name and Sign):	Date: AUG 31 2023	Time: 15h30	Samples Received By (Print Name and Sign): TK	Date: Sept 1	Time: 8:40am
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 1 of 1

N°: T-147036

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

Document ID: DW-7R-1551-022

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Date Issued: Mar 30, 2023

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC.
1931 ROBERTSON ROAD
OTTAWA, ON K2H5B7
(613) 592-9600
ATTENTION TO: Keith Holmes
PROJECT: CA0008376.9447 Cleary Dev
AGAT WORK ORDER: 23Z065219
TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer
DATE REPORTED: Sep 08, 2023
PAGES (INCLUDING COVER): 6
VERSION*: 1

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

*Notes

Disclaimer:

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

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

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Certificate of Analysis

AGAT WORK ORDER: 23Z065219

PROJECT: CA0008376.9447 Cleary Dev

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:Olivia Dale

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

DATE RECEIVED: 2023-09-05

DATE REPORTED: 2023-09-08

				SAMPLE DESCRIPTION:	23-05A	Field Dupe
				SAMPLE TYPE:	Water	Water
				DATE SAMPLED:	2023-09-05 10:00	2023-09-05 10:00
Parameter	Unit	G / S	RDL		5263884	5263958
Benzene	µg/L		0.20		<0.20	<0.20
Toluene	µg/L		0.20		<0.20	<0.20
Ethylbenzene	µg/L		0.10		<0.10	<0.10
m & p-Xylene	µg/L		0.20		<0.20	<0.20
o-Xylene	µg/L		0.10		<0.10	<0.10
Xylenes (Total)	µg/L		0.20		<0.20	<0.20
F1 (C6 - C10)	µg/L		25		<25	<25
C6 - C10 (F1 minus BTEX)	µg/L		25		<25	<25
F2 (C10 to C16)	µg/L		100		<100	<100
F3 (C16 to C34)	µg/L		100		<100	<100
F4 (C34 to C50)	µg/L		100		<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500		NA	NA
Sediment					2	2
Surrogate	Unit	Acceptable Limits				
Toluene-d8	% Recovery	60-140			81.5	81.2
Terphenyl	% Recovery	60-140			79	69

Certified By:



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

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Certificate of Analysis

AGAT WORK ORDER: 23Z065219

PROJECT: CA0008376.9447 Cleary Dev

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:Olivia Dale

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

DATE RECEIVED: 2023-09-05

DATE REPORTED: 2023-09-08

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

5263884-5263958 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

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

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: 

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

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Quality Assurance

CLIENT NAME: WSP CANADA INC.
PROJECT: CA0008376.9447 Cleary Dev
SAMPLING SITE:30 Cleary

AGAT WORK ORDER: 23Z065219
ATTENTION TO: Keith Holmes
SAMPLED BY:Olivia Dale

Trace Organics Analysis

RPT Date: Sep 08, 2023

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	5267377		0.66	0.75	NA	< 0.20	86%	60%	140%	75%	60%	140%	101%	60%	140%
Toluene	5267377		0.23	0.22	NA	< 0.20	81%	60%	140%	82%	60%	140%	97%	60%	140%
Ethylbenzene	5267377		2.59	2.92	12.0%	< 0.10	81%	60%	140%	75%	60%	140%	84%	60%	140%
m & p-Xylene	5267377		0.59	0.64	NA	< 0.20	81%	60%	140%	85%	60%	140%	98%	60%	140%
o-Xylene	5267377		<0.10	<0.10	NA	< 0.10	83%	60%	140%	76%	60%	140%	102%	60%	140%
F1 (C6 - C10)	5267377		36	36	NA	< 25	104%	60%	140%	101%	60%	140%	89%	60%	140%
F2 (C10 to C16)	5257469		< 100	< 100	NA	< 100	112%	60%	140%	75%	60%	140%	88%	60%	140%
F3 (C16 to C34)	5257469		< 100	< 100	NA	< 100	107%	60%	140%	62%	60%	140%	75%	60%	140%
F4 (C34 to C50)	5257469		< 100	< 100	NA	< 100	75%	60%	140%	90%	60%	140%	78%	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: Jinkal Patel

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

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

AGAT Laboratories

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

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 23Z065219

PROJECT: CA0008376.9447 Cleary Dev

ATTENTION TO: Keith Holmes

SAMPLING SITE:30 Cleary

SAMPLED BY:Olivia Dale

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
Toluene	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
Ethylbenzene	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
m & p-Xylene	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
o-Xylene	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
Xylenes (Total)	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
F1 (C6 - C10)	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
C6 - C10 (F1 minus BTEX)	VOL - 5010	MOE E3421	(P&T)GC/MS
Toluene-d8	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	modified from MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Sediment			N/A

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

AGAT Laboratories

Have feedback? Scan here for a quick survey!

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

Chain of Custody Record

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

Report Information:

Company: WSP Canada Inc.
Contact: Keith Holmes
Address: 1931 Robertson Rd Ottawa
Phone: 613-592-9600 Fax:
Reports to be sent to:
1. Email: Keith.p.holmes@wsp.com
2. Email:

Project Information:

Project: CA0008376.9447 Cleary Dev.
Site Location: 30 Cleary
Sampled By: Olivia Dale
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: WSP Canada
Contact: Keith Holmes
Address:
Email: Keith.P.Holmes@wsp.com

Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Regulation 406
Table _____ (Indicate One)

☐ Regulation 558

☐ CCME

☐ Sewer Use
☐ Sanitary ☐ Storm
_____ (Region)

☐ Prov. Water Quality Objectives (PWQO)

☐ Other
_____ (Indicate One)

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

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

Laboratory Use Only

Work Order #: 2320565219

Cooler Quantity: one - loose ice
Arrival Temperatures: 7.0 | 7.6 | 7.9
3.8 | 3.2 | 3.1
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: 1 returned set

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	VOC	PAHs	PCBs	PCBs: Arocolors ☐	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Regulation 406 SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	Regulation 406 Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: ☐ Moisture ☐ Sulphide	Potentially Hazardous or High Concentration (Y/N)
1. 23-05A	09/05/23	10 AM PM	5	GW					X									
2. Field Dupe	09/05/23	10 AM PM	5	GW					X									
3.		AM PM																
4.		AM PM																
5.		AM PM																
6.		AM PM																
7.		AM PM																
8.		AM PM																
9.		AM PM																
10.		AM PM																
11.		AM PM																

Samples Relinquished By (Print Name and Sign): Olivia Dale Olivia Dale	Date 09/05/23	Time 11:30 AM	Samples Received By (Print Name and Sign): C. Cuttle	Date 09/05/23	Time 11h30		
Samples Relinquished By (Print Name and Sign): CC to Pucc	Date 09/05/23	Time 15h30	Samples Received By (Print Name and Sign):	Date Sept 6	Time 8:30 AM	Page ____ of ____	
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time	N°: T-147349	

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

Document ID: DIV-78-1511-023

Any and all products and/or services provided by AGAT Labs are pursuant to the terms and conditions as set forth at www.agatlabs.com/termsandconditions unless otherwise agreed in a current written contractual document.

Your Project #: CA0008376.9447
Site Location: 30 CLEAR
Your C.O.C. #: 958730-01-01

Attention: Keith Holmes

WSP Canada Inc.
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2023/10/18
Report #: R7867060
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V8008
Received: 2023/10/12, 15:48

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydro. CCME F1 & BTEX in Water (1)	1	N/A	2023/10/17	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	1	2023/10/16	2023/10/16	CAM SOP-00316	CCME PHC-CWS m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: CA0008376.9447
Site Location: 30 CLEAR
Your C.O.C. #: 958730-01-01

Attention: Keith Holmes

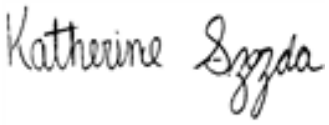
WSP Canada Inc.
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2023/10/18
Report #: R7867060
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V8008
Received: 2023/10/12, 15:48

Encryption Key



Katherine Szozda
Project Manager
18 Oct 2023 18:04:32

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

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O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		XGV818		
Sampling Date		2023/10/12 14:10		
COC Number		958730-01-01		
	UNITS	**BH23-07**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons				
Benzene	ug/L	<0.20	0.20	8982633
Toluene	ug/L	<0.20	0.20	8982633
Ethylbenzene	ug/L	<0.20	0.20	8982633
o-Xylene	ug/L	<0.20	0.20	8982633
p+m-Xylene	ug/L	<0.40	0.40	8982633
Total Xylenes	ug/L	<0.40	0.40	8982633
F1 (C6-C10)	ug/L	<25	25	8982633
F1 (C6-C10) - BTEX	ug/L	<25	25	8982633
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	8984184
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	8984184
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	8984184
Reached Baseline at C50	ug/L	Yes		8984184
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	95		8982633
4-Bromofluorobenzene	%	111		8982633
D10-o-Xylene	%	95		8982633
D4-1,2-Dichloroethane	%	96		8982633
o-Terphenyl	%	93		8984184

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Job #: C3V8008
Report Date: 2023/10/18

WSP Canada Inc.
Client Project #: CA0008376.9447
Site Location: 30 CLEAR
Sampler Initials: ON

TEST SUMMARY

Bureau Veritas ID: XGV818
Sample ID: BH23-07
Matrix: Water

Collected: 2023/10/12
Shipped:
Received: 2023/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8982633	N/A	2023/10/17	Domnica Andronescu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8984184	2023/10/16	2023/10/16	(Kent) Maolin Li

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	12.7°C

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

Bureau Veritas Job #: C3V8008
Report Date: 2023/10/18

QUALITY ASSURANCE REPORT

WSP Canada Inc.
Client Project #: CA0008376.9447
Site Location: 30 CLEAR
Sampler Initials: ON

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8982633	1,4-Difluorobenzene	2023/10/17	94	70 - 130	94	70 - 130	94	%		
8982633	4-Bromofluorobenzene	2023/10/17	111	70 - 130	118	70 - 130	109	%		
8982633	D10-o-Xylene	2023/10/17	96	70 - 130	95	70 - 130	94	%		
8982633	D4-1,2-Dichloroethane	2023/10/17	86	70 - 130	94	70 - 130	92	%		
8984184	o-Terphenyl	2023/10/16	99	60 - 130	98	60 - 130	96	%		
8982633	Benzene	2023/10/17	93	50 - 140	87	50 - 140	<0.20	ug/L	NC	30
8982633	Ethylbenzene	2023/10/17	107	50 - 140	96	50 - 140	<0.20	ug/L	NC	30
8982633	F1 (C6-C10) - BTEX	2023/10/17					<25	ug/L	NC	30
8982633	F1 (C6-C10)	2023/10/17	107	60 - 140	95	60 - 140	<25	ug/L	NC	30
8982633	o-Xylene	2023/10/17	97	50 - 140	93	50 - 140	<0.20	ug/L	NC	30
8982633	p+m-Xylene	2023/10/17	108	50 - 140	102	50 - 140	<0.40	ug/L	NC	30
8982633	Toluene	2023/10/17	94	50 - 140	88	50 - 140	<0.20	ug/L	NC	30
8982633	Total Xylenes	2023/10/17					<0.40	ug/L	NC	30
8984184	F2 (C10-C16 Hydrocarbons)	2023/10/17	109	60 - 130	106	60 - 130	<100	ug/L	NC	30
8984184	F3 (C16-C34 Hydrocarbons)	2023/10/17	111	60 - 130	112	60 - 130	<200	ug/L	NC	30
8984184	F4 (C34-C50 Hydrocarbons)	2023/10/17	111	60 - 130	110	60 - 130	<200	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

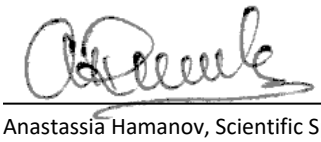
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

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Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

www.BVNA.com

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

Received in Ottawa

ENV COC - 00014v3

12-Oct-23 15:48
Katherine Szozda
C3V8008
A1V ENV-1368

Invoice Information	Invoice to (requires report) ☐	Report Information (if differs from invoice)		Project Information	
Company:	WSP	Company:		Quotation #:	
Contact Name:	Keith Holmes	Contact Name:		P.O. #/ AFE#:	
Street Address:	1931 Richmond Rd	Street Address:		Project #:	CA0008376.9447
City:	Ottawa Prov: ON Postal Code:	City: Prov: Postal Code:		Site #:	
Phone:	613-592-9600	Phone:		Site Location:	30 Cleary
Email:	Keith.P.holmes@wsp.com	Email:		Site Location Province:	
Copies:		Copies:		Sampled By:	Olivia Date

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table ____ ☐ Res/Park ☐ Ind/Comm ☐ Agri/other ☐ Med/Fine ☐ Course ☐ For RSC

OTHER: ☐ CCME ☐ Reg 558* *min 3 day TAT ☐ MISA ☐ PWQO ☐ Reg 406, Table: ____ ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ____ ☐ Other: ____

Include Criteria on Certificate of Analysis (check if yes): ☐

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Identification	Date Sampled YY	MM	DD	Time (24hr) HH	MM	Matrix	1 FIELD FILTERED	2 FIELD PRESERVED	3 LAB FILTRATION REQUIRED	4 BTEX/F1	5 F2 - F4	6 VOCs	7 Reg 153 metals and inorganics	8 Reg 153 ICPMS metals	9 Reg 153 metals (Hg, Cr VI, ICPMS metals, HWS - B)	10 PHC	11	12	13	14	15	16	17	18	19	20	21 # OF CONTAINERS SUBMITTED	22 HOLD - DO NOT ANALYZE
1	BH23-07	23	10	12	14	10	GW				Y						X												
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

Regular Turnaround Time (TAT)
☒ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply
☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YY MM DD

Comments

UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS OR BY CALLING THE LABORATORY LISTED ABOVE TO OBTAIN A COPY

LAB USE ONLY	Yes	No	°C			
Seal present		✓				
Seal intact						
Cooling media present	✓		ICE	16 (1)	15 (2)	7 (3)

LAB USE ONLY	Yes	No	°C			
Seal present	✓					
Seal intact	✓					
Cooling media present	✓			5 (1)	5 (2)	8 (3)

LAB USE ONLY	Yes	No	°C				Temperature reading by:
Seal present							
Seal intact							
Cooling media present				1	2	3	

	Relinquished by: (Signature/ Print)	Date YY	MM	DD	Time HH	MM	Received by: (Signature/ Print)	Date YY	MM	DD	Time HH	MM
1	Olivia Date	23	10	12	15	00	Samuel Durand	2023	10	12	15	48
2								023	10	13	08	30

Special Instructions



wsp.com