Phase Two Environmental Site Assessment
Proposed OC Transpo Parking Garage
Part of 1500 St. Laurent Boulevard, Ottawa, Ontario

Client:
City of Ottawa

Type of Document:
FINAL

Project Name:
Phase Two Environmental Site Assessment

Project Number:
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Legal Notification

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Executive Summary

EXP Services Inc. (EXP) was retained by the City of Ottawa to complete a Phase Two Environmental Site Assessment (ESA) for part of the property located at 1500 St. Laurent Boulevard in Ottawa, Ontario hereinafter referred to as the 'Phase Two property'. At the time of the investigation, the Phase Two property was occupied by a parking lot and a storage compound.

The objective of the Phase Two ESA investigation was to assess the quality of the soil and groundwater conditions within the areas of potential environmental concern (APEC) identified in a Phase One ESA prepared by EXP.

The proposed development consists of the construction of an 8,000 m^2 parking garage for electric buses in the parking lot area and a proposed hydro substation comprised of three switch gear buildings and two 3 m x 5 m concrete pads for installation of other equipment in the north part of the Phase Two property. The most recent use of the property was industrial, and the proposed future property use will be industrial. Consequently, in accordance with Regulation 153/04, as amended, a Record of Site Condition (RSC) is not required.

The Phase Two property consists of the northwest part the property with the municipal address of 1500 St. Laurent Boulevard. The Phase Two property is irregular in shape, with an approximate area of 2.2 hectares. The Phase Two property is currently used for OC Transpo bus parking, with a fenced storage compound in the central part of the property.

The Phase Two property is part of a larger property with the legal description of Part Block D on Plan 725 as in OT70509, N6-20614 and being Part 1, R50 and Part 1, 4R-9060, except Parts 1 to 4 on Plan 5R-10547 and Parts 1 and 2 on Plan 4R-26260. Subject to interest if any in OT37427; Subject to NS54899, OT72173. Subject to an Easement over Parts 2 and 3 on 4R-28039 as in OC1861720 subject to an Easement in gross over part Block D, Plan 725, Parts 1 and 2, Plan 4R31777 as in OC2093671, in City of Ottawa. The property identification number (PIN) for the property with the municipal address 1500 St. Laurent Boulevard is 042560711.

EXP prepared a report entitled *Phase One Environmental Site Assessment, Part of 1500 St. Laurent Boulevard, Ottawa, Ontario,* dated October 28, 2022. The Phase One study area included the entire Phase Two property as well as properties within 250 m of the Phase Two property. Based on the results of the Phase One ESA, EXP identified seven APECs within the Phase One study area. A summary is provided in Table EX 1.

Table EX.1: Findings of Phase One ESA

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#1. Fill material is inferred to be present across the Phase One property	Entire Phase One property	PCA #30 – Importation of Fill Material of Unknown Quality	On-site	Benzene, toluene, ethylbenzene, and xylene (BTEX) and petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), metals	Soil
#2. Multiple spill records exist for 1500 St. Laurent Boulevard, the exact locations not specified	Entire Phase One property	PCA #Other – Historic fuel spills	On-site	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), PHC	Soil and groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#3. Former rail spur line running from adjacent railway to the north	North part of Phase One property	PCA #46 – Rail yards, tracks, and spurs	On-Site	Volatile organic compounds (VOC), BTEX, PHC, PAH, metals, polychlorinated biphenyl (PCB)	Soil
#4. Fuel AST for bus re-fuelling	Central part of Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	On-Site	BTEX, PHC, PAH	Soil and groundwater
#5. Garage operations on the east adjacent property	Southeast part of Phase One property	PCA #52 – Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	VOC, PHC, PAH	Groundwater
#6. Waste oil AST	Northeast part of the Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater
#7. Former gasoline and waste oil UST at 899 Belfast Road	Southeast part of the Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater

Between September 19 and November 17, 2022, seventeen boreholes (BH-1 to BH-17) were advanced at the Phase Two property by a licensed drilling company. The boreholes were advanced to auger refusal or termination depths ranging from 2.4 m to 8.7 m below existing grade.

The geotechnical conditions encountered consisted of 125 mm to 175 mm of asphalt underlain by crusher run limestone sand and gravel or dense sand and gravel fill to 0.6 m to 0.8 m depth. The granular fill is underlain by dense to very loose silty sand fill with some gravel and trace clay. The origin of the fill is likely the glacial till overburden encountered at the Phase Two property. The fill is grey to black in colour. There were no indications of staining or odours in the fill material.

The granular fill in BH-1 and BH-7 is underlain by silty sand with gravel fill with some clay which extends to 2.3 m and 1.1 m depth respectively. The granular fill in BH-2 to BH-6, BH-8 to BH-17 and the disturbed till fill in BH-1 and BH-7 are underlain by glacial till which extends to the refusal to augers depth in BH-1, BH-3 to BH-6, and BH-8 (2.4 m to 4.4 m depth). In BH-2, BH-7 and BH-9, the till extends to a depth of 2.8 m to 4.2 m. The till comprises of clay silty sand with gravel to silty sand with gravel and possible cobbles and boulders. There were no indications of staining or odours in the native soil.

The glacial till in BH-2, BH-7 and BH-9, BH-10 and BH-13 is underlain by shale bedrock which was encountered to the entire depth investigated, (7.1 m to 8.7 m depth).

The depth to groundwater ranged from 1.25 m to 2.70 m below ground surface. The groundwater flow direction was calculated to be to the northeast.

Sixteen soil samples and two blind duplicates were collected and submitted for laboratory analysis of volatile organic compounds (VOC), petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), metals, and/or polychlorinated biphenyls (PCBs). Seven groundwater samples and a blind duplicate were collected and submitted for analysis of VOC, PHC, PAH, and metals.

All of the soil samples had concentrations of BTEX, PHC, PAH, and metals that were within the Table 3 site conditions standards (SCS) for industrial land use and coarse textured soil with the exception of five samples which exceeded for conductivity and/or sodium absorption ratio.

All of the groundwater samples had concentrations of BTEX, PHC, PAH, and metals that were within the Table 3 SCS, with the exception of four samples and the duplicate which exceeded for sodium and chloride.

The Qualified Person can confirm that the Phase Two Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.

This executive summary is a brief synopsis of the report and should not be read in lieu of reading the report in its entirety.

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1.0 Introduction

EXP Services Inc. (EXP) was retained by the City of Ottawa to complete a Phase Two Environmental Site Assessment (ESA) for part of the property located at 1500 St. Laurent Boulevard in Ottawa, Ontario hereinafter referred to as the 'Phase Two property'. The site location is shown on Figure 1 in Appendix A. At the time of the investigation, the Phase Two property was occupied by a parking lot and a storage compound.

The objective of the Phase Two ESA investigation was to assess the quality of the soil and groundwater conditions within the areas of potential environmental concern (APEC) identified in a Phase One ESA prepared by EXP.

The proposed development consists of the construction of an 8,000 m^2 parking garage for electric buses in the parking lot area and a proposed hydro substation comprised of three switch gear buildings and two 3 m x 5 m concrete pads for installation of other equipment in the north part of the Phase Two property.

The most recent use of the property was industrial, and the proposed future property use will be industrial. Consequently, in accordance with Regulation 153/04, as amended, a Record of Site Condition (RSC) is not required.

This report has been prepared in accordance with the Phase Two ESA standard as defined by Ontario Regulation 153/04 (as amended), and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 8 of this report.

1.1 Site Description

The Phase Two property consists of the northwest part the property with the municipal address of 1500 St. Laurent Boulevard. The Phase Two property is irregular in shape, with an approximate area of 2.2 hectares. The Phase Two property is currently used for OC Transpo bus parking, with a fenced storage compound in the central part of the property.

The Phase Two property is part of a larger property with the legal description of Part Block D on Plan 725 as in OT70509, N6-20614 and being Part 1, R50 and Part 1, 4R-9060, except Parts 1 to 4 on Plan 5R-10547 and Parts 1 and 2 on Plan 4R-26260. Subject to interest if any in OT37427; Subject to NS54899, OT72173. Subject to an Easement over Parts 2 and 3 on 4R-28039 as in OC1861720 subject to an Easement in gross over part Block D, Plan 725, Parts 1 and 2, Plan 4R31777 as in OC2093671, in City of Ottawa. The property identification number (PIN) for the property with the municipal address 1500 St. Laurent Boulevard is 042560711.

Refer to Table 1.1 for the Site identification information.

Table 1.1: Site Identification Details

Civic Address	1500 St. Laurent Boulevard, Ottawa, Ontario
Current Land Use	Industrial
Proposed Future Land Use	Industrial
Property Identification Number	042560711
UTM Coordinates	Zone 18, 450308 m E and 5029250 m N
Site Area	2.2 hectares
Property Owner	City of Ottawa

1.2 Property Ownership

The registered owner of the Phase One property is the City of Ottawa. Authorization to proceed with this investigation on behalf of the property owner was provided by Mr. Sami Qadan on behalf of City of Ottawa. Contact information for Mr. Qadan is 100 Constellation Drive, 6th Floor, Ottawa, Ontario, K2G 6J8.

1.3 Current and Proposed Future Use

The Phase Two property has bever been developed, and the most recent use of the property was as a parking lot and a storage compound. The proposed future use of the property is for an electric bus parking garage and a hydro substation comprised of three switch gear buildings and two 3 m x 5 m concrete pads for installation of other equipment in the north part of the Phase Two property. Since the proposed use for the property has the same sensitivity as the previous use, a Record of Site Condition (RSC) is not required.

1.4 Applicable Site Condition Standards

Analytical results obtained for soil and groundwater samples were compared to Site Condition Standards (SCS) established under subsection 169.4(1) of the Environmental Protection Act, and presented in the document entitled *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, 2011. This document provides tabulated background SCS (Table 1) applicable to environmentally sensitive sites and effects-based generic SCS (Tables 2 to 9) applicable to non-environmentally sensitive sites. The effects-based SCS (Tables 2 to 9) are protective of human health and the environment for different groundwater conditions (potable and non-potable), land use scenarios (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil texture (coarse or medium/fine) and restoration depth (full or stratified).

Table 1 to 9 SCS are summarized as follows:

- Table 1 – applicable to sites where background concentrations must be met (full depth), such as sensitive sites where site-specific criteria have not been derived
- Table 2 – applicable to sites with potable groundwater and full depth restoration
- Table 3 – applicable to sites with non-potable groundwater and full depth restoration
- Table 4 – applicable to sites with potable groundwater and stratified restoration
- Table 5 – applicable to sites with non-potable groundwater and stratified restoration
- Table 6 – applicable to sites with potable groundwater and shallow soils (bedrock encountered at depths of 2 metres or less across one-third or more of the site)
- Table 7 – applicable to sites with non-potable groundwater and shallow soils (bedrock encountered at depths of 2 metres or less across one-third or more of the site)
- Table 8 – applicable to sites with potable groundwater and that are within 30 m of a water body
- Table 9 – applicable to sites with non-potable groundwater and that are within 30 m of a water body

Application of the generic or background SCS to a specific site is based on a consideration of site conditions related to soil pH, thickness and extent of overburden material, and proximity to an area of environmental sensitivity or of natural significance. For some chemical parameters, consideration is also given to soil textural classification with SCS having been derived for both coarse and medium-fine textured soil conditions.

For assessment purposes, EXP selected the 2011 Table 3 SCS in a non-potable groundwater condition for industrial/commercial/community property use. The selection of these categories was based on the following factors:

- Bedrock is greater than 2 metres below grade across the subject property;

- Coarse textured soils were identified during the investigation;
- The Phase Two property is not located within 30 metres of a waterbody;
- The Phase Two property is not located within an area of natural significance, does not include nor is adjacent to an area of natural significance, and does not include land that is within 30 metres of an area of natural significance;
- Potable water for the Phase Two property is provided by the City of Ottawa through its water distribution system;
- The Phase Two property is not located in an area designated in a municipal official plan as a well-head protection area;
- The proposed building is planned for industrial/commercial/community use; and
- It is the opinion of the Qualified Person who oversaw this work that the Phase Two property is not a sensitive site.

2.0 Background Information

2.1 Physical Setting

The Phase Two property is the northwest part of the property with the municipal address 1500 St. Laurent Boulevard in Ottawa, Ontario. The site is irregular in shape, with an approximate area of 2.2 hectares. At the time of the current investigation, the Phase Two property was occupied by an OC Transpo bus parking lot and a fenced storage compound.

A site plan showing the Phase Two property is presented as Figure 2 in Appendix A.

The Phase Two property, and all other properties located, in whole or in part, within 250 metres of the boundaries of the Phase Two property, are supplied by a municipal drinking water system provided by the City of Ottawa. Further, the Phase Two property is not located in an area designated in the municipal official plan as a well-head protection area and no properties within the Phase Two study area have a well that is being used or is intended for use as a source of potable water. Thus, in accordance with Section 35 of Ontario Regulation 153/04, non-potable water standards apply to the Phase Two property.

In accordance with Section 41 of Ontario Regulation 153/04, the Phase Two property is not an environmentally sensitive area. In addition, the Phase Two property is not located within an area of natural significance, and it does not include land that is within 30 metres of an area of natural significance.

The Phase Two property is not a shallow soil property as defined in Section 43.1 of the regulation. It does not include all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body.

Bedrock in the general area of the Phase One property consists of shale of the Billings Formation. Native surficial soil consists of sand, clay and silt till plains. Ground surface is approximately 71 metres above sea level (masl).

Based on previous investigations conducted in the study area, the groundwater flow direction is anticipated to be to the northeast.

2.2 Past Investigations

EXP prepared a report entitled *Phase One Environmental Site Assessment, Part of 1500 St. Laurent Boulevard, Ottawa, Ontario,* dated October 28, 2022. The Phase One study area included the entire Phase Two property as well properties within 250 m of the Phase Two property. Based on the results of the Phase One ESA, EXP identified seven APECs. A summary is provided in Table 2.1.

Table 2.1: Findings of Phase One ESA

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#1. Fill material is inferred to be present across the Phase One property	Entire Phase One property	PCA #30 – Importation of Fill Material of Unknown Quality	On-site	Benzene, toluene, ethylbenzene, and xylene (BTEX) and petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), metals	Soil

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#2. Multiple spill records exist for 1500 St. Laurent Boulevard, the exact locations not specified	Entire Phase One property	PCA #Other – Historic fuel spills	On-site	BTEX, PHC	Soil and groundwater
#3. Former rail spur line running from adjacent railway to the north	North part of Phase One property	PCA #46 – Rail yards, tracks, and spurs	On-Site	Volatile organic compounds (VOC), BTEX, PHC, PAH, metals, polychlorinated biphenyl (PCB)	Soil
#4. Fuel AST for bus re-fuelling	Central part of Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	On-Site	BTEX, PHC, PAH	Soil and groundwater
#5. Garage operations on the east adjacent property	Southeast part of Phase One property	PCA #52 – Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	VOC, PHC, PAH	Groundwater
#6. Waste oil AST	Northeast part of the Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater
#7. Former gasoline and waste oil UST at 899 Belfast Road	Southeast part of the Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater

The locations of the APEC are shown on Figure 2 in Appendix A. The Phase Two conceptual site model is shown on Figure 3 Appendix A.

The Phase One ESA was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.

3.0 Scope of the Investigation

3.1 Overview of Site Investigation

The objective of the Phase Two ESA was to assess the quality of soil and groundwater on the Phase Two property to support the development of am electric bus parking garage.

3.2 Scope of Work

The scope of work for the Phase Two ESA was as follows:

- Drilling seventeen boreholes on the subject property and completing seven of them as monitoring wells;
- Submitting soil samples for laboratory analysis of petroleum hydrocarbon (PHC) fractions F1 to F4, volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), metals and inorganics and/or polychlorinated biphenyls (PCBs);
- Collecting groundwater samples from the new monitoring wells and submitting them for analysis of PHC, VOC, PAH, and/or metals and inorganics;
- Comparing the results of the soil and groundwater chemical analyses to applicable criteria, as set out by the Ontario Ministry of the Environment, Conservation and Parks (MECP);
- Conducting an elevation survey of the boreholes;
- Monitoring groundwater levels in the new monitors to determine groundwater elevations; and,
- Preparing a report summarizing the results of the assessment activities.

This report has been prepared in accordance with the Phase Two ESA standard as defined by Ontario Regulation 153/04 (as amended), and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 8 of this report.

3.3 Media Investigated

The Phase Two ESA included the investigation of soil and groundwater on the Phase Two property. There are no waterbodies on the Phase Two property, therefore sediment sampling was not required.

The contaminants of potential concern (COPC) identified in the Phase One ESA were identified as target parameters for this Phase Two ESA. The APEC and COPC identified in the Phase One ESA are outlined in Section 2.2.

3.4 Phase One Conceptual Site Model

The Phase One conceptual site model (CSM) was developed by considering the following physical characteristics and pathways. The CSM showing the topography of the site, inferred groundwater flow, general site features, APEC, and PCA is shown in Figure 3 in Appendix A.

3.4.1 Buildings and Structures

There are no buildings on the Phase Two property.

3.4.2 Water Bodies and Groundwater Flow Direction

There are no waterbodies on the Phase Two property. The nearest waterbody is Green's Creek, located approximately 2 km to the east. The Rideau River is located approximately 2.1 km to the west of the Phase Two property.

3.4.3 Areas of Natural Significance

There are no ANSI within the Phase Two study area.

3.4.4 Water Wells

There are no potable water wells within the Phase Two study area.

3.4.5 Potentially Contaminating Activity

Ontario Regulation (O. Reg.) 153/04 defines a Potential Contaminating Activity (PCA) as one of fifty-nine (59) industrial operations set out in Table 2 of Schedule D that occurs or has occurred in the Phase One study area. EXP completed a draft Phase One ESA for the property in October 2022 and the following on-site potentially contaminating activities (PCA) were identified:

- PCA #28 – Gasoline and associated products storage in fixed tanks (fuel AST on the Phase Two property);
- PCA #30 – Importation of fill material of unknown quality (fill material likely present across the Phase Two property);
- PCA #46 – Rail yards, tracks, and spurs (former on-site spur line); and,
- PCA #Other – Historic fuel spills (multiple spill records for 1500 St. Laurent Boulevard, the exact spill locations are unknown).

By definition, all of the above PCA have resulted in APEC on the Phase Two property.

The following off-site PCAs were identified:

- PCA #28 – Gasoline and associated products storage in fixed tanks (former waste oil UST and former fuel USTs on the southeast adjacent property (1500 St. Laurent Boulevard), waste oil AST on east adjacent property (1500 St Laurent Boulevard), fuel USTs at 869 Belfast Road, fuel USTs at 805 Belfast Road, former UST at 899 Belfast Road, fuel oil UST at 810 Belfast Road, former fuel, waste oil and chemical USTs at 599 Tremblay Road;
- PCA #37 – Operation of dry-cleaning equipment (where chemicals are used) (former dry cleaner at 920 Belfast Road);
- PCA #46 – Rail yards, tracks, and spurs (rail line borders the Phase Two property to the north);
- PCA #52 – Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems (OC Transpo repair and maintenance operations at both the north and south garages on the east adjacent property and 899 Belfast Road, former MTO garage at 599 Tremblay Road); and,
- PCA #Other – Historic fuel spills (multiple spill records for 1500 St. Laurent Boulevard, the exact spill locations are unknown).

All of the historic or current USTs associated with the east adjacent OC Transpo garages are located at least 120 m from the Phase Two property. Therefore, none of the USTs are considered to result in APECs.

The USTs at 869 Belfast Road are located on the west side of the site building, over 120 m west of the Phase Two property. Due to the distance and cross-gradient location from the Phase Two property, the USTs are not considered to result in an APEC.

The USTs at 805 and 810 Belfast Road are located over 180 m from the Phase Two property and are not considered to result in APECs.

The USTs and operations at 599 Tremblay Road were located over 180 m and cross gradient to the inferred direction of the groundwater flow. The buildings at this property were demolished in 2008. Historic operations at this property are not considered to have resulted in APECs.

The south garage is located 90 m southeast the Phase Two property, therefore any vehicle maintenance/repair operations at the south garage are not considered to result in an APEC.

The former dry-cleaning operation at 920 Belfast Road is located approximately 250 m southeast of the Phase Two property. In addition, there is a water treatment system on the property which is intended to prevent the offsite migration of contaminants and due to the distance from the Phase Two property. Therefore, the contamination at 920 Belfast Road is not considered to result in an APEC.

The off-site PCA that were determined to result in APEC on the Phase Two property include PCA #28 (waste oil AST on the north side of the north garage, gasoline and waste oil UST at 899 Belfast Road), and PCA #52 (operations at the north garage on the east adjacent property).

3.4.6 Areas of Potential Environmental Concern

The APEC identified are summarized in Table 3.1.

Table 3.1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#1. Fill material is inferred to be present across the Phase Two property	Entire Phase Two property	PCA #30 – Importation of Fill Material of Unknown Quality	On-site	Benzene, toluene, ethylbenzene, and xylene (BTEX) and petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), metals	Soil
#2. Multiple spill records exist for 1500 St. Laurent Boulevard, the exact locations not specified	Entire Phase Two property	PCA #Other – Historic fuel spills	On-site	BTEX, PHC	Soil and groundwater
#3. Former rail spur line running from adjacent railway to the north	North part of Phase Two property	PCA #46 – Rail yards, tracks, and spurs	On-Site	Volatile organic compounds (VOC), BTEX, PHC, PAH, metals, polychlorinated biphenyl (PCB)	Soil
#4. Fuel AST for bus re-fuelling	Central part of Phase Two property	PCA #28 – Gasoline and associated products storage in fixed tanks	On-Site	BTEX, PHC, PAH	Soil and groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#5. Garage operations on the east adjacent property	Southeast part of Phase Two property	PCA #52 – Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	VOC, PHC, PAH	Groundwater
#6. Waste oil AST	Northeast part of the Phase Two property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater
#7. Former gasoline and waste oil UST at 899 Belfast Road	Southeast part of the Phase Two property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater

3.4.7 Underground Utilities

The Phase Two property is not currently serviced. The adjacent properties are municipally serviced.

3.4.8 Subsurface Stratigraphy

Based on these applications, bedrock in the general area of the Phase Two property consists of shale of the Billings Formation. Native surficial soil consists of sand, clay and silt till plains. Ground surface is approximately 71 metres above sea level (masl).

3.4.9 Uncertainty Analysis

The CSM is a simplification of reality, which aims to provide a description and assessment of any areas where potentially contaminating activity that occurred within the Phase Two study area may have adversely affected the Phase Two property. All information collected during this investigation, including records, interviews, and site reconnaissance, has contributed to the formulation of the CSM.

Information was assessed for consistency, however EXP has confirmed neither the completeness nor the accuracy of any of the records that were obtained or of any of the statements made by others. All reasonable inquiries to obtain accessible information were made, as required by Schedule D, Table 1, Mandatory Requirements for Phase Two Environmental Site Assessment Reports. The CSM reflects our best interpretation of the information that was available during this investigation.

3.5 Deviations from Sampling and Analysis Plan

The field investigative and sampling program was carried out following the requirements of the Phase Two property, as described in Section 4.

No significant deviations from the SAAP, as provided in Appendix B, were reported that affected the sampling and data quality objectives for the Phase Two property.

3.6 Impediments

No impediments were encountered during this investigation.

4.0 Investigation Method

4.1 General

The current investigation was performed following requirements given under Ontario Regulation 153/04 and in accordance with generally accepted professional practices.

4.2 Drilling Program

The site investigative activities consisted of the drilling of boreholes to facilitate the collection of soil samples for visual inspection and chemical analysis. The boreholes were instrumented with monitoring wells to facilitate the collection of groundwater samples.

Prior to the commencement of drilling, the locations of underground public utilities including telephone, natural gas and electrical lines were marked at the subject property by public locating companies. A private utility locating contractor was also retained to clear the individual borehole locations.

Between September 19 and 23, 2022, fourteen boreholes (BH-1 to BH-14) were advanced at the Phase Two property by George Downing Estate Drilling Ltd. The boreholes were drilled with a truck mounted CME 75 drill. The boreholes were advanced to auger refusal or termination depths ranging from 2.4 m to 8.7 m below existing grade. BH-1, BH-3, BH-8, BH-10, and BH-13 were completed as monitoring wells.

On November 15 and 17, 2022, three additional boreholes (BH-15 to BH-17) were advanced at the Phase Two property by Marathon Underground Constructors Corporation. The boreholes were drilled with a truck mounted CME 75 drill. BH-15 and BH-16 were completed as monitoring wells.

Augers were advanced until the asphaltic concrete layer was fully penetrated and standard penetration tests (SPTs) were performed at a 0.75 m to 1.5 m depth intervals and the soil samples were retrieved by the split-barrel sampler. All soil samples were visually examined in the field for textural classification, logged, preserved in plastic bags and identified

The bedrock was cored in boreholes BH-2, BH-7, BH-9 by conventional rock coring method using NQ core barrel to a maximum depth of 8.7 m. A careful record of any sudden drops of the core barrel, colour of the wash water and wash water return were recorded during the rock coring operations.

The locations of the boreholes are shown on Figure 2 in Appendix A.

4.3 Soil Sampling

The soil sampling during the completion of this Phase Two ESA was undertaken in general accordance with the SAAP presented in Appendix B.

Soil samples were selected for laboratory analysis based on combustible vapour measurements and visual and olfactory evidence of impacts, where observed. Soil samples identified for possible laboratory analysis were placed directly into pre-cleaned, laboratory-supplied glass sample jars/vials. Samples to be analysed for PHC fraction F1 and BTEX were collected using a soil core sampler and placed into vials containing methanol as a preservative. The jars and vials were sealed with Teflon-lined lids to minimize headspace and reduce the potential for induced volatilization during storage/transport prior to analysis. All soil samples were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, Parcel Laboratories of Ottawa, Ontario. The samples were transported/submitted within 24 hours of collection to the laboratory following chain of custody protocols for chemical analysis. Soil samples were submitted for laboratory analysis of PHC, VOC PAH, and/or metals and inorganics.

Soil samples for geologic characterization were collected on a continuous basis in the overburden materials using 5 cm diameter, 61 cm long, split spoon samplers advanced into the subsurface using the drill rig. A split spoon sample was collected

approximately every 80 cm as drilling progressed. The split spoon samplers were decontaminated between sampling intervals by EXP staff using a potable water/phosphate-free detergent solution followed by rinses with potable water. EXP staff continuously monitored the drilling activities to log the stratigraphy observed from the recovered soil cores, to record the depth of soil sample collection, to record total depths of borings/excavation, and to record visual or olfactory observations of potential impacts. Field observations are summarized on the borehole logs provided in Appendix C.

4.4 Field Screening Measurements

Soil samples were placed in a sealed Ziploc plastic bag and allowed to reach ambient temperature prior to field screening with a combustible and organic vapour meter calibrated to hexane gas prior to use. The field screening measurements were made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These 'headspace' readings provide a real-time indication of the relative concentration of combustible vapours encountered in the subsurface during drilling and are used to aid in the assessment of the vertical and horizontal extent of potential impacts and the selection of soil samples for analysis.

Readings of combustible and organic vapour concentrations in the soil samples collected during the drilling investigation were recorded using an RKI Eagle 2, where there was sufficient recovery. This instrument is designed to detect and measure concentrations of combustible gas in the atmosphere to within 5 parts per million by volume (ppmv) from 0 ppmv to 200 ppmv, 10 ppmv increments from 200 ppmv to 1,000 ppmv, 50 ppmv increments from 1,000 ppmv to 10,000 ppmv, and 250 ppmv increments above 10,000 ppmv. It is equipped with two ranges of measurement, reading concentrations in ppmv or in percentage lower explosive limit (% LEL). The RKI Eagle 2 instrument can determine combustible vapour concentrations in the range equivalent to 0 to 11,000 ppmv of hexane.

The instrument was configured to eliminate any response from methane for all sampling conducted at the subject property. Instrument calibration is checked on a daily basis in both the ppmv range and % LEL range using standard gases comprised of known concentrations of hexane (400 ppmv, 40% LEL) in air. If the instrument readings are within ±10% of the standard gas value, then the instrument is deemed to be calibrated, however if the readings are greater than ±10% of the standard gas value then the instrument is re-calibrated prior to use.

The field screening measurements, in parts per million by volume (ppmv), are presented in the borehole logs provided in Appendix C.

4.5 Groundwater: Monitoring Well Installation

Monitoring wells were installed in general accordance with the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 (as amended). The monitoring wells consisted of a 38 mm or 52 mm diameter Schedule 40 PVC screen that was no more than 3.0 m long and a 52 mm diameter Schedule 40 PVC riser pipe that was at least 0.8 m long. The annular space around the wells was backfilled with sand to an average height of 0.3 m above the top of the screen. A bentonite seal was added from the top of the sand pack to approximately 0.3 m below ground surface. The monitoring wells were completed with flushmount casings. Details of the monitoring well installations are shown on the borehole logs provided in Appendix C.

Measures taken to minimize the potential for cross contamination or the introduction of contaminants during well construction included:

- The use of well pipe components (e.g. riser pipe and well screens) with factory machined threaded flush coupling joints
- Construction of wells without the use of glues or adhesives
- Removing the protective plastic wraps from well components at the time of borehole insertion to prevent contact with the ground and other surfaces
- Cleaning or disposal of drilling equipment between sampling locations

4.6 Groundwater: Field Measurement and Water Quality Parameters

Field measurement of water quality parameters is described in Section 4.7.

EXP used a Heron water level tape to measure the static water level in each monitoring well. The measuring tape was cleaned with phosphate-free soap and tap water, rinsed with distilled water after each measurement.

4.7 Groundwater: Sampling

All groundwater samples were collected via a low flow sampling technique using a Horiba U-52 multi probe water quality meter. The Horiba probe was calibrated using in-house reference standards. Prior to collecting the groundwater samples, water quality field parameters (turbidity, dissolved oxygen, conductivity, temperature, pH, and oxidation reduction potential) were monitored until stable readings were achieved to ensure that the samples collected were representative of actual groundwater conditions. These parameters are considered to be stable when three consecutive readings meet the following conditions:

- Turbidity: within 10% for values greater than 5 nephelometric turbidity units (NTU), or three values less than 5 NTU;
- Dissolved oxygen: within 10% for values greater than 0.5 mg/L, or three values less than 0.5 mg/L;
- Conductivity: within 3%;
- Temperature: ± 1°C;
- pH: ± 0.1 unit; and,
- Oxidation reduction potential: ±10 millivolts.

When stabilization occurs, equilibrium between groundwater within a monitor and the surrounding formation water is attained. As such, samples collected when stabilization occurs are considered to be representative of formation water.

The groundwater sampling during the completion of this Phase Two ESA was undertaken in general accordance with the SAAP presented in Appendix B. The groundwater samples were placed in clean coolers containing ice packs prior to and during transportation to the laboratory. The samples were transported to the laboratory within 24 hours of collection with a chain of custody.

Seven groundwater samples, one field duplicate, one field blank, and one trip blank were submitted for chemical analysis of PHC, VOC, PAH, and metals parameters.

4.8 Sediment: Sampling

There are no waterbodies present on the Phase Two property, therefore sediment sampling was not required.

4.9 Analytical Testing

The contracted laboratory selected to perform chemical analysis on all soil samples was Paracel Laboratories (Paracel). Paracel is an accredited laboratory under the Standards Council of Canada/Canadian Association for Laboratory Accreditation in accordance with ISO/IEC 17025:1999- General Requirements for the Competence of Testing and Calibration Laboratories.

4.10 Residue Management

The drill cuttings from drilling activities and purged water from groundwater development and sampling were stored in on site drums until work was completed and were disposed of off site by a licenced contractor (Clean Water Works). Fluids from cleaning drilling equipment were disposed of by the driller at their facility.

4.11 Elevation Surveying

An elevation survey was conducted by EXP. The top of casing and ground surface elevation of each monitoring well location was surveyed relative to a geodetic reference. The Universal Transverse Mercator (UTM) coordinates of each monitoring well were also recorded so that their locations could be plotted accurately.

4.12 Quality Assurance and Quality Control Measures

All soil and groundwater samples were placed in coolers containing ice packs prior to and during transportation to the contract laboratory, Paracel Laboratories Limited. Paracel is accredited to the ISO/IEC 17025:2005 standard - *General Requirements for the Competence of Testing and Calibration Laboratories*.

A QA/QC program was also implemented to ensure that the analytical results received are accurate and dependable. A QA/QC program is a system of documented checks that validate the reliability of the data. Quality Assurance is a system that ensures that quality control procedures are correctly performed and documented. Quality Control refers to the established procedures observed both in the field and in the laboratory, designed to ensure that the resulting end data meet intended quality objectives. The QA/QC program implemented by EXP incorporated the following components:

- Collecting and analysing field duplicate samples to ensure analytical precision;
- Using dedicated and/or disposable sampling equipment;
- Following proper decontamination protocols to minimize cross-contamination;
- Maintaining field notes and completing field forms to document field activities; and
- Using only laboratory-supplied sample containers and following prescribed sample protocols, including using proper preservation techniques, meeting sample hold times, and documenting sample transmission on chains of custody, to ensure the integrity of the samples is maintained.

Paracel's QA/QC program involved the systematic analysis of control standards for the purpose of optimizing the measuring system as well as establishing system precision and accuracy and included calibration standards, method blanks, reference standards, spiked samples, surrogates and duplicates.

5.0 Review and Evaluation

5.1 Geology

The geotechnical conditions encountered consisted of 125 mm to 175 mm of asphalt underlain by crusher run limestone sand and gravel or dense sand and gravel fill to 0.6 m to 0.8 m depth. The granular fill is underlain by dense to very loose silty sand fill with some gravel and trace clay. The origin of the fill is likely the glacial till overburden encountered at the Phase Two property. The fill is grey to black in colour. There were no indications of staining or odours in the fill material.

The granular fill in BH-1 and BH-7 is underlain by silty sand with gravel fill with some clay which extends to 2.3 m and 1.1 m depth respectively. The granular fill in BH-2 to BH-6, BH-8 to BH-17 and the disturbed till fill in BH-1 and BH-7 are underlain by glacial till which extends to the refusal to augers depth in BH-1, BH-3 to BH-6, and BH-8 (2.4 m to 4.4 m depth). In BH-2, BH-7 and BH-9, the till extends to a depth of 2.8 m to 4.2 m. The till comprises of clay silty sand with gravel to silty sand with gravel and possible cobbles and boulders. There were no indications of staining or odours in the native soil.

The glacial till in BH-2, BH-7 and BH-9, BH-10 and BH-13 is underlain by shale bedrock which was encountered to the entire depth investigated, (7.1 m to 8.7 m depth).

5.2 Groundwater: Elevations and Flow Direction

On November 14 (BH-1, BH-2, BH-3, BH-10, BH-13) and November 24, 2022* (BH-8, BH-15, and BH-16), the monitoring wells were inspected for general physical condition, groundwater depth, the presence of light non-aqueous phase liquid (LNAPL).

The depth to groundwater ranged from 1.25 m to 2.70 m below ground surface. Groundwater monitoring and elevation data are provided below.

Table 5.1: Monitoring and Elevation Data

Monitoring Well ID	Horizon	Grade Elevation (masl)	Top of Casing Elevation (masl)	Screen Depth (mbgs)	Depth to LNAPL (mbgs)	Depth to Groundwater (mbTOC)	Groundwater Elevation (masl)
BH-1	Overburden	70.09	69.97	1.2 to 4.0	None	2.10	69.87
BH-2	Bedrock	70.01	69.89	7.3 to 8.7	None	1.57	68.32
BH-3	Overburden	69.72	69.60	1.4 to 3.6	None	1.25	68.35
BH-8	Overburden	70.32	70.24	1.2 to 4.2	None	2.32	67.92*
BH-10	Overburden	69.95	69.87	4.6 to 8.7	None	1.94	67.93
BH-13	Overburden	69.99	69.91	4.6 to 8.7	None	2.70	67.21
BH-15	Overburden	69.23	69.13	2.2 to 5.2	None	2.00	67.13*
BH-16	Overburden	69.60	69.52	0.8 to 3.8	None	1.34	68.18*

Notes: Elevations were measured to a geodetic datum
mbgs – metres below ground surface
masl – metres above sea level
mbTOC – metres below top of monitor casing
- not measured
N/A – not applicable

Based on the groundwater elevations, a groundwater contour plan was prepared. The overburden groundwater flow direction was determined to be to the northeast. Groundwater elevations from BH-8, BH-15, and BH-16 were not used in the contour plan, as data was collected at a later date. The overburden groundwater contour plan is provided as Figure 4 in

Appendix A. It is noted that groundwater levels can also be influenced by seasonal changes, the presence of subsurface structures, or fill material.

5.3 Groundwater: Hydraulic Gradients

Horizontal hydraulic gradients were estimated for the groundwater flow components identified in the overburden aquifer based on the November 2022 groundwater elevations.

The horizontal hydraulic gradient is calculated across the using the following equation:

$i = \Delta h/\Delta s$

Where,
i = horizontal hydraulic gradient;
Δh (m) = groundwater elevation difference; and,
Δs (m) = separation distance.

The horizontal hydraulic gradient was calculated to be 0.008 m/m.

On November 18, 2022 rising head tests were conducted on BH-1 and BH-10. The rising head test requires that the static water level be measured in each monitoring well prior to the removal of groundwater. Groundwater is removed from the monitoring well using a bailer. After the water level has been sufficiently lowered, an interface probe is lowered into the monitor as quickly as possible to measure the new water level. The time at which the new water level is measured is noted as time equal zero. Water level readings are subsequently taken at frequent intervals. Both the water levels and the time they were taken are recorded.

The frequency of the time measurement is determined by the rate the water level recovers to the static water level. Measurements are taken until at least 70% recovery has been achieved or, in cases where recovery is extremely slow, until it is deemed that a sufficient amount of time has elapsed. Using the Hvorslev model, the hydraulic conductivity for the monitoring well was calculated.

All water level measurements were made with a Heron oil/water interface probe. Both the probe and the measuring tape that come into contact with liquids within a monitor are cleaned with phosphate-free soap and tap water, rinsed with distilled water and then finally rinsed with methanol after each hydraulic conductivity test is concluded.

Table 5.2: Rising Head Tests

Monitoring Well ID/ Installation ID	Horizon	Screen Depth (mbgs)	Hydraulic Conductivity (m/s)
BH-1	Overburden	1.2 to 4.0	1.04×10^{-6}
BH-10	Overburden	1.5 to 4.5	2.81×10^{-7}

Notes: mbTOC – metres below top of monitor casing

5.4 Soil: Field Screening

The methodology for the collection of soil vapour concentration measurements is described in Section 4.4.

Petroleum vapours ranged from non-detectable to 15 ppm in samples collected from the boreholes. Field screening data is presented in the borehole logs in Appendix C.

5.5 Soil: Quality

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes and from the north wall of the utility trench excavation. The selection of representative “worst case” soil samples

from each borehole was based on field visual or olfactory evidence of impacts and/or presence of potential water bearing zones.

Sixteen soil samples and two duplicates were submitted for analysis of PHC, VOC, PAH, and metals. One soil sample was submitted for analysis of PCB. Seven soil samples were submitted for analysis of inorganic parameters.

The soil analytical results are presented in Tables 1 to 3 in Appendix D. Copies of the laboratory Certificates of Analysis are provided in Appendix E. All of the soil concentrations were less than the MECP Table 3 SCS for PHC, VOC, PAH, and metals. Five of the sixteen soil samples exceeded the Table 3 SCS for sodium adsorption ratio (SAR) and/or conductivity. The soil analytical results are shown on Figures 6 to 11.

5.6 Groundwater: Quality

All groundwater samples were collected via a low flow sampling technique. EXP monitored several water quality parameters (such as water level, temperature, dissolved oxygen, conductivity, salinity, pH, oxygen reduction potential and turbidity) in order to ensure that the samples collected were representative of actual groundwater conditions.

Following their installation, the monitoring wells were developed by purging water with an inertial pump and foot valve until it became clear.

On November 14, 2022, four groundwater samples, one field duplicate, one field blank, and one trip blank were submitted for chemical analysis of PHC, VOC, PAH, and/or metals parameters. Three additional groundwater samples were collected on November 24, 2022.

The groundwater analytical results are presented in Tables 4 to 6 in Appendix D. Copies of the laboratory Certificates of Analysis are provided in Appendix E. All of the groundwater concentrations were less than the MECP Table 3 SCS for PHC, VOC, PAH, and metals, with the exception of sodium and chloride. The groundwater analytical results are shown on Figures 12 to 17.

5.6.1 Chemical Transformation and Contaminant Sources

A variety of physical, chemical and biochemical mechanisms affect the fate and transport of the potential COC in soil and groundwater, the contribution of which is dependent on the soil and groundwater conditions at the Phase Two property, as well as the chemical/physical properties of the COC. Relevant fate and transport mechanisms are natural attenuation mechanisms, including advection mixing, mechanical dispersion/molecular diffusion, phase partitions (i.e. sorption and volatilization), and possibly abiotic or biotic chemical reactions, which effectively reduce COC concentrations.

All soil samples met the applicable Table 3 commercial SCS for all parameters that were analyzed with the exception of five soil samples which exceeded the Table 3 SCS for SAR and/or conductivity.

The SAR and/or conductivity exceedances in soil, and the sodium and chloride exceedances in groundwater are likely associated with road salting operations. The MECP standards for SAR and conductivity in soil are based on the protection of plants and soil organisms, not on human health considerations. The MECP groundwater standards for chloride and sodium are based on the exposure pathway to aquatic biota via groundwater discharge to surface water. Due to the current use of the Phase Two property as a parking lot, and the proposed use as a bus parking garage and hydro substation, it is EXP's opinion that the SAR and conductivity exceedances observed in the soil, and the chloride and sodium exceedances in groundwater do not pose a significant concern under the existing or proposed operating conditions at the Phase Two property.

5.6.2 Evidence of Non-Aqueous Phase Liquid

Inspection of the groundwater monitoring wells did not indicate the presence of non-aqueous phase liquid (NAPL).

5.6.3 Maximum Concentrations

Contaminants that exceeded the applicable Table 3 commercial standards included:

Soil: SAR and conductivity

Groundwater: Chloride and sodium.

5.7 Sediment: Quality

There are no water bodies on the Phase Two property, therefore sediment sampling was not required.

5.8 Quality Assurance and Quality Control Results

Quality assurance and quality control measures were taken during the field activities to meet the objectives of the sampling and quality assurance plan to collect unbiased and representative samples to characterize existing conditions in the soil and groundwater at the site. QA/QC measures, included:

- Collection and analysis of blind duplicate soil and groundwater samples to ensure sample collection precision;
- Analysis of a groundwater field blank for all parameters that were analysed to assess potential impact during sampling;
- Using dedicated and/or disposable sampling equipment;
- Following proper decontamination protocols to minimize cross-contamination;
- Maintaining field notes and completing field forms to document on-site activities; and
- Using only laboratory supplied sample containers and following prescribed sample protocols, including proper preservation, meeting sample hold times, proper chain of custody documentation, to ensure integrity of the samples.

Paracel's QA/QC program consisted of the preparation and analysis of laboratory duplicate samples to assess precision and sample homogeneity, method blanks to assess analytical bias, spiked blanks and QC standards to evaluate analyte recovery, matrix spikes to evaluate matrix interferences and surrogate compound recoveries to evaluate extraction efficiency. The laboratory QA/QC results are presented in the Quality Assurance Report provided in the Certificates of Analysis prepared by Caduceon. The QA/QC results are reported as percent recoveries for matrix spikes, spiked blanks and QC standards, relative percent difference for laboratory duplicates and analyte concentrations for method blanks.

Review of the laboratory QA/QC results reported indicated that they were within acceptable control limits or below applicable alert criteria for the sampled media and analytical test groups.

For QA/QC purposes, the analytical sample results are quantitatively evaluated by calculating the relative percent difference (RPD) between the samples and their duplicates. To accurately calculate a statistically valid RPD, the concentration of the analytes found in both the original and duplicate sample must be greater than five times the reporting detection limit (RDL).

The results of the RPD calculations are provided in Appendix D in Tables 7 to 12. All of the RPD for soil and groundwater were either not calculable or within the applicable alert limits.

Field blanks and trip blanks were prepared and submitted for laboratory analysis of VOC. The results of the trip blank and field blank analyses are provided in Table 4 in Appendix D. The trip blank and field blank were below the detection limits for all parameters analysed.

5.9 Phase Two Conceptual Site Model

A Conceptual Site Model (CSM) provides a narrative, graphical and tabulated description integrating information related to the Phase Two property's geologic and hydrogeological conditions, areas of potential environmental concern/potential contaminating activities, the presence and distribution of contaminants of concern, contaminant fate and transport, and potential exposure pathways.

5.9.1 Introduction

EXP Services Inc. (EXP) was retained by the City of Ottawa to complete a Phase Two Environmental Site Assessment (ESA) for part of the property located at 1500 St. Laurent Boulevard in Ottawa, Ontario hereinafter referred to as the 'Phase Two property'. At the time of the investigation, the Phase One property was occupied by a parking lot and a fenced storage compound.

The objective of the Phase Two ESA investigation was to assess the quality of the soil and groundwater conditions within the areas of potential environmental concern (APEC) identified in a Phase One ESA prepared by EXP. The proposed development consists of the construction of an 8,000 m^2 parking garage for electric buses in the parking lot area and a proposed hydro substation comprised of three switch gear buildings and two 3 m x 5 m concrete pads for installation of other equipment in the north part of the Phase Two property. The most recent use of the property was industrial, and the proposed future property use will be industrial. Consequently, in accordance with Regulation 153/04, as amended, a Record of Site Condition (RSC) is not required.

5.9.2 Physical Site Description

The Phase Two property consists of the northwest part the property with the municipal address of 1500 St. Laurent Boulevard. The Phase Two property is irregular in shape, with an approximate area of 2.2 hectares. The Phase Two property is currently used for OC Transpo bus parking, with a fenced storage compound in the central part of the property.

The Phase Two property is part of a larger property with the legal description of Part Block D on Plan 725 as in OT70509, N6-20614 and being Part 1, R50 and Part 1, 4R-9060, except Parts 1 to 4 on Plan 5R-10547 and Parts 1 and 2 on Plan 4R-26260. Subject to interest if any in OT37427; Subject to NS54899, OT72173. Subject to an Easement over Parts 2 and 3 on 4R-28039 as in OC1861720 subject to an Easement in gross over part Block D, Plan 725, Parts 1 and 2, Plan 4R31777 as in OC2093671, in City of Ottawa. The property identification number (PIN) for the property with the municipal address 1500 St. Laurent Boulevard is 042560711.

A site plan showing the Phase Two property is presented as Figure 2 in Appendix A.

Refer to Table 5.4 for the Site identification information.

Table 5.3: Site Identification Details

Civic Address	1500 St. Laurent Boulevard, Ottawa, Ontario
Current Land Use	Industrial
Proposed Future Land Use	Industrial
Property Identification Number	042560711
UTM Coordinates	Zone 18, 450308 m E and 5029250 m N
Site Area	2.2 hectares
Property Owner	City of Ottawa

The Phase One Conceptual Site Model is provided as Figure 3.

The Phase Two property and all other properties located, in whole or in part, within 250 metres of the boundaries of the Phase Two property, are supplied by a municipal drinking water system provided by the City of Ottawa. Further, the Phase Two property is not located in an area designated in the municipal official plan as a well-head protection area and no properties within the Phase Two study area has a well that is being used or is intended for use as a source of potable water. Thus, in accordance with Section 35 of Ontario Regulation 153/04, non-potable water standards apply to the Phase Two property.

In accordance with Section 41 of Ontario Regulation 153/04, the Phase Two property is not an environmentally sensitive area. In addition, the Phase Two property is not located within an area of natural significance, and it does not include land that is within 30 metres of an area of natural significance.

The Phase Two property is not a shallow soil property as defined in Section 43.1 of the regulation. It does not include all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body.

5.9.3 Geological and Hydrogeological

Based on these applications, bedrock in the general area of the Phase One property consists of shale of the Billings Formation. Native surficial soil consists of sand, clay and silt till plains. Ground surface is approximately 71 metres above sea level (masl).

Based on previous investigations conducted in the study area, the groundwater flow direction is anticipated to be to the northeast.

Groundwater levels can also be influenced by seasonal changes, the presence of subsurface structures, or fill, however based on the based on the depth of the water table, it is unlikely that any of these factors will affect the groundwater flow direction at the Phase Two property.

Table 5.4: Site Characteristics

Characteristic	Description
Minimum Depth to Bedrock	2.4 metres below ground surface (BH-6)
Minimum Depth to Groundwater	1.25 m (68.35 masl November 14, 2022)
Shallow Soil Property	No, bedrock is less than 2.0 mbgs
Proximity to water body or ANSI	Approximately 2.0 km east – Green's Creek
Soil pH	Glacial till – 7.10 and 7.18
Soil Texture	Coarse
Current Property Use	Industrial
Future Property Use	Industrial
Proposed Future Building	Bus garage and switch gear buildings
Areas Containing Suspected Fill	Entire Phase Two property

5.9.4 Utilities and Impediments

Utilities, including underground hydro and storm sewers, are present on the Phase Two property.

5.9.5 Potentially Contaminating Activities

EXP completed a draft Phase One ESA for the property in October 2022 and the following on-site potentially contaminating activities (PCA) were identified:

- PCA #28 – Gasoline and associated products storage in fixed tanks (fuel AST on the Phase Two property);
- PCA #30 – Importation of fill material of unknown quality (fill material likely present across the Phase Two property);
- PCA #46 – Rail yards, tracks, and spurs (former on-site spur line); and,
- PCA #Other – Historic fuel spills (multiple spill records for 1500 St. Laurent Boulevard, the exact spill locations are unknown).

By definition, all of the above PCA have resulted in APEC on the Phase One property.

The following off-site PCAs were identified:

- PCA #28 – Gasoline and associated products storage in fixed tanks (former waste oil UST and former fuel USTs on the southeast adjacent property (1500 St. Laurent Boulevard), waste oil AST on east adjacent property (1500 St Laurent Boulevard), fuel USTs at 869 Belfast Road, fuel USTs at 805 Belfast Road, former UST at 899 Belfast Road, fuel oil UST at 810 Belfast Road, former fuel, waste oil and chemical USTs at 599 Tremblay Road;
- PCA #37 – Operation of dry-cleaning equipment (where chemicals are used) (former dry cleaner at 920 Belfast Road);
- PCA #46 – Rail yards, tracks, and spurs (rail line borders the Phase Two property to the north);
- PCA #52 – Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems (OC Transpo repair and maintenance operations at both the north and south garages on the east adjacent property and 899 Belfast Road, former MTO garage at 599 Tremblay Road); and,
- PCA #Other – Historic fuel spills (multiple spill records for 1500 St. Laurent Boulevard, the exact spill locations are unknown).

All of the historic or current USTs associated with the east adjacent OC Transpo garages are located at least 120 m from the Phase Two property. Therefore, none of the USTs are considered to result in APECs.

The USTs at 869 Belfast Road are located on the west side of the site building, over 120 m west of the Phase Two property. Due to the distance and cross-gradient location from the Phase One property, the USTs are not considered to result in an APEC.

The USTs at 805 and 810 Belfast Road are located over 180 m from the Phase Two property and are not considered to results in APECs.

The USTs and operations at 599 Tremblay Road were located over 180 m and doss gradient to the inferred direction of the groundwater flow. The buildings at this property were demolished in 2008. Historic operations at this property are not considered to have resulted in APECs.

The south garage is located 90 m southeast the Phase Two property, therefore any vehicle maintenance/repair operations at the south garage are not considered to result in an APEC.

The former dry-cleaning operation at 920 Belfast Road is located approximately 250 m southeast of the Phase Two property. In addition, there is a water treatment system on the property which is intended to prevent the offsite migration of contaminants and due to the distance from the Phase Two property. Therefore, the contamination at 920 Belfast Road is not considered to result in an APEC.

The off-site PCA that were determined to result in APEC on the Phase Two property include PCA #28 (waste oil AST on the north side of the north garage, gasoline and waste oil UST at 899 Belfast Road), and PCA #52 (operations at the north garage on the east adjacent property).

5.9.6 Areas of Potential Environmental Concern/Potential Contaminates of Concern

Ontario Regulation 153/04 defines an APEC as an area on a property where one or more contaminants are potentially present. The following APEC were identified on the Phase Two property, as shown on Figure 2 and Table 5.5 below:

Table 5.5: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#1. Fill material is inferred to be present across the Phase One property	Entire Phase One property	PCA #30 – Importation of Fill Material of Unknown Quality	On-site	Benzene, toluene, ethylbenzene, and xylene (BTEX) and petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), metals	Soil
#2. Multiple spill records exist for 1500 St. Laurent Boulevard, the exact locations not specified	Entire Phase One property	PCA #Other – Historic fuel spills	On-site	BTEX, PHC	Soil and groundwater
#3. Former rail spur line running from adjacent railway to the north	North part of Phase One property	PCA #46 – Rail yards, tracks, and spurs	On-Site	Volatile organic compounds (VOC), BTEX, PHC, PAH, metals, polychlorinated biphenyl (PCB)	Soil
#4. Fuel AST for bus re-fuelling	Central part of Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	On-Site	BTEX, PHC, PAH	Soil and groundwater
#5. Garage operations on the east adjacent property	Southeast part of Phase One property	PCA #52 – Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	VOC, PHC, PAH	Groundwater
#6. Waste oil AST	Northeast part of the Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater
#7. Former gasoline and waste oil UST at 899 Belfast Road	Southeast part of the Phase One property	PCA #28 – Gasoline and associated products storage in fixed tanks	Off-site	BTEX, PHC, PAH	Groundwater

5.9.7 Investigation

The site investigative activities consisted of the drilling of boreholes to facilitate the collection of soil samples for visual inspection and chemical analysis. The boreholes were instrumented with monitoring wells to facilitate the collection of groundwater samples.

Prior to the commencement of drilling, the locations of underground public utilities including telephone, natural gas and electrical lines were marked at the subject property by public locating companies. A private utility locating contractor was also retained to clear the individual borehole locations.

Between September 19 and November 17, 2022, seventeen boreholes (BH-1 to BH-17) were advanced at the Phase Two property by a licensed drilling company. The boreholes were advanced to auger refusal or termination depths ranging from 2.4 m to 8.7 m below existing grade.

The boreholes were drilled with a CME-75 truck-mounted drill rig equipped with continuous flight hollow-stem auger equipment. Augers were advanced until the asphaltic concrete layer was fully penetrated and standard penetration tests (SPTs) were performed at a 0.75 m to 1.5 m depth interval and the soil samples were retrieved by the split-barrel sampler. All soil samples were visually examined in the field for textural classification, logged, preserved in plastic bags and identified.

The geotechnical conditions encountered consisted of 125 mm to 175 mm of asphalt underlain by crusher run limestone sand and gravel or dense sand and gravel fill to 0.6 m to 0.8 m depth. The granular fill is underlain by dense to very loose silty sand fill with some gravel and trace clay. The origin of the fill is likely the glacial till overburden encountered at the Phase Two property. The fill is grey to black in colour. There were no indications of staining or odours in the fill material.

The granular fill in BH-1 and BH-7 is underlain by silty sand with gravel fill with some clay which extends to 2.3 m and 1.1 m depth respectively. The granular fill in BH-2 to BH-6, BH-8 to BH-17 and the disturbed till fill in BH-1 and BH-7 are underlain by glacial till which extends to the refusal to augers depth in BH-1, BH-3 to BH-6, and BH-8 (2.4 m to 4.4 m depth). In BH-2, BH-7 and BH-9, the till extends to a depth of 2.8 m to 4.2 m. The till comprises of clay silty sand with gravel to silty sand with gravel and possible cobbles and boulders. There were no indications of staining or odours in the native soil.

The glacial till in BH-2, BH-7 and BH-9, BH-10 and BH-13 is underlain by shale bedrock which was encountered to the entire depth investigated, (7.1 m to 8.7 m depth).

The depth to groundwater ranged from 1.25 m to 2.70 m below ground surface. The groundwater flow direction was calculated to be to the northeast.

5.9.8 Soil Sampling

Soil samples were selected for laboratory analysis based on combustible vapour measurements and visual and olfactory evidence of impacts, where observed. Soil samples identified for possible laboratory analysis were placed directly into pre-cleaned, laboratory-supplied glass sample jars/vials. Samples to be analysed for PHC fraction F1 and BTEX were collected using a soil core sampler and placed into vials containing methanol as a preservative. The jars and vials were sealed with Teflon-lined lids to minimize headspace and reduce the potential for induced volatilization during storage/transport prior to analysis. All soil samples were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, Paracel Laboratories of Ottawa, Ontario.

Sixteen soil samples and two duplicates were submitted for analysis of PHC, VOC, PAH, and metals. One soil sample was submitted for analysis of PCB. Seven soil samples were submitted for analysis of inorganic parameters.

All of the soil samples had concentrations of BTEX, PHC, PAH, metals, and PCBs that were within the Table 3 SCS, with the exception of five soil samples that exceeded for sodium absorption ratio (SAR) and/or conductivity.

The soil results are provided in Tables 1 to 3 in Appendix D.

5.9.9 Groundwater Sampling

All groundwater samples were collected via a low flow sampling technique using a U-52 Horiba multi probe water quality meter. The Horiba probe was calibrated using in-house reference standards. Prior to collecting the groundwater samples, water quality field parameters (turbidity, dissolved oxygen, conductivity, temperature, pH, and oxidation reduction potential) were monitored until stable readings were achieved to ensure that the samples collected were representative of actual groundwater conditions.

The groundwater samples were placed in clean coolers containing ice packs prior to and during transportation to the laboratory. The samples were transported to the laboratory within 24 hours of collection with a chain of custody.

Seven groundwater samples, one field duplicate, one field blank, and one trip blank were submitted for chemical analysis of PHC, VOC, PAH, and metals parameters. All of the groundwater concentrations of PHC, VOC, PAH, and metals that were less than the MECP Table 3 SCS, with the exception of sodium and chloride.

5.9.10 Contaminants of Concern

Contaminants that exceeded the Table 3 industrial standards included:

Soil: SAR and conductivity

Groundwater: Chloride and sodium.

5.9.11 Contaminant Fate and Transport

A variety of physical, chemical and biochemical mechanisms affect the fate and transport of the potential COC in soil and groundwater, the contribution of which is dependent on the soil and groundwater conditions at the Phase Two property, as well as the chemical/physical properties of the COC. Relevant fate and transport mechanisms are natural attenuation mechanisms, including advection mixing, mechanical dispersion/molecular diffusion, phase partitions (i.e. sorption and volatilization), and possibly abiotic or biotic chemical reactions, which effectively reduce COC concentrations.

All soil samples met the applicable Table 3 commercial SCS for all parameters that were analyzed with the exception of five soil samples which exceeded the Table 3 SCS for SAR and/or conductivity.

The SAR and/or conductivity exceedances in soil, and the sodium and chloride exceedances in groundwater are likely associated with road salting operations. The MECP standards for SAR and conductivity in soil are based on the protection of plants and soil organisms, not on human health considerations. The MECP groundwater standards for chloride and sodium are based on the exposure pathway to aquatic biota via groundwater discharge to surface water. Due to the current use of the Phase Two property as a parking lot, and the proposed use as a bus parking garage and hydro substation, it is EXP's opinion that the SAR and conductivity exceedances observed in the soil, and the chloride and sodium exceedances in groundwater do not pose a significant concern under the existing or proposed operating conditions at the Phase Two property.

6.0 Conclusions

Between September 19 and November 17, 2022, seventeen boreholes (BH-1 to BH-17) were advanced at the Phase Two property by a licensed drilling company. The boreholes were advanced to auger refusal or termination depths ranging from 2.4 m to 8.7 m below existing grade.

The geotechnical conditions encountered consisted of 125 mm to 175 mm of asphalt underlain by crusher run limestone sand and gravel or dense sand and gravel fill to 0.6 m to 0.8 m depth. The granular fill is underlain by dense to very loose silty sand fill with some gravel and trace clay. The origin of the fill is likely the glacial till overburden encountered at the Phase Two property. The fill is grey to black in colour. There were no indications of staining or odours in the fill material.

The granular fill in BH-1 and BH-7 is underlain by silty sand with gravel fill with some clay which extends to 2.3 m and 1.1 m depth respectively. The granular fill in BH-2 to BH-6, BH-8 to BH-17 and the disturbed till fill in BH-1 and BH-7 are underlain by glacial till which extends to the refusal to augers depth in BH-1, BH-3 to BH-6, and BH-8 (2.4 m to 4.4 m depth). In BH-2, BH-7 and BH-9, the till extends to a depth of 2.8 m to 4.2 m. The till comprises of clay silty sand with gravel to silty sand with gravel and possible cobbles and boulders. There were no indications of staining or odours in the native soil.

The glacial till in BH-2, BH-7 and BH-9, BH-10 and BH-13 is underlain by shale bedrock which was encountered to the entire depth investigated, (7.1 m to 8.7 m depth).

The depth to groundwater ranged from 1.25 m to 2.70 m below ground surface. The groundwater flow direction was calculated to be to the northeast.

Sixteen soil samples and two blind duplicates were collected and submitted for laboratory analysis of volatile organic compounds (VOC), petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), metals, and/or polychlorinated biphenyls (PCBs). Seven groundwater samples and a blind duplicate were collected and submitted for analysis of VOC, PHC, PAH, and metals.

All of the soil samples had concentrations of BTEX, PHC, PAH, and metals that were within the Table 3 site conditions standards (SCS) for industrial land use and coarse textured soil with the exception of five samples which exceeded for conductivity and/or sodium absorption ratio.

All of the groundwater samples had concentrations of BTEX, PHC, PAH, and metals that were within the Table 3 SCS, with the exception of four samples and the duplicate which exceeded for sodium and chloride.

The Qualified Person can confirm that the Phase Two Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.

Leah Wells, B.A.Sc., P.Eng.
Environmental Engineer
Earth and Environment

Mark McCalla, B.Sc., P.Geo.
Team Lead/Senior Project Manager
Earth and Environment

PROFESSIONAL GEOSCIENTIST
MARK G. McCALLA
PRACTISING MEMBER
0451
MAY 15/23
ONTARIO

7.0 References

This study was conducted in accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives. Specific reference is made to the following documents.

- EXP Services Inc., Draft *Phase One Environmental Site Assessment, 1500 St. Laurent Boulevard, Ottawa, Ontario,* October 28, 2022.
- Freeze and Cherry, *Groundwater*, Prentice Hall, 1979.
- Ontario Ministry of the Environment, Conservation and Parks, *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*, December 1996.
- Ontario Ministry of the Environment, Conservation and Parks, *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, April 15, 2011.
- Ontario Ministry of the Environment, Conservation and Parks, *Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04,* June 2011.
- Ontario Ministry of the Environment, Conservation and Parks, *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act,* July 1, 2011.
- Ontario Ministry of the Environment, Conservation and Parks, *Management of Excess Soil – A Guide for Best Management Practices,* January 2014.
- Ontario Regulation 153/04, made under the *Environmental Protection Act*, as amended.
- Ontario R.R.O. 1990, Regulation 347, made under the *Environmental Protection Act*, as amended.
- Ontario R.R.O. 1990, Regulation 903, made under the *Water Resources Act*, as amended.

8.0 General Limitations

Basis of Report

This report ("Report") is based on site conditions known or inferred by the investigation undertaken as of the date of the Report. Should changes occur which potentially impact the condition of the site the recommendations of EXP may require re-evaluation. Where special concerns exist, or the City of Ottawa ("the Client") has special considerations or requirements, these should be disclosed to EXP to allow for additional or special investigations to be undertaken not otherwise within the scope of investigation conducted for the purpose of the Report.

Reliance on Information Provided

The evaluation and conclusions contained in the Report are based on conditions in evidence at the time of site inspections and information provided to EXP by the Client and others. The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose as communicated by the Client. EXP has relied in good faith upon such representations, information and instructions and accepts no responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of any misstatements, omissions, misrepresentation or fraudulent acts of persons providing information. Unless specifically stated otherwise, the applicability and reliability of the findings, recommendations, suggestions or opinions expressed in the Report are only valid to the extent that there has been no material alteration to or variation from any of the information provided to exp. If new information about the environmental conditions at the Site is found, the information should be provided to EXP so that it can be reviewed and revisions to the conclusions and/or recommendations can be made, if warranted.

Standard of Care

The Report has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances and locale. No other warranty, expressed or implied, is made. Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

Complete Report

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment form part of the Report. This material includes, but is not limited to, the terms of reference given to EXP by the Client, communications between EXP and the Client, other reports, proposals or documents prepared by EXP for the Client in connection with the site described in the Report. In order to properly understand the suggestions, recommendations and opinions expressed in the Report, reference must be made to the Report in its entirety. EXP is not responsible for use by any party of portions of the Report.

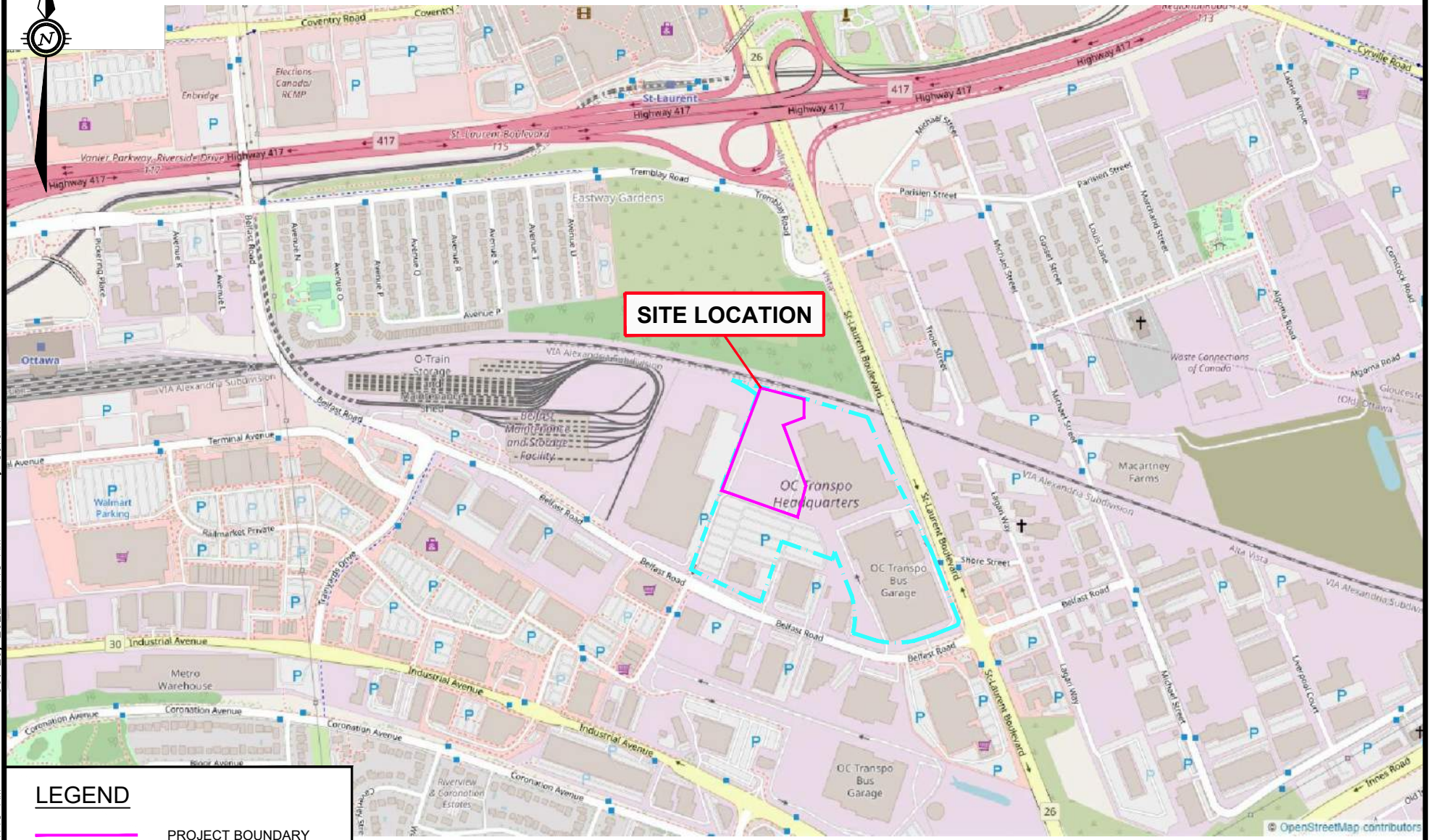
Use of Report

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. No other party may use or rely upon the Report in whole or in part without the written consent of EXP. Any use of the Report, or any portion of the Report, by a third party are the sole responsibility of such third party. EXP is not responsible for damages suffered by any third party resulting from unauthorised use of the Report.

Report Format

Where EXP has submitted both electronic file and a hard copy of the Report, or any document forming part of the Report, only the signed and sealed hard copy shall be the original documents for record and working purposes. In the event of a dispute or discrepancy, the hard copy shall govern. Electronic files transmitted by EXP utilize specific software and hardware systems. EXP makes no representation about the compatibility of these files with the Client's current or future software and hardware systems. Regardless of format, the documents described herein are EXP's instruments of professional service and shall not be altered without the written consent of EXP.

Appendix A: Figures



LEGEND

PROJECT BOUNDARY

PROPERTY LINE

0 100m 200m 400m

HORIZONTAL 1:10,000

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN	MM/LW
DRAWN	AS
DATE	OCTOBER 2022
FILE NO	OTT-22007382-A0

PHASE ONE ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

SITE PLAN

SCALE 1:10,000

SKETCH NO FIG 1

LEGEND

- PROJECT BOUNDARY
- PHASE ONE STUDY AREA (250 m)
- PROPERTY LINE
- **PCA #1** POTENTIALLY CONTAMINATING ACTIVITY (PCA), RESULTING IN APEC
- INFERRED GROUNDWATER FLOW DIRECTION
- **PCA #1** POTENTIALLY CONTAMINATING ACTIVITY (PCA), NO APEC

0 30m 60m 120m
HORIZONTAL 1:3,000

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DATE	OCTOBER 2022
FILE NO	OTT-22007382-A0

PHASE ONE ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

PHASE ONE STUDY AREA

SCALE 1:3,000
SKETCH NO FIG 2

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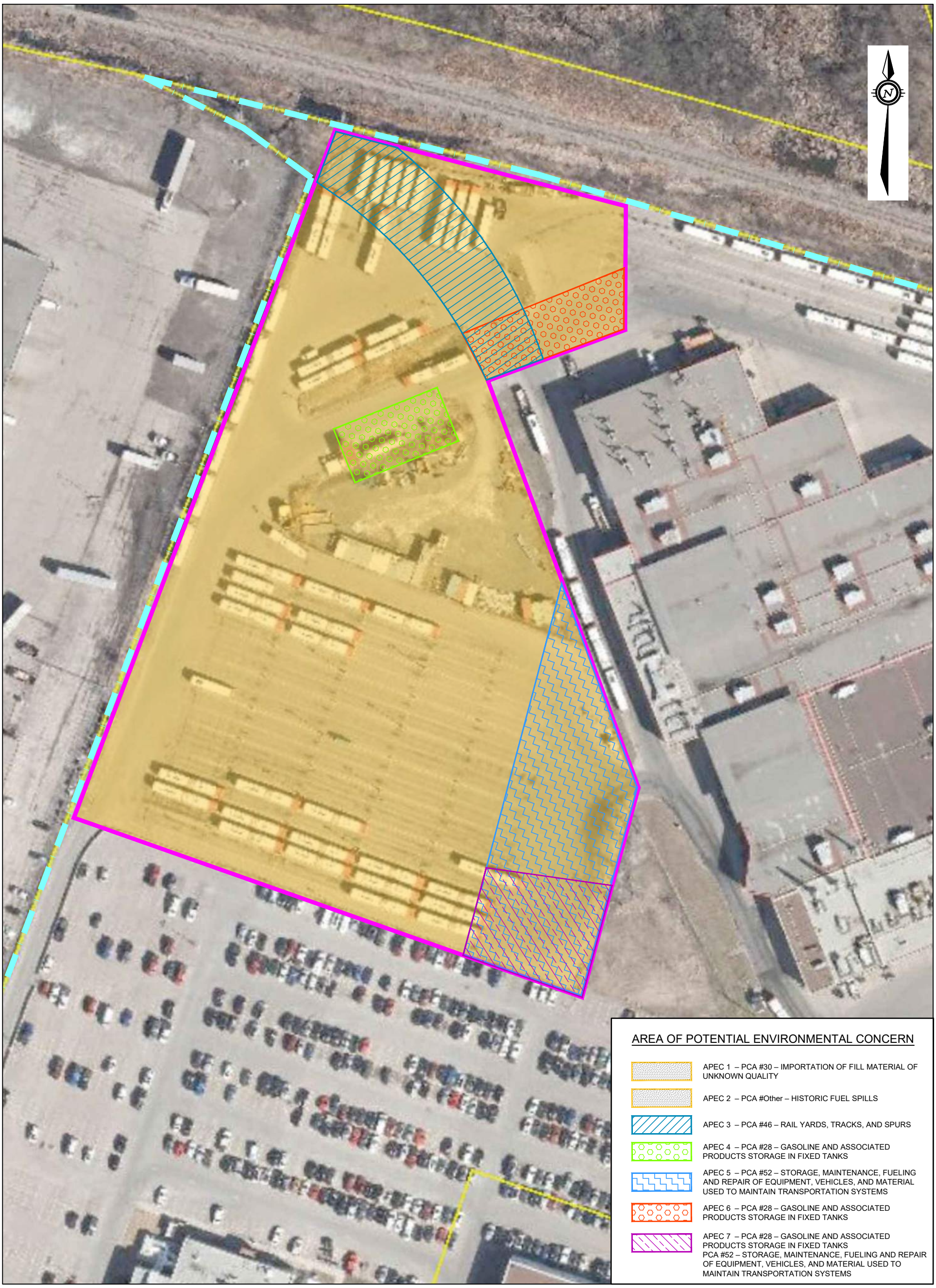

AREA OF POTENTIAL ENVIRONMENTAL CONCERN

- APEC 1 – PCA #30 – IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY
- APEC 2 – PCA #Other – HISTORIC FUEL SPILLS
- APEC 3 – PCA #46 – RAIL YARDS, TRACKS, AND SPURS
- APEC 4 – PCA #28 – GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
- APEC 5 – PCA #52 – STORAGE, MAINTENANCE, FUELING AND REPAIR OF EQUIPMENT, VEHICLES, AND MATERIAL USED TO MAINTAIN TRANSPORTATION SYSTEMS
- APEC 6 – PCA #28 – GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
- APEC 7 – PCA #28 – GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
  PCA #52 – STORAGE, MAINTENANCE, FUELING AND REPAIR OF EQUIPMENT, VEHICLES, AND MATERIAL USED TO MAINTAIN TRANSPORTATION SYSTEMS

LEGEND

PROJECT BOUNDARY

PROPERTY LINE

0 10m 20m 40m

HORIZONTAL 1:1000

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PHASE ONE ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

SCALE 1:1,000

SKETCH NO FIG 3

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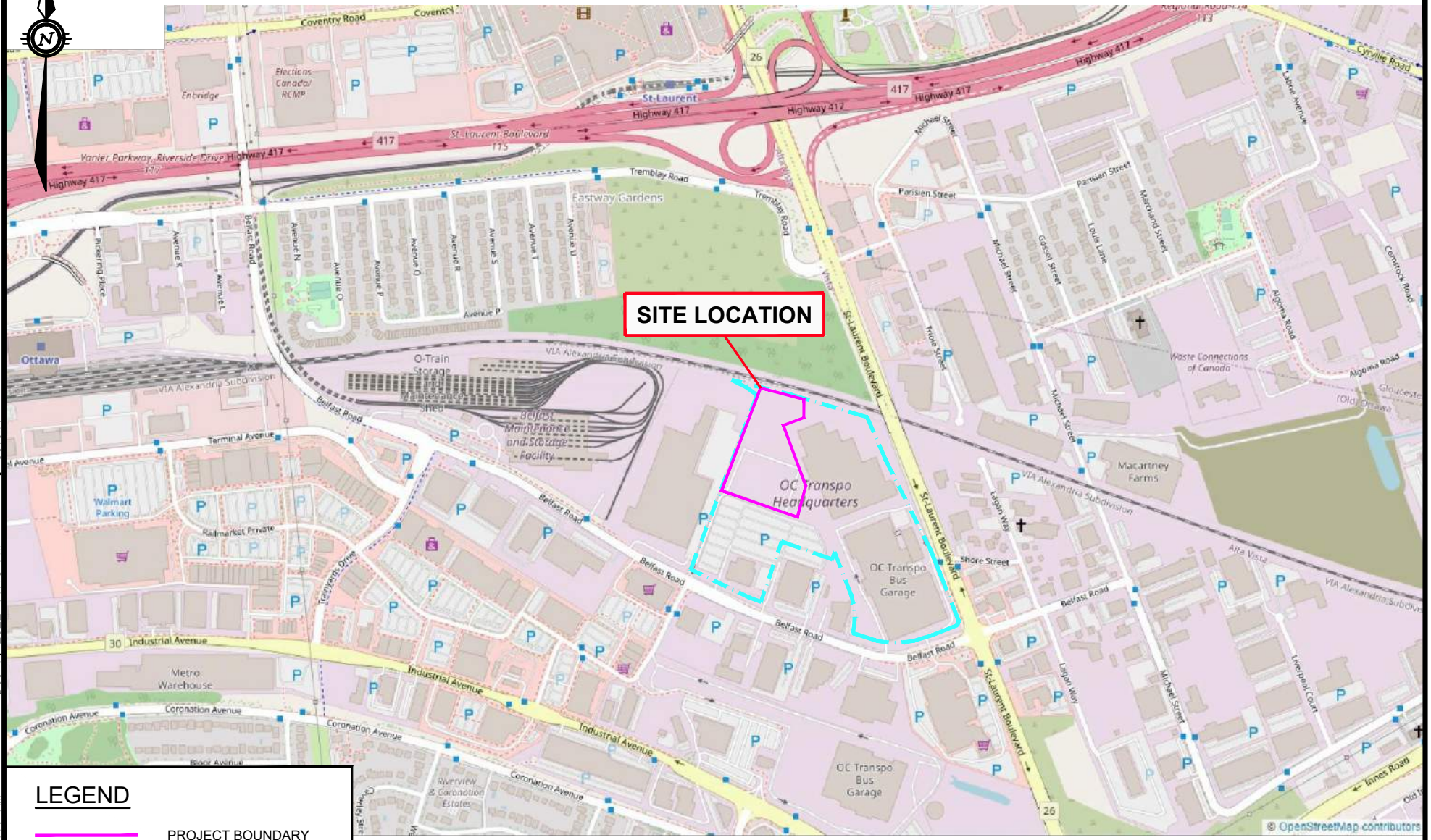

LEGEND

PROJECT BOUNDARY

PROPERTY LINE

ORIGINAL SHEET SIZE = 11" x 8.5"

0 100m 200m 400m

HORIZONTAL 1:10,000

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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

SITE LOCATION PLAN

SCALE 1:10,000

SKETCH NO FIG 1

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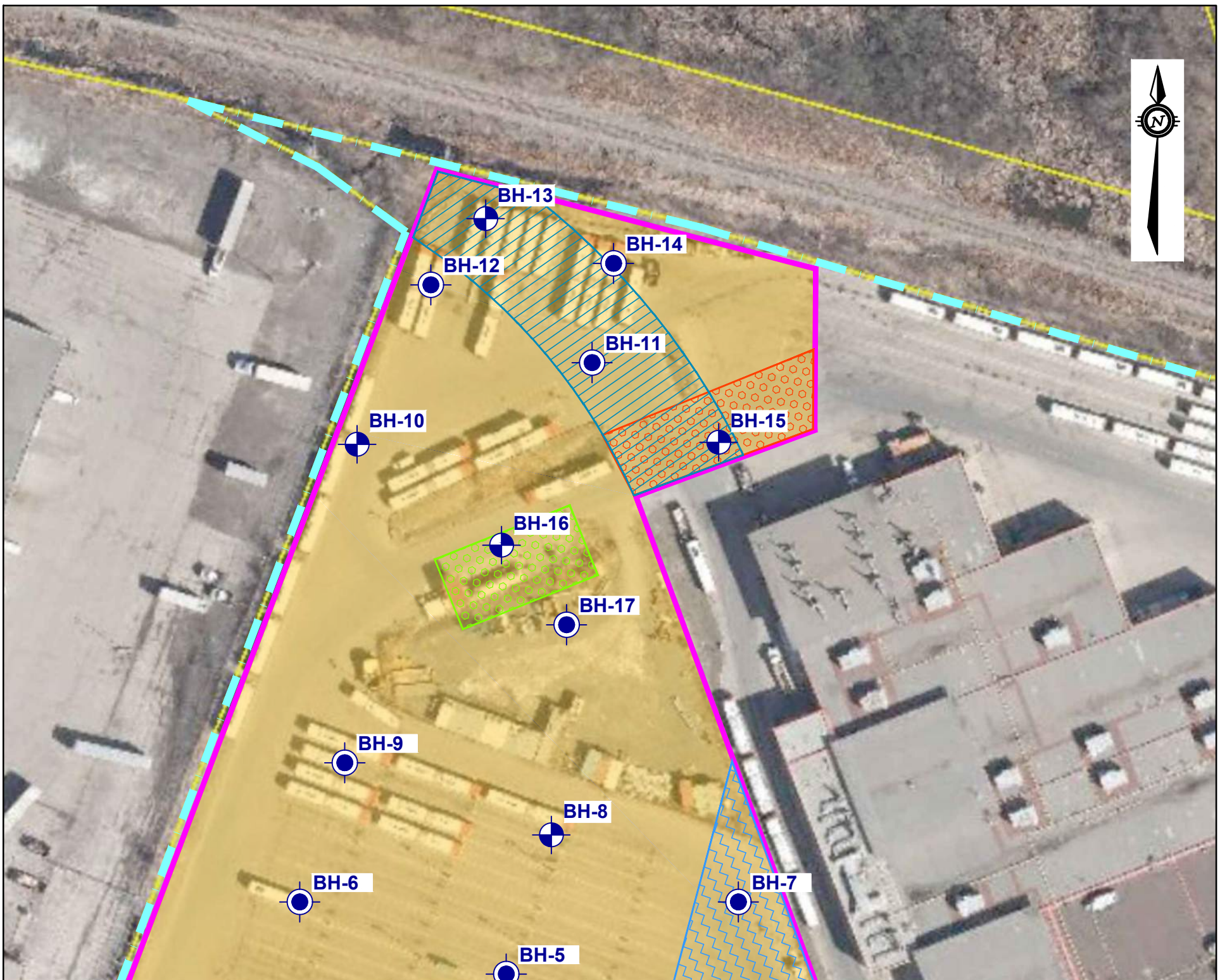

AREA OF POTENTIAL ENVIRONMENTAL CONCERN

- APEC 1 – PCA #30 – IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY
- APEC 2 – PCA #Other – HISTORIC FUEL SPILLS
- APEC 3 – PCA #46 – RAIL YARDS, TRACKS, AND SPURS
- APEC 4 – PCA #28 – GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
- APEC 5 – PCA #52 – STORAGE, MAINTENANCE, FUELING AND REPAIR OF EQUIPMENT, VEHICLES, AND MATERIAL USED TO MAINTAIN TRANSPORTATION SYSTEMS
- APEC 6 – PCA #28 – GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
- APEC 7 – PCA #28 – GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS

LEGEND

- PROJECT BOUNDARY
- PROPERTY LINE
- BH-1 MONITORING WELL NO. & LOCATION
- BH-4 BOREHOLE NO. & LOCATION

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 40m

HORIZONTAL 1:1000

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DATE	DECEMBER 2022
FILE NO	OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

SCALE 1:1,000

SKETCH NO FIG 2

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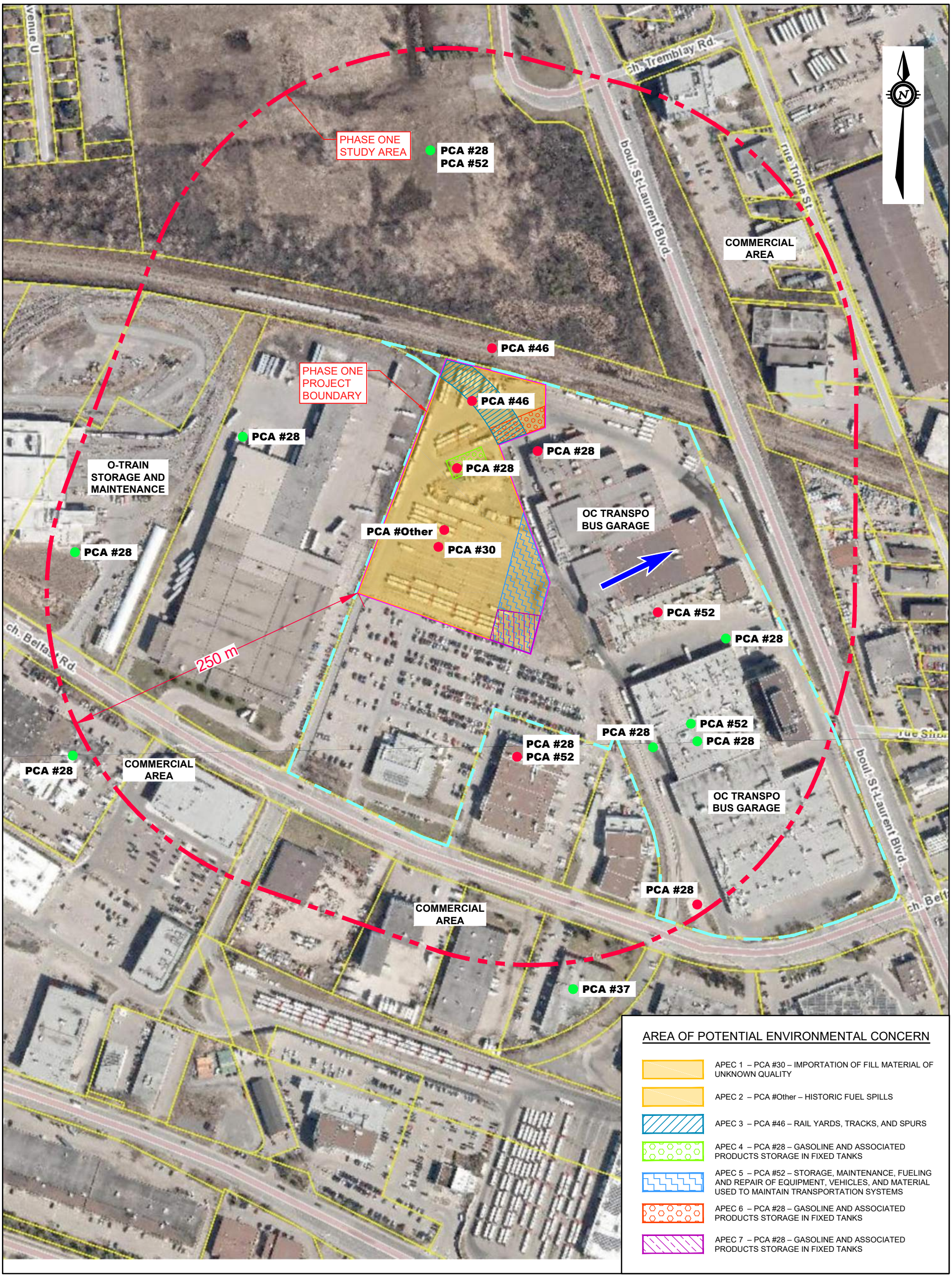

LEGEND

- PROJECT BOUNDARY
- PHASE ONE STUDY AREA (250 m)
- PROPERTY LINE
- **PCA #1** POTENTIALLY CONTAMINATING ACTIVITY (PCA), RESULTING IN APEC
- INFERRED GROUNDWATER FLOW DIRECTION
- **PCA #1** POTENTIALLY CONTAMINATING ACTIVITY (PCA), NO APEC

ORIGINAL SHEET SIZE = 11" x 17"

0 30m 60m 120m

HORIZONTAL 1:3,000

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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

PHASE TWO STUDY AREA

SCALE 1:3,000

SKETCH NO FIG 3

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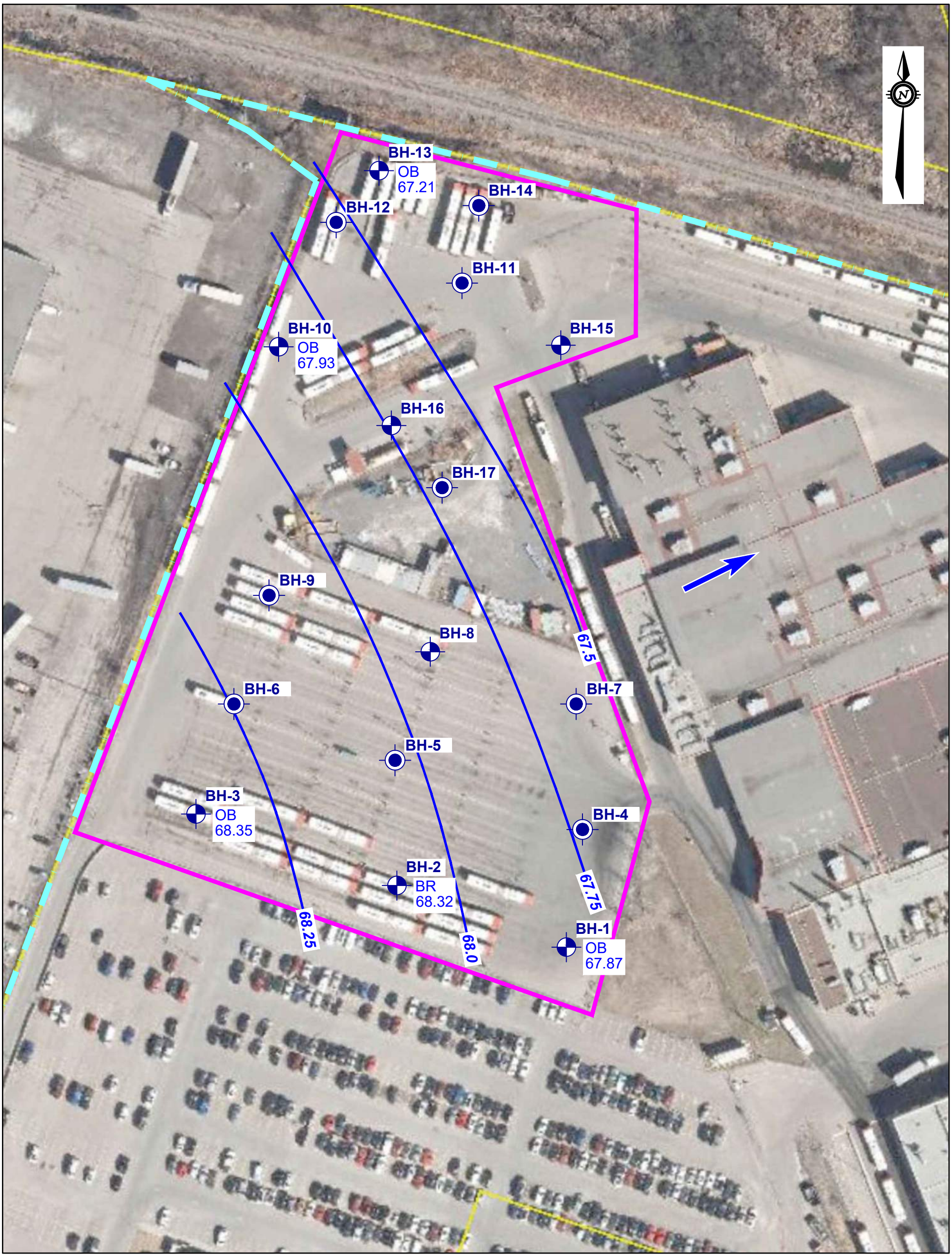

LEGEND

- PROJECT BOUNDARY
- PROPERTY LINE
- INFERRED GROUNDWATER FLOW DIRECTION
- 67.25 GROUNDWATER CONTOUR

- BH-1 MONITORING WELL NO. & LOCATION
- BH-4 BOREHOLE NO. & LOCATION
- 67.87 (GROUND WATER ELEVATION)
- OB = OVERBURDEN
- BR = BEDROCK

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 40m

HORIZONTAL 1:1000

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DESIGN MM/LW	PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (NEW BUS GARAGE) 1500 ST. LAURENT BLVD. OTTAWA, ON	SCALE 1:1,000	
DRAWN AS		SKETCH NO	
DATE DECEMBER 2022	GROUNDWATER CONTOUR PLAN	FIG 4	
FILE NO OTT-22007382-A0			

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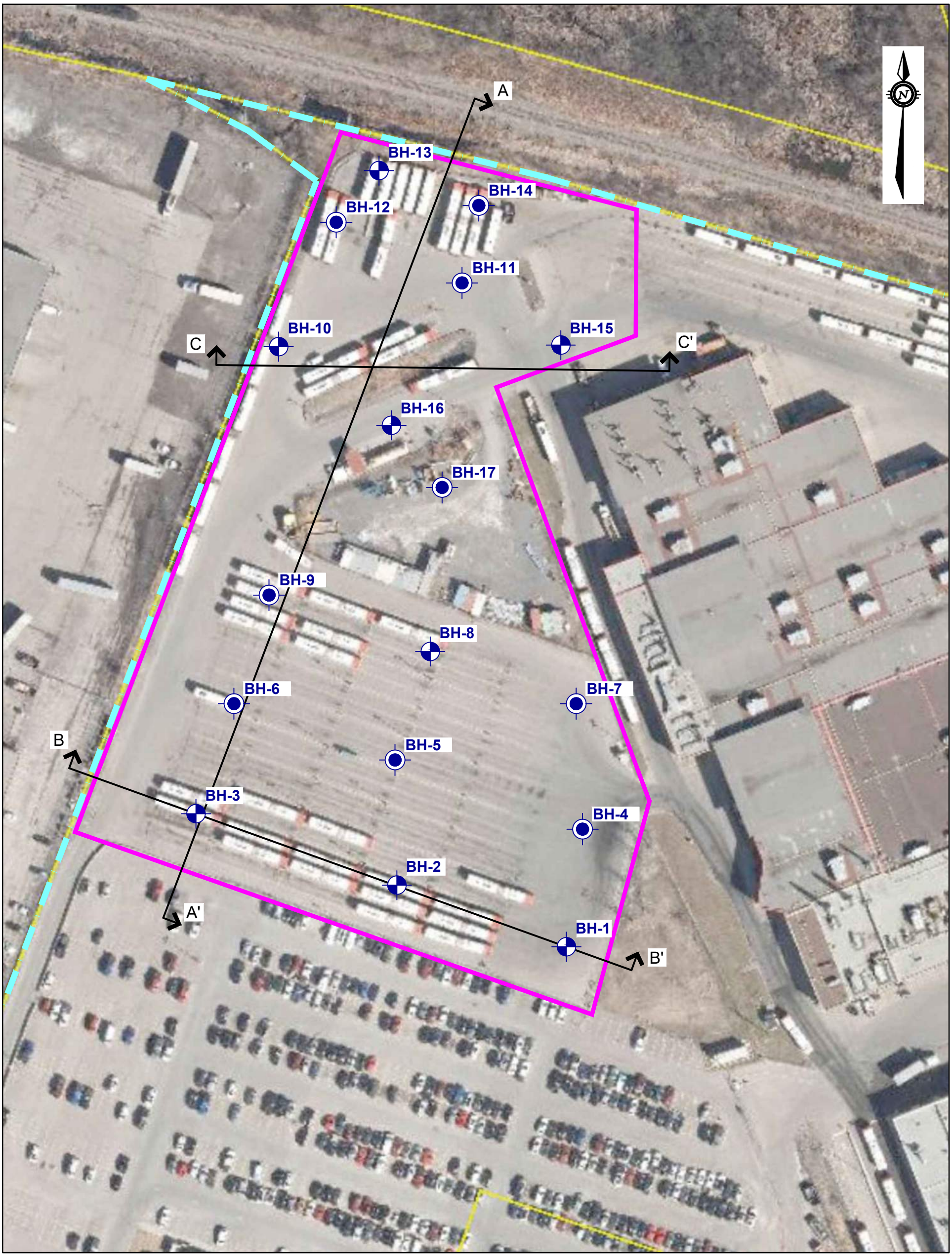

LEGEND

- PROJECT BOUNDARY
- PROPERTY LINE
- A — SECTION MARK
- BH-1 — MONITORING WELL NO. & LOCATION
- BH-4 — BOREHOLE NO. & LOCATION

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 40m

HORIZONTAL 1:1000

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DATE	DECEMBER 2022
FILE NO	OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

CROSS SECTION PLAN

SCALE 1:1,000

SKETCH NO FIG 5

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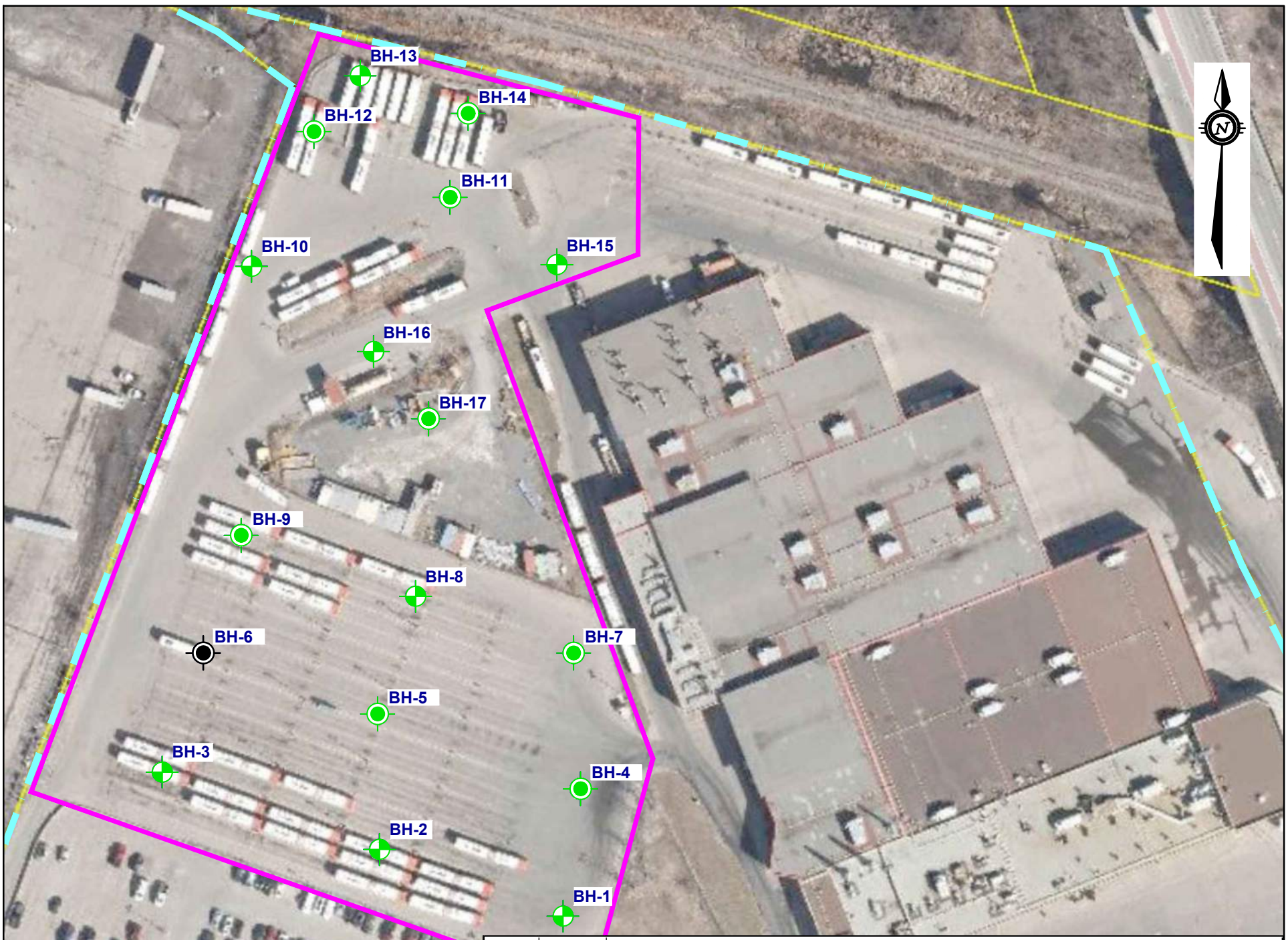

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Benzene	B	0.4
Toluene	T	78
Ethylbenzene	E	19
Total Xylenes	X	30
F1	F1 (C6-C10)	65
F2	F2 (C10-C16)	250
F3	F3 (C16-C34)	2500
F4	F4 (C34-C50)	6600
1,1-Dichloroethane	1,1-DCA	21
1,2-Dichlororethane	1,2-DCA	0.05
1,1-Dichloroethylene	1,1-DCE	0.48
Cis-1,2-Dichloroethylene	c-1,2-DCE	37
Trans-1,2,-Dichlorothylene	t-1,2-DCE	9.3
Tetrachloroethylene	PCE	21
Trichloroethylene	TCE	0.61
Vinyl Chloride	VC	0.25

BH1	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	20-Sep-22
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	41	39	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH2	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	19-Sep-22
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	10	23	17	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH3	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	19-Sep-22
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	50	78	35	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH4	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	20-Sep-22
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	47	37	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH5	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	19-Sep-22
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	36	94	7	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH7	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	20-Sep-22
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	27	23	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
DUP		< 0.02	<0.05	<0.05	<0.05	<7	29	24	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH8	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	20-Sep-22
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	<4	26	40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH9	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	20-Sep-22
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	<4	10	28	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH10	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	22-Sep-22
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	23	27	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH11	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	20-Sep-22
SS4	2.3 to 2.9	< 0.02	<0.05	<0.05	<0.05	<7	<4	<8	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH12	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	22-Sep-22
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	8	13	31	37	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH13	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	22-Sep-22
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	<4	27	27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH14	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	20-Sep-22
SS4	2.3 to 2.9	< 0.02	<0.05	<0.05	<0.05	<7	13	110	137	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH15	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	15-Nov-22
SS7	4.56 to 5.18	< 0.02	<0.05	<0.05	<0.05	<7	41	59	20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH16	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	17-Nov-22
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	<7	<4	36	27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
BH17	Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC	17-Nov-22
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	<4	66	48	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	
DUP		< 0.02	<0.05	<0.05	<0.05	<7	5	54	51	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	

LEGEND

- PROJECT BOUNDARY
- PROPERTY LINE
- BH-1 — MONITORING WELL NO. & LOCATION
- BH-4 — BOREHOLE NO. & LOCATION
- SOIL CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL
- SOIL CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL
- NOT SAMPLED

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN	MM/LW
DRAWN	AS
DATE	DECEMBER 2022
FILE NO	OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

SOIL ANALYTICAL RESULTS:
PHC & VOC

SCALE 1:1,250

SKETCH NO FIG 6

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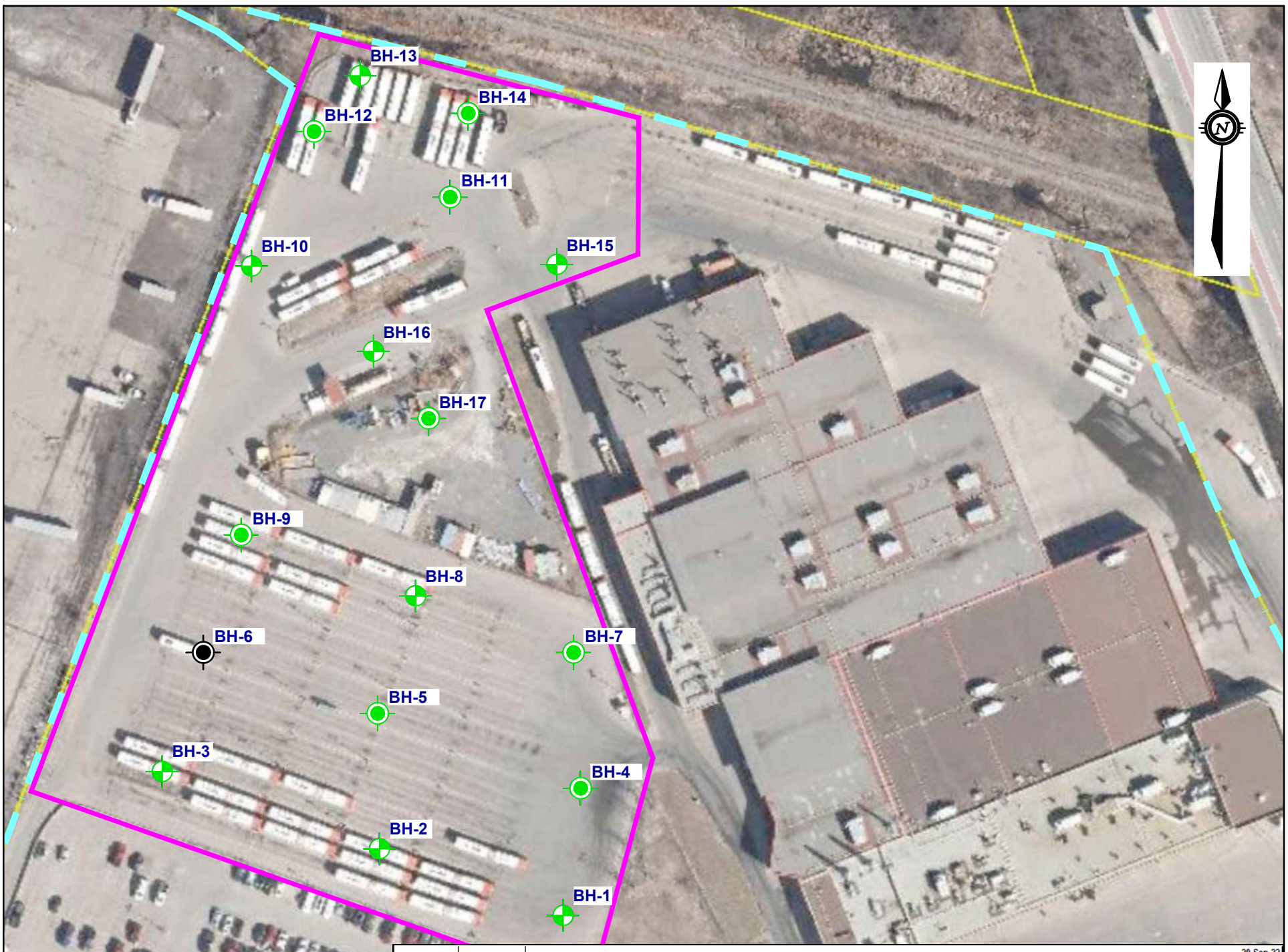

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Acenaphthene	Ace	96
Acenaphthylene	Acl	0.17
Anthracene	An	0.74
Benzo(a)anthracene	B(a)A	0.96
Benzo(a)pyrene	B(a)P	0.3
Benzo(b)fluoranthene	B(b)F	0.96
Benzo(b+k)fluoranthene	B(b/k)F	NV
Benzo(g,h,i)perylene	B(ghi)P	9.6
Benzo(k)fluoranthene	B(k)F	0.96
Chrysene	C	9.6
Dibenzo(a,h)anthracene	DA	0.1
Fluoranthene	Fl	9.6
Fluorene	F	69
Indeno(1,2,3,-cd)pyrene	I(123)P	0.95
Total Methylnaphthalene	T-MN	85
Naphthalene	N	28
Phenanthrene	P	16
Pyrene	Py	96

BH1	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	20-Sep-22
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH2	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	19-Sep-22
SS2	0.8 to 1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

BH3	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	19-Sep-22
SS2	0.8 to 1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

BH4	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	20-Sep-22
SS3	1.5 to 2.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

BH5	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	19-Sep-22
SS2	0.8 to 1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

BH7	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	20-Sep-22
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	
DUP		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH8	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	20-Sep-22
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH9	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	20-Sep-22
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH10	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	22-Sep-22
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH11	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	20-Sep-22
SS4	2.3 to 2.9	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH12	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	22-Sep-22
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH13	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	22-Sep-22
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH14	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	20-Sep-22
SS4	2.3 to 2.9	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH15	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	15-Nov-22
SS7	4.56 to 5.18	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH16	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	17-Nov-22
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

BH17	Depth (mbgs)	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py	17-Nov-22
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	
DUP		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	

LEGEND

PROJECT BOUNDARY

PROPERTY LINE

BH-1 MONITORING WELL NO. & LOCATION

BH-4 BOREHOLE NO. & LOCATION

SOIL CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

SOIL CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL

NOT SAMPLED

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

SOIL ANALYTICAL RESULTS: PAH

SCALE 1:1,250
SKETCH NO FIG 7

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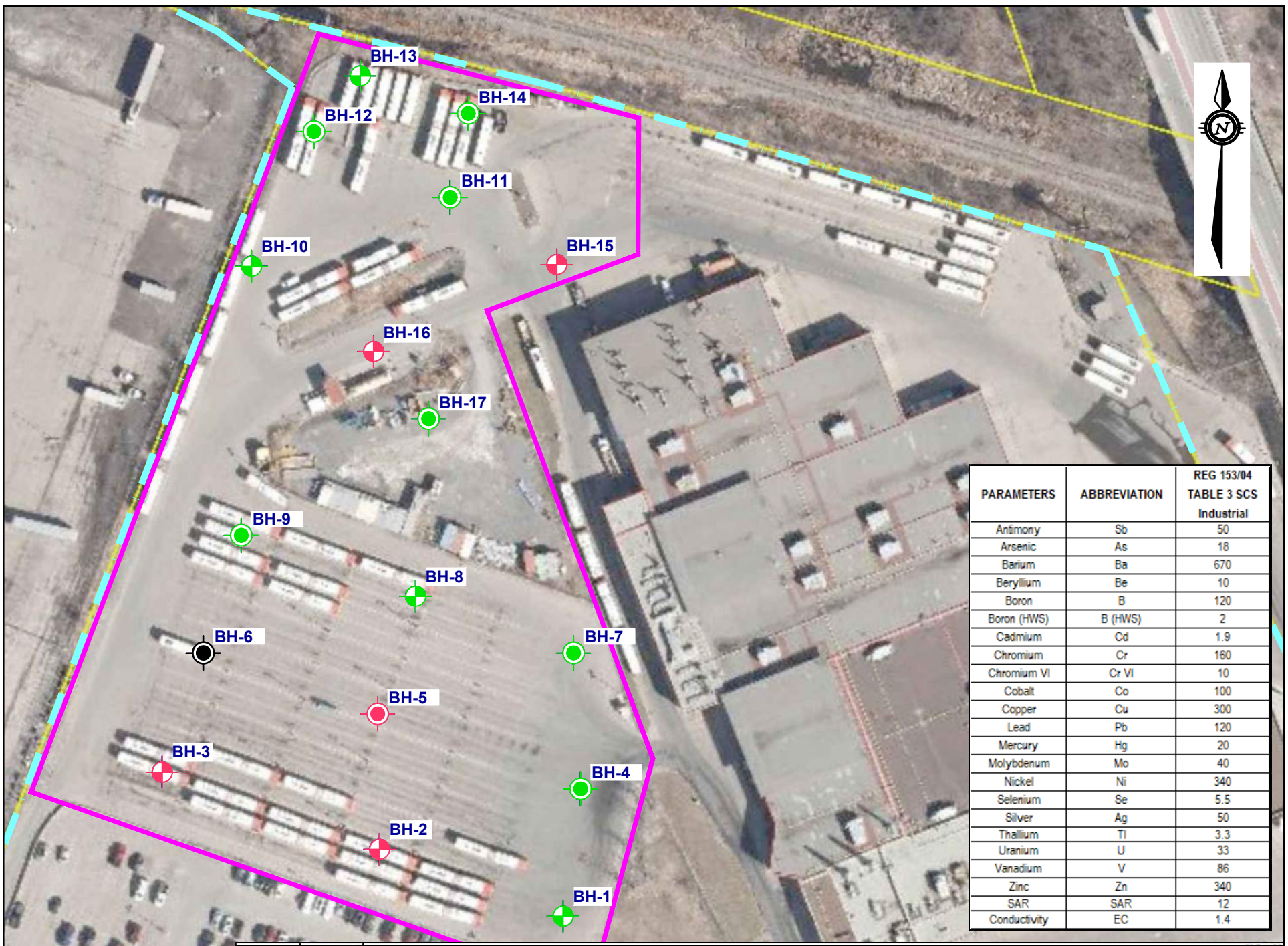

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Antimony	Sb	50
Arsenic	As	18
Barium	Ba	670
Beryllium	Be	10
Boron	B	120
Boron (HWS)	B (HWS)	2
Cadmium	Cd	1.9
Chromium	Cr	160
Chromium VI	Cr VI	10
Cobalt	Co	100
Copper	Cu	300
Lead	Pb	120
Mercury	Hg	20
Molybdenum	Mo	40
Nickel	Ni	340
Selenium	Se	5.5
Silver	Ag	50
Thallium	Tl	3.3
Uranium	U	33
Vanadium	V	86
Zinc	Zn	340
SAR	SAR	12
Conductivity	EC	1.4

BH1	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS3	1.5 to 2.1	<1.0	4	125	<0.5	8.8	-	<0.5	16.2	-	7.1	18.8	7.4	-	1.8	21.6	<1.0	<0.3	<1.0	1.5	24.1	31.3	NA	NA	

BH2	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	19-Sep-22
SS2	0.8 to 1.4	<1.0	3.7	124	<0.5	6.5	<0.5	<0.5	14.9	<0.2	6.6	16.3	6	<0.1	1.9	19.8	<1.0	<0.3	<1.0	1.2	23.4	37.5	28.2	3.99	

BH3	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	19-Sep-22
SS2	0.8 to 1.4	<1.0	5.4	115	<0.5	8	<0.5	<0.5	17.2	<0.2	8.7	22.1	8.2	<0.1	3.3	28.8	<1.0	<0.3	<1.0	1.6	26.7	41.5	10.0	1.98	

BH4	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS3	1.5 to 2.1	<1.0	5.2	127	0.6	9.8	-	<0.5	18.2	-	8.6	21	9.9	-	2.4	26.6	<1.0	<0.3	<1.0	1.3	27.2	36.1	NA	NA	

BH5	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	19-Sep-22
SS2	0.8 to 1.4	<1.0	5	141	0.5	7.8	<0.5	<0.5	18.5	<0.2	10.9	24	10.4	<0.1	2.5	30.8	<1.0	<0.3	<1.0	1.1	26.2	38.4	12.7	4.63	

BH7	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS3	1.5 to 2.1	<1.0	5.1	142	0.6	10.7	-	<0.5	17.4	-	8.4	21.2	9.4	-	2.4	25.8	<1.0	<0.3	<1.0	1.3	26.4	34.8	NA	NA	
DUP		<1.0	4.8	107	0.5	9.7	-	<0.5	16.5	-	7.9	20.4	8.9	-	2.1	24.3	<1.0	<0.3	<1.0	1.1	24.3	37.3	NA	NA	

BH8	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS2	0.8 to 1.4	<1.0	6	147	0.6	10.5	-	<0.5	20.3	-	15.5	27.3	12.4	-	3.2	38.2	<1.0	<0.3	<1.0	1.1	29	59.1	NA	NA	

BH9	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS2	0.8 to 1.4	<1.0	6.6	83.2	0.6	9.8	-	<0.5	18.4	-	10.9	27	12.1	-	2.3	31	<1.0	<0.3	<1.0	ND (1.0)	27.1	44.2	NA	NA	

BH10	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	22-Sep-22
SS2	0.8 to 1.4	<1.0	6.3	103	0.6	9.6	-	<0.5	22.4		10.4	21.7	11.8		2.6	35.3	<1.0	<0.3	<1.0	1.1	26.6	56.7	NA	NA	

BH11	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS4	2.3 to 2.9	<1.0	5.1	98.1	0.7	9.5	-	<0.5	26.9	-	10	26.4	9.1	-	1.9	35.3	<1.0	<0.3	<1.0	1	34.2	47.7	NA	NA	

BH12	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	22-Sep-22
SS2	0.8 to 1.4	<1.0	4.9	98.5	0.6	9.6	-	<0.5	22.2	-	10.1	24	11.9	-	2.4	27.3	<1.0	<0.3	<1.0	<1.0	30.3	48.4	NA	NA	

BH13	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	22-Sep-22
SS3	1.5 to 2.1	<1.0	3.4	140	0.5	7.2	-	<0.5	30.7	-	9.2	25.6	34.5	-	<1.0	23.1	<1.0	<0.3	<1.0	<1.0	34.2	76.7	NA	NA	

BH14	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS4	2.3 to 2.9	<1.0	3.5	93.7	0.5	7.1	-	<0.5	26.8	-	7.4	19.2	26	-	1.2	19.4	<1.0	<0.3	<1.0	<1.0	30.4	63.8	NA	NA	

BH15	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	15-Nov-22
SS7	4.56 to 5.18	<1.0	5.6	98.9	0.5	10.1	<0.5	<0.5	50.1	<0.2	9.3	26.7	10.6	<0.1	4.4	27.8	<1.0	<0.3	<1.0	1.3	26.4	41	13.6	1.78	

BH16	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	17-Nov-22
SS3	1.5 to 2.1	<1.0	3.5	144	<0.5	<5.0	<0.5	<0.5	42.3	<0.2	8.2	13.5	6.8	<0.1	ND (1.0)	21.9	<1.0	<0.3	<1.0	1	38.3	44.2	27.6	4.53	

BH17	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	17-Nov-22
SS3	1.5 to 2.1	<1.0	5.1	115	0.5	7.9	<0.5	<0.5	29	<0.2	8.5	20.9	23.6	<0.1	1.4	23.9	<1.0	<0.3	<1.0	1.1	33.9	72	3.99	1.35	
DUP		<1.0	5.2	118	0.6	8.4	<0.5	<0.5	33	<0.2	8.8	22.6	20.3	<0.1	1.4	24.9	<1.0	<0.3	<1.0	1.3	36.5	80.3	5.98	1.38	

LEGEND

PROJECT BOUNDARY

PROPERTY LINE

BH-1 MONITORING WELL NO. & LOCATION

BH-4 BOREHOLE NO. & LOCATION

SOIL CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

SOIL CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL

NOT SAMPLED

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

SOIL ANALYTICAL RESULTS: METALS

SCALE 1:1,250
SKETCH NO FIG 8

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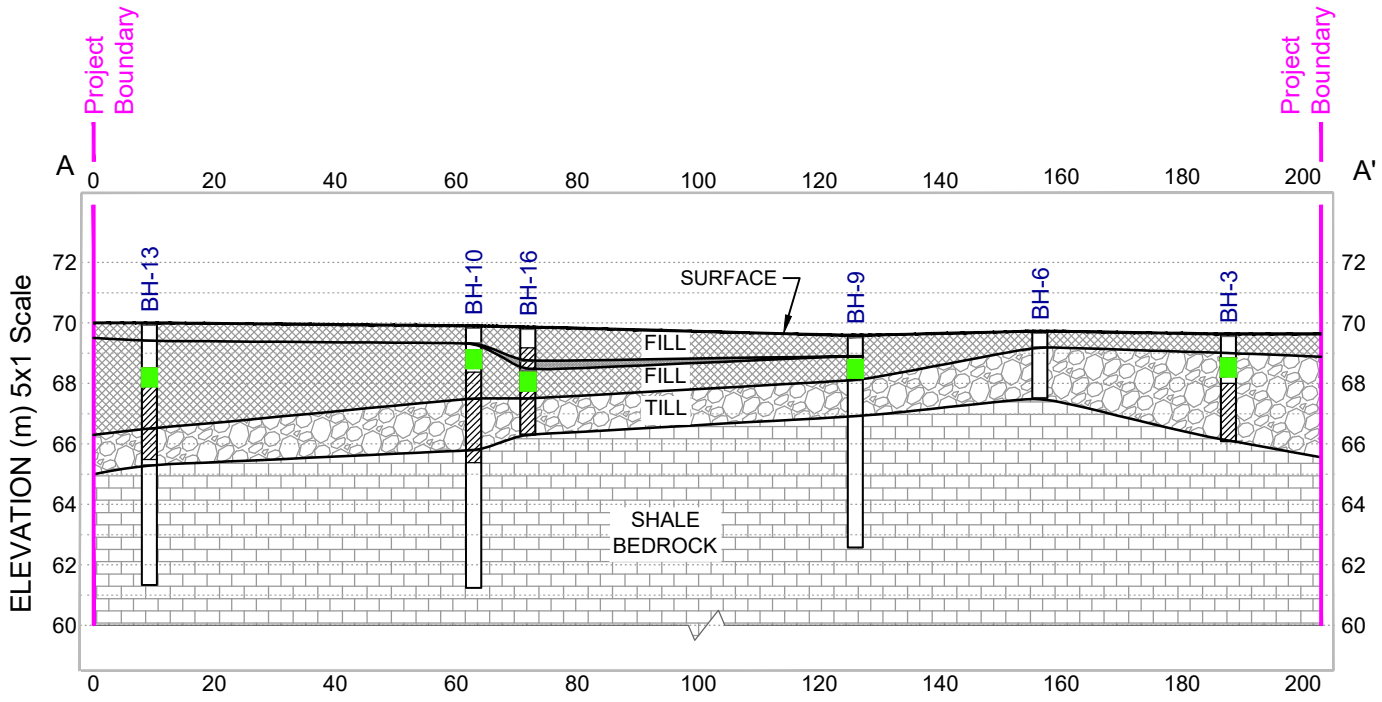
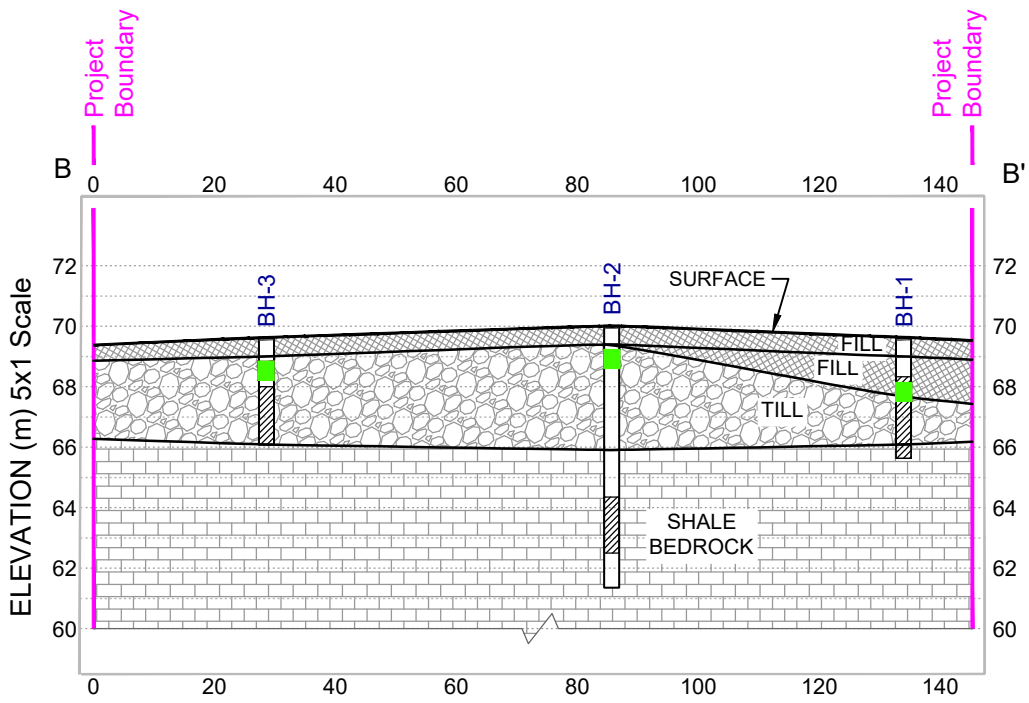
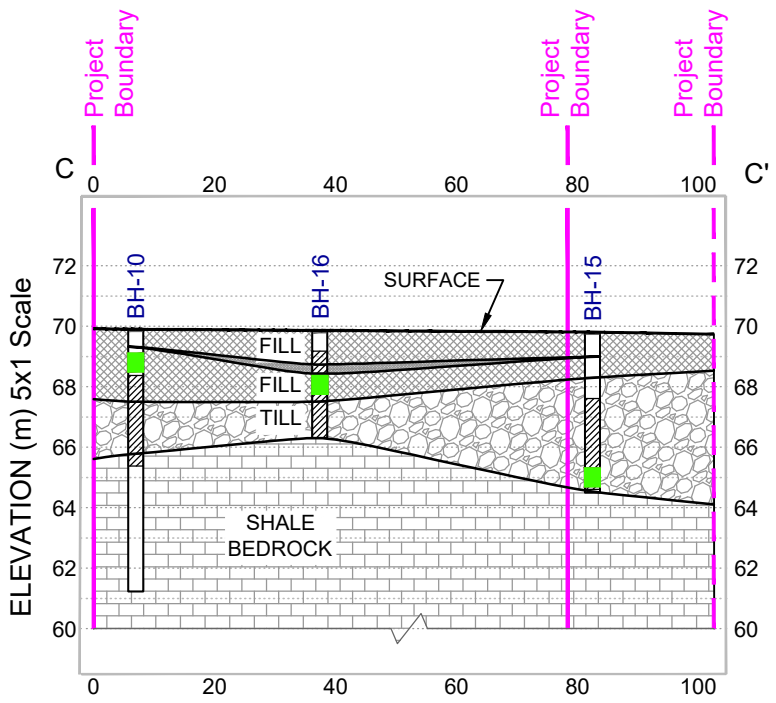


CROSS SECTION A-A'



CROSS SECTION B-B'



CROSS SECTION C-C'

LEGEND

- FILL
- TILL
- BEDROCK
- SCREEN
- SOIL SAMPLE
- SOIL CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL
- SOIL CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Benzene	B	0.4
Toluene	T	78
Ethylbenzene	E	19
Total Xylenes	X	30
F1	F1 (C6-C10)	65
F2	F2 (C10-C16)	250
F3	F3 (C16-C34)	2500
F4	F4 (C34-C50)	6600
1,1-Dichloroethane	1,1-DCA	21
1,2-Dichlororethane	1,2-DCA	0.05
1,1-Dichloroethylene	1,1-DCE	0.48
Cis-1,2-Dichloroethylene	c-1,2-DCE	37
Trans-1,2,-Dichlorothylene	t-1,2-DCE	9.3
Tetrachloroethylene	PCE	21
Trichloroethylene	TCE	0.61
Vinyl Chloride	VC	0.25

BH1	Depth (mbgs)															20-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	41	39	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH2	Depth (mbgs)															19-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	10	23	17	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH3	Depth (mbgs)															19-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	50	78	35	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH4	Depth (mbgs)															20-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	47	37	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH5	Depth (mbgs)															19-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	36	94	7	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH7	Depth (mbgs)															20-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	27	23	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
DUP		< 0.02	<0.05	<0.05	<0.05	<7	29	24	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH8	Depth (mbgs)															20-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	<4	26	40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH9	Depth (mbgs)															20-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	<4	10	28	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH10	Depth (mbgs)															22-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	<7	23	27	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH11	Depth (mbgs)															20-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS4	2.3 to 2.9	< 0.02	<0.05	<0.05	<0.05	<7	<4	<8	<6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH12	Depth (mbgs)															22-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS2	0.8 to 1.4	< 0.02	<0.05	<0.05	<0.05	8	13	31	37	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH13	Depth (mbgs)															22-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	<4	27	27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH14	Depth (mbgs)															20-Sep-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS4	2.3 to 2.9	< 0.02	<0.05	<0.05	<0.05	<7	13	110	137	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH15	Depth (mbgs)															15-Nov-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS7	4.56 to 5.18	< 0.02	<0.05	<0.05	<0.05	<7	41	59	20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH16	Depth (mbgs)															17-Nov-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	<7	<4	36	27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
BH17	Depth (mbgs)															17-Nov-22	
		B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
SS3	1.5 to 2.1	< 0.02	<0.05	<0.05	<0.05	<7	<4	66	48	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02
DUP		< 0.02	<0.05	<0.05	<0.05	<7	5	54	51	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

CROSS SECTIONS: A-A', B-B', C-C' - PHC & VOC IN SOIL

SCALE 1:1,250

SKETCH NO FIG 9

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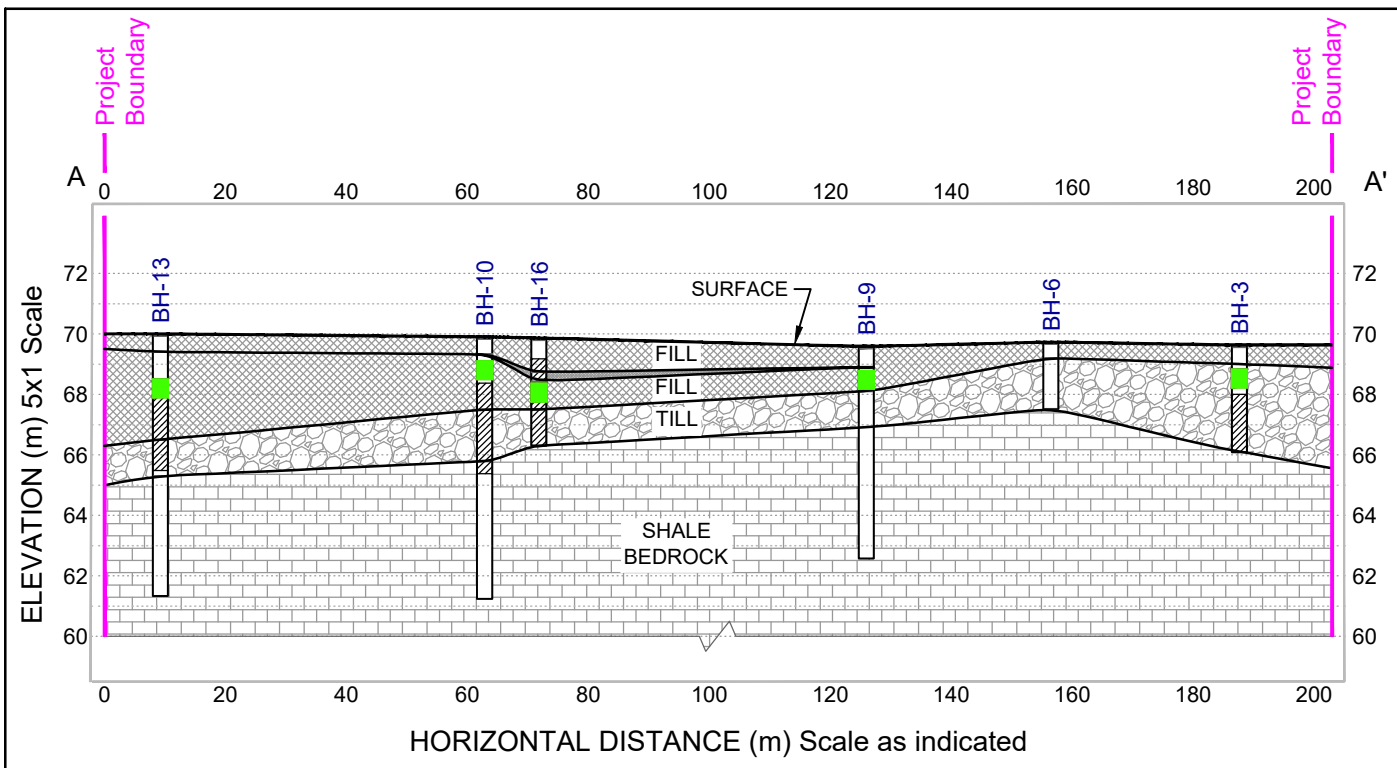
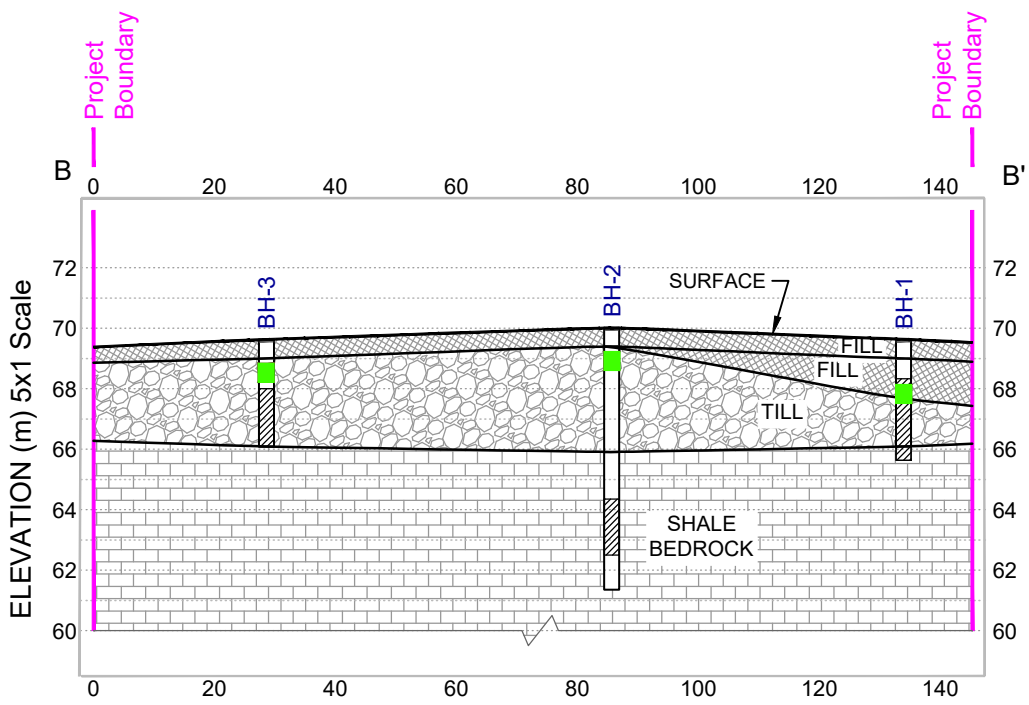
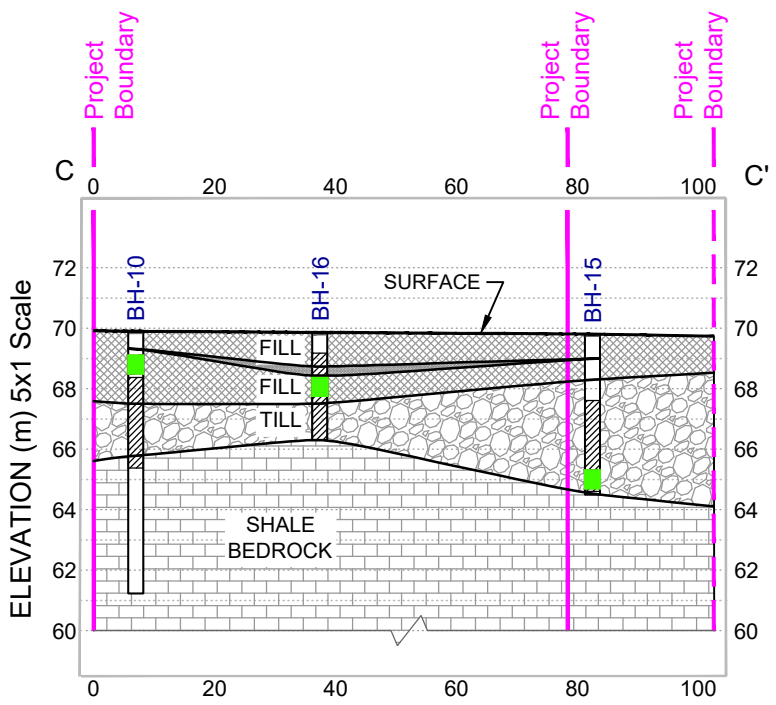


CROSS SECTION A-A'



CROSS SECTION B-B'



CROSS SECTION C-C'

LEGEND

- FILL
- TILL
- BEDROCK
- SCREEN
- SOIL SAMPLE
- SOIL CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL
- SOIL CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Acenaphthene	Ace	96
Acenaphthylene	Acl	0.17
Anthracene	An	0.74
Benzo(a)anthracene	B(a)A	0.96
Benzo(a)pyrene	B(a)P	0.3
Benzo(b)fluoranthene	B(b)F	0.96
Benzo(b+k)fluoranthene	B(b/k)F	NV
Benzo(g,h,i)perylene	B(ghi)P	9.6
Benzo(k)fluoranthene	B(k)F	0.96
Chrysene	C	9.6
Dibenzo(a,h)anthracene	DA	0.1
Fluoranthene	FI	9.6
Fluorene	F	69
Indeno(1,2,3,-cd)pyrene	I(123)P	0.95
Total Methylnaphthalene	T-MN	85
Naphthalene	N	28
Phenanthrene	P	16
Pyrene	Py	96

BH1	Depth (mbgs)																	20-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH2	Depth (mbgs)																	19-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS2	0.8 to 1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH3	Depth (mbgs)																	19-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS2	0.8 to 1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH4	Depth (mbgs)																	20-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS3	1.5 to 2.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH5	Depth (mbgs)																	19-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b/j)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS2	0.8 to 1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH7	Depth (mbgs)																	20-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
DUP		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH8	Depth (mbgs)																	20-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH9	Depth (mbgs)																	20-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH10	Depth (mbgs)																	22-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH11	Depth (mbgs)																	20-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS4	2.3 to 2.9	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH12	Depth (mbgs)																	22-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS2	0.8 to 1.4	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH13	Depth (mbgs)																	22-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH14	Depth (mbgs)																	20-Sep-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS4	2.3 to 2.9	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH15	Depth (mbgs)																	15-Nov-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS7	4.56 to 5.18	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH16	Depth (mbgs)																	17-Nov-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
BH17	Depth (mbgs)																	17-Nov-22	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
SS3	1.5 to 2.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02
DUP		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
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www.exp.com

DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

CROSS SECTIONS:
A–A', B–B', C–C' – PAH IN SOIL

SCALE 1:1,250
SKETCH NO FIG 10

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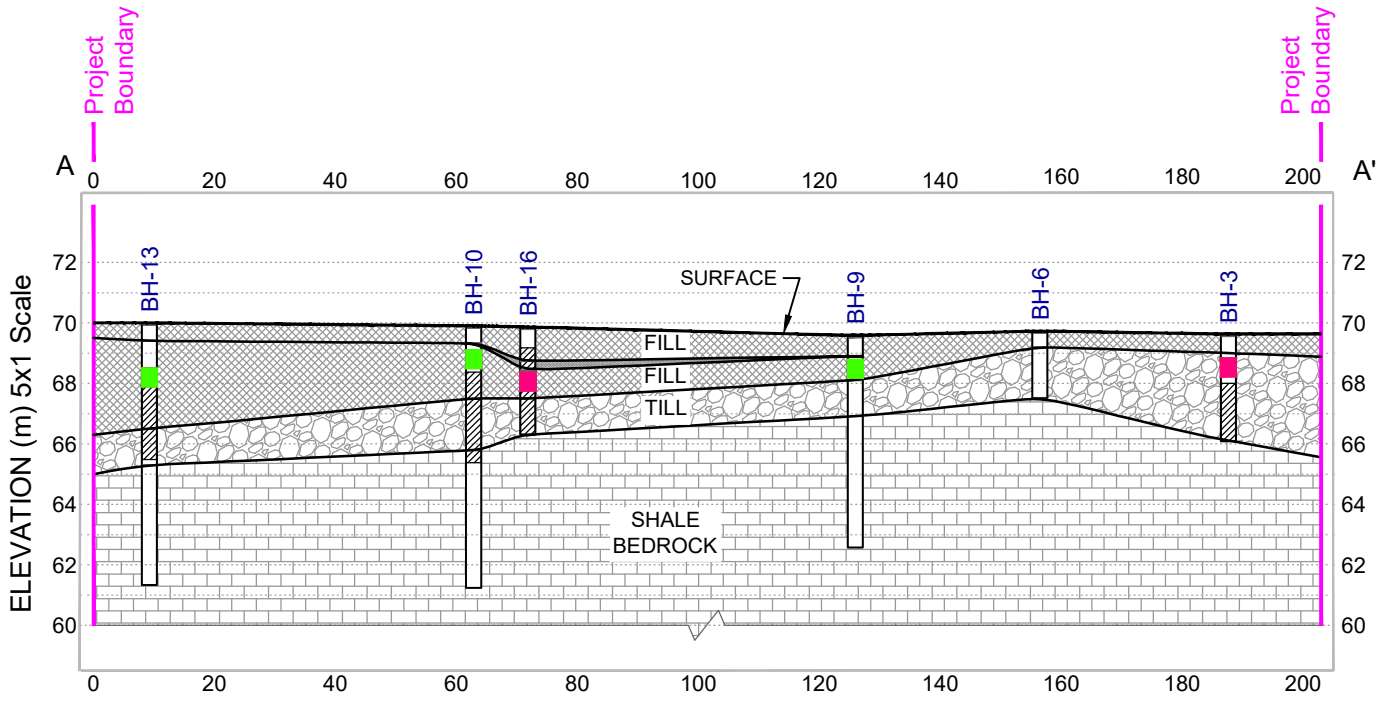
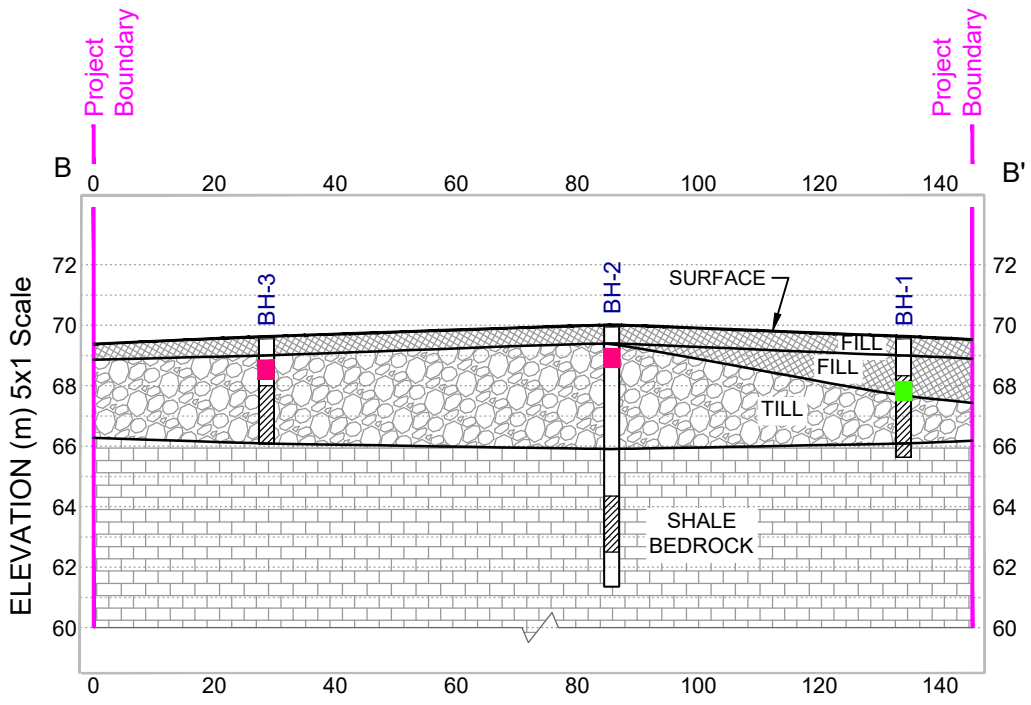
Last Saved: Dec 8, 2022 10:54 AM Last Plotted: Dec 8, 2022 10:54 AM Plotted by: SeverA



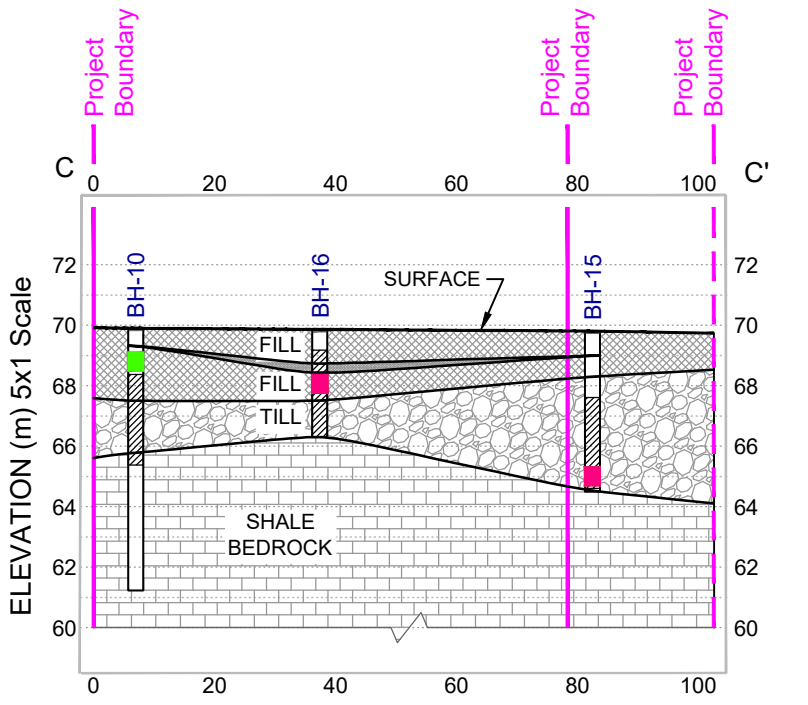
HORIZONTAL DISTANCE (m) Scale as indicated

CROSS SECTION A-A'



HORIZONTAL DISTANCE (m) Scale as indicated

CROSS SECTION B-B'



HORIZONTAL DISTANCE (m) Scale as indicated

CROSS SECTION C-C'

LEGEND

- FILL
- TILL
- BEDROCK
- SCREEN
- SOIL SAMPLE

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Antimony	Sb	50
Arsenic	As	18
Barium	Ba	670
Beryllium	Be	10
Boron	B	120
Boron (HWS)	B (HWS)	2
Cadmium	Cd	1.9
Chromium	Cr	160
Chromium VI	Cr VI	10
Cobalt	Co	100
Copper	Cu	300
Lead	Pb	120
Mercury	Hg	20
Molybdenum	Mo	40
Nickel	Ni	340
Selenium	Se	5.5
Silver	Ag	50
Thallium	Tl	3.3
Uranium	U	33
Vanadium	V	86
Zinc	Zn	340
SAR	SAR	12
Conductivity	EC	1.4

BH1	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS3	1.5 to 2.1	<1.0	4	125	<0.5	8.8	-	<0.5	16.2	-	7.1	18.8	7.4	-	1.8	21.6	<1.0	<0.3	<1.0	1.5	24.1	31.3	NA	NA	
BH2	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	19-Sep-22
SS2	0.8 to 1.4	<1.0	3.7	124	<0.5	6.5	<0.5	<0.5	14.9	<0.2	6.6	16.3	6	<0.1	1.9	19.8	<1.0	<0.3	<1.0	1.2	23.4	37.5	28.2	3.99	
BH3	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	19-Sep-22
SS2	0.8 to 1.4	<1.0	5.4	115	<0.5	8	<0.5	<0.5	17.2	<0.2	8.7	22.1	8.2	<0.1	3.3	28.8	<1.0	<0.3	<1.0	1.6	26.7	41.5	10.0	1.98	
BH4	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS3	1.5 to 2.1	<1.0	5.2	127	0.6	9.8	-	<0.5	18.2	-	8.6	21	9.9	-	2.4	26.6	<1.0	<0.3	<1.0	1.3	27.2	36.1	NA	NA	
BH5	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	19-Sep-22
SS2	0.8 to 1.4	<1.0	5	141	0.5	7.8	<0.5	<0.5	18.5	<0.2	10.9	24	10.4	<0.1	2.5	30.8	<1.0	<0.3	<1.0	1.1	26.2	38.4	12.7	4.63	
BH7	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS3	1.5 to 2.1	<1.0	5.1	142	0.6	10.7	-	<0.5	17.4	-	8.4	21.2	9.4	-	2.4	25.8	<1.0	<0.3	<1.0	1.3	26.4	34.8	NA	NA	
DUP		<1.0	4.8	107	0.5	9.7	-	<0.5	16.5	-	7.9	20.4	8.9	-	2.1	24.3	<1.0	<0.3	<1.0	1.1	24.3	37.3	NA	NA	
BH8	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS2	0.8 to 1.4	<1.0	6	147	0.6	10.5	-	<0.5	20.3	-	15.5	27.3	12.4	-	3.2	38.2	<1.0	<0.3	<1.0	1.1	29	59.1	NA	NA	
BH9	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS2	0.8 to 1.4	<1.0	6.6	83.2	0.6	9.8	-	<0.5	18.4	-	10.9	27	12.1	-	2.3	31	<1.0	<0.3	<1.0	ND (1.0)	27.1	44.2	NA	NA	
BH10	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	22-Sep-22
SS2	0.8 to 1.4	<1.0	6.3	103	0.6	9.6	-	<0.5	22.4		10.4	21.7	11.8		2.6	35.3	<1.0	<0.3	<1.0	1.1	26.6	56.7	NA	NA	
BH11	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS4	2.3 to 2.9	<1.0	5.1	98.1	0.7	9.5	-	<0.5	26.9	-	10	26.4	9.1	-	1.9	35.3	<1.0	<0.3	<1.0	1	34.2	47.7	NA	NA	
BH12	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	22-Sep-22
SS2	0.8 to 1.4	<1.0	4.9	98.5	0.6	9.6	-	<0.5	22.2	-	10.1	24	11.9	-	2.4	27.3	<1.0	<0.3	<1.0	<1.0	30.3	48.4	NA	NA	
BH13	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	22-Sep-22
SS3	1.5 to 2.1	<1.0	3.4	140	0.5	7.2	-	<0.5	30.7	-	9.2	25.6	34.5	-	<1.0	23.1	<1.0	<0.3	<1.0	<1.0	34.2	76.7	NA	NA	
BH14	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	20-Sep-22
SS4	2.3 to 2.9	<1.0	3.5	93.7	0.5	7.1	-	<0.5	26.8	-	7.4	19.2	26	-	1.2	19.4	<1.0	<0.3	<1.0	<1.0	30.4	63.8	NA	NA	
BH15	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	15-Nov-22
SS7	4.56 to 5.18	<1.0	5.6	98.9	0.5	10.1	<0.5	<0.5	50.1	<0.2	9.3	26.7	10.6	<0.1	4.4	27.8	<1.0	<0.3	<1.0	1.3	26.4	41	13.6	1.78	
BH16	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	17-Nov-22
SS3	1.5 to 2.1	<1.0	3.5	144	<0.5	<5.0	<0.5	<0.5	42.3	<0.2	8.2	13.5	6.8	<0.1	ND (1.0)	21.9	<1.0	<0.3	<1.0	1	38.3	44.2	27.6	4.53	
BH17	Depth (mbgs)	Sb	As	Ba	Be	B	B (HWS)	Cd	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	U	V	Zn	SAR	EC	17-Nov-22
SS3	1.5 to 2.1	<1.0	5.1	115	0.5	7.9	<0.5	<0.5	29	<0.2	8.5	20.9	23.6	<0.1	1.4	23.9	<1.0	<0.3	<1.0	1.1	33.9	72	3.99	1.35	
DUP		<1.0	5.2	118	0.6	8.4	<0.5	<0.5	33	<0.2	8.8	22.6	20.3	<0.1	1.4	24.9	<1.0	<0.3	<1.0	1.3	36.5	80.3	5.98	1.38	

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

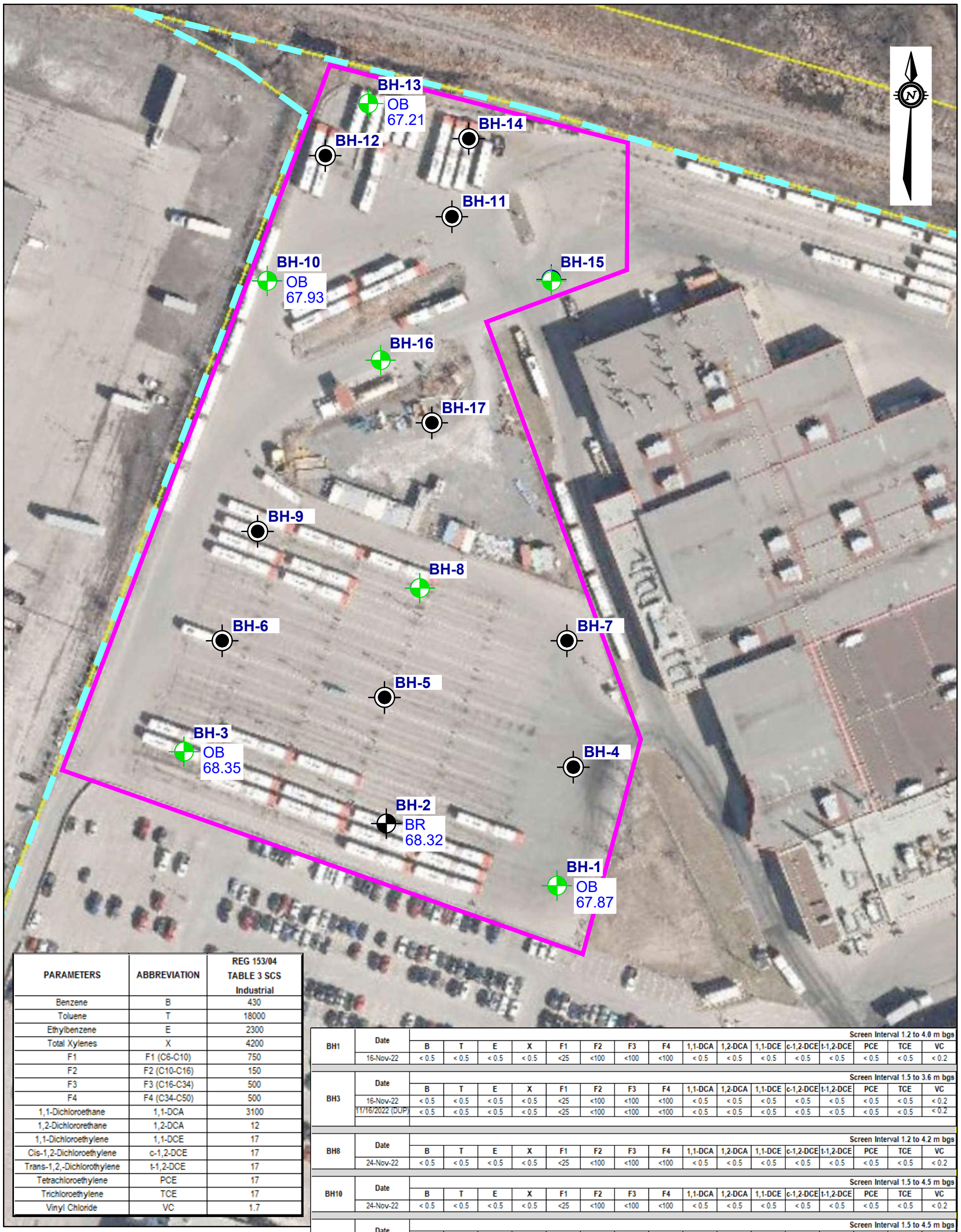
DESIGN	MM/LW
DRAWN	AS
DATE	DECEMBER 2022
FILE NO	OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

CROSS SECTIONS: A–A', B–B', C–C' – METALS IN SOIL

SCALE 1:1,250

SKETCH NO FIG 11



PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Benzene	B	430
Toluene	T	18000
Ethylbenzene	E	2300
Total Xylenes	X	4200
F1	F1 (C6-C10)	750
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500
1,1-Dichloroethane	1,1-DCA	3100
1,2-Dichlororethane	1,2-DCA	12
1,1-Dichloroethylene	1,1-DCE	17
Cis-1,2-Dichloroethylene	c-1,2-DCE	17
Trans-1,2,-Dichlorothylene	t-1,2-DCE	17
Tetrachloroethylene	PCE	17
Trichloroethylene	TCE	17
Vinyl Chloride	VC	1.7

	Date	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
		Screen Interval 1.2 to 4.0 m bgs															
BH1	16-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.5 to 3.6 m bgs															
BH3	16-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
	11/16/2022 (DUP)	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.2 to 4.2 m bgs															
BH8	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.5 to 4.5 m bgs															
BH10	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.5 to 4.5 m bgs															
BH13	16-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 2.3 to 5.3 m bgs															
BH15	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 0.8 to 3.8 m bgs															
BH16	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2

LEGEND

PROJECT BOUNDARY

PROPERTY LINE

BH-1 — MONITORING WELL NO. & LOCATION

BH-4 — BOREHOLE NO. & LOCATION

67.87 — (GROUND WATER ELEVATION)

OB = OVERBURDEN

BR = BEDROCK

GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

NOT SAMPLED

GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 40m

HORIZONTAL 1:1000

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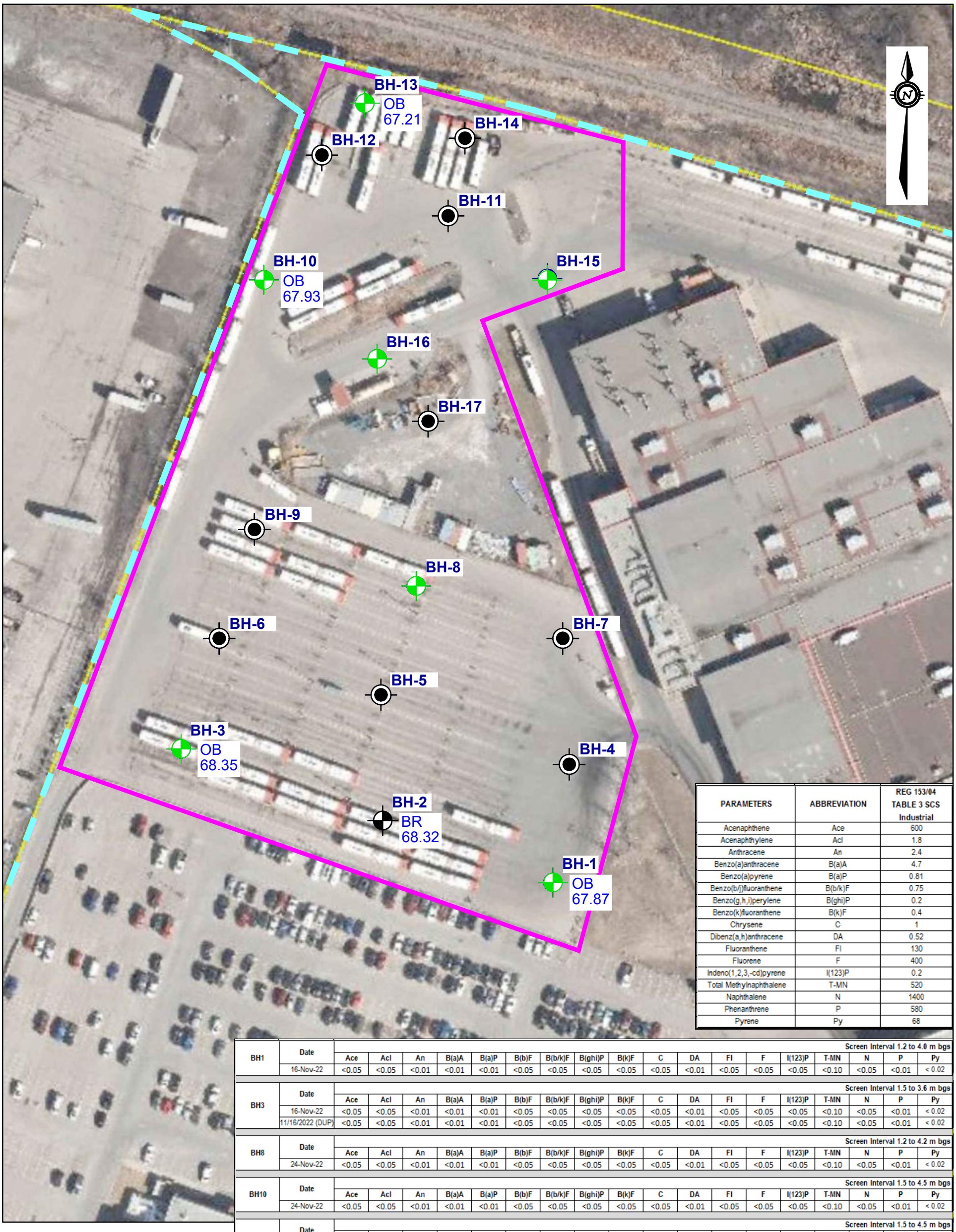
DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

GROUNDWATER ANALYTICAL RESULTS: PHC & VOC

SCALE 1:1,000
SKETCH NO FIG 12

Filename: E:\OTT\OTT-22007382-A0\60 Execution\65 Drawings\Environmental\22007382-A0_Ph-2.dwg
Last Saved: Dec 8, 2022 11:37 AM Last Plotted: Dec 8, 2022 11:37 AM Plotted by: SeverA



PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Acenaphthene	Ace	600
Acenaphthylene	Acl	1.8
Anthracene	An	2.4
Benzo(a)anthracene	B(a)A	4.7
Benzo(a)pyrene	B(a)P	0.81
Benzo(b/j)fluoranthene	B(b/k)F	0.75
Benzo(g,h,i)perylene	B(ghi)P	0.2
Benzo(k)fluoranthene	B(k)F	0.4
Chrysene	C	1
Dibenz(a,h)anthracene	DA	0.52
Fluoranthene	FI	130
Fluorene	F	400
Indeno(1,2,3,-cd)pyrene	I(123)P	0.2
Total Methylnaphthalene	T-MN	520
Naphthalene	N	1400
Phenanthrene	P	580
Pyrene	Py	68

BH1	Date	Screen Interval 1.2 to 4.0 m bgs																	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
	16-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02

BH3	Date	Screen Interval 1.5 to 3.6 m bgs																	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
	16-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02
	11/16/2022 (DUP)	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02

BH8	Date	Screen Interval 1.2 to 4.2 m bgs																	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02

BH10	Date	Screen Interval 1.5 to 4.5 m bgs																	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02

BH13	Date	Screen Interval 1.5 to 4.5 m bgs																	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
	16-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02

BH15	Date	Screen Interval 2.3 to 5.3 m bgs																	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02

BH16	Date	Screen Interval 0.8 to 3.8 m bgs																	
		Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.10	<0.05	<0.01	< 0.02

LEGEND

PROJECT BOUNDARY

PROPERTY LINE

BH-1 — MONITORING WELL NO. & LOCATION

BH-4 — BOREHOLE NO. & LOCATION

67.87 — (GROUND WATER ELEVATION)

OB = OVERBURDEN

BR = BEDROCK

GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

NOT SAMPLED

GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 40m

HORIZONTAL 1:1000

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

GROUNDWATER ANALYTICAL RESULTS: PAH

SCALE 1:1,000

SKETCH NO FIG 13

Filename: E:\OTT\OTT-22007382-A0\60 Execution\65 Drawings\Environmental\22007382-A0_Ph-2.dwg
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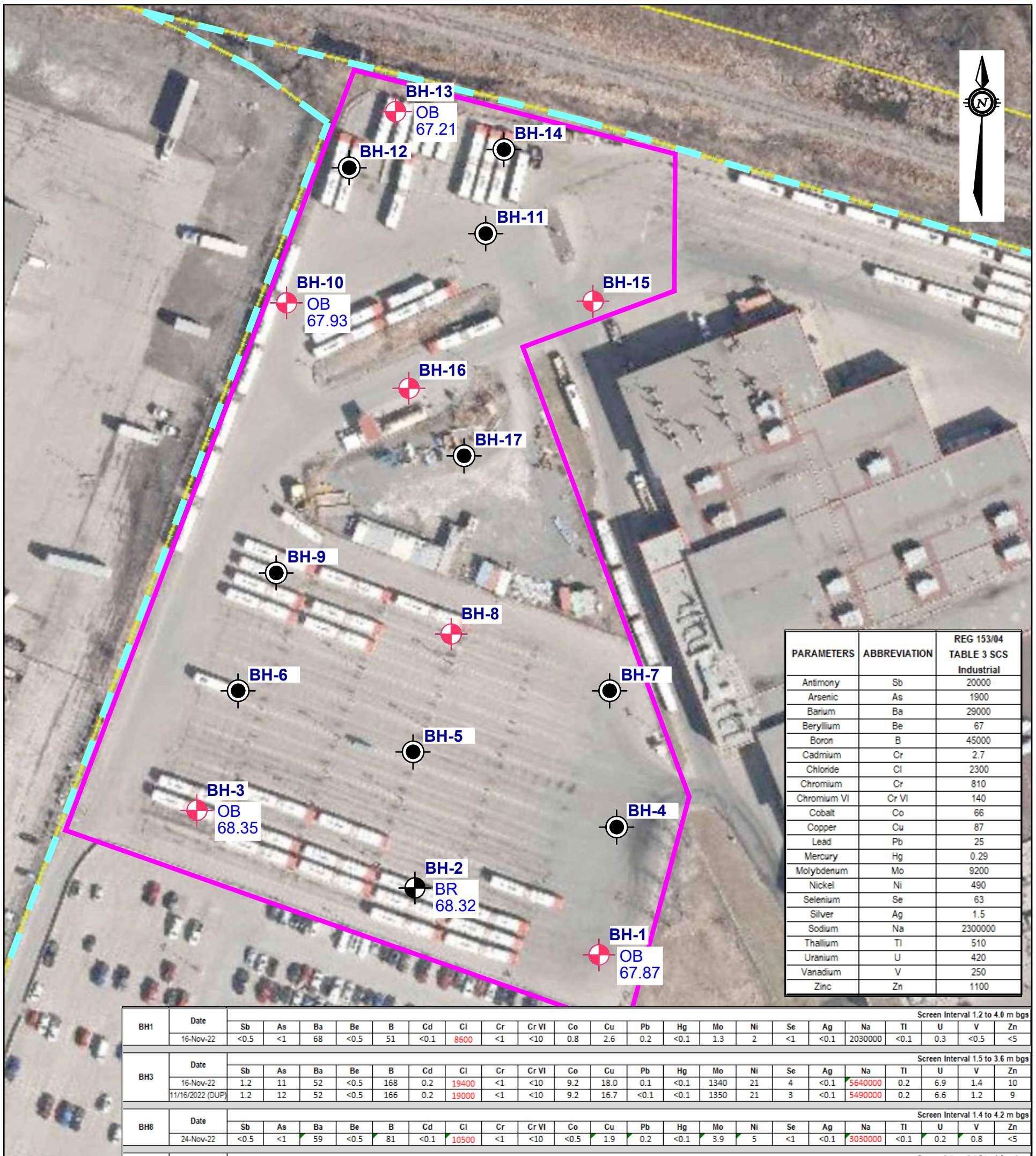

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Antimony	Sb	20000
Arsenic	As	1900
Barium	Ba	29000
Beryllium	Be	67
Boron	B	45000
Cadmium	Cr	2.7
Chloride	Cl	2300
Chromium	Cr	810
Chromium VI	Cr VI	140
Cobalt	Co	66
Copper	Cu	87
Lead	Pb	25
Mercury	Hg	0.29
Molybdenum	Mo	9200
Nickel	Ni	490
Selenium	Se	63
Silver	Ag	1.5
Sodium	Na	2300000
Thallium	Tl	510
Uranium	U	420
Vanadium	V	250
Zinc	Zn	1100

BH1	Date	Screen Interval 1.2 to 4.0 m bgs																				
		Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
	16-Nov-22	<0.5	<1	68	<0.5	51	<0.1	8600	<1	<10	0.8	2.6	0.2	<0.1	1.3	2	<1	<0.1	2030000	<0.1	0.3	<0.5	<5

BH3	Date	Screen Interval 1.5 to 3.6 m bgs																				
		Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
	16-Nov-22	1.2	11	52	<0.5	168	0.2	19400	<1	<10	9.2	18.0	0.1	<0.1	1340	21	4	<0.1	5640000	0.2	6.9	1.4	10
	11/16/2022 (DUP)	1.2	12	52	<0.5	166	0.2	19000	<1	<10	9.2	16.7	<0.1	<0.1	1350	21	3	<0.1	5490000	0.2	6.6	1.2	9

BH8	Date	Screen Interval 1.4 to 4.2 m bgs																				
		Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
	24-Nov-22	<0.5	<1	59	<0.5	81	<0.1	10500	<1	<10	<0.5	1.9	0.2	<0.1	3.9	5	<1	<0.1	3030000	<0.1	0.2	0.8	<5

BH10	Date	Screen Interval 1.5 to 4.5 m bgs																				
		Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
	24-Nov-22	0.6	1	119	<0.5	81	0.4	16300	2	<10	25.6	4.4	0.3	<0.1	26.9	98	<1	<0.1	6840000	0.4	13.9	1.3	9

BH13	Date	Screen Interval 1.5 to 4.5 m bgs																				
		Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
	16-Nov-22	<0.5	4	1380	<0.5	22	<0.1	5590	<1	<10	3.1	0.8	<0.1	<0.1	8.3	5	<1	<0.1	1550000	<0.1	4.9	2.1	10

BH15	Date	Screen Interval2.3 to 5.3 m bgs																				
		Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
	24-Nov-22	0.7	<1	831	<0.5	200	<0.1	6540	2	<10	4.5	3.2	<0.1	<0.1	24.5	12	<1	<0.1	1610000	<0.1	3.0	<0.5	<5

BH16	Date	Screen Interval 0.8 to 3.8 m bgs																				
		Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
	24-Nov-22	<0.5	<1	127	<0.5	38	0.3	17500	1	<10	41.1	27.6	<0.1	<0.1	4.5	54	<1	<0.1	8870000	0.4	14.5	0.7	29

LEGEND

PROJECT BOUNDARY

PROPERTY LINE

BH-1 — MONITORING WELL NO. & LOCATION

BH-4 — BOREHOLE NO. & LOCATION

67.87 — (GROUND WATER ELEVATION)

OB = OVERBURDEN

BR = BEDROCK

GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL

NOT SAMPLED

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 40m

HORIZONTAL 1:1000

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN	MM/LW
DRAWN	AS
DATE	DECEMBER 2022
FILE NO	OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

GROUNDWATER ANALYTICAL RESULTS: METALS

SCALE 1:1,000

SKETCH NO FIG 14

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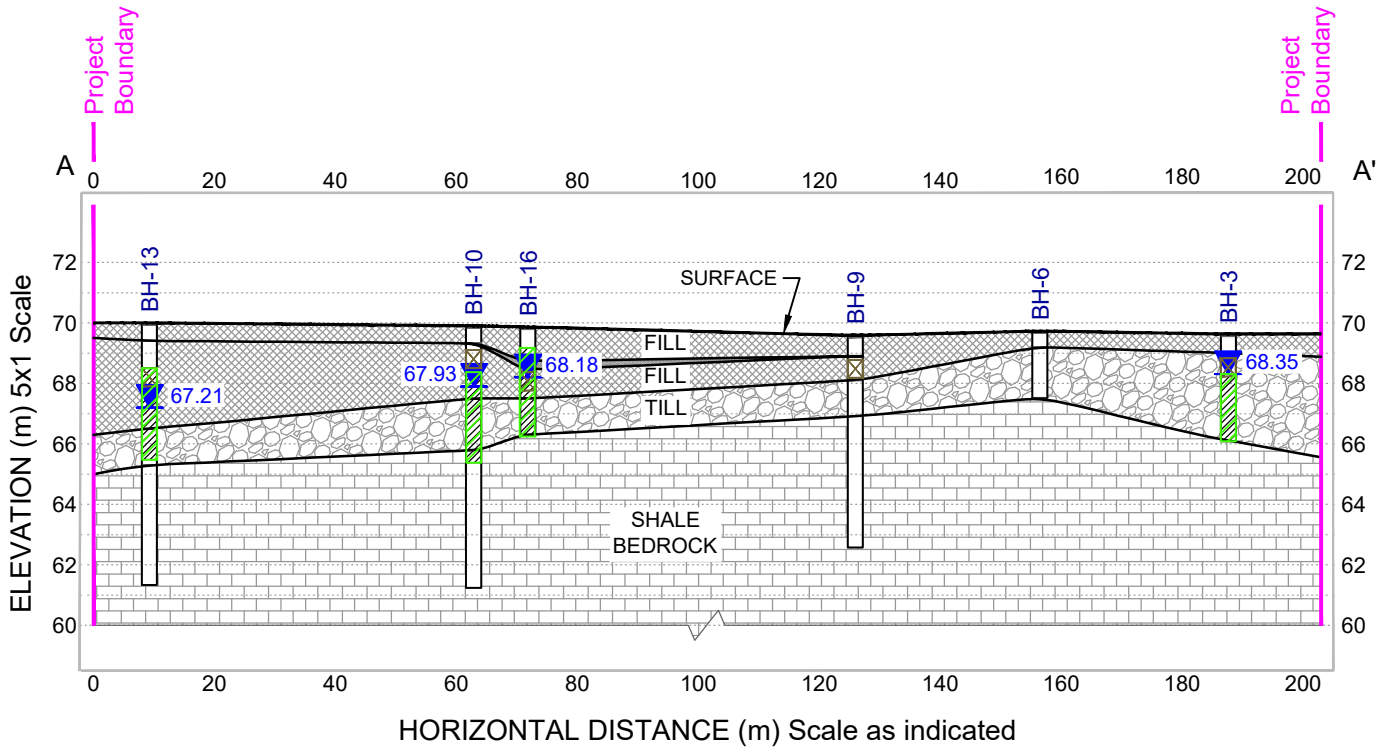
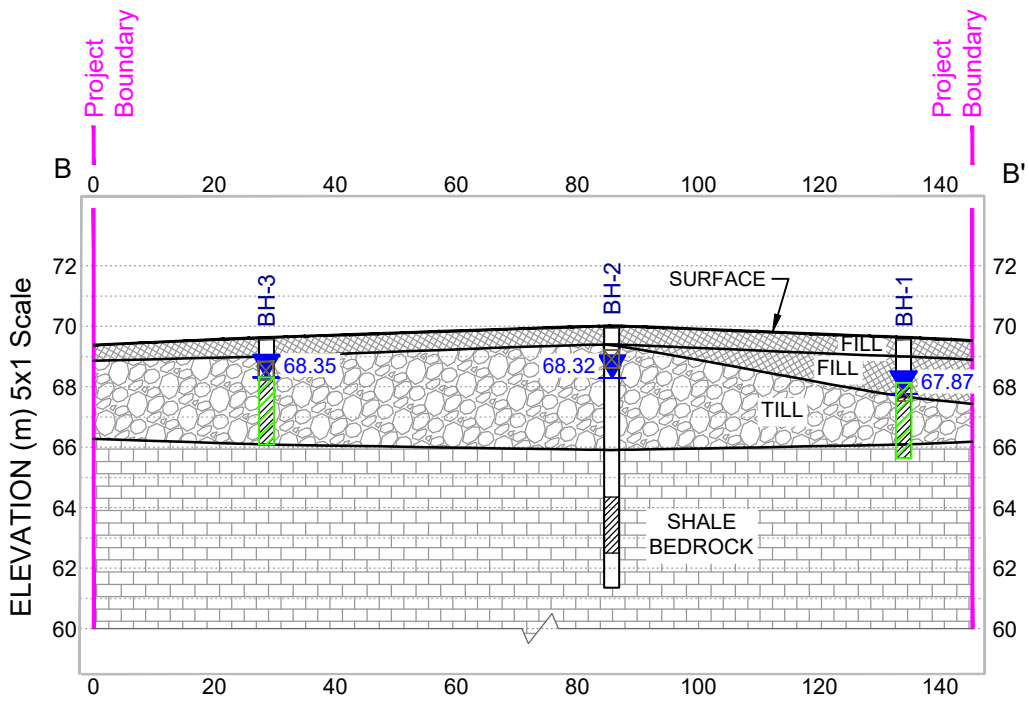
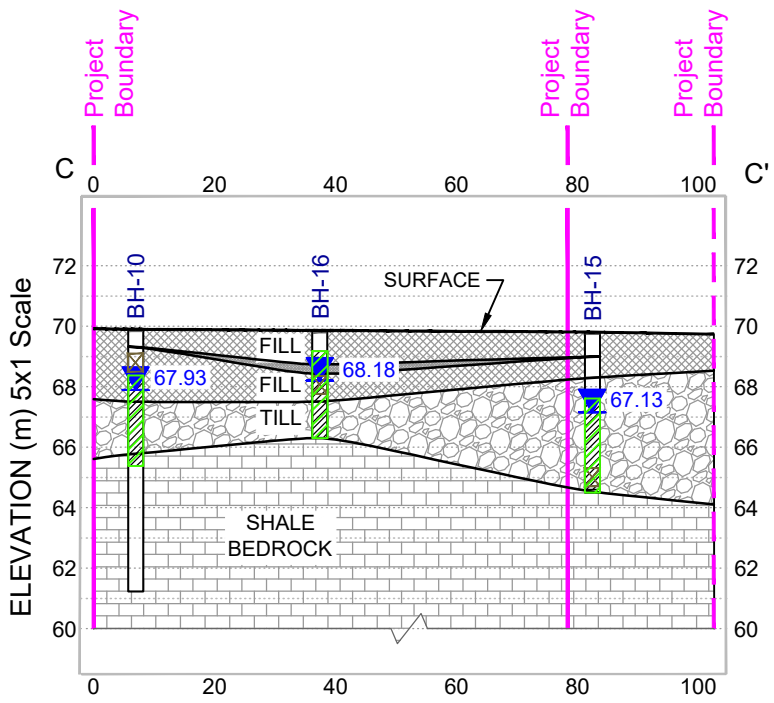


CROSS SECTION A-A'



CROSS SECTION B-B'



CROSS SECTION C-C'

LEGEND

- FILL
- TILL
- BEDROCK
- SCREEN
- SOIL SAMPLE
- 67.93 GROUNDWATER ELEVATION
- GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL
- GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Benzene	B	430
Toluene	T	18000
Ethylbenzene	E	2300
Total Xylenes	X	4200
F1	F1 (C6-C10)	750
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500
1,1-Dichloroethane	1,1-DCA	3100
1,2-Dichlororethane	1,2-DCA	12
1,1-Dichloroethylene	1,1-DCE	17
Cis-1,2-Dichloroethylene	c-1,2-DCE	17
Trans-1,2,-Dichlorothylene	t-1,2-DCE	17
Tetrachloroethylene	PCE	17
Trichloroethylene	TCE	17
Vinyl Chloride	VC	1.7

	Date	B	T	E	X	F1	F2	F3	F4	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
		Screen Interval 1.2 to 4.0 m bgs															
BH1	16-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.5 to 3.6 m bgs															
BH3	16-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
	11/16/2022 (DUP)	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.2 to 4.2 m bgs															
BH8	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.5 to 4.5 m bgs															
BH10	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 1.5 to 4.5 m bgs															
BH13	16-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 2.3 to 5.3 m bgs															
BH15	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
		Screen Interval 0.8 to 3.8 m bgs															
BH16	24-Nov-22	< 0.5	< 0.5	< 0.5	< 0.5	<25	<100	<100	<100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

CROSS SECTIONS: A-A', B-B', C-C' – PHC & VOC IN GROUNDWATER

SCALE 1:1,250
SKETCH NO
FIG 15

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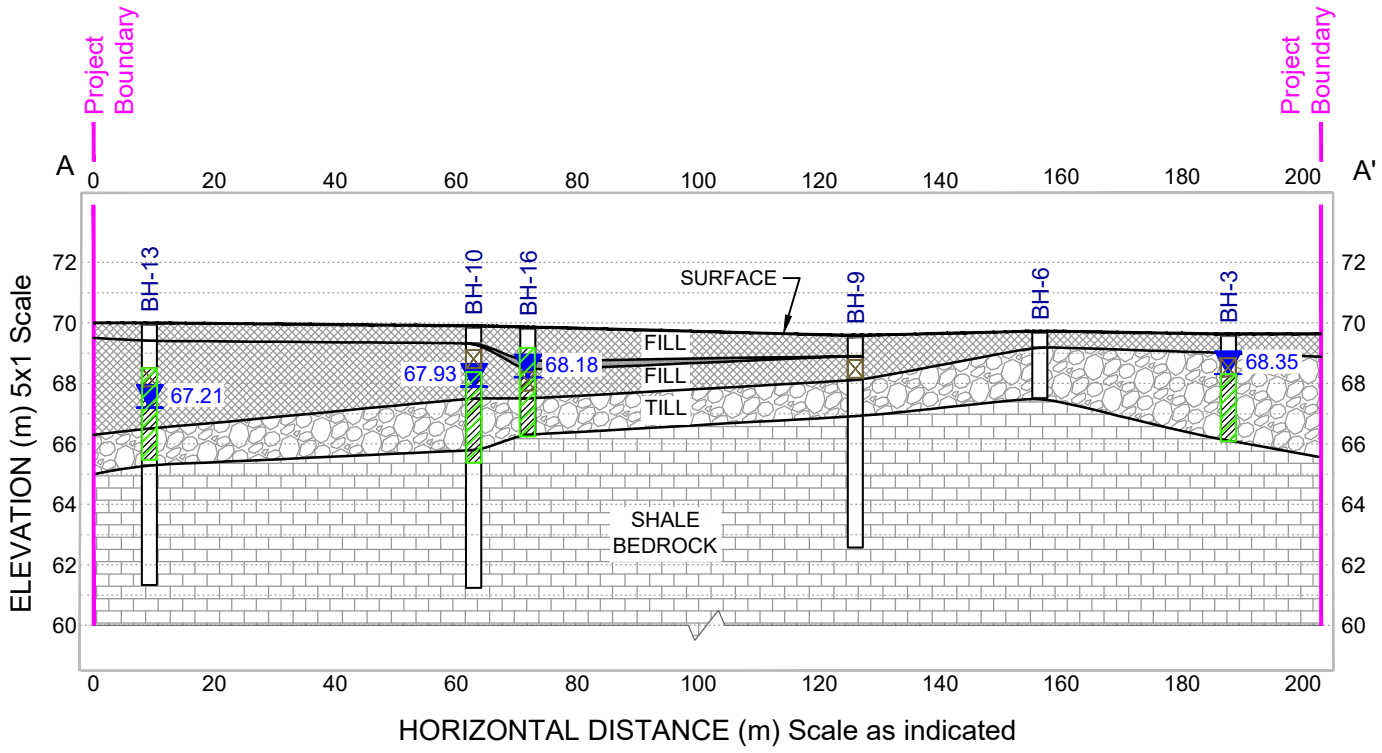
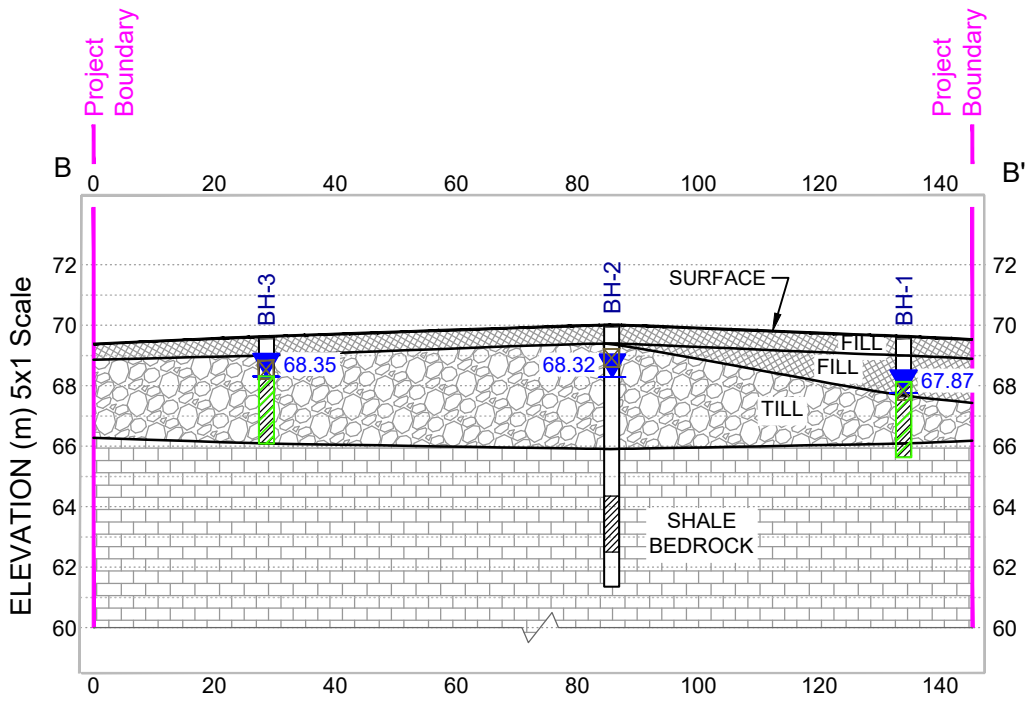
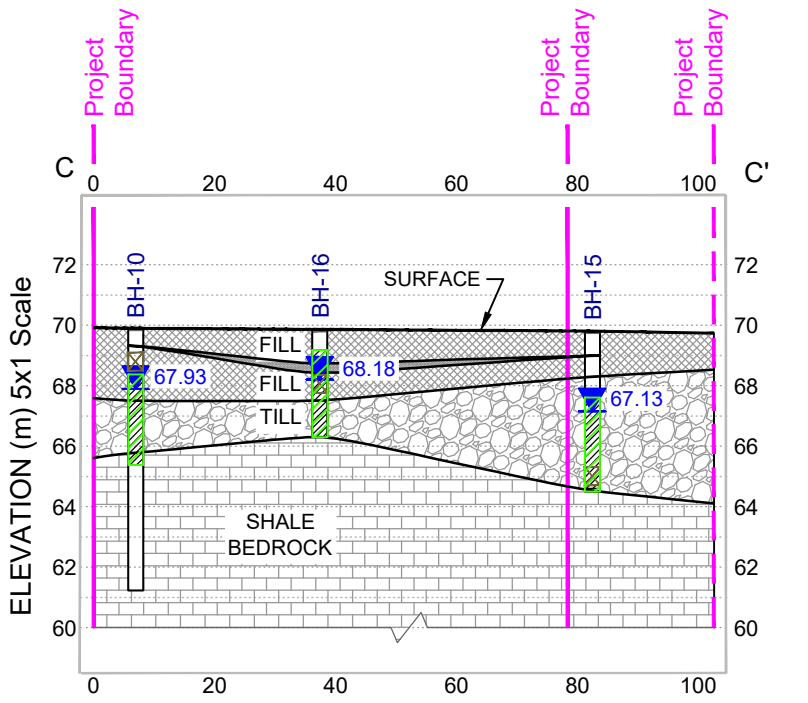


CROSS SECTION A-A'



CROSS SECTION B-B'



CROSS SECTION C-C'

LEGEND

- FILL
- TILL
- BEDROCK
- SCREEN
- SOIL SAMPLE
- 67.93 GROUNDWATER ELEVATION
- GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL
- GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Acenaphthene	Ace	600
Acenaphthylene	Acl	1.8
Anthracene	An	2.4
Benzo(a)anthracene	B(a)A	4.7
Benzo(a)pyrene	B(a)P	0.81
Benzo(b/j)fluoranthene	B(b/k)F	0.75
Benzo(g,h,i)perylene	B(ghi)P	0.2
Benzo(k)fluoranthene	B(k)F	0.4
Chrysene	C	1
Dibenz(a,h)anthracene	DA	0.52
Fluoranthene	Fl	130
Fluorene	F	400
Indeno(1,2,3,-cd)pyrene	I(123)P	0.2
Total Methylnaphthalene	T-MN	520
Naphthalene	N	1400
Phenanthrene	P	580
Pyrene	Py	68

	Date	Ace	Acl	An	B(a)A	B(a)P	B(b)F	B(b/k)F	B(ghi)P	B(k)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py
BH1		Screen Interval 1.2 to 4.0 m bgs																	
	16-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01
BH3		Screen Interval 1.5 to 3.6 m bgs																	
	16-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01
	11/16/2022 (DUP)	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01
BH8		Screen Interval 1.2 to 4.2 m bgs																	
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01
BH10		Screen Interval 1.5 to 4.5 m bgs																	
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01
BH13		Screen Interval 1.5 to 4.5 m bgs																	
	16-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01
BH15		Screen Interval 2.3 to 5.3 m bgs																	
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01
BH16		Screen Interval 0.8 to 3.8 m bgs																	
	24-Nov-22	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.10	<0.05	<0.05	< 0.01

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
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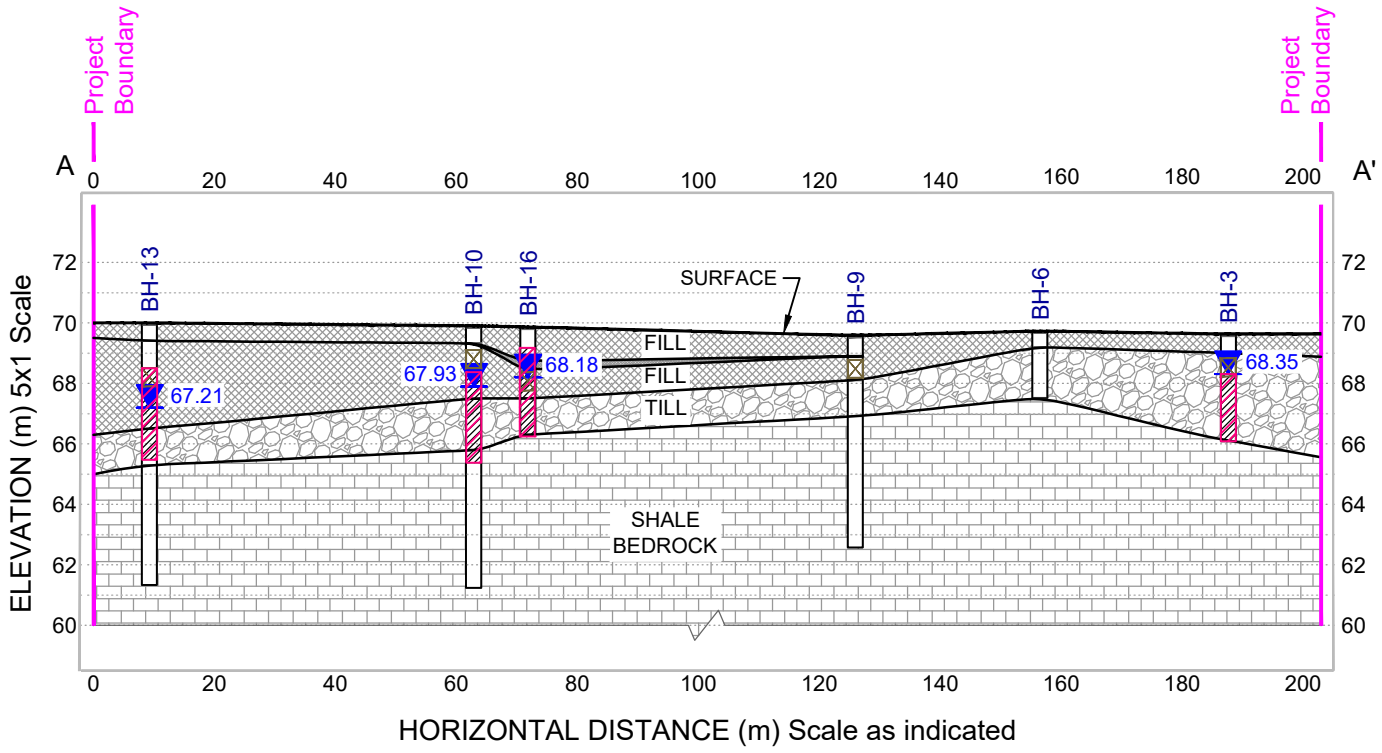
DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

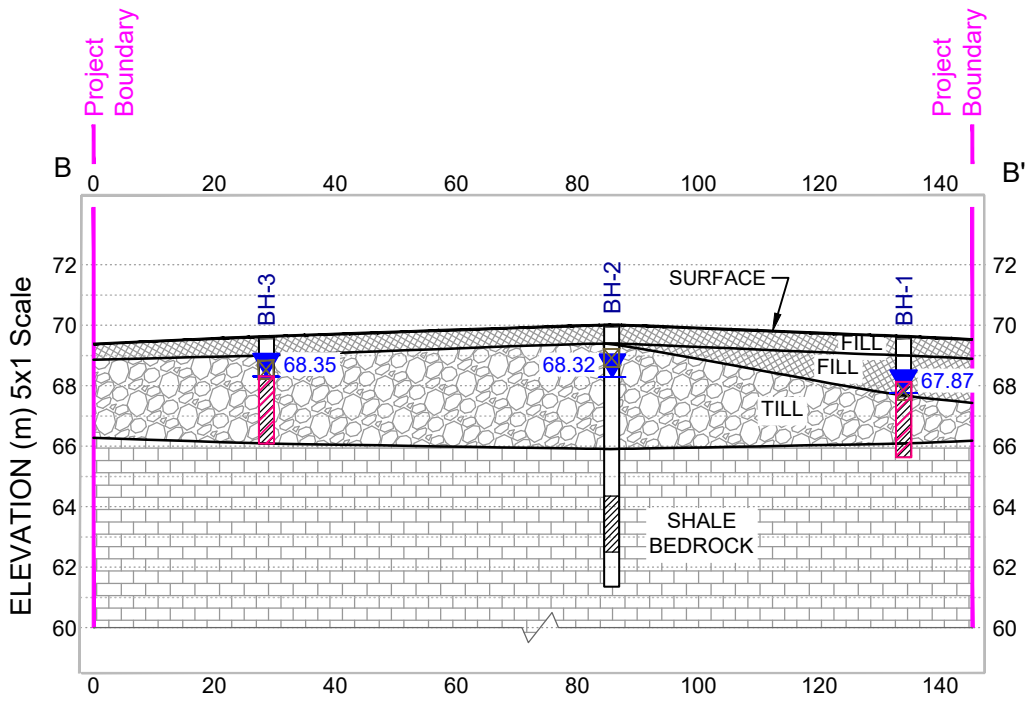
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

CROSS SECTIONS: A–A', B–B', C–C' – PAH IN GROUNDWATER

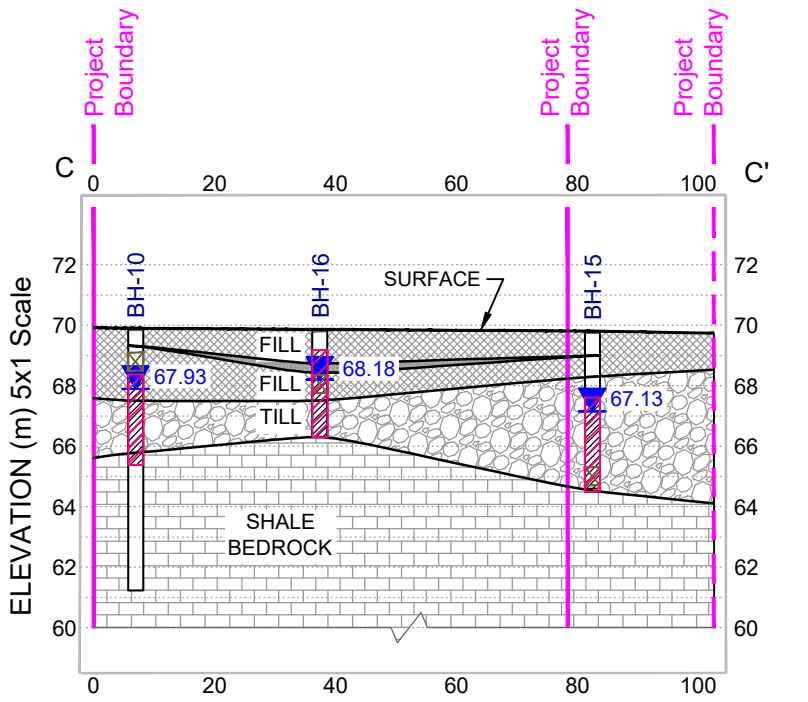
SCALE 1:1,250
SKETCH NO FIG 16



CROSS SECTION A-A'



CROSS SECTION B-B'



CROSS SECTION C-C'

LEGEND

- FILL
- TILL
- BEDROCK
- SCREEN
- SOIL SAMPLE
- 67.93 GROUNDWATER ELEVATION
- GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 SCS INDUSTRIAL
- GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 SCS INDUSTRIAL

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 3 SCS Industrial
Antimony	Sb	20000
Arsenic	As	1900
Barium	Ba	29000
Beryllium	Be	67
Boron	B	45000
Cadmium	Cr	2.7
Chloride	Cl	2300
Chromium	Cr	810
Chromium VI	Cr VI	140
Cobalt	Co	66
Copper	Cu	87
Lead	Pb	25
Mercury	Hg	0.29
Molybdenum	Mo	9200
Nickel	Ni	490
Selenium	Se	63
Silver	Ag	1.5
Sodium	Na	2300000
Thallium	Tl	510
Uranium	U	420
Vanadium	V	250
Zinc	Zn	1100

BH1	Date	Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		Screen Interval 1.2 to 4.0 m bgs																					
	16-Nov-22	<0.5	<1	68	<0.5	51	<0.1	8600	<1	<10	0.8	2.6	0.2	<0.1	1.3	2	<1	<0.1	2030000	<0.1	0.3	<0.5	<5

BH3	Date	Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		Screen Interval 1.5 to 3.6 m bgs																					
	16-Nov-22	1.2	11	52	<0.5	168	0.2	19400	<1	<10	9.2	18.0	0.1	<0.1	1340	21	4	<0.1	5640000	0.2	6.9	1.4	10
	11/16/2022 (DUP)	1.2	12	52	<0.5	166	0.2	19000	<1	<10	9.2	16.7	<0.1	<0.1	1350	21	3	<0.1	5490000	0.2	6.6	1.2	9

BH8	Date	Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		Screen Interval 1.4 to 4.2 m bgs																					
	24-Nov-22	<0.5	<1	59	<0.5	81	<0.1	10500	<1	<10	<0.5	1.9	0.2	<0.1	3.9	5	<1	<0.1	3030000	<0.1	0.2	0.8	<5

BH10	Date	Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		Screen Interval 1.5 to 4.5 m bgs																					
	24-Nov-22	0.6	1	119	<0.5	81	0.4	16300	2	<10	25.6	4.4	0.3	<0.1	26.9	98	<1	<0.1	6840000	0.4	13.9	1.3	9

BH13	Date	Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		Screen Interval 1.5 to 4.5 m bgs																					
	16-Nov-22	<0.5	4	1380	<0.5	22	<0.1	5590	<1	<10	3.1	0.8	<0.1	<0.1	8.3	5	<1	<0.1	1550000	<0.1	4.9	2.1	10

BH15	Date	Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		Screen Interval2.3 to 5.3 m bgs																					
	24-Nov-22	0.7	<1	831	<0.5	200	<0.1	6540	2	<10	4.5	3.2	<0.1	<0.1	24.5	12	<1	<0.1	1610000	<0.1	3.0	<0.5	<5

BH16	Date	Sb	As	Ba	Be	B	Cd	Cl	Cr	Cr VI	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		Screen Interval 0.8 to 3.8 m bgs																					
	24-Nov-22	<0.5	<1	127	<0.5	38	0.3	17500	1	<10	41.1	27.6	<0.1	<0.1	4.5	54	<1	<0.1	8870000	0.4	14.5	0.7	29

ORIGINAL SHEET SIZE = 11" x 17"

0 10m 20m 50m

HORIZONTAL 1:1250

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN MM/LW
DRAWN AS
DATE DECEMBER 2022
FILE NO OTT-22007382-A0

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
(NEW BUS GARAGE)
1500 ST. LAURENT BLVD. OTTAWA, ON

CROSS SECTIONS: A–A', B–B', C–C' – METALS IN GROUNDWATER

SCALE 1:1,250
SKETCH NO FIG 17

Filename: E:\OTT\OTT-22007382-A0\60 Execution\65 Drawings\Environmental\22007382-A0_Ph-2.dwg
Last Saved: Dec 8, 2022 12:06 PM Last Plotted: Dec 8, 2022 12:06 PM Plotted by: SeverA

EXP Services Inc.
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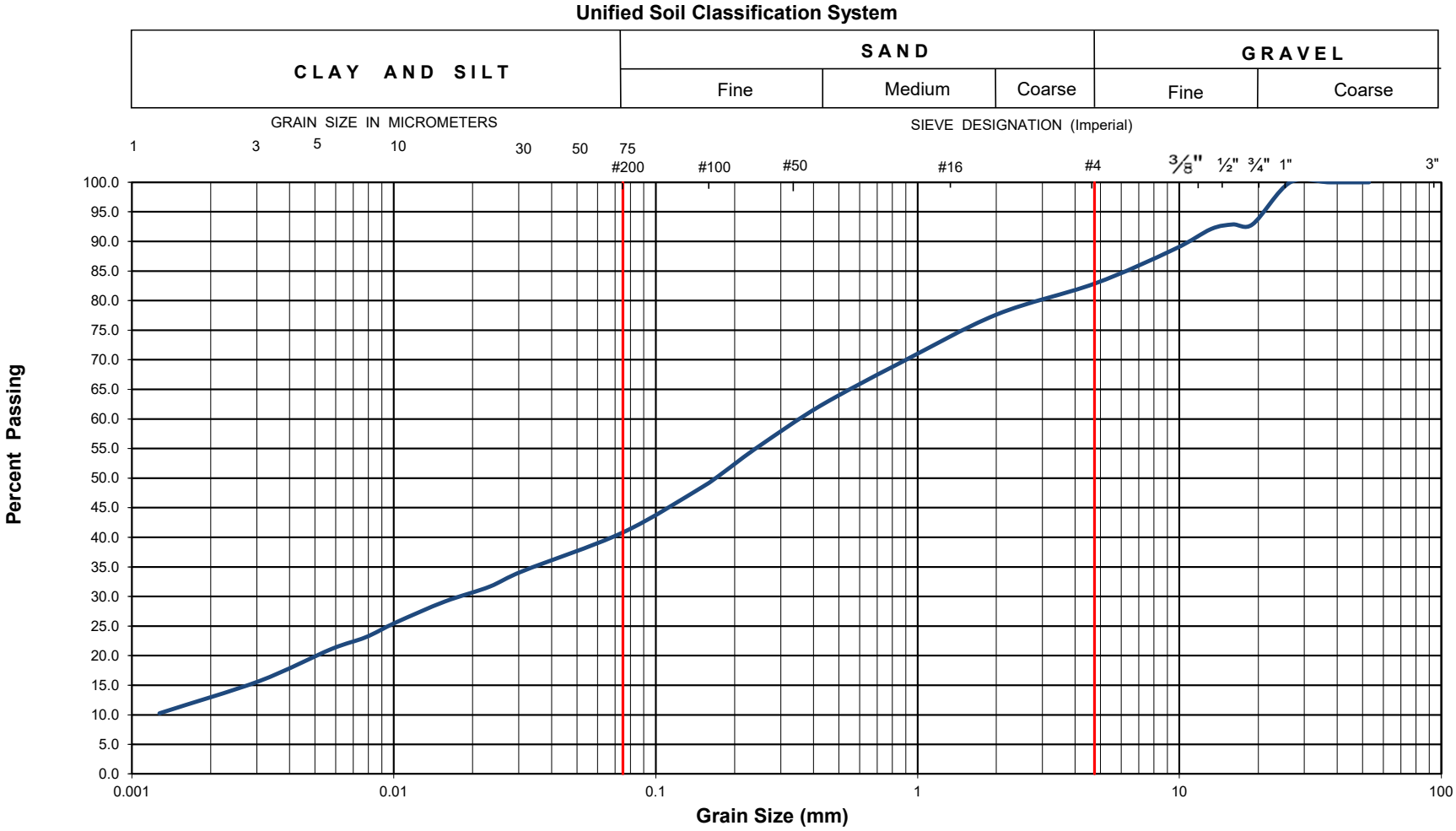
Ottawa, ON K2B 8H6

Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 20, 2022**	**Borehole No:**	**1**		**Sample No.:**	**SS3**		**Depth (m) :**	**1.5-2.1**
Sample Description :		**% Silt and Clay**	**41**	**% Sand**	**42**	**% Gravel**	**17**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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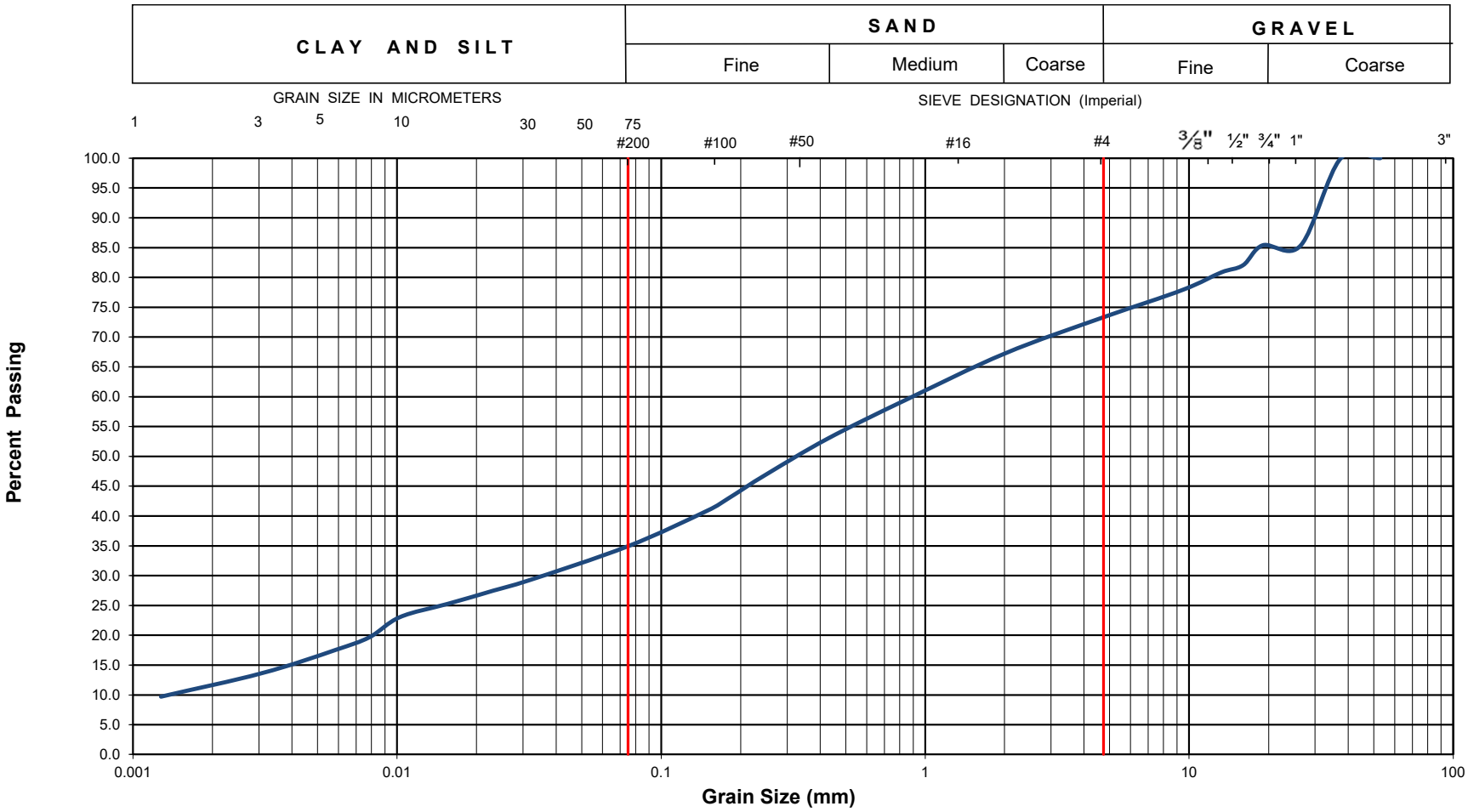
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422

Unified Soil Classification System



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 19, 2022**	**Borehole No:**	**2**		**Sample No.:**	**SS4**		**Depth (m) :**	**2.3-2.9**
Sample Description :		**% Silt and Clay**	**35**	**% Sand**	**38**	**% Gravel**	**27**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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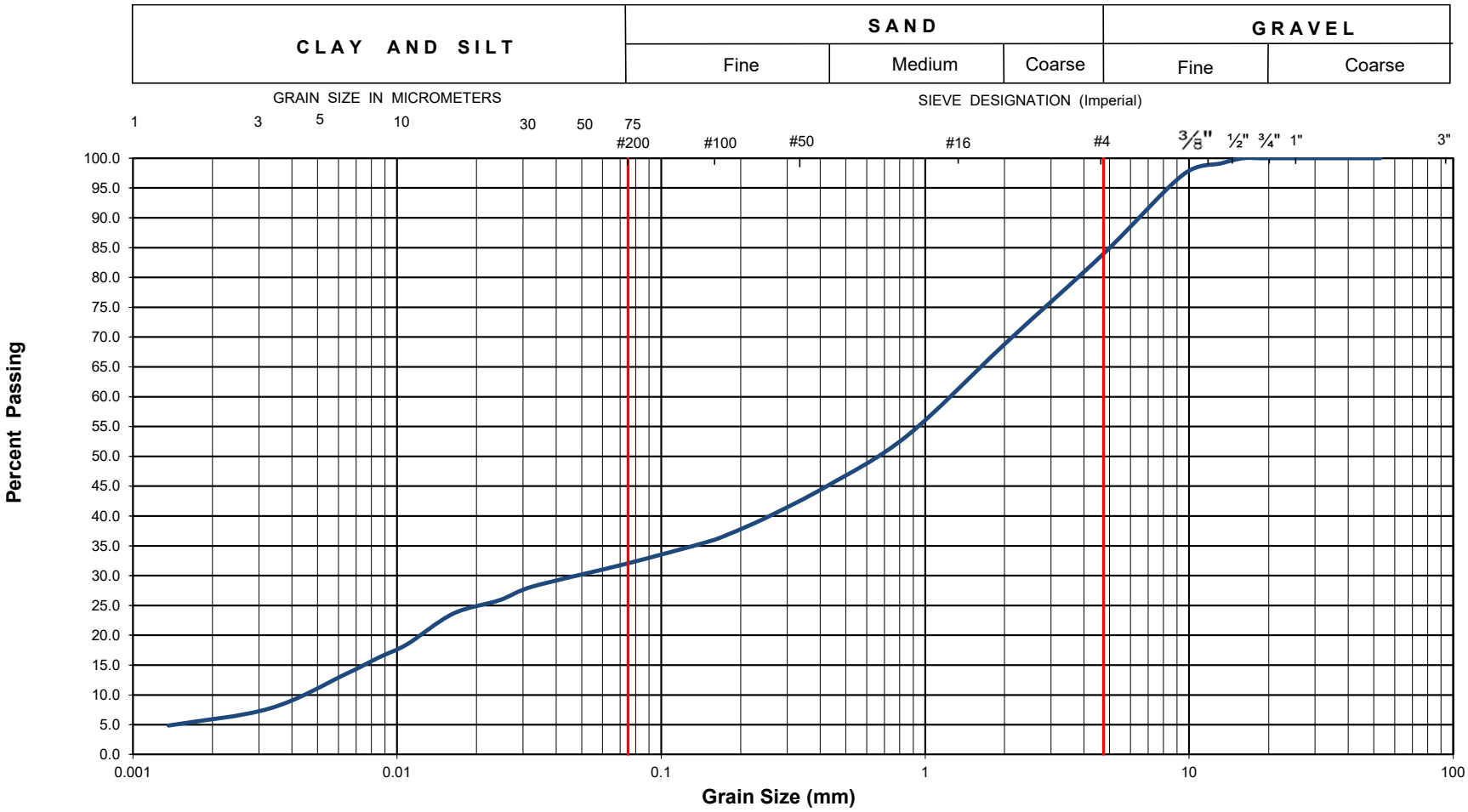
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422

Unified Soil Classification System



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 19, 2022**	**Borehole No:**	**2**		**Sample No.:**	**SS6**		**Depth (m) :**	**3.8-4.4**
Sample Description :		**% Silt and Clay**	**32**	**% Sand**	**52**	**% Gravel**	**16**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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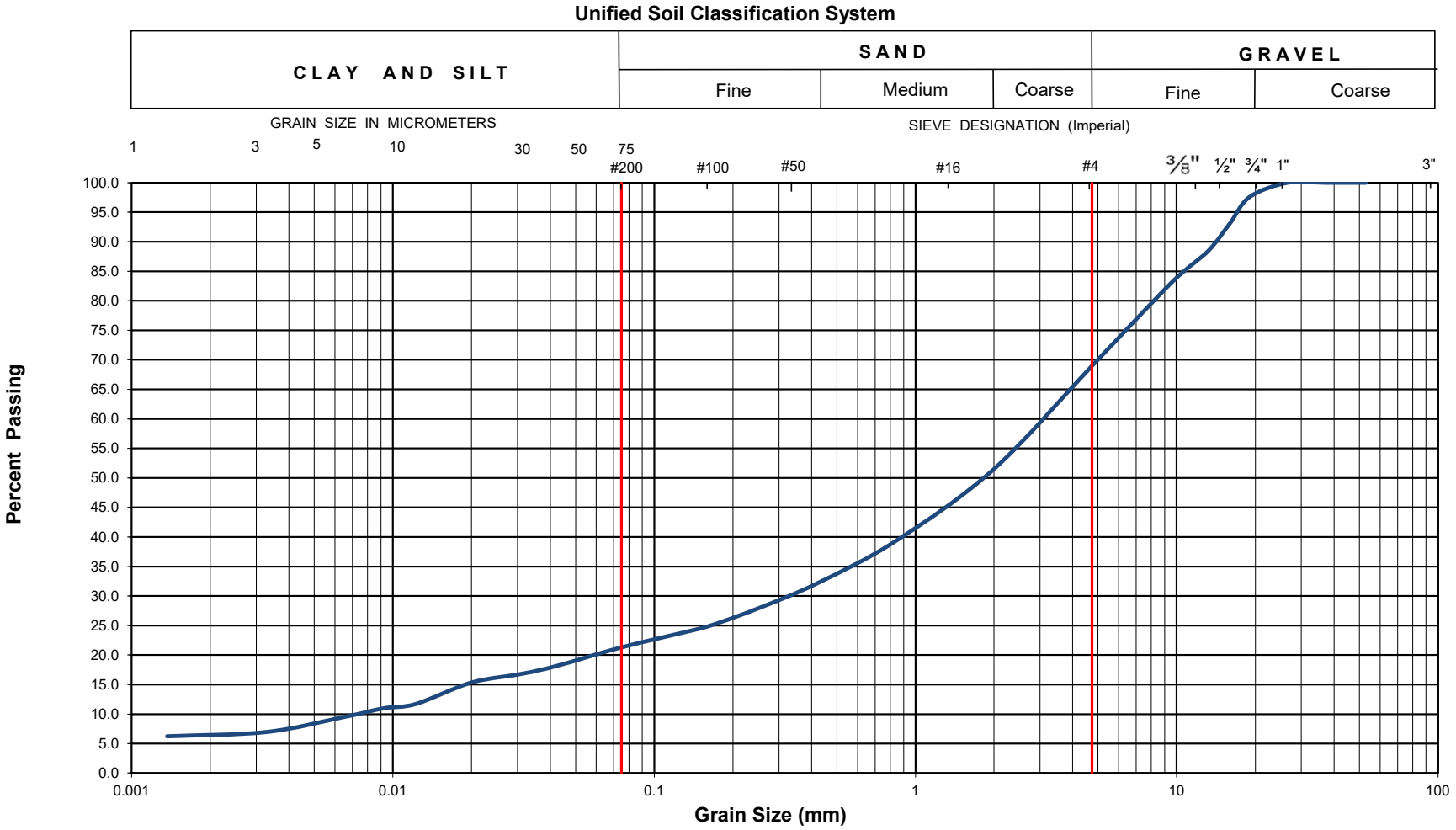
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 19, 2022**	**Borehole No:**	**3**		**Sample No.:**	**SS4**		**Depth (m) :**	**2.3-2.9**
Sample Description :		**% Silt and Clay**	**21**	**% Sand**	**48**	**% Gravel**	**31**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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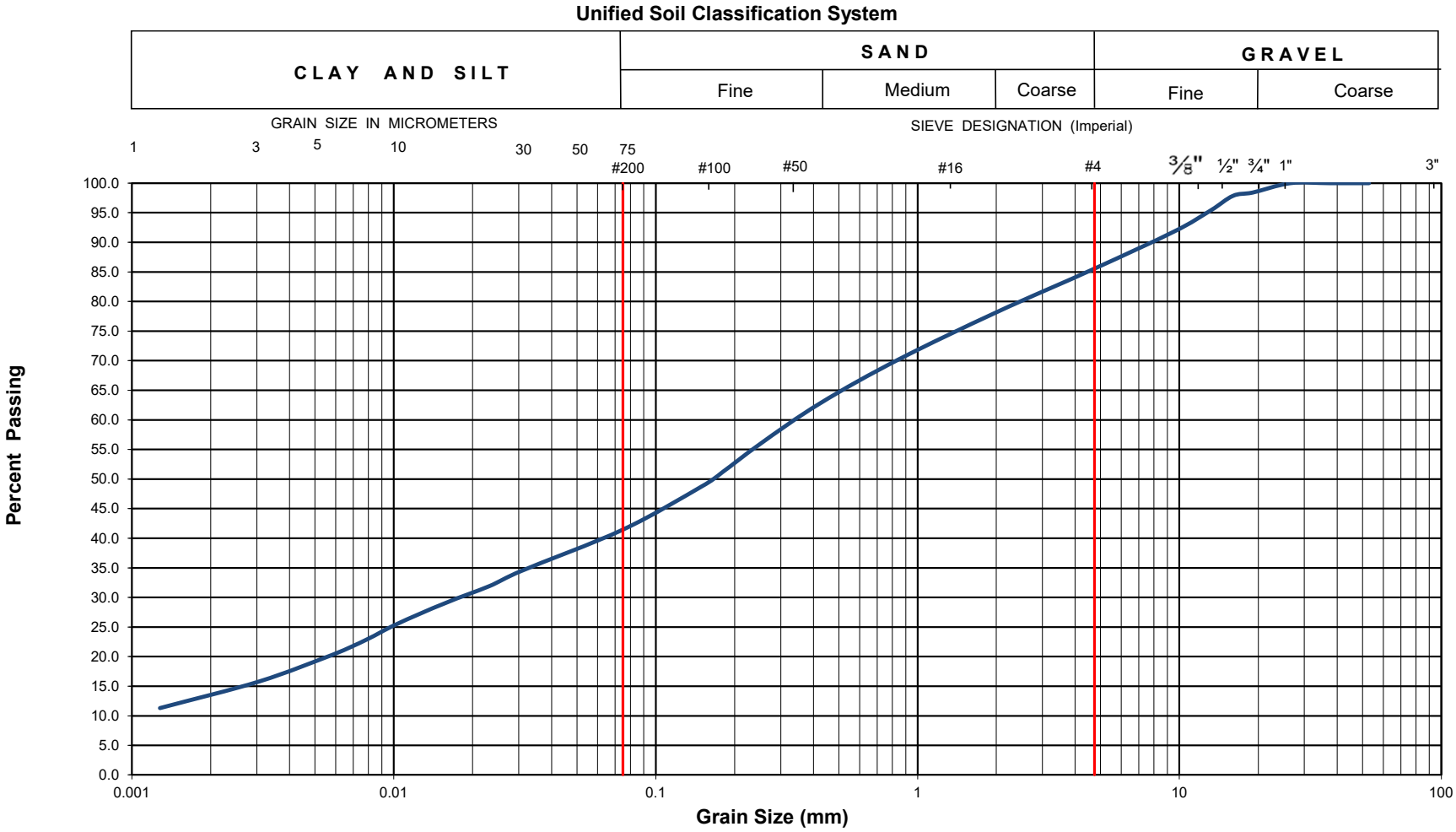
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 20, 2022**	**Borehole No:**	**4**		**Sample No.:**	**SS4**		**Depth (m) :**	**2.3-2.9**
Sample Description :		**% Silt and Clay**	**42**	**% Sand**	**44**	**% Gravel**	**14**	**Figure :**	**0**
Sample Description :		**Silty Sand (SM)**							

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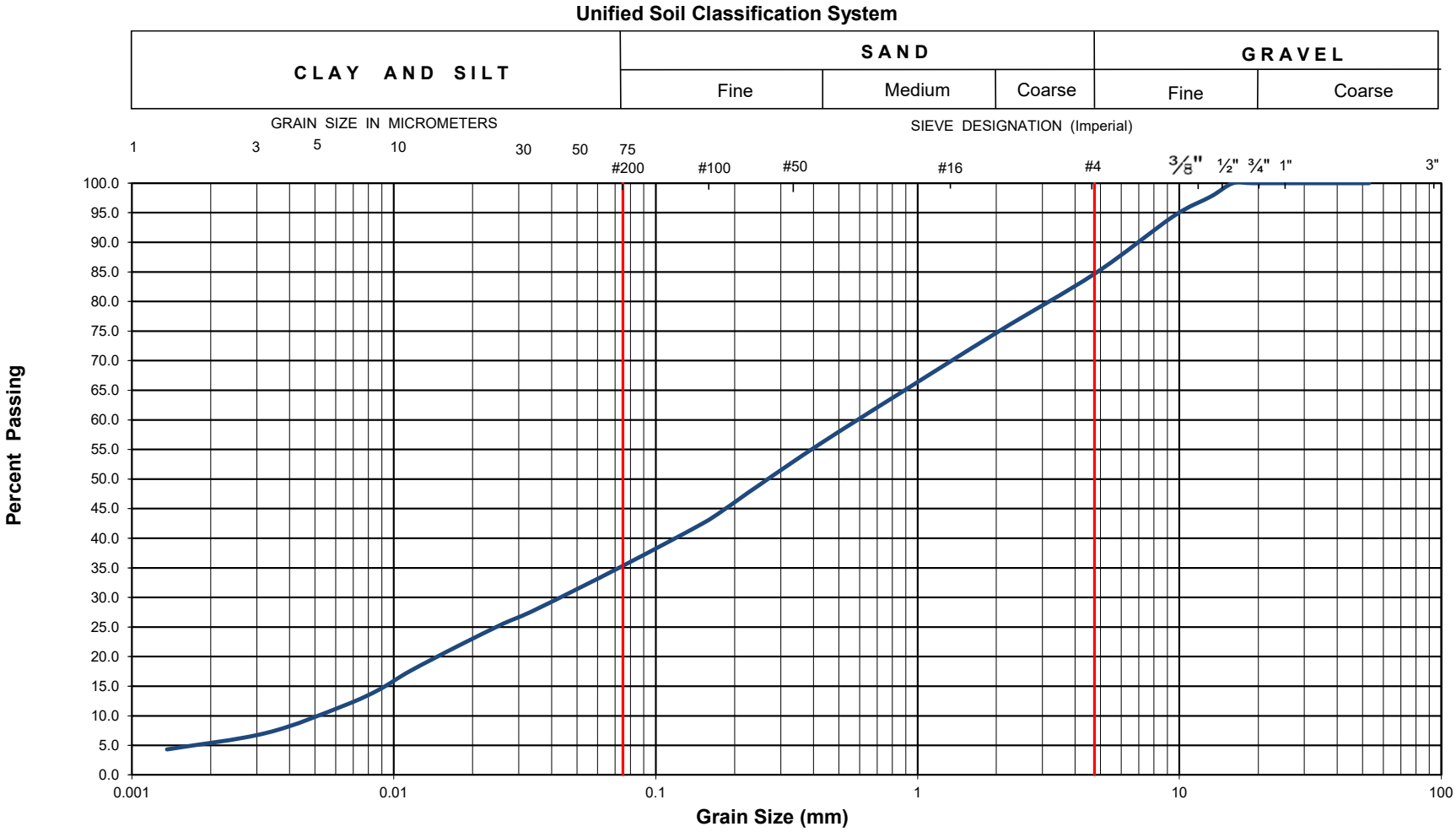
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 19, 2022**	**Borehole No:**	**5**		**Sample No.:**	**SS6**		**Depth (m) :**	**3.8-4.4**
Sample Description :		**% Silt and Clay**	**35**	**% Sand**	**50**	**% Gravel**	**15**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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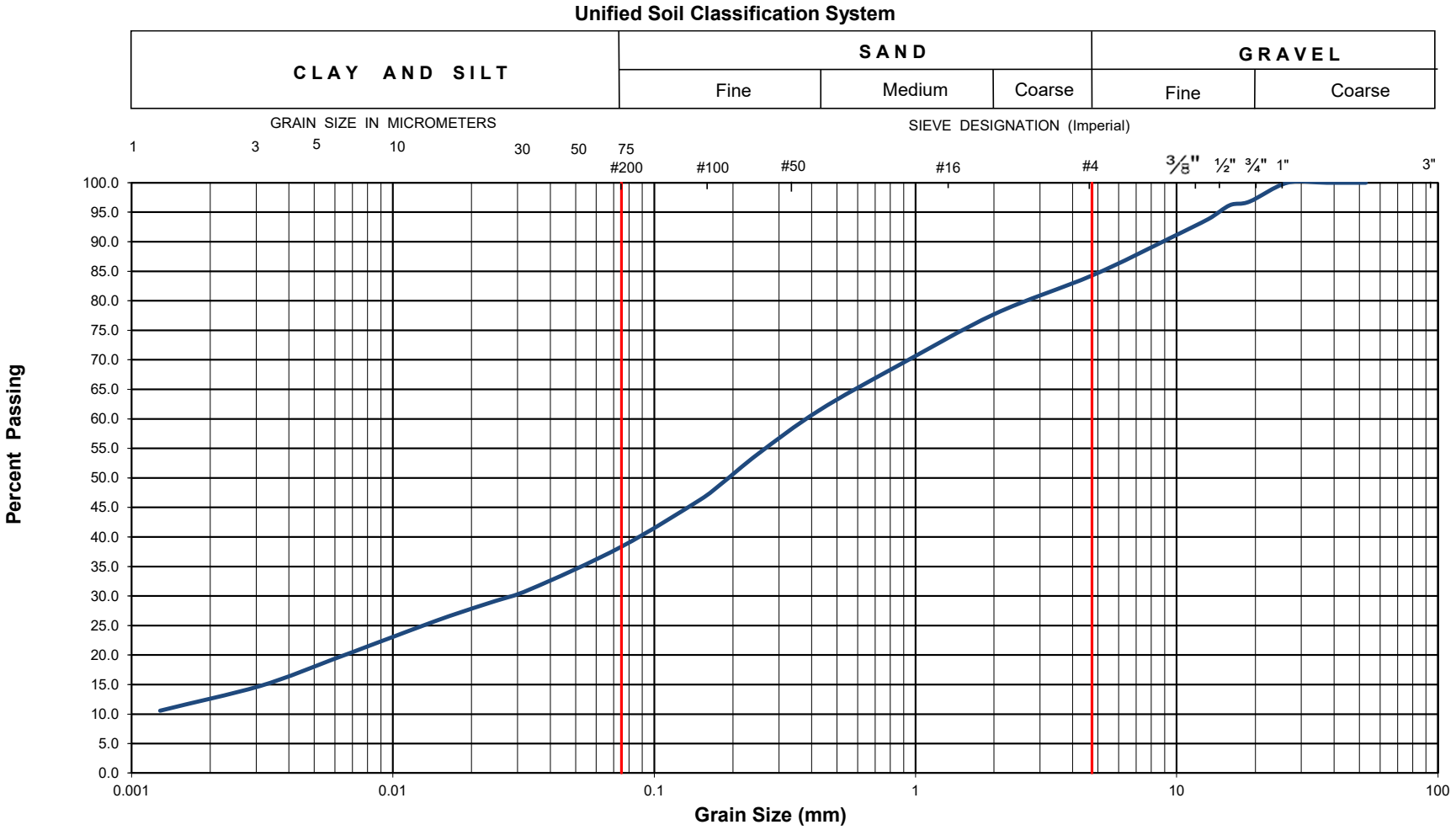
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 19, 2022**	**Borehole No:**	**6**		**Sample No.:**	**SS2**		**Depth (m) :**	**0.8-1.4**
Sample Description :		**% Silt and Clay**	**38**	**% Sand**	**46**	**% Gravel**	**16**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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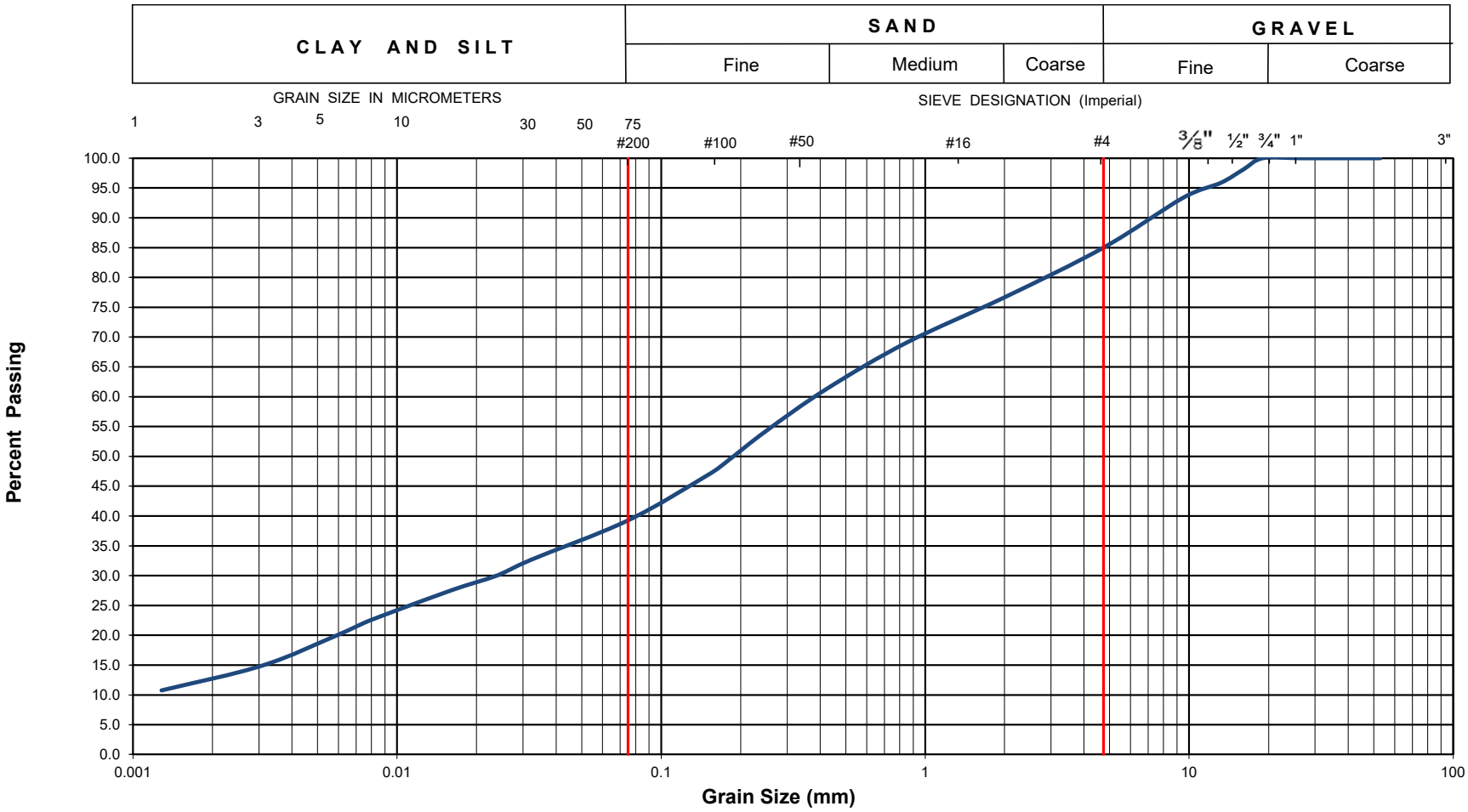
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422

Unified Soil Classification System



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 20, 2022**	**Borehole No:**	**8**		**Sample No.:**	**SS4**		**Depth (m) :**	**2.3-2.9**
Sample Description :		**% Silt and Clay**	**39**	**% Sand**	**46**	**% Gravel**	**15**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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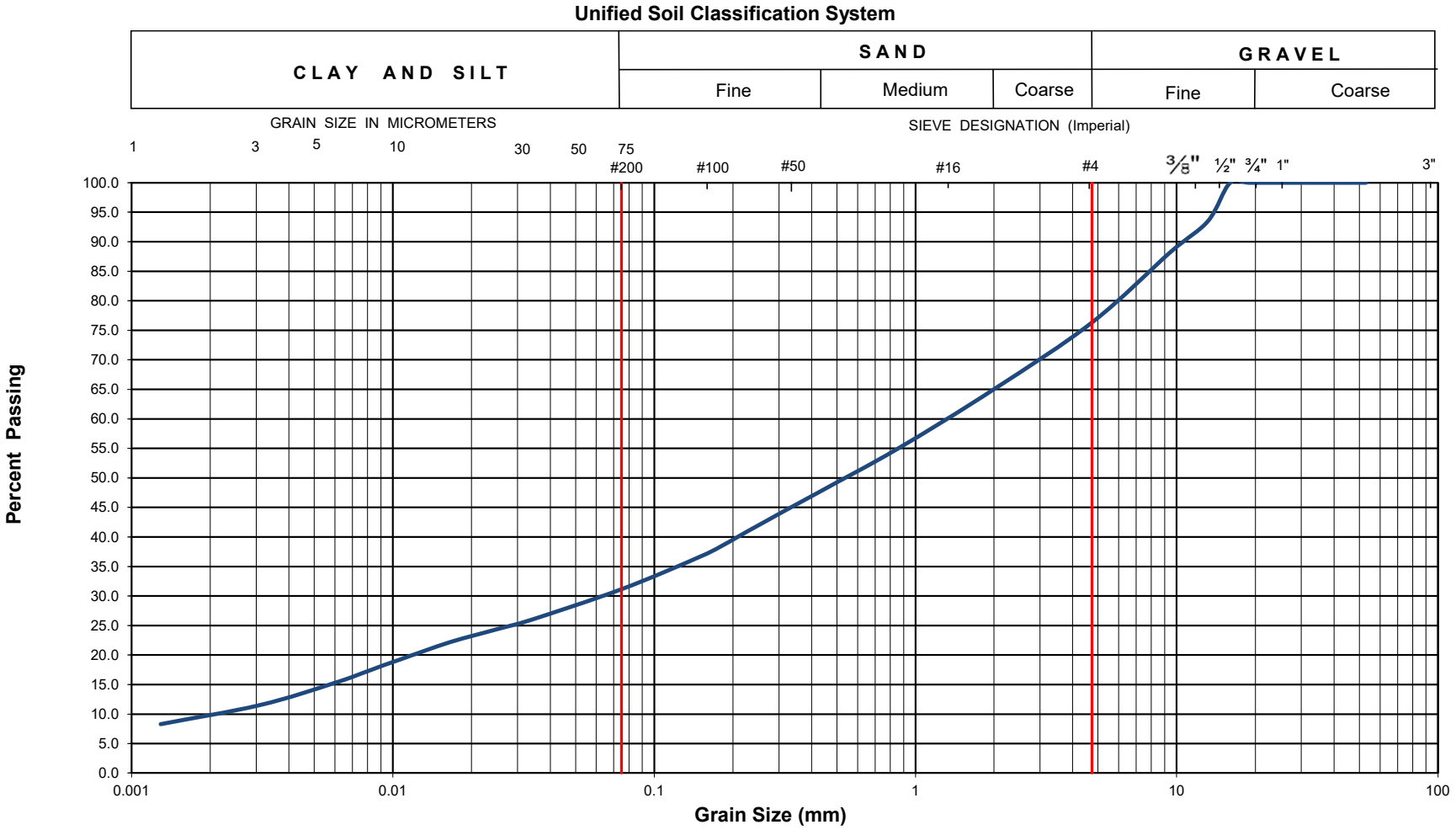
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 19, 2022**	**Borehole No:**	**10**		**Sample No.:**	**SS2**		**Depth (m) :**	**0.8-1.4**
Sample Description :		**% Silt and Clay**	**31**	**% Sand**	**45**	**% Gravel**	**24**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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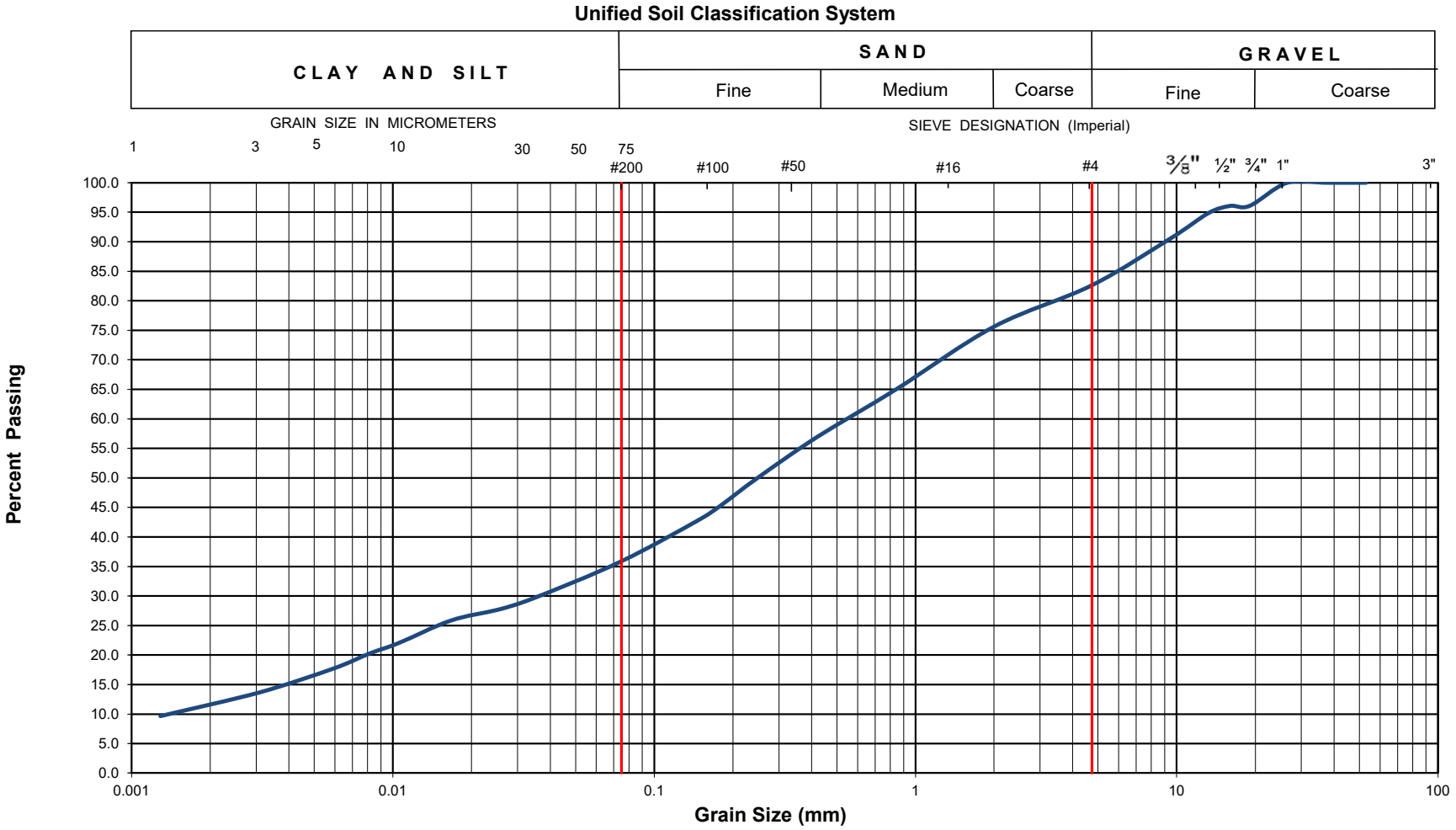
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 22, 2022**	**Borehole No:**	**10**		**Sample No.:**	**SS4**		**Depth (m) :**	**2.3-2.9**
Sample Description :		**% Silt and Clay**	**36**	**% Sand**	**47**	**% Gravel**	**17**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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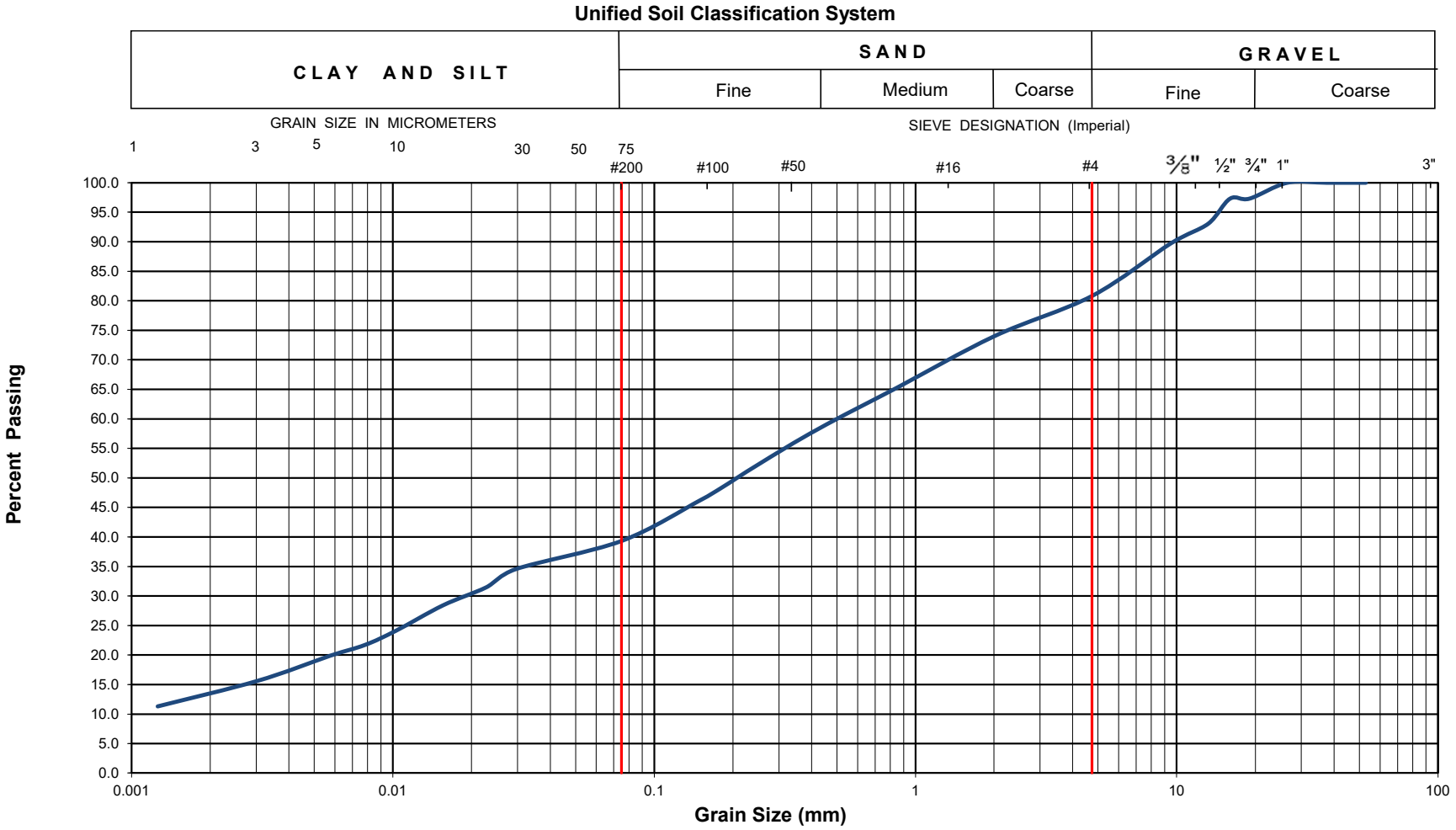
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 21, 2022**	**Borehole No:**	**11**		**Sample No.:**	**SS2**		**Depth (m) :**	**0.8-1.4**
Sample Description :		**% Silt and Clay**	**39**	**% Sand**	**41**	**% Gravel**	**20**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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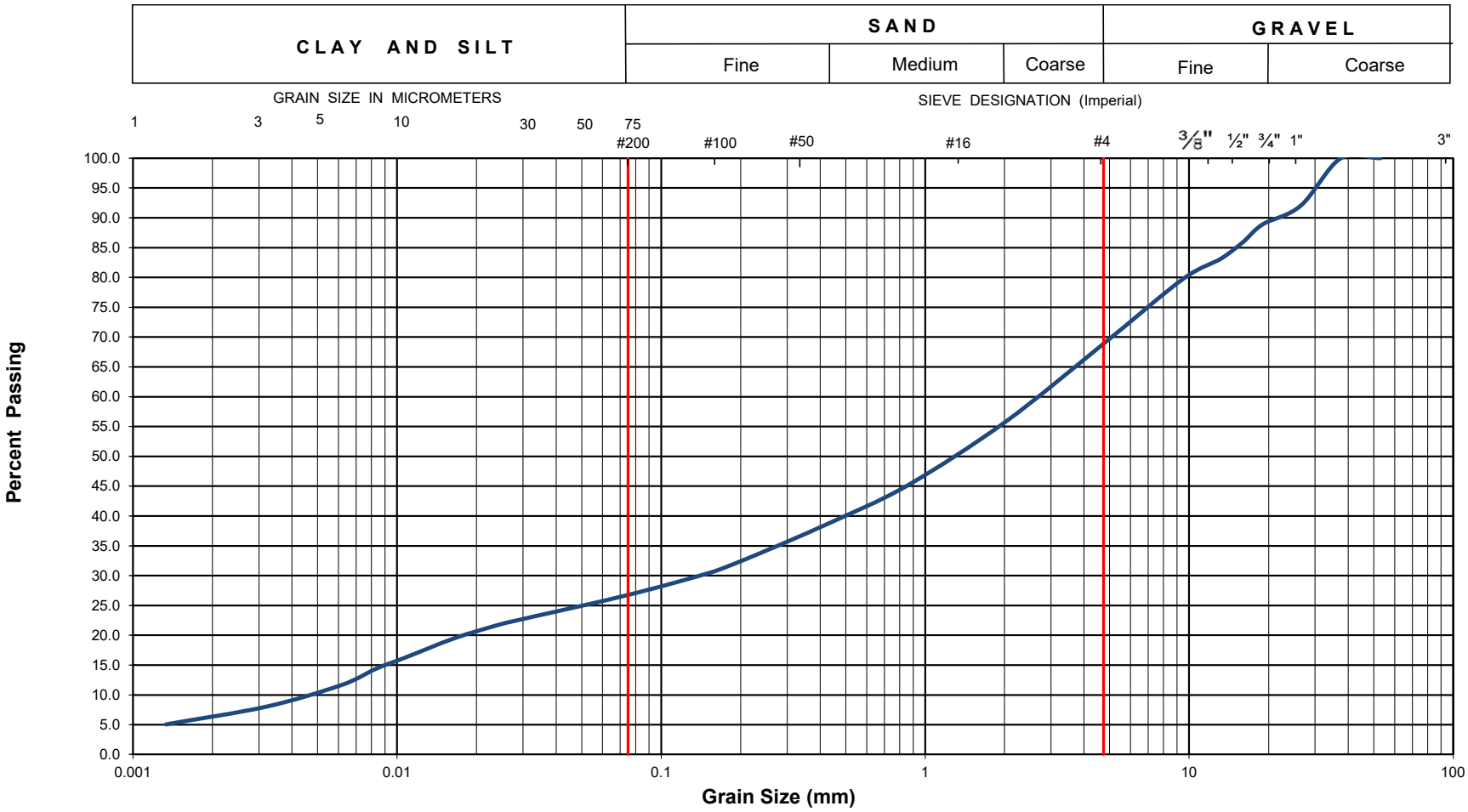
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422

Unified Soil Classification System



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 21, 2022**	**Borehole No:**	**11**		**Sample No.:**	**SS7**		**Depth (m) :**	**4.6-5.2**
Sample Description :		**% Silt and Clay**	**27**	**% Sand**	**42**	**% Gravel**	**31**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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100-2650 Queensview Drive
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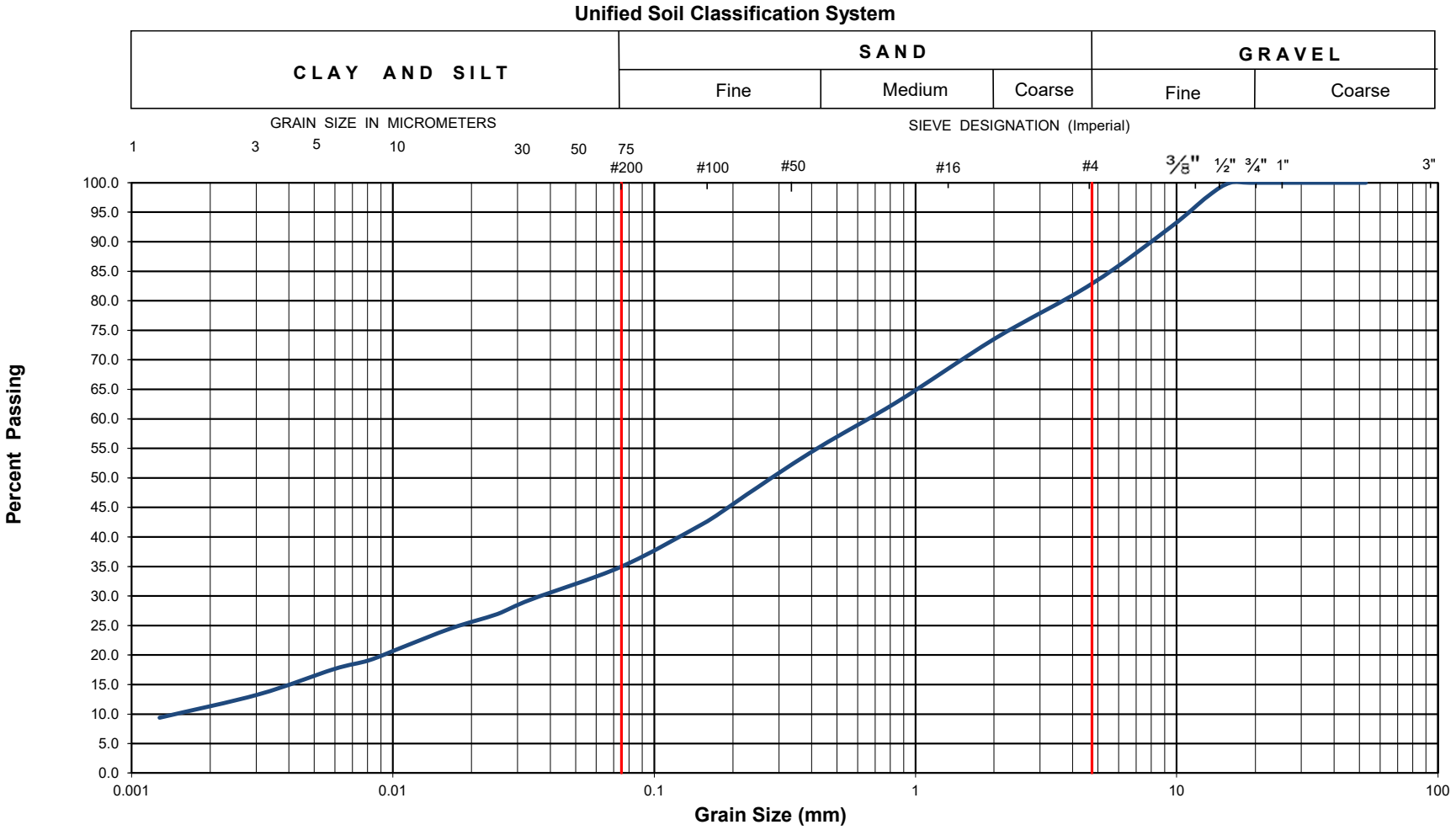
Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 23, 2022**	**Borehole No:**	**12**		**Sample No.:**	**SS3**		**Depth (m) :**	**1.5-2.1**
Sample Description :		**% Silt and Clay**	**35**	**% Sand**	**48**	**% Gravel**	**17**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

EXP Services Inc.
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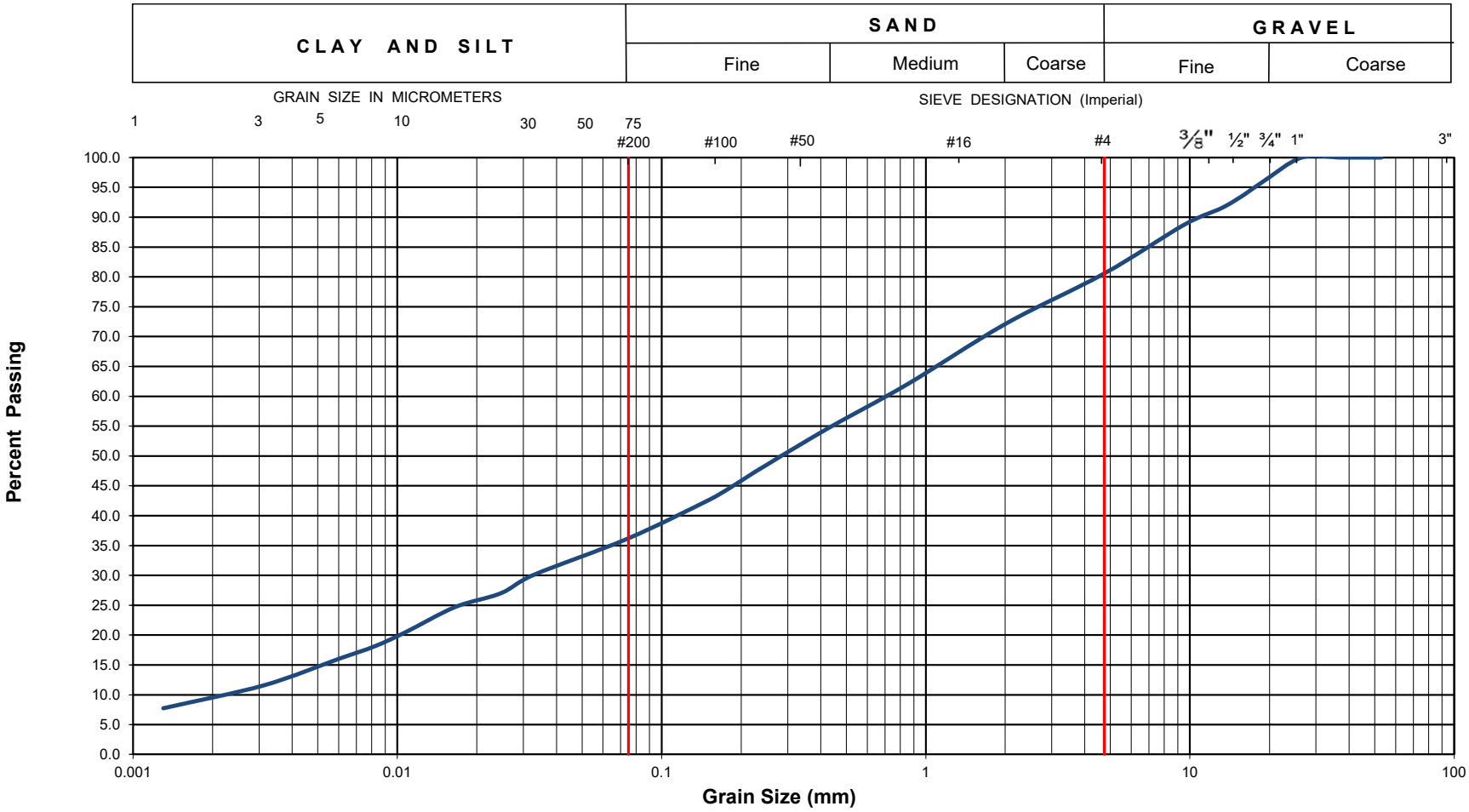
Ottawa, ON K2B 8H6

Grain-Size Distribution Curve
Method of Test For Particle Size Analysis of Soil
ASTM C-136/ASTM D422

Unified Soil Classification System



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 23, 2022**	**Borehole No:**	**12**		**Sample No.:**	**SS6**		**Depth (m) :**	**3.8-4.4**
Sample Description :		**% Silt and Clay**	**36**	**% Sand**	**45**	**% Gravel**	**19**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

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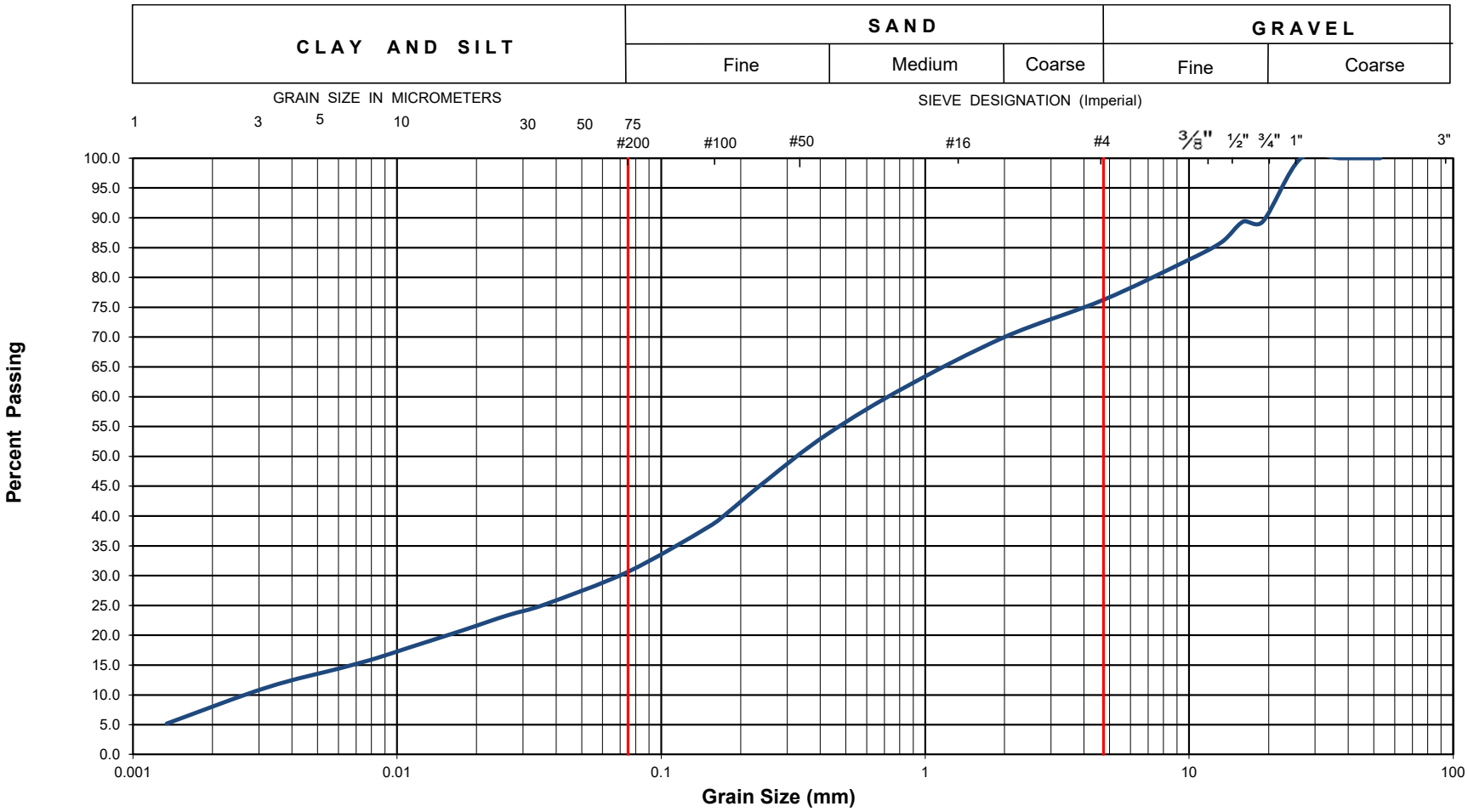
Unified Soil Classification System



EXP Project No.:	**OTT-22007382-A0**	**Project Name :**	**Geotechnical Investigation of Proposed Enclosed OC Transpo Garage**						
Client :	**City of Ottawa**	**Project Location :**	**1500 St Laurent Blvd, Ottawa**						
Date Sampled :	**September 20, 2022**	**Borehole No:**	**14**		**Sample No.:**	**SS3**		**Depth (m) :**	**1.5-2.1**
Sample Description :		**% Silt and Clay**	**31**	**% Sand**	**45**	**% Gravel**	**24**	**Figure :**	**0**
Sample Description :		**Silty Sand with Gravel (SM)**							

Appendix B: Sampling and Analysis Plan

OTT-22007382-A0
1500 St. Laurent Boulevard, Ottawa Ontario

Objectives:

The objective of this project is to assess the soil and groundwater conditions on the site in the areas of potential environmental concern identified in the Phase One ESA completed by EXP.

Drilling:

A total of 14 boreholes will be drilled on the site, five of which will be completed at monitoring wells.

- All monitoring wells to be screened across water table.
- Make sure that no screens straddle bedrock-soil interface. In other words, MW must be installed completely within bedrock or completely within overburden (most, if not all, will be in bedrock).
- As drilling progresses, log each sample, describing soil type, colour, staining, odour, petroleum vapour.

Soil Sampling:

- Submit worst case soil samples based on the following considerations: (1) presence of staining; (2) presence of odours; (3) petroleum vapour concentration. If the worst-case sample cannot be identified based on those factors, submit the sample at water table depth or the sample immediately above bedrock surface.
- Soil samples to be submitted to Caduceon within 48 hours of sample collection for analysis of PHC, VOC, PAH and metals.

Soil cuttings:

- Soil cuttings may be left in drums on site.

Monitor Development:

- Develop wells at least 3 x well volumes or until clear
- Do not purge if monitor contains LNAPL.
- Purged water to be stored in a drum to be collected by a third party

Low Flow Groundwater Sampling

- Monitor all monitoring wells and record petroleum vapours, depth to water, and depth to LNAPL, if any
- Be careful to sample from near top of water table and use low flow rate to avoid collecting any fine sediment
- Prior to sampling, ensure the following field parameters are stable (per the field measurement table): pH, conductivity, turbidity, DO, temperature and ORP
- The groundwater samples will be submitted for analysis of PHC, VOC, PAH and metals.
- EXP will survey ground elevations and top of pipe elevations, as well as UTM coordinates

Appendix C: Borehole Logs

Explanation of Terms Used on Borehole Records

SOIL DESCRIPTION

Terminology describing common soil genesis:

Topsoil: mixture of soil and humus capable of supporting good vegetative growth.

Peat: fibrous fragments of visible and invisible decayed organic matter.

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

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

Terminology describing soil structure:

Desiccated: having visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.

Stratified: alternating layers of varying material or color with the layers greater than 6 mm thick.

Laminated: alternating layers of varying material or color with the layers less than 6 mm thick.

Fissured: material breaks along plane of fracture.

Varved: composed of regular alternating layers of silt and clay.

Slickensided: fracture planes appear polished or glossy, sometimes striated.

Blocky: cohesive soil that can be broken down into small angular lumps which resist further breakdown.

Lensed: inclusion of small pockets of different soil, such as small lenses of sand scattered through a mass of clay; not thickness.

Seam: a thin, confined layer of soil having different particle size, texture, or color from materials above and below.

Homogeneous: same color and appearance throughout.

Well Graded: having wide range in grain sized and substantial amounts of all predominantly on grain size.

Uniformly Graded: predominantly on grain size.

All soil sample descriptions included in this report follow the ASTM D2487-11 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System). The system divides soils into three major categories: (1) coarse grained, (2) fine-grained, and (3) highly organic. The soil is then subdivided based on either gradation or plasticity characteristics. The system provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification. The classification excludes particles larger than 76 mm. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually in accordance with ASTM D2488-09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems. Others may use different classification systems; one such system is the ISSMFE Soil Classification.

ISSMFE SOIL CLASSIFICATION

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

0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60	200

EQUIVALENT GRAIN DIAMETER IN MILLIMETRES

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

UNIFIED SOIL CLASSIFICATION

Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter, construction debris) is based upon the proportion of these materials present and as described below in accordance with Note 16 in ASTM D2488-09a:

Table a: Percent or Proportion of Soil, Pp

	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5≤Pp≤10%
Little	15≤Pp≤25%
Some	30≤Pp≤45%
Mostly	50≤Pp≤100%

The standard terminology to describe cohesionless soils includes the compactness as determined by the Standard Penetration Test 'N' value:

Table b: Apparent Density of Cohesionless Soil

	'N' Value (blows/0.3 m)
Very Loose	N<5
Loose	5≤N<10
Compact	10≤N<30
Dense	30≤N<50
Very Dense	50≤N

The standard terminology to describe cohesive soils includes consistency, which is based on undrained shear strength as measured by insitu vane tests, penetrometer tests, unconfined compression tests or similar field and laboratory analysis, Standard Penetration Test 'N' values can also be used to provide an approximate indication of the consistency and shear strength of fine grained, cohesive soils:

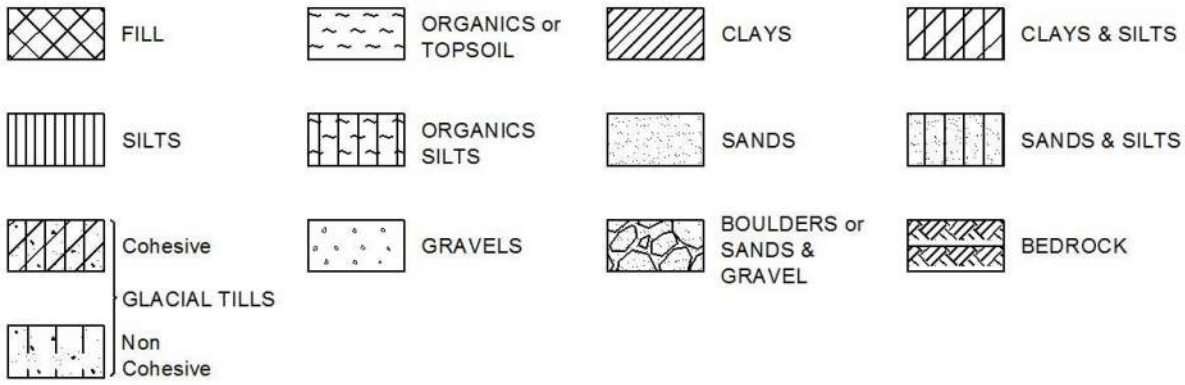
Table c: Consistency of Cohesive Soil

Consistency	Vane Shear Measurement (kPa)	'N' Value
Very Soft	<12.5	<2
Soft	12.5-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

Note: 'N' Value - The Standard Penetration Test records the number of blows of a 140 pound (64kg) hammer falling 30 inches (760mm), required to drive a 2 inch (50.8mm) O.D. split spoon sampler 1 foot (305mm). For split spoon samples where full penetration is not achieved, the number of blows is reported over the sampler penetration in meters (e.g. 50/0.15).

STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols:



WATER LEVEL MEASUREMENT

Log of Borehole BH-10

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Sept 22, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 3

Page. 1 of 1

Split Spoon Sample ☒ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○⊣ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~125 mm thick	69.95	0				
		GRANULAR FILL Sand and gravel, light brown, damp, (dense)	69.8					
			69.2					
		FILL Silty sand with gravel, clayey, possible cobbles and boulders, brown to black, damp to wet (compact to loose), slight organic odours		1				
			67.95	2				
		GLACIAL TILL Silty sand with gravel, clayey, cobbles and boulders, grey, moist (dense), no odours or stains	67.7					
			65.8	4				
		SHALE BEDROCK Dark grey, fair quality.		5				
			61.3	8				
		Borehole Terminated at 8.7 m Depth						

Standard Penetration Test N Value: 20 40 60 80; Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750; Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES: GS1, SS1, SS2, SS3, SS4 23.4, SS5 23.3, SS6, RUN1, RUN2, RUN3

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 50 mm monitoring well installed upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
53 days	2.0	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	4.17 - 5.69	98	53
2	5.69 - 7.16	100	53
3	7.16 - 8.66	100	74

Log of Borehole BH-11

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Sept 22, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 4

Page. 1 of 1

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits —○—
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~150 mm thick	69.61	0				
		GRANULAR FILL	69.5					
		Sand and gravel, light brown, damp, (dense)	69.0					
		FILL						
		Clayey silty sand with gravel, some rootlets and organics, slight organic odour, dark brown to black, moist to wet (compact to loose)		1				
▼			67.61	2				
				3				
		GLACIAL TILL	66.2					
		Silty sand with gravel, cobbles and boulders, grey, moist (dense), no odours or stains		4				
			64.4	5				
		SHALE BEDROCK						
		Dark grey, fair to excellent quality.		6				
				7				
				8				
			60.9					
		Borehole Terminated at 8.7 m Depth						

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES	Natural Unit Wt. kN/m³
GS1	
SS1	
SS2	
SS3	
SS4	
SS5	24.2
SS6	24.2
SS7	
RUN1	
RUN2	
RUN3	

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	2.0	4.0

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	5.2 - 5.64	100	71
2	5.64 - 7.19	100	71
3	7.19 - 8.69	100	91

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

Log of Borehole BH-12

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Sept 23, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 5

Page. 1 of 1

Split Spoon Sample ☒ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits —○— | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~150 mm thick	70.03	0				
		GRANULAR FILL Sand and gravel, light brown, damp, (very dense), no odours or stains	69.9					
		FILL Clayey, silty sand with gravel, slight organic odours, dark brown to black, moist to wet (compact to very loose), no odours or stains	69.4	1	58	15, 10	GS1, SS1	
▼					11	5	SS2	
			68.53	2	9	10	SS3	23.1
					3	10	SS4	
		GLACIAL TILL Clayey silty sand with gravel, cobbles and boulders, grey, moist (compact to very dense), no odours or stains	66.9	3	21	0	SS5	23.0
				4	29	0	SS6	
					50/25mm	0	SS7	
			64.6	5			RUN1	
		SHALE BEDROCK Dark grey, fair to good quality.		6			RUN2	
				7				
				8			RUN3	
			61.3					
		Borehole Terminated at 8.7 m Depth						

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	1.5	4.0

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	5.36 - 5.64	86	66
2	5.64 - 7.16	97	72
3	7.16 - 8.69	96	85

Log of Borehole BH-13

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Sept 22, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 6

Page. 1 of 1

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits —○—
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~175 mm thick	69.99	0			GS1	
		GRANULAR FILL	69.8					
		Sand and gravel, light brown, damp, (very dense), no odours or stains	69.4		60	0, 0	SS1	
		FILL		1	46	0	SS2	
		Clayey silty sand with gravel, organics and decayed wood pieces, dark brown to black, moist (very dense to very loose), no odours or stains		2	13	0	SS3	
					3	0	SS4	
			67.19	3				
			66.5		4	0	SS5	20.0
		GLACIAL TILL		4				
		Silty sand with gravel, cobbles and boulders, grey, moist (loose to very dense), no odours or stains			7	0	SS6	
			65.3		50/130mm	0	SS7	
		SHALE BEDROCK		5			RUN1	
		Dark grey, very poor to excellent quality.		6				
							RUN2	
				7				
				8			RUN3	
			61.3					
		Borehole Terminated at 8.7 m Depth						

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 50 mm monitoring well installed upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
53 days	2.8	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	4.73 - 5.69	95	24
2	5.69 - 7.14	99	74
3	7.14 - 8.69	100	93

Log of Borehole BH-14

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Sept 20, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 7

Page. 1 of 1

Split Spoon Sample ☒ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○⊣ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~150 mm thick	69.71	0				
		GRANULAR FILL	69.6					
		Sand and gravel, light brown, damp, (very dense), no odours or stains	69.1		39	0	GS1	
		FILL				0	SS1	
		Silty sand with gravel, trace clay, some asphalt pieces, dark brown to black, moist to wet (compact to loose), no odours or stains		1	18	0	SS2	
					13	0	SS3	23.3
				2				
					5	0	SS4	
▼			66.71	3				
					8	0	SS5	
			65.9					
		GLACIAL TILL		4	7	0	SS6	
		Silty sand with gravel, cobbles and boulders, grey, moist (loose to very dense), no odours or stains			52	0	SS7	
			64.6	5				
		Auger Refusal met at 5.1 m Depth, Borehole Terminated						

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
Upon Completion	3.1	4.3

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole BH-15

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Nov. 15, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 8

Page. 1 of 1

Split Spoon Sample ☒ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value (20 40 60 80) / Shear Strength kPa (50 100 150 200)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (20 40 60)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~130 mm thick	69.23	0			GS1	
		GRANULAR FILL Sand and gravel, light brown, damp, (very dense), no odours or stains	69.1		64	0	SS1	
		FILL Silty sand with gravel, trace clay, dark brown to black, moist to wet (compact to loose), no odours or stains	68.3	1	79	0	SS2	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, moist (loose to very dense), no odours or stains	67.7			10		
						100	SS3	
				2	36	10	SS4	
				3	26	10	SS5	
				4	21	10	SS6	
					90	760	SS7	
			63.9	5		100	SS8	
		Auger Refusal met at 5.3 m Depth, Borehole Terminated				0		

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
1 day	2.0	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole BH-16

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Nov. 17, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 9

Page. 1 of 1

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits —○—
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~130 mm thick	69.6	0			GS1	
		GRANULAR FILL Sand and gravel, light brown, damp, (very dense), no odours or stains	69.5		35	15, 0	SS1	
			68.4 (68.3)	1	22	0	SS2	
		TOPSOIL Silt and sand, dark brown, damp, loose, no odours or stains	68.1		9	0	SS3	
		FILL Silty sand with topsoil, trace clay, greenish grey, moist (loose), no odours or stains	67.3	2	20	0	SS4	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, dark brown, moist (compact to very dense), no odours or stains		3	46	0	SS5	
			65.8					
		Auger Refusal met at 3.8 m Depth, Borehole Terminated						

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
1 day	1.3	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole BH-17

Project No: OTT-22007382-A0

Project: OC Transpo Proposed Hydro Substation

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Date Drilled: 'Nov. 17, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Figure No. 10

Page. 1 of 1

Split Spoon Sample ☒ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits —○— | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL Sand and gravel, light brown, moist, (very dense), no odours or stains	69.99	0	30	10	SS1	
			69.2					
		FILL Silty sand with gravel, trace clay, dark brown to black, moist to wet (compact to loose), no odours or stains		1	10	10	SS2	
				2	4	10	SS3	
				3	5	0	SS4	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, moist (loose to very dense), no odours or stains	67.0		11	0	SS5	
				4	12	10	SS6	
			65.6					
		Auger Refusal met at 4.4 m Depth, Borehole Terminated						

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS (HYDRO SUBSTATION).GPJ TROW OTTAWA.GDT 12/7/22

Log of Borehole BH-01

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 3

Page. 1 of 1

Date Drilled: 'Sept 20, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~150 mm thick	70.09	0			GS1	
		GRANULAR FILL Sand and gravel, light brown, damp (dense)	69.9		39		SS1	
		FILL Clayey silty sand with gravel, some clay, brown to black and grey, moist (loose), no odours or stains	69.3	1	8		SS2	23.0
				2	9		SS3	
		GLACIAL TILL Silty sand with gravel, some clay, possible cobbles and boulders, brown, moist to wet (compact), no odours or stains	67.8		11		SS4	24.2
				3	19		SS5	
					50/ 135 mm refusal		SS6	
		Auger Refusal met at 4.0 m Depth	66.1	4				

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 50 mm monitoring well installed upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	no cave

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole BH-02

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 4

Page. 1 of 1

Date Drilled: 'Sept 19, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○—|
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~175 mm thick	70.01	0			GS1	
		GRANULAR FILL	69.8					
		Sand and gravel, light brown, damp (dense)	69.4		49		SS1	
		GLACIAL TILL		1	17		SS2	
		Clayey silty sand with gravel, possible cobbles and boulders, dark brown to black, moist to wet (compact), no odours or stains		2	10		SS3	24.5
					11		SS4	
			67.0	3	11, 40, 50 / 75 mm refusal		SS5	24.0
		GLACIAL TILL						
		Silty sand with gravel, possible cobbles and boulders, grey, moist (very dense), no odours or stains		4	20, 50 / 125 mm refusal		SS6	
			65.8					
		SHALE		5			Run 1	
		Dark grey to black		6				
				7			Run 2	
				8			Run 3	
			61.3					
		Borehole Terminated at 8.7 m Depth						

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 19 mm standpipe installed upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	3.4

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	4.2 - 5.7	98	60
2	5.7 - 7.2	99	99
3	7.2 - 8.7	98	98

Log of Borehole BH-03

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 5

Page. 1 of 1

Date Drilled: 'Sept 19, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○⊣ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~175 mm thick	69.72	0				
		GRANULAR FILL	69.5					
		Sand and gravel, light brown, damp (dense)	69.0		36	×	GS1	
		GLACIAL TILL				×	SS1	
		Clayey silty sand with gravel, cobbles and boulders, dark brown black, moist (compact), no odours or stains		1	9	×	SS2	
					10	×	SS3	
			67.4	2				
		GLACIAL TILL			48	×	SS4	
		Silty sand with gravel, trace clay, cobbles and boulders, grey, moist (dense to very dense), no odours or stains		3	50 / 135 mm refusal	×	SS5	
			66.1					
		Auger Refusal met at 3.6 m Depth						

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 50 mm monitoring well installed upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	no cave

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

Log of Borehole BH-04

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 6

Page. 1 of 1

Date Drilled: 'Sept 20, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~150 mm thick	69.87	0				
		GRANULAR FILL	69.7					
		Sand and gravel, light brown, damp (dense)	69.1		39	×	GS1	
		GLACIAL TILL				×	SS1	
		Clayey silty sand with gravel, cobbles and boulders, dark brown black, moist to wet (loose to compact), no odours or stains		1	10	×	SS2	24.5
				2	7	×	SS3	
					8	×	SS4	23.4
				3	20	×	SS5	
			66.1					
		SAND		4	12, 14, 14/2" bouncing refusal	×	SS6	
		Sand, black, wet (compact), no odours or stains	65.8					
		Auger Refusal met at 4.1 m Depth						

Standard Penetration Test N Value: 20 40 60 80

Shear Strength kPa: 50 100 150 200

Combustible Vapour Reading (ppm): 250 500 750

Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	2.1	3.0

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

Log of Borehole BH-05

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 7

Page. 1 of 1

Date Drilled: 'Sept 19, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~15 mm thick	70.25	0				
		GRANULAR FILL	70.1					
		Sand and gravel, brown, damp (dense)	69.8		50	×	GS1	
		GLACIAL TILL				×	SS1	
		Silty sand with gravel, trace clay, cobbles and boulders, dark brown to black, moist to wet (compact), no odours or stains		1	22	×	SS2	
					11	×	SS3	
				2				
					17	×	SS4	24.0
				3	14	×	SS5	
		GLACIAL TILL	66.9					
		Silty sand with gravel, cobbles and boulders, grey, moist (very dense), no odours or stains			53	×	SS6	
			66.1	4				
		Auger Refusal met at 4.2 m Depth						

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	2.7

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

Log of Borehole BH-06

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 8

Page. 1 of 1

Date Drilled: 'Sept 19, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~175 mm thick	69.8	0				
		GRANULAR FILL	69.6					
		Sand and gravel, brown, damp, dense	69.3		36	×	GS1	
		GLACIAL TILL				×	SS1	
		Clayey silty sand with gravel, cobbles and boulders, dark brown to black, moist to wet (compact to dense), no odours or stains		1	19	×	SS2	24.0
					10	×	SS3	
				2	50 / 125 mm refusal	×	SS4	
			67.4					
		Auger Refusal met at 2.4 m Depth						

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	no cave

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

Log of Borehole BH-07

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 9

Page. 1 of 1

Date Drilled: 'Sept 20, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits |—○—| | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth
		ASPHALT ~150 mm thick	69.72	0
		GRANULAR FILL Sand and gravel, light brown, damp (dense)	69.6	
		FILL Silty sand with gravel, some clay, dark brown to black, moist (Compact), no odours or stains	69.1	
		GLACIAL TILL Silty sand with gravel, some clay, possible cobbles and boulders, brown, moist to wet (compact), no odours or stains	68.6	1
				2
				3
			65.9	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, moist (very dense), no odours or stains	65.6	4
		SHALE Dark grey to black		5
				6
				7
			61.2	8
		Borehole Terminated at 8.5 m Depth		

Standard Penetration Test N Value: 20 40 60 80

Shear Strength kPa: 50 100 150 200

Combustible Vapour Reading (ppm): 250 500 750

Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES	Natural Unit Wt. kN/m³	Standard Penetration Test N Value
GS1		
SS1		41
SS2		13
SS3		11
SS4		12
SS5		21
SS6		15, then 50 / 150 mm refusal
Run 1		
Run 2		
Run 3		

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	3.5

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	4.1 - 5.6	85	55
2	5.6 - 7.1	99	86
3	7.1 - 8.5	98	77

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

Log of Borehole BH-08

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 10

Page. 1 of 1

Date Drilled: 'Sept 20, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits |—○—| | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~175 mm thick	70.32	0				
		GRANULAR FILL	70.1					
		Sand and gravel, light brown, damp, dense	69.6		61	×	GS1	
		GLACIAL TILL				×	SS1	
		Clayey silty sand with gravel, possible cobbles and boulders, brown to black, damp to wet (loose to dense), no odours or stains		1	38	×	SS2	
					15	×	SS3	24.0
				2				
					7	×	SS4	
				3	8	×	SS5	
			66.5					
		GLACIAL TILL		4	49	×	SS6	
		Silty sand with gravel, cobbles and boulders, grey, moist (very dense), no odours or stains	65.9					
		Auger Refusal met at 4.4 m Depth						

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 50 mm monitoring well installed upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	no cave

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

Log of Borehole BH-09

Project No: OTT-22007382-A0

Project: Eastern Ontario Campus

Location: 1500 Saint Laurent Blvd., Ottawa, Ontario

Figure No. 11

Page. 1 of 1

Date Drilled: 'Sept 20, 2022

Drill Type: CME-55 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~150 mm thick	69.69	0				
		GRANULAR FILL Sand and gravel, light brown, damp, (dense)	69.5		32	0	GS1	
			68.9			0	SS1	
		GLACIAL TILL Silty sand with gravel and some clay, possible cobbles and boulders, brown to black, damp to wet (compact), no odours or stains	68.2	1	17	0	SS2	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, wet (very dense to compact), no odours or stains		2	55	0	SS3	
					19	0	SS4	23.3
			66.9	3			RUN1	
		SHALE BEDROCK Dark grey, fair to good quality.		4				
				5			RUN2	
				6				
							RUN3	
			62.6	7				
		Borehole Terminated at 7.1 m Depth						

LOG OF BOREHOLE OTT-22007382 - 1500 SAINT LAURENT BH LOGS.GPJ TROW OTTAWA.GDT 11/10/22

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22007382-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Upon Completion	dry	2.4

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	2.84 - 4.14	98	68
2	4.14 - 5.66	99	82
3	5.66 - 7.11	100	79

Appendix D: Analytical Summary Tables

Table 1 - Analytical Results in Soil - PHC and VOC
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Sample ID	UNITS	Provincial MECP Table 3 Commercial [1]	Samples																	
		Orange	BH1-SS3	BH2-SS2	BH3-SS2	BH4-SS3	BH5 SS-2	BH7-SS3	DUP (Duplicate BH7-SS3)	BH8-SS2	BH9-SS2	BH10-SS2	BH11-SS4	BH12-SS2	BH13-SS3	BH14-SS4	BH15-SS7	BH16-SS3	BH17-SS3	DUP (Duplicate BH17-SS3)
Sampling Date			20-Sep-22	19-Sep-22	19-Sep-22	20-Sep-22	19-Sep-22	20-Sep-22	20-Sep-22	20-Sep-22	20-Sep-22	22-Sep-22	20-Sep-22	22-Sep-22	22-Sep-22	20-Sep-22	15-Nov-22	17-Nov-22	17-Nov-22	17-Nov-22
Sample Depth (mbgs)			1.5 to 2.1	0.8 to 1.4	0.8 to 1.4	1.5 to 2.1	0.8 to 1.4	1.5 to 2.1	1.5 to 2.1	0.8 to 1.4	0.8 to 1.4	0.8 to 1.4	2.3 to 2.9	0.8 to 1.4	1.5 to 2.1	2.3 to 2.9	4.56 to 5.18	1.5 to 2.1	1.5 to 2.1	1.5 to 2.1
Petroleum Hydrocarbons																				
F1 PHC (C6-C10)	µg/g	65	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	8	<7	<7	<7	<7	<7	<7
F2 PHC (C10-C16)	µg/g	250	41	10	50	47	36	27	29	<4	<4	23	<4	13	<4	13	41	<4	<4	5
F3 PHC (C16-C34)	µg/g	2500	39	23	78	37	94	23	24	26	10	27	<8	31	27	110	59	36	66	54
F4 PHC (C34-C50)	µg/g	6600	<6	17	35	<6	7	<6	<6	40	28	10	<6	37	27	137	20	27	48	51
F4 PHC (C34-C50) - Gravimetric	µg/g	6600	-	-	-	-	-	-	-	-	-	-	-	-	-	360	-	-	-	-
Volatile Organic Compounds																				
Acetone	µg/g	28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	µg/g	0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	µg/g	18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	1.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	2.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	µg/g	13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	µg/g	8.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	µg/g	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	µg/g	0.84	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	µg/g	21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	µg/g	0.48	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cis-1,2-Dichloroethylene	µg/g	37	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans-1,2-Dichloroethylene	µg/g	9.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	µg/g	0.68	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cis-1,3-Dichloropropylene	µg/g	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans-1,3-Dichloropropylene	µg/g	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropylene, Total	µg/g	0.21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane(n)	µg/g	88	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	µg/g	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Ethyl Ketone	µg/g	88	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	210	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl-t-Butyl Ether	µg/g	3.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	43	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	µg/g	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	µg/g	0.094	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	78	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	µg/g	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	µg/g	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	µg/g	0.61	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	µg/g	5.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
m/p-Xylene	µg/g	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Xylenes	µg/g	30	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

NOTES:

1	Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 3 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Industrial/Commercial/Community Property Use (coarse textured soils)
NV	No Value
ND	Non-detectable results are shown as "<RDL" where RDL represents the reporting detection limit.
-	Parameter not analyzed
m bgs	Metres below ground surface
	Indicates soil exceedance of MECP Table 3 SCS

Table 2 - Analytical Results in Soil - PAH
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Sample ID	UNITS	Provincial MECP Table 3 Commercial [1]	Samples																
		Orange	BH1-SS3	BH2-SS2	BH3-SS2	BH4-SS3	BH5 SS-2	BH7-SS3	DUP (Duplicate BH7-SS3)	BH8-SS2	BH9-SS2	BH10-SS2	BH11-SS4	BH12-SS2	BH13-SS3	BH14-SS4	BH15-SS7	BH16-SS3	BH17-SS2	DUP (Duplicate BH17-SS3)
Sampling Date			20-Sep-22	19-Sep-22	19-Sep-22	20-Sep-22	19-Sep-22	20-Sep-22	20-Sep-22	20-Sep-22	20-Sep-22	22-Sep-22	20-Sep-22	22-Sep-22	22-Sep-22	20-Sep-22	15-Nov-22	17-Nov-22	17-Nov-22	17-Nov-22
Sample Depth (mbgs)			1.5 to 2.1	0.8 to 1.4	0.8 to 1.4	1.5 to 2.1	0.8 to 1.4	1.5 to 2.1	1.5 to 2.1	0.8 to 1.4	0.8 to 1.4	0.8 to 1.4	2.3 to 2.9	0.8 to 1.4	1.5 to 2.1	2.3 to 2.9	4.56 to 5.18	1.5 to 2.1	1.5 to 2.1	1.5 to 2.1
Polycyclic Aromatic Hydrocarbons																				
Acenaphthene	µg/g	96	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	µg/g	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	µg/g	0.74	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo[a]anthracene	µg/g	0.96	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	0.04	0.03
Benzo[a]pyrene	µg/g	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	<0.02	<0.02	0.05	0.09
Benzo[b]fluoranthene	µg/g	0.96	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	<0.02	<0.02	0.06	0.11
Benzo[g,h,i]perylene	µg/g	9.6	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.02	<0.02	<0.02	0.03	0.07
Benzo[k]fluoranthene	µg/g	0.96	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04
Chrysene	µg/g	9.6	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.03	<0.02	<0.02	0.05	0.04
Dibenzo[a,h]anthracene	µg/g	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	µg/g	9.6	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.04	<0.02	<0.02	0.09	0.07
Fluorene	µg/g	69	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Indeno[1,2,3-cd]pyrene	µg/g	0.95	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.06
1-Methylnaphthalene	µg/g	85	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	µg/g	85	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	µg/g	85	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Naphthalene	µg/g	28	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	µg/g	16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	0.04	0.03
Pyrene	µg/g	96	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.04	<0.02	<0.02	0.08	0.07
PCBs	µg/g	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-

NOTES:

1	Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 3 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Industrial/Commercial/Community Property Use (coarse textured soils)
NV	No Value
ND	Non-detectable results are shown as "<RDL" where RDL represents the reporting detection limit.
-	Parameter not analyzed
m bgs	Metres below ground surface
	Indicates soil exceedance of MECP Table 3 SCS

Table 3 - Analytical Results in Soil - Inorganic Parameters
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Sample ID	UNITS	Provincial MECP Table 3 Commercial [1]	Samples																	
		Orange	BH1-SS3	BH2-SS2	BH3-SS2	BH4-SS3	BH5 SS-2	BH7-SS3	DUP (Duplicate BH7-SS3)	BH8-SS2	BH9-SS2	BH10-SS2	BH11-SS4	BH12-SS2	BH13-SS3	BH14-SS4	BH15-SS7	BH16-SS3	BH17-SS2	DUP (Duplicate BH17-SS3)
Sampling Date			20-Sep-22	19-Sep-22	19-Sep-22	20-Sep-22	19-Sep-22	20-Sep-22	20-Sep-22	20-Sep-22	20-Sep-22	22-Sep-22	20-Sep-22	22-Sep-22	20-Sep-22	20-Sep-22	15-Nov-22	17-Nov-22	17-Nov-22	17-Nov-22
Sample Depth (mbgs)			1.5 to 2.1	0.8 to 1.4	0.8 to 1.4	1.5 to 2.1	0.8 to 1.4	1.5 to 2.1	1.5 to 2.1	0.8 to 1.4	0.8 to 1.4	0.8 to 1.4	2.3 to 2.9	0.8 to 1.4	1.5 to 2.1	2.3 to 2.9	4.56 to 5.18	1.5 to 2.1	1.5 to 2.1	1.5 to 2.1
Metals																				
Antimony	µg/g	50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/g	18	4.0	3.7	5.4	5.2	5.0	5.1	4.8	6	6.6	6.3	5.1	4.9	3.4	3.5	5.6	3.5	5.1	5.2
Barium	µg/g	670	125	124	115	127	141	142	107	147	83.2	103	98.1	98.5	140	93.7	98.9	144	115	118
Beryllium	µg/g	10	<0.5	<0.5	<0.5	0.6	0.5	0.6	0.5	0.6	0.6	0.6	0.7	0.6	0.5	0.5	0.5	<0.5	0.5	0.6
Boron (Hot Water Soluble)	µg/g	2	-	<0.5	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5
Boron (Total)	µg/g	120	8.8	6.5	8.0	9.8	7.8	10.7	9.7	10.5	9.8	9.6	9.5	9.6	7.2	7.1	10.1	<5.0	7.9	8.4
Cadmium	µg/g	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (Total)	µg/g	160	16.2	14.9	17.2	18.2	18.5	17.4	16.5	20.3	18.4	22.4	26.9	22.2	30.7	26.8	50.1	42.3	29.0	33.0
Chromium (VI)	µg/g	10	-	<0.2	<0.2	-	<0.2	-	-	-	-		-	-	-	-	<0.2	<0.2	<0.2	<0.2
Cobalt	µg/g	100	7.1	6.6	8.7	8.6	10.9	8.4	7.9	15.5	10.9	10.4	10.0	10.1	9.2	7.4	9.3	8.2	8.5	8.8
Copper	µg/g	300	18.8	16.3	22.1	21.0	24.0	21.2	20.4	27.3	27	21.7	26.4	24	25.6	19.2	26.7	13.5	20.9	22.6
Lead	µg/g	120	7.4	6.0	8.2	9.9	10.4	9.4	8.9	12.4	12.1	11.8	9.1	11.9	34.5	26.0	10.6	6.8	23.6	20.3
Mercury	µg/g	20	-	<0.1	<0.1	-	<0.1	-	-	-	-		-	-	-	-	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/g	40	1.8	1.9	3.3	2.4	2.5	2.4	2.1	3.2	2.3	2.6	1.9	2.4	<1.0	1.2	4.4	ND (1.0)	1.4	1.4
Nickel	µg/g	340	21.6	19.8	28.8	26.6	30.8	25.8	24.3	38.2	31.0	35.3	35.3	27.3	23.1	19.4	27.8	21.9	23.9	24.9
Selenium	µg/g	5.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	µg/g	50	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Thallium	µg/g	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Uranium	µg/g	33	1.5	1.2	1.6	1.3	1.1	1.3	1.1	1.1	ND (1.0)	1.1	1.0	<1.0	<1.0	<1.0	1.3	1	1.1	1.3
Vanadium	µg/g	86	24.1	23.4	26.7	27.2	26.2	26.4	24.3	29.0	27.1	26.6	34.2	30.3	34.2	30.4	26.4	38.3	33.9	36.5
Zinc	µg/g	340	31.3	37.5	41.5	36.1	38.4	34.8	37.3	59.1	44.2	56.7	47.7	48.4	76.7	63.8	41	44.2	72	80.3
Inorganic Parameters																				
Sodium Adsorption Ratio	N/A	12	-	**28.2**	10.0	-	**12.7**	-	-	-	-	-	-	-	-	-	**13.6**	**27.6**	3.99	5.98
Conductivity	uS/cm	1400	-	**3990**	**1980**	-	**4630**	-	-	-	-	-	-	-	-	-	**1780**	**4530**	1350	1380
pH	No units	5 to 9	-	7.52	7.64	-	7.6	-	-	-	-	-	-	-	-	-	7.35	7.29	6.91	7.08
Cyanide (Free)	µg/g	0.051	-	<0.03	<0.03	-	<0.03	-	-	-	-	-	-	-	-	-	<0.03	<0.03	<0.03	<0.03

NOTES:

1	Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 3 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Industrial/Commercial/Community Property Use (coarse textured soils)
*	Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.
NV	No Value
ND	Non-detectable results are shown as "<RDL" where RDL represents the reporting detection limit.
-	Parameter not analyzed
m bgs	Metres below ground surface
	Indicates soil exceedance of MECP Table 3 SCS

Table 4 - Analytical Results in Groundwater - PHC and VOC
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Sample ID	UNITS	Provincial	Samples									
		MECP Table 3 Commercial [1]	BH1	BH3	Dup 1	BH8	BH10	BH13	BH15	BH16	Trip Blank	Field Blank
Sampling Date		Blue	16-Nov-22	16-Nov-22	16-Nov-22	24-Nov-22	24-Nov-22	16-Nov-22	24-Nov-22	24-Nov-22	16-Nov-22	16-Nov-22
Screen Depth			1.2 - 4.0	1.5 - 3.6	Dup of BH3	1.2 - 4.2	1.5 - 4.5	1.5 - 4.5	2.3 - 5.3	0.8 - 3.8	NA	NA
Petroleum Hydrocarbons												
F1 PHC (C6-C10)*	µg/L	750	<25	<25	<25	<25	<25	<25	<25	<25	-	-
F2 PHC (C10-C16)	µg/L	150	<100	<100	<100	<100	<100	<100	<100	<100	-	-
F3 PHC (C16-C34)	µg/L	500	<100	<100	<100	<100	<100	<100	<100	<100	-	-
F4 PHC (C34-C50)	µg/L	500	<100	<100	<100	<100	<100	<100	<100	<100	-	-
Volatile Organic Compounds												
Acetone (2-Propanone)	µg/L	130000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzene	µg/L	44	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	µg/L	85000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	µg/L	380	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	µg/L	5.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	µg/L	0.79	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	µg/L	630	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	µg/L	2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	µg/L	82000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	µg/L	4600	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	µg/L	9600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (FREON 12)	µg/L	4400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	µg/L	320	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	µg/L	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	µg/L	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	µg/L	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	µg/L	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	µg/L	16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	µg/L	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	µg/L	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene (cis+trans)	µg/L	5.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	2300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylene Dibromide	µg/L	0.25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexane	µg/L	51	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride(Dichloromethane)	µg/L	610	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl Ethyl Ketone (2-Butanone)	µg/L	470000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl Isobutyl Ketone	µg/L	140000	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl t-butyl ether (MTBE)	µg/L	190	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Styrene	µg/L	1300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	µg/L	3.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	µg/L	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	µg/L	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	18000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	µg/L	6700	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	µg/L	30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	µg/L	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane (FREON 11)	µg/L	2500	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p+m-Xylene	µg/L	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o-Xylene	µg/L	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	4200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

NOTES:

1	Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 3 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Industrial/Commercial/Community Property Use (coarse textured soils)
*	F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result
<RDL	Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.
NV	No Value
-	Parameter not analyzed
	Indicates groundwater exceedance of MECP Table 3 SCS

Table 5 - Analytical Results in Groundwater - PAH
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Sample ID	UNITS	Provincial	Samples							
		MECP Table 3 Commercial [1]	BH1	BH3	Dup 1	BH8	BH10	BH13	BH15	BH16
Sampling Date		Blue	**16-Nov-22**	**16-Nov-22**	**16-Nov-22**	**24-Nov-22**	**24-Nov-22**	**16-Nov-22**	**24-Nov-22**	**24-Nov-22**
Screen Depth			1.2 - 4.0	1.5 - 3.6	**Dup of BH3**	1.2 - 4.2	1.5 - 4.5	1.5 - 4.5	2.3 - 5.3	0.8 - 3.8
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	µg/L	600	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/L	1.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/L	2.4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	µg/L	4.7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	µg/L	0.81	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	0.75	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/L	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/L	0.52	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/L	130	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	µg/L	400	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/L	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	µg/L	520	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/L	520	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/L	1400	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	µg/L	580	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/L	68	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

NOTES:

2 Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 3 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Industrial/Commercial/Community Property Use (coarse textured soils)

<RDL Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

NV No Value

- Parameter not analyzed

Indicates groundwater exceedance of MECP Table 3 SCS

Table 6 - Analytical Results in Groundwater - Inorganic Parameters
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Sample ID	UNITS	Provincial	Sample							
		MECP Table 3 Commercial [1]	BH1	BH3	Dup 1	BH8	BH10	BH13	BH15	BH16
Sampling Date		**Blue**	**16-Nov-22**	**16-Nov-22**	**16-Nov-22**	**24-Nov-22**	**24-Nov-22**	**16-Nov-22**	**24-Nov-22**	**24-Nov-22**
Screen Depth			1.2 - 4.0	1.5 - 3.6	**Dup of BH3**	1.2 - 4.2	1.5 - 4.5	1.5 - 4.5	2.3 - 5.3	0.8 - 3.8
Inorganic Parameters										
Antimony	µg/L	20000	<0.5	1.2	1.2	<0.5	0.6	<0.5	0.7	<0.5
Arsenic	µg/L	1900	<1	11	12	<1	1	4	<1	<1
Barium	µg/L	29000	68	52	52	59	119	1380	831	127
Beryllium	µg/L	67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	45000	51	168	166	81	81	22	200	38
Cadmium	µg/L	2.7	<0.1	0.2	0.2	<0.1	0.4	<0.1	<0.1	0.3
Chloride	mg/L	2300	**8600**	**19400**	**19000**	**10500**	**16300**	**5590**	**6540**	**17500**
Chromium	µg/L	810	<1	<1	<1	<1	2	<1	2	1
Chromium VI	µg/L	140	<10	<10	<10	<10	<10	<10	<10	<10
Cobalt	µg/L	66	0.8	9.2	9.2	<0.5	25.6	3.1	4.5	41.1
Copper	µg/L	87	2.6	18.0	16.7	1.9	4.4	0.8	3.2	27.6
Lead	µg/L	25	0.2	0.1	<0.1	0.2	0.3	<0.1	<0.1	<0.1
Mercury	µg/L	0.29	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	9200	1.3	1340	1350	3.9	26.9	8.3	24.5	4.5
Nickel	µg/L	490	2	21	21	5	98	5	12	54
Selenium	µg/L	63	<1	4	3	<1	<1	<1	<1	<1
Silver	µg/L	1.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	2300000	2030000	**5640000**	**5490000**	**3030000**	**6840000**	1550000	1610000	**8870000**
Thallium	µg/L	510	<0.1	0.2	0.2	<0.1	0.4	<0.1	<0.1	0.4
Uranium	µg/L	420	0.3	6.9	6.6	0.2	13.9	4.9	3.0	14.5
Vanadium	µg/L	250	<0.5	1.4	1.2	0.8	1.3	2.1	<0.5	0.7
Zinc	µg/L	1100	<5	10	9	<5	9	10	<5	29
pH	-	5 to 9	6.7	6.6	6.9	6.5	6.4	6.9	7.1	6.7

NOTES:

1 Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 3 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Industrial/Commercial/Community Property Use (coarse textured soils)

<RDL Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

NV No Value

- Parameter not analyzed

Indicates groundwater exceedance of MECP Table 3 SCS

Table 7 - Relative Percent Differences - PHC and VOC in Soil
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Parameter	Units	RDL	BH7-SS3	DUP	RPD (%)	Alert Limit (%)
			20-Sep-2022	20-Sep-2022		
Petroleum Hydrocarbons						
F1 PHC (C6 - C10) - BTEX	ug/g dry	7	<7	<7	nc	60
F2 PHC (C10-C16)	ug/g dry	4	27	29	7	60
F3 PHC (C16-C34)	ug/g dry	8	23	24	nc	60
F4 PHC (C34-C50)	ug/g dry	6	<6	<6	nc	60
Volatiles						
Acetone	ug/g dry	0.50	<0.50	<0.50	nc	100
Benzene	ug/g dry	0.02	<0.02	<0.02	nc	100
Bromodichloromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Bromoform	ug/g dry	0.50	<0.05	<0.05	nc	100
Bromomethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Carbon Tetrachloride	ug/g dry	0.50	<0.05	<0.05	nc	100
Chlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
Chloroform	ug/g dry	0.50	<0.05	<0.05	nc	100
Dibromochloromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Dichlorodifluoromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,2-Dichlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,3-Dichlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,4-Dichlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1-Dichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,2-Dichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1-Dichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
cis-1,2-Dichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
trans-1,2-Dichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,2-Dichloropropane	ug/g dry	0.50	<0.05	<0.05	nc	100
cis-1,3-Dichloropropylene	ug/g dry	0.50	<0.05	<0.05	nc	100
trans-1,3-Dichloropropylene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,3-Dichloropropene, total	ug/g dry	0.50	<0.05	<0.05	nc	100
Ethylbenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
Ethylene dibromide (dibromoethane, 1,2-	ug/g dry	0.50	<0.05	<0.05	nc	100
Hexane	ug/g dry	0.50	<0.05	<0.05	nc	100
Methyl Ethyl Ketone (2-Butanone)	ug/g dry	0.50	<0.50	<0.50	nc	100
Methyl Isobutyl Ketone	ug/g dry	0.50	<0.50	<0.50	nc	100
Methyl tert-butyl ether	ug/g dry	0.50	<0.05	<0.05	nc	100
Methylene Chloride	ug/g dry	0.50	<0.05	<0.05	nc	100
Styrene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,1,2-Tetrachloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,2,2-Tetrachloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Tetrachloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
Toluene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,1-Trichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,2-Trichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Trichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
Trichlorofluoromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Vinyl Chloride	ug/g dry	0.20	<0.02	<0.02	nc	100
Xylenes, total	ug/g dry	0.50	<0.05	<0.05	nc	100

NOTES:

Analysis by Paracel Labratories

All results on dry weight basis; Non-detectable results are shown as "< RDL" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Table 7 - Relative Percent Differences - PHC and VOC in Soil
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Parameter	Units	RDL	BH17-SS3	DUP	RPD (%)	Alert Limit (%)
			17-Nov-2022	17-Nov-2022		
Petroleum Hydrocarbons						
F1 PHC (C6 - C10) - BTEX	ug/g dry	7	<7	<7	nc	60
F2 PHC (C10-C16)	ug/g dry	4	<4	5	nc	60
F3 PHC (C16-C34)	ug/g dry	8	66	54	20	60
F4 PHC (C34-C50)	ug/g dry	6	48	51	6	60
Volatiles						
Acetone	ug/g dry	0.50	<0.50	<0.50	nc	100
Benzene	ug/g dry	0.02	<0.02	<0.02	nc	100
Bromodichloromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Bromoform	ug/g dry	0.50	<0.05	<0.05	nc	100
Bromomethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Carbon Tetrachloride	ug/g dry	0.50	<0.05	<0.05	nc	100
Chlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
Chloroform	ug/g dry	0.50	<0.05	<0.05	nc	100
Dibromochloromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Dichlorodifluoromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,2-Dichlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,3-Dichlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,4-Dichlorobenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1-Dichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,2-Dichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1-Dichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
cis-1,2-Dichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
trans-1,2-Dichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,2-Dichloropropane	ug/g dry	0.50	<0.05	<0.05	nc	100
cis-1,3-Dichloropropylene	ug/g dry	0.50	<0.05	<0.05	nc	100
trans-1,3-Dichloropropylene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,3-Dichloropropene, total	ug/g dry	0.50	<0.05	<0.05	nc	100
Ethylbenzene	ug/g dry	0.50	<0.05	<0.05	nc	100
Ethylene dibromide (dibromoethane, 1,2-	ug/g dry	0.50	<0.05	<0.05	nc	100
Hexane	ug/g dry	0.50	<0.05	<0.05	nc	100
Methyl Ethyl Ketone (2-Butanone)	ug/g dry	0.50	<0.50	<0.50	nc	100
Methyl Isobutyl Ketone	ug/g dry	0.50	<0.50	<0.50	nc	100
Methyl tert-butyl ether	ug/g dry	0.50	<0.05	<0.05	nc	100
Methylene Chloride	ug/g dry	0.50	<0.05	<0.05	nc	100
Styrene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,1,2-Tetrachloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,2,2-Tetrachloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Tetrachloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
Toluene	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,1-Trichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
1,1,2-Trichloroethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Trichloroethylene	ug/g dry	0.50	<0.05	<0.05	nc	100
Trichlorofluoromethane	ug/g dry	0.50	<0.05	<0.05	nc	100
Vinyl Chloride	ug/g dry	0.20	<0.02	<0.02	nc	100
Xylenes, total	ug/g dry	0.50	<0.05	<0.05	nc	100

NOTES:

Analysis by Paracel Labratories

All results on dry weight basis; Non-detectable results are shown as "< RDL" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Table 8 - Relative Percent Differences - PAH in Soil
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Parameter	Units	RDL	BH7-SS3	DUP	RPD (%)	Alert Limit (%)
			20-Sep-2022	20-Sep-2022		
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	ug/g dry	0.02	<0.02	<0.02	nc	80
Acenaphthylene	ug/g dry	0.02	<0.02	<0.02	nc	80
Anthracene	ug/g dry	0.02	<0.02	<0.02	nc	80
Benzo[a]anthracene	ug/g dry	0.02	<0.02	<0.02	nc	80
Benzo[a]pyrene	ug/g dry	0.02	<0.02	<0.02	nc	80
Benzo[b/j]fluoranthene	ug/g dry	0.02	<0.02	<0.02	nc	80
Benzo[g,h,i]perylene	ug/g dry	0.02	<0.02	<0.02	nc	80
Benzo[k]fluoranthene	ug/g dry	0.02	<0.02	<0.02	nc	80
Chrysene	ug/g dry	0.02	<0.02	<0.02	nc	80
Dibenzo[a,h]anthracene	ug/g dry	0.02	<0.02	<0.02	nc	80
Fluoranthene	ug/g dry	0.02	<0.02	<0.02	nc	80
Fluorene	ug/g dry	0.02	<0.02	<0.02	nc	80
Indeno[1,2,3-cd]pyrene	ug/g dry	0.02	<0.02	<0.02	nc	80
1-Methylnaphthalene	ug/g dry	0.02	<0.02	<0.02	nc	80
2-Methylnaphthalene	ug/g dry	0.02	<0.02	<0.02	nc	80
Methylnaphthalene (1&2)	ug/g dry	0.04	<0.04	<0.04	nc	81
Naphthalene	ug/g dry	0.01	<0.01	<0.01	nc	82
Phenanthrene	ug/g dry	0.02	<0.02	<0.02	nc	80
Pyrene	ug/g dry	0.02	<0.02	<0.02	nc	80

Parameter	Units	RDL	BH17-SS3	DUP	RPD (%)	Alert Limit (%)
			17-Nov-2022	17-Nov-2022		
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	ug/g dry	0.02	<0.02	<0.02	nc	80
Acenaphthylene	ug/g dry	0.02	<0.02	<0.02	nc	80
Anthracene	ug/g dry	0.02	<0.02	<0.02	nc	80
Benzo[a]anthracene	ug/g dry	0.02	0.04	0.03	nc	80
Benzo[a]pyrene	ug/g dry	0.02	0.05	0.09	nc	80
Benzo[b/j]fluoranthene	ug/g dry	0.02	0.06	0.11	nc	80
Benzo[g,h,i]perylene	ug/g dry	0.02	0.03	0.07	nc	80
Benzo[k]fluoranthene	ug/g dry	0.02	0.03	0.0	nc	80
Chrysene	ug/g dry	0.02	0.05	0.04	nc	80
Dibenzo[a,h]anthracene	ug/g dry	0.02	<0.02	<0.02	nc	80
Fluoranthene	ug/g dry	0.02	0.09	0.07	nc	80
Fluorene	ug/g dry	0.02	<0.02	<0.02	nc	80
Indeno[1,2,3-cd]pyrene	ug/g dry	0.02	0.03	0.06	nc	80
1-Methylnaphthalene	ug/g dry	0.02	<0.02	<0.02	nc	80
2-Methylnaphthalene	ug/g dry	0.02	<0.02	<0.02	nc	80
Methylnaphthalene (1&2)	ug/g dry	0.04	<0.04	<0.04	nc	81
Naphthalene	ug/g dry	0.01	<0.01	<0.01	nc	82
Phenanthrene	ug/g dry	0.02	0.04	0.03	nc	80
Pyrene	ug/g dry	0.02	0.08	0.07	nc	80

NOTES:

Analysis by Paracel Labratories

All results on dry weight basis; Non-detectable results are shown as "< RDL" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Table 9 - Relative Percent Differences - Metals in Soil
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Parameter	Units	RDL	BH7-SS3	DUP	RPD (%)	Alert Limit (%)
			20-Sep-2022	20-Sep-2022		
Inorganic Parameters						
Antimony	ug/g dry	1.0	<1.0	<1.0	nc	60
Arsenic	ug/g dry	1.0	5.1	4.8	nc	60
Barium	ug/g dry	1.0	142	107	28	60
Beryllium	ug/g dry	0.5	0.6	0.5	nc	60
Boron (HWS)	ug/g dry	5.0	-	-	-	60
Boron	ug/g dry	0.5	10.7	9.7	10	60
Cadmium	ug/g dry	0.5	<0.5	<0.5	nc	60
Chromium	ug/g dry	5.0	17.4	16.5	nc	60
Chomium VI	ug/g dry	0.2	-	-	-	60
Cobalt	ug/g dry	1.0	8.4	7.9	6	60
Copper	ug/g dry	5.0	21.2	20.4	nc	60
Lead	ug/g dry	1.0	9.4	8.9	5	60
Mercury	ug/g dry	0.1	-	-	-	60
Molybdenum	ug/g dry	1.0	2.4	2.1	nc	60
Nickel	ug/g dry	5.0	25.8	24.3	nc	60
Selenium	ug/g dry	1.0	<1.0	<1.0	nc	60
Silver	ug/g dry	0.3	<0.3	<0.3	nc	60
Thallium	ug/g dry	1.0	<1.0	<1.0	nc	60
Uranium	ug/g dry	1.0	1.3	1.1	nc	60
Vanadium	ug/g dry	10.0	26.4	24.3	nc	60
Zinc	ug/g dry	20.0	34.8	37.3	nc	60

Parameter	Units	RDL	BH7-SS3	DUP	RPD (%)	Alert Limit (%)
			20-Sep-2022	20-Sep-2022		
Inorganic Parameters						
Antimony	ug/g dry	1.0	<1.0	<1.0	nc	60
Arsenic	ug/g dry	1.0	5.1	5.2	2	60
Barium	ug/g dry	1.0	115	118	3	60
Beryllium	ug/g dry	0.5	0.5	0.6	nc	60
Boron (HWS)	ug/g dry	5.0	<0.5	<0.5	nc	60
Boron	ug/g dry	0.5	7.9	8.4	6	60
Cadmium	ug/g dry	0.5	<0.5	<0.5	nc	60
Chromium	ug/g dry	5.0	29	33	13	60
Chomium VI	ug/g dry	0.2	<0.2	<0.2	nc	60
Cobalt	ug/g dry	1.0	8.5	8.8	3	60
Copper	ug/g dry	5.0	20.9	22.6	nc	60
Lead	ug/g dry	1.0	23.6	20.3	15	60
Mercury	ug/g dry	0.1	<0.1	<0.1	nc	60
Molybdenum	ug/g dry	1.0	1.4	1.4	nc	60
Nickel	ug/g dry	5.0	23.9	24.9	nc	60
Selenium	ug/g dry	1.0	<1.0	<1.0	nc	60
Silver	ug/g dry	0.3	<0.3	<0.3	nc	60
Thallium	ug/g dry	1.0	<1.0	<1.0	nc	60
Uranium	ug/g dry	1.0	1.1	1.3	nc	60
Vanadium	ug/g dry	10.0	33.9	36.5	nc	60
Zinc	ug/g dry	20.0	72	80.3	nc	60

NOTES:

Analysis by Paracel Labratories

All results on dry weight basis; Non-detectable results are shown as "<RDL" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Table 10 - Relative Percent Differences - PHC and VOC in Groundwater
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Parameter	Units	RDL	BH-3	DUP 1	RPD (%)	Alert Limit (%)
			16-Nov-2022	16-Nov-2022		
Petroleum Hydrocarbons						
F1 PHC (C6 - C10) - BTEX	ug/L	25	<25	<25	nc	60
F2 PHC (C10-C16)	ug/L	100	<100	<100	nc	60
F3 PHC (C16-C34)	ug/L	100	<100	<100	nc	60
F4 PHC (C34-C50)	ug/L	100	<100	<100	nc	60
Volatiles						
Acetone	ug/L	5.0	<5.0	<5.0	nc	60
Benzene	ug/L	0.5	<0.5	<0.5	nc	60
Bromodichloromethane	ug/L	0.5	<0.5	<0.5	nc	60
Bromoform	ug/L	0.5	<0.5	<0.5	nc	60
Bromomethane	ug/L	0.5	<0.5	<0.5	nc	60
Carbon Tetrachloride	ug/L	0.2	<0.2	<0.2	nc	60
Chlorobenzene	ug/L	0.5	<0.5	<0.5	nc	60
Chloroform	ug/L	0.5	<0.5	<0.5	nc	60
Dibromochloromethane	ug/L	0.5	<0.5	<0.5	nc	60
Dichlorodifluoromethane	ug/L	1.0	<1.0	<1.0	nc	60
1,2-Dichlorobenzene	ug/L	0.5	<0.5	<0.5	nc	60
1,3-Dichlorobenzene	ug/L	0.5	<0.5	<0.5	nc	60
1,4-Dichlorobenzene	ug/L	0.5	<0.5	<0.5	nc	60
1,1-Dichloroethane	ug/L	0.5	<0.5	<0.5	nc	60
1,2-Dichloroethane	ug/L	0.5	<0.5	<0.5	nc	60
1,1-Dichloroethylene	ug/L	0.5	<0.5	<0.5	nc	60
cis-1,2-Dichloroethylene	ug/L	0.5	<0.5	<0.5	nc	60
trans-1,2-Dichloroethylene	ug/L	0.5	<0.5	<0.5	nc	60
1,2-Dichloropropane	ug/L	0.5	<0.5	<0.5	nc	60
cis-1,3-Dichloropropylene	ug/L	0.5	<0.5	<0.5	nc	60
trans-1,3-Dichloropropylene	ug/L	0.5	<0.5	<0.5	nc	60
1,3-Dichloropropene, total	ug/L	0.5	<0.5	<0.5	nc	60
Ethylbenzene	ug/L	0.5	<0.5	<0.5	nc	60
Ethylene dibromide (dibromoethane, 1,2-)	ug/L	0.2	<0.2	<0.2	nc	60
Hexane	ug/L	1.0	<1.0	<1.0	nc	60
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	<5.0	<5.0	nc	60
Methyl Isobutyl Ketone	ug/L	5.0	<5.0	<5.0	nc	60
Methyl tert-butyl ether	ug/L	2.0	<2.0	<2.0	nc	60
Methylene Chloride	ug/L	5.0	<5.0	<5.0	nc	60
Styrene	ug/L	0.5	<0.5	<0.5	nc	60
1,1,1,2-Tetrachloroethane	ug/L	0.5	<0.5	<0.5	nc	60
1,1,2,2-Tetrachloroethane	ug/L	0.5	<0.5	<0.5	nc	60
Tetrachloroethylene	ug/L	0.5	<0.5	<0.5	nc	60
Toluene	ug/L	0.5	<0.5	<0.5	nc	60
1,1,1-Trichloroethane	ug/L	0.5	<0.5	<0.5	nc	60
1,1,2-Trichloroethane	ug/L	0.5	<0.5	<0.5	nc	60
Trichloroethylene	ug/L	0.5	<0.5	<0.5	nc	60
Trichlorofluoromethane	ug/L	1.0	<1.0	<1.0	nc	60
Vinyl Chloride	ug/L	0.5	<0.5	<0.5	nc	60
m/p-Xylene	ug/L	0.5	<0.5	<0.5	nc	60
o-Xylene	ug/L	0.5	<0.5	<0.5	nc	60
Xylenes, total	ug/L	0.5	<0.5	<0.5	nc	60

NOTES:

Analysis by Paracel Labratories

Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Table 11 - Relative Percent Differences - PAH in Groundwater
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Parameter	Units	RDL	BH-3	DUP 1	RPD (%)	Alert Limit (%)
			16-Nov-2022	16-Nov-2022		
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	ug/L	0.10	<0.05	<0.05	nc	60
Acenaphthylene	ug/L	0.10	<0.05	<0.05	nc	60
Anthracene	ug/L	0.010	<0.01	<0.01	nc	60
Benzo(a)anthracene	ug/L	0.0085	<0.01	<0.01	nc	60
Benzo(a)pyrene	ug/L	0.0075	<0.01	<0.01	nc	60
Benzo(b/j)fluoranthene	ug/L	0.0085	<0.05	<0.05	nc	60
Benzo(g,h,i)perylene	ug/L	0.0085	<0.05	<0.05	nc	60
Benzo(k)fluoranthene	ug/L	0.0085	<0.05	<0.05	nc	60
Chrysene	ug/L	0.0085	<0.05	<0.05	nc	60
Dibenzo(a,h)anthracene	ug/L	0.0075	<0.05	<0.05	nc	60
Fluoranthene	ug/L	0.010	<0.01	<0.01	nc	60
Fluorene	ug/L	0.050	<0.05	<0.05	nc	60
Indeno[1,2,3-cd]pyrene	ug/L	0.0085	<0.05	<0.05	nc	60
1-Methylnaphthalene	ug/L	0.10	<0.05	<0.05	nc	60
2-Methylnaphthalene	ug/L	0.10	<0.05	<0.05	nc	60
Naphthalene	ug/L	0.10	<0.10	<0.10	nc	60
Phenanthrene	ug/L	0.050	<0.05	<0.05	nc	60
Perylene	ug/L	0.050	<0.05	<0.05	nc	60
Pyrene	ug/L	0.020	<0.01	<0.01	nc	60

NOTES:

Analysis by Paracel Labratories

Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Table 12 - Relative Percent Differences - Inorganic Parameters in Groundwater
1500 St. Laurent Boulevard, Ottawa, Ontario
OTT-22007382-A0

Parameter	Units	RDL	BH-3	DUP 1	RPD (%)	Alert Limit (%)
			16-Nov-2022	16-Nov-2022		
Metals						
Antimony	ug/L	0.50	1.2	1.2	nc	40
Arsenic	ug/L	0.10	11	12	9	40
Barium	ug/L	1.0	52	52	0	40
Beryllium	ug/L	0.10	<0.5	<0.5	nc	40
Boron	ug/L	50	168	166	nc	40
Cadmium	ug/L	0.010	0.2	0.2	0	40
Chloride	mg/L	1.0	19400	19000	2	37
Chromium	ug/L	1.0	<1	<1	nc	40
Chromium VI	ug/L	10.0	<10	<10	nc	41
Cobalt	ug/L	0.20	9.2	9.2	0	40
Copper	ug/L	0.20	18	16.7	7	40
Lead	ug/L	0.1	0.1	<0.1	nc	40
Mercury	ug/L	0.01	<0.1	<0.1	nc	40
Molybdenum	ug/L	1.0	1340	1350	1	40
Nickel	ug/L	1.0	21	21	0	40
Selenium	ug/L	0.10	4	3	29	40
Silver	ug/L	0.020	<0.1	<0.1	nc	40
Sodium	mg/L	0.10	5640000	5490000	3	40
Thallium	ug/L	0.010	0.2	0.2	0	40
Uranium	ug/L	0.10	6.9	6.6	4	40
Vanadium	ug/L	5.0	1.4	1.2	nc	40
Zinc	ug/L	5.0	10	9	nc	40

NOTES:
Analysis by Paracel Labratories
Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.
- means "not analysed"
nc means "not calculable" - one (or both) of the results are <5x RDL
Exceedances of alert limits are shown in **bold**

Appendix E: Laboratory Certificates of Analysis

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark McCalla

Client PO:
Project: OTT22007382A0/1500 St. Laurent Boulevard
Custody: 69241

Report Date: 27-Sep-2022
Order Date: 19-Sep-2022

Order #: 2239108

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2239108-01	BH-2 SS-2
2239108-02	BH-3 SS-2
2239108-03	BH-5 SS-2

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 27-Sep-2022

Client: exp Services Inc. (Ottawa)

Order Date: 19-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	22-Sep-22	22-Sep-22
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	20-Sep-22	22-Sep-22
Conductivity	MOE E3138 - probe @25 °C, water ext	22-Sep-22	27-Sep-22
Cyanide, free	MOE E3015 - Auto Colour, water extraction	22-Sep-22	22-Sep-22
Mercury by CVAA	EPA 7471B - CVAA, digestion	22-Sep-22	23-Sep-22
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	19-Sep-22	20-Sep-22
PHC F1	CWS Tier 1 - P&T GC-FID	20-Sep-22	21-Sep-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	20-Sep-22	23-Sep-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	22-Sep-22	22-Sep-22
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	20-Sep-22	22-Sep-22
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	20-Sep-22	21-Sep-22
SAR	Calculated	22-Sep-22	23-Sep-22
Solids, %	Gravimetric, calculation	20-Sep-22	20-Sep-22

Certificate of Analysis

Report Date: 27-Sep-2022

Client: exp Services Inc. (Ottawa)

Order Date: 19-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-2 SS-2	BH-3 SS-2	BH-5 SS-2	-
	Sample Date:	19-Sep-22 09:00	19-Sep-22 10:30	19-Sep-22 13:30	-
	Sample ID:	2239108-01	2239108-02	2239108-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	94.4	92.1	91.6	-
General Inorganics					
SAR	0.01 N/A	28.2	10.0	12.7	-
Conductivity	5 uS/cm	3990	1980	4630	-
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	-
pH	0.05 pH Units	7.52	7.64	7.60	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	3.7	5.4	5.0	-
Barium	1.0 ug/g dry	124	115	141	-
Beryllium	0.5 ug/g dry	<0.5	<0.5	0.5	-
Boron	5.0 ug/g dry	6.5	8.0	7.8	-
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	5.0 ug/g dry	14.9	17.2	18.5	-
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	-
Cobalt	1.0 ug/g dry	6.6	8.7	10.9	-
Copper	5.0 ug/g dry	16.3	22.1	24.0	-
Lead	1.0 ug/g dry	6.0	8.2	10.4	-
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	-
Molybdenum	1.0 ug/g dry	1.9	3.3	2.5	-
Nickel	5.0 ug/g dry	19.8	28.8	30.8	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	1.2	1.6	1.1	-
Vanadium	10.0 ug/g dry	23.4	26.7	26.2	-
Zinc	20.0 ug/g dry	37.5	41.5	38.4	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 27-Sep-2022

Client: exp Services Inc. (Ottawa)

Order Date: 19-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-2 SS-2	BH-3 SS-2	BH-5 SS-2	-
	Sample Date:	19-Sep-22 09:00	19-Sep-22 10:30	19-Sep-22 13:30	-
	Sample ID:	2239108-01	2239108-02	2239108-03	-
	MDL/Units	Soil	Soil	Soil	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 27-Sep-2022

Client: exp Services Inc. (Ottawa)

Order Date: 19-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-2 SS-2	BH-3 SS-2	BH-5 SS-2	-
	Sample Date:	19-Sep-22 09:00	19-Sep-22 10:30	19-Sep-22 13:30	-
	Sample ID:	2239108-01	2239108-02	2239108-03	-
	MDL/Units	Soil	Soil	Soil	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	99.2%	101%	98.9%	-
Dibromofluoromethane	Surrogate	93.8%	96.9%	94.2%	-
Toluene-d8	Surrogate	109%	111%	110%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	10	50	36	-
F3 PHCs (C16-C34)	8 ug/g dry	23	78	94	-
F4 PHCs (C34-C50)	6 ug/g dry	17	35	7	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Fluorobiphenyl	Surrogate	110%	98.5%	100%	-
Terphenyl-d14	Surrogate	115%	126%	108%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.22*		*ug/g*		*91.7*	*50-140*			
Surrogate: Terphenyl-d14	*1.72*		*ug/g*		*129*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*7.37*		*ug/g*		*92.1*	*50-140*			
Surrogate: Dibromofluoromethane	*5.88*		*ug/g*		*73.4*	*50-140*			
Surrogate: Toluene-d8	*8.34*		*ug/g*		*104*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	29.2	0.01	N/A	28.2			3.4	30	
Conductivity	3930	5	uS/cm	3990			1.6	5	
Cyanide, free	ND	0.03	ug/g	ND			NC	35	
pH	7.32	0.05	pH Units	7.31			0.1	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	8	4	ug/g	10			22.5	30	
F3 PHCs (C16-C34)	16	8	ug/g	23			NC	30	
F4 PHCs (C34-C50)	17	6	ug/g	17			0.0	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	4.4	1.0	ug/g	3.9			12.3	30	
Barium	36.1	1.0	ug/g	34.1			5.6	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron, available	ND	0.5	ug/g	ND			NC	35	
Boron	5.8	5.0	ug/g	5.2			10.8	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	11.0	5.0	ug/g	10.5			5.0	30	
Cobalt	6.8	1.0	ug/g	6.5			4.1	30	
Copper	13.5	5.0	ug/g	13.1			2.9	30	
Lead	17.8	1.0	ug/g	17.0			4.4	30	
Mercury	0.114	0.1	ug/g	0.104			9.6	30	
Molybdenum	2.0	1.0	ug/g	1.7			14.7	30	
Nickel	12.8	5.0	ug/g	12.2			5.1	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	17.3	10.0	ug/g	16.9			2.7	30	
Zinc	ND	20.0	ug/g	20.9			NC	30	
Physical Characteristics									
% Solids	93.1	0.1	% by Wt.	93.3			0.2	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.46*		*ug/g*		*102*	*50-140*			
Surrogate: Terphenyl-d14	*1.80*		*ug/g*		*126*	*50-140*			
Volatiles									

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*8.41*		*ug/g*		*100*	*50-140*			
Surrogate: Dibromofluoromethane	*7.48*		*ug/g*		*89.3*	*50-140*			
Surrogate: Toluene-d8	*8.89*		*ug/g*		*106*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Cyanide, free	0.147	0.03	ug/g	ND	25.1	50-150			QM-05
Hydrocarbons									
F1 PHCs (C6-C10)	176	7	ug/g	ND	87.8	80-120			
F2 PHCs (C10-C16)	86	4	ug/g	10	89.6	60-140			
F3 PHCs (C16-C34)	194	8	ug/g	23	82.4	60-140			
F4 PHCs (C34-C50)	131	6	ug/g	17	87.1	60-140			
Metals									
Antimony	39.0	1.0	ug/g	ND	77.6	70-130			
Arsenic	49.4	1.0	ug/g	1.5	95.6	70-130			
Barium	58.0	1.0	ug/g	13.7	88.6	70-130			
Beryllium	45.4	0.5	ug/g	ND	90.5	70-130			
Boron, available	3.76	0.5	ug/g	ND	75.3	70-122			
Boron	46.3	5.0	ug/g	ND	88.4	70-130			
Cadmium	44.0	0.5	ug/g	ND	87.9	70-130			
Chromium (VI)	0.08	0.2	ug/g	ND	42.0	70-130			QM-05
Chromium	55.2	5.0	ug/g	ND	102	70-130			
Cobalt	50.1	1.0	ug/g	2.6	94.9	70-130			
Copper	50.8	5.0	ug/g	5.2	91.2	70-130			
Lead	51.1	1.0	ug/g	6.8	88.6	70-130			
Mercury	1.44	0.1	ug/g	0.104	89.1	70-130			
Molybdenum	47.3	1.0	ug/g	ND	93.2	70-130			
Nickel	52.2	5.0	ug/g	ND	94.6	70-130			
Selenium	43.2	1.0	ug/g	ND	86.2	70-130			
Silver	41.2	0.3	ug/g	ND	82.5	70-130			
Thallium	43.9	1.0	ug/g	ND	87.7	70-130			
Uranium	46.3	1.0	ug/g	ND	92.2	70-130			
Vanadium	58.9	10.0	ug/g	ND	104	70-130			
Zinc	50.0	20.0	ug/g	ND	83.2	70-130			
Semi-Volatiles									
Acenaphthene	0.172	0.02	ug/g	ND	96.3	50-140			
Acenaphthylene	0.131	0.02	ug/g	ND	73.6	50-140			
Anthracene	0.141	0.02	ug/g	ND	79.0	50-140			
Benzo [a] anthracene	0.125	0.02	ug/g	ND	70.3	50-140			
Benzo [a] pyrene	0.130	0.02	ug/g	ND	72.9	50-140			
Benzo [b] fluoranthene	0.177	0.02	ug/g	ND	99.3	50-140			
Benzo [g,h,i] perylene	0.175	0.02	ug/g	ND	97.8	50-140			
Benzo [k] fluoranthene	0.165	0.02	ug/g	ND	92.4	50-140			
Chrysene	0.175	0.02	ug/g	ND	98.2	50-140			
Dibenzo [a,h] anthracene	0.161	0.02	ug/g	ND	90.1	50-140			
Fluoranthene	0.125	0.02	ug/g	ND	70.2	50-140			
Fluorene	0.165	0.02	ug/g	ND	92.7	50-140			
Indeno [1,2,3-cd] pyrene	0.167	0.02	ug/g	ND	93.7	50-140			
1-Methylnaphthalene	0.172	0.02	ug/g	ND	96.1	50-140			
2-Methylnaphthalene	0.197	0.02	ug/g	ND	110	50-140			
Naphthalene	0.186	0.01	ug/g	ND	104	50-140			
Phenanthrene	0.156	0.02	ug/g	ND	87.5	50-140			
Pyrene	0.129	0.02	ug/g	ND	72.2	50-140			
Surrogate: 2-Fluorobiphenyl	*1.46*		*ug/g*		*102*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Terphenyl-d14	*1.98*		*ug/g*		*139*	*50-140*			
Volatiles									
Acetone	10.9	0.50	ug/g	ND	109	50-140			
Benzene	3.67	0.02	ug/g	ND	91.7	60-130			
Bromodichloromethane	3.39	0.05	ug/g	ND	84.8	60-130			
Bromoform	4.01	0.05	ug/g	ND	100	60-130			
Bromomethane	3.42	0.05	ug/g	ND	85.6	50-140			
Carbon Tetrachloride	3.33	0.05	ug/g	ND	83.3	60-130			
Chlorobenzene	3.91	0.05	ug/g	ND	97.7	60-130			
Chloroform	3.63	0.05	ug/g	ND	90.6	60-130			
Dibromochloromethane	3.76	0.05	ug/g	ND	93.9	60-130			
Dichlorodifluoromethane	3.36	0.05	ug/g	ND	84.1	50-140			
1,2-Dichlorobenzene	3.76	0.05	ug/g	ND	93.9	60-130			
1,3-Dichlorobenzene	3.61	0.05	ug/g	ND	90.1	60-130			
1,4-Dichlorobenzene	3.73	0.05	ug/g	ND	93.3	60-130			
1,1-Dichloroethane	3.49	0.05	ug/g	ND	87.4	60-130			
1,2-Dichloroethane	3.79	0.05	ug/g	ND	94.8	60-130			
1,1-Dichloroethylene	3.21	0.05	ug/g	ND	80.3	60-130			
cis-1,2-Dichloroethylene	3.53	0.05	ug/g	ND	88.2	60-130			
trans-1,2-Dichloroethylene	3.22	0.05	ug/g	ND	80.4	60-130			
1,2-Dichloropropane	3.50	0.05	ug/g	ND	87.4	60-130			
cis-1,3-Dichloropropylene	3.00	0.05	ug/g	ND	75.0	60-130			
trans-1,3-Dichloropropylene	3.56	0.05	ug/g	ND	88.9	60-130			
Ethylbenzene	4.06	0.05	ug/g	ND	101	60-130			
Ethylene dibromide (dibromoethane, 1,2-	3.73	0.05	ug/g	ND	93.2	60-130			
Hexane	4.30	0.05	ug/g	ND	108	60-130			
Methyl Ethyl Ketone (2-Butanone)	9.28	0.50	ug/g	ND	92.8	50-140			
Methyl Isobutyl Ketone	9.22	0.50	ug/g	ND	92.2	50-140			
Methyl tert-butyl ether	10.4	0.05	ug/g	ND	104	50-140			
Methylene Chloride	4.20	0.05	ug/g	ND	105	60-130			
Styrene	3.50	0.05	ug/g	ND	87.6	60-130			
1,1,1,2-Tetrachloroethane	3.43	0.05	ug/g	ND	85.7	60-130			
1,1,2,2-Tetrachloroethane	4.49	0.05	ug/g	ND	112	60-130			
Tetrachloroethylene	3.60	0.05	ug/g	ND	90.0	60-130			
Toluene	3.94	0.05	ug/g	ND	98.5	60-130			
1,1,1-Trichloroethane	3.36	0.05	ug/g	ND	84.0	60-130			
1,1,2-Trichloroethane	3.74	0.05	ug/g	ND	93.4	60-130			
Trichloroethylene	3.35	0.05	ug/g	ND	83.7	60-130			
Trichlorofluoromethane	2.97	0.05	ug/g	ND	74.4	50-140			
Vinyl chloride	3.38	0.02	ug/g	ND	84.5	50-140			
m,p-Xylenes	7.65	0.05	ug/g	ND	95.7	60-130			
o-Xylene	3.88	0.05	ug/g	ND	97.1	60-130			
Surrogate: 4-Bromofluorobenzene	*7.96*		*ug/g*		*99.6*	*50-140*			
Surrogate: Dibromofluoromethane	*7.54*		*ug/g*		*94.2*	*50-140*			
Surrogate: Toluene-d8	*7.98*		*ug/g*		*99.8*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-05 The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD

Paracel ID: 2239108

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2239108	№ 69241

Client Name: EXP Services Inc	Project Ref: 077-2200 7382-A0	Page 1 of 1
Contact Name: Mark McCalla	Quote #: City of Ottawa SOA Sami Qadan	Turnaround Time
Address: 2650 Queensview Dr. Ottawa	PO #:	☐ 1 day ☐ 3 day
	E-mail: Sami.Qadan@ottawa.ca	☐ 2 day ☑ Regular
Telephone: 613-220-2598		Date Required:

☑ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☑ Med/Fine
☐ Table 2 ☑ Ind/Comm ☑ Coarse
☑ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☑ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: Metals & Inorganics	PAHs	VOCs	PHCs
1	BH-2 SS-2	BKH 303	S		2	Sept 19, 2022	9 am	✓	✓	✓	✓
2	BH-3 SS-2	" 304	S		2	"	10:30 am	✓	✓	✓	✓
3	BH-5 SS-2	" 305	S		2	"	1:30 pm	✓	✓	✓	✓
4											
5											
6											
7											
8											
9											
10											

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Matt Zammit	Received By Driver/Depot:	Received By: Mel J	Verified By: Mel J
Relinquished By (Print): Matt Zammit	Date/Time:	Date/Time: Sep 19/22 16:55	Date/Time: Sep 19/22 17:11
Date/Time: 4:30 pm Sept. 19, 2022.	Temperature: °C	Temperature: 20.1 °C	pH Verified: ☐ By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark McCalla

Client PO:
Project: OTT22007382A0/1500 St. Laurent Boulevard
Custody: 138404

Report Date: 3-Oct-2022
Order Date: 21-Sep-2022

Order #: 2239316

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2239316-01	BH1 SS3
2239316-02	BH4 SS3
2239316-03	BH7 SS3
2239316-04	BH8 SS2
2239316-05	BH9 SS2
2239316-06	BH14 SS4
2239316-07	DUP
2239316-08	BH11 SS4

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 03-Oct-2022

Client: exp Services Inc. (Ottawa)

Order Date: 21-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	23-Sep-22	26-Sep-22
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	28-Sep-22	3-Oct-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	22-Sep-22	29-Sep-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	28-Sep-22	28-Sep-22
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	22-Sep-22	28-Sep-22
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	23-Sep-22	26-Sep-22
Solids, %	Gravimetric, calculation	26-Sep-22	26-Sep-22

Certificate of Analysis

Report Date: 03-Oct-2022

Client: exp Services Inc. (Ottawa)

Order Date: 21-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH1 SS3	BH4 SS3	BH7 SS3	BH8 SS2
	Sample Date:	20-Sep-22 08:00	20-Sep-22 13:00	20-Sep-22 09:30	20-Sep-22 10:30
	Sample ID:	2239316-01	2239316-02	2239316-03	2239316-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	92.4	91.5	91.6	90.7
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	4.0	5.2	5.1	6.0
Barium	1.0 ug/g dry	125	127	142	147
Beryllium	0.5 ug/g dry	<0.5	0.6	0.6	0.6
Boron	5.0 ug/g dry	8.8	9.8	10.7	10.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	16.2	18.2	17.4	20.3
Cobalt	1.0 ug/g dry	7.1	8.6	8.4	15.5
Copper	5.0 ug/g dry	18.8	21.0	21.2	27.3
Lead	1.0 ug/g dry	7.4	9.9	9.4	12.4
Molybdenum	1.0 ug/g dry	1.8	2.4	2.4	3.2
Nickel	5.0 ug/g dry	21.6	26.6	25.8	38.2
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	1.5	1.3	1.3	1.1
Vanadium	10.0 ug/g dry	24.1	27.2	26.4	29.0
Zinc	20.0 ug/g dry	31.3	36.1	34.8	59.1
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 03-Oct-2022

Client: exp Services Inc. (Ottawa)

Order Date: 21-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH1 SS3	BH4 SS3	BH7 SS3	BH8 SS2
	Sample Date:	20-Sep-22 08:00	20-Sep-22 13:00	20-Sep-22 09:30	20-Sep-22 10:30
	Sample ID:	2239316-01	2239316-02	2239316-03	2239316-04
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	90.9%	69.6%	72.1%	111%
Dibromofluoromethane	Surrogate	111%	118%	124%	119%
Toluene-d8	Surrogate	98.8%	85.7%	73.2%	89.6%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	41	47	27	<4
F3 PHCs (C16-C34)	8 ug/g dry	39	37	23	26
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	40

Certificate of Analysis

Report Date: 03-Oct-2022

Client: exp Services Inc. (Ottawa)

Order Date: 21-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH1 SS3	BH4 SS3	BH7 SS3	BH8 SS2
	Sample Date:	20-Sep-22 08:00	20-Sep-22 13:00	20-Sep-22 09:30	20-Sep-22 10:30
	Sample ID:	2239316-01	2239316-02	2239316-03	2239316-04
	MDL/Units	Soil	Soil	Soil	Soil
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	116%	89.6%	102%	114%
Terphenyl-d14	Surrogate	138%	120%	110%	138%

Certificate of Analysis

Report Date: 03-Oct-2022

Client: exp Services Inc. (Ottawa)

Order Date: 21-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH9 SS2	BH14 SS4	DUP	BH11 SS4
	Sample Date:	20-Sep-22 12:00	20-Sep-22 14:30	20-Sep-22 09:00	21-Sep-22 14:00
	Sample ID:	2239316-05	2239316-06	2239316-07	2239316-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.1	86.0	91.1	81.0
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	6.6	3.5	4.8	5.1
Barium	1.0 ug/g dry	83.2	93.7	107	98.1
Beryllium	0.5 ug/g dry	0.6	0.5	0.5	0.7
Boron	5.0 ug/g dry	9.8	7.1	9.7	9.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	18.4	26.8	16.5	26.9
Cobalt	1.0 ug/g dry	10.9	7.4	7.9	10.0
Copper	5.0 ug/g dry	27.0	19.2	20.4	26.4
Lead	1.0 ug/g dry	12.1	26.0	8.9	9.1
Molybdenum	1.0 ug/g dry	2.3	1.2	2.1	1.9
Nickel	5.0 ug/g dry	31.0	19.4	24.3	35.3
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	1.1	1.0
Vanadium	10.0 ug/g dry	27.1	30.4	24.3	34.2
Zinc	20.0 ug/g dry	44.2	63.8	37.3	47.7
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 03-Oct-2022

Client: exp Services Inc. (Ottawa)

Order Date: 21-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH9 SS2	BH14 SS4	DUP	BH11 SS4
	Sample Date:	20-Sep-22 12:00	20-Sep-22 14:30	20-Sep-22 09:00	21-Sep-22 14:00
	Sample ID:	2239316-05	2239316-06	2239316-07	2239316-08
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	114%	101%	97.6%	125%
Dibromofluoromethane	Surrogate	129%	134%	125%	130%
Toluene-d8	Surrogate	87.8%	89.8%	72.1%	91.7%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	13	29	<4
F3 PHCs (C16-C34)	8 ug/g dry	10	110	24	<8

Certificate of Analysis

Report Date: 03-Oct-2022

Client: exp Services Inc. (Ottawa)

Order Date: 21-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH9 SS2	BH14 SS4	DUP	BH11 SS4
	Sample Date:	20-Sep-22 12:00	20-Sep-22 14:30	20-Sep-22 09:00	21-Sep-22 14:00
	Sample ID:	2239316-05	2239316-06	2239316-07	2239316-08
	MDL/Units	Soil	Soil	Soil	Soil
F4 PHCs (C34-C50)	6 ug/g dry	28	137 [1]	<6	<6
F4G PHCs (gravimetric)	50 ug/g dry	-	360	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	0.04	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	0.04	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	107%	112%	118%	112%
Terphenyl-d14	Surrogate	128%	133%	137%	138%

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.45*		*ug/g*		*109*	*50-140*			
Surrogate: Terphenyl-d14	*1.47*		*ug/g*		*110*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*3.18*		*ug/g*		*99.4*	*50-140*			
Surrogate: Dibromofluoromethane	*3.38*		*ug/g*		*106*	*50-140*			
Surrogate: Toluene-d8	*3.33*		*ug/g*		*104*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	38	8	ug/g	36			5.6	30	
F4 PHCs (C34-C50)	17	6	ug/g	13			20.7	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	2.1	1.0	ug/g	2.0			6.5	30	
Barium	167	1.0	ug/g	146			13.5	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	5.1	5.0	ug/g	ND			NC	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	28.6	5.0	ug/g	25.8			10.3	30	
Cobalt	7.7	1.0	ug/g	7.0			9.2	30	
Copper	16.6	5.0	ug/g	15.2			9.0	30	
Lead	3.9	1.0	ug/g	3.5			10.2	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	16.0	5.0	ug/g	14.3			11.4	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	40.7	10.0	ug/g	36.8			10.1	30	
Zinc	37.5	20.0	ug/g	34.2			9.1	30	
Physical Characteristics									
% Solids	86.9	0.1	% by Wt.	89.4			2.9	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.72*		*ug/g*		*119*	*50-140*			
Surrogate: Terphenyl-d14	*1.99*		*ug/g*		*138*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*3.07*		*ug/g*		*94.1*	*50-140*			
Surrogate: Dibromofluoromethane	*3.35*		*ug/g*		*103*	*50-140*			
Surrogate: Toluene-d8	*3.38*		*ug/g*		*104*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	170	7	ug/g	ND	84.9	80-120			
F2 PHCs (C10-C16)	82	4	ug/g	ND	99.8	60-140			
F3 PHCs (C16-C34)	288	8	ug/g	36	124	60-140			
F4 PHCs (C34-C50)	148	6	ug/g	13	105	60-140			
Metals									
Antimony	35.3	1.0	ug/g	ND	70.5	70-130			
Arsenic	42.6	1.0	ug/g	1.2	82.8	70-130			
Barium	43.9	1.0	ug/g	ND	87.8	70-130			
Beryllium	42.6	0.5	ug/g	ND	84.6	70-130			
Boron	44.0	5.0	ug/g	ND	80.5	70-130			
Cadmium	39.2	0.5	ug/g	ND	78.3	70-130			
Chromium	46.9	5.0	ug/g	ND	93.8	70-130			
Cobalt	44.2	1.0	ug/g	8.0	72.3	70-130			
Copper	58.8	5.0	ug/g	6.1	105	70-130			
Lead	41.3	1.0	ug/g	2.1	78.3	70-130			
Molybdenum	41.9	1.0	ug/g	ND	83.2	70-130			
Nickel	67.8	5.0	ug/g	5.7	124	70-130			
Selenium	39.6	1.0	ug/g	ND	78.9	70-130			
Silver	36.6	0.3	ug/g	ND	73.2	70-130			
Thallium	41.7	1.0	ug/g	ND	83.0	70-130			
Uranium	42.4	1.0	ug/g	ND	84.2	70-130			
Vanadium	46.6	10.0	ug/g	ND	93.1	70-130			
Zinc	43.7	20.0	ug/g	ND	87.4	70-130			
Semi-Volatiles									
Acenaphthene	0.195	0.02	ug/g	ND	108	50-140			
Acenaphthylene	0.153	0.02	ug/g	ND	84.8	50-140			
Anthracene	0.200	0.02	ug/g	ND	111	50-140			
Benzo [a] anthracene	0.156	0.02	ug/g	ND	86.6	50-140			
Benzo [a] pyrene	0.166	0.02	ug/g	ND	92.3	50-140			
Benzo [b] fluoranthene	0.222	0.02	ug/g	ND	123	50-140			
Benzo [g,h,i] perylene	0.142	0.02	ug/g	ND	79.0	50-140			
Benzo [k] fluoranthene	0.222	0.02	ug/g	ND	123	50-140			
Chrysene	0.208	0.02	ug/g	ND	115	50-140			
Dibenzo [a,h] anthracene	0.196	0.02	ug/g	ND	109	50-140			
Fluoranthene	0.127	0.02	ug/g	ND	70.7	50-140			
Fluorene	0.207	0.02	ug/g	ND	115	50-140			
Indeno [1,2,3-cd] pyrene	0.198	0.02	ug/g	ND	110	50-140			
1-Methylnaphthalene	0.235	0.02	ug/g	ND	131	50-140			
2-Methylnaphthalene	0.204	0.02	ug/g	ND	113	50-140			
Naphthalene	0.206	0.01	ug/g	ND	114	50-140			
Phenanthrene	0.181	0.02	ug/g	ND	100	50-140			
Pyrene	0.132	0.02	ug/g	ND	72.9	50-140			
Surrogate: 2-Fluorobiphenyl	*1.65*		*ug/g*		*115*	*50-140*			
Surrogate: Terphenyl-d14	*2.00*		*ug/g*		*138*	*50-140*			
Volatiles									
Acetone	8.41	0.50	ug/g	ND	84.1	50-140			
Benzene	3.55	0.02	ug/g	ND	88.8	60-130			
Bromodichloromethane	4.00	0.05	ug/g	ND	99.9	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	4.00	0.05	ug/g	ND	100	60-130			
Bromomethane	4.33	0.05	ug/g	ND	108	50-140			
Carbon Tetrachloride	3.88	0.05	ug/g	ND	96.9	60-130			
Chlorobenzene	4.22	0.05	ug/g	ND	105	60-130			
Chloroform	4.00	0.05	ug/g	ND	100	60-130			
Dibromochloromethane	3.94	0.05	ug/g	ND	98.5	60-130			
Dichlorodifluoromethane	4.11	0.05	ug/g	ND	103	50-140			
1,2-Dichlorobenzene	3.90	0.05	ug/g	ND	97.4	60-130			
1,3-Dichlorobenzene	3.83	0.05	ug/g	ND	95.8	60-130			
1,4-Dichlorobenzene	4.08	0.05	ug/g	ND	102	60-130			
1,1-Dichloroethane	4.25	0.05	ug/g	ND	106	60-130			
1,2-Dichloroethane	3.54	0.05	ug/g	ND	88.4	60-130			
1,1-Dichloroethylene	3.86	0.05	ug/g	ND	96.4	60-130			
cis-1,2-Dichloroethylene	3.76	0.05	ug/g	ND	93.9	60-130			
trans-1,2-Dichloroethylene	3.87	0.05	ug/g	ND	96.6	60-130			
1,2-Dichloropropane	3.61	0.05	ug/g	ND	90.1	60-130			
cis-1,3-Dichloropropylene	2.82	0.05	ug/g	ND	70.6	60-130			
trans-1,3-Dichloropropylene	3.25	0.05	ug/g	ND	81.2	60-130			
Ethylbenzene	4.03	0.05	ug/g	ND	101	60-130			
Ethylene dibromide (dibromoethane, 1,2-	3.58	0.05	ug/g	ND	89.6	60-130			
Hexane	4.65	0.05	ug/g	ND	116	60-130			
Methyl Ethyl Ketone (2-Butanone)	7.70	0.50	ug/g	ND	77.0	50-140			
Methyl Isobutyl Ketone	7.30	0.50	ug/g	ND	73.0	50-140			
Methyl tert-butyl ether	8.77	0.05	ug/g	ND	87.7	50-140			
Methylene Chloride	4.28	0.05	ug/g	ND	107	60-130			
Styrene	3.61	0.05	ug/g	ND	90.2	60-130			
1,1,1,2-Tetrachloroethane	4.34	0.05	ug/g	ND	108	60-130			
1,1,2,2-Tetrachloroethane	4.85	0.05	ug/g	ND	121	60-130			
Tetrachloroethylene	3.66	0.05	ug/g	ND	91.5	60-130			
Toluene	4.75	0.05	ug/g	ND	119	60-130			
1,1,1-Trichloroethane	3.77	0.05	ug/g	ND	94.2	60-130			
1,1,2-Trichloroethane	3.50	0.05	ug/g	ND	87.5	60-130			
Trichloroethylene	3.24	0.05	ug/g	ND	81.0	60-130			
Trichlorofluoromethane	4.21	0.05	ug/g	ND	105	50-140			
Vinyl chloride	4.12	0.02	ug/g	ND	103	50-140			
m,p-Xylenes	8.79	0.05	ug/g	ND	110	60-130			
o-Xylene	4.49	0.05	ug/g	ND	112	60-130			
Surrogate: 4-Bromofluorobenzene	*2.24*		*ug/g*		*70.0*	*50-140*			
Surrogate: Dibromofluoromethane	*2.61*		*ug/g*		*81.4*	*50-140*			
Surrogate: Toluene-d8	*3.54*		*ug/g*		*111*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

1 : GC-FID signal did not return to baseline by C50

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2239316

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2239316	№ 138404

Client Name: Exp Services Inc.
Contact Name: Mark McCalla
Address: 2650 Queensview Drive, Ottawa
Telephone: 613-220-2598

Project Ref: OTT-22007386-A0
Quote #: City of Ottawa SOA Sami Qadan
PO #:
E-mail: Sami.Qadan@ottawa.ca

Page 1 of 1

Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular
Date Required:

☑ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☑ Med/Fine
☐ Table 2 ☑ Ind/Comm ☑ Coarse
☑ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☑ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	BH1 SS3	BKG 313	S		2	Sept.20,22	8 am	✓	✓	✓	✓								
2	BH4 SS3	" 314	S		2	"	1 pm	✓	✓	✓	✓								
3	BH7 SS3	" 315	S		2	"	9:30 am	✓	✓	✓	✓								
4	BH8 SS2	" 316	S		2	"	10:30 am	✓	✓	✓	✓								
5	BH9 SS2	" 317	S		2	"	noon	✓	✓	✓	✓								
6	BH14 SS4	" 318	S		2	"	2:30 pm	✓	✓	✓	✓								
7	DUP	" 319	S		2	"	am	✓	✓	✓	✓								
8	BH11 SS4	" 320	S		2	Sept 21/22	2pm	✓	✓	✓	✓								
9																			
10																			

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Mark McCalla	Received By Driver/Depot:	Received By Lab: Mel	Verified By: Mel
Relinquished By (Print): MARK MCCALLA	Date/Time:	Date/Time: Sep 21/22 16:16	Date/Time: Sep 21/22 17:13
Date/Time: Sept 21/22 4:05	Temperature: °C	Temperature: 16.9 °C	pH Verified: ☐ By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark McCalla

Client PO:
Project: OTT22007382A0/1500 St. Laurent Boulevard
Custody: 138405

Report Date: 30-Sep-2022
Order Date: 23-Sep-2022

Order #: 2239548

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2239548-01	BH10, SS2
2239548-02	BH12, SS2
2239548-03	BH13, SS3

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	26-Sep-22	27-Sep-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	26-Sep-22	28-Sep-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	28-Sep-22	29-Sep-22
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	27-Sep-22	29-Sep-22
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	26-Sep-22	27-Sep-22
Solids, %	Gravimetric, calculation	28-Sep-22	28-Sep-22

Certificate of Analysis

Report Date: 30-Sep-2022

Client: exp Services Inc. (Ottawa)

Order Date: 23-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH10, SS2	BH12, SS2	BH13, SS3	-
	Sample Date:	22-Sep-22 14:30	23-Sep-22 10:00	22-Sep-22 10:00	-
	Sample ID:	2239548-01	2239548-02	2239548-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	93.2	92.2	88.7	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	6.3	4.9	3.4	-
Barium	1.0 ug/g dry	103	98.5	140	-
Beryllium	0.5 ug/g dry	0.6	0.6	0.5	-
Boron	5.0 ug/g dry	9.6	9.6	7.2	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	5.0 ug/g dry	22.4	22.2	30.7	-
Cobalt	1.0 ug/g dry	10.4	10.1	9.2	-
Copper	5.0 ug/g dry	21.7	24.0	25.6	-
Lead	1.0 ug/g dry	11.8	11.9	34.5	-
Molybdenum	1.0 ug/g dry	2.6	2.4	<1.0	-
Nickel	5.0 ug/g dry	35.3	27.3	23.1	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	1.1	<1.0	<1.0	-
Vanadium	10.0 ug/g dry	26.6	30.3	34.2	-
Zinc	20.0 ug/g dry	56.7	48.4	76.7	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 30-Sep-2022

Client: exp Services Inc. (Ottawa)

Order Date: 23-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH10, SS2	BH12, SS2	BH13, SS3	-
	Sample Date:	22-Sep-22 14:30	23-Sep-22 10:00	22-Sep-22 10:00	-
	Sample ID:	2239548-01	2239548-02	2239548-03	-
	MDL/Units	Soil	Soil	Soil	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	109%	111%	112%	-
Dibromofluoromethane	Surrogate	111%	110%	113%	-
Toluene-d8	Surrogate	105%	105%	109%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	8	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	23	13	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	27	31	27	-
F4 PHCs (C34-C50)	6 ug/g dry	10	37	27	-

Certificate of Analysis

Report Date: 30-Sep-2022

Client: exp Services Inc. (Ottawa)

Order Date: 23-Sep-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH10, SS2	BH12, SS2	BH13, SS3	-
	Sample Date:	22-Sep-22 14:30	23-Sep-22 10:00	22-Sep-22 10:00	-
	Sample ID:	2239548-01	2239548-02	2239548-03	-
	MDL/Units	Soil	Soil	Soil	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	0.03	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.03	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.03	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	0.04	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.06	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	0.04	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	0.05	-
2-Fluorobiphenyl	Surrogate	95.2%	102%	99.0%	-
Terphenyl-d14	Surrogate	138%	139%	136%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.09*		*ug/g*		*81.6*	*50-140*			
Surrogate: Terphenyl-d14	*1.49*		*ug/g*		*112*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.88*		*ug/g*		*111*	*50-140*			
Surrogate: Dibromofluoromethane	*9.23*		*ug/g*		*115*	*50-140*			
Surrogate: Toluene-d8	*7.95*		*ug/g*		*99.3*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	12	8	ug/g	25			NC	30	
F4 PHCs (C34-C50)	13	6	ug/g	21			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	4.4	1.0	ug/g	4.7			7.1	30	
Barium	76.0	1.0	ug/g	79.9			5.0	30	
Beryllium	0.7	0.5	ug/g	0.7			0.5	30	
Boron	10.5	5.0	ug/g	10.6			0.5	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	23.9	5.0	ug/g	24.9			4.1	30	
Cobalt	10.2	1.0	ug/g	10.5			3.4	30	
Copper	21.4	5.0	ug/g	22.4			4.7	30	
Lead	9.7	1.0	ug/g	10.1			3.1	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	22.7	5.0	ug/g	23.7			4.4	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	32.3	10.0	ug/g	33.5			3.6	30	
Zinc	48.4	20.0	ug/g	52.1			7.3	30	
Physical Characteristics									
% Solids	89.2	0.1	% by Wt.	85.6			4.1	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.74*		*ug/g*		*98.3*	*50-140*			
Surrogate: Terphenyl-d14	*2.44*		*ug/g*		*138*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*8.93*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*9.89*		*ug/g*		*121*	*50-140*			
Surrogate: Toluene-d8	*8.11*		*ug/g*		*99.0*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	166	7	ug/g	ND	82.9	80-120			
F2 PHCs (C10-C16)	91	4	ug/g	ND	81.8	60-140			
F3 PHCs (C16-C34)	231	8	ug/g	25	75.6	60-140			
F4 PHCs (C34-C50)	171	6	ug/g	21	87.0	60-140			
Metals									
Antimony	37.3	1.0	ug/g	ND	74.6	70-130			
Arsenic	48.7	1.0	ug/g	1.9	93.7	70-130			
Barium	73.2	1.0	ug/g	32.0	82.4	70-130			
Beryllium	42.8	0.5	ug/g	ND	85.0	70-130			
Boron	45.5	5.0	ug/g	ND	82.6	70-130			
Cadmium	41.5	0.5	ug/g	ND	83.0	70-130			
Chromium	57.9	5.0	ug/g	10.0	95.9	70-130			
Cobalt	50.9	1.0	ug/g	4.2	93.4	70-130			
Copper	51.1	5.0	ug/g	9.0	84.4	70-130			
Lead	45.4	1.0	ug/g	4.0	82.7	70-130			
Molybdenum	45.5	1.0	ug/g	ND	90.8	70-130			
Nickel	54.0	5.0	ug/g	9.5	88.9	70-130			
Selenium	44.1	1.0	ug/g	ND	88.0	70-130			
Silver	40.6	0.3	ug/g	ND	81.1	70-130			
Thallium	43.2	1.0	ug/g	ND	86.2	70-130			
Uranium	43.8	1.0	ug/g	ND	87.2	70-130			
Vanadium	62.2	10.0	ug/g	13.4	97.5	70-130			
Zinc	60.6	20.0	ug/g	20.8	79.6	70-130			
Semi-Volatiles									
Acenaphthene	0.170	0.02	ug/g	ND	102	50-140			
Acenaphthylene	0.140	0.02	ug/g	ND	83.9	50-140			
Anthracene	0.169	0.02	ug/g	ND	101	50-140			
Benzo [a] anthracene	0.138	0.02	ug/g	ND	82.6	50-140			
Benzo [a] pyrene	0.144	0.02	ug/g	ND	86.6	50-140			
Benzo [b] fluoranthene	0.145	0.02	ug/g	ND	87.0	50-140			
Benzo [g,h,i] perylene	0.141	0.02	ug/g	ND	84.9	50-140			
Benzo [k] fluoranthene	0.176	0.02	ug/g	ND	106	50-140			
Chrysene	0.178	0.02	ug/g	ND	107	50-140			
Dibenzo [a,h] anthracene	0.146	0.02	ug/g	ND	87.6	50-140			
Fluoranthene	0.138	0.02	ug/g	ND	82.7	50-140			
Fluorene	0.169	0.02	ug/g	ND	102	50-140			
Indeno [1,2,3-cd] pyrene	0.135	0.02	ug/g	ND	81.1	50-140			
1-Methylnaphthalene	0.180	0.02	ug/g	ND	108	50-140			
2-Methylnaphthalene	0.154	0.02	ug/g	ND	92.6	50-140			
Naphthalene	0.175	0.01	ug/g	ND	105	50-140			
Phenanthrene	0.141	0.02	ug/g	ND	84.8	50-140			
Pyrene	0.165	0.02	ug/g	ND	98.8	50-140			
Surrogate: 2-Fluorobiphenyl	*1.41*		*ug/g*		*106*	*50-140*			
Surrogate: Terphenyl-d14	*1.77*		*ug/g*		*133*	*50-140*			
Volatiles									
Acetone	10.2	0.50	ug/g	ND	102	50-140			
Benzene	4.00	0.02	ug/g	ND	100	60-130			
Bromodichloromethane	3.52	0.05	ug/g	ND	87.9	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	4.78	0.05	ug/g	ND	119	60-130			
Bromomethane	3.34	0.05	ug/g	ND	83.6	50-140			
Carbon Tetrachloride	4.32	0.05	ug/g	ND	108	60-130			
Chlorobenzene	4.03	0.05	ug/g	ND	101	60-130			
Chloroform	4.09	0.05	ug/g	ND	102	60-130			
Dibromochloromethane	4.70	0.05	ug/g	ND	118	60-130			
Dichlorodifluoromethane	4.83	0.05	ug/g	ND	121	50-140			
1,2-Dichlorobenzene	4.33	0.05	ug/g	ND	108	60-130			
1,3-Dichlorobenzene	4.23	0.05	ug/g	ND	106	60-130			
1,4-Dichlorobenzene	4.06	0.05	ug/g	ND	102	60-130			
1,1-Dichloroethane	3.70	0.05	ug/g	ND	92.6	60-130			
1,2-Dichloroethane	4.08	0.05	ug/g	ND	102	60-130			
1,1-Dichloroethylene	3.49	0.05	ug/g	ND	87.2	60-130			
cis-1,2-Dichloroethylene	3.88	0.05	ug/g	ND	97.0	60-130			
trans-1,2-Dichloroethylene	3.75	0.05	ug/g	ND	93.9	60-130			
1,2-Dichloropropane	4.26	0.05	ug/g	ND	107	60-130			
cis-1,3-Dichloropropylene	4.04	0.05	ug/g	ND	101	60-130			
trans-1,3-Dichloropropylene	4.68	0.05	ug/g	ND	117	60-130			
Ethylbenzene	3.72	0.05	ug/g	ND	93.1	60-130			
Ethylene dibromide (dibromoethane, 1,2-	4.84	0.05	ug/g	ND	121	60-130			
Hexane	4.57	0.05	ug/g	ND	114	60-130			
Methyl Ethyl Ketone (2-Butanone)	9.90	0.50	ug/g	ND	99.0	50-140			
Methyl Isobutyl Ketone	13.5	0.50	ug/g	ND	135	50-140			
Methyl tert-butyl ether	10.9	0.05	ug/g	ND	109	50-140			
Methylene Chloride	3.54	0.05	ug/g	ND	88.6	60-130			
Styrene	4.69	0.05	ug/g	ND	117	60-130			
1,1,1,2-Tetrachloroethane	4.74	0.05	ug/g	ND	119	60-130			
1,1,2,2-Tetrachloroethane	4.43	0.05	ug/g	ND	111	60-130			
Tetrachloroethylene	3.93	0.05	ug/g	ND	98.2	60-130			
Toluene	4.07	0.05	ug/g	ND	102	60-130			
1,1,1-Trichloroethane	4.64	0.05	ug/g	ND	116	60-130			
1,1,2-Trichloroethane	4.39	0.05	ug/g	ND	110	60-130			
Trichloroethylene	4.50	0.05	ug/g	ND	112	60-130			
Trichlorofluoromethane	3.49	0.05	ug/g	ND	87.1	50-140			
Vinyl chloride	3.93	0.02	ug/g	ND	98.2	50-140			
m,p-Xylenes	7.74	0.05	ug/g	ND	96.7	60-130			
o-Xylene	3.86	0.05	ug/g	ND	96.5	60-130			
Surrogate: 4-Bromofluorobenzene	*9.11*		*ug/g*		*114*	*50-140*			
Surrogate: Dibromofluoromethane	*9.68*		*ug/g*		*121*	*50-140*			
Surrogate: Toluene-d8	*7.62*		*ug/g*		*95.3*	*50-140*			

Qualifier Notes:

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARAC LABORATORIES

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2239548	№ 138405

Client Name: Exp Services Inc.	Project Ref: OTT-2200 7382-A0	Page 1 of 1
Contact Name: Mark McCalla	Quote #: City of Ottawa SOA Sami Qadan	Turnaround Time
Address: 2650 Queensview Dr. Ottawa	PO #:	☐ 1 day ☐ 3 day
	E-mail: Sami.Qadan@ottawa.ca	☐ 2 day ☑ Regular
Telephone: 613-220-2598		Date Required:

☑ REG 153/04 ☐ REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis
☐ Table 1 ☐ Res/Park ☑ Med/Fine	☐ REG 558 ☐ PWQO		
☐ Table 2 ☑ Ind/Comm ☑ Coarse	☐ CCME ☐ MISA		
☑ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm		
☐ Table	Mun:		
For RSC: ☐ Yes ☑ No	☐ Other:		

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)						
1	BH 10, SS2	BKL333	S		2	Sept. 22nd, 22	2:30 pm	✓	✓	✓	✓									
2	BH 12, SS2	BKL334	S		2	Sept. 23rd, 22	10 am	✓	✓	✓	✓									
3	BH 13, SS3	BKL335	S		2	Sept. 22, 22	10 am	✓	✓	✓	✓									
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Jurreeparn Bhumbi	Verified By:
Relinquished By (Print): Matt Zammit	Date/Time:	Date/Time: Sept 23, 2022 12.45	Date/Time: Sept 23 2022
Date/Time: Sept 23, 2022 noon	Temperature: °C	Temperature: 8.7 °C	pH Verified: ☐ By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark McCalla

Client PO:
Project: OTT22007382A0/1500 St. Laurent Boulevard
Custody: 57268

Report Date: 23-Nov-2022
Order Date: 17-Nov-2022

Order #: 2247388

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2247388-01	BH15, AS7
2247388-02	BH16, SS3
2247388-03	BH17, SS3
2247388-04	DUP

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 23-Nov-2022
Order Date: 17-Nov-2022
Project Description: OTT22007382A0/1500 St. Laurent Boulevard

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	21-Nov-22	21-Nov-22
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	21-Nov-22	23-Nov-22
Conductivity	MOE E3138 - probe @25 °C, water ext	21-Nov-22	21-Nov-22
Cyanide, free	MOE E3015 - Auto Colour, water extraction	22-Nov-22	22-Nov-22
Mercury by CVAA	EPA 7471B - CVAA, digestion	22-Nov-22	22-Nov-22
PCBs, total	SW846 8082A - GC-ECD	17-Nov-22	22-Nov-22
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	19-Nov-22	19-Nov-22
PHC F1	CWS Tier 1 - P&T GC-FID	18-Nov-22	19-Nov-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	18-Nov-22	19-Nov-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	21-Nov-22	21-Nov-22
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	16-Nov-22	20-Nov-22
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	18-Nov-22	19-Nov-22
SAR	Calculated	21-Nov-22	21-Nov-22
Solids, %	CWS Tier 1 - Gravimetric	18-Nov-22	18-Nov-22

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO:

Report Date: 23-Nov-2022

Order Date: 17-Nov-2022

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH15, AS7	BH16, SS3	BH17, SS3	DUP
	Sample Date:	15-Nov-22 17:00	17-Nov-22 12:00	17-Nov-22 14:00	17-Nov-22 12:00
	Sample ID:	2247388-01	2247388-02	2247388-03	2247388-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	92.8	81.4	82.1	83.9
General Inorganics					
SAR	0.01 N/A	13.6	27.6	3.99	5.98
Conductivity	5 uS/cm	1780	4530	1350	1380
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.35	7.29	6.91	7.08
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	5.6	3.5	5.1	5.2
Barium	1.0 ug/g dry	98.9	144	115	118
Beryllium	0.5 ug/g dry	0.5	<0.5	0.5	0.6
Boron	5.0 ug/g dry	10.1	<5.0	7.9	8.4
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	50.1	42.3	29.0	33.0
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	9.3	8.2	8.5	8.8
Copper	5.0 ug/g dry	26.7	13.5	20.9	22.6
Lead	1.0 ug/g dry	10.6	6.8	23.6	20.3
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	4.4	<1.0	1.4	1.4
Nickel	5.0 ug/g dry	27.8	21.9	23.9	24.9
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	1.3	1.0	1.1	1.3
Vanadium	10.0 ug/g dry	26.4	38.3	33.9	36.5
Zinc	20.0 ug/g dry	41.0	44.2	72.0	80.3
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO:

Report Date: 23-Nov-2022

Order Date: 17-Nov-2022

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH15, AS7	BH16, SS3	BH17, SS3	DUP
	Sample Date:	15-Nov-22 17:00	17-Nov-22 12:00	17-Nov-22 14:00	17-Nov-22 12:00
	Sample ID:	2247388-01	2247388-02	2247388-03	2247388-04
	MDL/Units	Soil	Soil	Soil	Soil
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO:

Report Date: 23-Nov-2022

Order Date: 17-Nov-2022

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH15, AS7	BH16, SS3	BH17, SS3	DUP
	Sample Date:	15-Nov-22 17:00	17-Nov-22 12:00	17-Nov-22 14:00	17-Nov-22 12:00
	Sample ID:	2247388-01	2247388-02	2247388-03	2247388-04
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	100%	110%	105%	107%
Dibromofluoromethane	Surrogate	103%	111%	111%	111%
Toluene-d8	Surrogate	115%	119%	108%	120%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	41	<4	<4	5
F3 PHCs (C16-C34)	8 ug/g dry	59	36	66	54
F4 PHCs (C34-C50)	6 ug/g dry	20	27	48	51
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.03
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	0.04	0.03
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.05	0.09
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.06	0.11
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	0.03	0.07
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.03	0.04
Chrysene	0.02 ug/g dry	<0.02	<0.02	0.05	0.04
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.09	0.07
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	0.03	0.06
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	0.04	0.03
Pyrene	0.02 ug/g dry	<0.02	<0.02	0.08	0.07
2-Fluorobiphenyl	Surrogate	97.5%	77.0%	81.9%	105%
Terphenyl-d14	Surrogate	105%	98.4%	95.9%	107%
PCBs					
PCBs, total	0.05 ug/g dry	<0.05	-	-	-
Decachlorobiphenyl	Surrogate	105%	-	-	-

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO:

Report Date: 23-Nov-2022
Order Date: 17-Nov-2022
Project Description: OTT22007382A0/1500 St. Laurent Boulevard

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
PCBs									
PCBs, total	ND	0.05	ug/g						
Surrogate: Decachlorobiphenyl	*0.0999*		*ug/g*		*99.9*	*60-140*			
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.05*		*ug/g*		*78.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.32*		*ug/g*		*99.2*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*7.73*		*ug/g*		*96.6*	*50-140*			
Surrogate: Dibromofluoromethane	*8.03*		*ug/g*		*100*	*50-140*			
Surrogate: Toluene-d8	*8.66*		*ug/g*		*108*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	3.13	0.01	N/A	2.85			9.4	30	
Conductivity	481	5	uS/cm	488			1.5	5	
Cyanide, free	ND	0.03	ug/g	ND			NC	35	
pH	7.17	0.05	pH Units	7.15			0.3	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	4.4	1.0	ug/g	4.7			6.2	30	
Barium	201	1.0	ug/g	210			4.7	30	
Beryllium	0.7	0.5	ug/g	0.8			5.1	30	
Boron, available	ND	0.5	ug/g	ND			NC	35	
Boron	12.1	5.0	ug/g	11.8			2.3	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	41.1	5.0	ug/g	44.7			8.5	30	
Cobalt	10.1	1.0	ug/g	10.5			3.7	30	
Copper	23.6	5.0	ug/g	25.2			6.4	30	
Lead	7.1	1.0	ug/g	7.6			7.3	30	
Mercury	ND	0.1	ug/g	ND			NC	30	
Molybdenum	1.3	1.0	ug/g	1.7			27.6	30	
Nickel	22.8	5.0	ug/g	23.5			3.0	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	55.9	10.0	ug/g	59.6			6.5	30	
Zinc	60.4	20.0	ug/g	64.8			6.9	30	
PCBs									
PCBs, total	ND	0.05	ug/g	ND			NC	40	
Surrogate: Decachlorobiphenyl	*0.112*		*ug/g*		*103*	*60-140*			
Physical Characteristics									
% Solids	87.3	0.1	% by Wt.	84.3			3.6	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	0.037			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	0.039			NC	40	
Pyrene	ND	0.02	ug/g	0.028			NC	40	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 2-Fluorobiphenyl	*1.20*		*ug/g*		*83.2*	*50-140*			
Surrogate: Terphenyl-d14	*1.48*		*ug/g*		*103*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*9.84*		*ug/g*		*95.7*	*50-140*			
Surrogate: Dibromofluoromethane	*11.2*		*ug/g*		*109*	*50-140*			
Surrogate: Toluene-d8	*12.4*		*ug/g*		*120*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Cyanide, free	0.337	0.03	ug/g	ND	105	50-150			
Hydrocarbons									
F1 PHCs (C6-C10)	168	7	ug/g	ND	84.0	80-120			
F2 PHCs (C10-C16)	120	4	ug/g	ND	114	60-140			
F3 PHCs (C16-C34)	327	8	ug/g	ND	127	60-140			
F4 PHCs (C34-C50)	199	6	ug/g	ND	122	60-140			
Metals									
Antimony	36.2	1.0	ug/g	ND	71.4	70-130			
Arsenic	49.2	1.0	ug/g	1.9	94.6	70-130			
Barium	134	1.0	ug/g	84.0	100	70-130			
Beryllium	48.0	0.5	ug/g	ND	95.4	70-130			
Boron, available	3.68	0.5	ug/g	ND	73.5	70-122			
Boron	54.0	5.0	ug/g	ND	98.5	70-130			
Cadmium	48.6	0.5	ug/g	ND	97.1	70-130			
Chromium (VI)	0.05	0.2	ug/g	ND	23.5	70-130			QM-05
Chromium	69.5	5.0	ug/g	17.9	103	70-130			
Cobalt	52.9	1.0	ug/g	4.2	97.5	70-130			
Copper	56.0	5.0	ug/g	10.1	91.8	70-130			
Lead	47.1	1.0	ug/g	3.1	88.2	70-130			
Mercury	1.30	0.1	ug/g	ND	86.7	70-130			
Molybdenum	45.7	1.0	ug/g	ND	90.0	70-130			
Nickel	56.8	5.0	ug/g	9.4	94.8	70-130			
Selenium	38.9	1.0	ug/g	ND	77.2	70-130			
Silver	41.7	0.3	ug/g	ND	83.3	70-130			
Thallium	46.6	1.0	ug/g	ND	93.0	70-130			
Uranium	47.6	1.0	ug/g	ND	94.6	70-130			
Vanadium	75.8	10.0	ug/g	23.8	104	70-130			
Zinc	71.4	20.0	ug/g	25.9	91.1	70-130			
PCBs									
PCBs, total	0.522	0.05	ug/g	ND	120	60-140			
Surrogate: Decachlorobiphenyl	*0.126*		*ug/g*		*116*	*60-140*			
Semi-Volatiles									
Acenaphthene	0.173	0.02	ug/g	ND	96.3	50-140			
Acenaphthylene	0.137	0.02	ug/g	ND	76.4	50-140			
Anthracene	0.140	0.02	ug/g	ND	77.9	50-140			
Benzo [a] anthracene	0.139	0.02	ug/g	ND	77.7	50-140			
Benzo [a] pyrene	0.157	0.02	ug/g	ND	87.2	50-140			
Benzo [b] fluoranthene	0.182	0.02	ug/g	ND	101	50-140			
Benzo [g,h,i] perylene	0.149	0.02	ug/g	ND	83.2	50-140			
Benzo [k] fluoranthene	0.160	0.02	ug/g	ND	88.9	50-140			
Chrysene	0.181	0.02	ug/g	ND	101	50-140			
Dibenzo [a,h] anthracene	0.140	0.02	ug/g	ND	78.0	50-140			
Fluoranthene	0.158	0.02	ug/g	0.037	67.2	50-140			
Fluorene	0.143	0.02	ug/g	ND	79.9	50-140			
Indeno [1,2,3-cd] pyrene	0.131	0.02	ug/g	ND	72.9	50-140			
1-Methylnaphthalene	0.149	0.02	ug/g	ND	82.8	50-140			
2-Methylnaphthalene	0.179	0.02	ug/g	ND	99.9	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Naphthalene	0.167	0.01	ug/g	ND	93.1	50-140			
Phenanthrene	0.166	0.02	ug/g	0.039	71.0	50-140			
Pyrene	0.161	0.02	ug/g	0.028	74.6	50-140			
Surrogate: 2-Fluorobiphenyl	*1.32*		*ug/g*		*91.7*	*50-140*			
Surrogate: Terphenyl-d14	*1.52*		*ug/g*		*106*	*50-140*			
Volatiles									
Acetone	13.4	0.50	ug/g	ND	134	50-140			
Benzene	4.88	0.02	ug/g	ND	122	60-130			
Bromodichloromethane	4.26	0.05	ug/g	ND	107	60-130			
Bromoform	3.68	0.05	ug/g	ND	92.1	60-130			
Bromomethane	4.20	0.05	ug/g	ND	105	50-140			
Carbon Tetrachloride	4.50	0.05	ug/g	ND	113	60-130			
Chlorobenzene	3.93	0.05	ug/g	ND	98.2	60-130			
Chloroform	4.44	0.05	ug/g	ND	111	60-130			
Dibromochloromethane	3.49	0.05	ug/g	ND	87.3	60-130			
Dichlorodifluoromethane	4.63	0.05	ug/g	ND	116	50-140			
1,2-Dichlorobenzene	3.78	0.05	ug/g	ND	94.5	60-130			
1,3-Dichlorobenzene	3.24	0.05	ug/g	ND	81.0	60-130			
1,4-Dichlorobenzene	3.22	0.05	ug/g	ND	80.5	60-130			
1,1-Dichloroethane	4.82	0.05	ug/g	ND	120	60-130			
1,2-Dichloroethane	4.97	0.05	ug/g	ND	124	60-130			
1,1-Dichloroethylene	4.96	0.05	ug/g	ND	124	60-130			
cis-1,2-Dichloroethylene	4.18	0.05	ug/g	ND	105	60-130			
trans-1,2-Dichloroethylene	4.18	0.05	ug/g	ND	104	60-130			
1,2-Dichloropropane	4.79	0.05	ug/g	ND	120	60-130			
cis-1,3-Dichloropropylene	4.98	0.05	ug/g	ND	125	60-130			
trans-1,3-Dichloropropylene	4.24	0.05	ug/g	ND	106	60-130			
Ethylbenzene	4.07	0.05	ug/g	ND	102	60-130			
Ethylene dibromide (dibromoethane, 1,2	4.15	0.05	ug/g	ND	104	60-130			
Hexane	4.60	0.05	ug/g	ND	115	60-130			
Methyl Ethyl Ketone (2-Butanone)	12.8	0.50	ug/g	ND	128	50-140			
Methyl Isobutyl Ketone	12.9	0.50	ug/g	ND	129	50-140			
Methyl tert-butyl ether	12.3	0.05	ug/g	ND	123	50-140			
Methylene Chloride	4.14	0.05	ug/g	ND	103	60-130			
Styrene	3.86	0.05	ug/g	ND	96.4	60-130			
1,1,1,2-Tetrachloroethane	4.31	0.05	ug/g	ND	108	60-130			
1,1,2,2-Tetrachloroethane	4.39	0.05	ug/g	ND	110	60-130			
Tetrachloroethylene	3.25	0.05	ug/g	ND	81.3	60-130			
Toluene	4.21	0.05	ug/g	ND	105	60-130			
1,1,1-Trichloroethane	4.29	0.05	ug/g	ND	107	60-130			
1,1,2-Trichloroethane	4.84	0.05	ug/g	ND	121	60-130			
Trichloroethylene	4.00	0.05	ug/g	ND	99.9	60-130			
Trichlorofluoromethane	4.53	0.05	ug/g	ND	113	50-140			
Vinyl chloride	4.43	0.02	ug/g	ND	111	50-140			
m,p-Xylenes	7.76	0.05	ug/g	ND	97.0	60-130			
o-Xylene	4.03	0.05	ug/g	ND	101	60-130			
Surrogate: 4-Bromofluorobenzene	*7.70*		*ug/g*		*96.2*	*50-140*			
Surrogate: Dibromofluoromethane	*8.94*		*ug/g*		*112*	*50-140*			
Surrogate: Toluene-d8	*8.38*		*ug/g*		*105*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-05 The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC crite
- When reported, data for F4G has been processed using a silica gel cleanup.

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Paracel ID: 2247388

Chain Of Custody
(Lab Use Only)
№ 57268

Client Name: EXP Services Inc.	Project Ref: OTT-22007382-A0	Page 1 of 1
Contact Name: MARK MCCALLA	Quote #: City of Ottawa SOA Sami Qadan	Turnaround Time
Address: 2650 QUEENSVIEW DR. OTTAWA	PO #:	☐ 1 day ☐ 3 day
	E-mail: mark.mccalla@exp.com sami.qadan@ottawa.ca	☐ 2 day ☒ Regular
Telephone: 613 688-1899		Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table ___	Mun:
For RSC: ☐ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: metals + inorganics	PAH	VOC	PHC	PCBs
1	BH 15, AS 7	BKU857	S		3	Nov 15, 2022	5 PM	X	X	X	X	X
2	BH 16, SS 3	858	S		2	Nov 17, 2022	noon	X	X	X	X	
3	BH 17, SS 3	859	S		2	"	2 PM	X	X	X	X	
4	DUP	860.	S		2	"	PM	X	X	X	X	
5												
6												
7												
8												
9												
10												

Comments:

Method of Delivery: Walkin

Relinquished By (Sign): Matt Zammit	Received By Driver/Depot:	Received at Lab:	Verified By: SCOT
Relinquished By (Print): Matt Zammit	Date/Time:	Date/Time: 2022.11.17 2:34pm	Date/Time: Nov 17/22 4:07pm
Date/Time: Nov. 17, 2022, 2:30PM	Temperature: °C	Temperature: 3.8 °C	pH Verified: ☐ By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark McCalla

Client PO:
Project: OTT22007382A0/1500 St. Laurent Boulevard
Custody: 138475

Report Date: 28-Nov-2022
Order Date: 17-Nov-2022

Order #: 2247398

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2247398-01	BH-1
2247398-02	BH-3
2247398-03	BH-13
2247398-04	Dup1
2247398-05	Trip Blank
2247398-06	Field Blank

Approved By:

Dale Robertson, BSc
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	25-Nov-22	25-Nov-22
Chromium, hexavalent - water	MOE E3056 - colourimetric	18-Nov-22	18-Nov-22
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	18-Nov-22	18-Nov-22
Metals, ICP-MS	EPA 200.8 - ICP-MS	18-Nov-22	18-Nov-22
PHC F1	CWS Tier 1 - P&T GC-FID	18-Nov-22	19-Nov-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	24-Nov-22	24-Nov-22
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	23-Nov-22	23-Nov-22
REG 153: pH, water	EPA 150.1 - pH probe @25 °C	23-Nov-22	24-Nov-22
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	18-Nov-22	19-Nov-22

Certificate of Analysis

Report Date: 28-Nov-2022

Client: exp Services Inc. (Ottawa)

Order Date: 17-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-1	BH-3	BH-13	Dup1
	Sample Date:	16-Nov-22 12:45	16-Nov-22 13:45	16-Nov-22 16:25	16-Nov-22 14:30
	Sample ID:	2247398-01	2247398-02	2247398-03	2247398-04
	MDL/Units	Water	Water	Water	Water
General Inorganics					
pH	0.1 pH Units	6.7	6.9	6.6	6.9
Anions					
Chloride	1.0 mg/L	8600	19400	5590	19000
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Antimony	0.5 ug/L	<0.5	1.2	<0.5	1.2
Arsenic	1 ug/L	<1	11	4	12
Barium	1 ug/L	68	52	1380	52
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Boron	10 ug/L	51	168	22	166
Cadmium	0.1 ug/L	<0.1	0.2	<0.1	0.2
Chromium	1 ug/L	<1	<1	<1	<1
Chromium (VI)	10 ug/L	<10	<10	<10	<10
Cobalt	0.5 ug/L	0.8	9.2	3.1	9.2
Copper	0.5 ug/L	2.6	18.0	0.8	16.7
Lead	0.1 ug/L	0.2	0.1	<0.1	<0.1
Molybdenum	0.5 ug/L	1.3	1340	8.3	1350
Nickel	1 ug/L	2	21	5	21
Selenium	1 ug/L	<1	4	<1	3
Silver	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Sodium	200 ug/L	2030000	5640000	1550000	5490000
Thallium	0.1 ug/L	<0.1	0.2	<0.1	0.2
Uranium	0.1 ug/L	0.3	6.9	4.9	6.6
Vanadium	0.5 ug/L	<0.5	1.4	2.1	1.2
Zinc	5 ug/L	<5	10	10	9
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5

Certificate of Analysis

Report Date: 28-Nov-2022

Client: exp Services Inc. (Ottawa)

Order Date: 17-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-1	BH-3	BH-13	Dup1
	Sample Date:	16-Nov-22 12:45	16-Nov-22 13:45	16-Nov-22 16:25	16-Nov-22 14:30
	Sample ID:	2247398-01	2247398-02	2247398-03	2247398-04
	MDL/Units	Water	Water	Water	Water
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	<2.0
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
4-Bromofluorobenzene	Surrogate	125%	101%	110%	104%
Dibromofluoromethane	Surrogate	96.4%	96.8%	94.9%	98.3%
Toluene-d8	Surrogate	96.5%	100%	101%	102%

Certificate of Analysis

Report Date: 28-Nov-2022

Client: exp Services Inc. (Ottawa)

Order Date: 17-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-1	BH-3	BH-13	Dup1
	Sample Date:	16-Nov-22 12:45	16-Nov-22 13:45	16-Nov-22 16:25	16-Nov-22 14:30
	Sample ID:	2247398-01	2247398-02	2247398-03	2247398-04
	MDL/Units	Water	Water	Water	Water
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Anthracene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Chrysene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Fluorene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Phenanthrene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Pyrene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
2-Fluorobiphenyl	Surrogate	114%	115%	95.4%	93.5%
Terphenyl-d14	Surrogate	118%	111%	112%	116%

Certificate of Analysis

Report Date: 28-Nov-2022

Client: exp Services Inc. (Ottawa)

Order Date: 17-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	Trip Blank	Field Blank	-	-
	Sample Date:	15-Nov-22 00:00	16-Nov-22 16:30	-	-
	Sample ID:	2247398-05	2247398-06	-	-
	MDL/Units	Water	Water	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	<0.2	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 28-Nov-2022

Client: exp Services Inc. (Ottawa)

Order Date: 17-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

Client ID:		Trip Blank	Field Blank	-	-
Sample Date:		15-Nov-22 00:00	16-Nov-22 16:30	-	-
Sample ID:		2247398-05	2247398-06	-	-
	MDL/Units	Water	Water	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	117%	114%	-	-
Dibromofluoromethane	Surrogate	97.8%	95.1%	-	-
Toluene-d8	Surrogate	106%	104%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1.0	mg/L						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*16.9*		*ug/L*		*84.6*	*50-140*			
Surrogate: Terphenyl-d14	*23.9*		*ug/L*		*120*	*50-140*			
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*106*		*ug/L*		*132*	*50-140*			
Surrogate: Dibromofluoromethane	*71.7*		*ug/L*		*89.6*	*50-140*			
Surrogate: Toluene-d8	*80.3*		*ug/L*		*100*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	63.4	1.0	mg/L	63.3			0.2	10	
General Inorganics									
pH	6.7	0.1	pH Units	6.7			0.0	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	20.4	1	ug/L	19.9			2.5	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	20	10	ug/L	20			0.5	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	0.75	0.5	ug/L	0.73			1.9	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	1.01	0.5	ug/L	1.03			2.1	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	15600	200	ug/L	15700			0.5	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	7	5	ug/L	7			0.3	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*102*		*ug/L*		*128*	*50-140*			
Surrogate: Dibromofluoromethane	*74.8*		*ug/L*		*93.5*	*50-140*			
Surrogate: Toluene-d8	*85.7*		*ug/L*		*107*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	71.7	1.0	mg/L	63.3	84.2	77-123			
Hydrocarbons									
F1 PHCs (C6-C10)	1810	25	ug/L	ND	90.7	68-117			
F2 PHCs (C10-C16)	1470	100	ug/L	ND	91.9	60-140			
F3 PHCs (C16-C34)	4180	100	ug/L	ND	107	60-140			
F4 PHCs (C34-C50)	2620	100	ug/L	ND	106	60-140			
Metals									
Mercury	2.67	0.1	ug/L	ND	89.1	70-130			
Antimony	41.3	0.5	ug/L	ND	82.3	80-120			
Arsenic	47.1	1	ug/L	ND	93.4	80-120			
Barium	63.9	1	ug/L	19.9	87.9	80-120			
Beryllium	46.1	0.5	ug/L	ND	92.2	80-120			
Boron	49	10	ug/L	ND	97.9	80-120			
Cadmium	45.0	0.1	ug/L	ND	90.0	80-120			
Chromium (VI)	192	10	ug/L	ND	96.0	70-130			
Chromium	47.3	1	ug/L	ND	94.4	80-120			
Cobalt	48.1	0.5	ug/L	ND	96.2	80-120			
Copper	46.5	0.5	ug/L	0.73	91.6	80-120			
Lead	44.7	0.1	ug/L	ND	89.3	80-120			
Molybdenum	45.9	0.5	ug/L	1.03	89.7	80-120			
Nickel	46.5	1	ug/L	ND	92.2	80-120			
Selenium	44.7	1	ug/L	ND	89.0	80-120			
Silver	46.7	0.1	ug/L	ND	93.4	80-120			
Sodium	23400	200	ug/L	15700	77.4	80-120			QM-07
Thallium	45.1	0.1	ug/L	ND	90.2	80-120			
Uranium	47.2	0.1	ug/L	ND	94.5	80-120			
Vanadium	47.5	0.5	ug/L	ND	94.8	80-120			
Zinc	50	5	ug/L	7	86.4	80-120			
Semi-Volatiles									
Acenaphthene	4.33	0.05	ug/L	ND	86.7	50-140			
Acenaphthylene	3.53	0.05	ug/L	ND	70.6	50-140			
Anthracene	3.68	0.01	ug/L	ND	73.6	50-140			
Benzo [a] anthracene	3.69	0.01	ug/L	ND	73.8	50-140			
Benzo [a] pyrene	4.03	0.01	ug/L	ND	80.6	50-140			
Benzo [b] fluoranthene	5.03	0.05	ug/L	ND	101	50-140			
Benzo [g,h,i] perylene	3.42	0.05	ug/L	ND	68.4	50-140			
Benzo [k] fluoranthene	4.70	0.05	ug/L	ND	93.9	50-140			
Chrysene	4.70	0.05	ug/L	ND	94.0	50-140			
Dibenzo [a,h] anthracene	3.11	0.05	ug/L	ND	62.2	50-140			
Fluoranthene	4.06	0.01	ug/L	ND	81.2	50-140			
Fluorene	4.15	0.05	ug/L	ND	83.0	50-140			
Indeno [1,2,3-cd] pyrene	3.49	0.05	ug/L	ND	69.9	50-140			
1-Methylnaphthalene	4.57	0.05	ug/L	ND	91.4	50-140			
2-Methylnaphthalene	4.60	0.05	ug/L	ND	92.1	50-140			
Naphthalene	4.59	0.05	ug/L	ND	91.7	50-140			
Phenanthrene	3.91	0.05	ug/L	ND	78.2	50-140			
Pyrene	4.01	0.01	ug/L	ND	80.2	50-140			
Surrogate: 2-Fluorobiphenyl	*19.3*		*ug/L*		*96.3*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Terphenyl-d14	*23.8*		*ug/L*		*119*	*50-140*			
Volatiles									
Acetone	81.7	5.0	ug/L	ND	81.7	50-140			
Benzene	38.4	0.5	ug/L	ND	96.1	60-130			
Bromodichloromethane	39.8	0.5	ug/L	ND	99.5	60-130			
Bromoform	43.9	0.5	ug/L	ND	110	60-130			
Bromomethane	34.9	0.5	ug/L	ND	87.3	50-140			
Carbon Tetrachloride	37.3	0.2	ug/L	ND	93.4	60-130			
Chlorobenzene	47.1	0.5	ug/L	ND	118	60-130			
Chloroform	38.6	0.5	ug/L	ND	96.4	60-130			
Dibromochloromethane	44.0	0.5	ug/L	ND	110	60-130			
Dichlorodifluoromethane	40.1	1.0	ug/L	ND	100	50-140			
1,2-Dichlorobenzene	36.4	0.5	ug/L	ND	91.0	60-130			
1,3-Dichlorobenzene	45.9	0.5	ug/L	ND	115	60-130			
1,4-Dichlorobenzene	42.7	0.5	ug/L	ND	107	60-130			
1,1-Dichloroethane	39.0	0.5	ug/L	ND	97.4	60-130			
1,2-Dichloroethane	32.6	0.5	ug/L	ND	81.6	60-130			
1,1-Dichloroethylene	40.2	0.5	ug/L	ND	100	60-130			
cis-1,2-Dichloroethylene	45.0	0.5	ug/L	ND	112	60-130			
trans-1,2-Dichloroethylene	42.1	0.5	ug/L	ND	105	60-130			
1,2-Dichloropropane	45.6	0.5	ug/L	ND	114	60-130			
cis-1,3-Dichloropropylene	43.4	0.5	ug/L	ND	108	60-130			
trans-1,3-Dichloropropylene	44.7	0.5	ug/L	ND	112	60-130			
Ethylbenzene	47.8	0.5	ug/L	ND	120	60-130			
Ethylene dibromide (dibromoethane, 1,2-	45.4	0.2	ug/L	ND	113	60-130			
Hexane	35.7	1.0	ug/L	ND	89.3	60-130			
Methyl Ethyl Ketone (2-Butanone)	92.6	5.0	ug/L	ND	92.6	50-140			
Methyl Isobutyl Ketone	111	5.0	ug/L	ND	111	50-140			
Methyl tert-butyl ether	101	2.0	ug/L	ND	101	50-140			
Methylene Chloride	40.3	5.0	ug/L	ND	101	60-130			
Styrene	48.0	0.5	ug/L	ND	120	60-130			
1,1,1,2-Tetrachloroethane	43.0	0.5	ug/L	ND	107	60-130			
1,1,2,2-Tetrachloroethane	36.4	0.5	ug/L	ND	91.0	60-130			
Tetrachloroethylene	47.0	0.5	ug/L	ND	118	60-130			
Toluene	47.5	0.5	ug/L	ND	119	60-130			
1,1,1-Trichloroethane	36.5	0.5	ug/L	ND	91.2	60-130			
1,1,2-Trichloroethane	45.1	0.5	ug/L	ND	113	60-130			
Trichloroethylene	43.5	0.5	ug/L	ND	109	60-130			
Trichlorofluoromethane	32.9	1.0	ug/L	ND	82.3	60-130			
Vinyl chloride	36.3	0.5	ug/L	ND	90.8	50-140			
m,p-Xylenes	97.3	0.5	ug/L	ND	122	60-130			
o-Xylene	46.8	0.5	ug/L	ND	117	60-130			
Surrogate: 4-Bromofluorobenzene	*85.5*		*ug/L*		*107*	*50-140*			
Surrogate: Dibromofluoromethane	*67.8*		*ug/L*		*84.7*	*50-140*			
Surrogate: Toluene-d8	*63.9*		*ug/L*		*79.9*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

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Paracel ID: 2247398

Chain Of Custody
(Lab Use Only)
№ 138475

Client Name: EXP SERVICES INC	Project Ref: OTT-22007382-A0	Page 1 of 1
Contact Name: MARK McCALLA	Quote #: ~~EXP Standing OFFER~~	Turnaround Time
Address: 2650 QUEENSVIEW DR. OTTAWA	PO #: CITY OF OTTAWA SOA	☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: 613-688-1899	E-mail: Mark.McCalla@exp.com	Date Required:

Regulation	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)
☒ REG 153/04 ☐ REG 406/19	☐ REG 558 ☐ PWQO	
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ CCME ☐ MISA	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ SU - Sani ☐ SU - Storm	
☐ Table 3 ☐ Agri/Other	Mun:	
☐ Table	☐ Other:	
For RSC: ☐ Yes ☐ No		

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals & Inorganics	Hg	CrVI	B (HWS)					
1	BH-1	BKU861	GW		8	2022-11-16	12h45	X	X	X	X								
2	BH-3	862					13h45	X	X	X	X								
3	BH-13	863					16h25	X	X	X	X								
4	Dup 1	864	↓		↓		14h30	X	X	X	X								
5		865																	
6	TRIP BLANK	866	DI		2		16h30		X										
7	FIELD BLANK	867	DI		2	↓	16h30		X										
8																			
9																			
10																			

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Philip Oliveira	Received By Driver/Depot:	Received at Lab: Sumeyaan Balmai	Verified By: SC
Relinquished By (Print): Philip Oliveira	Date/Time:	Date/Time: NOV 17, 2022 12.23	Date/Time: Nov 17/22 4:38pm
Date/Time: 2022-11-16 17h15	Temperature: °C	Temperature: 6.6 °C	pH Verified: ☐ By: SC

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark McCalla

Client PO:
Project: OTT22007382A0/1500 St. Laurent Boulevard
Custody: 141024

Report Date: 6-Dec-2022
Order Date: 24-Nov-2022

Order #: 2248437

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2248437-01	BH-10
2248437-02	BH-16
2248437-03	BH-15
2248437-04	BH-8

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 06-Dec-2022

Client: exp Services Inc. (Ottawa)

Order Date: 24-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	28-Nov-22	28-Nov-22
Chromium, hexavalent - water	MOE E3056 - colourimetric	29-Nov-22	29-Nov-22
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	28-Nov-22	30-Nov-22
Metals, ICP-MS	EPA 200.8 - ICP-MS	28-Nov-22	29-Nov-22
PHC F1	CWS Tier 1 - P&T GC-FID	28-Nov-22	28-Nov-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	1-Dec-22	2-Dec-22
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	28-Nov-22	29-Nov-22
REG 153: pH, water	EPA 150.1 - pH probe @25 °C	29-Nov-22	30-Nov-22
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	28-Nov-22	28-Nov-22

Certificate of Analysis

Report Date: 06-Dec-2022

Client: exp Services Inc. (Ottawa)

Order Date: 24-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-10	BH-16	BH-15	BH-8
	Sample Date:	24-Nov-22 11:40	24-Nov-22 12:50	24-Nov-22 14:00	24-Nov-22 14:45
	Sample ID:	2248437-01	2248437-02	2248437-03	2248437-04
	MDL/Units	Water	Water	Water	Water
General Inorganics					
pH	0.1 pH Units	6.4	6.7	7.1	6.5
Anions					
Chloride	1.0 mg/L	16300	17500	6540	10500
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Antimony	0.5 ug/L	0.6	<0.5	0.7	<0.5
Arsenic	1 ug/L	1	<1	<1	<1
Barium	1 ug/L	119	127	831	59
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Boron	10 ug/L	81	38	200	81
Cadmium	0.1 ug/L	0.4	0.3	<0.1	<0.1
Chromium	1 ug/L	2	1	2	<1
Chromium (VI)	10 ug/L	<10	<10	<10	<10
Cobalt	0.5 ug/L	25.6	41.1	4.5	<0.5
Copper	0.5 ug/L	4.4	27.6	3.2	1.9
Lead	0.1 ug/L	0.3	<0.1	<0.1	0.2
Molybdenum	0.5 ug/L	26.9	4.5	24.5	3.9
Nickel	1 ug/L	98	54	12	5
Selenium	1 ug/L	<1	<1	<1	<1
Silver	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Sodium	200 ug/L	6840000	8870000	1610000	3030000
Thallium	0.1 ug/L	0.4	0.4	<0.1	<0.1
Uranium	0.1 ug/L	13.9	14.5	3.0	0.2
Vanadium	0.5 ug/L	1.3	0.7	<0.5	0.8
Zinc	5 ug/L	9	29	<5	<5
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5

Certificate of Analysis

Report Date: 06-Dec-2022

Client: exp Services Inc. (Ottawa)

Order Date: 24-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-10	BH-16	BH-15	BH-8
	Sample Date:	24-Nov-22 11:40	24-Nov-22 12:50	24-Nov-22 14:00	24-Nov-22 14:45
	Sample ID:	2248437-01	2248437-02	2248437-03	2248437-04
	MDL/Units	Water	Water	Water	Water
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	<2.0
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
4-Bromofluorobenzene	Surrogate	108%	116%	123%	120%
Dibromofluoromethane	Surrogate	98.6%	97.5%	100%	97.7%
Toluene-d8	Surrogate	101%	99.4%	105%	104%

Certificate of Analysis

Report Date: 06-Dec-2022

Client: exp Services Inc. (Ottawa)

Order Date: 24-Nov-2022

Client PO:

Project Description: OTT22007382A0/1500 St. Laurent Boulevard

	Client ID:	BH-10	BH-16	BH-15	BH-8
	Sample Date:	24-Nov-22 11:40	24-Nov-22 12:50	24-Nov-22 14:00	24-Nov-22 14:45
	Sample ID:	2248437-01	2248437-02	2248437-03	2248437-04
	MDL/Units	Water	Water	Water	Water
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Anthracene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Chrysene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Fluorene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Phenanthrene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Pyrene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
2-Fluorobiphenyl	Surrogate	90.1%	90.6%	75.1%	80.7%
Terphenyl-d14	Surrogate	120%	122%	116%	114%

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1.0	mg/L						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*20.7*		*ug/L*		*104*	*50-140*			
Surrogate: Terphenyl-d14	*22.4*		*ug/L*		*112*	*50-140*			
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*93.7*		*ug/L*		*117*	*50-140*			
Surrogate: Dibromofluoromethane	*77.2*		*ug/L*		*96.6*	*50-140*			
Surrogate: Toluene-d8	*85.2*		*ug/L*		*107*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	53.8	1.0	mg/L	53.8			0.1	10	
General Inorganics									
pH	7.7	0.1	pH Units	ND			NC	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	0.78			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	40.0	1	ug/L	33.2			18.4	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	94	10	ug/L	91			2.9	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	1.1	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	1.71	0.5	ug/L	1.79			4.5	20	
Lead	0.28	0.1	ug/L	0.26			9.7	20	
Molybdenum	4.11	0.5	ug/L	4.27			3.7	20	
Nickel	1.9	1	ug/L	1.7			7.8	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	33300	200	ug/L	29700			11.6	20	
Thallium	0.12	0.1	ug/L	0.11			10.4	20	
Uranium	8.0	0.1	ug/L	8.6			7.5	20	
Vanadium	0.51	0.5	ug/L	ND			NC	20	
Zinc	20	5	ug/L	8			NC	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*97.2*		*ug/L*		*121*	*50-140*			
Surrogate: Dibromofluoromethane	*76.9*		*ug/L*		*96.2*	*50-140*			
Surrogate: Toluene-d8	*79.5*		*ug/L*		*99.4*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	62.8	1.0	mg/L	53.8	90.8	77-123			
Hydrocarbons									
F1 PHCs (C6-C10)	1870	25	ug/L	ND	93.5	68-117			
F2 PHCs (C10-C16)	1420	100	ug/L	ND	88.7	60-140			
F3 PHCs (C16-C34)	3770	100	ug/L	ND	96.2	60-140			
F4 PHCs (C34-C50)	2420	100	ug/L	ND	97.6	60-140			
Metals									
Mercury	2.55	0.1	ug/L	ND	84.9	70-130			
Arsenic	44.3	1	ug/L	ND	87.6	80-120			
Barium	82.8	1	ug/L	33.2	99.1	80-120			
Beryllium	40.6	0.5	ug/L	ND	81.1	80-120			
Boron	45	10	ug/L	ND	90.5	80-120			
Cadmium	43.4	0.1	ug/L	ND	86.7	80-120			
Chromium (VI)	197	10	ug/L	ND	98.5	70-130			
Chromium	52.0	1	ug/L	ND	102	80-120			
Cobalt	51.7	0.5	ug/L	ND	103	80-120			
Copper	46.3	0.5	ug/L	1.79	89.1	80-120			
Lead	45.1	0.1	ug/L	0.26	89.8	80-120			
Molybdenum	57.4	0.5	ug/L	4.27	106	80-120			
Nickel	48.4	1	ug/L	1.7	93.4	80-120			
Selenium	49.2	1	ug/L	ND	98.3	80-120			
Silver	41.0	0.1	ug/L	ND	82.0	80-120			
Thallium	45.9	0.1	ug/L	0.11	91.5	80-120			
Uranium	59.9	0.1	ug/L	8.6	102	80-120			
Vanadium	51.9	0.5	ug/L	ND	103	80-120			
Zinc	54	5	ug/L	8	91.6	80-120			
Semi-Volatiles									
Acenaphthene	4.96	0.05	ug/L	ND	99.1	50-140			
Acenaphthylene	4.66	0.05	ug/L	ND	93.2	50-140			
Anthracene	3.61	0.01	ug/L	ND	72.1	50-140			
Benzo [a] anthracene	4.67	0.01	ug/L	ND	93.3	50-140			
Benzo [a] pyrene	4.50	0.01	ug/L	ND	90.1	50-140			
Benzo [b] fluoranthene	6.43	0.05	ug/L	ND	129	50-140			
Benzo [g,h,i] perylene	3.35	0.05	ug/L	ND	67.0	50-140			
Benzo [k] fluoranthene	5.12	0.05	ug/L	ND	102	50-140			
Chrysene	5.04	0.05	ug/L	ND	101	50-140			
Dibenzo [a,h] anthracene	3.97	0.05	ug/L	ND	79.4	50-140			
Fluoranthene	3.88	0.01	ug/L	ND	77.6	50-140			
Fluorene	4.76	0.05	ug/L	ND	95.2	50-140			
Indeno [1,2,3-cd] pyrene	3.99	0.05	ug/L	ND	79.8	50-140			
1-Methylnaphthalene	4.67	0.05	ug/L	ND	93.5	50-140			
2-Methylnaphthalene	5.32	0.05	ug/L	ND	106	50-140			
Naphthalene	5.01	0.05	ug/L	ND	100	50-140			
Phenanthrene	4.23	0.05	ug/L	ND	84.6	50-140			
Pyrene	3.39	0.01	ug/L	ND	67.8	50-140			
Surrogate: 2-Fluorobiphenyl	*20.2*		*ug/L*		*101*	*50-140*			
Surrogate: Terphenyl-d14	*24.3*		*ug/L*		*121*	*50-140*			
Volatiles									

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acetone	85.4	5.0	ug/L	ND	85.4	50-140			
Benzene	36.4	0.5	ug/L	ND	90.9	60-130			
Bromodichloromethane	37.9	0.5	ug/L	ND	94.7	60-130			
Bromoform	35.2	0.5	ug/L	ND	87.9	60-130			
Bromomethane	34.7	0.5	ug/L	ND	86.7	50-140			
Carbon Tetrachloride	36.1	0.2	ug/L	ND	90.2	60-130			
Chlorobenzene	42.6	0.5	ug/L	ND	106	60-130			
Chloroform	37.6	0.5	ug/L	ND	93.9	60-130			
Dibromochloromethane	39.7	0.5	ug/L	ND	99.2	60-130			
Dichlorodifluoromethane	43.1	1.0	ug/L	ND	108	50-140			
1,2-Dichlorobenzene	33.0	0.5	ug/L	ND	82.5	60-130			
1,3-Dichlorobenzene	42.2	0.5	ug/L	ND	105	60-130			
1,4-Dichlorobenzene	39.9	0.5	ug/L	ND	99.8	60-130			
1,1-Dichloroethane	38.9	0.5	ug/L	ND	97.2	60-130			
1,2-Dichloroethane	31.1	0.5	ug/L	ND	77.7	60-130			
1,1-Dichloroethylene	40.0	0.5	ug/L	ND	99.9	60-130			
cis-1,2-Dichloroethylene	43.0	0.5	ug/L	ND	108	60-130			
trans-1,2-Dichloroethylene	35.4	0.5	ug/L	ND	88.5	60-130			
1,2-Dichloropropane	33.3	0.5	ug/L	ND	83.3	60-130			
cis-1,3-Dichloropropylene	41.0	0.5	ug/L	ND	103	60-130			
trans-1,3-Dichloropropylene	40.6	0.5	ug/L	ND	101	60-130			
Ethylbenzene	43.7	0.5	ug/L	ND	109	60-130			
Ethylene dibromide (dibromoethane, 1,2	40.6	0.2	ug/L	ND	102	60-130			
Hexane	46.9	1.0	ug/L	ND	117	60-130			
Methyl Ethyl Ketone (2-Butanone)	82.2	5.0	ug/L	ND	82.2	50-140			
Methyl Isobutyl Ketone	95.4	5.0	ug/L	ND	95.4	50-140			
Methyl tert-butyl ether	95.0	2.0	ug/L	ND	95.0	50-140			
Methylene Chloride	33.6	5.0	ug/L	ND	84.0	60-130			
Styrene	39.3	0.5	ug/L	ND	98.2	60-130			
1,1,1,2-Tetrachloroethane	40.3	0.5	ug/L	ND	101	60-130			
1,1,2,2-Tetrachloroethane	39.3	0.5	ug/L	ND	98.3	60-130			
Tetrachloroethylene	43.8	0.5	ug/L	ND	109	60-130			
Toluene	37.4	0.5	ug/L	ND	93.6	60-130			
1,1,1-Trichloroethane	35.4	0.5	ug/L	ND	88.6	60-130			
1,1,2-Trichloroethane	42.2	0.5	ug/L	ND	105	60-130			
Trichloroethylene	32.7	0.5	ug/L	ND	81.8	60-130			
Trichlorofluoromethane	34.2	1.0	ug/L	ND	85.4	60-130			
Vinyl chloride	38.0	0.5	ug/L	ND	95.1	50-140			
m,p-Xylenes	85.1	0.5	ug/L	ND	106	60-130			
o-Xylene	41.3	0.5	ug/L	ND	103	60-130			
Surrogate: 4-Bromofluorobenzene	*89.4*		*ug/L*		*112*	*50-140*			
Surrogate: Dibromofluoromethane	*74.5*		*ug/L*		*93.1*	*50-140*			
Surrogate: Toluene-d8	*68.0*		*ug/L*		*85.0*	*50-140*			

Qualifier Notes:

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACE LABORATORIES L

Paracel ID: 2248437

Paracel Order Number (Lab Use Only): 2245437

Chain Of Custody (Lab Use Only) № 141024

Page 1 of 1

Client Name: EXP Services Inc	Project Ref: OTT-22007382-A0
Contact Name: Mark McCalla	Quote #:
Address: 2650 Queensview Dr. Ottawa	PO #: City of Ottawa SDA - Sami Qadan
Telephone: 613-688-1899	E-mail: Mark.McCalla@exp.com

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required: _____

☒ REG 153/04 ☐ REG 406/19

Table 1 ☐ Res/Park ☐ Med/Fine
Table 2 ☐ Ind/Comm ☐ Coarse
Table 3 ☐ Agri/Other
Table ___
For RSC: ☐ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun: ___
☐ Other: ___

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals + Inorganics	Hg	CrVI	B (HWS)
1	BH-10	BKU 914	GW		8	2022-11-24	11h40	X	X	X	X			
2	BH-16	915	↓		↓	↓	12h50	↓	↓	↓	↓			
3	BH-15	916	↓		↓	↓	14h02	↓	↓	↓	↓			
4	* BH-8	917	↓		↓	↓	14h45	↓	↓	↓	↓			
5														
6														
7														
8														
9														
10														

Comments: * BH-8 Samples a bit cloudy - Please DECANT IF Possible *

Method of Delivery: Walk in

Relinquished By (Sign): Phil Oliveira	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Philip Oliveira	Date/Time:	Date/Time: 2022-11-24 3:45pm	Date/Time: Nov 25 2022 12:06
Date/Time: 2022-11-24 15h30	Temperature: °C	Temperature: 11.7 °C	pH Verified: ☐ By: NA

Chain of Custody (Env) xlsx

Revision 4.0

AGAT Laboratories

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

CLIENT NAME: EXP SERVICES INC
2650 QUEENSVIEW DRIVE, UNIT 100
OTTAWA, ON K2B8H6
(613) 688-1899
ATTENTION TO: Mathew Zammit
PROJECT: OTT-22007382-AO
AGAT WORK ORDER: 22Z954677
SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician
DATE REPORTED: Oct 17, 2022
PAGES (INCLUDING COVER): 5
VERSION*: 1

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

Notes

AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 22Z954677

PROJECT: OTT-22007382-AO

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

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Mathew Zammit

SAMPLING SITE:1500 St. Laurent Blvd.

SAMPLED BY:EXP

(Soil) Inorganic Chemistry

DATE RECEIVED: 2022-10-06

DATE REPORTED: 2022-10-17

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: BH4 SS5 10'-12'	BH9 SS4 7. 5'-9.5'
				SAMPLE TYPE: Soil	Soil
				DATE SAMPLED: 2022-09-20	2022-09-20
				4391535	4391536
Chloride (2:1)	µg/g		2	1150	1260
Sulphate (2:1)	µg/g		2	404	387
pH (2:1)	pH Units		NA	7.10	7.18
Resistivity (2:1) (Calculated)	ohm.cm		1	388	360

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

4391535-4391536 EC, pH, Chloride and Sulphate were determined on the extract obtained from the 2:1 leaching procedure (2 parts DI water: 1 part soil). Resistivity is a calculated parameter.
Redox potential measured on as received sample. Due to the potential for rapid change in sample equilibrium chemistry with exposure to oxidative/reduction conditions laboratory results may differ from field measured results.
Redox potential measurement in soil is quite variable and non reproducible due in part, to the general heterogeneity of a given soil. It is also related to the introduction of increased oxygen into the sample after extraction. The interpretation of soil redox potential should be considered in terms of its general range rather than as an absolute measurement.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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

Quality Assurance

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22Z954677

PROJECT: OTT-22007382-AO

ATTENTION TO: Mathew Zammit

SAMPLING SITE:1500 St. Laurent Blvd.

SAMPLED BY:EXP

Soil Analysis

RPT Date: Oct 17, 2022			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
(Soil) Inorganic Chemistry															
Chloride (2:1)	4408295		20	20	0.0%	< 2	96%	70%	130%	103%	80%	120%	99%	70%	130%
Sulphate (2:1)	4408295		14	15	6.9%	< 2	102%	70%	130%	100%	80%	120%	102%	70%	130%
pH (2:1)	4391512		6.54	6.77	3.5%	NA	103%	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.

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Method Summary

CLIENT NAME: EXP SERVICES INC

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Chloride (2:1)	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate (2:1)	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
pH (2:1)	INOR 93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Resistivity (2:1) (Calculated)	INOR-93-6036	McKeague 4.12, SM 2510 B,SSA #5 Part 3	CALCULATION

AGAT Laboratories

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

Chain of Custody Record

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

Report Information:

Company: EXP Services Inc. Ottawa
Contact: Matthew Zammit
Address: 2650 Queensview dr. Unit 100
Ottawa, ON, K2B 8H6
Phone: 613-688-1899 Fax:
Reports to be sent to:
1. Email: matthew.zammit@exp.com
2. Email: jeff.macmillan@exp.com

Project Information:

Project: OTT-22007382-A0
Site Location: 1500 St. Laurent Blvd
Sampled By: EXP
AGAT ID #: 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 (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☐ Coarse ☐ Fine

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

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

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

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

Sample Matrix Legend

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

Laboratory Use Only

Work Order #: 22795467 7
Large
Cooler Quantity: n/a - one bag
Arrival Temperatures: 23.6 | 23.8 | 23.5
ΔT → 2.9 | 3.6 | 4.8
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: Bagged Ice

Turnaround Time (TAT) Required:

Regular TAT (Most Analysis) ☑ 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	Analyze F4G if required ☐ Yes ☐ No	PAHs	Total PCBs ☐ Aroclor	VOC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	pH	Sulphate	Chloride	resistivity	Potentially Hazardous or High Concentration (Y/N)
BH 4 SS5 10-12'	Sept. 20	AM/PM	1	S																		
BH 9 SS4 7.5-9.5'	Sept. 20	AM/PM	1	S																		
		AM/PM																				
		AM/PM																				
		AM/PM																				
		AM/PM																				
		AM/PM																				
		AM/PM																				
		AM/PM																				
		AM/PM																				

Samples Relinquished By (Print Name and Sign): Jeff MacMillan	Date: Oct. 4/22	Time:	Samples Received By (Print Name and Sign): C. Griffith	Date: OCT 06 2022	Time: 10:10
Samples Relinquished By (Print Name and Sign): C. Griffith	Date: OCT 07 2022	Time:	Samples Received By (Print Name and Sign): Anthony Daoliva	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 1 of 1
N°: T114974

Appendix F: Hydraulic Conductivity

EXP Services Inc.

1500 St. Laurent Boulevard, Ottawa **BH-1** **18-Nov-22**
Rising Head Test Analysis Test 1
Hvorslev Method (1951)

H_0 2.02 m
(static water level in metres)

Time (sec)	Water Level (m)	Drawdown (m)	H-h/H-h0
0	2.58	0.56	1.00
30	2.52	0.50	0.89
60	2.47	0.45	0.80
90	2.45	0.43	0.77
120	2.43	0.41	0.73
180	2.41	0.39	0.70
240	2.39	0.37	0.66
300	2.34	0.32	0.57
360	2.31	0.29	0.52
420	2.29	0.27	0.48
480	2.27	0.25	0.45
540	2.25	0.23	0.41
600	2.22	0.20	0.36
720	2.18	0.16	0.29
840	2.15	0.13	0.23
960	2.13	0.11	0.20

To constant= 0.37

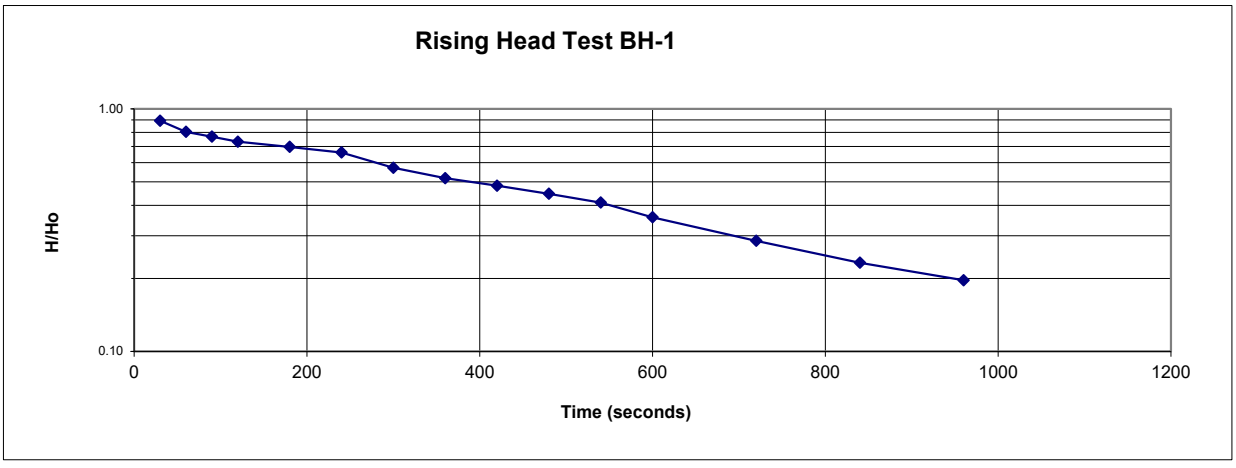
L/R	ln(L/R)
36.0	3.583519

$$K = \frac{r^2 \ln(L/R)}{2(To)(L)}$$

input

r=	0.025	(pipe radius)
L=	1.80	(effective screen length, if strattles water)
R=	0.05	(hole radius)
To=	600	

K= 1.04E-06 m/sec or **1.04E-04 cm/sec**



EXP Services Inc.

1500 St. Laurent Boulevard, Ottawa **BH-10** **18-Nov-22**
Rising Head Test Analysis Test 1
Hvorslev Method (1951)

H_0 1.79 m
(static water level in metres)

Time (sec)	Water Level (m)	Drawdown (m)	H-h/H-h0
0	2.9	1.11	1.00
30	2.67	0.88	0.79
60	2.63	0.84	0.76
90	2.58	0.79	0.71
120	2.54	0.79	0.71
150	2.53	0.75	0.68
210	2.49	0.74	0.67
270	2.47	0.68	0.61
330	2.45	0.66	0.59
390	2.42	0.63	0.57
510	2.40	0.61	0.55
630	2.38	0.59	0.53
930	2.34	0.55	0.50
1230	2.31	0.52	0.47
1650	2.14	0.35	0.32

L/R	ln(L/R)
61.0	4.110874

input

r= 0.025 (pipe radius)
L= 3.05 (effective screen length)
R= 0.05 (hole radius)
To= 1500

$$K = \frac{r^2 \ln(L/R)}{2(To)(L)}$$

K= 2.81E-07 m/sec or **2.81E-05 cm/sec**