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Phase Two
Environmental Site Assessment

363 Entrepreneur Crescent
Ottawa, Ontario

Prepared for:

Entrepreneur Holding Corporation
363 Entrepreneur Crescent
Vars, Ontario

Attention: Dustin Wilson

LRL File No.: 220487

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EXECUTIVE SUMMARY

Entrepreneur Holding Corporation has retained LRL Engineering (LRL) to complete a Phase Two Environmental Site Assessment (ESA) on the properties located at 363 Entrepreneur Crescent, Ottawa, Ontario (herein referred to as the "Site"). A Phase Two ESA was completed to address the presence or absence of one or more contaminants at the Site as determined in the Phase One ESA and to assess the quality of the soil and ground water.

The Phase Two Property has a rectangular shape, with a total area of approximately 3000 m² or 0.75 acre. The Site is presently generally undeveloped with exception to a granular base applied across the majority of the surface of the Site, and is used as a storage yard for the adjacent YSB Hoisting Equipment & YSB Carpentry facility. Topography is generally flat with a slight slope towards south-west corner of the Site, with an elevation of 78 m above mean sea level (amsl).

The findings of the corresponding Phase I ESA should be read in conjunction with the Phase Two ESA presented herein. The Phase I ESA noted seven (7) areas of potential environmental concern (APECs) that were recommended to be further investigated via a Phase Two ESA. The APECs identified included:

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase II Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil, and/or sediment)
APEC A	Entire Property	**PCA 32:** Iron and Steel Manufacturing and Processing	On Site	Metals	Soil and Groundwater
APEC B	Entire Property	**PCA 30:** Importation of Fill Materials of Unknown Quality	On Site	PAHs, VOCs, PHCs, Metals, Inorganic, OP pesticides	Soil and Groundwater
APEC C	Eastern portion of the Site	**PCA 32:** Iron and Steel Manufacturing and Processing	Off-Site	Metals	Soil and Groundwater
APEC D	Western portion of the Site	**PCA Other:** Construction company workshop and storage yard	Off-Site	PHC, VOC, Metals	Soil and Groundwater
APEC E	Western portion of the Site	**PCA 28:** Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHC, VOC	Soil and Groundwater
APEC F	Western portion of the Site	**PCA 34:** Metal Fabrication.	Off-Site	Metals	Soil and Groundwater
APEC G	Western portion of the Site	**PCA 52:** Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.	Off-Site	VOC, PHC, Metals	Soil and Groundwater

The purpose of a Phase Two ESA is to determine if recognized potential environmental concerns have negatively impacted the soil and groundwater quality of the subject Site. Such an assessment provides information regarding the nature and extent of potential contamination to assist in making informed business decisions about the property. Contaminants of concern for the PCAs identified are: Volatile Organic Compounds (VOC); Petroleum Hydrocarbons PHC – F1

through F4; Polycyclic Aromatic Hydrocarbons (PAHs); Polychlorinated Biphenyls (PCBs); Metals; Metal hydrides; and inorganic parameters (conductivity, SAR, and pH).

Regulatory requirements for assessing environmental conditions of a site are established by Ontario Regulation 153/04 – Records of Site Conditions, Part XV.1 of the Environmental Protection Act (O. Reg. 153/04). Site condition standards are set out in the MECP's" Soil*, Ground Water and Sediment Standards for Use Under Part IV.1 of the Environmental Protection Act*", April 15, 2011, as amended. The applicable SCS used was the Table 2 ICC Standards for fine-grained soils in a potable groundwater condition for Industrial/Commercial/Community (ICC) Use.

The investigation involved advancing ten (10) boreholes across the Site at strategic locations based on areas of potential environmental concern. Four (4) of the boreholes were completed as monitoring wells to assess the ground water quality. Representative soil and groundwater samples submitted to an accredited laboratory for analysis of suspected parameters of concern.

Subsurface conditions across the Site generally included a layer of sand and gravel fill extending from surface to 0.85 m bgs. Underlying the fill material was a layer of brown silty sand which extended from the bottom of the fill layer to 1.2 m bgs followed by silty clay to a depth of 6.0 m bgs where the boreholes were terminated. Refusal over inferred bedrock was not encountered in any of the boreholes.

Based on our Site visit, results of soil and groundwater sampling, and laboratory analytical programs compared to the applicable MECP Table 2 SCS, LRL offers the following conclusions regarding environmental conditions of the subject site:

<u>Soil Quality</u>

- Olfactory evidence of petroleum hydrocarbon impacts was not observed in the soils collected throughout all boreholes;
- CSV concentrations of all soil samples collected were between non-detect (<0.1) and 0.3 ppm;
- VOC parameter concentrations were below the detection limits in all samples;
- PAH parameter concentrations were below the detection limits in select samples submitted for analysis;
- PHC parameters analysed were not detected in any soil samples submitted for analysis, with the exception of BH23-1-SS1, BH23-2-SS1, BH23-3-SS1, BH23-5-SS1, BH23-7-SS1, BH23-9-SS1, BH23-10-SS1. The PHC concentrations measured were found to be within the MECP Table 2 criteria;
- Select metals parameters analysed were detected in soil samples, however, the detectable levels of Metals were within the MECP Table 2 with the exception of Lead which was detected in BH23-7-SS1 exceeded the MECP Table 2 criteria; and
- Select inorganics parameters analysed were detected in soil samples, however, the detectable levels of inorganics were within the MECP Table 2 with the exception of BH23-5-SS1 where the conductivity was exceeded the MECP Table 2 criteria.

<u>Groundwater Quality</u>

- Olfactory evidence of petroleum hydrocarbon impacts was not observed in the groundwater collected throughout all monitoring wells;

- VOC parameter concentrations were below the detection limits in all groundwater samples with the exception of the Acetone which was detected at MW23-2 and MW23-3. However, the detectable levels of VOCs were within the MECP Table 2 criteria;
- PHCs parameters analysed were below the detection limit in all groundwater samples
- PAH parameter concentrations were detected in groundwater samples; however, the detectable levels of PAH were within the MECP Table 2 with the exception of the following parameters in MW23-3:
    - On March 16, 2023: Benzo [a] pyrene, Benzo [b] fluoranthene, Benzo [k] fluoranthene, Chrysene, and Fluoranthene were detected;
    - On April 17, 2023: Benzo [a] pyrene was detected.
- Metals parameters analysed were detected in all groundwater samples, however, the detectable levels of Metals were within the MECP Table 2 with the exception of Vanadium which was detected in MW23-3 exceeded the MECP Table 2 criteria during the sampling event on March 16, 2023.

Based on the findings of Phase Two ESA the soil at the Site are generally in compliance with MECP Table 2 criteria with the exception of the top level of BH23-5 and BH23-7. The groundwater at the Site is generally in compliance with MECP Table 2 criteria with the exception of MW23-3. Remediation work to be completed during the construction work. No further delineation or environmental work is considered to be warranted at this time.

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1 INTRODUCTION

Entrepreneur Holding Corporation has retained LRL Associates Ltd. (LRL) to complete a Phase Two Environmental Site Assessment (ESA) on the properties located at 363 Entrepreneur Crescent, Ottawa, Ontario (herein referred to as the "Site"). The Site Location is presented in **Figure 1.**

The legal description of the property is Part of block 3 Plan 50M136 Part 3 ON Plan 50R6694; Subject to an Easement in Gross Over Part 9 ON Plan 4R-27830 As in OC1627867; City of Ottawa.

The objectives of the Phase Two ESA are to address the presence or absence of one or more contaminants at the Site as determined in the Phase One ESA and to assess the quality of the soil and ground water.

1.1 Site Description

The Site is located at the municipal address of 363 Entrepreneur Crescent, Ottawa, Ontario. The property is situated in a commercial area along Entrepreneur Crescent, Ottawa. The Site is presently generally undeveloped with exception to a granular base applied across the majority of the surface of the Site, and is used as a storage yard for the adjacent YSB Hoisting Equipment & YSB Carpentry facility. The Site set within a low-density commercial and light industrial area of Ottawa, Ontario, southeast of the City's urban extents. The property is bounded by Entrepreneur Crescent followed by an un-known commercial/light industrial operation to the south, mineral-aggregate extraction facility to the north, YSB Hoisting Equipment & YSB Carpentry facility to the east, and construction company yard followed by vehicle storage yard to the west. The Site Plan is presented in **Figure 2.**

A summary of the Site description is provided in Table 1 – Section 1.1

Table 1 – Section 1.1: Summary of Site Description

Parameters	Information
Location/ Address	363 Entrepreneur Crescent, Ottawa, Ontario The location of the Site is presented in the included **Figure 1**.
Property Identification Numbers (PINs)	PIN#: 14558-0401 (LT)
Legal Description	Part of block 3 Plan 50M136 Part 3 ON Plan 50R6694; Subject to an Easement in Gross Over Part 9 ON Plan 4R-27830 As in OC1627867; City of Ottawa.
Shape	The Phase Two Property is a rectangular shaped land.
Access to the Phase Two Property	The Phase Two Property can be accessed from Entrepreneur Crescent
Occupancy	Storage yard for adjacent YSB Hoisting equipment facility.
Current Land Use	Warehouse, light industrial use. The Phase Two ESA property has been used as a storage yard for hoisting equipment for the neighboring industrial company since at least mid of 2022.
Proposed Future Land Use	Industrial Warehouse – Including office space and open warehousing (no manufacturing activity).

1.2 Property Ownership

The Qualified Person from LRL was retained by the Client to carry out this Phase Two ESA. The Site ownership information is presented in **Table 2 – Section 1.2.**

Table 2 – Section 1.2: Phase Two Property Owner Contact Information

Company	Contact
Phase Two Property Owner	Entrepreneur Holdings Corporation
Phase Two Property Contact	Dustin Wilson

1.3 Current and Proposed Land Uses

The Site is currently undeveloped, and at the time of this ESA, is used as a storage yard for hoisting equipment for the neighboring industrial company. The future development of the Site is to be industrial warehouse, including office space and open warehousing (no manufacturing activity). An application for a Record of Site Condition (RSC) is not required in support of the proposed property transaction.

1.4 Applicable Site Condition Standard

The results of the soil chemical analysis were evaluated using the Standards prescribed in the Ministry of the Environment, Conservation and Parks (MECP) Table 2 ICC Standards for fine-grained soils in a potable groundwater condition. These Standards were used to evaluate soil quality based on the samples collected and tested, to determine whether soil quality compiled with MECP Standards, and to determine whether additional investigations are required or warranted.

The Site was assessed using the Standards contained in MECP Table 2 of the above referenced Standards. The us of the Table 2 Standards is considered appropriate by LRL based on the following considerations listed in **Table 3 – Section 1.4.**

Table 3 – Section 1.4: Phase Two Property Conditions

Parameters	Information
Proposed Land Use	Industrial/Commercial/Community (ICC) Use
Potable or Non-Potable Ground Water	Potable Groundwater
Proximity to Surface Water	Bear Brook Creek is located approximately 2.2 km northwest of the Site and Shaw's Creek is located approximately 2.74 km east. Several neighbouring ditches are also identified to the south, west, and north of the Site. An un-named water course is identified along the northern perimeter of Site.
Areas of Natural Significance	There are no Areas of Natural Scientific Interest (ANSI) in the study area, nor environmentally sensitive areas that encroach within 30 m of the Phase Two Property.
Nature and Depth of Bedrock Strata	According to the data obtained from EcoLog ERIS, Ontario wells, and Bedrock available data for the depth of bedrock, the depth to bedrock can be assumed to be between approximate 23 and 32 m below grade (estimated 46 and 55 m amsl). The bedrock is comprised mainly of Carlsbad Formation: grey shale, sandy shale, and some dolomitic layers.
Direction of Groundwater Flow	The groundwater flow was assessed during field investigations, it is found that groundwater is moving in a south-east direction towards a small channel that connects with Shaw's Creek. Shaw's Creek is located approximately 2.74 km east of the Site.
Grain Size Analysis	Fine textured soil will be applied for the purpose of this report.
PH of Soil	Soil pH was between 8 and 11.2

Based on the Site conditions described in **Table 3 – Section 1.4**, the applicable criteria to be used in this Phase Two ESA is Ontario Regulation 153/04 "Table 2: Full Depth Generic Site Condition Standards in a potable Ground Water Condition" for Industrial/Commercial/Community (ICC) Use (Table 2 ICC Standards) as per the MECP document titled *"Soil, Ground Water and Sediment Standards for Use under Part XV. 1 of the Environmental Protection Act",* dated April 15, 2011, as amended.

2 BACKGROUND INFORMATION

2.1 Physical Setting

The Site is located approximately 78 m above mean sea level (amsl) and is generally flat land with a slight slope towards south-west corner of the Site. The nearest open water body is the Bear Brook, located approximately 2.2 km to the northwest of the Site. However, several neighbouring ditches are identified to the south, west, and north of the Site. An un-named water course is identified along the northern perimeter of Site. Groundwater flow has been identified as flowing in the south-east direction towards Shaw's Creek located 2.74 km east of the Site.

According to the Radon Potential Map of Ontario obtained from the website of Canada Radon, the Phase Two Study Area is located in the Relative Radon Hazard Zone 3 – Guarded.

The Site is not within any Areas of Natural and Scientific Interest (ANSI) identified by the Ministry of Natural Resources (MNR) as having provincial significance, and there are no areas of natural significance encroaching within 30 m of the Site.

2.2 Past Investigations

As previously mentioned, a Phase One ESA was completed for the subject Site in support of a Site Plan Application package to the City of Ottawa for the development of an industrial warehouse facility. The Phase I ESA should be read in conjunction with this Phase II ESA report.

The findings of the Phase One ESA the following potential contaminating activities which were considered a potential concern to the quality of the Site:

- **PCA 32**: Iron and Steel Manufacturing and Processing. The adjacent property hoist equipment manufacturing and rental company (YSB Hoisting equipment facility), is identified as an industrial use which involves assembling, processing, storing, warehousing, or distributing hoisting equipment. Associated material and equipment are stored on the Site since at least mid of 2022;
- **PCA 30**: Importation of Fill Material of Unknown Quality. Based on available information obtained, a layer of granular crushed stone was applied across the surface of the subject property in 2022 (est.). The source and quality of the material is unknown, therefore its conditions, in addition to the underlying materials, should be investigated;
- **PCA 32**: Iron and Steel Manufacturing and Processing. 357 Entrepreneur Crescent, immediately east of the Site, occupied by a hoist equipment rental company (YSB Hoisting Equipment & YSB Carpentry facility), industrial use which involves assembling, processing, storing, warehousing, or distributing hoisting equipment;
- **PCA Other**: Construction company workshop and storage yard. 371 Entrepreneur Crescent, immediately west of the Site, occupied by Galaxy Construction - workshop and storage yard;
- **PCA 28**: Gasoline and Associated Products Storage in Fixed Tanks. 5495 Boundary Road, approximately 170 m west of the Site. Reported to be an abandoned service station with records of underground liquid fuel storage tanks;
- **PCA 34**: Metal Fabrication. 5507 Boundary Road, approximately 170 m west of the Site. Listed as Renes Welding Inc. a fabricated metal products facility established in 1982.
- **PCA 52**: Storage, maintenance, fuelling, and repair of equipment, vehicles, and material used to maintain transportation systems. 381 Entrepreneur Cresent approximately 40 m to the west of the Site was used as a vehicle storage yard.
- **PCA 58**: Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners. Immediately north of the Site is a mineral-aggregate extraction facility that has a snow disposal operation during winter months.

Contaminants of concern are: Petroleum Hydrocarbon Compounds (PHCs); Volatile Organic Compounds (VOCs); Polycyclic Aromatic Hydrocarbons (PAHs); Polychlorinated Biphenyls (PCBs); Metals; Metal hydrides, inorganic parameters (conductivity, SAR, and pH).

Based on the above findings, select potential environmental concerns associated with the current and historical use of the Site and neighbouring properties have been identified. As such, a Phase Two Environmental Site Assessment is considered warranted at this time.

3 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

LRL's Phase Two ESA included the analysis of field investigations carried out between March 13th and April 16th, 2023. The field investigation was carried out to assess the quality of the soil and groundwater of the Phase Two Property in relation to the Areas of Potential Environmental Concern (APECs) identified by the previously prepared Phase One Conceptual Site Model, as mentioned above in Section 2.2.

The scope of the investigation included:

- Preparation of a Health and Safety Plan;
- Advancement of a total of ten (10) boreholes to a maximum depth of 6.0 m bgs;
- Four (4) boreholes were completed into monitoring wells designed to intercept the water table.
- Groundwater elevation measurements using an interphase probe for the potential measurements of free phase product either floating on the water table or the base of any water column.
- Field observations were made in accordance with LRL's Standard of Operation (SOP);
- Collection of the arbitrary ground surface elevations for borehole and monitoring well locations; and
- Samples collected were submitted and analyzed by Paracel Laboratories Ltd. testing laboratory companies to the MECP Table 2 ICC Standards for fine-textured soil.

3.2 Media Investigation

The Phase Two ESA was designed to investigate the potential for impact to soil and groundwater media on, in and beneath the Phase Two Property. The sampling of sediment was not performed, as there were no surface bodies of water on the Site during the Phase Two investigation.

3.2.1 Soil Investigation

The soil investigation was designed to investigate the APECs identified by the Phase One ESA, and consisted of the following components:

- Ten (10) boreholes were drilled on the Site (BH1 through BH10) to a maximum depth of 6.0 m bgs or refusal (whichever came first), The locations of the boreholes are presented in **Figure 2**;
- The boreholes were advanced utilizing direct push methodology using the static weight of the geo-probe combined with a hydraulic hammer. Samples were retrieved at regular intervals with a 50 mm outside diameter of Macro barrel sample liners which dropping 1200 mm;
- Inspection and logging of the Macro barrel liner samples in the field with observations noted pertaining to the soil type, composition, visual staining, discolouration, and olfactory clues for potential chemical impacts;
- Collection of soil samples from each soil layer;
- Prepared sub-samples for chemical laboratory analysis;

- Field screening of soil samples using Mini Rae 2000 Photoionization Detector (PID) to measure headspace vapour concentrations and determine the potential existence of PHC fractions and other VOCs;
- Collection of sub-samples of soil for chemical laboratory analysis was done using laboratory prepared, pre-labelled jars and vials. Sub-samples were placed in coolers. Based on the headspace vapour of analysis, the soil samples that exhibited the worst-case vapour readings were submitted to the analytical laboratory, along with a Chain of Custody Form for those samples;
- One (1) QA/QC was conducted on a duplicate sample, for every 10 sample parameters measured in the field. Two (2) field duplicate soil sample was analyzed for PHCs, VOCs, metals, and inorganics; and
- Soil cuttings were collected and remained on-site for future disposal.

3.2.2 Groundwater Investigation

The groundwater investigation was designed to intercept the groundwater table located approximately 0.9 m bgs.

- Four (4) monitoring wells (MW23-2, MW23-3, MW23-4, and MW23-5) were installed to assess the potential impact on the groundwater.
- The well screens for MW23-4, and MW23-5 were placed at the bottom of the 3.0 m of the monitoring well depth, with a maximum depth of 6.0 m bgs;
- The well screens for MW23-2, and MW23-3 were placed at the bottom of the 0.90 m of the monitoring well depth, with a maximum depth of 4.0 m bgs;
- Development of each well, prior to sampling by the removal (purge) of at least

  - Ten (10) times the volume of water contained in each well one day before the sampling day, and

  - Three (3) times the volume of water contained in each well on the sampling day.
- Determination of the presence of non-aqueous phase liquid-free product and the static groundwater elevation at each well;
- Groundwater samples were placed in laboratory-prepared and pre-labelled jars and placed in ice-filled cooler boxes for storage and transportation to the analytical laboratory, along with a Chain of Custody Form;
- Retention of a copy of the Chain of Custody Form once samples were submitted for analysis;
- Ensured the temperature of the samples submitted was below 10° C; and
- Chemical analysis of four (4) groundwater samples for contaminants of concern associated with specific APEC(s) identified by the Phase One ESA. Specifically, samples were submitted for analysis of PHCs, VOCs, PAHs, metals, metal forming hydrides, EC, SAR, and pH. Groundwater samples from MW23-2, and MW23-3 were submitted also for phenols analysis.

3.3 Phase One Site Conceptual Model

The PCAs on the Phase One Property and within Phase One Study Area identified through records review, interview, and site reconnaissance are summarized in **Table 4 – Section 3.3**.

Table 4 – Section 3.3: Phase One CSM – PCAS

No. On Map	PCA # (Table 2, Schedule D, Ontario Regulation 153/04)	Direction from/Location on Phase I Property	Approximate Distance from Phase I Property (m)	Relative to the groundwater flow direction
32	**PCA 32:** Iron and Steel Manufacturing and Processing	On-Site	0	On-Site
30	**PCA 30:** Importation of Fill Materials of Unknown Quality	On-Site	0	On-Site
32	**PCA 32:** Iron and Steel Manufacturing and Processing	East	0	Down- gradient
Other	**PCA Other:** Construction company workshop and storage yard	West	0	Up-gradient
28	**PCA 28:** Gasoline and Associated Products Storage in Fixed Tanks	West	170	Up-gradient
34	**PCA 34:** Metal Fabrication	West	170	Up-gradient
52	**PCA 52:** Storage, maintenance, fuelling, and repair of equipment, vehicles, and material used to maintain transportation systems.	West	40	Up-gradient
58	**PCA 58:** Waste Disposal and Waste Management, including thermal treatment, landfilling, and transfer of waste, other than use of biosoils as soil conditioners.	North	0	Trans-gradient

The potentially contaminating activities identified above have been evaluated by a qualified person to determine whether an area of potential environmental concern will transpose on the Phase I Property as a result of their presence within the Phase I Property or Phase I Study Area. The rationale for the exclusion of one or more PCAs may be the result of, but not limited to, the direction of Site location in conjunction with proposed groundwater flow direction, distance from the site, results from previous environmental reports, etc.

The Areas of Potential Environmental Concern (APEC) identified in the Phase One ESA are summarized in **Table 5 – Section 3.3** as follows:

Table 5 – Section 3.3: Phase One CSM – APECs

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase II Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil, and/or sediment)
APEC A	Entire Property	**PCA 32:** Iron and Steel Manufacturing and Processing	On Site	Metals	Soil and Groundwater
APEC B	Entire Property	**PCA 30:** Importation of Fill Materials of Unknown Quality	On Site	PAHs, VOCs, PHCs, Metals, OP pesticides	Soil and Groundwater
APEC C	Eastern portion of the Site	**PCA 32:** Iron and Steel Manufacturing and Processing	Off-Site	Metals	Soil and Groundwater
APEC D	Western portion of the Site	**PCA Other:** Construction company workshop and storage yard	Off-Site	PHC, VOC, Metals	Soil and Groundwater
APEC E	Western portion of the Site	**PCA 28:** Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHC, VOC	Soil and Groundwater
APEC F	Western portion of the Site	**PCA 34:** Metal Fabrication.	Off-Site	Metals	Soil and Groundwater
APEC G	Western portion of the Site	**PCA 52:** Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.	Off-Site	VOC, PHC, Metals	Soil and Groundwater

Notes:
1 - Area of Potential Environmental Concern (APEC) means the area on, in, or under a Phase One Property where one or more contaminants are potentially present, as determined through the Phase One ESA, including through:

(a) Identification of past or present uses on, in, or under the Phase One Property, and
(b) Identification of potentially contaminating activity.
2 - Potentially Contaminating Activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a Phase One Study Area

3.3.1 Physical Settings

The entire property is situated on an area of offshore marine deposits consisting of clay, silty clay, and silt, commonly calcareous and fossiliferous; locally overlain by thin sand. The bedrock in the vicinity of the Site is expected to be grey shale, sandy shale, and some dolomitic layers in part of the Carlsbad Formation.

Based on GIS mapping obtained through GeoOttawa, the nearest open water body is the Bear Brook creek located approximately 2.2 km to the northwest of the Site. However, groundwater flow has been identified as flowing in the south-east direction towards Shaw's Creek located 2.74 km east of the Site. Several neighbouring ditches are identified to the south, west, and north of the Site including an un-named water course along the northern perimeter of Site.

3.3.2 Water Bodies and Areas of Natural Significance

There are no Areas of Natural Significance within the Phase One Study Area. No water body is identified within 30 m of the Site, with the excepting of an un-named water course along the northern perimeter of Site

3.4 Deviations from Sampling and Analysis Plan

LRL did not deviate from the SOPs and forms outlined above. The location of the boreholes in relation to the PCAs and APECs are presented in **Figure 2**.

No deviations occurred from the initial Sampling and Analysis Plan.

3.5 Impediments

At the time of this assessment, the Site was used as a storage yard for the adjacent YSB Hoisting equipment facility, located immediately east of the Site. Hoisting equipment stored on the ground surface distributed on the parameters of the Site, which limited the access for the drilling activities.

4 INVESTIGATION METHOD

4.1 General

The Phase Two ESA involved various field activities to investigate the quality of the soil and groundwater and was comprised of the following components.

- Retaining public and private utility locator companies;
- Retaining a certified (MECP licensed well drillers) contractor for drilling the boreholes and installing the monitoring wells;
- Supervision and documentation of borehole drilling and monitoring well installation field activities;
- Soil characterization and logging;
- Soil sample collection for chemical analysis;
- Well development;
- Determining the presence of any non-aqueous phase free product and water elevation monitoring; and
- Groundwater sample collection for chemical analysis.

4.2 Drilling Investigation

Prior to conducting subsurface activities on the Site, LRL contacted a private locating company (USL-1) for the public & private locates. The utility contractor was retained to verify all borehole positions were adjusted to be an appropriate distance from buried utilities. Overhead wires were not present in the drilling areas.

Ten (10) boreholes were drilled to depths of 6.0 m bgs with a rubber track-mounted geoprobe. Four (4) boreholes were completed into monitoring wells. Flush mount well casings were installed to cover the monitoring wells. The work was undertaken on March 13 and March 14, 2023.

4.2.1 Name of the Contractor

George Downing Estate Drilling Ltd. are licensed environmental and geotechnical drillers and were commissioned to drill the ten (10) boreholes and install the four (4) monitoring wells.

4.2.2 Description of the Equipment Used

The ten (10) boreholes were drilled by a rubber track-mounted geo-probe, equipped with 1.2 m in length Macro barrel sample liners. The boreholes that had monitoring wells installed were fitted with a 2-inch diameter PVC pipe and 10 foot well screen where #2 silica sand and ¾" bentonite chips.

4.2.3 Description of Measures taken to Minimize Cross-Contamination

The plastic tube of the macro barrel sample liners was changed after each sample to prevent cross contamination. The dedicated gloves were changed after each sample to prevent cross-contamination. The used plastic tube and gloves were placed in garbage bags and removed from the Site at the end of the drilling program.

4.2.4 The Frequency of Sample Collection

Sampling intervals for the boreholes were continuously taken with a 1.2 m in length macro barrel sample liners from the ground surface to 6.0 m bgs.

4.3 Soil Sampling

4.3.1 Description of Equipment Used for Soil Collection

The soil is removed from the macro barrel sample liners and placed in pre-labelled, laboratory prepared jars and methanol-filled vials and in clear plastic bags marked as BH-X-SSY.

Following field screening with a photo ionization detector, samples were placed in appropriate laboratory-supplied, pre-labelled bottles and methanol-filled vials (for VOCs and PHC F1 analysis) and placed directly into ice-filled coolers for storage and transportation to Paracel Laboratories (Ottawa, Ontario).

4.3.2 Geological Descriptions of Soil Samples

Table 6 – Section 4.3.2: Geological Description of Soil Samples

Exploratory Location BH/MW	Type	Geological Description	Depth Range (m bgs)	Soil Sample
BH1	Fill - Granular Base	Sand with gravel, moist, grey.	0.0 – 0.85	SS1
	Disturbed Native	Silty sand, moist, brown.	0.85 – 1.2	SS2,
	Disturbed Native	Clay, Silty at (1.20 - 1.95 m bgs) and at (3.65 - 4.50 m bgs), grey, brown at (1.20 - 1.95 m bgs), saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.
BH2	Fill - Granular Base	Sand with gravel, moist, grey.	0.0 – 0.85	SS1
	Undisturbed Native	Silty sand, moist, brown.	0.85 – 1.2	SS2
	Undisturbed Native	Clay, Silty at (1.20 - 1.95 m bgs) and at (3.65 - 4.50 m bgs), brown becoming grey at (1.95 m bgs), saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.
BH3	Fill - Granular Base	Sand with gravel, grey, moist, saturated at (0.0-0.2 m bgs).	0.0 – 0.85	SS1
	Undisturbed Native	Silty sand, green, moist.	0.85 – 1.2	SS2
	Undisturbed Native	Clay, Silty at (1.20 - 1.95 m bgs) and at (3.60 - 4.25 m bgs), brown becoming grey at (1.95 m bgs), some red at (1.95 - 2.4 m bgs) and at (4.25 - 4.8 m bgs), saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.
BH4	Fill - Granular Base	Sand with gravel, grey, moist, saturated at (0.0-0.2 m bgs).	0.0 – 1.0	SS1
	Undisturbed Native	Silty sand, moist, brown.	1.0 – 1.2	SS2
	Undisturbed Native	Clay, Silty sandy at (1.20 – 2.0 m bgs), Silty at (3.6 – 4.25 m bgs), brown becoming grey at (2.0 m bgs), saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.
BH5	Fill - Granular Base	Sand with gravel, grey, moist, saturated at (0.0-0.2 m bgs).	0.0 – 1.0	SS1
	Undisturbed Native	Silty sand, moist, brown.	1.0 – 1.2	SS2
	Undisturbed Native	Clay, Silty at (1.2 – 1.75m bgs), brown becoming grey at (1.75 m bgs), some red, saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.
BH6	Fill - Granular Base	Sand with gravel, brown at (0.0 – 0.35 m bgs) followed by grey to (0.85 m bgs), dry.	0.0 – 0.85	SS1
	Undisturbed Native	Silty sand, moist, brown.	0.85 – 1.2	SS2
	Undisturbed Native	Clay, Silty sandy at (1.20 – 1.9 m bgs), Silty at (4.8 – 6.0 m bgs), brown becoming grey with depth, saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.

BH7	Fill - Granular Base	Sand with gravel, grey, dry, moist at (0.0 - 0.1 m bgs).	0.0 – 1.0	SS1
	Undisturbed Native	Silty sand, moist, brown.	1.0 – 1.2	SS2
	Undisturbed Native	Clay, Silty at (1.2 – 1.95m bgs) and at (3.6 – 4.2 m bgs), grey, brown at (1.2 – 1.95 m bgs), some red at (1.2 – 2.4 m bgs) and at (4.8 – 6.0 m bgs), saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.
BH8	Fill - Granular Base	Sand with gravel, moist, grey.	0.0 – 0.80	SS1
	Undisturbed Native	Sand, Silty to (1.10 m bgs), followed by silty clayey, brown with some red spots, wet.	0.80 – 1.2	SS2
	Undisturbed Native	Clay, Silty at (1.20 - 1.95 m bgs) and at (3.65 - 4.50 m bgs), grey, brown at (1.20 - 1.95 m bgs), saturated.	1.2 – 6.0	SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10.
BH9	Fill - Granular Base	Sand with gravel, grey, dry, moist at (0.0-0.1 m bgs).	0.0 – 1.0	SS1
	Undisturbed Native	Silty sand, moist, brown.	1.0 – 1.2	SS2
	Undisturbed Native	Clay, Silty at (1.2 – 1.85m bgs), grey-brown with some red at (1.2 – 1.85 m bgs) followed by grey, saturated.	1.2 – 2.4	SS3, SS4.
BH10	Fill - Granular Base	Sand with gravel, grey, dry, moist at (0.0 - 0.1 m bgs).	0.0 – 0.85	SS1
	Undisturbed Native	Silty sand, moist, brown.	0.85 – 1.2	SS2
	Undisturbed Native	Clay, Silty at (1.2 – 1.9 m bgs), grey-brown with some red at (1.2 – 1.9 m bgs) followed by grey with red, saturated.	1.2 – 2.4	SS3, SS4.

4.4 Field Screening Measurements

Field screening of the soil involved the use of a PID to measure headspace concentrations of VOCs (as Isobutylene) in conjunction with visual and olfactory observations. This combination of field screening tools were used to determine the “worst-case” sample of the site and the selection of the samples for submission of VOC and PHC analysis.

4.4.1 PID Screening

Soil samples collected were screened for vapours using the Mini Rae 2000 Photoionization Detector (PID). The Mini Rae 2000 Photoionization Detector (PID) was calibrated prior to use. Screening of VOC headspace concentrations were performed in accordance with LRL’s SOP for Field Measurement of Soil Screening Parameters.

VOC measurements were taken by collecting soil samples into dedicated plastic sampling bags and inserting into the bag while maintaining a tight seal around the probe. The measurements that represent the highest value detected within the first 30 seconds of the field screening and measurements were documented into the field notes. Soil samples with the highest combustible vapours detected were then submitted for laboratory analysis, as shown in **Table 10 – Section 5.5.1**

4.4.2 Chemicals Detected and Associated Detection Limits

The monitoring program was performed using the Mini Rae 2000 Photoionization Detector (PID) equipped with a low range PID sensor and configured to detect VOCs calibrated to isobutylene (IBL). Mini Rae 2000 Photoionization Detector (PID) provides detection limit ranges between 0 – 1000 ppm for VOCs.

4.4.3 Procedure for Checking Calibration of Equipment

Mini Rae 2000 Photoionization Detector (PID) was calibrated by LRL staff with isobutylene calibration gas prior to use. The calibration of the Mini Rae 2000 Photoionization Detector (PID) is verified by operating the unit in a fresh air environment and ensuring zero readings for all parameters measured.

4.5 Groundwater: Monitoring Well Installation

Four (4) of the ten (10) boreholes drilled had monitoring wells installed. The locations of all four (4) monitoring wells were determined to permit sampling the groundwater pertaining to APECs identified in the Phase One Environmental Site Assessment.

A three (3) m 2-inch diameter well screen was placed at the base of the borehole with a PVC cap at the end of the screen. The screen was encompassed with #2 silica sand that extends approximately 0.3 m above the well screen. The well was then sealed with ¾ inch bentonite chips above the sand pack to approximately 10 cm bgs. The 2 inch PVC well riser completed the length of the well and a J-plug was installed at the top of the riser. The monitoring well was encased by a flush mount casing.

4.5.1 Description of the Equipment

The monitoring wells were drilled with a rubber track-mounted geo-probe a 50 mm outside diameter auger.

The monitoring wells were constructed using the following materials:

- Dedicated polyvinyl chloride (PVC) individually wrapped riser pipes and screens;
- 50 mm (2 inches) diameter Schedule 40 PVC pipe capped at the top;
- 50 mm (2 inches) diameter Schedule 40 No. 10-slot PVC screen with a screen length of 3.0 m and capped at the base with a J-Plug;
- Sand pack to approximately 0.3 m above the top of the well screen;
- Bentonite seal to approximately 10 cm bgs; and,
- Flush mounts were installed to cover the monitoring wells on the granular surface.

4.5.2 Measures to Minimize Potential Cross-Contamination

A dedicated sampling device consisting of a Sterile dedicated tubing and foot valve attached was used to collect groundwater samples from each monitoring well. The groundwater was placed directly in the pre-labelled laboratory-prepared sample containers and was tightly sealed and placed directly into a cooler for delivery to the laboratory. Sterile butyl nitrile gloves were changed for each well to ensure no cross-contamination during the sampling program.

4.5.3 Frequency of Sample Collection during Drilling

Groundwater samples were not collected during borehole drilling or monitoring well installation.

4.5.4 Monitoring Well Development

Prior to well development, the groundwater elevation at each monitoring well was established using a Heron H. Oil Oil/Water interface probe. The interface probe was used to assess the monitoring well for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) and Dense Non-Aqueous Phase Liquids (DNAPLs). If a free product were present, the thickness of the free product would be measured and recorded, and the actual groundwater surface was corrected accordingly. The interface probe was thoroughly washed with de-ionized water and dried with a clean cloth prior to use at a subsequent well.

Subsequent to the groundwater elevation survey, each well was developed by the removal of at least ten (10) times the volume of water (if possible) contained in each well using a Sterile dedicated tubing and foot valve attached. The purged groundwater removed was collected in dedicated five (5) gallon pails (23 litres) to inspect the removed water for visible identifiers or sheen. The amount of water removed from each well was recorded and is summarized in Table 7 – Section 4.5.4 as follows.

Table 7 – Section 4.5.4: Monitoring Well Development

Monitoring Well	Ground water Level (m bgs)	Depth of water column (m)	Required Purge Volume (L)	Date of Development/Purging	The volume of Fluid Removed from Well (L)
MW23-2	0.19	3.69	74	March 15, 2023	74
MW23-3	0.23	3.65	73	March 15, 2023	73
MW23-4	0.26	5.76	115	March 15, 2023	115
MW23-5	0.07	5.55	119	March 15, 2023	120

4.6 Groundwater: Sampling

Groundwater samples were collected on March 16, 2023, following the removal of at least three (3) times the volume of water (if possible) contained in each well using a Sterile dedicated tubing and foot valve attached, in accordance with LRL's SOP for Ground Water Purging and Sampling.

Groundwater samples were collected from the well as soon as there was sufficient groundwater in the well for sample collection (95% of the original water column).

The jars and vials were prepared in advance by the laboratory. The pre-labelled jars were filled in the field sealed when full, packaged in bubble wrap and placed into an ice-filled cool box to maintain temperatures below 10 ^{0}C for storage and transportation. The chain of custody form was completed in the field, placed in a protective wrap, and placed into the cooler box for delivery to the laboratory. A copy of the Chain of Custody was retained and is attached to the report in **Appendix D.**

4.7 Sediment: Sampling

The Phase II Property did not contain a body of water as defined under Ontario Regulation 153/04 (as amended); therefore, sediment was not present in the investigation area and no sediment sampling was conducted.

4.8 Analytical Testing

The soil and groundwater samples were submitted to ALS Environmental, analytical laboratories accredited by the Canadian Association for Laboratory Accreditation (CALA). The analyses were performed in compliance with the MOE Laboratory Services Branch, "Protocol for Analytical Methods Used in the Assessment of Properties under Past XV.1 of the Environmental Protection Act of the Environmental Protection Act, July 1, 2011".

4.9 Residue Management Procedures

4.9.1 Soil Cuttings – Drilling

Soil cuttings removed from the drill augers were stored on-site for future disposal. If the soil is to be disposed of in a licensed facility, a Toxicity Characteristic Leaching Procedure (TCLP) analysis will be required along with the bulk analysis.

4.9.2 Water from Well Development and Purging

Water generated from the well development and the purging of the wells was released on the surface of the soil. The groundwater encountered at the site did not exhibit any visual or olfactory evidence of chemical impact, sheen, or NAPLs and met the MECP Table 2 ICC Standard for fine-grained soils.

4.10 Elevation Surveying

Ground surface elevations of all boreholes and monitoring wells were surveyed and referenced to a temporary benchmark. This benchmark was established on the centre surface of the Entrepreneur Crescent opposite to the Site. It was given an arbitrary elevation of 100.00 m. The results of the elevation survey are summarized in the borehole logs in **Appendix A**.

4.11 Quality Assurance and Quality Control Measures

4.11.1 Laboratory Supplied Sample Containers and Shipment Procedures

Table 8 – Section 4.11.1 below provides a detailed description of the sample containers, preservation, labelling, handling, and custody for the samples submitted.

Table 8 – Section 4.11.1: Sampling Parameters and Containers

Parameter	Sample Container	Preservative	Handling & Custody Samples
Soil Samples			
Metals, PHCs (F2-F4), PAHs, PCB.	Amber glass Teflon lined lids	None	Soil samples were collected from the Macro barrel sample liners by hand or with the use of a clean steel trowel and transferred to a zip lock bag for field screening. Samples taken for laboratory analysis were placed in pre-prepared and labelled laboratory-supplied sample containers, observing the laboratory requirements for specific sample volumes according to the testing required. The soil samples collected for laboratory analysis were immediately placed into ice-filled cool boxes for storage and transportation to the laboratory. On arrival, all samples were removed from the ice-filled cool box and immediately refrigerated pending final chemical analysis sample selection. Selected samples for laboratory analysis were placed in ice-filled cool boxes and dispatched to the accredited chemical laboratory under Chain of Custody procedures.
VOCs, PHC (F1)	Vial	Methanol	
Groundwater Samples			
PHCs (F2-F4).	Amber Glass Bottle	HCL	Groundwater samples were collected using a low-flow waterra® pump and dispensed directly into the appropriate pre-labelled, laboratory-supplied groundwater sample containers. The collected groundwater samples were immediately placed into ice-filled cool boxes for storage and transportation to the laboratory. On arrival at the laboratory, all samples were removed from the ice-filled cool box and immediately refrigerated pending final chemical analysis sample selection. Selected samples for laboratory analysis were placed in ice-filled cool boxes and dispatched to the accredited chemical laboratory under Chain of Custody procedures.
VOCs, PHC (F1)	Vials	NaHSO4	
Metals, Inorganics.	Amber Glass Bottle		
PCB, PAHs	Amber Glass Bottle	None	

Soil samples were collected using dedicated prepared 250 ml jars, syringes, and vials provided by Paracel Laboratories Ltd. Soil samples that required VOC analysis involved placing approximately 5 g of soil into dedicated methanol- filled vials. This method was used to ensure no loss of VOCs during transportation. The vials were placed in the cooler containing the trip blank for VOC analysis. The cooler was placed in ice to ensure the temperature of samples was lower than 10 °C on arrival at the laboratory.

4.11.2 Description of Equipment Cleaning Procedures

The boreholes were drilled utilizing direct push methodology using the static weight of the geo-probe to minimize the possibility for cross-contamination between potentially impacted and non-impacted soil or groundwater layers.

Core samples of soil were obtained during the drilling was collected via a 1.20 m in length macro barrel sample liners. The macro barrel sample liner uses a plastic liner to facilitate soil removal.

Plastic liners are one-time use liners and will not be reused for sampling of multiple intervals or soil boring locations to prevent cross-contamination on re-use.

Soil samples were collected from the plastic liner by hand (using dedicated nitrile gloves that were disposed of after each sample), to mitigate cross-contamination. If necessary, soil samples contained in the plastic liner were removed with the aid of a stainless-steel trowel. Subsequent to soil sample collection, any hand-tool used for sample collection were immediately cleaned in accordance with LRL's SOP, as follows:

- Scrubbed with a wire brush in an Alconox solution (a powdered precision cleaner, that is biodegradable and has interfering-residue free and corrosion-inhibiting properties);
- Rinsed with distilled or de-ionized water; and
- Towelled with dedicated disposable dry towels.

The soil samples were placed directly into pre-labelled jars specific to the chemical analysis desired. The location of each sampling point is recorded, and the pre-labelled jars were placed in coolers and packed with ice. The remaining sample after classification were placed in a large zip lock bag for further field screening by means of PID for vapour headspace measurements.

4.11.3 Description of Field Quality Control Measures

Soil samples were placed into laboratory-provided bottles and vials that were clearly labelled with the sample location, date, and chemical analysis to be conducted on each sample jar. The same labelling was applied to the chain of custody forms. Dedicated nitrile gloves were used for each sample collected in the field and disposed of immediately after use.

VOC samples were collected in methanol vials filled by the laboratory and an exact amount of VOC impacted soil was added to the vials by means of a syringe that captures 5 ml of soil to be added to the vials. The vial caps are tightly sealed and placed directly in a bubble cap package and placed upright into a cooler packed with ice. Sample screening by means of a PID, olfactory clues, discoloration, soil characteristics, and texture were used to determine which samples were to be submitted for further analysis.

Samples for analysis of metals parameters were placed into amber-coloured jars prepared by the laboratory sealed with a Teflon-lined cap. The jars were filled to the brim and capped tightly to minimize the vapour headspace in the jar. These jars were placed in bubble wrap containers and placed into a cooler packed with ice. The selection of the samples for analysis was based on the field screening method outlined in LRL SOPs.

Groundwater samples were placed into laboratory prepared (with appropriate preservatives) and supplied bottles and vials. The vials and jars were filled to the brim to minimize VOC loss.

The following packaging and transportation procedures were followed:

- Correctly labelled samples were packed in ice-filled cool boxes to maintain temperatures below 10°C during sample collection and transportation from the Phase II Property to the laboratory and the chemical testing to Paracel Laboratories Inc.; and
- A copy of the chain of custody form was maintained.

4.11.4 Deviations from the Quality Assurance and Quality Control Program

There were no deviations from the Quality Assurance and Quality Control Program.

5 REVIEW AND EVALUATION

5.1 Geology

The entire property is situated on an area of offshore marine deposits consisting of clay, silty clay, and silt, commonly calcareous and fossiliferous; locally overlain by thin sand.

The bedrock in the vicinity of the Site is expected to be grey shale, sandy shale, and some dolomitic layers in part of the Carlsbad Formation.

5.1.1 Geological Conditions Encountered

Ten (10) boreholes were advanced across the Site. The soils encountered consisted mainly of Fill (granular base), followed by brown silty sand followed by grey clay.

No sheen or evidence of Light Non-Aqueous (LNAPL) and Dense Non-Aqueous Phase Liquid (DNAPL) as free product was observed in any of the monitoring wells. No hydrocarbon odours were detected in any of the monitoring wells.

The groundwater monitoring wells were positioned to identify potential groundwater impacts associated with the PCAs and APECs identified on the Site. Groundwater contours and inferred groundwater flow direction are presented in **Figure 3.**

5.1.2 Elevations Geodetic Benchmark

A laser level was used to determine the geodetic elevations for each borehole and monitoring well.

5.1.3 Aquifer and Aquitard Properties

The soil stratigraphy indicated that the overburden was primarily comprised of fine-medium grain sand. The monitoring wells were installed to a depth between 6.0 m and 4.0 m bgs and exhibited a static water level of 0.30 m bgs on average.

5.1.4 Confirmatory Soil and Groundwater Monitoring Well Design and Rationale

Table 9 – Section 5.1.4: Confirmatory Soil and Groundwater Monitoring Well Design and Rationale

Monitoring Well	Target Aquitard or Aquifer	Screen interval Depth (m bgs)	APEC	PCA	Rational
MW2	Silty clay	0.9 – 4.0	APEC A APEC B APEC D APEC E APEC F APEC G	**PCA 32:** Iron and Steel Manufacturing and Processing. **PCA 30:** Importation of Fill Materials of Unknown Quality. **PCA Other:** Construction company workshop and storage yard **PCA 28:** Gasoline and Associated Products Storage in Fixed Tanks. **PCA 34:** Metal Fabrication. **PCA 52:** Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.	Soil and groundwater for potential presence of Metals, PAHs, PHCs, VOCs, BTEX. pH, EC, and SAR.
MW3	Silty clay	0.9 – 4.0	APEC A APEC B	**PCA 32:** Iron and Steel Manufacturing and Processing. **PCA 30:** Importation of Fill Materials of Unknown Quality.	Soil and groundwater for potential presence of Metals, PAHs, PHCs, VOCs, BTEX. pH, EC, and SAR.
MW4	Silty clay	3.0 – 6.0	APEC A APEC B APEC C	**PCA 32:** Iron and Steel Manufacturing and Processing. **PCA 30:** Importation of Fill Materials of Unknown Quality. **PCA 32:** Iron and Steel Manufacturing and Processing	Soil and groundwater for potential presence of Metals, PAHs, PHCs, VOCs, BTEX. pH, EC, and SAR.
MW5	Silty clay	3.0 – 6.0	APEC A APEC B	**PCA 32:** Iron and Steel Manufacturing and Processing. **PCA 30:** Importation of Fill Materials of Unknown Quality.	Soil and groundwater for potential presence of Metals, PAHs, PHCs, VOCs, BTEX. pH, EC, and SAR.

5.2 Groundwater Elevations

The direction of groundwater flow has been determined to be in the southeastern direction. **Figure 3** shows the groundwater flow direction.

5.2.1 Discussion and Rationale for Location and Screen Intervals

The wells were placed so that the triangulation of the groundwater elevations could be conducted to determine the groundwater flow direction. The three-meter screen was used to straddle the groundwater table for the interception of LNAPLs and the potential of free phase and dissolved fractions of DNAPLs.

5.2.2 Interphase Probe

No LNAPSLs or DNAPLs were detected with the interphase Probe during the measuring of water levels before and after well development.

5.2.3 Product Thickness

No free product was encountered.

5.3 Soil Texture

Under Ontario Regulation 153/04 (as amended). “coarse-textured soil” is soil that contains more than 50 percent bypass of particles that are 75 micrometers (um) or larger in mean diameter.

5.3.1 Rationale for the Use of Fine – Medium Soil Texture

Refer to LRL Geotechnical Investigation, soil texture analysis illustrates that the soil at Phase Two Property considered to be of fine-grained texture.

5.3.2 Results of the Grain Size Analysis for Fine – Medium Soil Texture

Not applicable

5.3.3 Rationale for the Number of Samples Collected and Analysed for Grain Size Analysis

Not applicable

5.4 Soil: Field Screening

The samples were examined in the field for lithology as well as for aesthetic evidence of impacts (i.e., debris, staining, and odours). In addition, headspace readings were recorded using a photo-ionization detector (PID) calibrated to isobutylene (IBL). This combination of field screening tools was used to determine the “worst-case” sample(s) collected from the subject site. The findings of the field screening measurements and head Space analyses are summarized in the borehole logs in **Appendix A**.

5.5 Soil Quality

The Phase One ESA Conceptual Site Model identified the following Contaminants of Concern in the soil in relation to the PCAs and two (2) APECs that may affect the Phase II Property.

- Volatile Organic Compounds (VOC);
- Petroleum Hydrocarbons PHC – F1 through F4;
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs); and
- Metals; Metal hydrides, and inorganic parameters (conductivity, SAR, and pH).

On March 13 and March 14, 2023, a total of twenty-four (24) samples, were submitted to evaluate the level of potential chemical impact on the soils beneath the Site.

5.5.1 Location and Depth of Sampling

The following table describes the location and depth of the specific samples submitted for chemical laboratory analysis, and the results of the analyses in comparison to MECP Table 2 ICC.

Table 10 – Section 5.5.1: Soil Chemical Laboratory Analysis

Borehole ID	Sample ID	Depth (m bgs)	Date Sampled	Chemical Analysis						Standard Exceedance (Table 2 ICC for Fine sand)
				PHC F2 – F4	VOCs/F1	Metals	General Inorganic	PAHs	PCBs	
BH1	SS1	0.0 – 0.85	March 14, 2023	✓	✓	✓	✓			No Exceedances
	SS2	0.85 – 1.2	March 14, 2023							
	SS3	1.2 – 1.9	March 14, 2023	✓	✓					No Exceedances
	SS4	1.9 – 2.4	March 14, 2023					✓	✓	No Exceedances
	SS5	2.4 – 3.0	March 14, 2023							
	SS6	3.0 – 3.6	March 14, 2023							
	SS7	3.6 – 4.5	March 14, 2023							
	SS8	4.5 – 4.8	March 14, 2023							
	SS9	4.8 – 5.4	March 14, 2023							
	SS10	5.4 – 6.0	March 14, 2023							
BH2	SS1	0.0 – 0.85	March 14, 2023	✓	✓	✓	✓			No Exceedances
	SS2	0.85 – 1.2	March 14, 2023							
	SS3	1.2 – 1.95	March 14, 2023							
	SS4	1.95 – 2.4	March 14, 2023							
	SS5	2.4 – 3.0	March 14, 2023							
	SS6	3.0 – 3.6	March 14, 2023							
	SS7	3.6 – 4.2	March 14, 2023							
	SS8	4.2 – 4.8	March 14, 2023							
	SS9	4.8 – 5.4	March 14, 2023							
	SS10	5.4 – 6.0	March 14, 2023							
	SS40	0.0 – 0.85	March 14, 2023	✓	✓	✓	✓			No Exceedances
BH3	SS1	0.0 – 0.85	March 14, 2023	✓	✓	✓	✓			No Exceedances
	SS2	0.85 – 1.2	March 14, 2023	✓	✓					No Exceedances
	SS3	1.2 – 1.95	March 14, 2023			✓	✓			No Exceedances
	SS4	1.95 – 2.4	March 14, 2023					✓	✓	No Exceedances
	SS5	2.4 – 3.0	March 14, 2023							
	SS6	3.0 – 3.6	March 14, 2023							
	SS7	3.6 – 4.25	March 14, 2023							
	SS8	4.25 – 4.8	March 14, 2023							

Borehole ID	Sample ID	Depth (m bgs)	Date Sampled	Chemical Analysis						Standard Exceedance (Table 2 ICC for Fine sand)
				PHC F2 – F4	VOCs/F1	Metals	General Inorganic	PAHs	PCBs	
	SS9	4.8 – 5.4	March 14, 2023							
	SS10	5.4 – 6.0	March 14, 2023							
BH4	SS1	0.0 1.0	March 13, 2023			✓	✓			No Exceedances
	SS2	1.0 – 1.2	March 13, 2023	✓	✓	✓				No Exceedances
	SS3	1.2 – 2.0	March 13, 2023			✓	✓			No Exceedances
	SS4	2.0 – 2.4	March 13, 2023					✓	✓	No Exceedances
	SS5	2.4 – 3.0	March 13, 2023							
	SS6	3.0 – 3.6	March 13, 2023							
	SS7	3.6 – 4.25	March 13, 2023							
	SS8	4.25 – 4.8	March 13, 2023							
	SS9	4.8 – 5.4	March 13, 2023							
	SS10	5.4 – 6.0	March 13, 2023							
BH5	SS1	0.0 – 1.0	March 13, 2023	✓	✓	✓	✓			No Exceedances with the exception of conductivity
	SS2	1.0 – 1.2	March 13, 2023							
	SS3	1.2 – 1.75	March 13, 2023	✓	✓	✓				No Exceedances
	SS4	1.75 – 2.4	March 13, 2023							
	SS5	2.4 – 3.0	March 13, 2023							
	SS6	3.0 – 3.6	March 13, 2023							
	SS7	3.6 – 4.2	March 13, 2023							
	SS8	4.2 – 4.8	March 13, 2023							
	SS9	4.8 – 5.4	March 13, 2023							
	SS10	5.4 – 6.0	March 13, 2023							
	SS20	0.0 – 1.0	March 13, 2023	✓	✓	✓	✓			No Exceedances
BH6	SS1	0.0 – 0.85	March 13, 2023	✓	✓	✓	✓			
	SS2	0.85 – 1.2	March 13, 2023							No Exceedances
	SS3	1.2 – 1.9	March 13, 2023							
	SS4	1.9 – 2.4	March 13, 2023							
	SS5	2.4 – 3.0	March 13, 2023							
	SS6	3.0 – 3.6	March 13, 2023							
	No sample in the tube	3.6 – 4.8	--							
	SS7	4.8 – 5.4	March 13, 2023							
	SS8	5.4 – 6.0	March 13, 2023							
BH7	SS1	0.0 – 1.0	March 14, 2023	✓	✓	✓	✓			No Exceedances with the exception of Lead
	SS2	1.0 – 1.2	March 14, 2023							
	SS3	1.2 – 1.95	March 14, 2023			✓				No Exceedances
	SS4	1.95 – 2.4	March 14, 2023							
	SS5	2.4 – 3.0	March 14, 2023							
	SS6	3.0 – 3.6	March 14, 2023							
	SS7	3.6 – 4.2	March 14, 2023							
	SS8	4.2 – 4.8	March 14, 2023							
	SS9	4.8 – 5.4	March 14, 2023							
	SS10	5.4 – 6.0	March 14, 2023							
BH8	SS1	0.0 – 0.80	March 13, 2023							
	SS2	0.80 – 1.2	March 13, 2023	✓	✓	✓	✓			No Exceedances
	SS3	1.2 – 1.9	March 13, 2023			✓				No Exceedances
	SS4	1.9 – 2.4	March 13, 2023							
	SS5	2.4 – 3.0	March 13, 2023							
	SS6	3.0 – 3.6	March 13, 2023							
	SS7	3.6 – 4.2	March 13, 2023							

Borehole ID	Sample ID	Depth (m bgs)	Date Sampled	Chemical Analysis						Standard Exceedance (Table 2 ICC for Fine sand)
				PHC F2 – F4	VOCs/F1	Metals	General Inorganic	PAHs	PCBs	
	SS8	4.2 – 4.8	March 13, 2023							
	SS9	4.8 – 5.4	March 13, 2023							
	SS10	5.4 – 6.0	March 13, 2023							
BH9	SS1	0.0 – 1.0	March 14, 2023	✓	✓	✓	✓			No Exceedances
	SS2	1.0 – 1.2	March 14, 2023							
	SS3	1.2 – 1.85	March 14, 2023							
	SS4	1.85 – 2.4	March 14, 2023							
BH10	SS1	0.0 – 0.85	March 14, 2023	✓	✓	✓	✓			No Exceedances
	SS2	0.85 – 1.2	March 14, 2023			✓				No Exceedances
	SS3	1.2 – 1.9	March 14, 2023							
	SS4	1.9 – 2.4	March 14, 2023							

5.5.2 Analytical Results to SCS

The environmental quality of the soil at the Site was compared to the MECP Table 2 ICC Standard. The Laboratory Certificates of Analysis are presented in **Appendix B.** Results of soil analysis and respective MECP standards are presented in **Table 2** and **Table 3**.

At least one (1) soil sample, considered to be "worst case" based on field observations, from each borehole was submitted for chemical analysis to confirm the field observations of petroleum hydrocarbon impacts. The samples were submitted for analysis of PHCs, VOCs, PCBs, PAHs, Metals Reg.153/4, and general Inorganics.

- VOC parameter concentrations were below the detection limits in all samples.
- PAH parameter concentrations were below the detection limits in select samples submitted for analysis.
- Select metals parameters analysed were detected in soil samples, however, the detectable levels of Metals were within the MECP Table 2 with the exception of:

  - BH23-7-SS1: Lead was detected.

- Select inorganics parameters analysed were detected in soil samples, however, the detectable levels of inorganics were within the MECP Table 2 with the exception of:

  - BH23-5-SS1: Conductivity was detected.

- PHCs parameters analysed were not detected in soil samples, with the exception of the following:

  - BH23-1-SS1: PHCs (F3, F4, and F4G) were detected;
  - BH23-2-SS1: PHCs (F3, F4, and F4G) were detected;
  - BH23-3-SS1: PHCs (F3, F4, and F4G) were detected;
  - BH23-5-SS1: PHCs (F3, F4, and F4G) were detected;
  - BH23-7-SS1: PHCs (F3, F4, and F4G) were detected;
  - BH23-9-SS1: PHCs (F3, F4, and F4G) were detected; and
  - BH23-10-SS1: PHCs (F3, F4, and F4G) were detected

  However, the detectable levels of PHCs were within the MECP Table 2 criteria.

5.5.3 Contaminants of Concern (COC)

The following contaminants of concern were identified in the soil on the Phase Two Property:

Table 11 – Section 5.5.3: Soil Exceedances

Borehole ID	Sample ID	Parameter	Units	MECP Table 2	Value
BH23-5	SS1	Conductivity	µS/cm	1400	1460
BH23-7	SS1	Lead	µg/L	120	284

5.5.4 Chemical and Biological Transformations

No chemical or biological transformations were noted on, in or under the Phase Two Property.

5.6 Ground Water Quality

The Phase One ESA Conceptual Site Model identified the following Contaminants of Concern in relations to PCAs and APECs that may affect the Phase Two Property:

- Volatile Organic Compounds (VOC);
- Petroleum Hydrocarbons PHC – F1 through F4;
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs); and
- Metals; Metal hydrides, and inorganic parameters (conductivity, SAR, and pH).

On March 16, 2023, a total of four (4) groundwater samples was analyzed as follows, to appropriately evaluate the level of chemical impact to the groundwater beneath the Phase Two Property in the areas of the various APECs:

- Four (4) samples for VOCs;
- Four (4) samples for PHC fractions F1 to F4;
- Four (4) samples for PAHs;
- Four (4) samples for metals, metal hydrides, and general inorganics; and
- Two (2) samples for phenols.

On April 17, 2023, LRL returned to the Site, and one (1) groundwater sample was collected from M23-3 for the analyses of:

- PAHs; and
- Metals.

5.6.1 Location and Sample Depth

Table 12 – Section 5.6.1 below described the location and depth of the specific groundwater samples submitted for chemical laboratory analysis, and the results of the analyses in comparison to Table 2 Standards for fine-grained soils.

Table 12 – Section 5.6.1: Groundwater Chemical Laboratory Analysis

Well ID	Sample ID	Depth (m asl)	Date Sampled	Chemical Analysis						Standard Exceedance (Table 2 ICC for fine sand)
				PAH F2-F4	VOCs/F1	PAHs	M & M Hyd	General Inorganics	Phenols	
MW23-2	MW23-2	81.85	March 16, 2023	✓	✓	✓	✓	✓		No Exceedances
MW23-3	MW23-3	81.85	March 16, 2023	✓	✓	✓	✓	✓	✓	**Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Fluoranthene, and Vanadium**
			April 16, 2023			✓	✓			**Benzo[a]pyrene,**
MW23-4	MW23-4	83.90	March 16, 2023	✓	✓	✓	✓	✓	✓	No Exceedances
MW23-5	MW23-5	83.90	March 16, 2023	✓	✓	✓	✓	✓		No Exceedances

The Laboratory Certificates of Analysis are presented in **Appendix B** and detailed assessments of the groundwater analytical results are presented in **Tables 4** and **5** (attachments).

The environmental quality of the groundwater at the Phase Two Property was compared to the MECP Table 2 ICC Standards for potable groundwater. All samples met the Table 2 standards for potable groundwater for all parameters analyzed with the exception of MW23-3 were the following parameters were detected exceeds the MECP Table 2 ICC standards:

- On March 16, 2023
  - Benzo [a] pyrene;
  - Benzo [b] fluoranthene;
  - Benzo [k] fluoranthene;
  - Chrysene;
  - Fluoranthene; and
  - Vanadium.
- On April 17, 2023
  - Benzo [a] pyrene;

All other groundwater samples met the MECP Table 2 ICC standards for all parameters analyzed.

5.6.2 Documentation of Field Filtering

Field Filtering was conducted for metals only. The Certificates of Analysis show no lab filtering for the samples submitted for this Site.

5.6.3 Analytical Results to SCS

The environmental quality of the groundwater at the Phase Two Property was compared to the MECP Table 2 ICC Standard. The exceedances identified in the groundwater for MW23-3 are as follows:

- VOC parameter concentrations were below the detection limits in all groundwater samples with the exception of the following:
  - MW23-2: Acetone was detected.
  - MW23-3: Acetone was detected

  However, the detectable levels of VOCs were within the MECP Table 2 criteria;
- PAH parameter concentrations were detected in groundwater samples; however, the detectable levels of PAH were within the MECP Table 2 with the exception of the following parameters for MW23-3:
  - On March 16, 2023: Benzo [a] pyrene, Benzo [b] fluoranthene, Benzo [k] fluoranthene, Chrysene, and Fluoranthene were detected;
  - On April 17, 2023: Benzo [a] pyrene.
- Metals parameters analysed were detected in all groundwater samples, however, the detectable levels of Metals were within the MECP Table 2 with the exception of the following parameter for MW23-3:
  - On March 16, 2023: Vanadium was detected;
- PHCs parameters analysed were below the detection limit in all groundwater samples.

The Laboratory Certificate of Analysis is presented in **Appendix D.**

5.6.4 Contaminants of Concern (COC)

The contaminants of concern identified in the groundwater on the property are as follows:

Table 13 – Section 5.6.4: Groundwater Exceedances

Monitoring well #	Parameter	MECP Table 2 (µg/L)	Value (µg/L) March 16, 2023	Value (µg/L) April 17, 2023
MW23-3	Benzo [a] pyrene	0.01	0.33	0.07
	Benzo [b] fluoranthene	0.1	0.52	No Exceedances
	Benzo [k] fluoranthene	0.1	0.24	No Exceedances
	Chrysene	0.1	0.56	No Exceedances
	Fluoranthene	0.41	0.91	No Exceedances
	Vanadium	6.2	20.9	No Exceedances

5.6.5 Chemical and Biological Transformation

There are no chemical or biological transformations noted in the groundwater for the COC.

5.6.6 Soil Serves as Source of Contamination to Groundwater

The soil is permeable and may contribute to the quality of the groundwater.

5.6.7 Presence of LNAPLs or DNAPLs

No free phase products were encountered in the groundwater.

5.7 Sediment Quality

The Phase Two Property did not include a surface water body as defined under O. Reg. 153/04 (as amended); therefore, sediment was not sampled in this Phase Two ESA investigation.

6 PHASE TWO CONCEPTUAL SITE MODEL

6.1 Current and Historical Site Use and Surrounding Land Use

The Phase Two Property is located at 363 Entrepreneur Crescent, Ottawa, Ontario. The legal description of the Phase Two Property is Part of block 3 Plan 50M136 Part 3 ON Plan 50R6694; Subject to an Easement in Gross Over Part 9 ON Plan 4R-27830 As in OC1627867, City of Ottawa. The Phase Two Property has a rectangular shape and covers an area of approximately 3000 m² (0.75 acre). The size and location of the property are shown in **Figure 2**.

The property is situated in a commercial area along Entrepreneur Crescent. The Phase Two Property is currently undeveloped, and at the time of this ESA, is used as a storage yard for hoisting equipment for the neighboring industrial company since at least mid of 2022.

6.2 Potentially Contaminating Activities (PCAs)

The Conceptual Site Model shows four (4) PCAs on and surrounding the property of which relative to the groundwater flow direction. The PCAs that affect the Phase Two Property include:

- **PCA 32:** Iron and Steel Manufacturing and Processing. The adjacent property hoist equipment manufacturing and rental company (YSB Hoisting equipment facility), is identified as an industrial use which involves assembling, processing, storing, warehousing, or distributing hoisting equipment. Associated material and equipment are stored on the Site since at least mid of 2022;
- **PCA 30:** Importation of Fill Material of Unknown Quality. Based on available information obtained, a layer of granular crushed stone was applied across the surface of the subject property in 2022 (est.). The source and quality of the material is unknown, therefore its conditions, in addition to the underlying materials, should be investigated;
- **PCA 32:** Iron and Steel Manufacturing and Processing. 357 Entrepreneur Crescent, immediately east of the Site, occupied by a hoist equipment rental company (YSB Hoisting Equipment & YSB Carpentry facility), industrial use which involves assembling, processing, storing, warehousing, or distributing hoisting equipment;
- **PCA Other:** Construction company workshop and storage yard. 371 Entrepreneur Crescent, immediately west of the Site, occupied by Galaxy Construction - workshop and storage yard;

- **PCA 28:** Gasoline and Associated Products Storage in Fixed Tanks. 5495 Boundary Road, approximately 170 m west of the Site. Reported to be an abandoned service station with records of underground liquid fuel storage tanks;
- **PCA 34:** Metal Fabrication. 5507 Boundary Road, approximately 170 m west of the Site. Listed as Renes Welding Inc. a fabricated metal products facility established in 1982.
- **PCA 52:** Storage, maintenance, fuelling, and repair of equipment, vehicles, and material used to maintain transportation systems. 381 Entrepreneur Cresent approximately 40 m to the west of the Site was used as a vehicle storage yard.
- **PCA 58:** Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners. Immediatily north of the Site is a mineral-aggregate extraction facility that has a snow disposal operation during winter months.

6.3 Areas of Potential Environmental Concern (APECs)

The eight (8) PCAs generated seven (7) on-Site Areas of Potential Environmental Concern (APECs):

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase II Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil, and/or sediment)
APEC A	Entire Property	**PCA 32:** Iron and Steel Manufacturing and Processing	On Site	Metals	Soil and Groundwater
APEC B	Entire Property	**PCA 30:** Importation of Fill Materials of Unknown Quality	On Site	PAHs, VOCs, PHCs, Metals, OP pesticides	Soil and Groundwater
APEC C	Eastern portion of the Site	**PCA 32:** Iron and Steel Manufacturing and Processing	Off-Site	Metals	Soil and Groundwater
APEC D	Western portion of the Site	**PCA Other:** Construction company workshop and storage yard	Off-Site	PHC, VOC, Metals	Soil and Groundwater
APEC E	Western portion of the Site	**PCA 28:** Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHC, VOC	Soil and Groundwater
APEC F	Western portion of the Site	**PCA 34:** Metal Fabrication.	Off-Site	Metals	Soil and Groundwater
APEC G	Western portion of the Site	**PCA 52:** Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.	Off-Site	VOC, PHC, Metals	Soil and Groundwater

6.4 Contaminants of Potential Concern (COPCs)

The contaminants of potential concern (COPCs) in soil and groundwater for the Site were based on the APECs identified at the Site during Phase One ESA and observations at the time of the drilling program. The following CPCs for the Site were suspected to be associated with the identified APECs:

- Petroleum Hydrocarbons ranges F1-F4 (PHCs);
- Volatile Organic Compounds (VOCs);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs); and
- Metals, Metal hydrides, and General Inorganics.

An assessment of the COPCs for the Site was completed as part of the Phase Two ESA analytical submission program. Soil and groundwater samples were submitted for a combination of the COPCs dependant on borehole and monitoring well locations with respect to the APECs.

7 CONCLUSIONS

Based on our Site visit, results of soil and groundwater sampling and laboratory analytical programs compared to the applicable MECP Table 2 SCS, LRL offers the following conclusions regarding environmental conditions of the subject site:

Soil Quality

The soil at the Phase Two Property was sampled at BH23-1, BH23-2, BH23-3, BH23-4, BH23-5, BH23-6, BH23-7, BH23-8, BH23-9, and BH23-10 and was analyzed for General Inorganics, PHCs F1 to F4, VOCs, PCB, PAH and Metals.

Exceedances were identified in the soil for Lead in BH23-7-SS1 and Conductivity BH23-5-SS1.

Groundwater Quality

The groundwater at the Phase Two Property was sampled at MW23-2, MW23-3, MW23-4, MW23-5 and was analyzed for VOCs, PHCs F1 to F4, PAH, general inorganics, and phenols.

Exceedances were identified in the groundwater for the following parameters in MW23-3

- On March 16, 2023: Benzo [a] pyrene, Benzo [b] fluoranthene, Benzo [k] fluoranthene, Chrysene, Fluoranthene, and Vanadium were detected;
- On April 17, 2023: Benzo [a] pyrene.

Remediation work via the excavation of the soil at BH23-7 SS1 and BH23-5-SS1 will address the soil impacts. The remediation scope of work for this project is anticipated to be generally completed as follows:

- At the time of development of the Site, a Qualified Person (as per O. Reg. 153/04), or a component individual under direction of the Qualified Person shall visit the Site to direct the remediation activities through excavation in the areas of concern;
- Confirm soils to be removed by a licenced hauler for off-Site disposal at a provincially approved waste disposal facility. Prior to acceptance of the material, a representative TCLP sample must be collected and submitted for analysis, with the analytical results provided to the accepting facility;

- Screen soil samples for combustible soil vapours using a combustible gas detector, as well as for visual and olfactory evidence of contamination in order to identify worst-case soil samples, although select parameters or concern may not emit vapours;
- Groundwater encountered in the open excavation will be removed from the Site by a licensed contractor, until analytical results demonstrate that concentrations of concern are considered acceptable with respect to the applicable site condition standards;
- Confirmatory samples (soil and groundwater) will be collected from the excavation limits and submitted for chemical analyses of parameters of concern (metals (namely lead), conductivity, PAHs);
- Assess subsurface conditions with respect to contaminants of concern in accordance with the Ontario Ministry of Environment and Climate Change's Soil, Ground Water and Sediment Standards for Use Under Part IV.1 of the Environmental Protection Act, April 15 2011; and
- Prepare a reporting letter detailing site activities and findings.

Removal of the groundwater table via a vac truck may remove the sole exceedance for Benzo (a) pyrene B(a)P. Removal of the soil surrounding this exceedance at MW23-3 may also assist in its removal from the groundwater table.

8 LIMITATIONS AND USE OF REPORT

Results of this Phase Two ESA should not be considered a warranty that the subject property is free from any and all contaminants from former and current practices, other than those noted in this report, nor that all compliance issues have been addressed.

Findings contained in this report are based on data and information collected during the Phase II ESA of the subject property conducted by LRL Engineering Conclusions and recommendations are based solely on-site conditions encountered at the time of our site visit and fieldwork between March 13th and April 16th, 2023, supplemented by historical information and data obtained as described in this report. No assurance is made regarding changes in conditions subsequent to the time of this investigation. If additional information is discovered or obtained, LRL Engineering should be requested to re-evaluate the conclusions presented in this report and to provide amendments as required.

In evaluating the subject property, LRL Engineering has relied in good faith on information provided by individuals as noted in this report. We assume that the information provided is factual and accurate. We accept no responsibility for any deficiencies, misstatements or inaccuracies contained in this report as a result of omissions, misinterpretation or fraudulent acts of the persons contacted.

This report is intended for the sole use of Entrepreneur Holding Corporation and their authorized agents. LRL Enigneering will not be responsible for any use of the information contained within this report by any third party.

In addition, LRL Engineering will not be responsible for the real or perceived decrease in the property value, its saleability or ability to gain financing, through the reporting of factual information.

Yours truly,
LRL Associates Ltd.

Jessica Arthurs
Environmental Engineering Manager

John (Gianni) Lametti, P. Eng. QP_{ESA}
Environmental Engineer

9 REFERENCES

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FIGURES

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PROJECT
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
363 ENTREPRENEUR CRESCENT
OTTAWA, ONTARIO

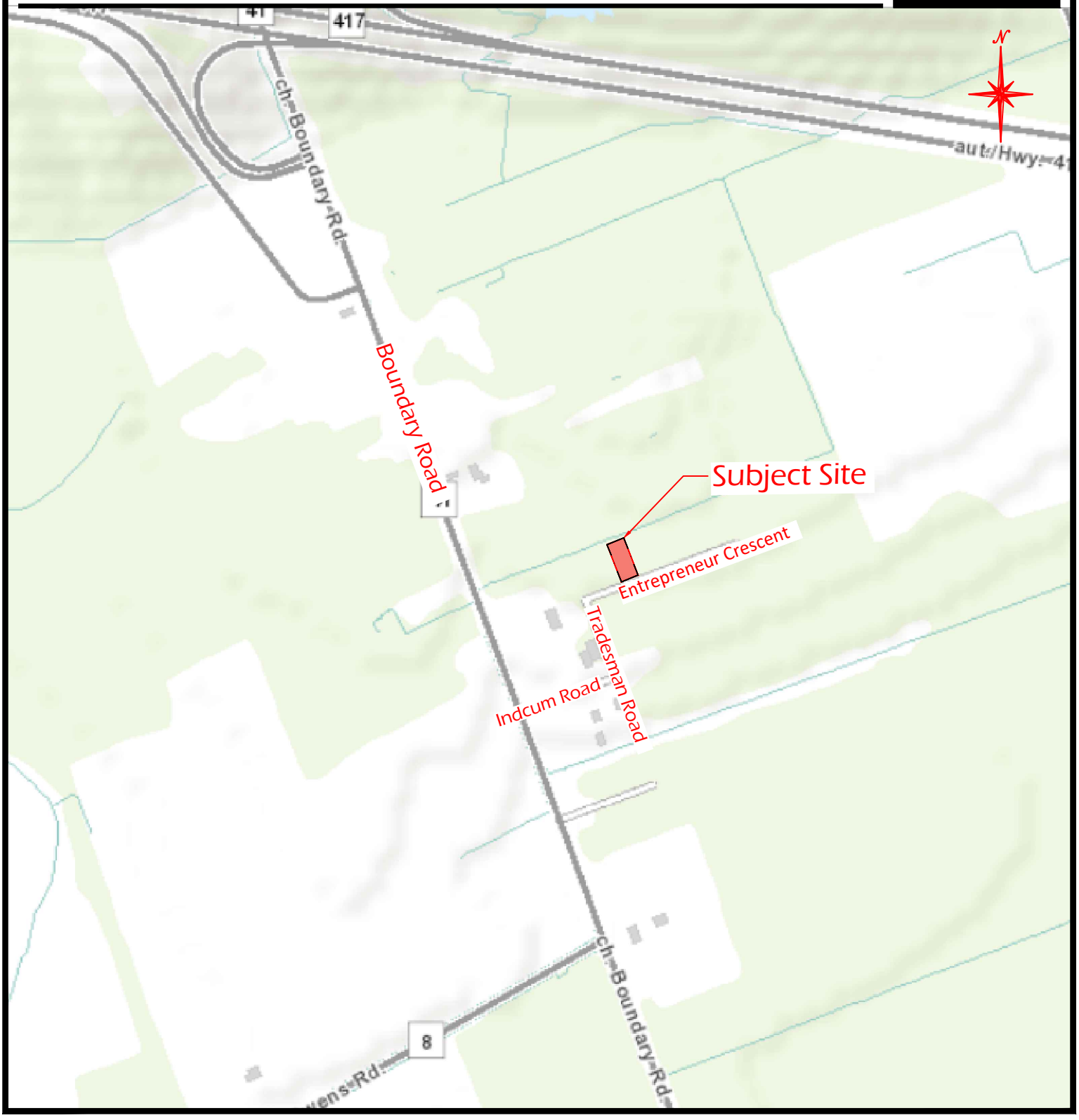
DRAWING TITLE
SITE LOCATION
(NOT TO SCALE)
SOURCE: GEOOTTAWA

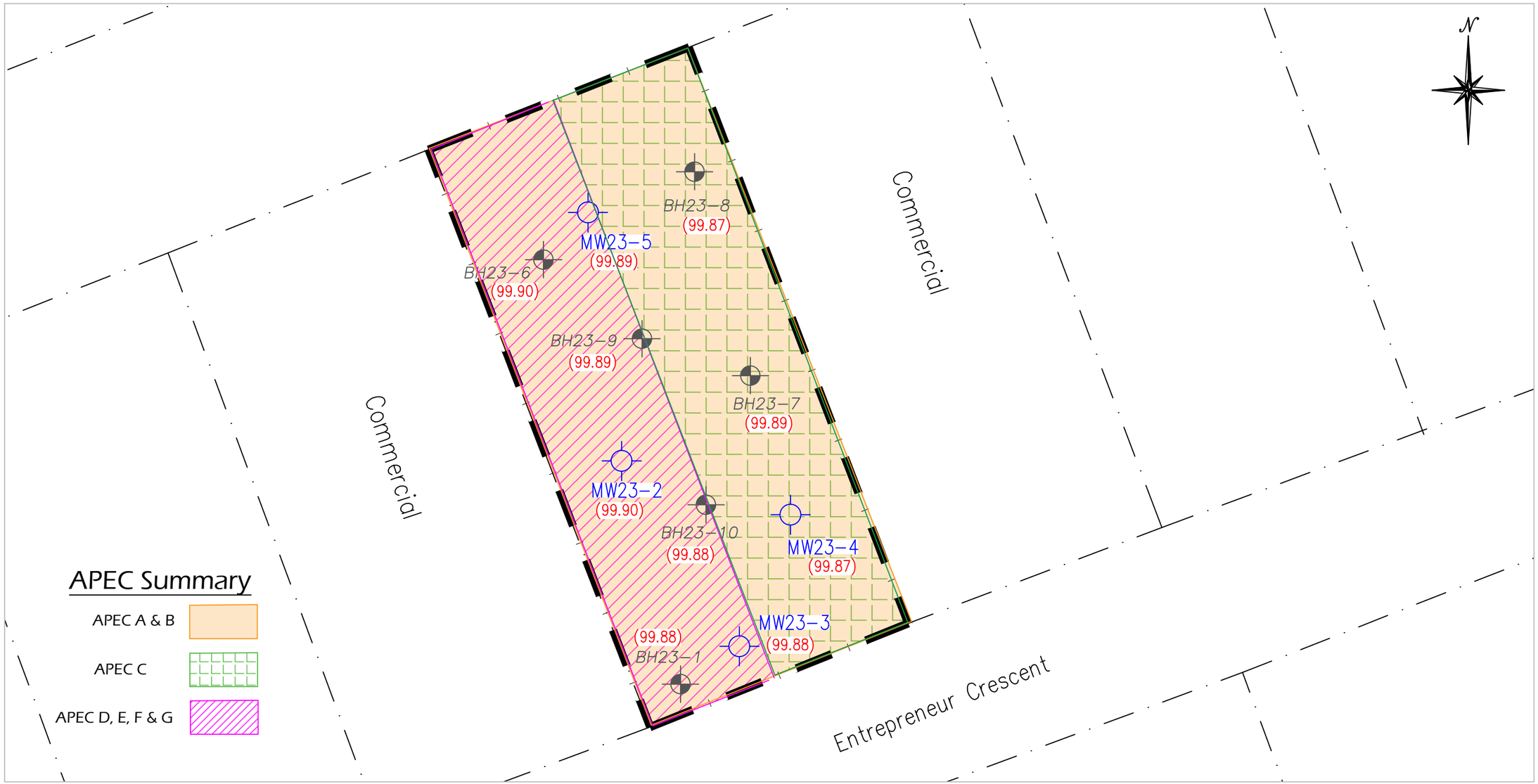
CLIENT
ENTREPRENEUR HOLDING CORPORATION

DATE
AUGUST 2024

PROJECT
220487

FIGURE1





LEGEND

- Property Line – Subject Site (363 Entrepreneur Crescent)
- Neighbouring Property Boundaries
- BH–X — Borehole
- MW23–X — Monitoring Well
- (XX.XX) — Groundsurface Elevation (referenced from an arbitrary benchmark location)

15m 0 30 60m

SCALE: 1:1250

01	ISSUED FOR REVIEW	A.K.	05/04/2023
02	REVISIONS	O.W.	13/08/2024

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J.A.	O.W.	J.L.

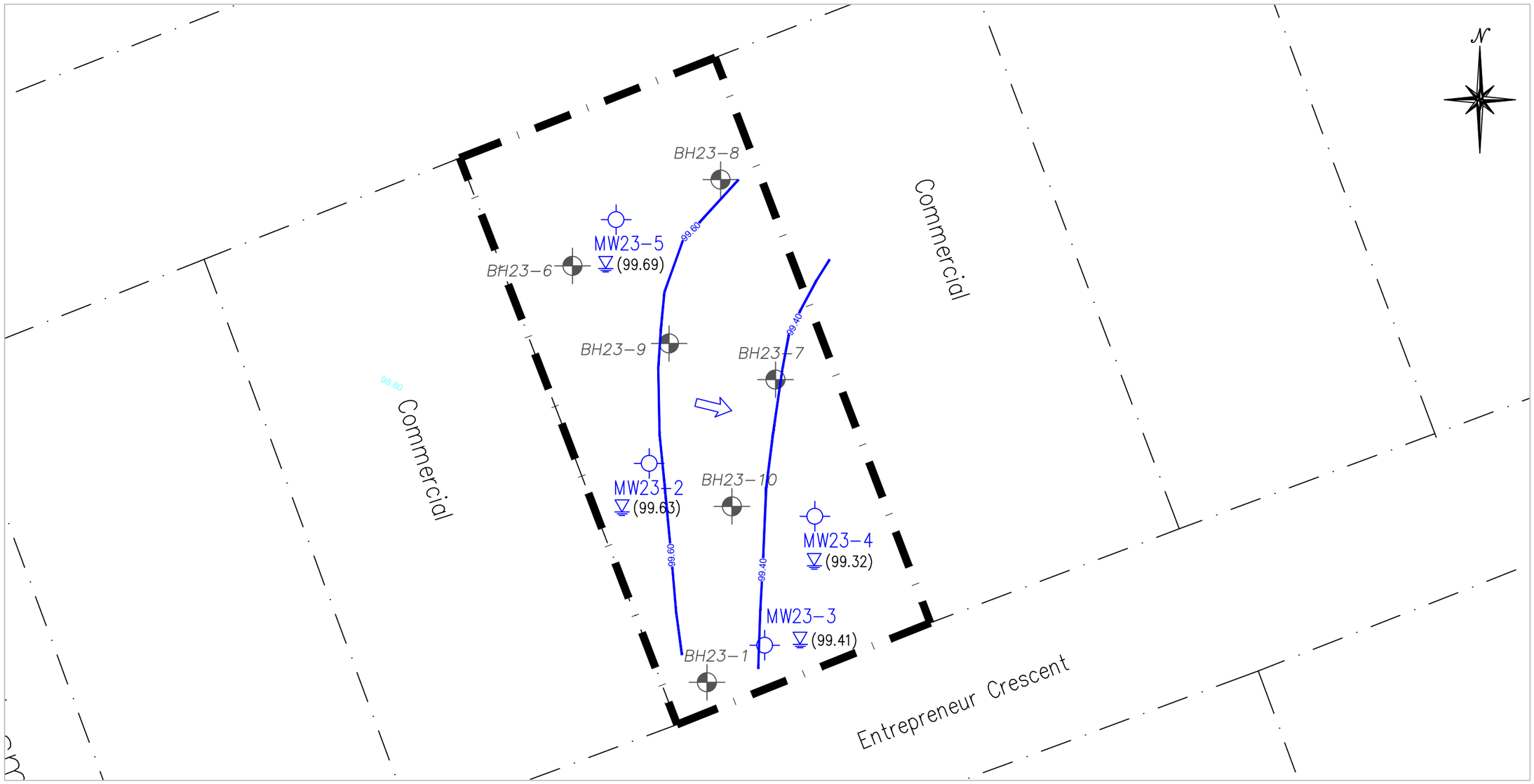
PROJECT
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
363 ENTREPRENEUR CRESCENT
OTTAWA, ONTARIO

DRAWING TITLE
SITE PLAN
BOREHOLE AND MONITORING WELL LOCATIONS

PROJECT NO.
220487

DATE
AUGUST 2024

FIGURE2



LEGEND

- Property Line – Subject Site (363 Entrepreneur Crescent)
- Neighbouring Property Boundaries
- BH–X — Borehole
- MW23–X — Monitoring Well
- Inferred Groundwater Flow Direction
- 99.99 — Groundwater Elevation
- Groundwater Elevation Contour

15m 0 30 60m

SCALE: 1:1250

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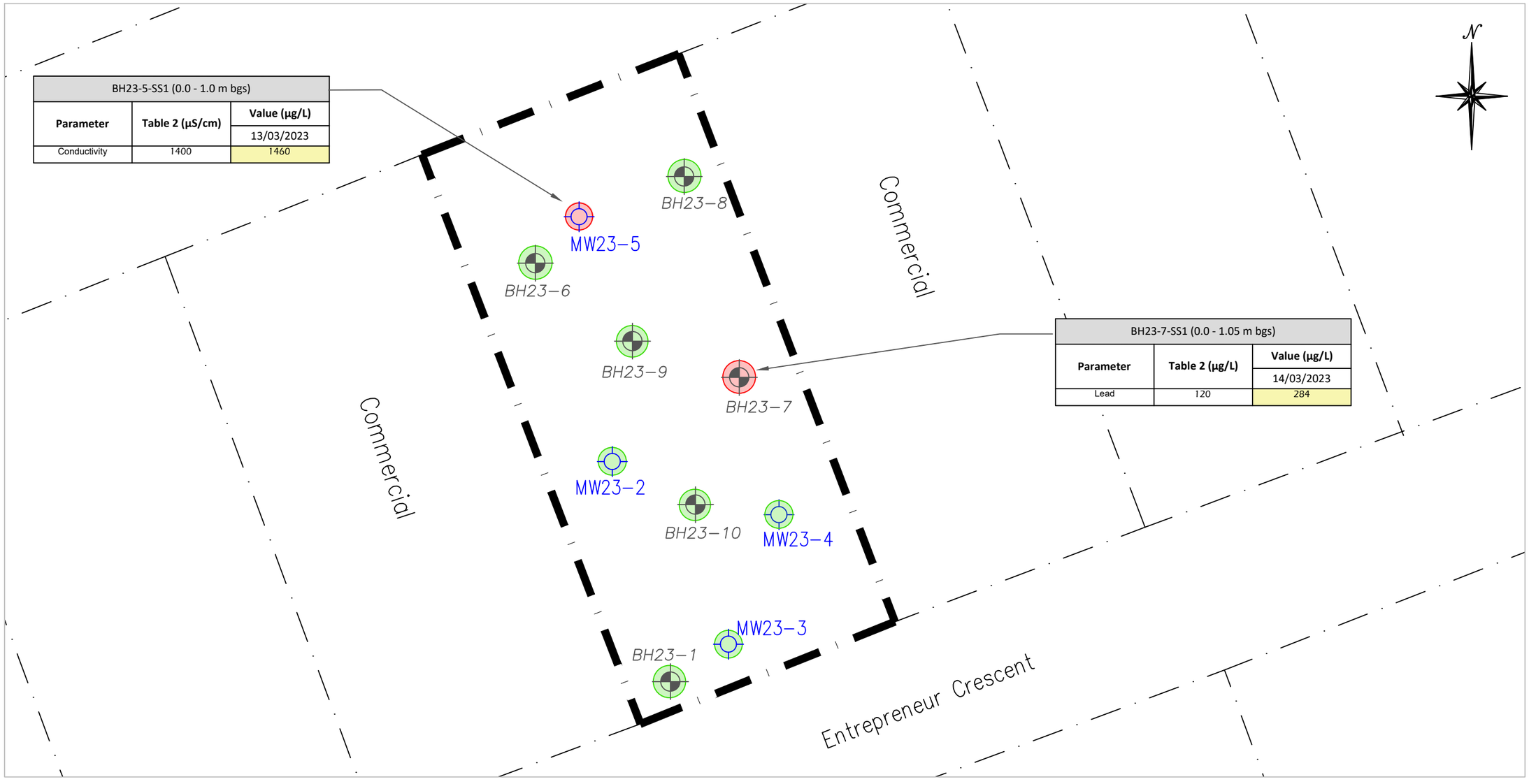
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
363 ENTREPRENEUR CRESCENT
OTTAWA, ONTARIO

DRAWING TITLE
GROUNDWATER ELEVATIONS AND CONTOURS (MARCH 16, 2023)

PROJECT NO.
220487

DATE
AUGUST 2024

FIGURE3



LEGEND

- Property Line – Subject Site (363 Entrepreneur Crescent)
- Neighbouring Property Boundaries
- BH–X — Borehole
- MW23–X — Monitoring Well
- Borehole – Soil Meets Table 2 SCS
- Borehole – Soil Exceeds Table 2 SCS
- xxx — Parameter Exceeds the Table 2 SCS

15m 0 30 60m

SCALE: 1:1250

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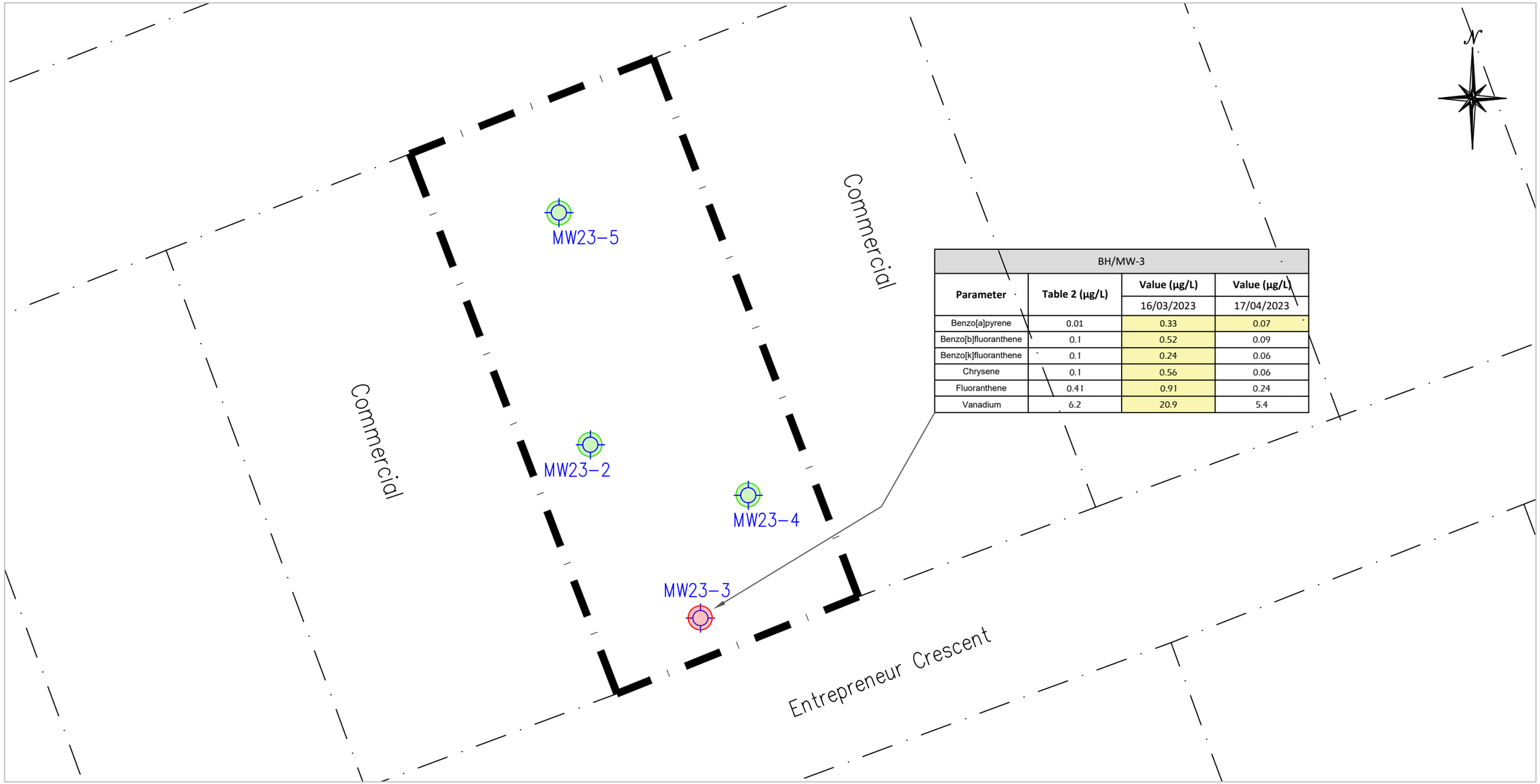
PROJECT
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
363 ENTREPRENEUR CRESCENT
OTTAWA, ONTARIO

DRAWING TITLE
SOIL EXCEEDANCES
TO THE APPLICABLE
SITE CONDITION STANDARDS
(MARCH 16, 2023)

PROJECT NO.
220487

DATE
AUGUST 2024

FIGURE4



BH/MW-3			
Parameter	Table 2 (µg/L)	Value (µg/L) 16/03/2023	Value (µg/L) 17/04/2023
Benzo[a]pyrene	0.01	0.33	0.07
Benzo[b]fluoranthene	0.1	0.52	0.09
Benzo[k]fluoranthene	0.1	0.24	0.06
Chrysene	0.1	0.56	0.06
Fluoranthene	0.41	0.91	0.24
Vanadium	6.2	20.9	5.4

LEGEND

- Property Line – Subject Site (363 Entrepreneur Crescent)
- Neighbouring Property Boundaries
- MW23-X Monitoring Well
- Monitoring Well – Groundwater Meets Table 2 SCS
- Monitoring Well – Groundwater Exceeds Table 2 SCS
- XXX Parameter Exceeds the Table 2 SCS

15m 0 30 60m

SCALE: 1:1250

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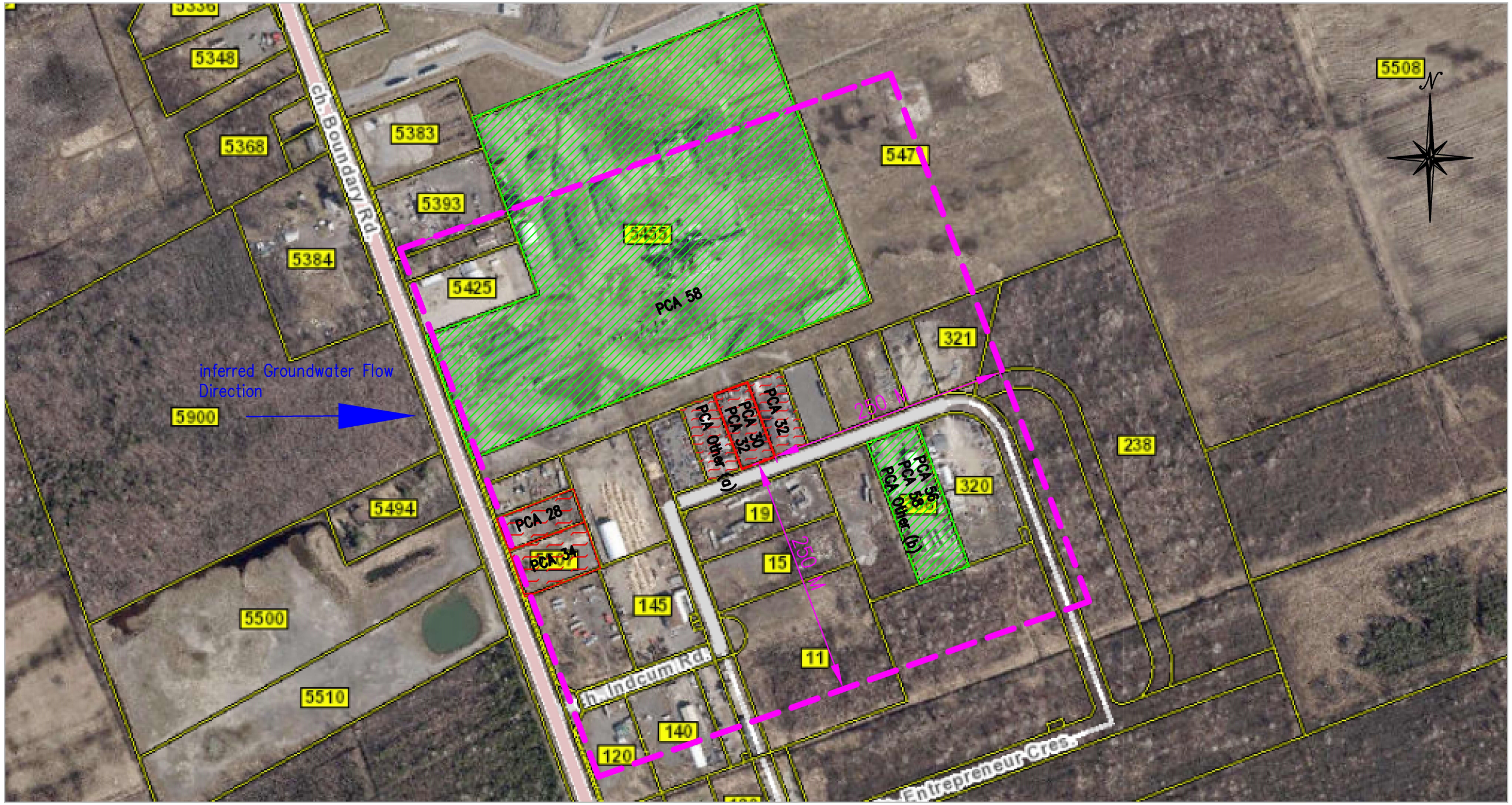
PROJECT
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
363 ENTREPRENEUR CRESCENT
OTTAWA, ONTARIO

DRAWING TITLE
GROUNDWATER EXCEEDANCES TO THE APPLICABLE SITE CONDITION STANDARDS (MARCH 16 AND APRIL 16, 2023)

PROJECT NO.
220487

DATE
AUGUST 2024

FIGURE5



Legend

- 250 m radius from Site
- Subject Site
- Property identified with PCA - Potential Risk to Site
- Property identified with PCA - Not a Potential Risk to Site

PCA Summary

PCA 30	Importation of Fill Materials of Unknown Quality
PCA 32	Iron and Steel Manufacturing and Processing
PCA 34	Metal Fabrication
PCA 56	Treatment of Sewage equal to or greater than 10,000 litres per day
PCA 28	Gasoline and Associated Products Storage in Fixed Tanks
PCA 58	Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditions
PCA Other (a)	Construction Company - Workshop and Storage
PCA Other (b)	Spill

100m 50 0 100 200m

SCALE: 1:5000

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02	REVISIONS	O.W.	13/08/2024

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CLIENT
ENTREPRENEUR HOLDING CORPORATION

DESIGNED BY:	DRAWN BY:	APPROVED BY:
J.A.	O.W.	J.L.

PROJECT
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
363 ENTREPRENEUR CRESCENT
OTTAWA, ONTARIO

DRAWING TITLE
POTENTIAL CONTAMINATING ACTIVITY WITHIN 250 M OF SITE
BASE SOURCE: GeoOttawa

PROJECT NO.
220487

DATE
AUGUST 2024

FIGURE 6

LEGEND

Property Line – Subject Site (363 Entrepreneur Crescent)

Neighbouring Property Boundaries

15m 0 30 60m

SCALE: 1:1250

01	ISSUED FOR REVIEW	A.K.	05/04/2023
02	REVISIONS	O.W.	13/08/2024

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PROJECT
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
363 ENTREPRENEUR CRESCENT
OTTAWA, ONTARIO

DRAWING TITLE
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APEC)

PROJECT NO.
220487

DATE
AUGUST 2024

FIGURE7

TABLES

Table 1
Summary of Ground Surface and Groundwater Elevations (March 16, 2023)
Phase Two Environmental Site Assessment
363 Entrepreneur Crescent, Ottawa, Ontario
LRL File: 220487

Monitoring Well	Ground Surface Elevation[1] (m)	Reference Elevation[2] (m)	Depth To Water Table (m)		Groundwater Elevation (m)
			Reference Point	Ground Surface	
BH23-1	99.88	--	--	--	--
BH/MW23-2	99.90	99.83	0.20	0.27	99.63
BH/MW23-3	99.88	99.80	0.39	0.47	99.41
BH/MW23-4	99.87	99.79	0.47	0.55	99.32
BH/MW23-5	99.89	99.78	0.09	0.20	99.69
BH23-6	99.90	--	--	--	--
BH23-7	99.89	--	--	--	--
BH23-8	99.87	--	--	--	--
BH23-9	99.89	--	--	--	--
BH23-10	99.88	--	--	--	--

NOTES

[1] Elevations measured from temporary benchmark established "R" on the word "danger" on the storm sewer grate on Forward Avenue directly west of the Site (100.00 m).

[2] Reference elevation is top of PVC riser.

Table 2
Summary of Soil VOC, PHC, and General Inorganics Analysis
Phase Two Environmental Site Assessment
363 Entrepreneur Crescent, Ottawa, Ontario
LRL File: 220487

Parameter	Units	MDL	O. Reg. 153/04[1] Table 2[2] Industrial / Commercial Use Fine textured soil	Sample																							
							DUP											DUP										
				BH23-1-SS1	BH23-1-SS3	BH23-1-SS4	BH23-2-SS1	BH23-2-SS40	BH23-3-SS1	BH23-3-SS2	BH23-3-SS3	BH23-3-SS4	BH23-4-SS1	BH23-4-SS2	BH23-4-SS3	BH23-4-SS4	BH23-5-SS1	BH23-5-SS20	BH23-5-SS3	BH23-6-SS2	BH23-7-SS1	BH23-7-SS3	BH23-8-SS2	BH23-8-SS3	BH23-9-SS1	BH23-10-SS1	BH23-10-SS2
Sample Date (d/m/y)			--	14-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23		14-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23	13-Mar-23	13-Mar-23	13-Mar-23	13-Mar-23	13-Mar-23		13-Mar-23	13-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23	13-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23
Depth below top of Ground	m		--	0.0 - 0.85	1.20 - 1.95	1.95 - 2.40	0.0 - 0.85		0.0 - 0.8	0.8 - 1.2	1.20 - 1.95	1.95 - 2.4	0.0 - 1.0	1.0 - 1.2	1.20 - 2.0	2.0 - 2.4	0.0 - 1.0		1.2 - 1.75	0.85 - 1.20	0.0 - 1.05	1.20 - 1.95	0.8 - 1.20	1.2 - 1.90	0.0 - 1.0	0.0 - 0.85	0.85 - 1.20
CSV Readings[3]	ppm	5	--	0.1	<0.1	<0.1	0.2		0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.3		0.1	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Physical Characteristics																											
% Solids	% by wt.	0.1	--	87.8	69.2	53.6	84.7	84.4	84.4	83.7	83.2	53.7	92.5	85.5	78.4	60.0	83.3	84.0	76.6	80.9	83.4	70.6	77.2	64.7	88.8	88.4	82.3
General Inorganics																											
SAR	N/A	0.01	12	0.44	--	--	0.29	0.29	0.11	--	1.61	--	0.11	--	1.87	--	0.31	0.33	--	1.39	0.33	--	1.51	--	0.13	0.44	--
Conductivity	uS/cm	5	1400	726	--	--	1010	971	1010	--	280	--	1060	--	401	--	**1460**	1250	--	256	1190	--	350	--	1160	1240	--
Cyanide, free	ug/g dry	0.03	0.051	<0.03	--	--	<0.03	<0.03	<0.03	--	<0.03	--	<0.03	--	<0.03	--	<0.03	<0.03	--	<0.03	<0.03	--	<0.03	--	<0.03	<0.03	--
pH	pH Units	0.1	--	9.85	--	--	10.9	10.78	10.46	--	8.35	--	11.02	--	8.04	--	10.84	11.14	--	9.03	10.94	--	8.56	--	11.14	10.74	--
Volatiles																											
Acetone	ug/g dry	0.50	28	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	<0.5	--
Benzene	ug/g dry	0.02	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	--
Bromodichloromethane	ug/g dry	0.05	1.9	<0.05	<0.05	--	<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	ug/g dry	0.05	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	--
Bromomethane	ug/g dry	0.05	0.05	<0.05	<0.05	--	<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 Tetrachbride	ug/g dry	0.05	0.71	<0.05	<0.05	--	<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	ug/g dry	0.05	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	--
Chloroform	ug/g dry	0.05	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	--
Dibromochloromethane	ug/g dry	0.05	2.9	<0.05	<0.05	--	<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	ug/g dry	0.05	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	--
1,2-Dichlorobenzene	ug/g dry	0.05	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	--
1,3-Dichlorobenzene	ug/g dry	0.05	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	--
1,4-Dichlorobenzene	ug/g dry	0.05	0.57	<0.05	<0.05	--	<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	ug/g dry	0.05	0.6	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	--	<0.05	<0.05	--
1,2-Dichloroethane	ug/g dry	0.05	0.05	<0.05	<0.05	--	<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	ug/g dry	0.05	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	--
cis-1,2-Dichloroethylene	ug/g dry	0.05	2.5	<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	--
trans-1,2-Dichloroethylene	ug/g dry	0.05	2.5	<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	--
1,2-Dichloropropane	ug/g dry	0.05	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	--
cis-1,3-Dichloropropylene	ug/g dry	0.05	--	<0.05	<0.05	--	<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	ug/g dry	0.05	--	<0.05	<0.05	--	<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-Dichloropropene, total	ug/g dry	0.05	0.081	<0.05	<0.05	--	<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	ug/g dry	0.05	1.6	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	--	--	--	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	--	<0.05	<0.05	--
Ethylene dibromide (dibromoethane, 1,2-)	ug/g dry	0.05	0.05	<0.05	<0.05	--	<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	ug/g dry	0.05	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	--
Methyl Ethyl Ketone (2-Butanone)	ug/g dry	0.50	88	<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	--
Methyl Isobutyl Ketone	ug/g dry	0.50	210	<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	--
Methyl tert-butyl ether	ug/g dry	0.05	2.3	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	--	<0.05	<0.05	--
Methylene Chloride	ug/g dry	0.05	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	--
Styrene	ug/g dry	0.05	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	--
1,1,1,2-Tetrachloroethane	ug/g dry	0.05	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	--
1,1,2,2-Tetrachloroethane	ug/g dry	0.05	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	--
Tetrachloroethylene	ug/g dry	0.05	2.5	<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	--
Toluene	ug/g dry	0.05	9	<0.05	<0.05	--	<0.05	<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	ug/g dry	0.05	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	--
1,1,2-Trichloroethane	ug/g dry	0.05	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	--
Trichloroethylene	ug/g dry	0.05	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	--
Trichlorofluoromethane	ug/g dry	0.05	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	--
Vinyl Chloride	ug/g dry	0.02	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	--
m/p-Xylene	ug/g dry	0.05	--	<0.05	<0.05	--	<0.05	<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	ug/g dry	0.05	--	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	--	--	--	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	--	<0.05	<0.05	--
Xylenes, total	ug/g dry	0.05	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	--
Hydrocarbons																											
F1 PHCs (C6-C10)	ug/g dry	7	65	<7	<7	--	<7	<7	<7	<7	--	--	--	<7	--	--	<7	<7	<7	<7	<7	--	<7	--	<7	<7	--
F2 PHCs (C10-C16)	ug/g dry	4	250	<40	<4	--	<40	<40	<40	<4	--	--	--	<4	--	--	<40	<40	<4	<4	<4	--	<4	--	<40	<40	--
F3 PHCs (C16-C34)	ug/g dry	8	2500	447	<8	--	376	250	108	<8	--	--	--	<8	--	--	90	328	<8	<8	165	--	<8	--	515	429	--
F4 PHCs (C34-C50)	ug/g dry	6	6600	2050	<6	--	1300	1060	619	<6	--	--	--	<6	--	--	292	903	<6	<6	222	--	<6	--	2000	1760	--
F4G PHCs (gravimetric)	ug/g dry	50	6600	1570	--	--	2230	1930	1090	--	--	--	--	--	--	--	960	2990	--	--	585	--	--	--	4940	3450	--

NOTES:
1 MECP's *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011*
2 Table 2: Full depth Background site condition standards in a Potable Groundwater condition.
3 Combustible soil vapour concentrations measured with a MiniRAE 3000 PID
MDL Method Detection Limit
-- No Value/Not Analysed
PHC Petroleum Hydrocarbon
BOLD Above Table 7 Standard

Table 3
Summary of Soil Metals Analysis
Limited Phase II Environmental Site Assessment
363 Entrepreneur Crescent, Ottawa, Ontario
LRL File: 220487

Parameter	Units	MDL	O. Reg. 153/04[1] Table 2[2] Industrial / Commercial Use Fine textured soil	Sample																						
							DUP											DUP									
				BH23-1-SS1	BH23-1-SS3	BH23-1-SS4	BH23-2-SS1	BH23-2-SS40	BH23-3-SS1	BH23-3-SS2	BH23-3-SS3	BH23-3-SS4	BH23-4-SS1	BH23-4-SS2	BH23-4-SS3	BH23-4-SS4	BH23-5-SS1	BH23-5-SS20	BH23-5-SS3	BH23-6-SS2	BH23-7-SS1	BH23-7-SS3	BH23-8-SS2	BH23-8-SS3	BH23-9-SS1	BH23-10-SS1	BH23-10-SS2
Sample Date (d/m/y)				14-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23		14-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23	13-Mar-23	13-Mar-23	13-Mar-23	13-Mar-23	13-Mar-23		13-Mar-23	13-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23	13-Mar-23	14-Mar-23	14-Mar-23	14-Mar-23
Depth	m			0.0 - 0.85	1.20 - 1.95	1.95 - 2.40	0.0 - 0.85		0.0 - 0.6	0.8 - 1.2	1.20 - 1.95	1.95 - 2.4	0.0 - 1.0	1.0 - 1.2	1.20 - 2.0	2.0 - 2.4	0.0 - 1.0		1.2 - 1.75	0.85 - 1.20	0.0 - 1.05	1.20 - 1.95	0.8 - 1.20	1.2 - 1.90	0.0 - 1.0	0.0 - 0.85	0.85 - 1.20
PCBs	ug/g dry	0.05	1.1	--	--	<0.05	--	--	--	--	--	<0.05	--	--	--	<0.05	--	--	--	--	--	--	--	--	--	--	--
Polycyclic Aromatic Hydrocarbons																											
Acenaphthene	ug/L	0.05	29	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/L	0.05	0.17	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/L	0.01	0.74	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Benzo[a]anthracene	ug/L	0.01	0.96	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Benzo[a]pyrene	ug/L	0.01	0.3	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Benzo[b]fluoranthene	ug/L	0.05	0.96	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Benzo[g,h,i]perylene	ug/L	0.05	9.6	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Benzo[k]fluoranthene	ug/L	0.05	0.96	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/L	0.05	9.6	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Dibenzo[a,h]anthracene	ug/L	0.05	0.1	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/L	0.01	9.6	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/L	0.05	96	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Indeno[1,2,3-cd]pyrene	ug/L	0.05	0.95	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	ug/L	0.05	42	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/L	0.05	42	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Methylnaphthalene (1&2)	ug/L	0.10	42	--	--	<0.04	--	--	--	--	--	<0.04	--	--	--	<0.04	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/L	0.05	28.00	--	--	<0.01	--	--	--	--	--	<0.01	--	--	--	<0.01	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/L	0.05	16	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/L	0.01	96	--	--	<0.02	--	--	--	--	--	<0.02	--	--	--	<0.02	--	--	--	--	--	--	--	--	--	--	--
Metals																											
Antimony	ug/g dry	1.0	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	<0.0
Arsenic	ug/g dry	1.0	18	3.9	--	--	4.2	4	4.2	--	2	--	3.3	1.9	2.5	--	4	4	3.2	1.2	3.5	3.9	3.7	3.9	4	3.1	1.6
Barium	ug/g dry	1.0	670	105	--	--	108	110	142	--	58.1	--	87.2	26.9	97.3	--	80.8	96.9	110	34.6	100	135	224	150	95	82.1	35.9
Beryllium	ug/g dry	1.0	10	<0.5	--	--	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	<0.5	0.6	--	<0.5	<0.5	0.7	<0.5	<0.5	0.8	0.7	1.1	<0.5	<0.5	<0.5
Boron	ug/g dry	1.0	120	9.7	--	--	10.6	10.8	13.3	--	<5.0	--	10.7	<5	7.7	--	11.4	11.7	10.1	<5	11.3	11	7.2	18	11.1	10.3	<5.0
Boron, available	ug/g dry	0.5	2	0.7	--	--	0.7	0.7	0.8	--	<0.5	--	0.5	<0.5	<0.5	--	0.6	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	0.5	0.5	<0.5
Cadmium	ug/g dry	0.5	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	<0.5
Chromium	ug/g dry	1.0	160	26.2	--	--	24.5	22.7	31.5	--	29.1	--	19.2	19.7	47.8	--	21.5	24.8	62.3	20.5	32.5	70.9	68.9	80.8	20.8	27.1	23.2
Chromium (VI)	ug/g dry	0.2	10	<0.2	--	--	<0.2	<0.2	<0.2	--	<0.2	--	<0.2	<0.2	0.3	--	<0.2	0.4	<0.2	<0.2	<0.2	0.3	0.3	0.3	<0.2	<0.2	0.3
Cobalt	ug/g dry	1.0	100	6.6	--	--	6.6	6	7.8	--	6.1	--	5.1	4.3	10.1	--	4.8	6.6	12.1	4.4	6.9	14.6	16.1	17.1	4.5	5.5	4.9
Copper	ug/g dry	1.0	300	22	--	--	19.2	17.8	34.4	--	11.4	--	16.7	7.1	18.6	--	17.5	26.4	27.1	6.6	21.7	32.1	30.9	35.2	19.5	14.5	6.8
Lead	ug/g dry	1.0	120	24.4	--	--	22.3	21.3	26.7	--	3.5	--	18.4	2.4	5.1	--	19.9	20.5	6.4	2	**284**	7.5	6	8.9	16.8	12.6	2.6
Mercury	ug/g dry	0.1	20	<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	<0.1	<0.1
Molybdenum	ug/g dry	1.0	40	3.2	--	--	1.3	1.3	1.3	--	<1	--	1.2	<1.0	<1.0	--	2.9	3.1	<1.0	<1.0	2.5	<1.0	<1.0	<1.0	2.2	1.5	<1.0
Nickel	ug/g dry	1.0	340	17.2	--	--	16.9	15.5	19.4	--	14.6	--	13.3	9.8	25.7	--	12.2	14.1	34.1	9.5	17.9	40	37.3	46.7	11.8	13.5	10.6
Selenium	ug/g dry	1.0	5.5	1.1	--	--	<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	<1.0	<1.0	<1.0	<1.0
Silver	ug/g dry	0.5	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	<0.3
Thallium	ug/g dry	1.0	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	<1.0
Uranium	ug/g dry	1.0	33	<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	<1	<1.0
Vanadium	ug/g dry	1.0	86	31.5	--	--	33.3	30.1	35.9	--	36.2	--	26.7	27.7	45.2	--	23.3	26.5	53	26	31.4	62.5	74.2	69.6	23.9	28.4	29.9
Zinc	ug/g dry	1.0	340	59.2	--	--	55.4	54.8	89	--	23.9	--	50.7	<20.0	42	--	57.8	62.6	58.1	<20	64.8	66.3	81.3	72.4	66.7	68.6	<20.0

NOTES:
[1] MECP's *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011*
[2] Table 2: Full depth Background site condition standards in a Potable Groundwater condition.
-- No Value/Not Analysed
BOLD Exceeds Table 2 Site Condition Standard

Table 4
Summary of Groundwater VOC, PHC, and General Inorganics Analysis
Phase Two Environmental Site Assessment
363 Entrepreneur Crescent, Ottawa, Ontario
LRL File: 220487

Parameter	Units	MDL	O. Reg. 153/04[1] Table 2[2] Industrial / Commercial Use Fine textured soil	Sample MW23-2	MW23-3	MW23-4	MW23-5
Sample Date (d/m/y)			--	16-Mar-23		16-Mar-23	16-Mar-23
Depth of groundwater below top of casing	m		--	0.20	0.39	0.47	0.09
Headspace VOC Readings[3]	ppm	0.1	--	<0.1	<0.1	<0.1	<0.1
Evidence of free product?	--	--	[4]	No	No	No	No
General Inorganics							
SAR		0.01	--	4.79	3.26	9	7.78
Conductivity	uS/cm	5	--	1710	1030	2910	2430
Ph	pH Units	0.1		7.6	10.9	7.9	7.9
Phenolics	ug/L	0.001	0.89	--	0.068	0.001	--
Volatiles							
Acetone	ug/L	5.0	2700	5.3	33.6	<0.5	<5.0
Benzene	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	ug/L	0.5	16	<0.5	<0.5	<0.5	<0.5
Bromoform	ug/L	0.5	25	<0.5	<0.5	<0.5	<0.5
Bromomethane	ug/L	0.5	0.89	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	ug/L	0.2	5	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	ug/L	0.5	30	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	0.5	22	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ug/L	0.5	25	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	ug/L	1.0	590	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	ug/L	0.5	3	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	ug/L	0.5	59	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	ug/L	0.5	14	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	ug/L	0.5	17	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	ug/L	0.5	17	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	ug/L	0.5	--	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	ug/L	0.5	--	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	ug/L	0.5	0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	2.4	<0.5	<0.5	<0.5	<0.5
Ethylene dibromide (dibromoethane, 1,2-)	ug/L	0.2	0.2	<0.2	<0.2	<0.2	<0.2
Hexane	ug/L	1.0	520	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	1800	<5.0	<5.0	<5.0	<5.0
Methyl Isobutyl Ketone	ug/L	5.0	640	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether	ug/L	2.0	15	<2.0	<2.0	<2.0	<2.0
Methylene Chloride	ug/L	5.0	50	<5.0	<5.0	<5.0	<5.0
Styrene	ug/L	0.5	5.4	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	ug/L	0.5	1.1	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	0.5	17	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	24	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	0.5	200	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	1.0	150	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	ug/L	0.5	1.7	<0.5	<0.5	<0.5	<0.5
m/p-Xylene	ug/L	0.5	--	<0.5	<0.5	<0.5	<0.5
o-Xylene	ug/L	0.5	--	<0.5	<0.5	<0.5	<0.5
Xylenes, total	ug/L	0.5	300	<0.5	<0.5	<0.5	<0.5
Hydrocarbons							
F1 PHCs (C6-C10)	ug/L	25	750	<25	<25	<25	<25
F2 PHCs (C10-C16)	ug/L	100	150	<100	<100	<100	<100
F3 PHCs (C16-C34)	ug/L	100	500	<100	<100	<100	<100
F4 PHCs (C34-C50)	ug/L	100	500	<100	<100	<100	<100

NOTES:
[1] MECP's *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011*
[2] Table 2: Full depth Background site condition standards in a Potable Groundwater condition.
[3] Headspace values were measured with a MiniRAE 3000 PID
[4] To meet the standard there must be no evidence of free product including film or sheen.
MDL Method Detection Limit
-- No Value/Not Analysed
PHC Petroleum Hydrocarbon
BOLD Above Table 7 Standard

Table 5
Summary of Groundwater PAH and Metals Analysis
Phase Two Environmental Site Assessment
363 Entrepreneur Crescent, Ottawa, Ontario
LRL File: 220487

Parameter	Units	MDL	O. Reg. 153/04[1] Table 2[2] Industrial / Commercial Use Fine textured soil	Sample MW23-2	Sample MW23-3	Sample MW23-3	Sample MW23-4	Sample MW23-5
Sample Date (d/m/y)			--	16-Mar-23	16-Mar-23	17-Apr-23	16-Mar-23	16-Mar-23
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	ug/L	0.05	4.1	<0.05	0.59	0.98	<0.05	<0.05
Acenaphthylene	ug/L	0.05	1	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	ug/L	0.01	2.4	<0.01	0.26	0.15	<0.01	<0.01
Benzo[a]anthracene	ug/L	0.01	1	<0.01	0.48	0.09	<0.01	<0.01
Benzo[a]pyrene	ug/L	0.01	0.01	<0.01	**0.33**	**0.07**	<0.01	<0.01
Benzo[b]fluoranthene	ug/L	0.05	0.1	<0.05	**0.52**	0.09	<0.05	<0.05
Benzo[g,h,i]perylene	ug/L	0.05	0.2	<0.05	0.19	0.05	<0.05	<0.05
Benzo[k]fluoranthene	ug/L	0.05	0.1	<0.05	**0.24**	0.06	<0.05	<0.05
Chrysene	ug/L	0.05	0.1	<0.05	**0.56**	0.06	<0.05	<0.05
Dibenzo[a,h]anthracene	ug/L	0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	ug/L	0.01	0.41	0.06	**0.91**	0.24	0.02	<0.01
Fluorene	ug/L	0.05	120	<0.05	0.41	0.40	<0.05	<0.05
Indeno[1,2,3-cd]pyrene	ug/L	0.05	0.2	<0.05	0.18	<0.05	<0.05	<0.05
1-Methylnaphthalene	ug/L	0.05	3.2	<0.05	0.44	0.38	<0.05	<0.05
2-Methylnaphthalene	ug/L	0.05	3.2	<0.05	0.49	0.48	<0.05	<0.05
Methylnaphthalene (1&2)	ug/L	0.10	3.2	<0.10	0.93	0.85	<0.10	<0.10
Naphthalene	ug/L	0.05	11	<0.05	4.98	4.36	<0.05	<0.05
Phenanthrene	ug/L	0.05	1	0.11	0.96	0.64	0.07	<0.05
Pyrene	ug/L	0.01	4.10	0.05	0.68	0.18	<0.01	<0.01
Metals								
Mercury	ug/L	0.1	1	<0.1	<0.1	--	<0.1	<0.1
Antimony	ug/L	0.5	6	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	ug/L	1.0	25	2	2	4	2	2
Barium	ug/L	1.0	1000	84	28	26	124	99
Beryllium	ug/L	0.5	4	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	ug/L	10	5000	56	23	23	167	157
Cadmium	ug/L	0.1	2.7	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	ug/L	1.0	50	<1.0	1	<1	<1.0	2
Chromium (VI)	ug/L	10	25	<10	<10	--	<10	<10
Cobalt	ug/L	0.5	3.8	2.1	<0.5	<0.5	0.7	1.1
Copper	ug/L	0.5	87	0.9	3.0	<0.5	3.3	3.6
Lead	ug/L	0.1	10	<0.1	<0.1	<0.1	<0.1	0.3
Molybdenum	ug/L	0.5	70	2.5	16.7	6.6	1.4	0.6
Nickel	ug/L	1.0	100	5	12	6	2	3
Selenium	ug/L	1.0	10	<1	<1	<1	<1	<1
Silver	ug/L	0.1	1.5	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	ug/L	200	490000	161000	106000	115000	381000	306000
Thallium	ug/L	0.1	2	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	ug/L	0.1	20	1.8	0.8	2.9	0.6	0.4
Vanadium	ug/L	0.5	6.2	1.7	**20.9**	5.4	1.6	2.8
Zinc	ug/L	5.0	1100	<5.0	<5.0	<5.0	<5.0	<5.0

NOTES:
[1] MECP's *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011*
[2] Table 2: Full depth Background site condition standards in a Potable Groundwater condition.
MDL Method Detection Limit
-- No Value/Not Analysed
BOLD Above Table 2 Standard

APPENDIX A

Borehole Logs

BOREHOLE LOG: BH23-1

LRJ ENGINEERING | INGÉNIERIE
5430 Canotek Road| Ottawa, ON, K1J 9G2
www.lrl.ca| (613) 842-3434

PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

DATE: MARCH 14, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)	MONITORING WELL DETAILS
0.0 / 0.0		99.88								
	FILL: Sand and gravel, grey, loose, moist, saturated at (0.0 - 0.2 m bgs).	0.00			SS1 (SS50)		100	PHC, VOC, Metals & General Inorganics	0.1	
		99.03								
1.0 / 3.0	**SAND:** Silty, brown, moist becoming saturated with depth.	0.85			SS2				<0.1	
		98.68								
	CLAY: Silty at (1.20 - 1.95 m bgs) and at (3.65 - 4.50 m bgs), grey, brown at (1.20 - 1.95 m bgs), saturated.	1.20			SS3			PHC & VOC	<0.1	
2.0 / 6.0							100			
					SS4			PAH & PCB	<0.1	
					SS5				<0.1	
3.0 / 10.0							100			
					SS6				<0.1	
4.0 / 13.0					SS7				<0.1	
							100			
					SS8				<0.1	
5.0 / 16.0					SS9				<0.1	
							100			
					SS10				<0.1	
6.0 / 20.0	End of Borehole	93.88 / 6.0								

EASTING: 18T 0465761 **NORTHING:** 5020902

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.88 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:

bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH/MW23-2

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PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

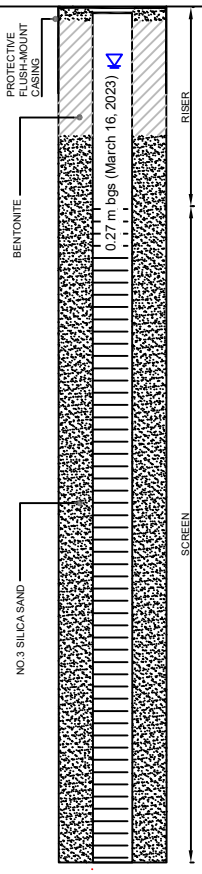
CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

DATE: MARCH 14, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)
0.0 / 0.0		99.90							
	FILL: Sand and gravel, grey, loose, moist, saturated at (0.0 - 0.2 m bgs).	0.00			SS1 (SS40)		100	PHC, VOC, Metals & General Inorganics	0.2
1.0 / 1.0	**SAND:** Silty, brown, moist.	99.05 / 0.85			SS2				<0.1
	CLAY: Silty at (1.20 - 1.95 m bgs) and at (3.60 - 4.80 m bgs), brown becoming grey at (1.95 m bgs), saturated.	98.70 / 1.20			SS3		100		<0.1
2.0 / 2.0					SS4				<0.1
					SS5				<0.1
3.0 / 3.0					SS6		100		<0.1
4.0 / 4.0					SS7				<0.1
					SS8		100		<0.1
5.0 / 5.0					SS9				<0.1
6.0 / 6.0	End of Borehole	93.90 / 6.0			SS10		100		<0.1

MONITORING WELL DETAILS



Groundwater samples collected March 16, 2023 were submitted for laboratory analysis of VOC, PHC, PAH, Metals, Metals hydrides, and General Inorganics.

EASTING: 18T 0465753 **NORTHING:** 5020904

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.90 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:

bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH/MW23-3

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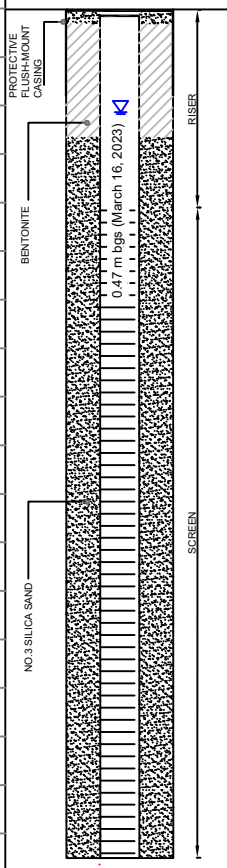
PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

DATE: MARCH 14, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV/DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)	MONITORING WELL DETAILS
0.0 / 0.0		99.88								
	FILL: Sand and gravel, grey, loose, moist, saturated at (0.0 - 0.2 m bgs).	0.00			SS1		69	PHC, VOC, Metals & General Inorganics	0.1	
		99.03								
1.0 / 3.0	**SAND:** Silty, green, moist.	0.85			SS2			PHC & VOC	<0.1	
		98.68								
	CLAY: Silty at (1.20 - 1.95 m bgs) and at (3.60 - 4.25 m bgs), brown becoming grey at (1.95 m bgs), some red at (1.95 - 2.4 m bgs) and at (4.25 - 4.8 m bgs), saturated.	1.20			SS3		100	Metals & General Inorganics	<0.1	
2.0 / 7.0					SS4			PAH & PCB	<0.1	
					SS5		100		<0.1	
3.0 / 10.0					SS6				<0.1	
					SS7		100		<0.1	
4.0 / 13.0					SS8				<0.1	
5.0 / 16.0					SS9		100		<0.1	
6.0 / 18.0					SS10				<0.1	
		93.88								
20.0	End of Borehole	6.0								



Groundwater samples collected March 16, 2023 were submitted for laboratory analysis of VOC, PHC, PAH, Metals, Metals hydrides, and General Inorganics.

EASTING: 18T 0465763 **NORTHING:** 5020877

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.88 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:
bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH/MW23-4

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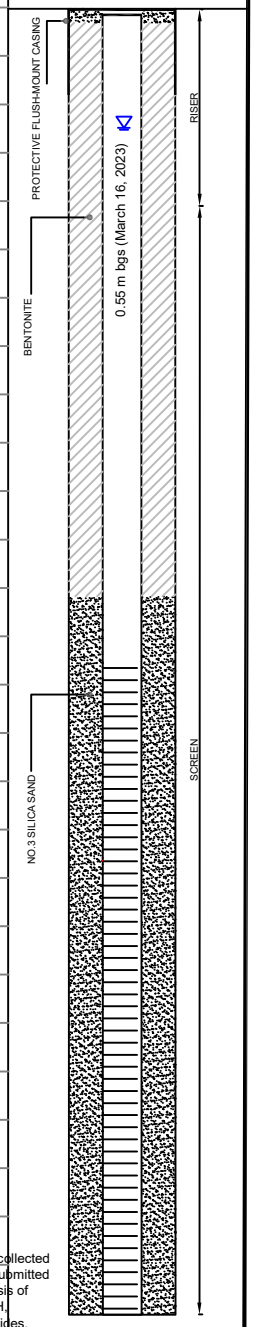
PROJECT NO.: 220487
PROJECT: PHASE II ENVIRONMENTAL SITE ASSESSMENT
CLIENT: ENTREPRENEUR HOLDING CORPORATION
LOCATION: 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO
DATE: MARCH 13, 2023
FIELD PERSONNEL: ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)
0.0 / 0.0		99.87							
	FILL: Sand and gravel, grey, loose, moist, saturated at (0.0 - 0.2 m bgs).	0.00			SS1		65	Metals & General Inorganics	0.1
1.0 / 1.0	**SAND:** Silty, brown, moist.	1.0 / 98.87			SS2			PHC & Metals	<0.1
	CLAY: Silty sandy at (1.20 - 2.0 m bgs), silty at (3.60 - 4.25 m bgs), brown becoming grey at (2.0 m bgs), saturated.	1.20			SS3		100	Metals & General Inorganics	<0.1
2.0 / 2.0					SS4			PAH & PCB	<0.1
3.0 / 3.0					SS5		100		<0.1
					SS6				<0.1
4.0 / 4.0					SS7		100		<0.1
					SS8				<0.1
5.0 / 5.0					SS9		100		<0.1
6.0 / 6.0					SS10				<0.1
	End of Borehole	93.87 / 6.0							

Groundwater samples collected March 16, 2023 were submitted for laboratory analysis of VOC, PHC, PAH, Metals, Metals hydrides, and General Inorganics.

MONITORING WELL DETAILS



EASTING: 18T 0465769 **NORTHING:** 5020895

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.87 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:
bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH/MW23-5

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PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

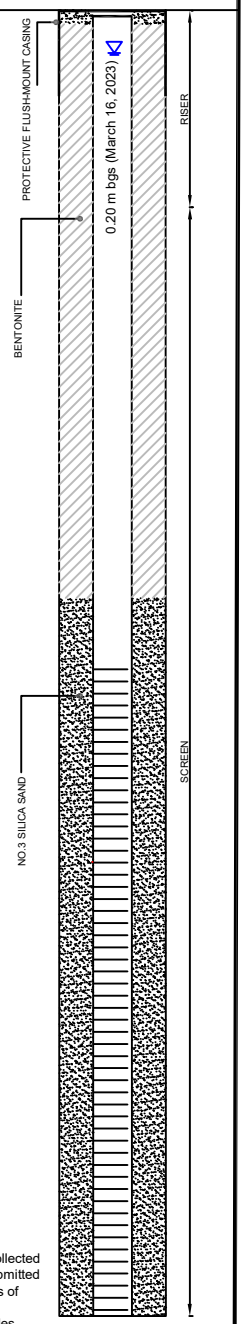
DATE: MARCH 13, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)
0.0 / 0.0		99.89							
	FILL: Sand and gravel, brown at (0.0 - 0.2 m bgs) followed by grey to (0.9 m bgs) followed by red stone to (1.0 m bgs), moist.	0.00			SS2 (SS20)		75	PHC, VOC, Metals & General Inorganics	0.3
1.0		98.89							
	SAND: Silty, brown, moist.	1.0			SS2				0.2
		98.69							
	CLAY: Silty at (1.20 - 1.75 m bgs), brown becoming grey at (1.75 m bgs), some red, saturated.	1.20			SS3			PHC, VOC, & Metals	0.1
2.0					SS4		100		<0.1
					SS5				<0.1
3.0					SS6		100		<0.1
4.0					SS7				<0.1
					SS8		100		<0.1
5.0					SS9				<0.1
					SS10		100		<0.1
6.0	End of Borehole	93.89 / 6.0							

Groundwater samples collected March 16, 2023 were submitted for laboratory analysis of VOC, PHC, PAH, Metals, Metals hydrides, and General Inorganics.

MONITORING WELL DETAILS



EASTING: 18T 0465749 **NORTHING:** 5020933

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.89 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:
bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH23-6

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PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

DATE: MARCH 13, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)	MONITORING WELL DETAILS
0.0 / 0.0		99.90								
	FILL: Sand and gravel, brown at (0.0 - 0.35 m bgs) followed by grey to (0.85 m bgs), dry, loose.	0.00			SS1		100		0.1	
		99.05								
1.0 /	**SAND:** Silty, brown, moist.	0.85			SS2			PHC, VOC, Metals & General Inorganics	0.1	
		98.70								
	CLAY: Silty sandy at (1.20 - 1.9 m bgs), silty at (4.8 - 6.0 m bgs), brown becoming grey with depth, saturated, the sampling tube was empty at (3.6 - 4.8 m bgs) due to high water content.	1.20			SS3				<0.1	
2.0 /					SS4		100		<0.1	
					SS5				<0.1	
3.0 /					SS6		100		<0.1	
4.0 /										
5.0 /					SS7				<0.1	
					SS8		100		<0.1	
6.0 /	End of Borehole	93.90 6.0								

Combustible Soil Vapours (ppm): 10 30 50 70 90
ISOBUTYLENE (ppm): 200 600 1000 1400 1800

EASTING: 18T 0465743 **NORTHING:** 5020927

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.90 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:
bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH23-7

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PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

DATE: MARCH 14, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) 10 30 50 70 90 / ISOBUTYLENE (ppm) 200 600 1000 1400 1800	MONITORING WELL DETAILS
0.0 / 0.0		99.89								
	FILL: Sand and gravel, grey, dry, moist at (0.0 - 0.1 m bgs).	0.00			SS1		71	PHC, VOC, Metals & General Inorganics	0.3	
3.0 / 1.0	**SAND:** Silty, brown, moist.	1.0 / 98.89			SS2				<0.1	
4.0	**CLAY:** Silty at (1.20 - 1.95 m bgs) and at (3.6 - 4.20 m bgs), grey, brown at (1.20 - 1.95 m bgs), some red at (1.20 - 2.4 m bgs) and at (4.8 - 6.0 m bgs), saturated.	1.20			SS3		100	Metals	<0.1	
7.0 / 2.0					SS4				<0.1	
9.0					SS5		100		<0.1	
10.0 / 3.0					SS6				<0.1	
13.0 / 4.0					SS7		100		<0.1	
14.0					SS8				<0.1	
16.0 / 5.0					SS9		100		<0.1	
18.0					SS10				<0.1	
20.0 / 6.0	End of Borehole	93.89 / 6.0								

EASTING: 18T 0465765 **NORTHING:** 5020919

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.89 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:

bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH23-8

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PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

DATE: MARCH 13, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)	MONITORING WELL DETAILS
0.0 / 0.0		99.87								
	FILL: Sand and gravel, grey, moist.	0.00			SS1		92		0.1	
		98.07								
3.0 / 1.0	**SAND:** Silty to (1.10 m bgs). followed by silty clayey, brown with some red spots, wet.	0.80			SS2			PHC, VOC, Metals & General Inorganics	<0.1	
		98.67								
4.0	**CLAY:** Silty at (1.20 - 1.95 m bgs), grey, grey-brown at (1.20 - 1.95 m bgs), some red at (1.95 - 2.4 m bgs), saturated.	1.20			SS3			Metals	<0.1	
6.0 / 2.0							100			
7.0					SS4				<0.1	
8.0					SS5				<0.1	
10.0 / 3.0							100			
11.0					SS6				<0.1	
12.0					SS7				<0.1	
13.0 / 4.0										
14.0					SS8		100		<0.1	
15.0										
16.0 / 5.0					SS9				<0.1	
17.0										
18.0					SS10		100		<0.1	
19.0										
20.0 / 6.0		93.87								
	End of Borehole	6.0								

EASTING: 18T 0465756 **NORTHING:** 5020940

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.87 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:

bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH23-9

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PROJECT NO.: 220487 **PROJECT:** PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT: ENTREPRENEUR HOLDING CORPORATION **LOCATION:** 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO

DATE: MARCH 14, 2023 **FIELD PERSONNEL:** ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) / ISOBUTYLENE (ppm)	MONITORING WELL DETAILS
0.0 / 0.0		99.89								
	FILL: Sand and gravel, grey, dry, moist at (0.0 - 0.1 m bgs).	0.00			SS1		92	PHC, VOC, Metals & General Inorganics	<0.1	
		98.89								
1.0 /	**SAND:** Silty, brown, moist.	1.0			SS2				<0.1	
		98.69								
	CLAY: Silty at (1.20 - 1.85 m bgs), grey-brown with some red at (1.20 - 1.85 m bgs) followed by grey at (1.85 - 2.4 m bgs), saturated.	1.20			SS3		100		<0.1	
2.0 /					SS4				<0.1	
		97.49								
	End of Borehole	2.4								
3.0 /										
4.0 /										
5.0 /										
6.0 /										

EASTING: 18T 0465765 **NORTHING:** 5020921

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.89 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:

bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

BOREHOLE LOG: BH23-10

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PROJECT NO.: 220487
PROJECT: PHASE II ENVIRONMENTAL SITE ASSESSMENT
CLIENT: ENTREPRENEUR HOLDING CORPORATION
LOCATION: 363 ENTREPRENEUR CRESCENT, OTTAWA, ONTARIO
DATE: MARCH 14, 2023
FIELD PERSONNEL: ABDUL KADER

DRILLER: GEORGE DOWNING ESTATE DRILLING LTD. **DRILLING EQUIPMENT:** TRACK MOUNTED GEO-PROBE **DRILLING METHOD:** DIRECT PUSH

DEPTH (FT / M)	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	TYPE	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm) 10 30 50 70 90 / ISOBUTYLENE (ppm) 200 600 1000 1400 1800	MONITORING WELL DETAILS
0.0 / 0.0		99.88								
	FILL: Sand and gravel, grey, dry, moist at (0.0 - 0.1 m bgs).	0.00 / 99.03			SS1		90	PHC, VOC, Metals & General Inorganics	<0.1	
1.0 / 3.0	**SAND:** Silty, brown, moist.	0.85 / 98.68			SS2			Metals	<0.1	
4.0	**CLAY:** Silty at (1.20 - 1.9 m bgs), grey-brown with some red at (1.20 - 1.9 m bgs), followed by grey with red at (1.9 - 2.4 m bgs), saturated.	1.20			SS3		100		<0.1	
2.0 / 7.0					SS4				<0.1	
8.0	End of Borehole	97.48 / 2.4								
3.0 / 10.0										
4.0 / 13.0										
5.0 / 16.0										
6.0 / 20.0										

EASTING: 18T 0465761 **NORTHING:** 5020893

SITE DATUM: Elevations measured from temporary benchmark established at the top surface of the Entrepreneur Crescent Centerline opposite the the Site entrance (100.00 m).

GROUNDSURFACE ELEVATION: 99.88 m **TOP OF RISER ELEVATION:** N/A

HOLE DIAMETER: 91 mm **MONITORING WELL DIAMETER:** N/A

NOTES:
bgs: Below Ground Surface
VOC: Volatile Organic Compounds
PHC: Petroleum Hydrocarbons
PAH: Polycyclic Aromatic Hydrocarbons
PCB: Polychlorinated Biphenyls
N/A: Not applicable

APPENDIX B

Certificates of Laboratory Analysis

PARACEL LABORATORIES LTD.

TRUSTED.
RESPONSIVE.
RELIABLE.

300 - 2319 St. Laurent Blvd
Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Abdul Kader Alhaj

Client PO:
Project: 220487
Custody: 139923,139924,139927

Report Date: 28-Mar-2023
Order Date: 16-Mar-2023

Revised Report

Order #: 2311444

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

Paracel ID	Client ID
2311444-01	BH23-1-SS1
2311444-02	BH23-1-SS3
2311444-03	BH23-1-SS4
2311444-04	BH/MW23-2-SS1
2311444-05	BH/MW23-2-SS40
2311444-06	BH/MW23-3-SS1
2311444-07	BH/MW23-3-SS2
2311444-08	BH/MW23-3-SS3
2311444-09	BH/MW23-3-SS4
2311444-10	BH/MW23-4-SS1
2311444-11	MW/BH23-4-SS2
2311444-12	BH/MW23-4-SS3
2311444-13	MW/BH23-4-SS4
2311444-14	BH/MW23-5-SS1
2311444-15	BH/MW23-5-SS20
2311444-16	BH/MW23-5-SS3
2311444-17	BH23-6-SS2
2311444-18	BH23-7-SS1
2311444-19	BH23-7-SS3
2311444-20	BH23-8-SS2
2311444-21	BH23-8-SS3
2311444-22	BH23-9-SS1
2311444-23	BH23-10-SS1
2311444-24	BH23-10-SS2

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	21-Mar-23	21-Mar-23
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	17-Mar-23	17-Mar-23
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	17-Mar-23	21-Mar-23
Conductivity	MOE E3138 - probe @25 °C, water ext	21-Mar-23	21-Mar-23
Cyanide, free	MOE E3015 - Auto Colour, water extraction	20-Mar-23	20-Mar-23
Mercury by CVAA	EPA 7471B - CVAA, digestion	21-Mar-23	21-Mar-23
PCBs, total	SW846 8082A - GC-ECD	17-Mar-23	20-Mar-23
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	20-Mar-23	20-Mar-23
PHC F1	CWS Tier 1 - P&T GC-FID	17-Mar-23	17-Mar-23
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	21-Mar-23	22-Mar-23
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	17-Mar-23	20-Mar-23
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	21-Mar-23	21-Mar-23
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	15-Mar-23	20-Mar-23
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	17-Mar-23	17-Mar-23
SAR	Calculated	21-Mar-23	21-Mar-23
Solids, %	CWS Tier 1 - Gravimetric	17-Mar-23	17-Mar-23

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-1-SS1	BH23-1-SS3	BH23-1-SS4	BH/MW23-2-SS1
	Sample Date:	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-01	2311444-02	2311444-03	2311444-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	87.8	69.2	53.6	84.7
General Inorganics					
SAR	0.01 N/A	0.44	-	-	0.29
Conductivity	5 uS/cm	726	-	-	1010
Cyanide, free	0.03 ug/g dry	<0.03	-	-	<0.03
pH	0.05 pH Units	9.85	-	-	10.90
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	<1.0
Arsenic	1.0 ug/g dry	3.9	-	-	4.2
Barium	1.0 ug/g dry	105	-	-	108
Beryllium	0.5 ug/g dry	<0.5	-	-	<0.5
Boron	5.0 ug/g dry	9.7	-	-	10.6
Boron, available	0.5 ug/g dry	0.7	-	-	0.7
Cadmium	0.5 ug/g dry	<0.5	-	-	<0.5
Chromium	5.0 ug/g dry	26.2	-	-	24.5
Chromium (VI)	0.2 ug/g dry	<0.2	-	-	<0.2
Cobalt	1.0 ug/g dry	6.6	-	-	6.6
Copper	5.0 ug/g dry	22.0	-	-	19.2
Lead	1.0 ug/g dry	24.4	-	-	22.3
Mercury	0.1 ug/g dry	<0.1	-	-	<0.1
Molybdenum	1.0 ug/g dry	3.2	-	-	1.3
Nickel	5.0 ug/g dry	17.2	-	-	16.9
Selenium	1.0 ug/g dry	1.1	-	-	<1.0
Silver	0.3 ug/g dry	<0.3	-	-	<0.3
Thallium	1.0 ug/g dry	<1.0	-	-	<1.0
Uranium	1.0 ug/g dry	<1.0	-	-	<1.0
Vanadium	10.0 ug/g dry	31.5	-	-	33.3
Zinc	20.0 ug/g dry	59.2	-	-	55.4
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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-1-SS1	BH23-1-SS3	BH23-1-SS4	BH/MW23-2-SS1
	Sample Date:	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-01	2311444-02	2311444-03	2311444-04
	MDL/Units	Soil	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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-1-SS1	BH23-1-SS3	BH23-1-SS4	BH/MW23-2-SS1
	Sample Date:	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-01	2311444-02	2311444-03	2311444-04
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	<0.05
4-Bromofluorobenzene	Surrogate	107%	118%	-	106%
Dibromofluoromethane	Surrogate	109%	121%	-	110%
Toluene-d8	Surrogate	99.3%	109%	-	99.5%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	<7
F2 PHCs (C10-C16)	4 ug/g dry	<40 [1]	<4	-	<40 [1]
F3 PHCs (C16-C34)	8 ug/g dry	447	<8	-	376
F4 PHCs (C34-C50)	6 ug/g dry	2050 [14]	<6	-	1300 [14]
F4G PHCs (gravimetric)	50 ug/g dry	1570	-	-	2230
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	-	<0.02	-
Acenaphthylene	0.02 ug/g dry	-	-	<0.02	-
Anthracene	0.02 ug/g dry	-	-	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	-	-	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	-	-	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	-	-	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	-	-	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	-	-	<0.02	-
Chrysene	0.02 ug/g dry	-	-	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	<0.02	-
Fluoranthene	0.02 ug/g dry	-	-	<0.02	-
Fluorene	0.02 ug/g dry	-	-	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	<0.04	-
Naphthalene	0.01 ug/g dry	-	-	<0.01	-
Phenanthrene	0.02 ug/g dry	-	-	<0.02	-
Pyrene	0.02 ug/g dry	-	-	<0.02	-
2-Fluorobiphenyl	Surrogate	-	-	79.2%	-
Terphenyl-d14	Surrogate	-	-	110%	-
PCBs					
PCBs, total	0.05 ug/g dry	-	-	<0.05	-
Decachlorobiphenyl	Surrogate	-	-	99.9%	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH/MW23-2-SS40	BH/MW23-3-SS1	BH/MW23-3-SS2	BH/MW23-3-SS3
	Sample Date:	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-05	2311444-06	2311444-07	2311444-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	84.4	84.4	83.7	83.2
General Inorganics					
SAR	0.01 N/A	0.29	0.11	-	1.61
Conductivity	5 uS/cm	971	1010	-	280
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	-	<0.03
pH	0.05 pH Units	10.78	10.46	-	8.35
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	-	<1.0
Arsenic	1.0 ug/g dry	4.0	4.2	-	2.0
Barium	1.0 ug/g dry	110	142	-	58.1
Beryllium	0.5 ug/g dry	<0.5	<0.5	-	<0.5
Boron	5.0 ug/g dry	10.8	13.3	-	<5.0
Boron, available	0.5 ug/g dry	0.7	0.8	-	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	-	<0.5
Chromium	5.0 ug/g dry	22.7	31.5	-	29.1
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	-	<0.2
Cobalt	1.0 ug/g dry	6.0	7.8	-	6.1
Copper	5.0 ug/g dry	17.8	34.4	-	11.4
Lead	1.0 ug/g dry	21.3	26.7	-	3.5
Mercury	0.1 ug/g dry	<0.1	<0.1	-	<0.1
Molybdenum	1.0 ug/g dry	1.3	1.3	-	<1.0
Nickel	5.0 ug/g dry	15.5	19.4	-	14.6
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	<1.0	<1.0	-	<1.0
Vanadium	10.0 ug/g dry	30.1	35.9	-	36.2
Zinc	20.0 ug/g dry	54.8	89.0	-	23.9
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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH/MW23-2-SS40	BH/MW23-3-SS1	BH/MW23-3-SS2	BH/MW23-3-SS3
	Sample Date:	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-05	2311444-06	2311444-07	2311444-08
	MDL/Units	Soil	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	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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH/MW23-2-SS40	BH/MW23-3-SS1	BH/MW23-3-SS2	BH/MW23-3-SS3
	Sample Date:	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-05	2311444-06	2311444-07	2311444-08
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	107%	108%	110%	-
Dibromofluoromethane	Surrogate	108%	108%	112%	-
Toluene-d8	Surrogate	99.0%	98.2%	101%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	<40 [1]	<40 [1]	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	250	108	<8	-
F4 PHCs (C34-C50)	6 ug/g dry	1060 [14]	619 [14]	<6	-
F4G PHCs (gravimetric)	50 ug/g dry	1930	1090	-	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH/MW23-3-SS4	BH/MW23-4-SS1	MW/BH23-4-SS2	BH/MW23-4-SS3
	Sample Date:	14-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-09	2311444-10	2311444-11	2311444-12
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	53.7	92.5	85.5	78.4
General Inorganics					
SAR	0.01 N/A	-	0.11	-	1.87
Conductivity	5 uS/cm	-	1060	-	401
Cyanide, free	0.03 ug/g dry	-	<0.03	-	<0.03
pH	0.05 pH Units	-	11.02	-	8.04
Metals					
Antimony	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	-	3.3	1.9	2.5
Barium	1.0 ug/g dry	-	87.2	26.9	97.3
Beryllium	0.5 ug/g dry	-	<0.5	<0.5	0.6
Boron	5.0 ug/g dry	-	10.7	<5.0	7.7
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	-	19.2	19.7	47.8
Chromium (VI)	0.2 ug/g dry	-	<0.2	<0.2	0.3
Cobalt	1.0 ug/g dry	-	5.1	4.3	10.1
Copper	5.0 ug/g dry	-	16.7	7.1	18.6
Lead	1.0 ug/g dry	-	18.4	2.4	5.1
Mercury	0.1 ug/g dry	-	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	-	1.2	<1.0	<1.0
Nickel	5.0 ug/g dry	-	13.3	9.8	25.7
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	-	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	-	26.7	27.7	45.2
Zinc	20.0 ug/g dry	-	50.7	<20.0	42.0
Volatiles					
Benzene	0.02 ug/g dry	-	-	<0.02	-
Ethylbenzene	0.05 ug/g dry	-	-	<0.05	-
Toluene	0.05 ug/g dry	-	-	<0.05	-
m,p-Xylenes	0.05 ug/g dry	-	-	<0.05	-
o-Xylene	0.05 ug/g dry	-	-	<0.05	-
Xylenes, total	0.05 ug/g dry	-	-	<0.05	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH/MW23-3-SS4	BH/MW23-4-SS1	MW/BH23-4-SS2	BH/MW23-4-SS3
	Sample Date:	14-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-09	2311444-10	2311444-11	2311444-12
	MDL/Units	Soil	Soil	Soil	Soil
Toluene-d8	Surrogate	-	-	99.4%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	-	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	-	-	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	-	-	<8	-
F4 PHCs (C34-C50)	6 ug/g dry	-	-	<6	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	82.8%	-	-	-
Terphenyl-d14	Surrogate	108%	-	-	-
PCBs					
PCBs, total	0.05 ug/g dry	<0.05	-	-	-
Decachlorobiphenyl	Surrogate	106%	-	-	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	MW/BH23-4-SS4	BH/MW23-5-SS1	BH/MW23-5-SS20	BH/MW23-5-SS3
	Sample Date:	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-13	2311444-14	2311444-15	2311444-16
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	60.0	83.3	84.0	76.6
General Inorganics					
SAR	0.01 N/A	-	0.31	0.33	-
Conductivity	5 uS/cm	-	1460	1250	-
Cyanide, free	0.03 ug/g dry	-	<0.03	<0.03	-
pH	0.05 pH Units	-	10.84	11.14	-
Metals					
Antimony	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	-	4.0	4.0	3.2
Barium	1.0 ug/g dry	-	80.8	96.9	110
Beryllium	0.5 ug/g dry	-	<0.5	<0.5	0.7
Boron	5.0 ug/g dry	-	11.4	11.7	10.1
Boron, available	0.5 ug/g dry	-	0.6	<0.5	<0.5
Cadmium	0.5 ug/g dry	-	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	-	21.5	24.8	62.3
Chromium (VI)	0.2 ug/g dry	-	<0.2	0.4	<0.2
Cobalt	1.0 ug/g dry	-	4.8	6.6	12.1
Copper	5.0 ug/g dry	-	17.5	26.4	27.1
Lead	1.0 ug/g dry	-	19.9	20.5	6.4
Mercury	0.1 ug/g dry	-	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	-	2.9	3.1	<1.0
Nickel	5.0 ug/g dry	-	12.2	14.1	34.1
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	-	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	-	23.3	26.5	53.0
Zinc	20.0 ug/g dry	-	57.8	62.6	58.1
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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	MW/BH23-4-SS4	BH/MW23-5-SS1	BH/MW23-5-SS20	BH/MW23-5-SS3
	Sample Date:	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-13	2311444-14	2311444-15	2311444-16
	MDL/Units	Soil	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	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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	MW/BH23-4-SS4	BH/MW23-5-SS1	BH/MW23-5-SS20	BH/MW23-5-SS3
	Sample Date:	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-13	2311444-14	2311444-15	2311444-16
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	-	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	-	104%	108%	115%
Dibromofluoromethane	Surrogate	-	112%	108%	114%
Toluene-d8	Surrogate	-	101%	100%	104%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	-	<40 [1]	<40 [1]	<4
F3 PHCs (C16-C34)	8 ug/g dry	-	90	328	<8
F4 PHCs (C34-C50)	6 ug/g dry	-	292 [14]	903 [14]	<6
F4G PHCs (gravimetric)	50 ug/g dry	-	960	2990	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	81.6%	-	-	-
Terphenyl-d14	Surrogate	112%	-	-	-
PCBs					
PCBs, total	0.05 ug/g dry	<0.05	-	-	-
Decachlorobiphenyl	Surrogate	116%	-	-	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-6-SS2	BH23-7-SS1	BH23-7-SS3	BH23-8-SS2
	Sample Date:	13-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-17	2311444-18	2311444-19	2311444-20
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	80.9	83.4	70.6	77.2
General Inorganics					
SAR	0.01 N/A	1.39	0.33	-	1.51
Conductivity	5 uS/cm	256	1190	-	350
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	-	<0.03
pH	0.05 pH Units	9.03	10.94	-	8.56
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	1.2	3.5	3.9	3.7
Barium	1.0 ug/g dry	34.6	100	135	224
Beryllium	0.5 ug/g dry	<0.5	<0.5	0.8	0.7
Boron	5.0 ug/g dry	<5.0	11.3	11.0	7.2
Boron, available	0.5 ug/g dry	<0.5	0.8	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	20.5	32.5	70.9	68.9
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	0.3	0.3
Cobalt	1.0 ug/g dry	4.4	6.9	14.6	16.1
Copper	5.0 ug/g dry	6.6	21.7	32.1	30.9
Lead	1.0 ug/g dry	2.0	284	7.5	6.0
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	2.5	<1.0	<1.0
Nickel	5.0 ug/g dry	9.5	17.9	40.0	37.3
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	<1.0	<1.0
Vanadium	10.0 ug/g dry	26.0	31.4	62.5	74.2
Zinc	20.0 ug/g dry	<20.0	64.8	66.3	81.3
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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-6-SS2	BH23-7-SS1	BH23-7-SS3	BH23-8-SS2
	Sample Date:	13-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-17	2311444-18	2311444-19	2311444-20
	MDL/Units	Soil	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	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

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-6-SS2	BH23-7-SS1	BH23-7-SS3	BH23-8-SS2
	Sample Date:	13-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	13-Mar-23 00:00
	Sample ID:	2311444-17	2311444-18	2311444-19	2311444-20
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	<0.05
4-Bromofluorobenzene	Surrogate	115%	109%	-	115%
Dibromofluoromethane	Surrogate	118%	113%	-	119%
Toluene-d8	Surrogate	105%	99.3%	-	107%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	-	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	165	-	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	222 [14]	-	<6
F4G PHCs (gravimetric)	50 ug/g dry	-	585	-	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-8-SS3	BH23-9-SS1	BH23-10-SS1	BH23-10-SS2
	Sample Date:	13-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-21	2311444-22	2311444-23	2311444-24
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	64.7	88.8	88.4	82.3
General Inorganics					
SAR	0.01 N/A	-	0.13	0.44	-
Conductivity	5 uS/cm	-	1160	1240	-
Cyanide, free	0.03 ug/g dry	-	<0.03	<0.03	-
pH	0.05 pH Units	-	11.14	10.74	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.9	4.0	3.1	1.6
Barium	1.0 ug/g dry	150	95.0	82.1	35.9
Beryllium	0.5 ug/g dry	1.1	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	18.0	11.1	10.3	<5.0
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	80.8	20.8	27.1	23.2
Chromium (VI)	0.2 ug/g dry	0.3	<0.2	<0.2	0.3
Cobalt	1.0 ug/g dry	17.1	4.5	5.5	4.9
Copper	5.0 ug/g dry	35.2	19.5	14.5	6.8
Lead	1.0 ug/g dry	8.9	16.8	12.6	2.6
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	2.2	1.5	<1.0
Nickel	5.0 ug/g dry	46.7	11.8	13.5	10.6
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	<1.0	<1.0
Vanadium	10.0 ug/g dry	69.6	23.9	28.4	29.9
Zinc	20.0 ug/g dry	72.4	66.7	68.6	<20.0
Volatiles					
Acetone	0.50 ug/g dry	-	<0.50	<0.50	-
Benzene	0.02 ug/g dry	-	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	-	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	-	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	-	<0.05	<0.05	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 28-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	BH23-8-SS3	BH23-9-SS1	BH23-10-SS1	BH23-10-SS2
	Sample Date:	13-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-21	2311444-22	2311444-23	2311444-24
	MDL/Units	Soil	Soil	Soil	Soil
Chlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	-	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	-	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	-	<0.05	<0.05	-
Hexane	0.05 ug/g dry	-	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	-	<0.05	<0.05	-
Styrene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
Toluene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	-	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	-	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	-	<0.05	<0.05	-

Certificate of Analysis

Report Date: 28-Mar-2023

Client: LRL Associates Ltd.

Order Date: 16-Mar-2023

Client PO:

Project Description: 220487

	Client ID:	BH23-8-SS3	BH23-9-SS1	BH23-10-SS1	BH23-10-SS2
	Sample Date:	13-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00	14-Mar-23 00:00
	Sample ID:	2311444-21	2311444-22	2311444-23	2311444-24
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	-	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	-	104%	105%	-
Dibromofluoromethane	Surrogate	-	105%	110%	-
Toluene-d8	Surrogate	-	95.8%	98.1%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	-	<40 [1]	<40 [1]	-
F3 PHCs (C16-C34)	8 ug/g dry	-	515	429	-
F4 PHCs (C34-C50)	6 ug/g dry	-	2000 [14]	1760 [14]	-
F4G PHCs (gravimetric)	50 ug/g dry	-	4940	3450	-

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						
F4G PHCs (gravimetric)	ND	50	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	*0.102*		*ug/g*		*102*	*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	*1.07*		*ug/g*		*80.6*	*50-140*			
Surrogate: Terphenyl-d14	*1.23*		*ug/g*		*92.6*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
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	*10.1*		*ug/g*		*126*	*50-140*			
Surrogate: Dibromofluoromethane	*8.19*		*ug/g*		*102*	*50-140*			
Surrogate: Toluene-d8	*7.60*		*ug/g*		*95.0*	*50-140*			
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	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: Toluene-d8	*7.60*		*ug/g*		*95.0*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.40	0.01	N/A	0.44			9.5	30	
Conductivity	728	5	uS/cm	726			0.3	5	
Cyanide, free	ND	0.03	ug/g	ND			NC	35	
pH	9.89	0.05	pH Units	9.85			0.4	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	40	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	476	80	ug/g	447			6.2	30	
F4 PHCs (C34-C50)	1320	60	ug/g	2050			43.5	30	QR-04
Metals									
Antimony	ND	1.0	ug/g	1.3			NC	30	
Arsenic	1.4	1.0	ug/g	1.4			1.4	30	
Barium	38.9	1.0	ug/g	36.3			7.1	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron, available	0.74	0.5	ug/g	0.71			4.2	35	
Boron	8.8	5.0	ug/g	8.5			3.3	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	30.4	5.0	ug/g	27.6			9.4	30	
Cobalt	4.0	1.0	ug/g	3.6			9.3	30	
Copper	20.3	5.0	ug/g	15.1			29.4	30	
Lead	17.1	1.0	ug/g	22.7			28.1	30	
Mercury	ND	0.1	ug/g	ND			NC	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	9.3	5.0	ug/g	9.0			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	17.6	10.0	ug/g	17.8			1.0	30	
Zinc	45.1	20.0	ug/g	44.9			0.4	30	
PCBs									
PCBs, total	ND	0.05	ug/g	ND			NC	40	
Surrogate: Decachlorobiphenyl	*0.204*		*ug/g*		*109*	*60-140*			
Physical Characteristics									
% Solids	86.2	0.1	% by Wt.	87.8			1.8	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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 2-Fluorobiphenyl	*1.03*		*ug/g*		*64.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.33*		*ug/g*		*83.6*	*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	*10.0*		*ug/g*		*106*	*50-140*			
Surrogate: Dibromofluoromethane	*10.2*		*ug/g*		*108*	*50-140*			
Surrogate: Toluene-d8	*9.29*		*ug/g*		*98.0*	*50-140*			
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	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: Toluene-d8	*9.29*		*ug/g*		*98.0*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Cyanide, free	0.283	0.03	ug/g	ND	89.4	50-150			
Hydrocarbons									
F1 PHCs (C6-C10)	186	7	ug/g	ND	92.8	80-120			
F2 PHCs (C10-C16)	76	4	ug/g	ND	95.2	80-120			
F3 PHCs (C16-C34)	197	8	ug/g	ND	100	80-120			
F4 PHCs (C34-C50)	141	6	ug/g	ND	114	80-120			
F4G PHCs (gravimetric)	1170	50	ug/g	ND	117	80-120			
Metals									
Antimony	41.8	1.0	ug/g	ND	82.6	70-130			
Arsenic	51.6	1.0	ug/g	ND	102	70-130			
Barium	66.8	1.0	ug/g	14.5	105	70-130			
Beryllium	52.8	0.5	ug/g	ND	105	70-130			
Boron, available	4.00	0.5	ug/g	ND	80.0	70-122			
Boron	50.9	5.0	ug/g	ND	95.0	70-130			
Cadmium	50.6	0.5	ug/g	ND	101	70-130			
Chromium (VI)	0.1	0.2	ug/g	ND	51.0	70-130			QM-05
Chromium	69.2	5.0	ug/g	11.1	116	70-130			
Cobalt	53.8	1.0	ug/g	1.4	105	70-130			
Copper	56.1	5.0	ug/g	6.1	100	70-130			
Lead	52.2	1.0	ug/g	9.1	86.2	70-130			
Mercury	1.08	0.1	ug/g	ND	71.9	70-130			
Molybdenum	49.6	1.0	ug/g	ND	98.7	70-130			
Nickel	53.7	5.0	ug/g	ND	100	70-130			
Selenium	45.6	1.0	ug/g	ND	91.0	70-130			
Silver	44.3	0.3	ug/g	ND	88.5	70-130			
Thallium	48.4	1.0	ug/g	ND	96.6	70-130			
Uranium	46.8	1.0	ug/g	ND	93.3	70-130			
Vanadium	64.5	10.0	ug/g	ND	115	70-130			
Zinc	64.3	20.0	ug/g	ND	92.6	70-130			
PCBs									
PCBs, total	0.956	0.05	ug/g	ND	128	60-140			
Surrogate: Decachlorobiphenyl	*0.192*		*ug/g*		*103*	*60-140*			
Semi-Volatiles									
Acenaphthene	0.143	0.02	ug/g	ND	71.5	50-140			
Acenaphthylene	0.116	0.02	ug/g	ND	58.2	50-140			
Anthracene	0.123	0.02	ug/g	ND	61.7	50-140			
Benzo [a] anthracene	0.124	0.02	ug/g	ND	61.9	50-140			
Benzo [a] pyrene	0.140	0.02	ug/g	ND	70.0	50-140			
Benzo [b] fluoranthene	0.173	0.02	ug/g	ND	86.9	50-140			
Benzo [g,h,i] perylene	0.138	0.02	ug/g	ND	69.3	50-140			
Benzo [k] fluoranthene	0.143	0.02	ug/g	ND	71.6	50-140			
Chrysene	0.177	0.02	ug/g	ND	88.9	50-140			
Dibenzo [a,h] anthracene	0.147	0.02	ug/g	ND	73.6	50-140			
Fluoranthene	0.129	0.02	ug/g	ND	64.7	50-140			
Fluorene	0.116	0.02	ug/g	ND	58.0	50-140			
Indeno [1,2,3-cd] pyrene	0.149	0.02	ug/g	ND	74.5	50-140			
1-Methylnaphthalene	0.155	0.02	ug/g	ND	77.9	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
2-Methylnaphthalene	0.168	0.02	ug/g	ND	84.4	50-140			
Naphthalene	0.163	0.01	ug/g	ND	81.5	50-140			
Phenanthrene	0.136	0.02	ug/g	ND	67.9	50-140			
Pyrene	0.127	0.02	ug/g	ND	63.9	50-140			
Surrogate: 2-Fluorobiphenyl	*1.11*		*ug/g*		*69.7*	*50-140*			
Surrogate: Terphenyl-d14	*1.23*		*ug/g*		*77.1*	*50-140*			
Volatiles									
Acetone	12.8	0.50	ug/g	ND	128	50-140			
Benzene	3.73	0.02	ug/g	ND	93.2	60-130			
Bromodichloromethane	3.80	0.05	ug/g	ND	94.9	60-130			
Bromoform	3.97	0.05	ug/g	ND	99.3	60-130			
Bromomethane	4.82	0.05	ug/g	ND	121	50-140			
Carbon Tetrachloride	3.64	0.05	ug/g	ND	91.1	60-130			
Chlorobenzene	3.84	0.05	ug/g	ND	96.0	60-130			
Chloroform	3.79	0.05	ug/g	ND	94.8	60-130			
Dibromochloromethane	4.12	0.05	ug/g	ND	103	60-130			
Dichlorodifluoromethane	3.42	0.05	ug/g	ND	85.4	50-140			
1,2-Dichlorobenzene	3.34	0.05	ug/g	ND	83.4	60-130			
1,3-Dichlorobenzene	3.46	0.05	ug/g	ND	86.5	60-130			
1,4-Dichlorobenzene	3.17	0.05	ug/g	ND	79.1	60-130			
1,1-Dichloroethane	4.25	0.05	ug/g	ND	106	60-130			
1,2-Dichloroethane	3.70	0.05	ug/g	ND	92.5	60-130			
1,1-Dichloroethylene	3.91	0.05	ug/g	ND	97.8	60-130			
cis-1,2-Dichloroethylene	3.69	0.05	ug/g	ND	92.2	60-130			
trans-1,2-Dichloroethylene	3.63	0.05	ug/g	ND	90.8	60-130			
1,2-Dichloropropane	3.56	0.05	ug/g	ND	88.9	60-130			
cis-1,3-Dichloropropylene	3.53	0.05	ug/g	ND	88.2	60-130			
trans-1,3-Dichloropropylene	3.64	0.05	ug/g	ND	91.0	60-130			
Ethylbenzene	3.78	0.05	ug/g	ND	94.5	60-130			
Ethylene dibromide (dibromoethane, 1,2	3.82	0.05	ug/g	ND	95.6	60-130			
Hexane	4.19	0.05	ug/g	ND	105	60-130			
Methyl Ethyl Ketone (2-Butanone)	11.0	0.50	ug/g	ND	110	50-140			
Methyl Isobutyl Ketone	9.34	0.50	ug/g	ND	93.4	50-140			
Methyl tert-butyl ether	8.09	0.05	ug/g	ND	80.9	50-140			
Methylene Chloride	4.11	0.05	ug/g	ND	103	60-130			
Styrene	3.80	0.05	ug/g	ND	95.1	60-130			
1,1,1,2-Tetrachloroethane	3.98	0.05	ug/g	ND	99.6	60-130			
1,1,2,2-Tetrachloroethane	4.22	0.05	ug/g	ND	106	60-130			
Tetrachloroethylene	4.03	0.05	ug/g	ND	101	60-130			
Toluene	3.99	0.05	ug/g	ND	99.7	60-130			
1,1,1-Trichloroethane	3.62	0.05	ug/g	ND	90.5	60-130			
1,1,2-Trichloroethane	3.64	0.05	ug/g	ND	90.9	60-130			
Trichloroethylene	3.55	0.05	ug/g	ND	88.6	60-130			
Trichlorofluoromethane	4.41	0.05	ug/g	ND	110	50-140			
Vinyl chloride	3.77	0.02	ug/g	ND	94.4	50-140			
m,p-Xylenes	7.90	0.05	ug/g	ND	98.7	60-130			
o-Xylene	4.02	0.05	ug/g	ND	100	60-130			
Surrogate: 4-Bromofluorobenzene	*7.53*		*ug/g*		*94.1*	*50-140*			
Surrogate: Dibromofluoromethane	*8.03*		*ug/g*		*100*	*50-140*			
Surrogate: Toluene-d8	*6.15*		*ug/g*		*76.9*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	3.73	0.02	ug/g	ND	93.2	60-130			
Ethylbenzene	3.78	0.05	ug/g	ND	94.5	60-130			
Toluene	3.99	0.05	ug/g	ND	99.7	60-130			
m,p-Xylenes	7.90	0.05	ug/g	ND	98.7	60-130			
o-Xylene	4.02	0.05	ug/g	ND	100	60-130			
Surrogate: Toluene-d8	*6.15*		*ug/g*		*76.9*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - Sample Label reads " BH/MW23-2-SS1 " and the chain of custody reads "BH/MW-2-SS1 "
Applies to samples: BH/MW23-2-SS1

Container and COC sample IDs don't match - Sample Label reads "BH/MW23-2-SS40 " and the chain of custody reads "BH/MW-2-SS40 "
Applies to samples: BH/MW23-2-SS40

Container and COC sample IDs don't match - Sample Label reads "BH/MW23-3-SS1 " and the chain of custody reads "BH/MW-3-SS1 "
Applies to samples: BH/MW23-3-SS1

Container and COC sample IDs don't match - Sample Label reads "BH/MW23-3-SS2 " and the chain of custody reads "BH/MW-3-SS2 "
Applies to samples: BH/MW23-3-SS2

Container and COC sample IDs don't match - Sample Label reads "BH/MW23-3-SS3 " and the chain of custody reads "BH/MW-3-SS3 "
Applies to samples: BH/MW23-3-SS3

Container and COC sample IDs don't match - Sample Label reads "BH/MW23-3-SS4 " and the chain of custody reads "BH/MW-3-SS4 "
Applies to samples: BH/MW23-3-SS4

Container and COC sample IDs don't match - Sample Label reads "BH/MW23-4-SS1 " and the chain of custody reads "BH/MW-4-SS1 " on the methanol vial and Sample Label reads "MW/BH23-4-SS1 " and the chain of custody reads "BH/MW-4-SS1 " on the soil jar
Applies to samples: BH/MW23-4-SS1

Container and COC sample IDs don't match - Sample Label reads "BH23-5-SS20 " and the chain of custody reads "BH/MW23-5-SS20 "
Applies to samples: BH/MW23-5-SS20

Container and COC sample IDs don't match - Sample Label reads "BH23-5-SS3 " and the chain of custody reads "BH/MW23-5-SS3 "
Applies to samples: BH/MW23-5-SS3

Container and COC sample IDs don't match - Sample Label reads "MW/BH23-4-SS2 " and the chain of custody reads "BH/MW23-4-SS2 "
Applies to samples: MW/BH23-4-SS2

Container and COC sample IDs don't match - Sample Label reads "MW/BH23-4-SS4 " and the chain of custody reads "BH/MW23-4-SS4 "
Applies to samples: MW/BH23-4-SS4

Container and COC sample IDs don't match - Sample Label reads "MW/BH23-5-SS1 " and the chain of custody reads "BH/MW23-5-SS1 "on the methanol vial and Sample Label reads "BH23-5-SS1 " and the chain of custody reads "BH/MW23-5-SS1 "on the soil jar
Applies to samples: BH/MW23-5-SS1

Sample Qualifiers :

1 : Elevated reporting limits due to the nature of the sample matrix.

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

QC Qualifiers :

QM-05 The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.
QR-04 Duplicate results exceeds RPD limits due to non-homogeneous matrix.

Sample Data Revisions

None

Work Order Revisions / Comments:

Revision 1-Revised report includes additional metals data.

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: 2311444

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only) № 139923

Client Name: LRL Associates
Contact Name: Abdul Kader
Address: 5420 Canotek Rd Ottawa, ON
Telephone:

Project Ref: 220487
Quote #:
PO #:
E-mail: akader

Page 1 of 3

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 Reg 153	Hg	CrVI	B (HWS)	Inorganics	PCB
1	BH23-1-SS1	S		2	2023.03.14	p.m	X	X			X			X	
2	BH23-1-SS3						X	X							
3	BH23-1-SS4								X						X
4	BH/MW-2-SS1						X	X		X				X	
5	BH/MW-2-SS40						X			X				X	
6	BH/MW-3-SS1						X			X				X	
7	BH/MW-3-SS2						X								
8	BH/MW-3-SS3									X				X	
9	BH/MW-3-SS4								X						X
10	BH/MW-4-SS1				2023.03.13	a.m				X				X	

Comments:

Method of Delivery: Walk In

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: 1628	Verified By:
Relinquished By (Print): Abdul Kader	Date/Time:	Date/Time: March 16, 2023	Date/Time: Mar 16/23 1734
Date/Time: 2023.03.16 / 4:20	Temperature: °C	Temperature: 6.7 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD.

Paracel ID: 2311444

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
	№ 139924

Client Name: GRL Associates	Project Ref: 220487	Page 2 of 3
Contact Name: Abdul Kader	Quote #:	Turnaround Time
Address: 5430 Canotek Rd Ottawa, ON	PO #:	☐ 1 day ☐ 3 day
Telephone: 613 315 6602	E-mail: akader@grl.ca	☐ 2 day ☒ Regular
		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 Reg 153	Hg	CrVI	B (HWS)	Inorganics PCB				
1	BH/MW23-4-SS2	S		2	2023.03.13	p.m	X			X								
2	BH/MW23-4-SS3	↓		↓	↓	↓				X				X				
3	BH/MW23-4-SS4								X						X			
4	BH/MW23-5-SS1					a.m	X	X			X			X				
5	BH/MW23-5-SS20					a.m								X				
6	BH/MW23-5-SS3					a.m												
7	BH23-6-SS2				↓	a.m								X				
8	BH23-7-SS1				2023.03.14	a.m								X				
9	BH23-7-SS3				2023.03.14	a.m												
10	BH23-8-SS2	↓		↓	2023.03.13	a.m	X	X			↓			X				

Comments:

Method of Delivery: Walk In

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Barb 1628	Verified By:
Relinquished By (Print): Abdul Kader	Date/Time:	Date/Time: March 16, 2023	Date/Time: Mar 16/23 1734
Date/Time: 2023.03.16 / 4:20	Temperature: °C	Temperature: 6.7 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD.

Paracel ID: 2311444

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
	№ 139927

Client Name: LRL Associates	Project Ref: 220487	Page 3 of 7
Contact Name: Abdulkader	Quote #:	Turnaround Time
Address: 5430 Canotek Rd Ottawa, ON.	PO #:	☐ 1 day ☐ 3 day
	E-mail: akader@lrl.ca	☐ 2 day ☒ Regular
Telephone: 613 315 6602		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: PHCs F1-F4+BTEX	VOCs	PAHs	Metals Reg 153	Hg	CrVI	B (HWS)	Inorganics
1	BH23-8-SS3	S		2	2023.03.14	A.m				X				
2	BH23-9-SS1	↓		↓	↓	↓	X	X		X				X
3	BH23-10-SS1						X	X		X				X
4	BH23-10-SS2									X				
5														
6														
7														
8														
9														
10														

Comments:

Method of Delivery: Walk In

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: 1623	Verified By:
Relinquished By (Print): Abdu Kader	Date/Time:	Date/Time: March 16, 2023	Date/Time: Mar 16/23 17:34
Date/Time: 2023.03.16 / 4:20	Temperature: °C	Temperature: 6.7 °C	pH Verified: ☐ By:

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www.paracellabs.com

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Abdul Kader Alhaj

Client PO:
Project: 220487
Custody: 139922

Report Date: 22-Mar-2023
Order Date: 16-Mar-2023

Order #: 2311446

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

Paracel ID	Client ID
2311446-01	MW23-2
2311446-02	MW23-3
2311446-03	MW23-4
2311446-04	MW23-5

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 22-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - water	MOE E3056 - colourimetric	21-Mar-23	21-Mar-23
Conductivity	EPA 9050A- probe @25 °C	17-Mar-23	17-Mar-23
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	20-Mar-23	20-Mar-23
Metals, ICP-MS	EPA 200.8 - ICP-MS	17-Mar-23	17-Mar-23
pH	EPA 150.1 - pH probe @25 °C	17-Mar-23	17-Mar-23
PHC F1	CWS Tier 1 - P&T GC-FID	17-Mar-23	17-Mar-23
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	21-Mar-23	22-Mar-23
Phenolics	EPA 420.2 - Auto Colour, 4AAP	20-Mar-23	20-Mar-23
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	20-Mar-23	20-Mar-23
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	17-Mar-23	17-Mar-23
SAR	Calculated	21-Mar-23	21-Mar-23

PARACEL LABORATORIES LTD.

Order #: 2311446

Certificate of Analysis

Report Date: 22-Mar-2023

Client: LRL Associates Ltd.

Order Date: 16-Mar-2023

Client PO:

Project Description: 220487

	Client ID:	MW23-2	MW23-3	MW23-4	MW23-5
	Sample Date:	16-Mar-23 15:50	16-Mar-23 15:40	16-Mar-23 15:30	16-Mar-23 15:20
	Sample ID:	2311446-01	2311446-02	2311446-03	2311446-04
	MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water
General Inorganics					
SAR	0.01	4.79	3.26	9.00	7.78
Conductivity	5 uS/cm	1710	1030	2910	2430
pH	0.1 pH Units	7.6	10.9	7.9	7.9
Phenolics	0.001 mg/L	-	0.068	0.001	-
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Antimony	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Arsenic	1 ug/L	2	2	2	2
Barium	1 ug/L	84	28	124	99
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Boron	10 ug/L	56	23	167	157
Cadmium	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Chromium	1 ug/L	<1	1	<1	2
Chromium (VI)	10 ug/L	<10	<10	<10	<10
Cobalt	0.5 ug/L	2.1	<0.5	0.7	1.1
Copper	0.5 ug/L	0.9	3.0	3.3	3.6
Lead	0.1 ug/L	<0.1	<0.1	<0.1	0.3
Molybdenum	0.5 ug/L	2.5	16.7	1.4	0.6
Nickel	1 ug/L	5	12	2	3
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	161000	106000	381000	306000
Thallium	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Uranium	0.1 ug/L	1.8	0.8	0.6	0.4
Vanadium	0.5 ug/L	1.7	20.9	1.6	2.8
Zinc	5 ug/L	<5	<5	<5	<5
Volatiles					
Acetone	5.0 ug/L	5.3	33.6	<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

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 22-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

	Client ID:	MW23-2	MW23-3	MW23-4	MW23-5
	Sample Date:	16-Mar-23 15:50	16-Mar-23 15:40	16-Mar-23 15:30	16-Mar-23 15:20
	Sample ID:	2311446-01	2311446-02	2311446-03	2311446-04
	MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
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	102%	102%	102%	102%
Dibromofluoromethane	Surrogate	74.2%	75.5%	90.9%	89.0%

Certificate of Analysis

Report Date: 22-Mar-2023

Client: LRL Associates Ltd.

Order Date: 16-Mar-2023

Client PO:

Project Description: 220487

	Client ID:	MW23-2	MW23-3	MW23-4	MW23-5
	Sample Date:	16-Mar-23 15:50	16-Mar-23 15:40	16-Mar-23 15:30	16-Mar-23 15:20
	Sample ID:	2311446-01	2311446-02	2311446-03	2311446-04
	MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water
Toluene-d8	Surrogate	110%	110%	111%	110%
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	0.59	<0.05	<0.05
Acenaphthylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Anthracene	0.01 ug/L	<0.01	0.26	<0.01	<0.01
Benzo [a] anthracene	0.01 ug/L	<0.01	0.48	<0.01	<0.01
Benzo [a] pyrene	0.01 ug/L	<0.01	0.33	<0.01	<0.01
Benzo [b] fluoranthene	0.05 ug/L	<0.05	0.52	<0.05	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	0.19	<0.05	<0.05
Benzo [k] fluoranthene	0.05 ug/L	<0.05	0.24	<0.05	<0.05
Chrysene	0.05 ug/L	<0.05	0.56	<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	0.06	0.91	0.02	<0.01
Fluorene	0.05 ug/L	<0.05	0.41	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	0.18	<0.05	<0.05
1-Methylnaphthalene	0.05 ug/L	<0.05	0.44	<0.05	<0.05
2-Methylnaphthalene	0.05 ug/L	<0.05	0.49	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	0.93	<0.10	<0.10
Naphthalene	0.05 ug/L	<0.05	4.98	<0.05	<0.05
Phenanthrene	0.05 ug/L	0.11	0.96	0.07	<0.05
Pyrene	0.01 ug/L	0.05	0.68	<0.01	<0.01
2-Fluorobiphenyl	Surrogate	57.0%	60.7%	64.4%	74.1%
Terphenyl-d14	Surrogate	60.0%	55.5%	52.9%	56.5%

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						
Phenolics	ND	0.001	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	*15.0*		*ug/L*		*75.1*	*50-140*			
Surrogate: Terphenyl-d14	*19.2*		*ug/L*		*96.0*	*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						

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 22-Mar-2023

Order Date: 16-Mar-2023

Project Description: 220487

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	ND	0.2	ug/L						
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	*81.7*		*ug/L*		*102*	*50-140*			
Surrogate: Dibromofluoromethane	*64.7*		*ug/L*		*80.9*	*50-140*			
Surrogate: Toluene-d8	*90.6*		*ug/L*		*113*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	330	5	uS/cm	324			1.7	5	
pH	7.9	0.1	pH Units	7.9			0.3	3.3	
Phenolics	0.001	0.001	mg/L	0.001			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	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	15	10	ug/L	14			9.9	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	8.0			NC	20	
Cobalt	0.51	0.5	ug/L	2.95			NC	20	
Copper	2.26	0.5	ug/L	8.98			NC	20	
Lead	0.24	0.1	ug/L	9.29			NC	20	
Molybdenum	3.32	0.5	ug/L	4.12			NC	20	
Nickel	1.6	1	ug/L	5.8			NC	20	
Selenium	ND	1	ug/L	1.6			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	559000	2000	ug/L	609000			8.5	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	0.7	0.1	ug/L	0.8			13.9	20	
Vanadium	1.49	0.5	ug/L	13.1			NC	20	
Zinc	ND	5	ug/L	14			NC	20	
Volatiles									
Acetone	8.22	5.0	ug/L	9.52			14.7	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	3.85	0.5	ug/L	2.92			27.5	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	
Styrene	ND	0.5	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	7.60	0.5	ug/L	5.91			25.0	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	14.6	0.5	ug/L	11.1			27.6	30	
o-Xylene	7.09	0.5	ug/L	5.40			27.1	30	
Surrogate: 4-Bromofluorobenzene	*80.6*		*ug/L*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*60.9*		*ug/L*		*76.1*	*50-140*			
Surrogate: Toluene-d8	*88.4*		*ug/L*		*110*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Phenolics	0.026	0.001	mg/L	0.001	101	67-133			
Hydrocarbons									
F1 PHCs (C6-C10)	1910	25	ug/L	ND	95.6	68-117			
F2 PHCs (C10-C16)	1770	100	ug/L	ND	111	60-140			
F3 PHCs (C16-C34)	4520	100	ug/L	ND	115	60-140			
F4 PHCs (C34-C50)	2360	100	ug/L	ND	95.3	60-140			
Metals									
Mercury	2.60	0.1	ug/L	ND	86.8	70-130			
Arsenic	51.7	1	ug/L	ND	102	80-120			
Beryllium	44.7	0.5	ug/L	ND	89.1	80-120			
Boron	54	10	ug/L	14	81.5	80-120			
Cadmium	43.2	0.1	ug/L	ND	86.2	80-120			
Chromium (VI)	199	10	ug/L	ND	99.5	70-130			
Chromium	61.5	1	ug/L	8.0	107	80-120			
Cobalt	57.3	0.5	ug/L	2.95	109	80-120			
Copper	52.0	0.5	ug/L	8.98	86.1	80-120			
Lead	56.8	0.1	ug/L	ND	114	80-120			
Molybdenum	60.4	0.5	ug/L	4.12	113	80-120			
Nickel	54.9	1	ug/L	5.8	98.3	80-120			
Selenium	41.1	1	ug/L	1.6	79.1	80-120			QM-07
Silver	42.7	0.1	ug/L	ND	85.3	80-120			
Sodium	11700	200	ug/L	ND	117	80-120			
Thallium	43.5	0.1	ug/L	ND	86.9	80-120			
Uranium	49.3	0.1	ug/L	0.8	97.1	80-120			
Vanadium	64.5	0.5	ug/L	13.1	103	80-120			
Semi-Volatiles									
Acenaphthene	4.61	0.05	ug/L	ND	92.2	50-140			
Acenaphthylene	4.14	0.05	ug/L	ND	82.9	50-140			
Anthracene	4.23	0.01	ug/L	ND	84.6	50-140			
Benzo [a] anthracene	4.98	0.01	ug/L	ND	99.6	50-140			
Benzo [a] pyrene	5.51	0.01	ug/L	ND	110	50-140			
Benzo [b] fluoranthene	5.88	0.05	ug/L	ND	118	50-140			
Benzo [g,h,i] perylene	3.97	0.05	ug/L	ND	79.5	50-140			
Benzo [k] fluoranthene	5.56	0.05	ug/L	ND	111	50-140			
Chrysene	5.33	0.05	ug/L	ND	107	50-140			
Dibenzo [a,h] anthracene	4.34	0.05	ug/L	ND	86.8	50-140			
Fluoranthene	4.36	0.01	ug/L	ND	87.1	50-140			
Fluorene	4.35	0.05	ug/L	ND	87.0	50-140			
Indeno [1,2,3-cd] pyrene	4.55	0.05	ug/L	ND	91.0	50-140			
1-Methylnaphthalene	4.93	0.05	ug/L	ND	98.6	50-140			
2-Methylnaphthalene	5.31	0.05	ug/L	ND	106	50-140			
Naphthalene	4.88	0.05	ug/L	ND	97.5	50-140			
Phenanthrene	4.19	0.05	ug/L	ND	83.8	50-140			
Pyrene	4.42	0.01	ug/L	ND	88.4	50-140			
Surrogate: 2-Fluorobiphenyl	*19.5*		*ug/L*		*97.4*	*50-140*			
Surrogate: Terphenyl-d14	*22.4*		*ug/L*		*112*	*50-140*			
Volatiles									
Acetone	110	5.0	ug/L	ND	110	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	42.2	0.5	ug/L	ND	105	60-130			
Bromodichloromethane	45.5	0.5	ug/L	ND	114	60-130			
Bromoform	35.9	0.5	ug/L	ND	89.7	60-130			
Bromomethane	48.7	0.5	ug/L	ND	122	50-140			
Carbon Tetrachloride	36.0	0.2	ug/L	ND	90.0	60-130			
Chlorobenzene	44.4	0.5	ug/L	ND	111	60-130			
Chloroform	44.7	0.5	ug/L	ND	112	60-130			
Dibromochloromethane	35.5	0.5	ug/L	ND	88.8	60-130			
Dichlorodifluoromethane	42.8	1.0	ug/L	ND	107	50-140			
1,2-Dichlorobenzene	39.8	0.5	ug/L	ND	99.4	60-130			
1,3-Dichlorobenzene	37.5	0.5	ug/L	ND	93.7	60-130			
1,4-Dichlorobenzene	37.0	0.5	ug/L	ND	92.4	60-130			
1,1-Dichloroethane	42.3	0.5	ug/L	ND	106	60-130			
1,2-Dichloroethane	46.2	0.5	ug/L	ND	116	60-130			
1,1-Dichloroethylene	45.4	0.5	ug/L	ND	113	60-130			
cis-1,2-Dichloroethylene	41.0	0.5	ug/L	ND	103	60-130			
trans-1,2-Dichloroethylene	37.9	0.5	ug/L	ND	94.7	60-130			
1,2-Dichloropropane	46.3	0.5	ug/L	ND	116	60-130			
cis-1,3-Dichloropropylene	43.5	0.5	ug/L	ND	109	60-130			
trans-1,3-Dichloropropylene	42.1	0.5	ug/L	ND	105	60-130			
Ethylbenzene	46.0	0.5	ug/L	ND	115	60-130			
Ethylene dibromide (dibromoethane, 1,2	38.4	0.2	ug/L	ND	96.0	60-130			
Hexane	45.9	1.0	ug/L	ND	115	60-130			
Methyl Ethyl Ketone (2-Butanone)	129	5.0	ug/L	ND	129	50-140			
Methyl Isobutyl Ketone	125	5.0	ug/L	ND	125	50-140			
Methyl tert-butyl ether	111	2.0	ug/L	ND	111	50-140			
Methylene Chloride	44.2	5.0	ug/L	ND	111	60-130			
Styrene	34.2	0.5	ug/L	ND	85.6	60-130			
1,1,1,2-Tetrachloroethane	35.7	0.5	ug/L	ND	89.4	60-130			
1,1,2,2-Tetrachloroethane	37.4	0.5	ug/L	ND	93.6	60-130			
Tetrachloroethylene	39.2	0.5	ug/L	ND	98.1	60-130			
Toluene	48.1	0.5	ug/L	ND	120	60-130			
1,1,1-Trichloroethane	44.2	0.5	ug/L	ND	111	60-130			
1,1,2-Trichloroethane	47.5	0.5	ug/L	ND	119	60-130			
Trichloroethylene	42.9	0.5	ug/L	ND	107	60-130			
Trichlorofluoromethane	49.7	1.0	ug/L	ND	124	60-130			
Vinyl chloride	39.6	0.5	ug/L	ND	99.0	50-140			
m,p-Xylenes	90.2	0.5	ug/L	ND	113	60-130			
o-Xylene	45.8	0.5	ug/L	ND	115	60-130			
Surrogate: 4-Bromofluorobenzene	*79.8*		*ug/L*		*99.8*	*50-140*			
Surrogate: Dibromofluoromethane	*82.2*		*ug/L*		*103*	*50-140*			
Surrogate: Toluene-d8	*85.8*		*ug/L*		*107*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Container(s) - Labeled improperly/insufficient information - (VOC x2) Sample labelled as MW23-5 chain of custody reads MW23-4

Applies to samples: MW23-4

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.

PARACEL LABORATORIES LTD.

Paracel ID: 2311446

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2311446	№ 139922

Client Name: LRL Associates	Project Ref: 220487		Page 1 of 1
Contact Name: Abdul Kader	Quote #:		Turnaround Time
Address: 5430 Canotek Rd Ottawa, ON	PO #:		☐ 1 day ☐ 3 day
	E-mail: akader@lrl.ca		☐ 2 day ☒ Regular
Telephone: 613 315 6602			Date Required:

☐ REG 153/04 ☐ REG 406/19 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)

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Date	Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Metal Hydrids	EC	SAR	PH	Phenols
1	MW23-2	GW		8	2023.03.16	3:50	X	X	X	X				X	X	X	X	
2	MW23-3	↓		9	↓	3:40	↓	↓	↓	↓				↓	↓	↓	↓	X
3	MW23-4	↓		9	↓	3:30	↓	↓	↓	↓				↓	↓	↓	↓	X
4	MW23-5	↓		8	↓	3:20	↓	↓	↓	↓				↓	↓	↓	↓	
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Walk In

Relinquished By (Sign): [signature]	Received By Driver/Depot:	Received at Lab: Cevans 1627	Verified By: Sandra Demenins
Relinquished By (Print): Abdul Kader	Date/Time:	Date/Time: March 16, 2023	Date/Time: Mar 17, 8:50
Date/Time: 2023.03.16 / 4:20	Temperature: °C	Temperature: 4.3 °C	pH Verified: ☐ By: Sandra Demenins

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www.paracellabs.com

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Jessica Arthurs

Client PO:
Project: 220487
Custody: 69848

Report Date: 20-Apr-2023
Order Date: 17-Apr-2023

Order #: 2316082

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

Paracel ID	Client ID
2316082-01	MW23-3

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 20-Apr-2023

Order Date: 17-Apr-2023

Project Description: 220487

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-MS	EPA 200.8 - ICP-MS	19-Apr-23	19-Apr-23
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	19-Apr-23	20-Apr-23

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 20-Apr-2023

Order Date: 17-Apr-2023

Project Description: 220487

	Client ID:	MW23-3	-	-	-
	Sample Date:	17-Apr-23 12:00	-	-	-
	Sample ID:	2316082-01	-	-	-
	MDL/Units	Ground Water	-	-	-
Metals					
Antimony	0.5 ug/L	<0.5	-	-	-
Arsenic	1 ug/L	4	-	-	-
Barium	1 ug/L	26	-	-	-
Beryllium	0.5 ug/L	<0.5	-	-	-
Boron	10 ug/L	23	-	-	-
Cadmium	0.1 ug/L	<0.1	-	-	-
Chromium	1 ug/L	<1	-	-	-
Cobalt	0.5 ug/L	<0.5	-	-	-
Copper	0.5 ug/L	<0.5	-	-	-
Lead	0.1 ug/L	<0.1	-	-	-
Molybdenum	0.5 ug/L	6.6	-	-	-
Nickel	1 ug/L	6	-	-	-
Selenium	1 ug/L	<1	-	-	-
Silver	0.1 ug/L	<0.1	-	-	-
Sodium	200 ug/L	115000	-	-	-
Thallium	0.1 ug/L	<0.1	-	-	-
Uranium	0.1 ug/L	2.9	-	-	-
Vanadium	0.5 ug/L	5.4	-	-	-
Zinc	5 ug/L	<5	-	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	0.98	-	-	-
Acenaphthylene	0.05 ug/L	<0.05	-	-	-
Anthracene	0.01 ug/L	0.15	-	-	-
Benzo [a] anthracene	0.01 ug/L	0.09	-	-	-
Benzo [a] pyrene	0.01 ug/L	0.07	-	-	-
Benzo [b] fluoranthene	0.05 ug/L	0.09	-	-	-
Benzo [g,h,i] perylene	0.05 ug/L	0.05	-	-	-
Benzo [k] fluoranthene	0.05 ug/L	0.06	-	-	-
Chrysene	0.05 ug/L	0.06	-	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	-	-	-
Fluoranthene	0.01 ug/L	0.24	-	-	-
Fluorene	0.05 ug/L	0.40	-	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	-	-	-
1-Methylnaphthalene	0.05 ug/L	0.38	-	-	-
2-Methylnaphthalene	0.05 ug/L	0.48	-	-	-

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 20-Apr-2023

Order Date: 17-Apr-2023

Project Description: 220487

	Client ID:	MW23-3	-	-	-
	Sample Date:	17-Apr-23 12:00	-	-	-
	Sample ID:	2316082-01	-	-	-
	MDL/Units	Ground Water	-	-	-
Methylnaphthalene (1&2)	0.10 ug/L	0.85	-	-	-
Naphthalene	0.05 ug/L	4.36	-	-	-
Phenanthrene	0.05 ug/L	0.64	-	-	-
Pyrene	0.01 ug/L	0.18	-	-	-
2-Fluorobiphenyl	Surrogate	84.4%	-	-	-
Terphenyl-d14	Surrogate	130%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
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	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	*22.7*		*ug/L*		*114*	*50-140*			
Surrogate: Terphenyl-d14	*22.7*		*ug/L*		*114*	*50-140*			

Certificate of Analysis

Client: LRL Associates Ltd.

Client PO:

Report Date: 20-Apr-2023

Order Date: 17-Apr-2023

Project Description: 220487

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	0.51	0.5	ug/L	0.52			2.5	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	49.0	1	ug/L	51.0			3.9	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	29	10	ug/L	30			1.3	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	1.84	0.5	ug/L	1.86			1.2	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	0.80	0.5	ug/L	0.85			5.5	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	70000	200	ug/L	75800			7.9	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	0.4	0.1	ug/L	0.4			5.2	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	ND	5	ug/L	ND			NC	20	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Arsenic	52.1	1	ug/L	ND	103	80-120			
Barium	91.0	1	ug/L	51.0	80.2	80-120			
Beryllium	43.5	0.5	ug/L	ND	87.0	80-120			
Boron	68	10	ug/L	30	76.7	80-120			QM-07
Cadmium	44.9	0.1	ug/L	ND	89.8	80-120			
Chromium	51.4	1	ug/L	ND	102	80-120			
Cobalt	48.0	0.5	ug/L	ND	95.9	80-120			
Copper	45.1	0.5	ug/L	1.86	86.4	80-120			
Lead	41.6	0.1	ug/L	ND	83.2	80-120			
Molybdenum	43.5	0.5	ug/L	0.85	85.4	80-120			
Nickel	49.9	1	ug/L	ND	98.2	80-120			
Selenium	45.5	1	ug/L	ND	90.0	80-120			
Silver	44.2	0.1	ug/L	ND	88.5	80-120			
Sodium	9980	200	ug/L	ND	99.8	80-120			
Thallium	42.6	0.1	ug/L	ND	85.2	80-120			
Uranium	44.9	0.1	ug/L	0.4	89.0	80-120			
Vanadium	53.7	0.5	ug/L	ND	107	80-120			
Zinc	44	5	ug/L	ND	83.2	80-120			
Semi-Volatiles									
Acenaphthene	4.08	0.05	ug/L	ND	81.7	50-140			
Acenaphthylene	3.62	0.05	ug/L	ND	72.4	50-140			
Anthracene	3.88	0.01	ug/L	ND	77.6	50-140			
Benzo [a] anthracene	4.39	0.01	ug/L	ND	87.9	50-140			
Benzo [a] pyrene	4.89	0.01	ug/L	ND	97.7	50-140			
Benzo [b] fluoranthene	4.72	0.05	ug/L	ND	94.4	50-140			
Benzo [g,h,i] perylene	3.41	0.05	ug/L	ND	68.2	50-140			
Benzo [k] fluoranthene	5.20	0.05	ug/L	ND	104	50-140			
Chrysene	5.22	0.05	ug/L	ND	104	50-140			
Dibenzo [a,h] anthracene	3.63	0.05	ug/L	ND	72.7	50-140			
Fluoranthene	3.76	0.01	ug/L	ND	75.2	50-140			
Fluorene	4.10	0.05	ug/L	ND	82.0	50-140			
Indeno [1,2,3-cd] pyrene	3.55	0.05	ug/L	ND	71.0	50-140			
1-Methylnaphthalene	5.39	0.05	ug/L	ND	108	50-140			
2-Methylnaphthalene	5.57	0.05	ug/L	ND	111	50-140			
Naphthalene	4.68	0.05	ug/L	ND	93.5	50-140			
Phenanthrene	3.95	0.05	ug/L	ND	79.1	50-140			
Pyrene	3.87	0.01	ug/L	ND	77.5	50-140			
Surrogate: 2-Fluorobiphenyl	*21.0*		*ug/L*		*105*	*50-140*			
Surrogate: Terphenyl-d14	*22.3*		*ug/L*		*111*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Sample - Filtered and preserved by Paracel upon receipt at the laboratory - metals

Applies to samples: MW23-3

Sample - ICP-MS Metals not submitted according to Reg. 153/04, Amended 2011 - not field filtered and preserved

Applies to samples: MW23-3

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

PARACEL LABORATORIES LTD

Paracel ID: 2316082

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only) № 69848

Client Name: LRL	Project Ref: 220487	Page 1 of 1
Contact Name: Jessica Arthurs	Quote #:	Turnaround Time
Address: 5430 Canotek Road Ottawa, ON K1J 9G2	PO #:	☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular
Telephone: 613 842 3434	E-mail: jarthurs@lrlca	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	PAH	ICP Metals									
1	MW23-3	GW		2	April 17/23	12:00 pm	X	X									✓
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments: Metals not filtered - Rinsed in field

Method of Delivery: Walk in

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Jessica Arthurs	Date/Time:	Date/Time: Apr 17/23 1pm	Date/Time: Apr 17/23 1326
Date/Time: 2023.04.17 12:58 pm	Temperature: °C	Temperature: 8.6 °C	pH Verified: ☐ By: