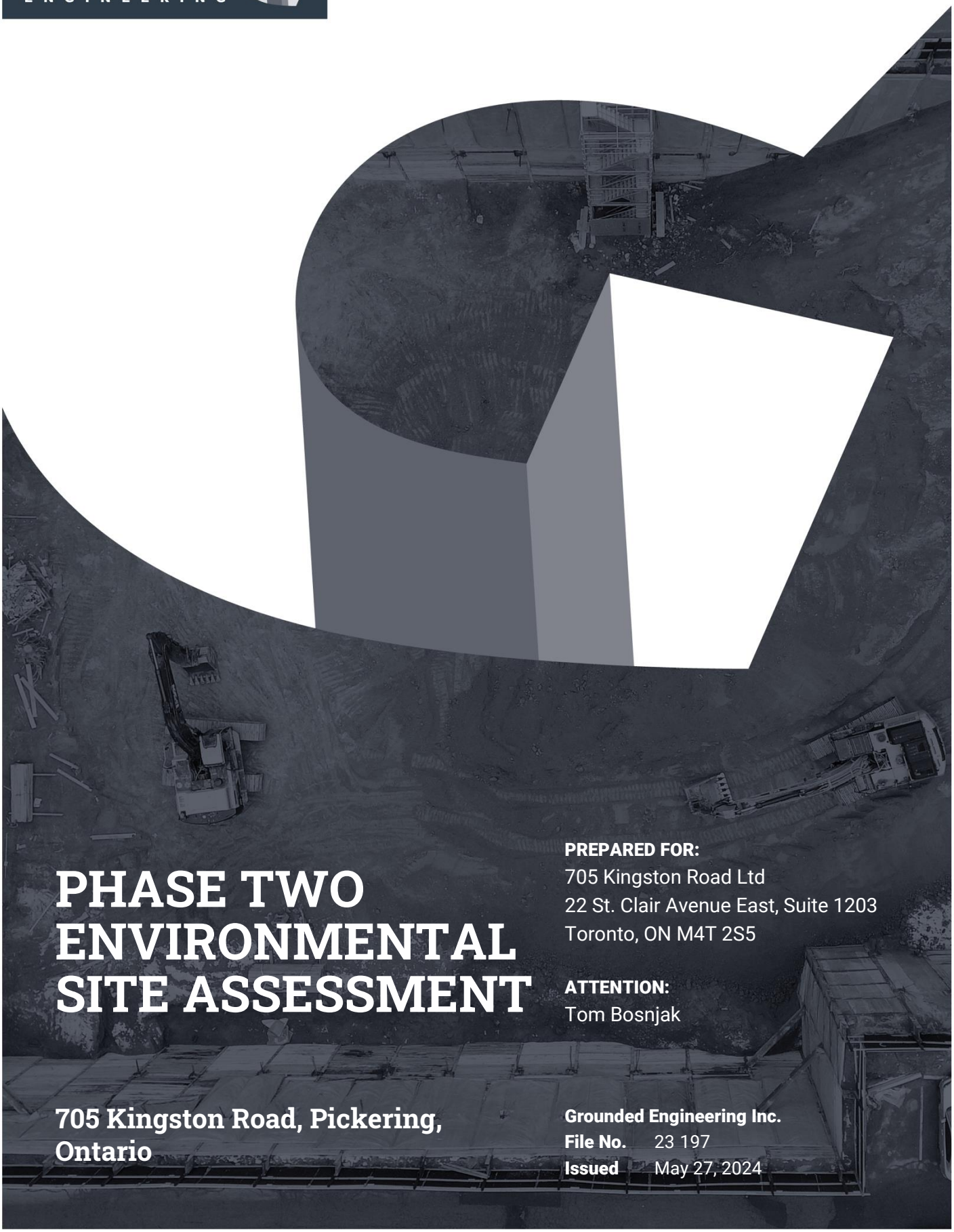


PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

PREPARED FOR:
705 Kingston Road Ltd
22 St. Clair Avenue East, Suite 1203
Toronto, ON M4T 2S5

ATTENTION:
Tom Bosnjak

705 Kingston Road, Pickering, Ontario

Grounded Engineering Inc.
File No. 23 197
Issued May 27, 2024

1 Banigan Drive, Toronto ON M4H 1G3 | (647) 264-7909 | groundedeng.ca | Grounded Engineering

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1 Executive Summary

705 Kingston Road Ltd retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located at 705 Kingston Road, Pickering, Ontario (Property). The Phase Two ESA was conducted to investigate the Areas of Potential Environmental Concern (APECs) that have been identified on the Property. The results of the Phase Two ESA are summarized below:

Applicable Site Condition Standards	MECP Table 2 RPI MF

Soil Contaminants of Potential Concern (CoPCs) Investigated	The following CoPCs were investigated in soil:
	• Metals (M)
	• Hydride-forming Metals (H-M)
	  ○ Arsenic (As), Selenium (Se), Antimony (Sb)
	• Other Regulated Parameters (ORPs)
	  ○ B-HWS, CN-, EC, SAR, Cr(VI), Hg
	• Polycyclic Aromatic Hydrocarbons (PAHs)
	• Petroleum Hydrocarbons (PHCs)
	• Volatile Organic Compounds II - Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
	• Volatile Organic Compounds I (VOCs)
	The following parameter was investigated in soil for due diligence purposes:
	• pH

Groundwater CoPCs Investigated	The following CoPCs were investigated in groundwater:
	• ORPs
	  ○ Cl-
	• Sodium (Na)
	• PAHs
	• PHCs
	• BTEX
	• VOCs
	The following parameters were investigated in groundwater for due diligence purposes:
	• M
	• H-M
	• ORPs:
	  ○ Cr(VI), CN-, Hg

Applicable Site Condition Standards Met for Soil? (Yes/No)	Yes
Applicable Site Condition Standards Met for Groundwater? (Yes/No)	Yes

A Record of Site Condition (RSC) can be filed for the Property at this time as no exceedances of the applicable SCS were identified in the fill materials, native soils or groundwater.

2 Introduction

2.1 Site Description

705 Kingston Road Ltd retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located at 705 Kingston Road, Pickering, Ontario (Property). The Phase Two ESA was conducted to investigate the Areas of Potential Environmental Concern (APECs) that have been identified on the Property. The site location is presented in Figure 1.

The Property is irregular in shape, with a total area of 2.7317 ha (27,317 m^2). The Property is bounded by Kingston Road to the North, Whites Road to the West and Highway 401 to the South. The Property is currently developed as a commercial plaza with a multi-tenant commercial building, and a standalone commercial restaurant building, with associated at-grade asphalt parking lot across the central portion of the Property. The Phase Two ESA has been prepared to support a Record of Site Condition and in accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

2.2 Property Ownership

The Property information is provided below:

Municipal Address	705 Kingston Road, Pickering, Ontario L1V 6K3
Legal Description	PT LT 28 RANGE 3 CON BROKEN FRONT PTS 1, 2, 3, 4 & 5, 40R9869 EXCEPT PARTS 1, 2 AND 3 PLAN DR1379833; S/T PTS 3 & 4 40R9869 AS IN LT312559; T/W PT LT 28 RANGE 3 CON BROKEN FRONT PTS 9 & 10, 40R9869 AS IN LT312559; T/W PT LT 28 RANGE 3 CON BROKEN FRONT PT 7, 40R9869 AS IN LT312559 ; S/T LT301696,LT301697; CITY OF PICKERING
PIN(s)	26317-0181 (LT)
Current Land Use	Commercial
Property Owner Information	705 Kingston Road Ltd.
Person who has engaged the Qualified Person to conduct the Phase One ESA	Tom Bosnjak tbosnjak@resident.ca 22 St. Clair Avenue East, Suite 1203 Toronto ON, M4T 2S5

2.3 Current and Proposed Future Uses

The Property is considered to be in Commercial land use as defined by the Ontario Ministry of the Environment, Conservation and Parks (MECP) O.Reg 153/04.

It is understood that the Phase Two Property will be developed with multiple mid- to high-rise towers resting on up to two (2) levels of underground parking. There will be a proposed parkland dedication in the northeast corner of the Property (approx. 2,536 m^2) and a proposed road widening along the eastern side of the Property that will be conveyed to the City of Pickering. The Property will be considered to be in Residential land use as defined by the O.Reg 153/04.

2.4 Applicable Site Condition Standard

The applicable Site Condition Standard for the Phase Two Property is determined to be the Table 2 Site Condition Standard for Residential/Parkland/Institutional in potable groundwater condition for medium to fine textured soil due to the following reasons:

Current Land Use	Commercial
Future Land Use	Residential
Soil Texture	Medium to fine textured based on grain size analysis performed on the soil (Appendix E)
Potable Water Source	Municipal service/municipal water supply from regional groundwater supply wells
Bedrock Depth	Bedrock is located at a depth of greater than 2 m
Property located within 30 m of a surface water body (Yes/No)	No
Property located in or adjacent to a provincial park or an Area of Natural Significance (Yes/No)	No

3 Background Information

3.1 Physical Setting

The Ministry of Natural Resources and Forestry (MNRF) and Ministry of Energy, Northern Development and Mines (MENDM) database were searched to obtain topographic and geological maps of Ontario for review. The information obtained are summarized below:

Records	Information
Topographic Maps	The approximate elevation of the Property ranges from 105 masl in the northwest, sloping down to 98 masl in the southeast.
Hydrology	The nearest body of water is Amberlea Creek, located approximately 160 m northeast of the Property and runs southeast toward Frenchman's Bay. Frenchman's Bay is located approximately 1.2 km east of the Property. Lake

Records	Information
	Ontario is located approximately 1.6 km southeast of the Property and is connected to Frenchman's Bay via a small channel. Based on the topography of the Property, surface water is anticipated to flow southeast toward the nearest catch basin. Based on the locations and drainage patterns of Amberlea Creek and Frenchman's Bay, regional groundwater is inferred to flow to the southeast.
Geological Maps	Overburden: The overburden on the Property is comprised of stone-poor, sandy silt to silty sand textured till. Bedrock: The bedrock beneath the Property is part of the Blue Mountain Formation, which is comprised of shale, limestone, dolostone and siltstone. Depth to Bedrock: Based on the well record for well ID # 4601906, located south of the Property, bedrock was encountered at approx. 28 mbgs and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property. Bedrock was not encountered during the EXP or Cambium investigations.

Maps from MNRF were reviewed to determine if water bodies were present on the Property and within the Study Area. The Ontario Ministry of Natural Resources National Heritage Information Centre database for Areas of Natural or Scientific Interest (ANSIs) was also reviewed as part of the Phase Two ESA. The information is summarized below:

Water Bodies	Property: • No water bodies are located on the Property. Study Area: • Amberlea Creek is located within the Study Area, approximately 160 m northeast of the Property.
Wetlands	Property: • No Provincially Significant, Non-Provincially Significant, and Unevaluated wetlands are located on the Property. Study Area: • No Provincially Significant, Non-Provincially Significant, and Unevaluated wetlands are located within the Study Area.
ANSIs	Property: • None of the following ANSIs were located on the Property. Study Area: • None of the following ANSIs were located within the Study Area. List of ANSIs reviewed: ▪ An area reserved or set apart as a provincial park or conservation reserve under the Provincial Parks and Conservation Reserves Act, 2006.

	▪ An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance. ▪ A wetland identified by the Ministry of Natural Resources as having provincial significance. ▪ An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant. ▪ An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the Niagara Escarpment Planning and Development Act. ▪ An area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species. ▪ An area which is habitat of a species that is classified under section 7 of the Endangered Species Act, 2007 as a threatened or endangered species. ▪ Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the Oak Ridges Moraine Conservation Act, 2001 applies. • An area set apart as a wilderness area under the Wilderness Areas Act.

The Areas of Natural Significances (ANSIs) and water bodies on or adjacent to the Property is shown in Figure 2, if present.

3.2 Past Investigations

Title and File No.	Final Phase I Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: BRM-00011934-C0
Report Date	December 18, 2014
Prepared By	exp Services Inc.
Prepared for	Valiant Rental Inc.

Description of Data, Analysis or Findings	• The Phase I ESA was completed for due diligence purposes, to support the potential purchase of the Property.
	  ○ The original Phase I ESA report conducted by exp in 2011 was not provided for review.
	• The Phase I ESA was generally completed in accordance with CSA Standard Z768-01.
	• At the time of the site inspection completed on December 9, 2014, the Property was occupied by two (2) commercial buildings, one occupied by a restaurant and the other is a multi-tenant commercial building divided into 28 units.
	  ○ The restaurant building was occupied by Lone Star Restaurant, and the multitenant building was occupied by the following retailers:
	  ▪ Stag Shop, China One Restaurant, Arts Plus, Chick'n Joy, Pizza Pizza, Tanning Salon, Red House Thai Restaurant, 1st Choice Haircutters, Popeyes, Dental Office, Violet Blooms, M&M's Meat

	Shop, Belaggio's, LCBO, Party Depot, The Source, Henry's Photo, SAPA Nail Salon, Subway, Convenience Store and The Beer Store. ○ It was noted that the commercial buildings on the Property were constructed in 1988. ○ Both buildings on the Property were reportedly heated by a natural gas-fired HVAC unit. • The report identified the following APEC causing PCAs: ○ Historical and current gas station present 60 m west of the Property at 698 Kingston Road since at least 1983. The facility reportedly had 5 USTs. ○ Historical and current gas station located at 704 Kingston Road, 35 m north of the Property. The site was occupied by Esso Imperial Oil in 1994 and was occupied by a Petro Canada gas station at the time of the site visit. ○ Active dry-cleaning facility was present at 726 Kingston Road 35 m north of the Property, noted during the site visit. Property listed as a generator of halogenated solvents from 2007 to 2014. ○ Historical and current car dealership present at 715 Kingston Road, adjacent to the east of the Property, and has occupied this site since at least 1988. • No on-site APECs were noted. • The Phase I ESA referenced a Phase II ESA conducted by exp in 2011. It was noted that the Phase II ESA investigation involved the sampling and analysis of groundwater from one monitoring well. The remaining two monitoring wells installed were found to be dry. Therefore, it was concluded that the groundwater quality on the northern portion of the Property remained uncertain and the current groundwater quality across the site is unknown. • Exp recommended that the monitoring wells installed during exp's 2011 Phase II ESA should be re-assessed and re-sampled to establish current groundwater quality in the areas of potential environmental concern (APECs).

Title and File No.	Phase II Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: BRM-00011934-A0
Report Date	July 11, 2011
Prepared By	exp Services Inc.
Prepared for	Linmar Investment Corporation Limited
Description of Data, Analysis or Findings	• The purpose of the Phase II ESA was for due diligence only, to investigate APECs identified in the Phase I Environmental Site Assessment conducted by exp on April 18, 2011. • The Phase II ESA was generally completed in accordance with CSA Standard Z769-00

	• The Phase II ESA consisted of advancing three (3) boreholes to approximately 6 m depth, all subsequently instrumented with monitoring wells.
	• The following soil samples were submitted for analysis:
	  ○ BH1-S4 → PHC (F1-F4)/BTEX, VOCs
	  ○ BH2-S5 → PHC (F1-F4)/BTEX, VOCs
	  ○ BH3-S2 → pH
	  ○ BH3-S4 → PHC (F1-F4)/BTEX, VOCs
	  ○ BH3-S5 → pH
	• The results of the above listed soil analyses all meet the applicable Site Condition Standards (Table 2 RPI)
	• Groundwater samples collected from BH/MW3 were analyzed for PHCs and VOCs, and met applicable Site Condition Standards (Table 2 RPI)
	  ○ Monitoring wells MW1 and MW2 were dry and therefore not sampled.
	  ○ No evidence of free product was observed during well purging and groundwater sampling.
	• Due to insufficient groundwater elevation data, the direction of groundwater flow was not accurately determined, however based on the local topography and proximity to Frenchman's Bay, it was inferred that the groundwater flow is towards the southeast.
	• Exp concluded due to the non-detect results of PHCs and VOCs in soil and groundwater, no further environmental investigations were warranted at the time
	  ○ **There was insufficient analytical groundwater data collected during the investigation due to the absence of groundwater in select monitoring wells. Therefore, it is Grounded's opinion that further environmental investigation is warranted to determine groundwater flow direction and to sufficiently evaluate the APECs identified.**
	  ○ **Upon Grounded's investigation, monitoring wells were not accessible, and construction details could not be confirmed. Therefore, Grounded will not be relying upon the monitoring well data and has chosen to exclude the analytical data collected as part of the exp Phase II ESA.**

Title and File No.	Final Phase I Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: 12699-001
Report Date	April 1, 2021
Prepared By	Cambium Inc.
Prepared for	Valiant Rental Properties Limited
Description of Data, Analysis or Findings	• The Phase I ESA was completed to support the potential purchase of the Property. • The Phase I ESA was generally completed in accordance with CSA Standard Z768-01.

- At the time of the site inspection completed on March 25, 2021, the Property was occupied by two (2) commercial buildings; one (1) slab on grade multi-tenant commercial building, and one (1) standalone single storey commercial building.
    - The standalone commercial building was occupied by Lonestar Restaurant, and the multi-tenant commercial building was occupied by the following:
        - One Plant Pickering, Milanu's Tandoori Grill, The Great Canadian Bagel, Chicken Joy, Retro Burger, Pizza Pizza, Red House Thai and Malaysian Cuisine, Scotia Bank, First Choice Hair Cutters, Popeye's Supplements, Dental Office, Violet Bloom Fresh Flowers, M&M Food Market, Belaggio's Gelato, LCBO, Pet Valu, Wimpy's Diner, Spa Nails Salon, Convenience King, Subway, The Beer Store, five (5) additional vacant units, a maintenance room and an electrical room
    - It was noted that the site Custodian Supervisor provided access to five (5) vacant units, maintenance, and electrical rooms within the multi-tenant commercial building, however the remaining units and the standalone commercial building were not accessed during the visit.
    - It was reported that both buildings on the Property were originally constructed in 1988.
    - No evidence of ASTs or USTs were observed during the site visit.
    - Both buildings were reportedly heated by a natural gas-fired HVAC unit.
    - Three grease disposal bins were noted to be observed on site: two (2) located south of the western portion, and one (1) located south of the eastern portion of the multi-tenant commercial building.
        - Small, localized staining was observed around the base of the two grease disposal bins located south of the western portion of the multi-tenant commercial building.
    - A pad-mounted transformer was observed along the northern Property boundary, northeast of the standalone restaurant building. The transformer was observed to be mounted on a competent concrete pad, with no staining on the pad or the surrounding area.
        - **Response from Elexicon Energy identified the transformer was manufactured in 2014 and does not contain PCBs in the oil.**
        - No records of PCBs were identified at the Site in the ERIS report.
- The report identified the following APEC causing PCAs:
    - Current and historical retail fuel outlets, with documented spills, 50 m and 75 m west/northwest of the Property (704 Kingston Road and 698 Kingston Road)
    - Automotive service station at the property adjacent to the east
    - Historical fuel spills within the adjacent roadways
        - No additional information (addresses, distances, directions, etc.) was provided, however Grounded believes these are the listings noted per Section 4.2.1 of Grounded's Phase One ESA report, and PCAs are noted in that section.
    - Current and historical operation of a dry-cleaning facility 45 m northwest of the Property (726 Kingston Road)
- Multiple spills listed for adjacent roadways, however due to expected clean-up efforts and down-gradient location of spills along Highway 401, these were considered to be low risk for the Property.

	• A Sketchly cleaners was identified on the Property in the 1990 COPE Report, however it was identified in this report as a **dry-cleaning depot** only, and not considered a PCA for the Property.
	  ○ The industry code for the business is identified as: 722 – Laundries, Drycleaners, Dyers
	  ○ The occupancy for the business is identified as: 5144A – DRY CLEANERS DEPOT ONLY
	  ○ The location is noted to be in Unit 11 of the shared commercial building, with an area of 79 m^2 (approx. 1.4% of the total building area)
	• No on-site APECs were noted.
	• It was noted that due to the Covid-19 pandemic, the city directories for the Property were inaccessible through the National Library and Archives as the office was closed indefinitely.
	  ○ Digital City Directories were searched through Toronto Public Library, however the attached documents note that due to Covid-19, access to the information sources for the search had been prohibited, and additional measures were taken to provide accurate information wherever possible, however some searches still yielded no results.
	• Cambium recommended a Phase II Environmental Site Assessment to evaluate the soil and groundwater quality at the site, based on the above identified APEC causing PCAs.
	• Cambium also recommended a designated substance survey to be completed prior to renovation/demolition of the site buildings due to the age of the construction and the potential for the presence of designated substances (e.g. asbestos, lead).

Title and File No.	Phase II Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: 12699-001
Report Date	June 25, 2021
Prepared By	Cambium Inc.
Prepared for	Valiant Rental Properties Limited

Description of Data, Analysis or Findings	• The Phase II ESA was completed for due diligence purposes only, to investigate APECs identified in the Phase I Environmental Site Assessment conducted by Cambium on April 1, 2021.
	• The Phase II ESA was generally completed in accordance with CSA Standard Z769-00
	• The Phase II ESA consisted of advancing four (4) boreholes, all subsequently instrumented with monitoring wells.
	  ○ Three boreholes (BH101, BH102, BH104) advanced to 6.7 mbgs
	  ○ One borehole (BH103) advanced to 4.5 mbgs
	• During the installation of the monitoring well for BH101, the borehole caved from 6.7 mbgs to 5 mbgs. The well was subsequent installed at a higher elevation and was observed dry during the following monitoring events.

	• Groundwater levels ranged from 1.70 to 3.99 mbgs on June 8, 2021 (BH102 to BH104), BH101 was dry.
	  ○ Groundwater flow direction was inferred to be south to southeast
	• Four (4) soil samples (1 per borehole) and three (3) groundwater samples were analyzed for the COPCs identified in the Cambium Phase I ESA Report (PHCs, BTEX, VOCs)
	  ○ All soil and groundwater sample results met the applicable Site Condition Standards (Table 2 RPI).
	• Cambium recommended the following work for the Property:
	  ○ When no longer required, all monitoring wells should be abandoned as per the requirements of R.R.O. 1990 Regulation 903 – Wells.
	  ○ Soil cuttings and purge water are considered inert and can be disposed on the Property, and in accordance with the regional sewer use by-law, and the drums recycled. Alternatively, Cambium noted that they could arrange for the drum removal from the site.
	• **For the purpose of this Phase Two Environmental Site Assessment, only select boreholes and monitoring wells installed during the Cambium 2021 Phase II Environmental Site Assessment will be relied upon.**
	  ○ **Grounded is relying upon the borehole data for stratigraphic purposes and monitoring well construction data.**
	  ○ **Grounded is relying upon the soil analytical data for boreholes CMB-BH101-21, CMB-BH102-21, CMB-BH103-21, CMB-BH104-21.**
	  ○ **Groundwater quality data collected in CMB-BH104-21 will <u>not</u> be relied upon as the well is screened across multiple units (fill, an apparent 0.61 m thick buried concrete slab, and native sandy silt). The well is likely being infiltrated and influenced by surface water, and therefore is not representative of the groundwater quality conditions at the Property. It is therefore not possible to confirm the stabilized groundwater table at this location.**
	  ○ **All other monitoring wells will be relied upon for groundwater level monitoring data and groundwater quality data.**

Title and File No.	Phase One Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: 23-197
Report Date	March 5, 2024
Prepared By	Grounded Engineering Inc.
Prepared for	705 Kingston Road Ltd
Description of Data, Analysis or Findings	• The Phase One ESA was completed to support a Record of Site Condition, and in accordance with Ontario Regulation 153/04 (O.Reg. 153/04). • At the time of the site inspection completed on September 27, 2023, the Property was operating as a shared commercial plaza, including two buildings: a multi-tenant commercial building and a separate standalone Lone Star restaurant.

	○ At-grade asphalt parking lot if present in the central area of the Property, surrounding both commercial buildings, and a laneway on the south portion of the Property for access to the rear of the multi-tenant building. ○ Small air-cooled transformers were observed in the interior utility rooms within each of the accessed commercial units within the multi-tenant building, as well as the standalone restaurant. ○ Exterior pad-mounted transformer vault is present on the northern portion of the Property at the northeast corner of the standalone restaurant building. ▪ **A response was received from Cam Tran Co. Ltd., the manufacturer of the transformer on the Property, confirming the findings from the 2021 Cambium Phase I ESA report. It was confirmed that the transformer was manufactured in 2014 and does not have PCB-containing oil.** ○ Three (3) above ground waste cooking/food oil tanks were observed on the south side of the multi-tenant building. These tanks are used for storage of used cooking/food oil and are emptied approximately bi-weekly. ○ Multiple restaurants were observed to have small metal drums (approx. 55 gallons) on the south side of the multi-tenant building for storage of used cooking/food oil. According to restaurant owners on the Property, these drums are typically picked up and disposed of once a week. ○ Both buildings were reportedly heated by a natural gas-fired HVAC unit. ○ No evidence of current or historical USTs on the Property. • The Property is categorized as an Enhanced Investigation Property, because based on records and interviews, a historical dry cleaner was located in unit #2 of the multi-tenant commercial building for 15 – 20 years, until 2006 – 2007. • The report identified the following APEC causing PCAs: ○ Historical importation of fill of unknown quality for minor backfilling/grading, etc. across the Property during construction of the buildings in the mid to late 1980s. ○ Application of salt to surfaces of the associated at-grade parking lot and the sidewalks on and adjacent to the Property for safety of vehicular and pedestrian traffic under conditions of snow or ice or both. ○ Historical presence of a dry cleaner in unit #2 of the multi-tenant commercial building until 2006 – 2007. ○ Existing pad-mounted transformer observed on the north side of the Property. ○ Several minor spill events as well was a spill of 300 L of gasoline onto the asphalt at the intersection of Whites Road and Kingston Road approximately 47 m west of the Property. ○ Historical and existing car dealership with associated service shop, attached Fix Auto collision repair shop and used oil AST identified at 715 Kingston Road, approximately 52 m northeast of the Property. ○ Historical dry-cleaning facility identified at 734 Kingston Road, approximately 55 m north of the Property. ○ Historical dry-cleaning facility identified at 726 Kingston Road, approximately 65 m northwest of the Property.

	○ Historical and existing gas station with three (3) USTs identified and multiple gasoline spill events recorded at 704 Kingston Road, approximately 69 m northwest of the Property. ○ Historical autobody shops and existing gas station with nine (9) USTs identified on site, as well as multiple minor spill events recorded at 698 Kingston Road, approximately 133 m west of the Property. • The report identified the following Contaminants of Potential Concern associated with the above PCAs, to be assessed in the Phase Two Environmental Site Assessment: ○ M, H-M, Select ORPs, PAHs, PHCs, BTEX, VOCs, in soil ○ Select ORPs, PAHs, PHCs, BTEX, VOCs in groundwater

The PCAs and APEC locations are provided in Figure 2 and Figure 3, respectively.

4 Scope of the Investigation

4.1 Overview of Site Investigation

The scope of the Phase Two ESA is as follow:

Boreholes and Monitoring Wells	**Cambium Investigation (2021):** • Advancing of three (3) boreholes to depths of approximately 6.7 m below ground surface (mbgs) • Advancing of one (1) borehole to a depth of 4.5 mbgs • Installation of four (4) monitoring wells **Grounded Investigation (2023):** • Advancing of one (1) borehole to a depth of approximately 21 mbsg • Advancing of four (4) boreholes to depths of approximately 15 mbgs • Advancing of one (1) borehole to a depth of approximately 6.7 mbgs • Installation of six (6) monitoring wells, and three (3) shallow nested monitoring wells • Decommissioning of the four (4) deeper monitoring wells due to high methane levels. **Grounded Investigation (2024):** • Collection of two (2) discrete samples at depths of approximately 0.3 mbgs around the existing transformer • Advancing of two (2) boreholes to depths of approximately 9.4 to 10.9 mbgs • Advancing of one (1) borehole to a depth of approximately 6.2 mbgs • Installation of three (3) monitoring wells
Parameters Investigated for Soil	**Cambium Investigation (2021):** • Petroleum Hydrocarbons (PHCs) • Volatile Organic Compounds II – Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

	• Volatile Organic Compounds I (VOCs)
	Grounded Investigation (2023 & 2024):
	• Metals
	• Hydride-forming Metals
	  ○ As, Sb, Se
	• Other Regulated Parameters
	  ○ B-HWS, Cr(VI), CN-, EC, Hg, SAR
	• Polycyclic Aromatic Hydrocarbons (PAHs)
	• Petroleum Hydrocarbons (PHCs)
	• Volatile Organic Compounds II – Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
	• Volatile Organic Compounds I (VOCs)

Parameters Investigated for Groundwater	**Cambium Investigation (2021):**
	• PHCs
	• BTEX
	• VOCs
	Grounded Investigation (2023)
	• M
	• H-M
	  ○ Sb, As, Se
	• ORPs
	  ○ Cr(VI), CN-, Hg, Cl-
	• Sodium (Na)
	• PAHs
	• PHCs
	• BTEX
	• VOCs
	Grounded Investigation (2024)
	• ORPs
	  ○ Cl-
	• Sodium (Na)
	• PHCs
	• BTEX
	• VOCs

• Eleven (11) soil samples were submitted for grain size analysis and soil classification. • All boreholes and monitoring wells were surveyed to a geodetic benchmark. • All new monitoring wells were developed prior to sampling. Existing EXP and Cambium monitoring wells were not developed, nor sampled during the Phase Two investigation. • Groundwater level measurements were conducted in all accessible monitoring wells to determine groundwater elevation on the Property	

4.2 Media Investigated

4.2.1 Rationale for Exclusion and Inclusion of Media

Media	Included/Excluded	Rationale
Soil	Included	Based on the Phase One ESA, soil sampling was required to investigate the CoPCs related to the identified APECs.
Sediment	Excluded	Surface water bodies were not presented on the Property. No sediment sampling was conducted during the Phase Two ESA.
Groundwater	Included	Based on the Phase One ESA, groundwater sampling was required to investigate the CoPCs related to the identified APECs.
Surface Water	Excluded	Surface water bodies were not presented on the Property. No surface water sampling was conducted during the Phase Two ESA.

4.2.2 Overview of Field Investigation of Media

Soil sampling was conducted during the drilling investigation. Groundwater sampling was conducted from the new monitoring wells installed at the Property. Existing monitoring wells at the Property were not included in the sampling program. Soil and groundwater results from investigations carried out by previous consultants have been included in Tables 2 to 9.

4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model (CSM) prepared as part of the Phase One ESA report is provided in Appendix A.

4.4 Deviations From Sampling and Analysis Plan

Deviations to the Sampling and Analysis Plan were as follows:

- A utility (water main) was hit during the 2023 Grounded drilling investigation. The water main was struck while drilling the shallow nested well for BH103 in the southeast corner of the Property, where the utility was not marked out. Due to this unforeseen event during drilling, BH103-D was left in place during the repairs and renamed BH103.
    - To supplement the need for a shallow well in this portion of the Property, BH106 was drilled at a new location to the north of BH103. Soil samples were collected at both BH103 and BH106.
- A monitoring well was installed in Borehole 103 (BH103) to assess APECs 2, 3, 5 and 6 on the Property, per the intended Sampling and Analysis Plan. However, the monitoring well

was dry, and there was insufficient recovery time prior to being decommissioned due to elevated methane concentration readings.
    - To supplement the need for groundwater assessment in the southeast corner of the Property, Borehole 106 was installed, and groundwater was sampled to adequately assess these APECs.
- No intrusive investigation was conducted within the footprint of the location of the former dry cleaner (Unit 2), due to space restrictions and the current use of this unit as an active restaurant.
    - The limited access equipment and tools required to drill within a confined space (such as the south portion of Unit 2) are unable to advance to the required depth to reach the groundwater table.
    - As such, BH201 and BH202 were advanced directly outside of the footprint of the building to investigate APEC 3 and associated CoPCs. The lack of background information available for this dry cleaner was supplemented by conservatively expanding the area of APEC 3 to incorporate boreholes/monitoring wells located downgradient from the location of the former dry-cleaning unit.
    - BH202 was advanced directly adjacent to the south of Unit 2 to investigate the area in closest proximity to where dry cleaning equipment would typically be located. Additionally, storage and handling of materials would occur behind the unit.
        - Therefore, this location is considered an adequate assessment of where the maximum concentrations of CoPCs for APEC 3 would be located.
- A monitoring well was installed in Borehole 201 (BH201), in front of Unit 2 of the multi-tenant commercial building to assess APEC 3 (historical dry-cleaning activities), per the intended Sampling and Analysis Plan. However, the monitoring well was dry, despite being screened below the inferred groundwater table at the Property in that portion of the Property and screened at the same depth/elevation as the nearest monitoring well (BH105-S) located approx. 17 m upgradient from BH201. Therefore, a groundwater sample was not collected within BH201. It is the opinion of the Qualified Person that APEC 3 has been adequately assessed in accordance with O.Reg. 153/04 for the following reasons:
    - The soil in this location was analyzed for the CoPCs identified for APEC 3. Based on field screening (TOV) measurements, and visual and olfactory examination of all soil samples within Borehole 201, the “worst case” soil samples (BH201-SS2, BH201-SS5, BH201-SS8) were submitted for VOC laboratory analysis.
        - All soil samples collected in this location met the applicable Site Condition Standards.
        - As the soil samples met the applicable SCS, it is unlikely that leaching of the CoPCs through the overburden and into the groundwater table has occurred.
    - Both soil and groundwater were analyzed for the CoPCs identified for APEC 3 in the location of BH105 (upgradient from BH201).

        - All soil and groundwater samples collected in this location met the applicable Site Condition Standards.
    - The soil and groundwater in the location of BH202 (behind Unit 2 of the multi-tenant commercial building, the location of the historical dry cleaning activities) were sampled to assess APEC 3 downgradient from the potential source of CoPCs.
        - All soil and groundwater samples collected in this location met the applicable Site Condition Standards.
    - All soil and groundwater analyzed in boreholes/monitoring wells installed in downgradient locations from the historical dry-cleaning facility in Unit 2 of the multi-tenant building (BH101, BH102S/D, BH103, BH106, BH202, BH203) met the applicable Site Condition Standards.

Despite the deviations listed, the sampling completed to date and overall quality of the field data was considered by the Qualified Person to meet the objectives of the investigation and assessment.

It is the QPs opinion that the Property has been adequately assessed and the maximum concentrations were identified and delineated. The Sampling and Analysis Plan is provided in Appendix B.

4.5 Impediments

Impediments to the Phase Two ESA were identified during the groundwater sampling program. It was noted that when opening the monitoring wells, the J-plugs in several of the wells were pressurized and appeared to be “popping”. An RKI Eagle 2 gas monitor was calibrated for methane and brought to site to collect readings from each of the newly installed wells. The first round of methane gas monitoring was carried out on October 18, 2023. It was observed that two (2) of the deeper wells had methane levels above the lower explosive limit (LEL = 50,000 ppm) and one (1) of the deeper wells had methane levels above 10% LEL (5,000 ppm).

Subsequent monitoring was carried out between October 19, 2023 and January 5, 2024 dates. The additional monitoring indicated that there were four (4) deeper wells which had levels above 10% LEL.

Per the MECP D-4-1 Guideline, methane concentrations above 10% LEL or 5,000 ppm are considered hazardous to human health. Monitoring wells with sustained levels of methane above the 10% LEL threshold were subsequently decommissioned on October 23, 2023. Decommissioned wells installed as part of Grounded’s 2023 investigation include:

- BH101
- BH103
- BH104-D
- BH105-D

Monitoring wells installed as part of Grounded's 2023 investigation which remain on the Property include:

- BH102-S
- BH102-D
- BH104-S
- BH105-S
- BH106

The monitoring wells installed as part of the Grounded 2024 investigation (BH201, BH202, and BH203) along with existing monitoring wells installed by Exp and Cambium during their previous Phase II ESA investigations have not been decommissioned and remain on the Property.

5 Investigation Method

5.1 General

The Phase Two ESA followed the methods outlined in the Ontario Ministry of the Environment, Conservation, and Parks "Guidance *on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"* (December 1996).

The methods used in the Phase Two ESA did not differ from the associated standard operating procedures. The Standard Field Investigation Protocol is provided in Appendix C.

5.2 Drilling

The Phase Two ESA drilling information is provided below:

Boreholes	**Cambium (2021):** BH101-21 BH102-21 BH103-21 BH104-21 **Grounded (2023):** BH101 BH102-S/D BH103 BH104-S/D BH105-S/D BH106 **Grounded (2024):** BH201 BH202 BH203

	GS1 (discrete grab sample) GS2 (discrete grab sample)
Date of Work	**Cambium (2021):** May 25 & May 31, 2021 **Grounded (2023):** October 10 – 13, 2023 November 1 – 2, 2023 **Grounded (2024):** March 4 – 6, 2024
Name of the Contractor(s)	**Cambium (2021):** Strata Drilling Group **Grounded (2023):** 3D Drilling Inc. **Grounded (2024):** 3D Drilling Inc. Elite Hydro Excavation Inc.
Equipment Used	**Cambium (2021):** Track-mounted drill rig, solid stem augers, direct push sampling equipment **Grounded (2023):** Truck-mounted drill rig, hollow stem augers/mud rotary, split spoon sampling device **Grounded (2024):** Truck-mounted drill rig, hollow stem augers, split spoon sampling device Hydrovac truck
Measures for Cross-contamination Prevention	The split spoon sampling device was washed between each sample to prevent potential cross-contamination
Sampling Frequency	Please refer to the borehole logs in Appendix D for the sampling frequency

The borehole locations are provided in Figure 4.

5.3 Soil – Sampling

5.3.1 Equipment Used

Below is the equipment used during the soil sampling.

- Sampling containers supplied by the laboratories
- Nitrile gloves

- Cooler with ice
- RKI EAGLE 2 gas monitor

5.3.2 Geological Description

The borehole logs in Appendix D provide an overall geological description of each soil sample collected during the 2023 Grounded Phase Two ESA, as well as the 2021 Cambium Phase II ESA. The 2011 EXP borehole logs are not relied upon for stratigraphic information.

5.4 Soil – Field Screening Measurements

Hydrocarbon vapour concentrations were screened in each soil sample, using an RKI Eagle 2 gas monitor. The monitor is calibrated to *n*-hexane prior to field screening as per the calibration procedure outlined by RKI Instruments in *"Eagle 2 Operator's Manual, Part Number:71-0154RK"* released March 12, 2019. The monitor has a range of 0 to 40,000 parts per million (ppm) and an accuracy of +/- 5%

Based on field screening measurements and visual and olfactory examination of all soil samples, selected samples were submitted for petroleum hydrocarbon (PHCs) and volatile organic compounds (VOCs) laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix D.

5.5 Groundwater – Field Measurement of Water Quality Parameters

Water quality parameters including temperature, pH, specific conductivity, total dissolved solids were measured using a YSI water quality sensor prior to sampling.

5.6 Groundwater – Monitoring Well Installation

The Phase Two ESA monitoring well installation information is provided below:

Monitoring Wells	**Cambium (2021):** BH101-21 BH102-21 BH103-21 BH104-21 **Grounded (2023):** BH101* BH102-S BH102-D BH103* BH104-S BH104-D* BH105-S BH105-D* BH106

	Grounded (2024): BH201 BH202 BH203
Date of Work	**Cambium (2021):** May 25 & May 31, 2021 **Grounded (2023):** October 10 – 13, 2023 November 1 – 2, 2023 **Grounded (2024):** March 4 – 6, 2024
Name of the Contractor(s)	**Cambium (2021):** Strata Drilling Group **Grounded (2023):** 3D Drilling Inc. **Grounded (2024):** 3D Drilling Inc. Elite Hydro Excavation Inc.
Equipment Used	**Cambium (2021):** Track-mounted drill rig, solid stem augers, direct push sampling equipment **Grounded (2023):** Truck-mounted drill rig, hollow stem augers/mud rotary, split spoon sampling device **Grounded (2024):** Truck-mounted drill rig, hollow stem augers/mud rotary, split spoon sampling device Hydrovac truck
Measures for Cross-contamination Prevention	The split spoon sampling device was washed between each sample to prevent potential cross-contamination. New well materials were used during install and drilling technicians donned new nitrile gloves to handle well materials prior to install.
Sampling Frequency	No groundwater samples were collected during drilling event.
Well Construction	The wells were constructed with 50 mm (2 in.) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.6 m above the top of the screen. The wells were then backfilled with bentonite to approximately 0.3 m below ground surface (mbgs). The wells were finished with flush mount casings.
Well Development	The newly installed 100-series Grounded monitoring wells were developed on October 16 – 17, 2023 and November 2, 2023. Well development was conducted with an inertial pump. A total volume of 497 L of water was removed during the well development. The newly installed 200-series Grounded monitoring wells were developed on March 7, 2024. Well development was conducted with an inertial pump. A total volume of 19 L of water was removed during the well development.

	Stabilization of parameters (pH, conductivity, temperature, etc.) of the purged water was monitored before a sample was collected to ensure the samples were representative of the formation water.

*Monitoring well decommissioned due to elevated methane readings per R.R.O. 1990, Reg. 903.

The monitoring well locations are provided in Figure 4.

5.7 Groundwater – Sampling

The monitoring wells were purged using an inertial pump and sampled using a peristaltic pump (2023) and a bladder pump (2024). The groundwater was purged before sampling to ensure extraction of representative formation groundwater. Stabilization of water quality parameters of the purged water was monitored before a sample was taken to maintain the equilibrium with the surrounding formation water and produce samples that are representative of the formation water.

Sampling methodology from the Ontario Ministry of the Environment, Conservation and Parks (MECP) *"Guidance on Sampling and Analytical Methods for Use at Contaminated Sites In Ontario"*, MECP *"Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04"* and MECP *"Protocol for Analytical Methods Used in the Assessment of Properties under Par XV.1 of the Environmental Protection Act"* were followed in the collection of the groundwater samples.

5.8 Sediment – Sampling

No sediment sampling was conducted as part of this investigation.

5.9 Analytical Testing

Analytical Testing of all soil and groundwater samples was conducted by ALS Laboratory.

5.10 Residue Management Procedures

Residues from the field investigation were managed accordingly as provided below:

Residues	Management Procedures
Soil Cuttings	Soil cuttings generated during the drilling activities were placed in drums and removed to be disposed offsite by a licensed waste management contractor.
Groundwater	The purged water generated during the well development and groundwater sampling events was disposed of in drums and removed to be disposed offsite by a licensed waste management contractor and registered Authorized Generator Delegate (AGD).
Fluids from Equipment Cleaning	The fluids from cleaning were removed from the Property and disposed by the drilling contractor.

5.11 Elevation Surveying

The elevations of the boreholes on the Property were surveyed to a geodetic benchmark on October 16, 2023, November 3, 2023, and March 6, 2024.

The elevation of each borehole on the Property is presented on the borehole logs in Appendix D.

5.12 Quality Assurance and Quality Control Measures

5.12.1 Containers, Preservation, Labelling, Handling and Chain of Custody

The following laboratory supplied sample containers were used for all sampling conducted on the Property.

<table>
<tr><th rowspan="2">Parameter/Group</th><th colspan="2">Containers</th></tr>
<tr><th>Soil</th><th>Groundwater</th></tr>
<tr><td>Inorganic Parameters:
Chromium hexavalent (CrVI), cyanide (CN-), pH, electrical conductivity (EC)

Soil only: boron, hot water soluble (B-HWS), sodium adsorption ratio (SAR)

Water only: chloride</td><td rowspan="3">250 g soil jar</td><td>500 mL PET
60 mL plastic (CrVI)
120 mL plastic (CN-)</td></tr>
<tr><td>Metals</td><td>250 mL HDPE (Metals)</td></tr>
<tr><td>Mercury (Hg)</td><td>60 mL amber glass (Hg)</td></tr>
<tr><td>Volatile Organic Compounds (VOCs) including benzene, toluene, ethylbenzene, xylene (BTEX) and trihalomethanes (THMs)</td><td rowspan="2">100 g soil jar
2 x 40 mL pre-weighed methanol
5 g soil plug</td><td rowspan="2">2 x 40 mL amber vial (zero headspace)</td></tr>
<tr><td>Petroleum hydrocarbons (PHCs) F1/ BTEX</td></tr>
<tr><td>PHCs (F2-F4)</td><td rowspan="2">100 g soil jar</td><td rowspan="2">2 x 100 mL bottles fill to top of label</td></tr>
<tr><td>Polycyclic aromatic hydrocarbons (PAHs)</td></tr>
<tr><td>Toxicity characteristic leaching procedure (TCLP)</td><td>250 g soil jar</td><td>-</td></tr>
</table>

All sampling containers were equipped with laboratory supplied labels. The labels indicated the following information:

- Sample ID
- Company name
- Date
- Project number

Samples were placed in coolers with ice after collection for transportation to the laboratory. Sample hold times were met for all submitted soil and groundwater samples. Laboratory supplied Chain of Custody forms were completed for all samples submitted for analysis.

5.12.2 Equipment Cleaning Procedures

Equipment	Cleaning Procedures
Soil sampling	Split spoon sampling device was washed between samples to prevent potential cross-contamination.
Groundwater sampling	Water level meter/ water quality monitoring meter was cleaned between monitoring wells.

All other dedicated equipment (nitrile gloves, terracores samplers, tubing) were changed between each sample to avoid cross-contamination.

5.12.3 Field Quality Control Measures and Deviations

For quality control purpose, the following actions were taken:

- At least one (1) duplicate sample is submitted for laboratory analysis for every ten (10) samples submitted for laboratory analysis for each sampled medium.
- Daily calibration of field instruments prior to sampling
- Groundwater trip blanks are used for Quality Assurance purposes for sampling of Volatile Organic Compounds.

No deviations from the quality assurance and quality control measures had occurred.

6 Review and Evaluation

6.1 Geology

Detailed geological information for the Property is presented on the borehole logs in Appendix D. The geology at the Property is summarized below.

Geological Unit Thickness (Estimate)	
Borehole	**BH101 to BH106** **BH201 to BH203** **CMB-BH101-21 to CMB-BH104-21**
	Thickness Range (m)
Earth Fill	0.4 - 2.7
Sandy Silt Till	6.8 - 9.9
Clayey Silt Till	Boreholes terminated in this unit.
Bedrock	Bedrock was not encountered during the investigation. Based on the well record for well ID # 4601906, located south of the Property, the bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property. Bedrock was not encountered during the EXP or Cambium investigations.

Geological Unit Elevations		
Borehole	**BH101 to BH106** **BH201 to BH203**	
	Elev. Top Range (masl)	**Elev. Bottom Range (masl)**
Earth Fill	104.9 – 98.0	104.2 – 95.6
Sandy Silt Till	104.2 – 94.9	95.9 – 89.0
Clayey Silt Till	95.9 – 89.0	Boreholes terminated in this unit.
Bedrock	Bedrock was not encountered during the investigation. Based on the well record for well ID # 4601906, located south of the Property, the bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property. Bedrock was not encountered during the EXP or Cambium investigations.	

6.1.1 Material in Geological Units

Geological Units	Description
Pavement Structure/Surficial Materials	Boreholes 101 to 103, 105 to 106 and 201 to 203 encountered a 25 to 100 mm thick asphalt pavement structure at ground surface. Boreholes 102, 202 and 203 further encountered 15 to 25 mm of aggregate below the asphalt. Borehole 104 encountered a 190 mm thick concrete pavement structure at ground surface. During the Cambium investigation in 2021, all boreholes (CMB-BH101-21 to CMB-BH104-21) encountered a 50 to 150 mm thick asphalt pavement structure at ground surface. Cambium borehole 104-21 encountered a 0.5 m thick concrete structure at a depth of approximately 2.9 m below ground surface.
Earth Fill	Underlying the surficial materials, the boreholes observed a layer of earth fill that extends to depths of 0.8 to 2.3 m below grade (Elev. 104.2 to 95.8 m). The earth fill varies in composition but generally consists of sands and silts with some gravel. It contains brick fragments, asphalt fragments, and rootlets. The earth fill is typically brown and moist. Due to inconsistent placement and inherent heterogeneity of earth fill materials, the relative density of the earth fill varies. Cambium boreholes 102-21 and 104-21 observed a layer of earth fill underlying the surficial materials, that extended to depths of 0.5 to 2.7 m below grade (Elev. 103.1 to 95.6 masl).
Sandy Silt Till	Underlying the fill materials, all the Grounded boreholes encountered an undisturbed native glacial till deposit with a matrix of cohesionless sandy silts. This unit was encountered at depths of 0.8 to 2.3 m below grade (Elev. 104.2 to 95.8 m) and extends down to depths of 9.1 to 10.7 m below grade (Elev. 95.9 to 89.0 m). The sandy silt till generally transitions from brown to grey at a depth of 2 to 3 m. It is moist. It contains occasional seams of silty sandy to sand and rock fragments inferring cobbles. Borehole 106 reached target investigation depth in the sandy silt unit. Standard Penetration Test (SPT) results (N-Values) measured in the sandy silt unit range from 34 to over 50 blows per 300 mm of penetration (“bpf”), indicating a relative density ranging from dense to very dense. All Cambium boreholes encountered a sandy silt unit underlying the surficial materials and/or fill materials. Based on stratigraphical descriptions provided in the 2021 borehole logs, the sandy silt unit appears to be the same composition as the sandy silt till unit defined by Grounded. All Cambium boreholes (CMB-101-21 to CMB-BH104-21) encountered this unit, at depths of 0.1 to 3.4 m below grade (Elev. 99.7 to 94.9 masl). All Cambium boreholes were terminated in this unit.
Clayey Silt Till	Underlying the sandy silt till, Boreholes 101 to 105 encountered an undisturbed native glacial till deposit with a matrix of cohesive clayey silts. This unit was encountered at depths of 9.1 to 10.7 m below grade (Elev. 95.9 to 89.0 m) and extends down to target investigation depths of 15.4 to 21.6 m below grade (Elev. 89.6 to 80.8 m). It is generally grey and moist. Within the clayey silt till, Boreholes 101 to 104 encountered a more plastic silt and clay to clayey silt deposit. This unit was encountered at depths of 13.7 to 15.2 m below grade (Elev. 87.2 to 82.9 m) and extends down to depths of 15.2 to 18.3 m below grade (Elev. 84.8 to 82.3 m). It is generally grey and moist.

Geological Units	Description
	SPT N-values measured in the clayey silt till range from 26 to over 50 bpf (very stiff to hard) while SPT N-values measured in the more plastic silt and clay deposit range from 18 to 49 (stiff to hard).
Bedrock	Bedrock was not encountered during the investigation. Based on the well record for well ID # 4601906, located south of the Property, the bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property. Bedrock is part of the Blue Mountain formation and predominantly consists of shale and limestone.

6.1.2 Properties of Aquifers and Aquitards

Aquifers/Aquitards	Description
Earth Fill	The Earth Fill on the Property is considered to be an unconfined aquifer. The earth fill likely drains into the catch basins onsite or storm water systems adjacent to the Property.
Sandy Silt Till	The Sandy Silt Till on the Property is considered to be an unconfined aquifer, however, due to the composition of this stratum, it is relatively low permeability and will yield minor groundwater seepage only if penetrated below the water table.
Clayey Silt Till	The Clayey Silt Till on the Property is considered to be an unconfined aquifer, however, due to the composition of this stratum, it is relatively low permeability and will yield minor groundwater seepage only if penetrated below the water table.

6.1.3 Rationale for Choice of Aquifers and Aquitards Investigated

The Sandy Silt Till unit, as well as the Clayey Silt Till unit were chosen for investigation. This stratum was chosen for investigation because:

- Possibility of free groundwater present
- The possible location of mobile contamination within the native overburden and lower units
- The likelihood of horizontal and vertical migration of groundwater across the site

6.2 Groundwater: Elevations and Flow Direction

- Three (3) monitoring wells were installed by exp during the 2011 Phase II ESA investigation; however, these monitoring wells were not relied upon for groundwater elevation and flow direction determination.
- Four (4) monitoring wells were installed by Cambium during the 2021 Phase Two ESA investigation, however only two (2) of these monitoring wells (CMB-BH102 and CMB-

BH103) were relied upon for groundwater elevation and flow direction determination (CMB-BH101-21 is dry, CMB-BH104-21 is screened across multiple units)

- Twelve (12) monitoring wells were installed by Grounded Engineering Inc between October 2023 and March 2024.
- Four (4) monitoring wells were decommissioned in October 2023 due to sustained elevated methane levels. All wells that discovered elevated methane levels and were subsequently decommissioned, were all screened in the lower clayey silt till unit.
- The monitoring wells were located within the APECs identified in the Phase One ESA completed by Grounded (dated March 2024) for the Property. Screened intervals of the monitoring wells were selected for the collection of groundwater samples within the desired stratum.

Twelve (12) groundwater level measurements were conducted by Grounded Engineering Inc. in the newly installed monitoring wells using a Solinst interface probe on the following dates:

- October 17, 2023
- October 18, 2023
- October 19, 2023
- October 20, 2023
- October 23, 2023
- November 3, 2023
- November 9, 2023
- December 7, 2023
- January 5, 2024
- February 28, 2024
- March 14, 2024
- April 16, 2024

To calculate the groundwater elevation in the monitoring well, the following calculation was completed:

- *Geodetic Ground Elevation (masl) – Measured Depth to Water Table (m) + Stick up of Well (m) = Groundwater Elevation (masl)*

The groundwater levels are presented in Table 1 and on Figure 5. Groundwater elevations were assessed in both the overlying sandy silt till and underlying clayey silt till units. Groundwater within the monitoring wells screened in the sandy silt till was encountered at a range of 0.2 to 7.3 mbgs (Elev. 100.9 to 97.7 masl). The groundwater in the sandy silt till was determined to flow locally to the east. The maximum groundwater level of 0.2 mbgs (Elev. 100.9 masl) measured in BH203 is considered to be anomalously high in relation to the ground surface in this portion of the Property. However, it should be noted that there is a significant grade change from the west (Elev. 105 masl) to the east (Elev. 98 masl) and the groundwater table within the sandy silt till is observed to follow the sloping topography across the Property.

Groundwater within the monitoring wells screened in the lower clayey silt till was encountered at a range of 3.9 to 14.1 mbgs (Elev. 96.7 to 85.5 masl). This variability in elevation can be attributed to the following items:

- Due to the presence of methane gas, many of the deeper monitoring wells were decommissioned shortly after installation.
- This did not provide the opportunity for the water levels to recover to their full extent given the low permeability of the clayey silt till and therefore slower recharge rates.
- Due to the timing of the decommissioning of the monitoring wells, a complete set of groundwater level measurements could not be collected from the deeper monitoring wells on the same date. As such, groundwater flow direction and the horizontal hydraulic gradient of the clayey silt till could not be determined.

Should the deeper wells have had more time to recover, it is understood that the groundwater levels exhibited would be generally consistent with those in the sandy silt till as evidenced by water levels recorded in BH105-D and BH102-D. As such, the two units are hydraulically connected, and one groundwater table is present at the Property.

Given the natural variability in composition within both glacial till units (i.e., zones of higher sand or clay content), there is a variability in the depth to groundwater across the site. Overall, the local groundwater flow regime is to the east. Regional groundwater flow is expected to flow to the east/southeast towards Lake Ontario. Groundwater contours for the Property (within the sandy silt till) are presented in Figure 5.

No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) or free-flowing products were detected on the Property.

Additional groundwater data will be required to assess seasonal variability in groundwater quantity and flow direction. Based on the highest groundwater level of 0.2 mbgs observed at the Property, there is the potential that the buried utilities could influence the groundwater flow.

6.3 Groundwater: Hydraulic Gradients

Horizontal Hydraulic Gradients	The horizontal hydraulic gradient at the Property within the sandy silt till was determined to be approximately 0.048 m/m based on the groundwater levels in boreholes BH105-S and BH106. The horizontal hydraulic gradient within the clayey silt till could not be determined for reasons specified in Section 6.2 above.
Vertical Hydraulic Gradients	The vertical hydraulic gradient at the Property was determined to be approximately 0.297 m/m downwards based on the groundwater levels in boreholes BH102-S and BH102-D.
Hydraulic Conductivity	Earth Fill → 1.0×10^{-5} m/s* Sandy Silt Till → 1.9×10^{-7} m/s** Clayey Silt Till → 3.9×10^{-9} m/s**

*Freeze and Cherry (1979)

**Determined via in situ single well response tests (slug test)

6.4 Fine-Medium Soil Texture

Grain size analyses were completed for select soil samples from the boreholes at the Property. The grain size analyses are provided in Appendix E.

Based on the grain size analysis completed, it was determined that more than 2/3 of the soil at the Property, measured by volume, consists of medium/fine textured soil. Therefore, the qualified person has determined that medium/fine textured soil standards will be applicable for this Property.

6.5 Soil – Field Screening

Based on field screening measurements and visual and olfactory examination of all soil samples, selected samples were submitted for petroleum hydrocarbon (PHCs) and volatile organic compounds (VOCs) laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix D. No anomalous organic vapour readings were identified to indicate the presence of any volatile contaminants.

6.6 Soil – Quality

6.6.1 Location and Depth of Samples

Sample ID	Depth / Elev. mbgs / masl	Strata	APEC Investigated	M, H-M & ORPs	PAH	PHC	BTEX	VOC/ THM
Cambium 2021 Phase II ESA Investigation								
CMB-BH101-21	0.8 - 1.5 / 104.2 - 103.5	NATIVE	5			✓	✓	
CMB-BH102-21	4 - 4.6 / 99.6 – 99.0	NATIVE	5			✓	✓	
CMB-BH103-21	1.5 - 1.8 / 98.3 – 98.0	NATIVE	5, 6			✓	✓	✓
CMB-BH104-21	2.7 - 2.9 / 95.6 – 95.4	FILL	1, 3, 5, 6			✓	✓	✓
Grounded 2023 Drilling Investigation								
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	FILL	1, 2, 3, 5	✓	✓			
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0	NATIVE	2, 3, 5			✓	✓	✓
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	NATIVE	2, 3, 5	✓	✓	✓	✓	✓

Sample ID	Depth / Elev. mbgs / masl	Strata	APEC Investigated	M, H-M & ORPs	PAH	PHC	BTEX	VOC/ THM
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1	NATIVE	2, 3, 5			✓	✓	✓
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	FILL	1, 2, 3, 5	✓	✓			
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	NATIVE	2, 3, 5	✓		✓	✓	✓
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2	NATIVE	2, 3, 5		✓			
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2	NATIVE	2, 3, 5			✓	✓	✓
DUP-2	6.1 - 6.4 / 94.5 - 94.2	NATIVE	2, 3, 5			✓	✓	✓
BH103 SS2	0.8 - 1.4 / 97.3 - 96.7	FILL	1, 2, 3, 5		✓			
BH103 SS3A	1.5 - 2.0 / 96.6 - 96.1	FILL	1, 2, 3, 5	✓		✓	✓	✓
BH103 SS6	4.6 - 5.2 / 93.5 - 92.9	NATIVE	2, 3, 5	✓	✓			
BH103 SS8	7.6 - 7.7 / 90.5 - 90.3	NATIVE	2, 3, 5			✓	✓	✓
BH104 SS1B	0.3 - 0.6 / 99.3 - 99.0	FILL	1, 2, 5	✓	✓			
BH104 SS2	0.9 - 1.5 / 98.7 - 98.1	FILL	1, 2, 5			✓	✓	✓
BH104 SS4	2.3 - 2.7 / 97.3 - 96.9	NATIVE	2, 5	✓	✓			
BH104 SS7	6.1 - 6.5 / 93.5 - 93.1	NATIVE	2, 5			✓	✓	✓
BH105 SS1B	0.5 - 0.7 / 104.5 - 104.3	FILL	1, 2, 3, 5	✓	✓			
BH105 SS2	0.8 - 1.2 / 104.2 - 103.8	NATIVE	2, 3, 5			✓	✓	✓
BH105 SS3	1.5 - 2.1 / 103.5 - 102.8	NATIVE	2, 3, 5	✓	✓			
DUP-1	1.5 - 2.1 / 103.5 - 102.8	NATIVE	2, 3, 5	✓	✓			
BH105 SS7A	6.1 - 6.2 / 98.9 - 98.8	NATIVE	2, 3, 5			✓	✓	✓
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	FILL	1, 2, 3, 5	✓	✓			

Sample ID	Depth / Elev. mbgs / masl	Strata	APEC Investigated	M, H-M & ORPs	PAH	PHC	BTEX	VOC/ THM
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5	NATIVE	2, 3, 5			✓	✓	✓
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	NATIVE	2, 3, 5	✓	✓			
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2	NATIVE	2, 3, 5			✓	✓	✓
Grounded 2024 Drilling Investigation								
BH201 SS2	0.8 - 1.2 / 103.7 - 103.3	NATIVE	3					✓
BH201 SS5	3.0 - 3.7 / 101.4 - 100.8	NATIVE	3,5					✓
BH201 SS8	7.6 - 8.2 / 96.9 - 96.3	NATIVE	3,5					✓
BH202 GS2	0.3 - 0.6 / 103.8 - 103.5	FILL	1,2,5	✓	✓			
BH202 GS3	0.6 - 0.9 / 103.5 - 103.2	FILL	1,3,5			✓	✓	✓
BH202 SS1	1.8 - 2.1 / 102.3 - 102.0	NATIVE	2,5	✓	✓			
BH202 SS5	6.1 - 6.7 / 98.0 - 97.4	NATIVE	3,5					✓
BH202 SS6A	7.6 - 7.8 / 96.5 - 96.3	NATIVE	1,3,5			✓	✓	✓
BH203 GS2	0.3 - 0.6 / 100.7 - 100.4	FILL	1,2	✓	✓			
BH203 GS4	0.9 - 1.2 / 100.1 - 99.8	FILL	1,3			✓	✓	✓
BH203 SS1	1.8 - 2.3 / 99.2 - 98.7	NATIVE	1,2	✓	✓			
BH203 SS4	4.6 - 5.2 / 96.4 - 95.8	NATIVE	3			✓	✓	✓
Grounded 2024 Transformer Samples								
GS1	0.3 / 100.5	FILL	4			✓	✓	
GS2	0.3 / 100.5	FILL	4			✓	✓	

6.6.2 Comparison to Applicable Standards

Selected soil samples were analyzed for Contaminants of Potential Concern (CoPCs) of the following:

- Metals
- Hydride-Forming Metals
  - Sb, As, Se
- Select ORPs
  - B-HWS
  - CN-
  - EC
  - SAR
  - Cr(VI)
  - Hg
- PAHs
- PHCs
- BTEX
- VOCs

The results of the analysis were compared to the applicable Site Condition Standard for the Phase Two Property (Table 2 RPI). The laboratory certificates of analysis are provided in Appendix F, and the results of the soil chemical analysis are provided in Tables 2 to 5 and presented on Figures 6, 7 and 8.

Comparison Table (Table 2 RPI Standard)		
Parameter Analyzed	**Exceed/Meet**	**Notes:**
Metals	Meet	None
Hydride-forming Metals	Meet	None
ORPs	Meet	EC and SAR - Refer to section 6.6.2.1
PAHs	Meet	None
PHC	Meet	None
BTEX	Meet	None
VOC	Meet	None
THM	Meet	None

6.6.2.1 Exemption of Salt Related Exceedances (O.Reg. 153/04 Sec 49.1 (1))

Chemical analysis of the soil indicates that there are exceedances of the MECP Table 2 RPI Standards for Electrical Conductivity and Sodium Adsorption Ratio (salt related compound) within the upper soils.

The Property is bound by municipal roadways to the north (Kingston Road), west (Whites Road North), as well as Highway 401 to the south, and Highway 401 on-ramp to the west. The roadways have public sidewalks between the road and the Property boundary. The Property features at-grade car parking throughout a majority of the Property as well as sidewalks surrounding the buildings. The roadways, sidewalks, and parking area are all salted during the winter months for safety purposes.

The Qualified Person has determined, based on the Phase One Environmental Site Assessment and the Phase Two Environmental Site Assessment, that a substance (salt) has been applied to surfaces of the roadway, sidewalks, driveway and parking area for the safety of vehicular and pedestrian traffic under conditions of snow or ice or both.

The applicable site condition standard is exceeded at the Property solely because of the reason as stated above (application of salt for safety purposes during winter months). As per O.Reg. 153/04 49.1 the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act.

6.6.3 Contaminants of Concern

No Contaminants of Concern were identified within the earth fill and native soil on the Property.

6.6.4 Contamination Impact on Other Media

No Contaminants of Concern were identified within the earth fill and native soil on the Property. It is unlikely that other media on the Property will be impacted.

6.6.5 Chemical or Biological Transformations

No chemical or biological transformations are likely to occur since no Contaminants of Concern were identified in the soil on the Property.

6.6.6 Presence of Light or Dense Non-Aqueous Phase Liquids

No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected in the soil on the Property.

6.7 Groundwater Quality

6.7.1 Location and Depth of Samples

Sample ID	Screen Depth mbgs / masl	Screen Strata	APEC Assessed	M, H-Metals & ORPs	PAHs	PHC	BTEX	VOCs/ THMs
Cambium 2021 Phase II ESA Investigation								
CMB-102-21	3.1 - 6.1 / 100.5 - 97.5	Sandy Silt Till	5			✓	✓	
CMB-103-21	1.6 - 4.6 / 98.2 - 95.2	Sandy Silt Till	5, 6					✓
Grounded 2023 Investigation								
BH101	18.3 - 21.3 / 84.1 - 81.1	Clayey Silt Till	2, 3, 5	✓	✓	✓	✓	✓
BH102-S	3.0 - 6.1 / 97.6 - 94.5	Sandy Silt Till	2, 3, 5, 6	✓	✓	✓	✓	✓
BH102-D	12.2 - 15.2 / 88.4 - 85.4	Clayey Silt Till	2, 3, 5, 6	✓	✓	✓	✓	✓
BH104-S	2.1 - 5.2 / 97.5 - 94.4	Sandy Silt Till	2, 5, 6	✓	✓	✓	✓	✓
BH104-D	12.2 - 15.2 / 87.4 - 84.4	Clayey Silt Till	2, 5, 6	✓	✓	✓	✓	✓
BH105-S	6.1 - 9.1 / 98.9 - 95.8	Sandy Silt Till	2, 3, 5	✓	✓	✓	✓	✓
BH105-D	12.2 - 15.2 / 92.8 - 89.7	Clayey Silt Till	2, 3, 5	✓	✓	✓	✓	✓
Grounded 2024 Investigation								
BH106	3.7 - 6.7 / 95.0 - 91.9	Sandy Silt Till	3,6			✓	✓	✓
BH202	7.6 - 10.7 / 96.5 - 93.4	Sandy Silt Till	2,3	✓*				✓
BH203	4.6 - 6.1 / 96.4 - 94.9	Sand and Silt Till	2,3	✓*				✓

*Sample submitted for Na/Cl- analysis only

Field filtering as per the requirements of the MECP *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* July 2011, was completed.

6.7.2 Comparison to Applicable Standards

Selected groundwater samples were analyzed for Contaminants of Potential Concern (CoPCs) of the following:

- Metals
- Hydride-forming metals
    - Sb, As, Se
- Selected Other Regulated Parameters (ORPs)
    - Cr(VI), CN-, Hg, Cl-
- Na
- PAHs
- PHCs
- BTEX
- VOCs

The results of the analysis were compared to the applicable Site Condition Standard for the Phase Two Property (Table 2 RPI MF). The laboratory certificates of analysis are provided in Appendix F, and the results of the groundwater chemical analysis are provided in Tables 6 to 9 and presented on Figures 9 to 11.

Comparison Table (Table 2 RPI MF Standard)		
Parameter Analyzed	**Exceed/Meet**	**Notes:**
Metals	Meet	None
Hydride-forming Metals	Meet	None
ORPs	Meet	Sodium – Refer to Section 6.7.2.1
PAHs	Meet	None
PHCs	Meet	None
BTEX	Meet	None
VOCs	Meet	None

6.7.2.1 Exemption of Salt Related Exceedances (O.Reg. 153/04 Sec 49.1 (1))

Chemical analysis of the groundwater indicates that there are exceedances of the MECP Table 2 RPI Standards for sodium (Na) (salt related parameter) within the groundwater.

The Property is bound by municipal roadways to the north (Kingston Road), west (Whites Road North), as well as Highway 401 to the south, and Highway 401 on-ramp to the west. The roadways have public sidewalks between the road and the Property boundary. The Property features vehicle traffic and car parking. The roadways, sidewalks, and parking area are all salted during the winter months for safety purposes.

The Qualified Person has determined, based on the Phase One Environmental Site Assessment and the Phase Two Environmental Site Assessment, that a substance (salt) has been applied to surfaces of the roadways, sidewalks, and parking area for safety of vehicular and pedestrian traffic under conditions of snow or ice or both.

The applicable site condition standard is exceeded at the Property solely because of the reason as stated above (application of salt for safety purposes during winter months). As per O.Reg. 153/04 49.1 the applicable site condition standard is deemed to not be exceeded for the purpose of Part XV.1 of the Act.

6.7.3 Contaminants of Concern

No Contaminants of Concern were identified in the groundwater on the Property.

6.7.4 Contamination Impact on Other Media

No Contaminants of Concern were identified with the groundwater on the Property. It is unlikely that other media on the Property will be impacted.

6.7.5 Chemical or Biological Transformations

No chemical or biological transformations are likely to occur since no Contaminants of Concern were identified in the groundwater on the Property.

6.7.6 Presence of Light or Dense Non-Aqueous Phase Liquids

No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected in the soil on the Property.

6.8 Sediment – Quality

Sediment was not present at the Property thus was not investigated as part of the Phase Two ESA.

6.9 Quality Assurance and Quality Control Results

Quality Assurance (QA) and Quality Control (QC) were maintained as per described in Section 5.12 above. In addition, laboratory results were compared to MECP standards for QA/QC under Ontario Regulation 153/04 which requires laboratory results to meet specific method detection limit (MDL) conditions. The sampling and analysis performed conformed with the following guidelines:

1. Ministry of the Environment, Conservation and Parks Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.

2. Protocol of Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act of Ontario.

Duplicated samples were submitted at a rate of 10% for both soil and groundwater samples.

All the samples collected and submitted for analysis adhered to the holding times, preservation methods, storage requirement and container type as specified by the guidelines listed above.

6.9.1 Subsection 47 (3) of the Regulation

All certificates of analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47 (3). A certificate of analysis or analytical report has been received for each sample submitted for analysis. All certificates of analysis or analytical reports received have been in full in an appendix to the Phase Two ESA report.

6.9.2 Laboratory Qualification of Results

The laboratory did not make any significant comments that changed the outcome of the analytical results regarding the soil and groundwater samples.

6.9.3 Overall Quality of Field Data

Decision-making related to the quality of field data of the Property was not affected. The overall quality of the field data was considered by the Qualified Person to meet the objectives of the investigation and assessment.

6.10 Phase Two Conceptual Site Model

Phase Two Conceptual Site Model (CSM) is prepared for the Property and is provided in Appendix G.

7 Conclusions

The location and concentration of contamination is provided below:

Land	No exceedances of the applicable Site Condition Standards were identified in the soil on the Property.
Groundwater	No exceedances of the applicable Site Condition Standards were identified in the groundwater on the Property.

No exceedances of the applicable Site Condition Standards were identified for the soil and groundwater on the Property. As such, remediation or a risk assessment (RA) will not be required. A Record of Site Condition (RSC) can be filed for the Property.

Whether applicable Site Condition Standards and standards specified in a risk assessment for contaminants on, in or under the Phase Two Property were met as of the certification date is provided below:

Soil	**Earth Fill**	The applicable Site Condition Standards were met in the earth fill located on the Property.
	Native	The applicable Site Condition Standards were met in the native soils located on the Property.
Groundwater		The applicable Site Condition Standards were met in the groundwater located on the Property.

7.1 Signatures

The Phase Two ESA has been completed in accordance with O. Reg. 153/04 by, Deeana Reynolds, EIT under the direction and supervision of Ylena Quan, P.Eng., QP_{ESA} and Matthew Bielaski, P.Eng., $QP_{RA\text{-}ESA}$. The findings and conclusions presented in this report have been determined based on the information that was obtained and reviewed from previous investigations provided and on the current investigation for the Phase Two Property.

We trust that this report meets your requirements at present.

For and on behalf of our team,

GROUNDED ENGINEERING

LICENSED PROFESSIONAL ENGINEER
Y. D. QUAN
100218271
2024-05-29
PROVINCE OF ONTARIO

Deeana Reynolds, EIT
Project Coordinator

Ylena Quan, P.Eng., QP_{ESA}
Associate

Matthew Bielaski, P.Eng., $QP_{RA\text{-}ESA}$
Principal

8 References

1. Exp Services Inc. *Final Phase I Environmental Site Assessment 705 Kingston Road, Pickering, Ontario.* File No. BRM-00011934-C0. December 18, 2014.
2. Exp Services Inc. *Phase II Environmental Site Assessment 705 Kingston Road, Pickering, Ontario.* File No. BRM-00011934-A0. July 11, 2011.
3. Cambium Inc. *Phase I Environmental Site Assessment – 705 Kingston Road, Pickering, Ontario.* File No. 12699-001. April 1, 2021.
4. Cambium Inc. *Phase II Environmental Site Assessment – 705 Kingston Road, Pickering, Ontario.* File No. 12699-001. June 25, 2021.
5. Grounded Engineering Inc. *Phase One Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario.* File No.: 23-197. Dated March 5, 2024.
6. Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*
7. Ontario Ministry of the Environment, April 2011. *Soil, Ground Water and Sediment Standards for use under Part XV. 1*
8. Ontario Ministry of the Environment, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04.*
9. Ontario Ministry of the Environment, February 2021. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV. 1 of the Environmental Protection Act.*

9 Limitations and Restrictions

The Phase Two ESA report was prepared for the purpose of identifying potential environmental concerns, including an assessment of the likelihood that the environmental quality of the soil and groundwater at the Property may have been adversely affected by past or present practices at the Property, and/or those of the adjacent properties prior to development of the Property. Any use of which a third party makes of this report, or any reliance on or decision to be made based on it, are the responsibility of such third parties. Grounded Engineering Inc. does not assume any responsibility for errors, omissions, damages or other limitation pertaining to third parties.

The information presented in this report is based on information collected during the completion of the subsurface investigation conducted by Grounded Engineering Inc. It is based on conditions at the Property at the time of the inspection. The subsurface conditions were assessed based on information collected at specific borehole and monitoring well locations. The actual subsurface conditions between sampling points may be different.

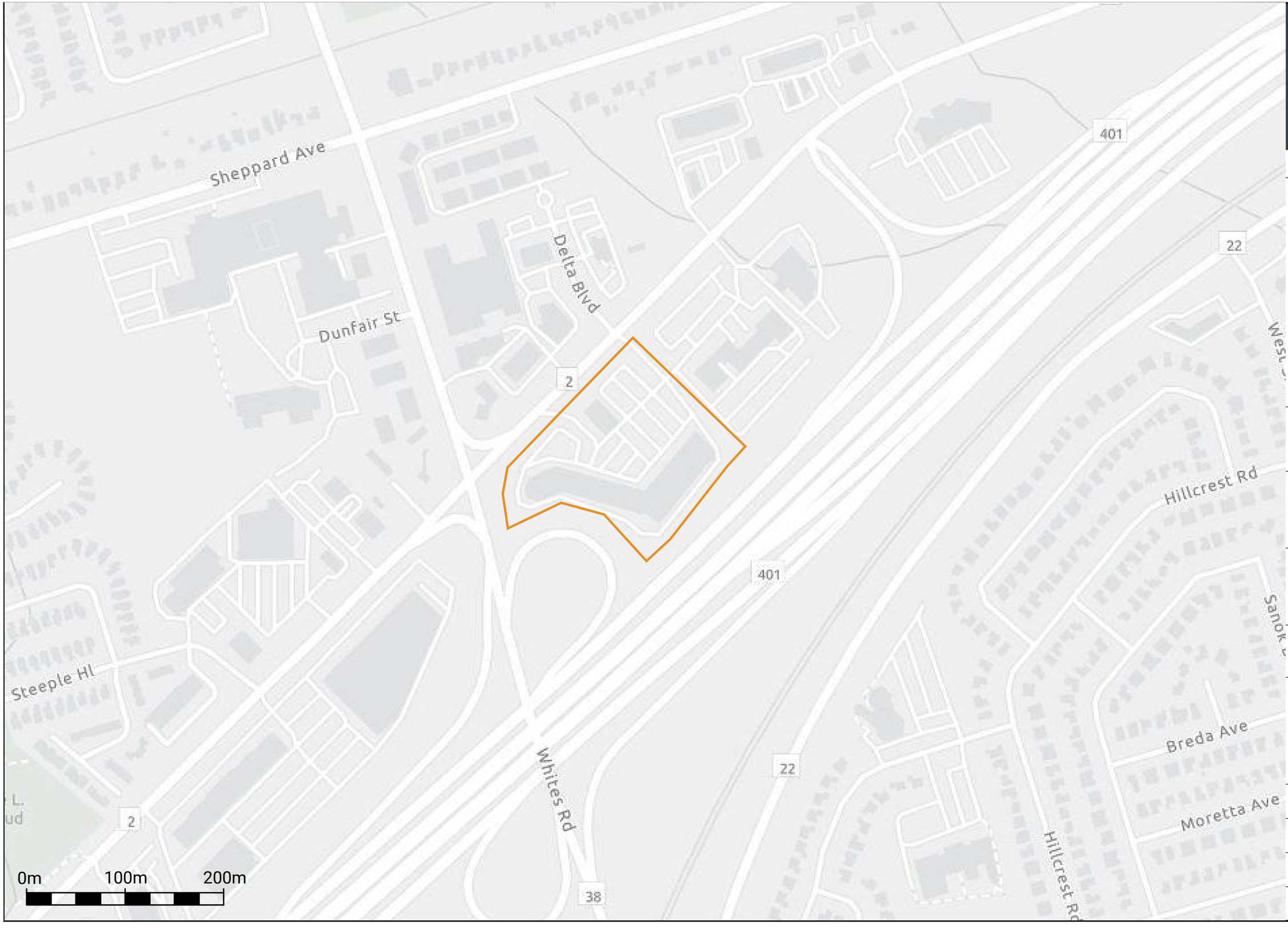
The conclusions presented in this report are based on work undertaken by trained professional and technical staff and are the product of professional care and competence. The report cannot be construed as legal advice or as an absolute guarantee.

If new information regarding the environmental condition of the Phase Two Property is identified during future work, or outstanding responses from regulatory agencies indicate outstanding issues on file with respect to the Phase Two Property, Grounded Engineering Inc. should be notified so that we may re-evaluate the findings of this assessment and provide amendments.

9.1 Report Use

The authorized users of this report are 705 Kingston Road Ltd, for whom this report has been prepared. Grounded Engineering Inc. maintains the copyright and ownership of this document. Reproduction of this report in any format or medium requires explicit prior authorization from Grounded Engineering Inc.

FIGURES



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

APPROXIMATE PROPERTY BOUNDARY

Note

Reference
ArcGIS My Map, 2023.

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
SITE LOCATION PLAN

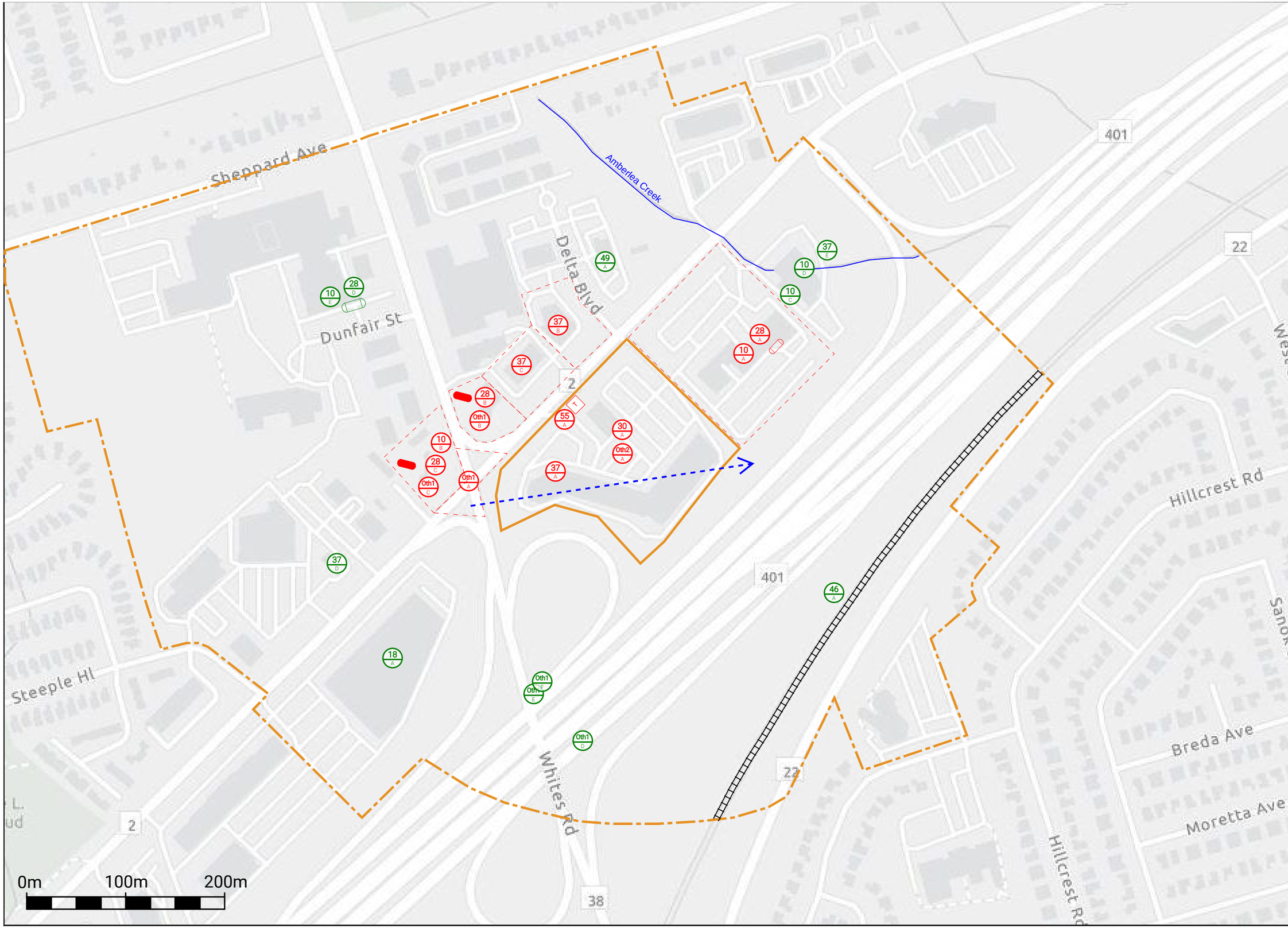
North
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 1



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA (250 m RADIUS)
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPERTY/BUILDING OUTLINE WHERE APEC-CAUSING PCA OCCURRED
- ABOVEGROUND FUEL STORAGE TANK
- UNDERGROUND FUEL STORAGE TANK

#10 – Commercial Autobody Shops
#18 – Electricity Generation, Transformation and Power Stations
#28 – Gasoline and Associated Products Storage in Fixed Tanks
#30 – Importation of Fill Material of Unknown Quality
#37 – Operation of Dry Cleaning Equipment (where chemicals are used)
#46 – Rail Yards, Tracks and Spurs
#49 – Salvage Yard, including automobile wrecking
#55 - Transformer Manufacturing, Processing and Use
Other 1 – Ontario Spills
Other 2 – De-icing Activities

Note
GREEN - PCA NOT CAUSING APEC
RED - PCA CAUSING APEC

Reference
ArcGIS My Map, 2023.

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
PCA LOCATIONS

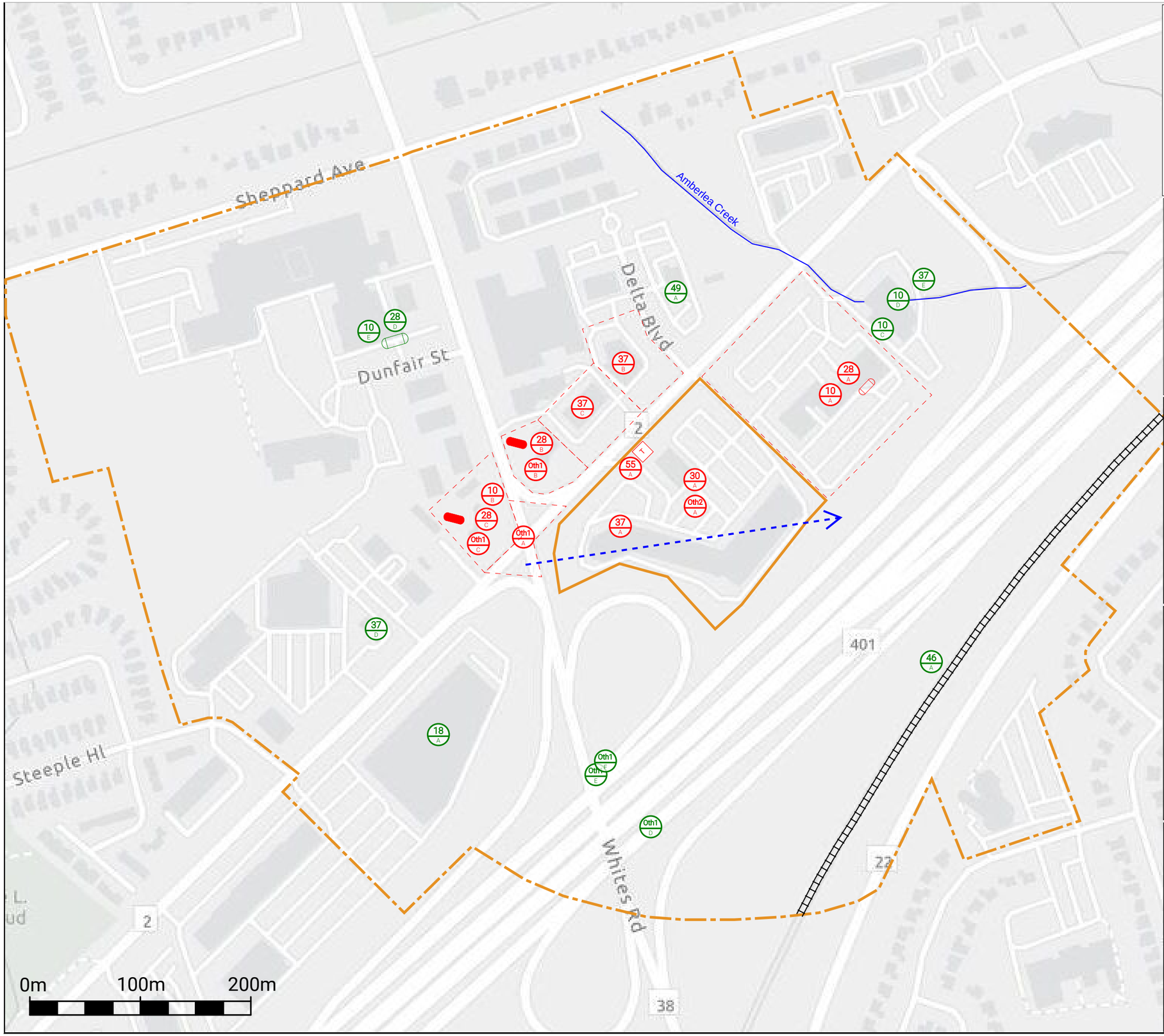
North
TRUE
PROJECT

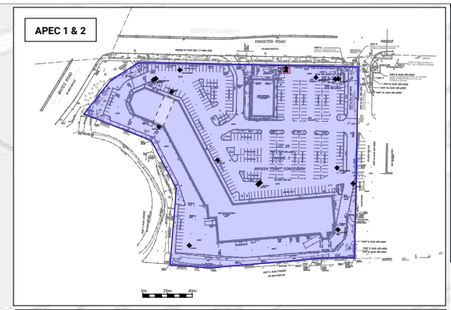
Date
JULY 2024

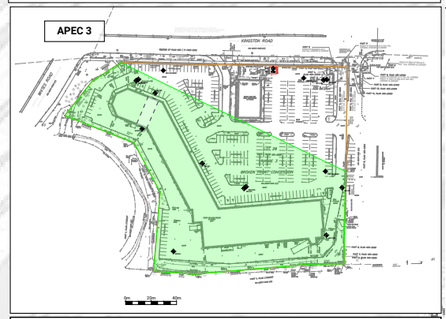
Scale
AS INDICATED

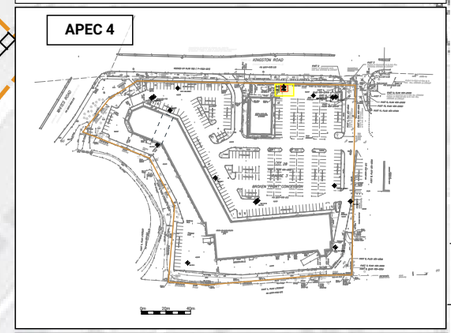
Job No
23-197

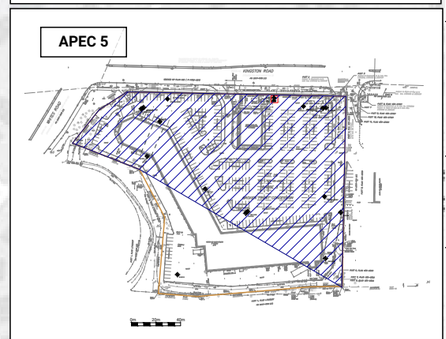
Figure No
FIGURE 2

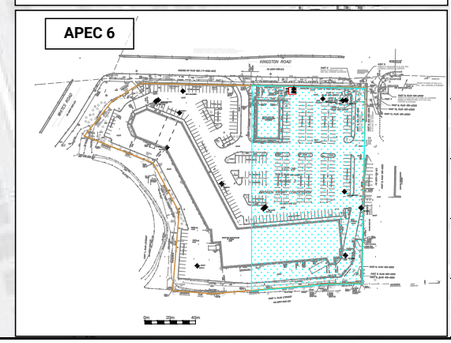












GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA (250 m RADIUS)
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPERTY/BUILDING OUTLINE WHERE APEC-CAUSING PCA OCCURRED
- ABOVEGROUND FUEL STORAGE TANK
- UNDERGROUND FUEL STORAGE TANK

#10 – Commercial Autobody Shops
#18 – Electricity Generation, Transformation and Power Stations
#28 – Gasoline and Associated Products Storage in Fixed Tanks
#30 – Importation of Fill Material of Unknown Quality
#37 – Operation of Dry Cleaning Equipment (where chemicals are used)
#46 – Rail Yards, Tracks and Spurs
#49 – Salvage Yard, including automobile wrecking
#55 – Transformer Manufacturing, Processing and Use
Other 1 – Ontario Spills
Other 2 – De-icing Activities

- APPROXIMATE LOCATION OF HISTORICAL DRY CLEANER
- APEC 1 & 2
- APEC 3
- APEC 4
- APEC 5
- APEC 6

Note
GREEN - PCA NOT CAUSING APEC
RED - PCA CAUSING APEC

Reference
ArcGIS My Map, 2023.

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
PCA & APEC LOCATIONS

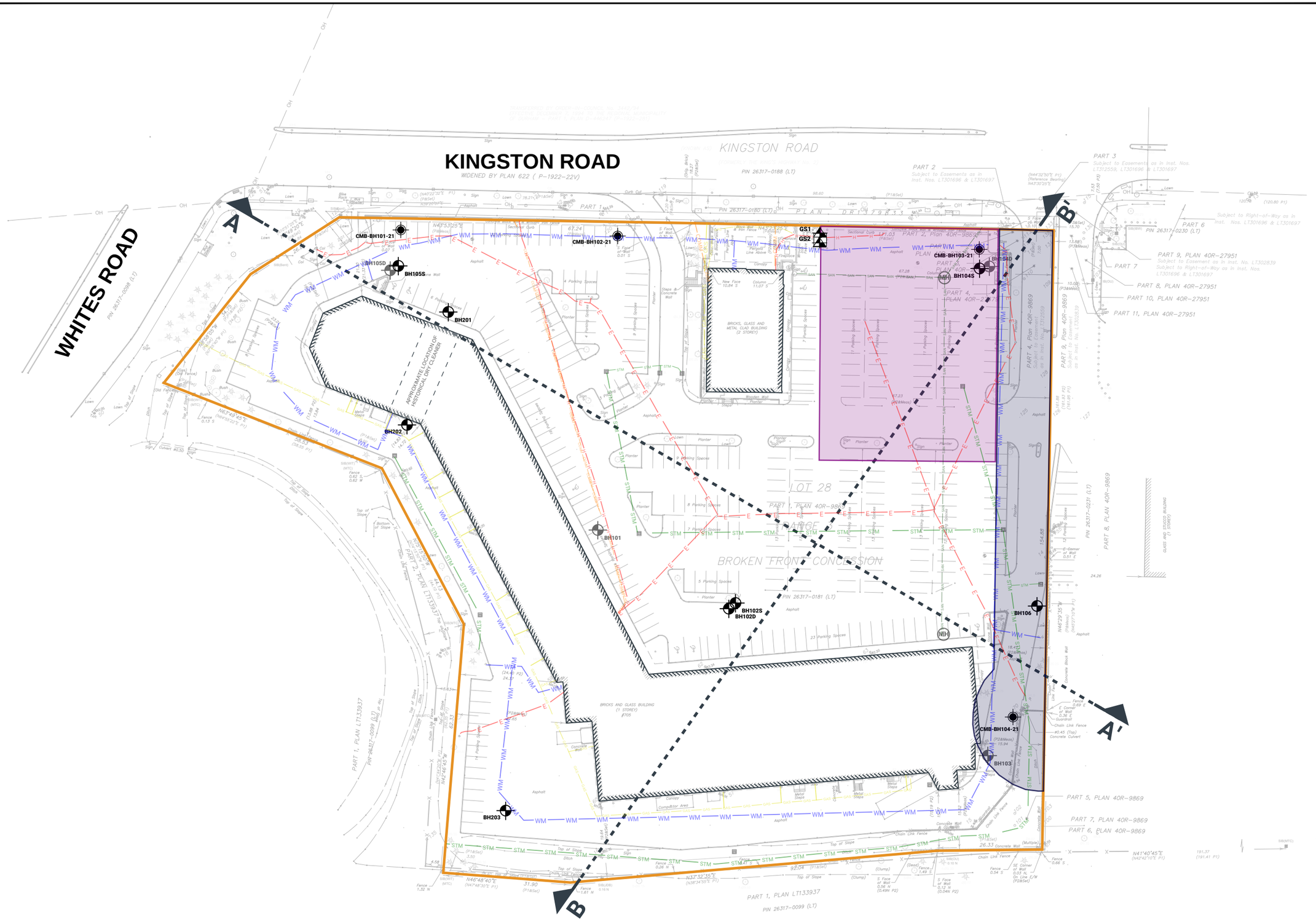
North
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 3



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE DECOMISSIONED DUE TO METHANE
- MONITORING WELL/BOREHOLE BY OTHERS
- GRAB SAMPLE LOCATION BY GROUNDED
- CROSS SECTION LINE
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS — GAS
- E — ELECTRICAL
- H — BURIED HYDRO
- O/H — OVERHEAD HYDRO
- WM — WATER
- COMM — COMMUNICATION
- SAN — SANITARY
- STM — STORM
- MH — MANHOLE
- CATCH BASIN
- T — TRANSFORMER

Note

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

BOREHOLE AND MONITORING WELL LOCATIONS PLAN

North

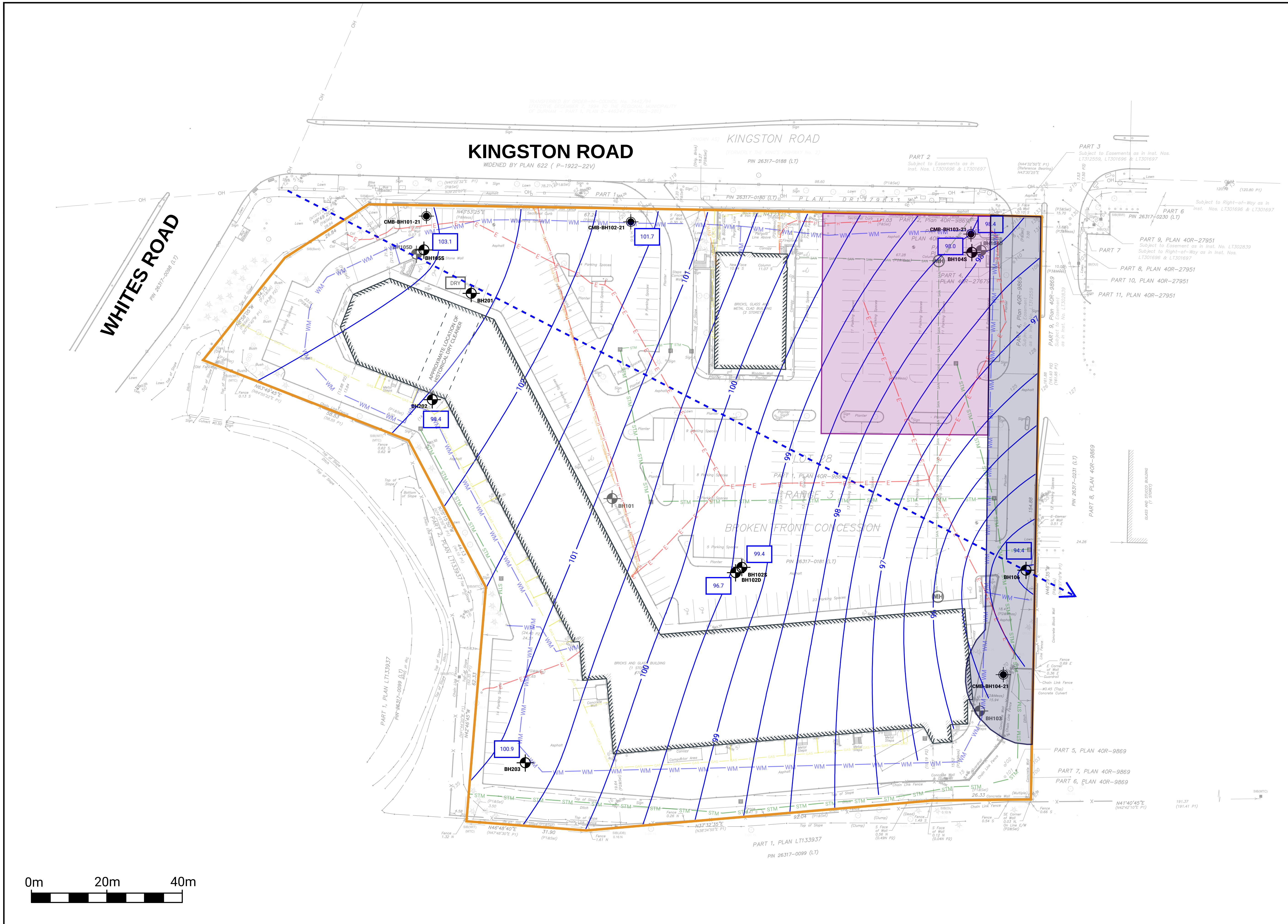
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 4



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE DECOMISSIONED DUE TO METHANE
- MONITORING WELL/BOREHOLE BY OTHERS
- 119.4 GROUNDWATER ELEVATIONS (masl)
- 119.4 GROUNDWATER CONTOURS (masl)
- APPROXIMATE INFERRED GROUNDWATER FLOW DIRECTION
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS — GAS
- E — ELECTRICAL
- H — BURIED HYDRO
- O/H — OVERHEAD HYDRO
- WM — WATER
- COMM — COMMUNICATION
- SAN — SANITARY
- STM — STORM
- MH — MANHOLE
- CATCH BASIN
- T — TRANSFORMER

Note
Groundwater elevation data used was collected during February 28, 2024 and March 14, 2024.

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
GROUNDWATER ELEVATIONS AND CONTOUR PLAN

North
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 5

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH105 SS1B	0.5 - 0.7 / 104.5 - 104.3	✓	✓				Meets
BH105 SS2	0.8 - 1.2 / 104.2 - 103.8			✓	✓	✓	Meets
BH105 SS3	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
DUP-1 (BH105 SS3)	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
BH105 SS7A	6.1 - 6.2 / 98.9 - 98.8			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH201 SS2	0.8 - 1.2 / 103.7 - 103.3					✓	Meets
BH201 SS5	3.0 - 3.7 / 101.4 - 100.8					✓	Meets
BH201 SS8	7.6 - 8.2 / 96.9 - 96.3					✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH202 GS2	0.3 - 0.6 / 103.8 - 103.5	✓	✓				Meets
DUP 01 (BH202 GS2)	0.3 - 0.6 / 103.8 - 103.5		✓				Meets
BH202 GS3	0.6 - 0.9 / 103.5 - 103.2			✓	✓	✓	Meets
BH202 SS1	1.8 - 2.1 / 102.3 - 102.0	✓	✓				Meets
BH202 SS5	6.1 - 6.7 / 98.0 - 97.4					✓	Meets
BH202 SS6A	7.6 - 7.8 / 96.5 - 96.3			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	✓	✓				Meets
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0			✓	✓	✓	Meets
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	✓	✓	✓	✓	✓	Meets
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	✓	✓				Meets
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	✓		✓	✓	✓	Meets
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2		✓				Meets
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets
DUP-2 (BH102 SS7)	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH203 GS2	0.3 - 0.6 / 100.7 - 100.4	✓	✓				Meets
BH203 GS4	0.9 - 1.2 / 100.1 - 99.8			✓	✓	✓	Meets
BH203 SS1	1.8 - 2.3 / 99.2 - 98.7	✓	✓				Meets
DUP 02 (BH203 SS1)	1.8 - 2.3 / 99.2 - 98.7	✓					Meets
BH203 SS4	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets
DUP 03 (BH203 SS4)	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH101-21	0.8 - 1.5 / 104.2 - 103.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH102-21	4 - 4.6 / 99.6 – 99.0			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH103-21	1.5 - 1.8 / 98.3 – 98.0			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
GS1	0.3 / 100.5			✓	✓		Meets
GS2	0.3 / 100.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH104 SS1B	0.3 - 0.6 / 99.3 - 99.0	✓	✓				Meets
BH104 SS2	0.9 - 1.5 / 98.7 - 98.1			✓	✓	✓	Meets
BH104 SS4	2.3 - 2.7 / 97.3 - 96.9	✓	✓				Meets
BH104 SS7	6.1 - 6.5 / 93.5 - 93.1			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	✓	✓				Meets
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5			✓	✓	✓	Meets
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	✓	✓				Meets
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH103 SS2	0.8 - 1.4 / 97.3 - 96.7		✓				Meets
BH103 SS3A	1.5 - 2.0 / 96.6 - 96.1	✓		✓	✓	✓	Meets
BH103 SS6	4.6 - 5.2 / 93.5 - 92.9	✓	✓				Meets
BH103 SS8	7.6 - 7.7 / 90.5 - 90.3			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH104-21	2.7 - 2.9 / 95.6 – 95.4			✓	✓	✓	Meets

KINGSTON ROAD

WIDENED BY PLAN 622 (P-1922-22V)

WHITES ROAD

PIN 26317-0098 (LT)

BROKEN FRONT CONCESSION

LOT 28

RANGE

PART 1, PLAN 40R-9869

PART 2, PLAN LT339371

PART 1, PLAN LT339371

PART 3, PLAN 40R-27951

PART 4, PLAN 40R-27951

PART 5, PLAN 40R-9869

PART 6, PLAN 40R-9869

PART 7, PLAN 40R-9869

PART 8, PLAN 40R-27951

PART 9, PLAN 40R-27951

PART 10, PLAN 40R-27951

PART 11, PLAN 40R-27951

PIN 26317-0230 (LT)

APPROXIMATE LOCATION OF HISTORICAL DRY CLEANER

BRICKS, GLASS AND METAL CLAD BUILDING (2 STOREY)

BRICKS AND GLASS BUILDING (1 STOREY) #705

CMB-BH101-21

CMB-BH102-21

CMB-BH103-21

CMB-BH104-21

BH101

BH102S

BH102D

BH103

BH104D

BH104S

BH105D

BH105S

BH106

BH201

BH202

BH203

GS1

GS2

A

A'

B

B'

0m 20m 40m

GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE BY OTHERS
- MONITORING WELL/BOREHOLE NOT SAMPLED
- CROSS SECTION LINE
- SOIL SAMPLE MEETS TABLE 2 RPI MF STANDARDS
- GRAB SAMPLE MEETS TABLE 2 RPI MF STANDARDS
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS
- ELECTRICAL
- BURIED HYDRO
- OVERHEAD HYDRO
- WATER
- COMMUNICATION
- SANITARY
- STORM
- MH MANHOLE
- CATCH BASIN
- T TRANSFORMER

Note
M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), OTHER REGULATED PARAMETERS (ORPs) (B-HWS, Cr(VI), CN, EC, Hg, SAR)

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
SOIL ANALYTICAL RESULTS - PLAN VIEW

North
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 6

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH105 SS1B	0.5 - 0.7 / 104.5 - 104.3	✓	✓				Meets
BH105 SS2	0.8 - 1.2 / 104.2 - 103.8			✓	✓	✓	Meets
BH105 SS3	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
DUP-1 (BH105 SS3)	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
BH105 SS7A	6.1 - 6.2 / 98.9 - 98.8			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH101-21	0.8 - 1.5 / 104.2 - 103.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH201 SS2	0.8 - 1.2 / 103.7 - 103.3					✓	Meets
BH201 SS5	3.0 - 3.7 / 101.4 - 100.8					✓	Meets
BH201 SS8	7.6 - 8.2 / 96.9 - 96.3					✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH202 GS2	0.3 - 0.6 / 103.8 - 103.5	✓	✓				Meets
DUP 01 (BH202 GS2)	0.3 - 0.6 / 103.8 - 103.5		✓				Meets
BH202 GS3	0.6 - 0.9 / 103.5 - 103.2			✓	✓	✓	Meets
BH202 SS1	1.8 - 2.1 / 102.3 - 102.0	✓	✓				Meets
BH202 SS5	6.1 - 6.7 / 98.0 - 97.4					✓	Meets
BH202 SS6A	7.6 - 7.8 / 96.5 - 96.3			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	✓	✓				Meets
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0			✓	✓	✓	Meets
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	✓	✓	✓	✓	✓	Meets
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1			✓	✓	✓	Meets

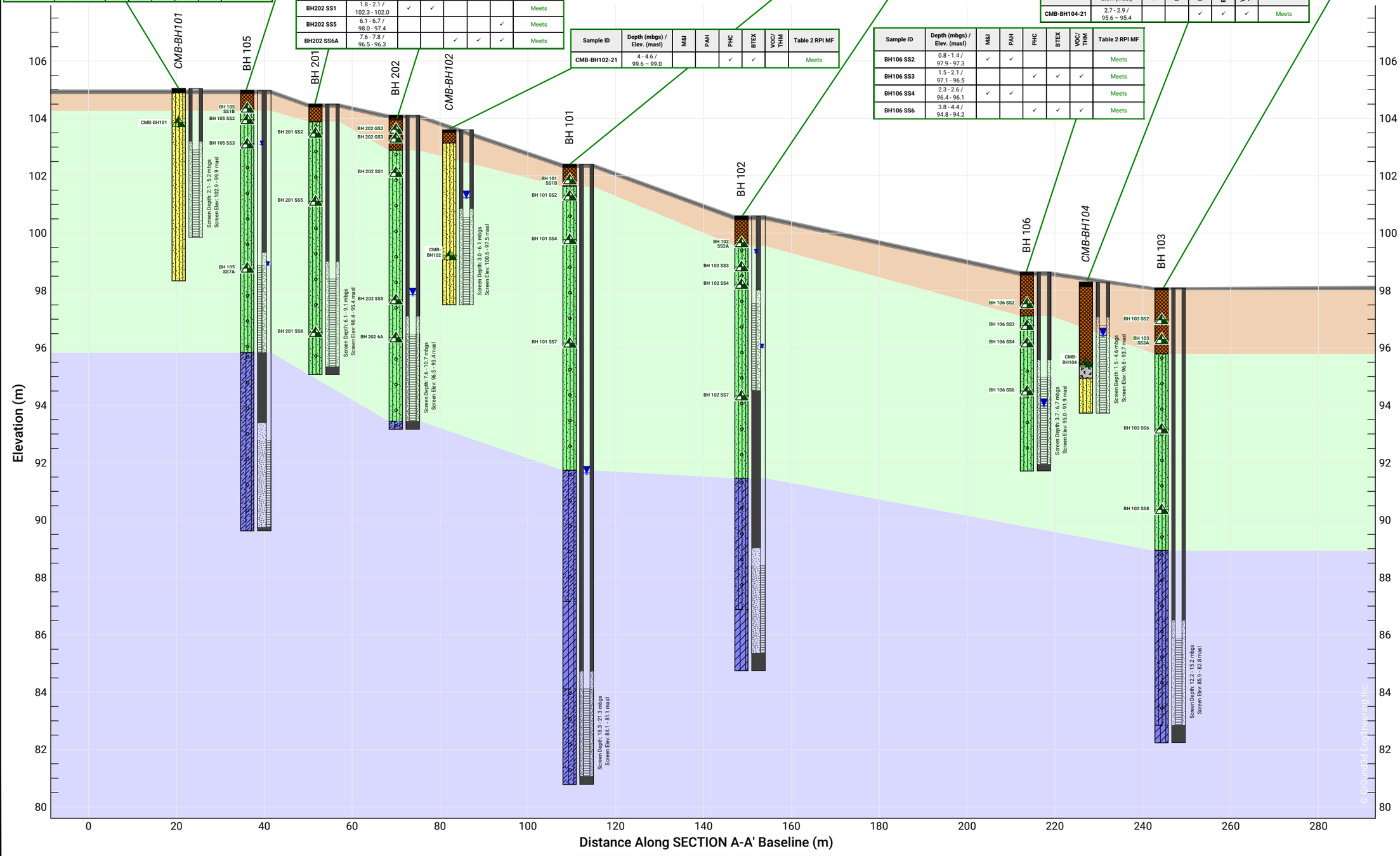
Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH102-21	4 - 4.6 / 99.6 – 99.0			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	✓	✓				Meets
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	✓		✓	✓	✓	Meets
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2		✓				Meets
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets
DUP-2 (BH102 SS7)	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	✓	✓				Meets
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5			✓	✓	✓	Meets
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	✓	✓				Meets
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH104-21	2.7 - 2.9 / 95.6 – 95.4			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH103 SS2	0.8 - 1.4 / 97.3 - 96.7		✓				Meets
BH103 SS3A	1.5 - 2.0 / 96.6 - 96.1	✓		✓	✓	✓	Meets
BH103 SS6	4.6 - 5.2 / 93.5 - 92.9	✓	✓				Meets
BH103 SS8	7.6 - 7.7 / 90.5 - 90.3			✓	✓	✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)
- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note
The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), OTHER REGULATED PARAMETERS (ORPs) (B-HWS, Cr(VI), CN, EC, Hg, SAR)

Reference

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

SOIL ANALYTICAL RESULTS - SECTION A-A'

North

Date
APRIL 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 7

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	✓	✓				Meets
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0			✓	✓	✓	Meets
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	✓	✓	✓	✓	✓	Meets
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1			✓	✓	✓	Meets

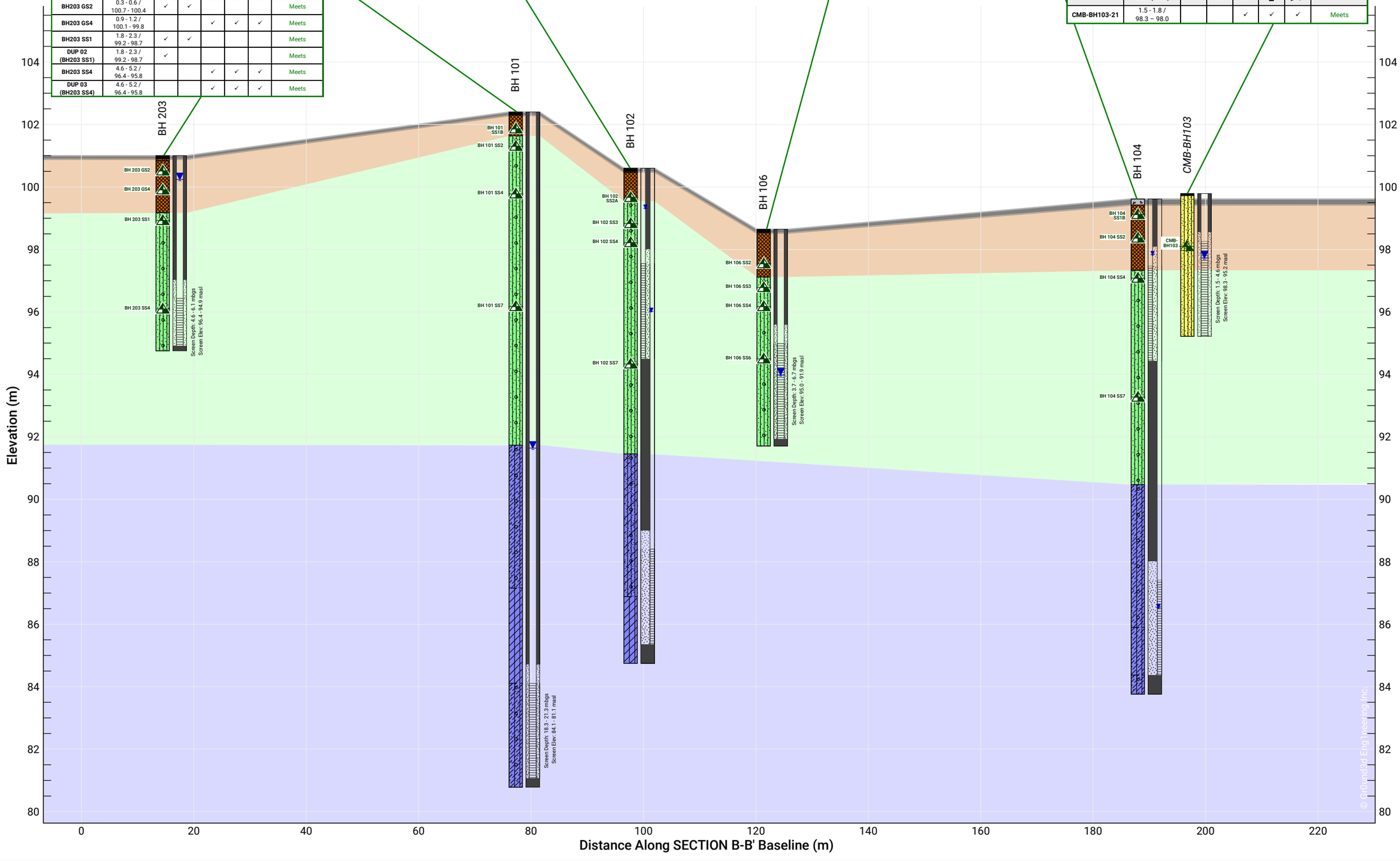
Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	✓	✓				Meets
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	✓		✓	✓	✓	Meets
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2		✓				Meets
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets
DUP-2 (BH102 SS7)	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	✓	✓				Meets
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5			✓	✓	✓	Meets
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	✓	✓				Meets
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH104 SS1B	0.3 - 0.6 / 99.3 - 99.0	✓	✓				Meets
BH104 SS2	0.9 - 1.5 / 98.7 - 98.1			✓	✓	✓	Meets
BH104 SS4	2.3 - 2.7 / 97.3 - 96.9	✓	✓				Meets
BH104 SS7	6.1 - 6.5 / 93.5 - 93.1			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH103-21	1.5 - 1.8 / 98.3 – 98.0			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH203 GS2	0.3 - 0.6 / 100.7 - 100.4	✓	✓				Meets
BH203 GS4	0.9 - 1.2 / 100.1 - 99.8			✓	✓	✓	Meets
BH203 SS1	1.8 - 2.3 / 99.2 - 98.7	✓	✓				Meets
DUP 02 (BH203 SS1)	1.8 - 2.3 / 99.2 - 98.7	✓					Meets
BH203 SS4	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets
DUP 03 (BH203 SS4)	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- CONCRETE
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)
- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note

The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), OTHER REGULATED PARAMETERS (ORPs) (B-HWS, Cr(VI), CN, EC, Hg, SAR)

Reference

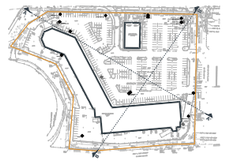
Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

SOIL ANALYTICAL RESULTS - SECTION B-B'

North



Date

APRIL 2024

Scale

AS INDICATED

Job No

23-197

Figure No

FIGURE 8

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH105S	6.1 - 9.1 / 98.9 - 95.8	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH105D	12.2 - 15.2 / 92.8 - 89.7	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-102-21	3.1 - 6.1 / 100.5 - 97.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH104D	12.2 - 15.2 / 87.4 - 84.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH104S	2.1 - 5.2 / 97.5 - 94.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-103-21	1.6 - 4.6 / 98.2 - 95.2					✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH202	7.6 - 10.7 / 96.5 - 93.4	✓*				✓	Meets

*Sample submitted for Na/Cl- only

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH101	18.3 - 21.3 / 84.1 - 81.1	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102S	3.0 - 6.1 / 97.6 - 94.5	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102D	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets
DUP-1 (BH102D)	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH203	4.6 - 6.1 / 96.4 - 94.9	✓*				✓	Meets

*Sample submitted for Na/Cl- only

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH106	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets
DUP01 (BH106)	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets

KINGSTON ROAD
WIDENED BY PLAN 622 (P-1922-22V)

WHITES ROAD

BROKEN FRONT CONCESSION

LOT 28

RANGE

0m 20m 40m

GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE BY OTHERS
- MONITORING WELL/BOREHOLE NOT SAMPLED/NOT RELIED UPON
- CROSS SECTION LINE
- GROUNDWATER SAMPLE MEETS TABLE 2 RPI MF STANDARDS
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS — GAS
- E — ELECTRICAL
- H — BURIED HYDRO
- O/H — OVERHEAD HYDRO
- WM — WATER
- COMM — COMMUNICATION
- SAN — SANITARY
- STM — STORM
- MH — MANHOLE
- CATCH BASIN
- T — TRANSFORMER

Note
M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), SODIUM (Na), OTHER REGULATED PARAMETERS (ORPs) (Cr(VI), CN, Hg, Cl)

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
GROUNDWATER ANALYTICAL RESULTS - PLAN VIEW

North

Date
APRIL 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 9

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH105S	6.1 - 9.1 / 98.9 - 95.8	✓	✓	✓	✓	✓	Meets
BH105D	12.2 - 15.2 / 92.8 - 89.7	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH202	7.6 - 10.7 / 96.5 - 93.4	✓*				✓	Meets

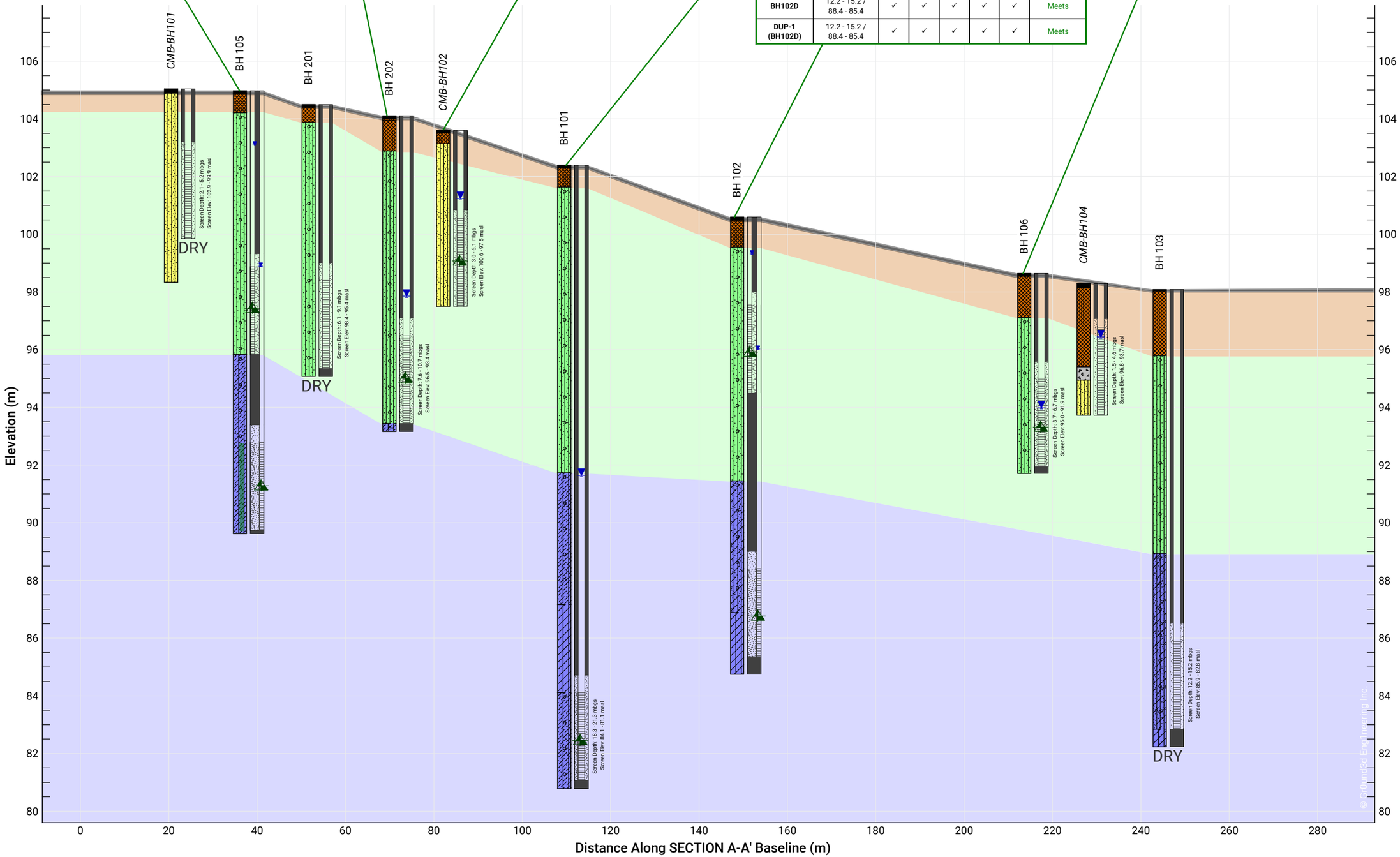
*Sample submitted for Na/Cl- only

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-102-21	3.1 - 6.1 / 100.5 - 97.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH101	18.3 - 21.3 / 84.1 - 81.1	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102S	3.0 - 6.1 / 97.6 - 94.5	✓	✓	✓	✓	✓	Meets
BH102D	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets
DUP-1 (BH102D)	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH106	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets
DUP01 (BH106)	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)

- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note
The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), SODIUM (Na), OTHER REGULATED PARAMETERS (ORPs) (Cr(VI), CN, Hg, Cl)

Reference

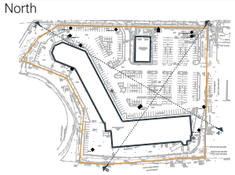
Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

GROUND WATER ANALYTICAL RESULTS - SECTION A-A'

North



Date

APRIL 2024

Scale

AS INDICATED

Job No

23-197

Figure No

FIGURE 10

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH203	4.6 - 6.1 / 96.4 - 94.9	✓*				✓	Meets

*Sample submitted for Na/Cl- only

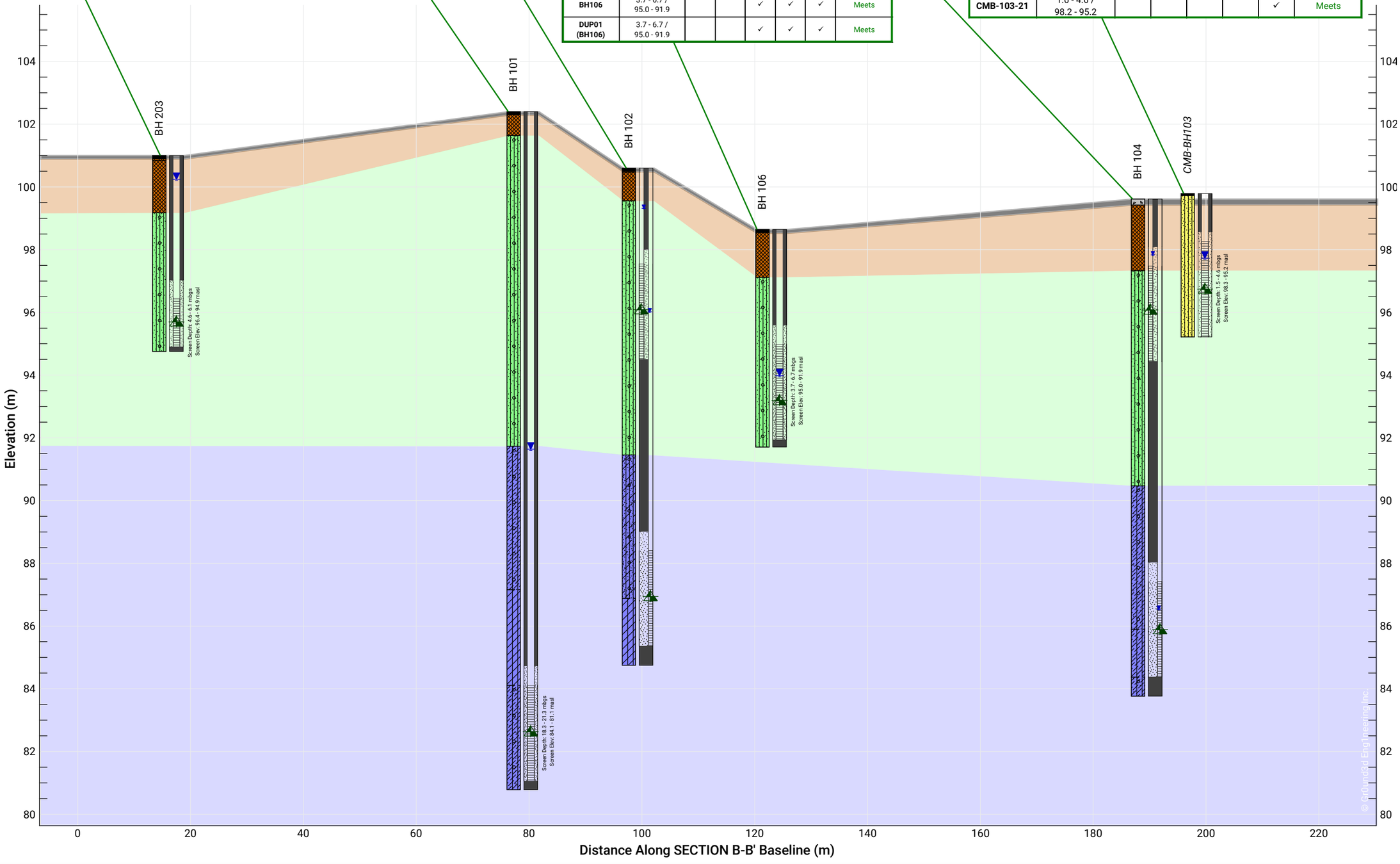
Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH101	18.3 - 21.3 / 84.1 - 81.1	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102S	3.0 - 6.1 / 97.6 - 94.5	✓	✓	✓	✓	✓	Meets
BH102D	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets
DUP-1 (BH102D)	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH106	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets
DUP01 (BH106)	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH104D	12.2 - 15.2 / 87.4 - 84.4	✓	✓	✓	✓	✓	Meets
BH104S	2.1 - 5.2 / 97.5 - 94.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-103-21	1.6 - 4.6 / 98.2 - 95.2					✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- CONCRETE
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)

- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note

The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), SODIUM (Na), OTHER REGULATED PARAMETERS (ORPs) (Cr(VI), CN, Hg, Cl)

Reference

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

GROUND WATER ANALYTICAL RESULTS - SECTION B-B'

North

Date

APRIL 2024

Scale

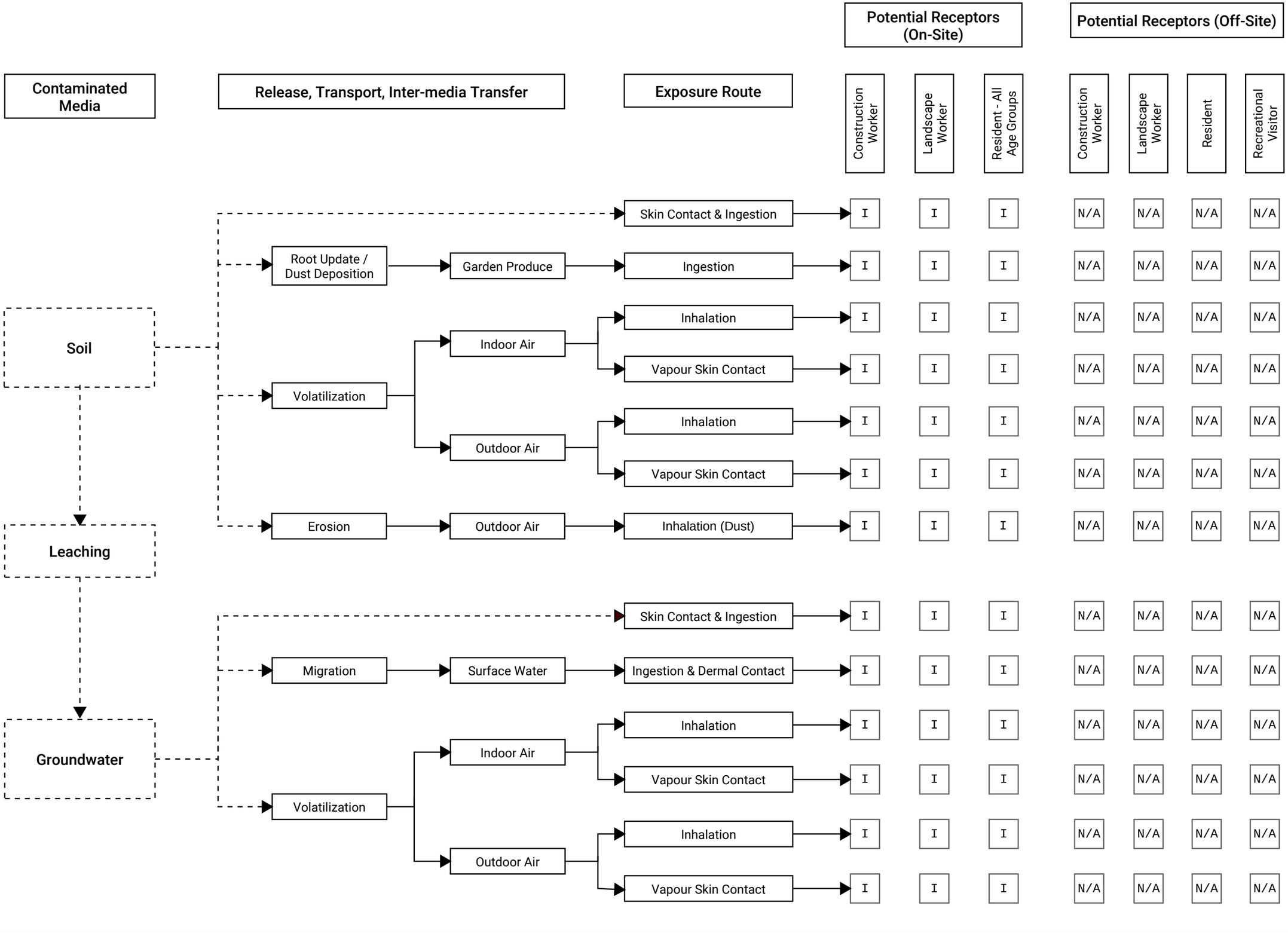
AS INDICATED

Job No

23-197

Figure No

FIGURE 11



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- C — Pathway Complete
- I — Pathway Incomplete
- X — Pathway Blocked
- N/A — Pathway Not Applicable for Receptor
- Pathway Completed
- Pathway Incompleted

Note

1. Constructions Workers are considered protective of Utility Workers
2. Landscape Workers are considered protective of Trespassers
3. Residents are considered protective of Long Term Workers, Short Term Works and Site Visitors

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

HUMAN HEALTH CSM

Reference

Date

APRIL 2024

Scale

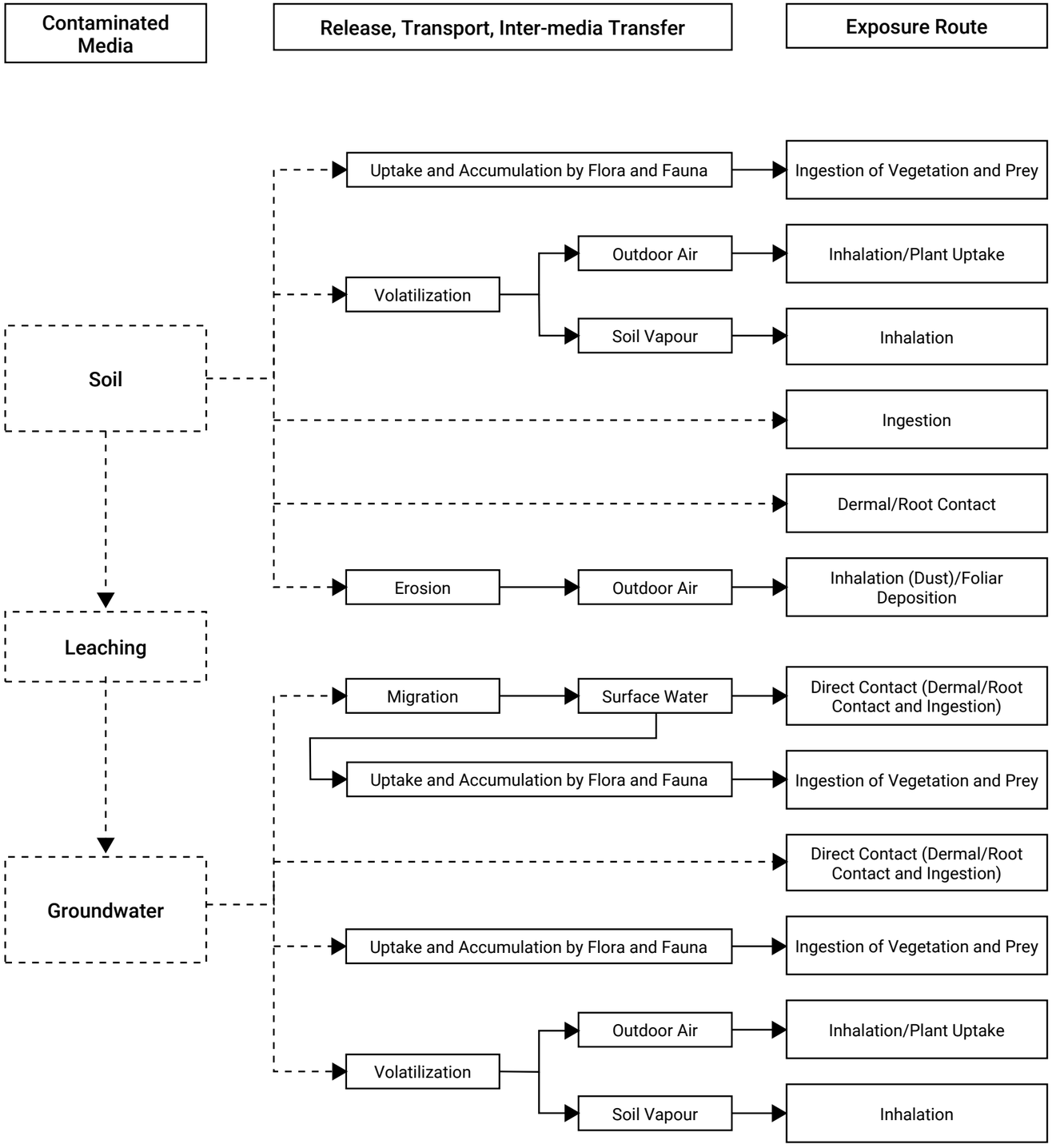
N/A

Job No

23-197

Figure No

FIGURE 12



Potential Receptors (On-Site)				Potential Receptors (Off-Site)			
Terrestrial Plants	Soil Invertebrates	Terrestrial Mammals	Terrestrial Birds	Terrestrial Plants	Soil Invertebrates	Terrestrial Mammals	Terrestrial Birds
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A

GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- C — Pathway Complete
- I — Pathway Incomplete
- X — Pathway Blocked
- N/A — Pathway Not Applicable for Receptor
- Pathway Completed
- Pathway Incompleted

Note
1. Constructions Workers are considered protective of Utility Workers
2.Landscape Workers are considered protective of Trespassers
3. Residents are considered protective of Long Term Workers, Short Term Works and Site Visitors

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
ECOLOGICAL CSM

Reference

Date
APRIL 2024

Scale
N/A

Job No
23-197

Figure No
FIGURE 13

TABLES

TABLE 1
GROUNDWATER LEVEL MONITORING SUMMARY
705 KINGSTON ROAD
PICKERING, ON
PROJECT #23-197

Well ID	Ground Surface Elevation (masl)	Screen Interval (mbgs)	Screen Interval (masl)	Soil Strata	Other consultant		Grounded Engineering																						Minimum Elev. (Lowest)		Maximum Elev. (Highest)		Seasonal Fluctuation
					June 8, 2021		October 17, 2023*		October 18, 2023		October 19, 2023		October 20, 2023		October 23, 2023		November 3, 2023		November 9, 2023		December 7, 2023		January 5, 2024		February 28, 2024		March 14, 2024		April 16, 2024						
		(mbgs)	(masl)		(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(±m)
BH101	102.4	18.3 - 21.3	84.1 - 81.1	Clayey Silt Till	-	-	18.1	84.3	-	-	11.8	90.6	-	-	10.8	91.6	-- DECOMMISSIONED--												11.8	90.6	10.8	91.6	0.5
BH102-S	100.6	3.0 - 6.1	97.6 - 94.5	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	1.7	98.9	1.6	99.0	1.6	99.0	1.5	99.1	1.3	99.4	-	-	1.3	99.4	1.7	98.9	1.3	99.4	0.2
BH102-D	100.6	12.2 - 15.2	88.4 - 85.4	Clayey Silt Till to Silt & Clay	-	-	0.7	100.0	-	-	13.9	86.7	13.8	86.8	-	-	13.3	87.3	12.6	88.0	9.6	91.0	6.9	93.7	4.6	96.0	-	-	3.9	96.7	13.9	86.7	3.9	96.7	5.0
BH103	98.1	12.2 - 15.2	85.9 - 82.8	Clayey Silt Till	-	-	DRY	-	-	-	DRY	-	-	-	-	-	-- DECOMMISSIONED--												0.0	-	-	-	-
BH104-S	99.6	2.1 - 5.2	97.5 - 94.4	Sandy Silt Till	-	-	2.8	96.8	2.8	96.8	2.2	97.4	-	-	-	-	2.2	97.4	2.2	97.4	2.2	97.4	2.1	97.5	1.8	97.8	-	-	1.6	98.0	2.8	96.8	1.6	98.0	0.6
BH104-D	99.6	12.2 - 15.2	87.4 - 84.4	Clayey Silt Till	-	-	9.0	90.6	-	-	14.1	85.5	13.1	86.5	-	-	-- DECOMMISSIONED--												14.1	85.5	13.1	86.5	0.5
BH105-S	105.0	6.1 - 9.1	98.9 - 95.8	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	7.3	97.7	6.9	98.2	3.1	101.9	2.8	102.2	1.9	103.1	-	-	2.0	103.1	7.3	97.7	1.9	103.1	2.7
BH105-D	105.0	12.2 - 15.2	92.8 - 89.7	Clayey Silt Till	-	-	8.8	96.3	7.0	98.0	6.1	98.9	-	-	-	-	-- DECOMMISSIONED--												7.0	98.0	6.1	98.9	0.4
BH106	98.6	3.7 - 6.7	95.0 - 91.9	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	DRY	-	DRY	-	6.6	92.0	6.1	92.6	4.9	93.7	4.7	93.9	4.2	94.4	6.6	92.0	4.2	94.4	1.2
BH201	104.5	6.1 - 9.1	98.4 - 95.4	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DRY	-	DRY	-	0.0	-	-	-	-
BH202	104.1	7.6 - 10.7	96.5 - 93.4	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	97.8	4.7	99.4	6.3	97.8	4.7	99.4	0.8
BH203	101.0	4.6 - 6.1	96.4 - 94.9	Sand and Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	100.2	0.2	100.9	0.8	100.2	0.2	100.9	0.3
CMB-BH101-21	105.0	2.0 - 5.0	103.0 - 100.0	Sandy Silt Till	DRY	-	Flushmount Damaged - Cannot Open																						0.0	-	-	-	-
CMB-BH102-21	103.6	3.1 - 6.1	100.5 - 97.5	Sandy Silt Till	2.2	101.4	-	-	-	-	2.8	100.8	-	-	-	-	-	-	-	-	2.9	100.7	2.4	101.2	2.4	101.2	-	-	1.9	101.7	2.9	100.7	1.9	101.7	0.5
CMB-BH103-21	99.8	1.6 - 4.6	98.2 - 95.2	Sandy Silt Till	4.0	95.8	-	-	-	-	2.2	97.6	-	-	-	-	2.4	97.4	-	-	2.4	97.4	2.2	97.6	2.1	97.7	-	-	1.4	98.4	2.4	95.8	1.4	98.4	0.5
CMB-BH104-21	98.3	1.6 - 4.6	96.7 - 93.7	Fill, Concrete, Sandy Silt Till	1.7	96.6	-	-	-	-	2.0	96.3	-	-	-	-	-	-	-	-	1.9	96.4	1.9	96.4	1.9	96.4	-	-	1.8	96.5	2.0	96.3	1.7	96.6	0.1

mbgs = metres below existing ground surface
masl = metres above sea level
***** = unstabilized groundwater level
NA = not available: unable to access monitoring well
- = not measured

Table 2: Summary of Soil Quality Results
Metals and Other Regulated Parameters
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH101-SS1(B) 0.4 - 0.6 102.0 - 101.8 WT2333397-001 2023-10-11	BH101-SS4 2.3 - 2.9 100.1 - 99.5 WT2333397-003 2023-10-11	BH102-SS2A 0.8 - 1.0 99.8 - 99.6 WT2333397-007 2023-10-13	BH102-SS3 1.5 - 2.0 99.1 - 98.6 WT2333397-008 2023-10-13	BH103-SS3A 1.5 - 2.0 96.6 - 96.1 WT2333397-013 2023-10-11
Site Sensitivity (pH)									
pH (surface soil, <1.5m)	5 to 9	unitless	8-8	BH104-SS1(B)/BH105-SS1(B)	8		8		
pH (subsurface soil, >1.5m)	5 to 11	unitless	7-8	BH106-SS2/DUP-1		8		8	8
Metals									
Barium	390	µg/g	79.6	BH106-SS2	35	69	54	35	38
Beryllium	5	µg/g	0.61	BH106-SS2	0	0	0	0	0
Boron (total)	120	µg/g	7.6	BH203 SS1	6	7	6	5	6
Cadmium	1.2	µg/g	0.169	BH106-SS2	0.1	0.1	0.1	0.1	0.1
Chromium (total)	160	µg/g	23.1	BH106-SS2	13	17	17	11	13
Cobalt	22	µg/g	8.67	BH101-SS4	6	9	6	6	5
Copper	180	µg/g	18	BH101-SS4	17	18	12	10	10
Lead	120	µg/g	8.86	BH103-SS6	7	8	9	7	8
Molybdenum	6.9	µg/g	0.66	BH101-SS1(B)	0.7	0.6	0.4	0.4	0.3
Nickel	130	µg/g	18.8	BH101-SS4	15	19	13	13	11
Silver	25	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1
Thallium	1	µg/g	0.166	BH203 GS2	0	0	0	0	0
Uranium	23	µg/g	1.25	BH103-SS6	0	1	1	0	0
Vanadium	86	µg/g	35.4	BH106-SS2	23	27	29	20	22
Zinc	340	µg/g	43.8	BH106-SS2	33	34	37	34	31
Hydride forming Metals									
Antimony	7.5	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	18	µg/g	3.68	BH101-SS4	3	4	3	3	2
Selenium	2.4	µg/g	<0.2	Multiple	<0.2	<0.2	<0.2	<0.2	<0.2
ORPs Other Regulated Parameters									
Boron (Hot Water Soluble)	1.5	µg/g	0.33	BH101-SS1(B)	0.3	<0.1	0.3	<0.1	<0.1
Chromium VI	10	µg/g	0.12	Multiple	<0.1	0	<0.1	0	0
Cyanide (CN-)	0.051	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Electrical Conductivity (EC)	0.7	mS/cm	2.82	BH101-SS1(B)	2.8	0.9	0.7	0.4	0.4
Mercury	1.8	µg/g	0.037	BH106-SS2	0	0	0	0	0
Sodium Adsorption Ratio (SAR)	5	unitless	91.3	BH101-SS1(B)	91	14	5	6	4

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 2: Summary of Soil Quality Results
Metals and Other Regulated Parameters
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH103-SS6 4.6 - 5.2 93.5 - 92.9 WT2333397-014 2023-10-11	BH104-SS1(B) 0.3 - 0.6 99.3 - 99.0 WT2333397-018 2023-10-10	BH104-SS4 2.3 - 2.7 97.3 - 96.9 WT2333397-021 2023-10-10	BH105-SS1(B) 0.5 - 0.7 104.5 - 104.3 WT2333397-024 2023-10-13	BH105-SS3 1.5 - 2.1 103.5 - 102.8 WT2333397-026 2023-10-13
Site Sensitivity (pH)									
pH (surface soil, <1.5m)	5 to 9	unitless	8-8	BH104-SS1(B)/BH105-SS1(B)		8		8	
pH (subsurface soil, >1.5m)	5 to 11	unitless	7-8	BH106-SS2/DUP-1	8		8		8
Metals									
Barium	390	µg/g	79.6	BH106-SS2	64	44	47	30	65
Beryllium	5	µg/g	0.61	BH106-SS2	0	0	0	0	0
Boron (total)	120	µg/g	7.6	BH203 SS1	8	5	6	5	7
Cadmium	1.2	µg/g	0.169	BH106-SS2	0.1	0.1	0.1	0.1	0.1
Chromium (total)	160	µg/g	23.1	BH106-SS2	17	14	12	10	14
Cobalt	22	µg/g	8.67	BH101-SS4	7	5	6	5	5
Copper	180	µg/g	18	BH101-SS4	17	12	11	9	10
Lead	120	µg/g	8.86	BH103-SS6	9	7	6	5	5
Molybdenum	6.9	µg/g	0.66	BH101-SS1(B)	0.6	0.4	0.4	0.3	0.4
Nickel	130	µg/g	18.8	BH101-SS4	17	12	12	11	11
Silver	25	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1
Thallium	1	µg/g	0.166	BH203 GS2	0	0	0	0	0
Uranium	23	µg/g	1.25	BH103-SS6	1	1	1	0	1
Vanadium	86	µg/g	35.4	BH106-SS2	26	27	22	22	26
Zinc	340	µg/g	43.8	BH106-SS2	36	32	27	22	26
Hydride forming Metals									
Antimony	7.5	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	18	µg/g	3.68	BH101-SS4	3	2	2	2	2
Selenium	2.4	µg/g	<0.2	Multiple	<0.2	<0.2	<0.2	<0.2	<0.2
ORPs Other Regulated Parameters									
Boron (Hot Water Soluble)	1.5	µg/g	0.33	BH101-SS1(B)	0.2	0.2	<0.1	<0.1	<0.1
Chromium VI	10	µg/g	0.12	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1
Cyanide (CN-)	0.051	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Electrical Conductivity (EC)	0.7	mS/cm	2.82	BH101-SS1(B)	0.2	0.4	0.3	0.4	0.6
Mercury	1.8	µg/g	0.037	BH106-SS2	0	0	0	0	0
Sodium Adsorption Ratio (SAR)	5	unitless	91.3	BH101-SS1(B)	0	3	11	4	15

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 2: Summary of Soil Quality Results
Metals and Other Regulated Parameters
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	DUP-1 Duplicate of BH105-SS3 1.5 - 2.1 103.5 - 102.8 WT2333397-030 2023-10-13	BH106-SS2 0.8 - 1.4 97.9 - 97.3 WT2336062 2023-11-02	BH106-SS4 2.3 - 2.6 96.4 - 96.1 WT2336062 2023-11-02	BH202 GS2 0.3 - 0.6 103.8 - 103.5 WT2405164-001 2024-03-04	BH202 SS1 1.8 - 2.1 102.3 - 102.0 WT2405164-003 2024-03-04
Site Sensitivity (pH)									
pH (surface soil, <1.5m)	5 to 9	unitless	8-8	BH104-SS1(B)/BH105-SS1(B)				8	8
pH (subsurface soil, >1.5m)	5 to 11	unitless	7-8	BH106-SS2/DUP-1	8	7	8		
Metals									
Barium	390	µg/g	79.6	BH106-SS2	56	80	73	23	39
Beryllium	5	µg/g	0.61	BH106-SS2	0	1	0	0	0
Boron (total)	120	µg/g	7.6	BH203 SS1	7	7	7	5	6
Cadmium	1.2	µg/g	0.169	BH106-SS2	0	0.2	0.1	0	0.1
Chromium (total)	160	µg/g	23.1	BH106-SS2	13	23	15	10	12
Cobalt	22	µg/g	8.67	BH101-SS4	5	7	7	5	4
Copper	180	µg/g	18	BH101-SS4	9	15	11	12	9
Lead	120	µg/g	8.86	BH103-SS6	4	9	6	6	4
Molybdenum	6.9	µg/g	0.66	BH101-SS1(B)	0.3	0.5	0.5	0.4	0.5
Nickel	130	µg/g	18.8	BH101-SS4	9	18	14	11	8
Silver	25	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.10	<0.10
Thallium	1	µg/g	0.166	BH203 GS2	0	0	0	0	0
Uranium	23	µg/g	1.25	BH103-SS6	1	1	1	0	1
Vanadium	86	µg/g	35.4	BH106-SS2	23	35	24	19	20
Zinc	340	µg/g	43.8	BH106-SS2	23	44	29	22	20
Hydride forming Metals									
Antimony	7.5	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.10	<0.10
Arsenic	18	µg/g	3.68	BH101-SS4	2	3	2	2	2
Selenium	2.4	µg/g	<0.2	Multiple	<0.2	<0.2	<0.2	<0.20	<0.20
ORPs Other Regulated Parameters									
Boron (Hot Water Soluble)	1.5	µg/g	0.33	BH101-SS1(B)	<0.1	0.3	<0.1	<0.10	<0.10
Chromium VI	10	µg/g	0.12	Multiple	<0.1	<0.1	0	0	<0.10
Cyanide (CN-)	0.051	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.050	<0.050
Electrical Conductivity (EC)	0.7	mS/cm	2.82	BH101-SS1(B)	0.6	1.2	1.3	0.3	0.4
Mercury	1.8	µg/g	0.037	BH106-SS2	0	0	0	0	0
Sodium Adsorption Ratio (SAR)	5	unitless	91.3	BH101-SS1(B)	15	17	39	5	5

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 2: Summary of Soil Quality Results
Metals and Other Regulated Parameters
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH203 GS2 0.3 - 0.6 100.7 - 100.4 WT2405164-007 2024-03-04	BH203 SS1 1.8 - 2.3 99.2 - 98.7 WT2405164-009 2024-03-04	DUP 02 Duplicate of BH203 SS1 1.8 - 2.3 99.2 - 98.7 WT2405164-015 2024-03-04
Site Sensitivity (pH)							
pH (surface soil, <1.5m)	5 to 9	unitless	8-8	BH104-SS1(B)/BH105-SS1(B)	8	8	8
pH (subsurface soil, >1.5m)	5 to 11	unitless	7-8	BH106-SS2/DUP-1			
Metals							
Barium	390	µg/g	79.6	BH106-SS2	55	58	51
Beryllium	5	µg/g	0.61	BH106-SS2	0	0	0
Boron (total)	120	µg/g	7.6	BH203 SS1	7	8	7
Cadmium	1.2	µg/g	0.169	BH106-SS2	0.1	0.1	0.1
Chromium (total)	160	µg/g	23.1	BH106-SS2	18	15	15
Cobalt	22	µg/g	8.67	BH101-SS4	7	5	5
Copper	180	µg/g	18	BH101-SS4	17	12	11
Lead	120	µg/g	8.86	BH103-SS6	7	6	5
Molybdenum	6.9	µg/g	0.66	BH101-SS1(B)	0.5	0.6	0.6
Nickel	130	µg/g	18.8	BH101-SS4	17	11	10
Silver	25	µg/g	<0.1	Multiple	<0.10	<0.10	<0.10
Thallium	1	µg/g	0.166	BH203 GS2	0	0	0
Uranium	23	µg/g	1.25	BH103-SS6	1	1	1
Vanadium	86	µg/g	35.4	BH106-SS2	28	25	24
Zinc	340	µg/g	43.8	BH106-SS2	33	27	26
Hydride forming Metals							
Antimony	7.5	µg/g	<0.1	Multiple	<0.10	<0.10	<0.10
Arsenic	18	µg/g	3.68	BH101-SS4	4	2	2
Selenium	2.4	µg/g	<0.2	Multiple	<0.20	<0.20	<0.20
ORPs Other Regulated Parameters							
Boron (Hot Water Soluble)	1.5	µg/g	0.33	BH101-SS1(B)	0.1	<0.10	0.1
Chromium VI	10	µg/g	0.12	Multiple	<0.10	<0.10	<0.10
Cyanide (CN-)	0.051	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050
Electrical Conductivity (EC)	0.7	mS/cm	2.82	BH101-SS1(B)	1.1	0.3	0.3
Mercury	1.8	µg/g	0.037	BH106-SS2	0	0	0
Sodium Adsorption Ratio (SAR)	5	unitless	91.3	BH101-SS1(B)	18	2	2

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 3: Summary of Soil Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH101-SS1(B) 0.4 - 0.6 102.0 - 101.8 WT2333397-001 2023-10-11	BH101-SS4 2.3 - 2.9 100.1 - 99.5 WT2333397-003 2023-10-11	BH102-SS2A 0.8 - 1.0 99.8 - 99.6 WT2333397-007 2023-10-13	BH102-SS4 2.3 - 2.4 98.3 - 98.2 WT2333397-011 2023-10-13
PAHs Polycyclic Aromatic Hydrocarbons								
Acenaphthene	29	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Anthracene	0.74	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	0.63	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	0.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Chrysene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Dibenz[a,h]anthracene	0.1	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Fluorene	69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Indeno[1,2,3-cd]pyrene	0.48	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-(1-)	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene, 1-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Methylnaphthalene, 2-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Naphthalene	0.75	µg/g	<0.05	BH106-SS2	<0.01	<0.01	<0.01	<0.01
Phenanthrene	7.8	µg/g	0.066	BH103-SS6	<0.05	<0.05	<0.05	<0.05
Pyrene	78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 3: Summary of Soil Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH103-SS2 0.8 - 1.4 97.3 - 96.7 WT2333397-012 2023-10-11	BH103-SS6 4.6 - 5.2 93.5 - 92.9 WT2333397-014 2023-10-11	BH104-SS1(B) 0.3 - 0.6 99.3 - 99.0 WT2333397-018 2023-10-10	BH104-SS4 2.3 - 2.7 97.3 - 96.9 WT2333397-021 2023-10-10
PAHs Polycyclic Aromatic Hydrocarbons								
Acenaphthene	29	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Anthracene	0.74	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	0.63	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	0.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Chrysene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Dibenz[a,h]anthracene	0.1	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Fluorene	69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Indeno[1,2,3-cd]pyrene	0.48	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-(1-)	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene, 1-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Methylnaphthalene, 2-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Naphthalene	0.75	µg/g	<0.05	BH106-SS2	<0.01	<0.01	<0.01	<0.01
Phenanthrene	7.8	µg/g	0.066	BH103-SS6	<0.05	0.1	<0.05	<0.05
Pyrene	78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 3: Summary of Soil Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH105-SS1(B) 0.5 - 0.7 104.5 - 104.3 WT2333397-024 2023-10-13	BH105-SS3 1.5 - 2.1 103.5 - 102.8 WT2333397-026 2023-10-13	DUP-1 Duplicate of BH105-SS3 1.5 - 2.1 103.5 - 102.8 WT2333397-030 2023-10-13	BH106-SS2 0.8 - 1.4 97.9 - 97.3 WT2336062 2023-11-02
PAHs Polycyclic Aromatic Hydrocarbons								
Acenaphthene	29	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Anthracene	0.74	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	0.63	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	0.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Chrysene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Dibenz[a,h]anthracene	0.1	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Fluorene	69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Indeno[1,2,3-cd]pyrene	0.48	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-(1-)	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.03
Methylnaphthalene, 1-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Methylnaphthalene, 2-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.01
Naphthalene	0.75	µg/g	<0.05	BH106-SS2	<0.01	<0.01	<0.01	<0.05
Phenanthrene	7.8	µg/g	0.066	BH103-SS6	<0.05	<0.05	<0.05	<0.05
Pyrene	78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 3: Summary of Soil Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH106-SS4 2.3 - 2.6 96.4 - 96.1 WT2336062 2023-11-02	BH202 GS2 0.3 - 0.6 103.8 - 103.5 WT2405164-001 2024-03-04	DUP 01 Duplicate of BH202 GS2 0.3 - 0.6 103.8 - 103.5 WT2405164-014 2024-03-04	BH202 SS1 1.8 - 2.1 102.3 - 102.0 WT2405164-003 2024-03-04
PAHs Polycyclic Aromatic Hydrocarbons								
Acenaphthene	29	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Acenaphthylene	0.17	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Anthracene	0.74	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Benz[a]anthracene	0.63	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Benzo[a]pyrene	0.3	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Benzo[b]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Benzo[ghi]perylene	7.8	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Benzo[k]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Chrysene	7.8	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Dibenz[a,h]anthracene	0.1	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Fluoranthene	0.69	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Fluorene	69	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Indeno[1,2,3-cd]pyrene	0.48	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Methlynaphthalene, 2-(1-)	3.4	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050
Methylnaphthalene, 1-	NV	µg/g	<0.03	Multiple	<0.03	<0.030	<0.030	<0.030
Methylnaphthalene, 2-	NV	µg/g	<0.03	Multiple	<0.03	<0.030	<0.030	<0.030
Naphthalene	0.75	µg/g	<0.05	BH106-SS2	<0.01	<0.010	<0.010	<0.010
Phenanthrene	7.8	µg/g	0.066	BH103-SS6	<0.05	<0.050	<0.050	<0.050
Pyrene	78	µg/g	<0.05	Multiple	<0.05	<0.050	<0.050	<0.050

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 3: Summary of Soil Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH203 GS2 0.3 - 0.6 100.7 - 100.4 WT2405164-007 2024-03-04	BH203 SS1 1.8 - 2.3 99.2 - 98.7 WT2405164-009 2024-03-04
PAHs Polycyclic Aromatic Hydrocarbons						
Acenaphthene	29	µg/g	<0.05	Multiple	<0.050	<0.050
Acenaphthylene	0.17	µg/g	<0.05	Multiple	<0.050	<0.050
Anthracene	0.74	µg/g	<0.05	Multiple	<0.050	<0.050
Benz[a]anthracene	0.63	µg/g	<0.05	Multiple	<0.050	<0.050
Benzo[a]pyrene	0.3	µg/g	<0.05	Multiple	<0.050	<0.050
Benzo[b]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.050	<0.050
Benzo[ghi]perylene	7.8	µg/g	<0.05	Multiple	<0.050	<0.050
Benzo[k]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.050	<0.050
Chrysene	7.8	µg/g	<0.05	Multiple	<0.050	<0.050
Dibenz[a,h]anthracene	0.1	µg/g	<0.05	Multiple	<0.050	<0.050
Fluoranthene	0.69	µg/g	<0.05	Multiple	<0.050	<0.050
Fluorene	69	µg/g	<0.05	Multiple	<0.050	<0.050
Indeno[1,2,3-cd]pyrene	0.48	µg/g	<0.05	Multiple	<0.050	<0.050
Methlynaphthalene, 2-(1-)	3.4	µg/g	<0.05	Multiple	<0.050	<0.050
Methylnaphthalene, 1-	NV	µg/g	<0.03	Multiple	<0.030	<0.030
Methylnaphthalene, 2-	NV	µg/g	<0.03	Multiple	<0.030	<0.030
Naphthalene	0.75	µg/g	<0.05	BH106-SS2	<0.010	<0.010
Phenanthrene	7.8	µg/g	0.066	BH103-SS6	<0.050	<0.050
Pyrene	78	µg/g	<0.05	Multiple	<0.050	<0.050

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	CMB-BH101 0.8 - 1.5 104.2 - 103.5 CA15859-MAY21 2021-05-25	CMB-BH102 4 - 4.6 99.6 - 99.0 CA15859-MAY21 2021-05-21	CMB-BH103 1.5 - 1.8 98.3 - 98.0 CA14010-JUN21 2021-05-25	BH101-SS2 0.8 - 1.4 101.6 - 101.0 WT2333397-002 2023-10-11	BH101-SS4 2.3 - 2.9 100.1 - 99.5 WT2333397-003 2023-10-11	BH101-SS7 6.1 - 6.3 96.3 - 96.1 WT2333397-005 2023-10-11
BTEX Benzene, Toluene, Ethylbenzene, Xylene										
Benzene	0.17	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.005	<0.005	<0.005
Ethylbenzene	1.6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	25	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m- & p-	NV	µg/g	<0.03	Multiple				<0.03	<0.03	<0.03
Xylene, o-	NV	µg/g	<0.03	Multiple				<0.03	<0.03	<0.03
PHCs Petroleum Hydrocarbons										
Petroleum Hydrocarbons F1-BTEX	NV	µg/g	<10	Multiple	<10	<10	<10	<5	<5	<5
Petroleum Hydrocarbons F1	65	µg/g	<5	Multiple				<5	<5	<5
Petroleum Hydrocarbons F2	150	µg/g	30	BH104-SS7	<10	<10	<10	<10	<10	13
Petroleum Hydrocarbons F3	1300	µg/g	95	BH104-SS7	<50	<50	<50	<50	<50	52
Petroleum Hydrocarbons F4	5600	µg/g	<50	Multiple	<50	<50	<50	<50	<50	<50
Reached Baseline at C50	NV	NV						YES	YES	YES
Petroleum Hydrocarbons F4 (Gravimetric)	NV	µg/g	0	#N/A						
Petroleum Hydrocarbons F4+F4g	5600	µg/g	<0	#N/A						

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH102-SS3 1.5 - 2.0 99.1 - 98.6 WT2333397-008 2023-10-13	BH102-SS7 6.1 - 6.4 94.5 - 94.2 WT2333397-009 2023-10-13	DUP-2 Duplicate of BH102-SS7 6.1 - 6.4 94.5 - 94.2 WT2333397-031 2023-10-13	BH103-SS3A 1.5 - 2.0 96.6 - 96.1 WT2333397-013 2023-10-11	BH103-SS8 7.6 - 7.7 90.5 - 90.3 WT2333397-015 2023-10-11
BTEX Benzene, Toluene, Ethylbenzene, Xylene									
Benzene	0.17	µg/g	<0.02	Multiple	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	1.6	µg/g	<0.05	Multiple	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	25	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m- & p-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03
Xylene, o-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03
PHCs Petroleum Hydrocarbons									
Petroleum Hydrocarbons F1-BTEX	NV	µg/g	<10	Multiple	<5	<5	<5	<5	<5
Petroleum Hydrocarbons F1	65	µg/g	<5	Multiple	<5	<5	<5	<5	<5
Petroleum Hydrocarbons F2	150	µg/g	30	BH104-SS7	13	<10	<10	<10	22
Petroleum Hydrocarbons F3	1300	µg/g	95	BH104-SS7	<50	<50	<50	<50	85
Petroleum Hydrocarbons F4	5600	µg/g	<50	Multiple	<50	<50	<50	<50	<50
Reached Baseline at C50	NV	NV			YES	YES	YES	YES	YES
Petroleum Hydrocarbons F4 (Gravimetric)	NV	µg/g	0	#N/A					
Petroleum Hydrocarbons F4+F4g	5600	µg/g	<0	#N/A					

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH104-SS2 0.9 - 1.5 98.7 - 98.1 WT2333397-019 2023-10-10	BH104-SS7 6.1 - 6.5 93.5 - 93.1 WT2333397-022 2023-10-10	BH105-SS2 0.8 - 1.2 104.2 - 103.8 WT2333397-025 2023-10-13	BH105-SS7(A) 6.1 - 6.2 98.9 - 98.8 WT2333397-027 2023-10-13	BH106-SS3 1.5 - 2.1 97.1 - 96.5 WT2336062 2023-11-02	BH106-SS6 3.8 - 4.4 94.8 - 94.2 WT2336062 2023-11-02
BTEX Benzene, Toluene, Ethylbenzene, Xylene										
Benzene	0.17	µg/g	<0.02	Multiple	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	1.6	µg/g	<0.05	Multiple	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	25	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m- & p-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Xylene, o-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
PHCs Petroleum Hydrocarbons										
Petroleum Hydrocarbons F1-BTEX	NV	µg/g	<10	Multiple	<5	<5	<5	<5	<5	<5
Petroleum Hydrocarbons F1	65	µg/g	<5	Multiple	<5	<5	<5	<5	<5	<5
Petroleum Hydrocarbons F2	150	µg/g	30	BH104-SS7	<10	30	<10	<10	<10	<10
Petroleum Hydrocarbons F3	1300	µg/g	95	BH104-SS7	<50	95	<50	<50	<50	56
Petroleum Hydrocarbons F4	5600	µg/g	<50	Multiple	<50	<50	<50	<50	<50	<50
Reached Baseline at C50	NV	NV			YES	YES	YES	YES	YES	YES
Petroleum Hydrocarbons F4 (Gravimetric)	NV	µg/g	0	#N/A						
Petroleum Hydrocarbons F4+F4g	5600	µg/g	<0	#N/A						

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH201 SS2 0.8 - 1.2 103.7 - 103.3 WT2405164-011 2024-03-04	BH201 SS5 3.0 - 3.7 101.4 - 100.8 WT2405164-012 2024-03-04	BH201 SS8 7.6 - 8.2 96.9 - 96.3 WT2405164-013 2024-03-04	BH202 GS3 0.6 - 0.9 103.5 - 103.2 WT2405164-002 2024-03-04	BH202 SS5 6.1 - 6.7 98.0 - 97.4 WT2405164-004 2024-03-04	BH202 SS6A 7.6 - 7.8 96.5 - 96.3 WT2405164-005 2024-03-04
BTEX Benzene, Toluene, Ethylbenzene, Xylene										
Benzene	0.17	µg/g	<0.02	Multiple	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	1.6	µg/g	<0.05	Multiple	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene Mixture	25	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m- & p-	NV	µg/g	<0.03	Multiple	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Xylene, o-	NV	µg/g	<0.03	Multiple	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
PHCs Petroleum Hydrocarbons										
Petroleum Hydrocarbons F1-BTEX	NV	µg/g	<10	Multiple				<5.0		<5.0
Petroleum Hydrocarbons F1	65	µg/g	<5	Multiple				<5.0		<5.0
Petroleum Hydrocarbons F2	150	µg/g	30	BH104-SS7				<10		<10
Petroleum Hydrocarbons F3	1300	µg/g	95	BH104-SS7				<50		<50
Petroleum Hydrocarbons F4	5600	µg/g	<50	Multiple				<50		<50
Reached Baseline at C50	NV	NV						YES		YES
Petroleum Hydrocarbons F4 (Gravimetric)	NV	µg/g	0	#N/A						
Petroleum Hydrocarbons F4+F4g	5600	µg/g	<0	#N/A						

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH203 GS4 0.9 - 1.2 100.1 - 99.8 WT2405164-008 2024-03-04	BH203 SS4 4.6 - 5.2 96.4 - 95.8 WT2405164-010 2024-03-04	DUP 03 Duplicate of BH203 SS4 4.6 - 5.2 96.4 - 95.8 WT2405164-016 2024-03-04	GS1 0.3 100.53 WT2405164-017 2024-03-05	GS2 0.3 100.53 WT2405164-018 2024-03-05
BTEX Benzene, Toluene, Ethylbenzene, Xylene									
Benzene	0.17	µg/g	<0.02	Multiple	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	1.6	µg/g	<0.05	Multiple	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene Mixture	25	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m- & p-	NV	µg/g	<0.03	Multiple	<0.030	<0.030	<0.030	<0.030	<0.030
Xylene, o-	NV	µg/g	<0.03	Multiple	<0.030	<0.030	<0.030	<0.030	<0.030
PHCs Petroleum Hydrocarbons									
Petroleum Hydrocarbons F1-BTEX	NV	µg/g	<10	Multiple	<5.0	<5.0	<5.0	<5.0	<5.0
Petroleum Hydrocarbons F1	65	µg/g	<5	Multiple	<5.0	<5.0	<5.0	<5.0	<5.0
Petroleum Hydrocarbons F2	150	µg/g	30	BH104-SS7	<10	12	12	<10	<10
Petroleum Hydrocarbons F3	1300	µg/g	95	BH104-SS7	<50	76	75	<50	<50
Petroleum Hydrocarbons F4	5600	µg/g	<50	Multiple	<50	<50	<50	<50	<50
Reached Baseline at C50	NV	NV			YES	YES	YES	YES	YES
Petroleum Hydrocarbons F4 (Gravimetric)	NV	µg/g	0	#N/A					
Petroleum Hydrocarbons F4+F4g	5600	µg/g	<0	#N/A					

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 5: Summary of Soil Quality Results
Volatile Organic Compounds and Trihalomethanes
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job #	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	CMB-BH103 1.5 - 1.8 98.3 - 98.0 CA14010-JUN21	BH101-SS2 0.8 - 1.4 101.6 - 101.0 WT2333397-002	BH101-SS4 2.3 - 2.9 100.1 - 99.5 WT2333397-003	BH101-SS7 6.1 - 6.3 96.3 - 96.1 WT2333397-005	BH102-SS3 1.5 - 2.0 99.1 - 98.6 WT2333397-008	BH102-SS7 6.1 - 6.4 94.5 - 94.2 WT2333397-009	DUP-2 Duplicate of BH102-SS7 6.1 - 6.4 94.5 - 94.2 WT2333397-031
THMs Trihalomethanes											
Bromodichloromethane	1.9	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	0.26	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	2.9	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
VOCs Volatile Organic Compounds											
Acetone	28	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.12	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	2.7	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	0.18	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,2-	1.7	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,3-	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,4-	0.097	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	25	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,1-	0.6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,1-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-cis-	2.5	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-trans-	0.75	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane, 1,2-	0.085	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene, 1,3-	0.081	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropylene, cis-1,3-	NV	µg/g	<0.03	Multiple		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Dichloropropylene, trans-1,3-	NV	µg/g	<0.03	Multiple		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Ethylene dibromide	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	34	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	44	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	4.3	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether (MTBE)	1.4	µg/g	<0.05	Multiple	<0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Methylene Chloride	0.96	µg/g	<0.05	Multiple	<0.05	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045
Styrene	2.2	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	2.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,1-	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.52	µg/g	<0.05	Multiple	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	5.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	0.022	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 5: Summary of Soil Quality Results
Volatile Organic Compounds and Trihalomethanes
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job #	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH103-SS3A 1.5 - 2.0 96.6 - 96.1 WT2333397-013	BH103-SS8 7.6 - 7.7 90.5 - 90.3 WT2333397-015	BH104-SS2 0.9 - 1.5 98.7 - 98.1 WT2333397-019	BH104-SS7 6.1 - 6.5 93.5 - 93.1 WT2333397-022	BH105-SS2 0.8 - 1.2 104.2 - 103.8 WT2333397-025	BH105-SS7(A) 6.1 - 6.2 98.9 - 98.8 WT2333397-027	BH106-SS3 1.5 - 2.1 97.1 - 96.5 WT2336062	BH106-SS6 3.8 - 4.4 94.8 - 94.2 WT2336062
THMs Trihalomethanes												
Bromodichloromethane	1.9	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	0.26	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	2.9	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
VOCs Volatile Organic Compounds												
Acetone	28	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.12	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	2.7	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	0.18	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,2-	1.7	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,3-	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,4-	0.097	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	25	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,1-	0.6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,1-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-cis-	2.5	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-trans-	0.75	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane, 1,2-	0.085	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene, 1,3-	0.081	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropylene, cis-1,3-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Dichloropropylene, trans-1,3-	NV	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Ethylene dibromide	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	34	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	44	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	4.3	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether (MTBE)	1.4	µg/g	<0.05	Multiple	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Methylene Chloride	0.96	µg/g	<0.05	Multiple	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045
Styrene	2.2	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	2.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,1-	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.52	µg/g	<0.05	Multiple	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	5.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	0.022	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 5: Summary of Soil Quality Results
Volatile Organic Compounds and Trihalomethanes
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job #	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH201 SS2 0.8 - 1.2 103.7 - 103.3 WT2405164-011	BH201 SS5 3.0 - 3.7 101.4 - 100.8 WT2405164-012	BH201 SS8 7.6 - 8.2 96.9 - 96.3 WT2405164-013	BH202 GS3 0.6 - 0.9 103.5 - 103.2 WT2405164-002	BH202 SS6A 7.6 - 7.8 96.5 - 96.3 WT2405164-005	BH203 GS4 0.9 - 1.2 100.1 - 99.8 WT2405164-008	BH203 SS4 4.6 - 5.2 96.4 - 95.8 WT2405164-010
THMs Trihalomethanes											
Bromodichloromethane	1.9	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.26	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	2.9	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
VOCs Volatile Organic Compounds											
Acetone	28	µg/g	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	0.05	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.12	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.7	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.18	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,2-	1.7	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,3-	6	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,4-	0.097	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	25	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,1-	0.6	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,2-	0.05	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,1-	0.05	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,2-cis-	2.5	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,2-trans-	0.75	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropane, 1,2-	0.085	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropene, 1,3-	0.081	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropylene, cis-1,3-	NV	µg/g	<0.03	Multiple	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Dichloropropylene, trans-1,3-	NV	µg/g	<0.03	Multiple	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Ethylene dibromide	0.05	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hexane (n)	34	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	44	µg/g	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	4.3	µg/g	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)	1.4	µg/g	<0.05	Multiple	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Methylene Chloride	0.96	µg/g	<0.05	Multiple	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045
Styrene	2.2	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	0.05	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	0.05	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	2.3	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,1-	3.4	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,2-	0.05	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.52	µg/g	<0.05	Multiple	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	5.8	µg/g	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.022	µg/g	<0.02	Multiple	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 5: Summary of Soil Quality Results
Volatile Organic Compounds and Trihalomethanes
705 Kingston Rd, Pickering

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job #	Table 2 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	DUP 03 Duplicate of BH203 SS4 4.6 - 5.2 96.4 - 95.8 WT2405164-016
THMs Trihalomethanes					
Bromodichloromethane	1.9	µg/g	<0.05	Multiple	<0.050
Bromoform	0.26	µg/g	<0.05	Multiple	<0.050
Dibromochloromethane	2.9	µg/g	<0.05	Multiple	<0.050
VOCs Volatile Organic Compounds					
Acetone	28	µg/g	<0.5	Multiple	<0.50
Bromomethane	0.05	µg/g	<0.05	Multiple	<0.050
Carbon Tetrachloride	0.12	µg/g	<0.05	Multiple	<0.050
Chlorobenzene	2.7	µg/g	<0.05	Multiple	<0.050
Chloroform	0.18	µg/g	<0.05	Multiple	<0.050
Dichlorobenzene, 1,2-	1.7	µg/g	<0.05	Multiple	<0.050
Dichlorobenzene, 1,3-	6	µg/g	<0.05	Multiple	<0.050
Dichlorobenzene, 1,4-	0.097	µg/g	<0.05	Multiple	<0.050
Dichlorodifluoromethane	25	µg/g	<0.05	Multiple	<0.050
Dichloroethane, 1,1-	0.6	µg/g	<0.05	Multiple	<0.050
Dichloroethane, 1,2-	0.05	µg/g	<0.05	Multiple	<0.050
Dichloroethylene, 1,1-	0.05	µg/g	<0.05	Multiple	<0.050
Dichloroethylene, 1,2-cis-	2.5	µg/g	<0.05	Multiple	<0.050
Dichloroethylene, 1,2-trans-	0.75	µg/g	<0.05	Multiple	<0.050
Dichloropropane, 1,2-	0.085	µg/g	<0.05	Multiple	<0.050
Dichloropropene, 1,3-	0.081	µg/g	<0.05	Multiple	<0.050
Dichloropropylene, cis-1,3-	NV	µg/g	<0.03	Multiple	<0.030
Dichloropropylene, trans-1,3-	NV	µg/g	<0.03	Multiple	<0.030
Ethylene dibromide	0.05	µg/g	<0.05	Multiple	<0.050
Hexane (n)	34	µg/g	<0.05	Multiple	<0.050
Methyl Ethyl Ketone	44	µg/g	<0.5	Multiple	<0.50
Methyl Isobutyl Ketone	4.3	µg/g	<0.5	Multiple	<0.50
Methyl tert-Butyl Ether (MTBE)	1.4	µg/g	<0.05	Multiple	<0.040
Methylene Chloride	0.96	µg/g	<0.05	Multiple	<0.045
Styrene	2.2	µg/g	<0.05	Multiple	<0.050
Tetrachloroethane, 1,1,1,2-	0.05	µg/g	<0.05	Multiple	<0.050
Tetrachloroethane, 1,1,2,2-	0.05	µg/g	<0.05	Multiple	<0.050
Tetrachloroethylene	2.3	µg/g	<0.05	Multiple	<0.050
Trichloroethane, 1,1,1-	3.4	µg/g	<0.05	Multiple	<0.050
Trichloroethane, 1,1,2-	0.05	µg/g	<0.05	Multiple	<0.050
Trichloroethylene	0.52	µg/g	<0.05	Multiple	<0.010
Trichlorofluoromethane	5.8	µg/g	<0.05	Multiple	<0.050
Vinyl Chloride	0.022	µg/g	<0.02	Multiple	<0.020

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
Table 2 SCS RPI Med/Fine means Table 2: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded fill)	Exceeds Table 2 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds Table 2 SCS RPI Med/Fine

Table 6: Summary of Ground Water Quality Results
Metals and Other Regulated Parameters
705 Kingston Rd, Pickering

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 2	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH101 18.3 - 21.3 84.1 - 81.1 WT2334536-001 2023-10-23	BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-002 2023-10-20	DUP-1 Duplicate of BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-006 2023-10-20	BH102S 3.0 - 6.1 97.6 - 94.5 WT2336132-001 2023-11-03	BH104S 2.1 - 5.2 97.5 - 94.4 WT2334536-004 2023-10-18	BH104D 12.2 - 15.2 87.4 - 84.4 WT2334536-003 2023-10-20	BH105D 12.2 - 15.2 92.8 - 89.7 WT2334536-005 2023-10-18
Metals											
Barium (Ba)	1000	µg/L	392	BH104D	75.4	67.2	64.3	173	174	392	37.2
Beryllium (Be)	4	µg/L	<0.2	DUP-1	0.026	0.024	0.028	<0.020	<0.200	<0.020	<0.020
Boron (B)	5000	µg/L	206	BH101	206	101	103	46	126	163	154
Cadmium (Cd)	2.7	µg/L	0.0772	DUP-1	0.0201	0.0771	0.0772	0.0477	<0.0500	0.0454	0.0068
Chromium (Cr)	50	µg/L	<5	BH102D	0.97	1.11	1.1	<0.50	<5.00	<0.50	<0.50
Cobalt (Co)	3.8	µg/L	1.27	BH102S	0.73	0.58	0.56	1.27	<1.00	0.49	0.1
Copper (Cu)	87	µg/L	7.69	BH105S	1.68	1.34	1.29	1.53	3.42	1.78	2.32
Lead (Pb)	10	µg/L	<0.5	DUP-1	0.334	0.409	0.416	<0.050	<0.500	0.093	<0.050
Mercury (Hg)	1	µg/L	<0.005	Multiple	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)	70	µg/L	27.5	BH105S	24.7	14	14	6.13	21	17.9	22.4
Nickel (Ni)	100	µg/L	<5	BH102S	0.92	2.05	1.96	2.17	<5.00	1.8	1.2
Silver (Ag)	1.5	µg/L	<0.1	#N/A	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010
Thallium (Tl)	2	µg/L	<0.1	BH102S	<0.010	0.017	0.018	0.055	<0.100	0.014	<0.010
Uranium (U)	20	µg/L	3.08	BH104S	0.077	2.17	2.21	1.97	3.08	0.996	0.993
Vanadium (V)	6.2	µg/L	<5	BH105D	1.7	2.2	2.68	<0.50	<5.00	3.05	3.08
Zinc (Zn)	1100	µg/L	<10	BH101	7.3	4.7	4.4	1.8	<10.0	2.4	1.1
Hydride forming Metals											
Antimony (Sb)	6	µg/L	1.22	BH105S	0.26	0.7	0.71	0.16	<1.00	1.14	0.4
Arsenic (As)	25	µg/L	7.79	BH105D	3.75	1.63	1.66	0.48	<1.00	5.13	7.79
Selenium (Se)	10	µg/L	<0.5	BH102D	0.137	0.418	0.383	0.251	<0.500	0.287	0.158
Sodium											
Sodium (Na)	490000	µg/L	754000	BH104S	61600	39500	39100	108000	754000	267000	43600
ORPs Other Regulated Parameters											
Chloride (Cl-)	790000	µg/L	1130	BH104S	25.9	5.86	5.95	570	1130	431	6.12
Chromium VI	25	µg/L	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cyanide (CN-)	66	µg/L	<2	Multiple	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Electrical Conductivity (EC)	NV	mS/cm	4.47	BH104S	0.373	0.357	0.354	2.31	4.47	1.9	0.265

Notes:

Blanks indicate not analysed.

'NV ' : No Standard established

O.Reg.153/04 Table 2 means O.Reg.153/04 Table 2 means: Table 2 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Medium- to fine-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 2
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 2

Table 6: Summary of Ground Water Quality Results
Metals and Other Regulated Parameters
705 Kingston Rd, Pickering

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 2	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH105S 6.1 - 9.1 98.9 - 95.8 WT2336398-001 2023-11-06	BH202 7.6 - 10.7 96.5 - 93.4 WT2405980-002 2024-03-14	BH203 4.6 - 6.1 96.4 - 94.9 WT2405980-003 2024-03-14
Metals							
Barium (Ba)	1000	µg/L	392	BH104D	42.2		
Beryllium (Be)	4	µg/L	<0.2	DUP-1	<0.020		
Boron (B)	5000	µg/L	206	BH101	187		
Cadmium (Cd)	2.7	µg/L	0.0772	DUP-1	<0.0050		
Chromium (Cr)	50	µg/L	<5	BH102D	<0.50		
Cobalt (Co)	3.8	µg/L	1.27	BH102S	0.13		
Copper (Cu)	87	µg/L	7.69	BH105S	7.69		
Lead (Pb)	10	µg/L	<0.5	DUP-1	<0.050		
Mercury (Hg)	1	µg/L	<0.005	Multiple	<0.0050		
Molybdenum (Mo)	70	µg/L	27.5	BH105S	27.5		
Nickel (Ni)	100	µg/L	<5	BH102S	1.02		
Silver (Ag)	1.5	µg/L	<0.1	#N/A	<0.010		
Thallium (Tl)	2	µg/L	<0.1	BH102S	<0.010		
Uranium (U)	20	µg/L	3.08	BH104S	2.28		
Vanadium (V)	6.2	µg/L	<5	BH105D	1.57		
Zinc (Zn)	1100	µg/L	<10	BH101	1		
Hydride forming Metals							
Antimony (Sb)	6	µg/L	1.22	BH105S	1.22		
Arsenic (As)	25	µg/L	7.79	BH105D	1.82		
Selenium (Se)	10	µg/L	<0.5	BH102D	0.354		
Sodium							
Sodium (Na)	490000	µg/L	754000	BH104S	49000	53400	400000
ORPs Other Regulated Parameters							
Chloride (Cl-)	790000	µg/L	1130	BH104S	6.71	28.4	908
Chromium VI	25	µg/L	<0.5	Multiple	<0.50		
Cyanide (CN-)	66	µg/L	<2	Multiple	<2.0		
Electrical Conductivity (EC)	NV	mS/cm	4.47	BH104S	0.298		

Notes:

Blanks indicate not analysed.

'NV ' : No Standard established

O.Reg.153/04 Table 2 means O.Reg.153/04 Table 2 means: Table 2 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Medium- to fine-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 2
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 2

Table 7: Summary of Ground Water Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
705 Kingston Rd, Pickering

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 2	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH101 18.3 - 21.3 84.1 - 81.1 WT2334536-001 2023-10-23	BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-002 2023-10-20	DUP-1 Duplicate of BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-006 2023-10-20	BH102S 3.0 - 6.1 97.6 - 94.5 WT2336132-001 2023-11-03
PAHs Polycyclic Aromatic Hydrocarbons								
Acenaphthene	4.1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Acenaphthylene	1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Anthracene	2.4	µg/L	<0.028	BH101	<0.028	<0.010	<0.010	<0.010
Benz[a]anthracene	1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Benzo[a]pyrene	0.01	µg/L	<0.005	Multiple	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[b]fluoranthene	0.1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Benzo[ghi]perylene	0.2	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Benzo[k]fluoranthene	0.1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Chrysene	0.1	µg/L	<0.04	#N/A	<0.040	<0.019	<0.015	<0.010
Dibenz[a,h]anthracene	0.2	µg/L	<0.005	Multiple	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.41	µg/L	<0.013	BH101	<0.013	0.01	<0.010	<0.010
Fluorene	120	µg/L	0.011	BH101	0.011	<0.010	<0.010	<0.010
Indeno[1,2,3-cd]pyrene	0.2	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Methlynaphthalene, 2-(1-)	3.2	µg/L	0.031	BH105S	0.022	<0.015	<0.015	<0.015
Methylnaphthalene, 1-	NV	µg/L	0.015	BH105S	0.01	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	NV	µg/L	0.016	BH105S	0.012	<0.010	<0.010	<0.010
Naphthalene	11	µg/L	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050
Phenanthrene	1	µg/L	0.05	BH101	0.05	0.025	0.027	<0.020
Pyrene	4.1	µg/L	0.039	Multiple	0.039	0.012	0.012	<0.010
Total PAHs	NV	µg/L	0.144	BH101	0.144	0.047	0.039	

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
O.Reg.153/04 Table 2 means O.Reg.153/04 Table 2 means: Table 2 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Medium- to fine-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 2
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 2

Table 7: Summary of Ground Water Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
705 Kingston Rd, Pickering

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 2	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH104S 2.1 - 5.2 97.5 - 94.4 WT2334536-004 2023-10-18	BH104D 12.2 - 15.2 87.4 - 84.4 WT2334536-003 2023-10-20	BH105D 12.2 - 15.2 92.8 - 89.7 WT2334536-005 2023-10-18	BH105S 6.1 - 9.1 98.9 - 95.8 WT2336398-001 2023-11-06
PAHs Polycyclic Aromatic Hydrocarbons								
Acenaphthene	4.1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Acenaphthylene	1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Anthracene	2.4	µg/L	<0.028	BH101	<0.010	<0.010	<0.010	<0.010
Benz[a]anthracene	1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Benzo[a]pyrene	0.01	µg/L	<0.005	Multiple	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[b]fluoranthene	0.1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Benzo[ghi]perylene	0.2	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Benzo[k]fluoranthene	0.1	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Chrysene	0.1	µg/L	<0.04	#N/A	<0.010	<0.010	<0.010	<0.010
Dibenz[a,h]anthracene	0.2	µg/L	<0.005	Multiple	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.41	µg/L	<0.013	BH101	<0.010	<0.010	<0.010	<0.010
Fluorene	120	µg/L	0.011	BH101	<0.010	<0.010	<0.010	<0.010
Indeno[1,2,3-cd]pyrene	0.2	µg/L	<0.01	Multiple	<0.010	<0.010	<0.010	<0.010
Methlynaphthalene, 2-(1-)	3.2	µg/L	0.031	BH105S	<0.015	<0.015	<0.015	0.031
Methylnaphthalene, 1-	NV	µg/L	0.015	BH105S	<0.010	<0.010	<0.010	0.015
Methylnaphthalene, 2-	NV	µg/L	0.016	BH105S	<0.010	<0.010	<0.010	0.016
Naphthalene	11	µg/L	<0.05	Multiple	<0.050	<0.050	<0.050	<0.050
Phenanthrene	1	µg/L	0.05	BH101	<0.020	<0.020	<0.020	<0.020
Pyrene	4.1	µg/L	0.039	Multiple	<0.010	0.012	<0.010	0.039
Total PAHs	NV	µg/L	0.144	BH101		0.012		0.101

Notes:

Blanks indicate not analysed.

'NV ' : No Standard established

O.Reg.153/04 Table 2 means O.Reg.153/04 Table 2 means: Table 2 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Medium- to fine-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 2
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 2

Table 8: Summary of Ground Water Quality Results
Petroleum Hydrocarbons and BTEX
705 Kingston Rd, Pickering

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 2	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	CMB-BH102 3.1 - 6.1 100.5 - 97.5 CA14932-JUN21 2021-06-03	CMB-BH103 1.6 - 4.6 98.2 - 95.2 CA14816-JUN21 2021-06-08	BH101 18.3 - 21.3 84.1 - 81.1 WT2334536-001 2023-10-23	BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-002 2023-10-20	DUP-1 Duplicate of BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-006 2023-10-20
BTEX Benzene, Toluene, Ethylbenzene, X									
Benzene	5	µg/L	<0.5	Multiple	<0.5	<0.5	<0.50	<0.50	<0.50
Ethylbenzene	2.4	µg/L	<0.5	Multiple	<0.5	<0.5	<0.50	<0.50	<0.50
Toluene	24	µg/L	<0.5	Multiple	<0.5	<0.5	<0.50	<0.50	<0.50
Xylene Mixture	300	µg/L	<0.5	Multiple	<0.5	<0.5	<0.50	<0.50	<0.50
Xylene, m- & p-	NV	µg/L	<0.4	Multiple			<0.40	<0.40	<0.40
PHCs Petroleum Hydrocarbons									
Petroleum Hydrocarbons F1	750	µg/L	<25	Multiple			<25	<25	<25
Petroleum Hydrocarbons F1-BTEX	750	µg/L	<25	Multiple	<25		<25	<25	<25
Petroleum Hydrocarbons F2	150	µg/L	<100	Multiple	<100		<100	<100	<100
Petroleum Hydrocarbons F3	500	µg/L	<250	Multiple	<200		<250	<250	<250
Petroleum Hydrocarbons F4	500	µg/L	<250	Multiple	<200		<250	<250	<250
Reached Baseline at C50	NV	0	0	#N/A			YES	YES	YES

Notes:

Blanks indicate not analysed.

'NV ' : No Standard established

O.Reg.153/04 Table 2 means O.Reg.153/04 Table 2 means: Table 2 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Medium- to fine-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 2
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 2

Table 8: Summary of Ground Water Quality Results
Petroleum Hydrocarbons and BTEX
705 Kingston Rd, Pickering

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 2	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH102S 3.0 - 6.1 97.6 - 94.5 WT2336132-001 2023-11-03	BH104S 2.1 - 5.2 97.5 - 94.4 WT2334536-004 2023-10-18	BH104D 12.2 - 15.2 87.4 - 84.4 WT2334536-003 2023-10-20	BH105D 12.2 - 15.2 92.8 - 89.7 WT2334536-005 2023-10-18	BH105S 6.1 - 9.1 98.9 - 95.8 WT2336398-001 2023-11-06
BTEX Benzene, Toluene, Ethylbenzene, X									
Benzene	5	µg/L	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	2.4	µg/L	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	24	µg/L	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50
Xylene Mixture	300	µg/L	<0.5	Multiple	<0.50	<0.50	<0.50	<0.50	<0.50
Xylene, m- & p-	NV	µg/L	<0.4	Multiple	<0.40	<0.40	<0.40	<0.40	<0.40
PHCs Petroleum Hydrocarbons									
Petroleum Hydrocarbons F1	750	µg/L	<25	Multiple	<25	<25	<25	<25	<25
Petroleum Hydrocarbons F1-BTEX	750	µg/L	<25	Multiple	<25	<25	<25	<25	<25
Petroleum Hydrocarbons F2	150	µg/L	<100	Multiple	<100	<100	<100	<100	<100
Petroleum Hydrocarbons F3	500	µg/L	<250	Multiple	<250	<250	<250	<250	<250
Petroleum Hydrocarbons F4	500	µg/L	<250	Multiple	<250	<250	<250	<250	<250
Reached Baseline at C50	NV	0	0	#N/A	YES	YES	YES	YES	YES

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
O.Reg.153/04 Table 2 means O.Reg.153/04 Table 2 means: Table 2 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Medium- to fine-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 2
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 2

Table 9: Summary of Ground Water Quality Results
Volatile Organic Compounds and Trihalomethanes
705 Kingston Rd, Pickering

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 2	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	CMB-BH103 1.6 - 4.6 98.2 - 95.2 CA14816-JUN21 2021-06-08	BH101 18.3 - 21.3 84.1 - 81.1 WT2334536-001 2023-10-23	BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-002 2023-10-20	DUP-1 Duplicate of BH102D 12.2 - 15.2 88.4 - 85.4 WT2334536-006 2023-10-20	BH102S 3.0 - 6.1 97.6 - 94.5 WT2336132-001 2023-11-03	BH104S 2.1 - 5.2 97.5 - 94.4 WT2334536-004 2023-10-18	BH104D 12.2 - 15.2 87.4 - 84.4 WT2334536-003 2023-10-20	BH105D 12.2 - 15.2 92.8 - 89.7 WT2334536-005 2023-10-18	BH105S 6.1 - 9.1 98.9 - 95.8 WT2336398-001 2023-11-06
VOCs Volatile Organic Compounds													
Acetone	2700	µg/L	60	CMB-BH103	60	<20	<20	<20	<20	<20	<20	<20	<20
Bromodichloromethane	16	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	25	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	0.89	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	5	µg/L	<0.2	Multiple	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	22	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	25	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylene dibromide	0.2	µg/L	<0.2	Multiple	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	3	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	59	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	1	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	590	µg/L	<2	CMB-BH103	<2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	5	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	5	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	14	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,2-cis-	17	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,2-trans-	17	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	5	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, 1,3-	0.5	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	NV	µg/L	<0.3	Multiple		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3	NV	µg/L	<0.3	Multiple		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Hexane (n)	520	µg/L	<1	CMB-BH103	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Ethyl Ketone	1800	µg/L	<20	Multiple	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	640	µg/L	<20	Multiple	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-Butyl Ether (MTBE)	15	µg/L	<2	CMB-BH103	<2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	NV	µg/L	<1	Multiple	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Styrene	5.4	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	1.1	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	1	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	17	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,1-	200	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	5	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	5	µg/L	<0.5	Multiple	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	150	µg/L	<5	CMB-BH103	<5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	1.7	µg/L	<0.5	Multiple	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Notes:

Blanks indicate not analysed.

'NV ' : No Standard established

O.Reg.153/04 Table 2 means O.Reg.153/04 Table 2 means: Table 2 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Medium- to fine-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 2
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 2

APPENDIX A

File No. 23-197
March 5, 2024

Phase One Environmental Conceptual Site Model

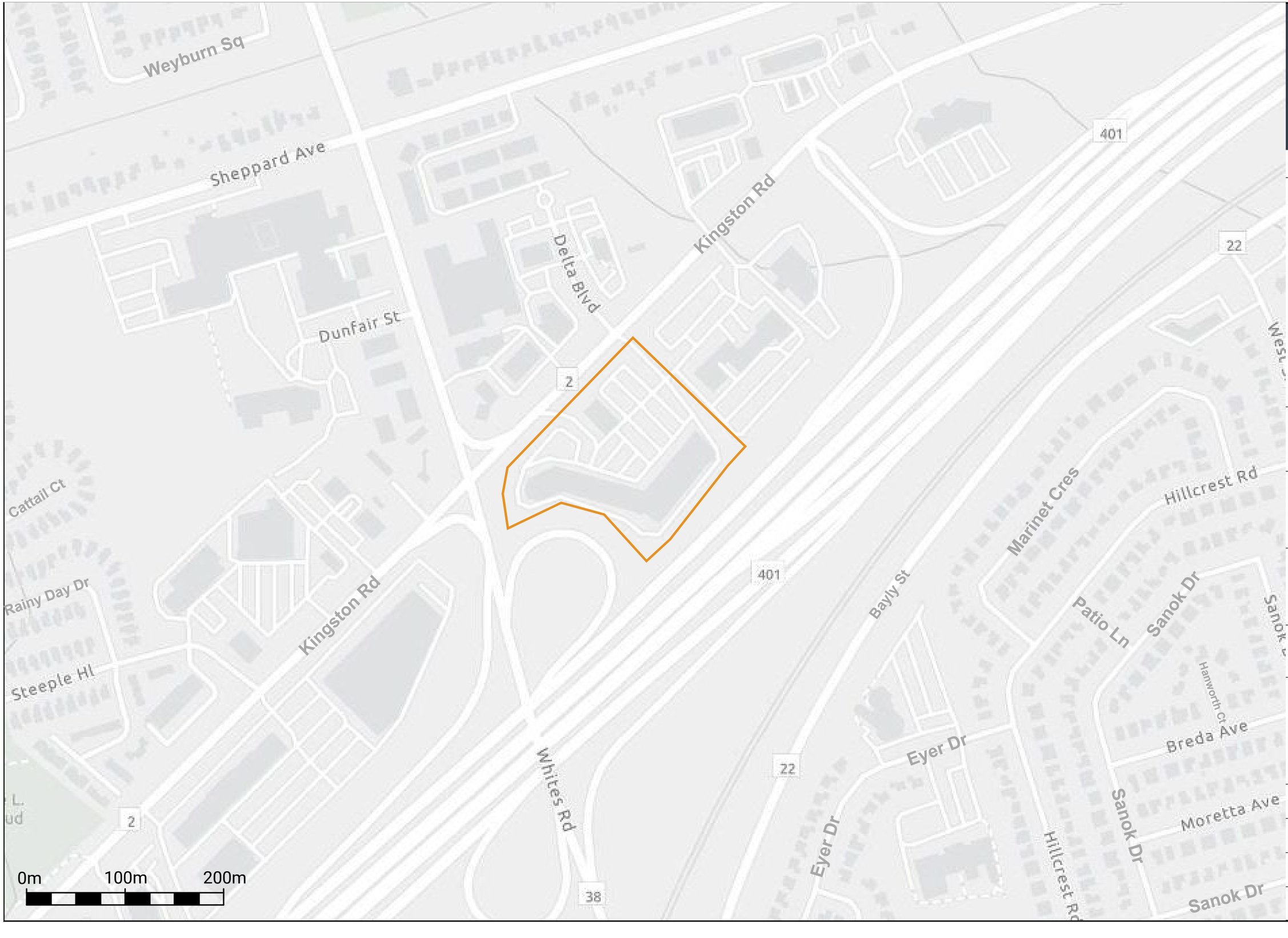
705 Kingston Road, Pickering, Ontario

Phase One ESA including Figures of the Phase One Study Area, which identify the following:	**Phase One ESA Information:**
Existing buildings and structures	Existing building and structures are presented in Figure 2.
Water bodies located in whole or in part on the Phase One Study Area	No water bodies are present on the Phase One Property. All water bodies within the Phase One Study Area are shown on Figure 3.
Areas of Natural Significance located in whole or in part on the Phase One Study Area	No Life Science ANSIs were identified on the property or within the study area. No Earth Science ANSIs were identified on the property or within the study area.
Roads (including names) within the Phase One Study Area	All roads within the Phase One Study Area are shown on Figure 3.
Use of properties adjacent to the Phase One Property	The land use of properties adjacent to the Phase One Property is shown on Figure 3.
Location of drinking water wells on the Phase One Property	No drinking water wells were present on the Phase One Property.
Areas where any PCA has occurred, and locations of tanks in the Phase One Study Area	The location of PCAs and tanks, if any, is shown on Figure 4.
APECs on the Phase One Property	The location of APECs on the Phase One Property is shown on Figure 5.
Narrative Description and Assessments	
Any areas where Potentially Contaminating Activity (PCAs) on, or potentially affecting, the Phase One Property have occurred	<u>On-site PCAs Associated with **APEC 1**</u>: • #30 – Importation of Fill Material of Unknown Quality <u>On-site PCAs Associated with **APEC 2**</u>: • Other 2 – De-icing Activities <u>On-site PCAs Associated with **APEC 3:**</u>

	• 37 – Operation of Dry-Cleaning Equipment (where chemicals are used) On-site PCAs Associated with **APEC 4:** • 55 – Transformer Manufacturing, Processing and Use Off-site PCAs Associated with **APEC 5:** • Other 1 – Ontario Spills • 10 – Commercial Autobody Shops • 28 – Gasoline and Associated Products Storage in Fixed Tanks • 37 – Operation of Dry Cleaning Equipment (where chemicals are used) Off-site PCAs Associated with **APEC 6:** • 10 – Commercial Autobody Shops • 28 – Gasoline and Associated Products Storage in Fixed Tanks
Any Contaminants of Potential Concerns (CoPCs)	CoPCs Associated with **APEC 1**: • Metals, As, Sb, Se, B-HWS, CN-, Hg, Cr(VI), PAHs, VOCs, BTEX, and PHCs in soil CoPCs Associated with **APEC 2**: • EC and SAR in soil • Na and Cl in groundwater CoPCs Associated with **APEC 3:** • VOCs in soil and groundwater CoPCs Associated with **APEC 4:** • PHCs in soil CoPCs Associated with **APEC 5:** • PAHs, PHCs, BTEX and VOCs in soil and groundwater CoPCs Associated with **APEC 6:** • PAHs, PHCs, BTEX, and VOCs in groundwater
The potential of underground utilities (if any present) to affect contaminant distribution and transport	Buried hydro, gas, communication, water and electrical all run through the Property. Based on these observations, there is the potential for underground utilities to affect the distribution and transportation of contaminants underneath the Property.
Available regional or site specific geological and hydrogeological information	Topography: • The approximate elevation of the Property ranges from 105 m above sea level (masl) in the northwest, sloping down to 98 masl. Hydrology:

	• The nearest body of water is Amberlea Creek, located approximately 160 m to the northeast of the Property and runs southeast toward Frenchman's Bay. • Frenchman's Bay is located approximately 1.2 km east of the Property. • Lake Ontario is located approximately 1.6 km southeast of the Property and is connected to Frenchman's Bay via a small channel. • Based on the topography of the Property, surface water is anticipated to flow southeast toward the nearest catch basin. • Based on the locations of Amberlea Creek and Frenchman's Bay, regional groundwater is inferred to flow to the southeast. <u>Overburden:</u> • Stone-poor, sandy silt to silty sandy textured till. <u>Bedrock:</u> • Blue Mountain Formation comprised of shale, limestone, dolostone, and siltstone. • Based on the well record for well ID# 4601906, located south of the Property, bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property.
Any uncertainty or absence of information obtained in the Phase One ESA that could affect the validity of the CSM	No uncertainty or absence of information obtained in the Phase One ESA is identified to have an affect on the validity of the CSM.

Figure 1 – Site Location Plan
Figure 2 – Phase One Property
Figure 3 – Phase One Study Area
Figure 4 – PCA Locations
Figure 5 – APEC Locations



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

APPROXIMATE PROPERTY BOUNDARY

Note

Reference
ArcGIS My Map, 2023.

Project

705 KINGSTON ROAD PICKERING, ONTARIO

Figure Title

SITE LOCATION PLAN

North

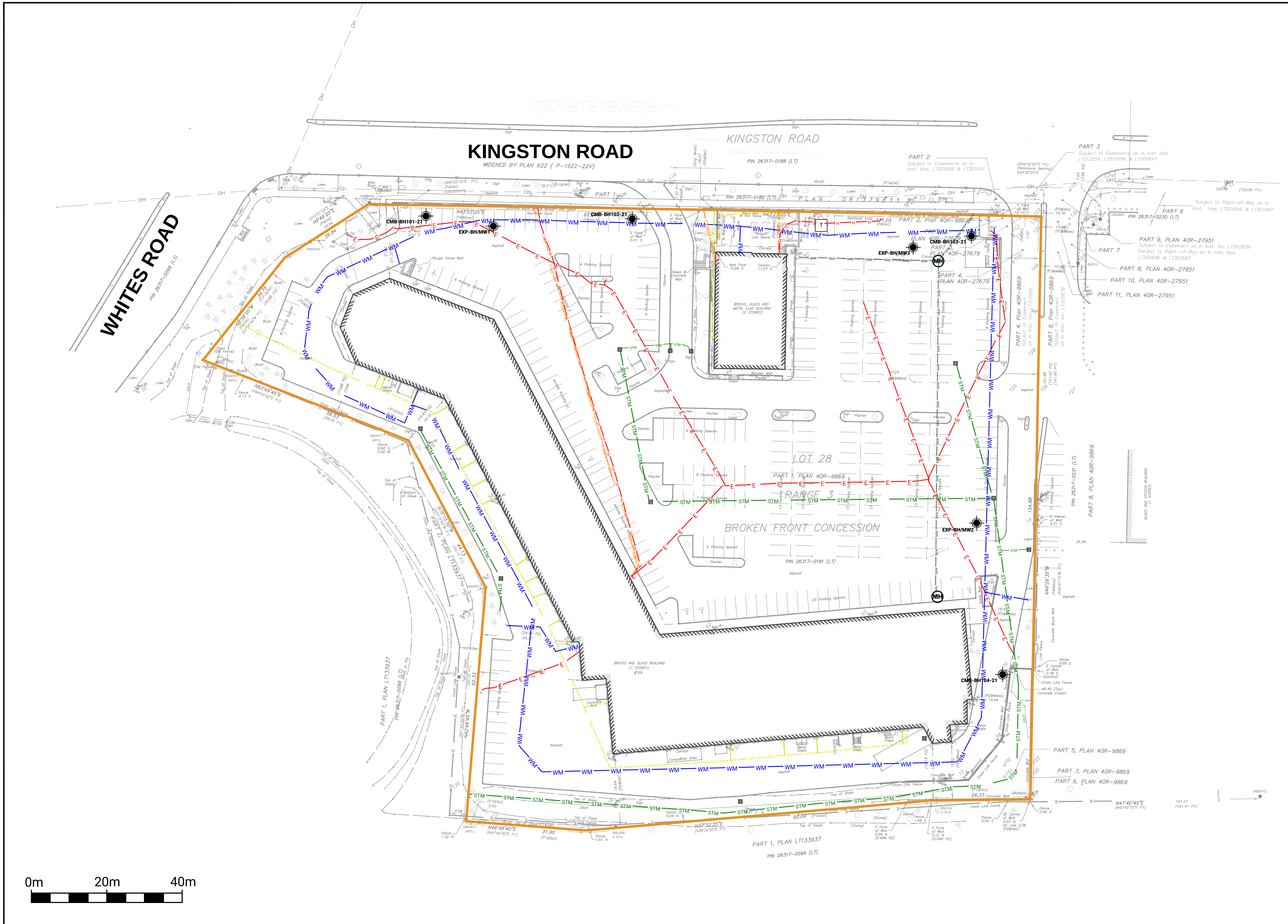
TRUE
PROJECT

Date
JANUARY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 1



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- GAS — GAS
- E — ELECTRICAL
- H — BURIED HYDRO
- O/H — OVERHEAD HYDRO
- WM — WATER
- COMM — COMMUNICATION
- SAN — SANITARY
- STM — STORM
- MH — MANHOLE
- CATCH BASIN
- T — TRANSFORMER

Note

Utilities shown on this figure are shown for informational purposes only for the Phase One ESA, as outlined by O.Reg. 153/04. This is not an official locate and the information presented should not be relied upon.

Reference

Project

705 KINGSTON ROAD PICKERING, ONTARIO

Figure Title

PHASE ONE PROPERTY

North

PROJECT
TRUE

Date

JANUARY 2024

Scale

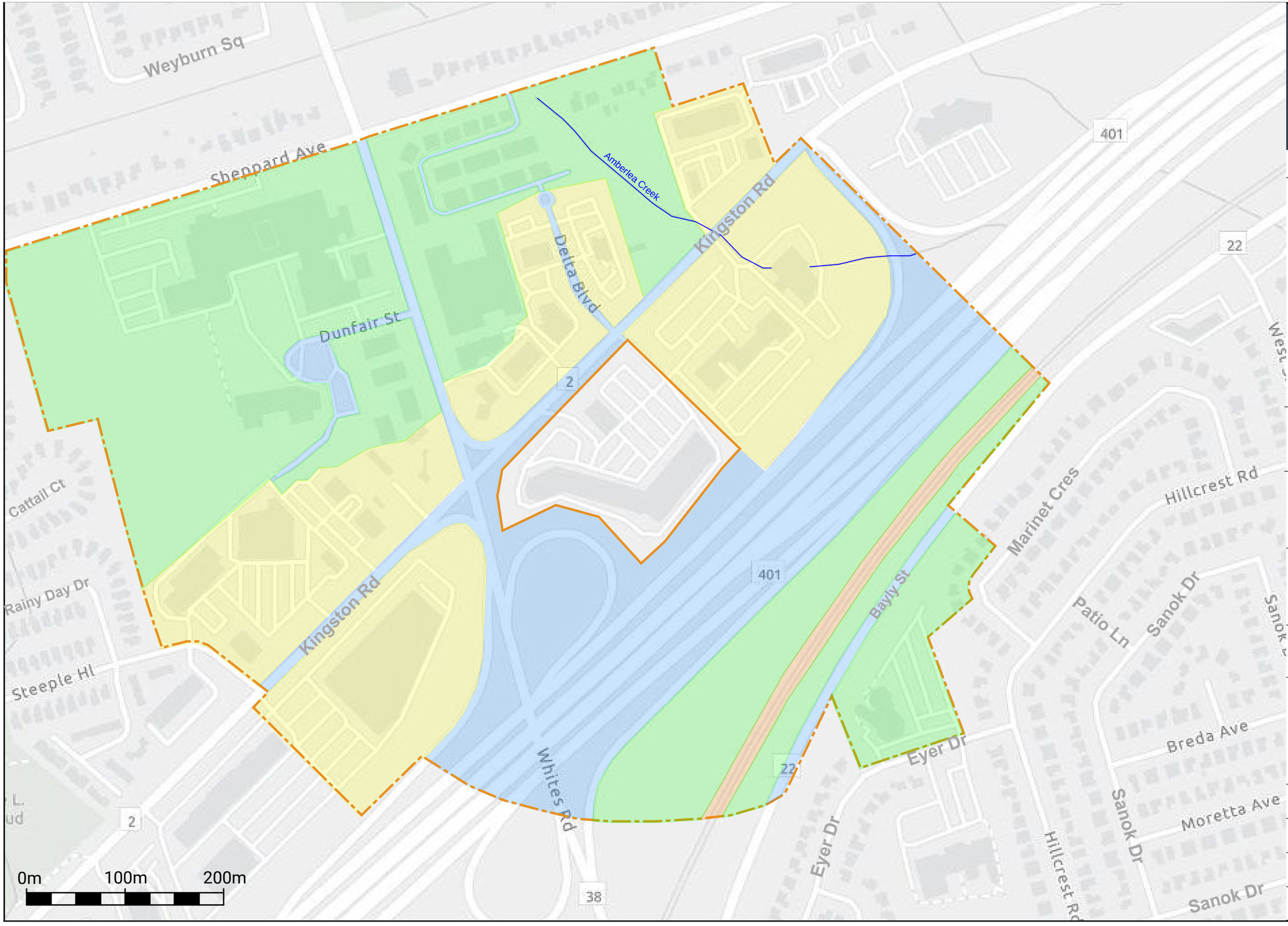
AS INDICATED

Job No

23-197

Figure No

FIGURE 2



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA (250 m RADIUS)
- AGRICULTURAL OR OTHER PROPERTY USE
- COMMERCIAL PROPERTY USE
- COMMUNITY PROPERTY USE
- INDUSTRIAL PROPERTY USE
- RESIDENTIAL, PARKLAND, AND INSTITUTIONAL PROPERTY USE

Note

Reference
ArcGIS My Map, 2023.

Project
705 KINGSTON ROAD, PICKERING, ONTARIO

Figure Title
PHASE ONE STUDY AREA

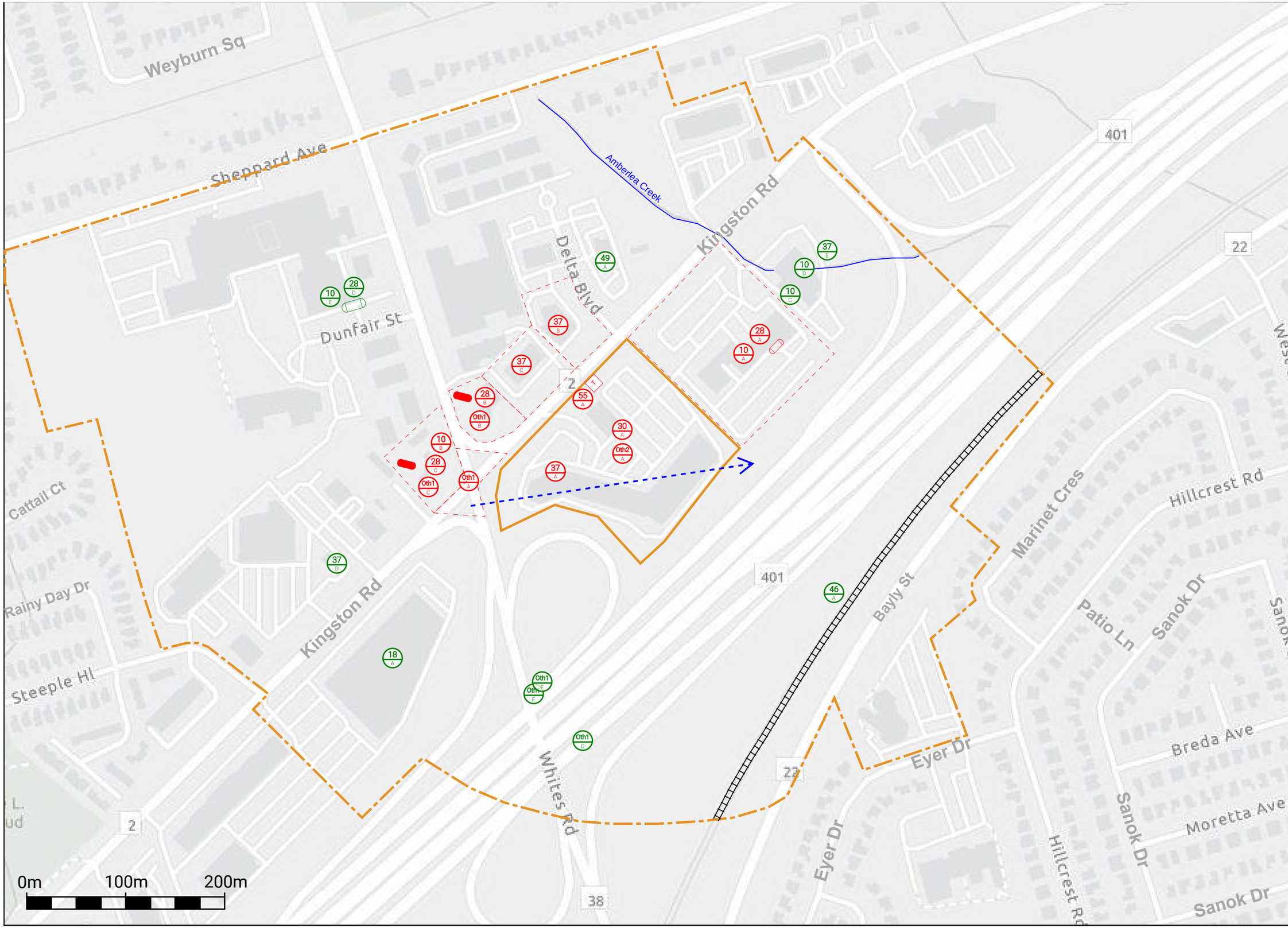
North

Date
JANUARY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 3



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA (250 m RADIUS)
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPERTY/BUILDING OUTLINE WHERE APEC-CAUSING PCA OCCURRED
- ABOVEGROUND FUEL STORAGE TANK
- UNDERGROUND FUEL STORAGE TANK

#10 – Commercial Autobody Shops
#18 – Electricity Generation, Transformation and Power Stations
#28 – Gasoline and Associated Products Storage in Fixed Tanks
#30 – Importation of Fill Material of Unknown Quality
#37 – Operation of Dry Cleaning Equipment (where chemicals are used)
#46 – Rail Yards, Tracks and Spurs
#49 – Salvage Yard, including automobile wrecking
#55 - Transformer Manufacturing, Processing and Use
Other 1 – Ontario Spills
Other 2 – De-icing Activities

Note
GREEN - PCA NOT CAUSING APEC
RED - PCA CAUSING APEC

Reference
ArcGIS My Map, 2023.

Project
705 KINGSTON ROAD, PICKERING, ONTARIO

Figure Title
PCA LOCATIONS

North
TRUE
PROJECT

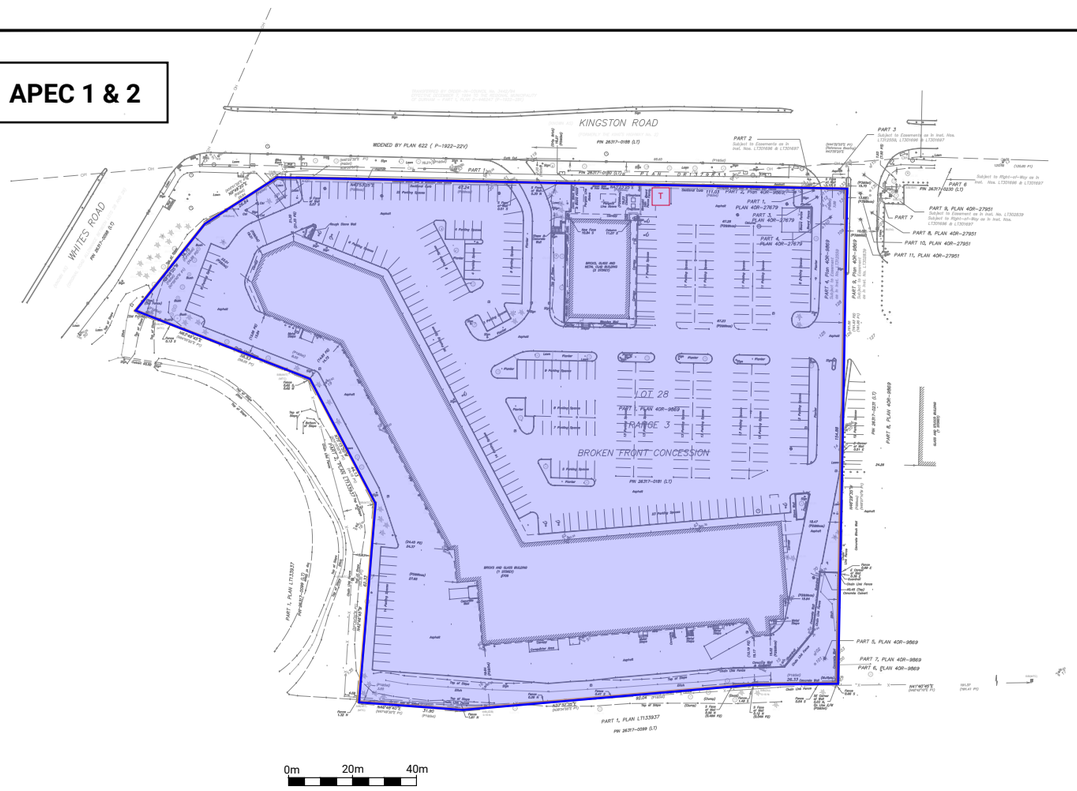
Date
JANUARY 2024

Scale
AS INDICATED

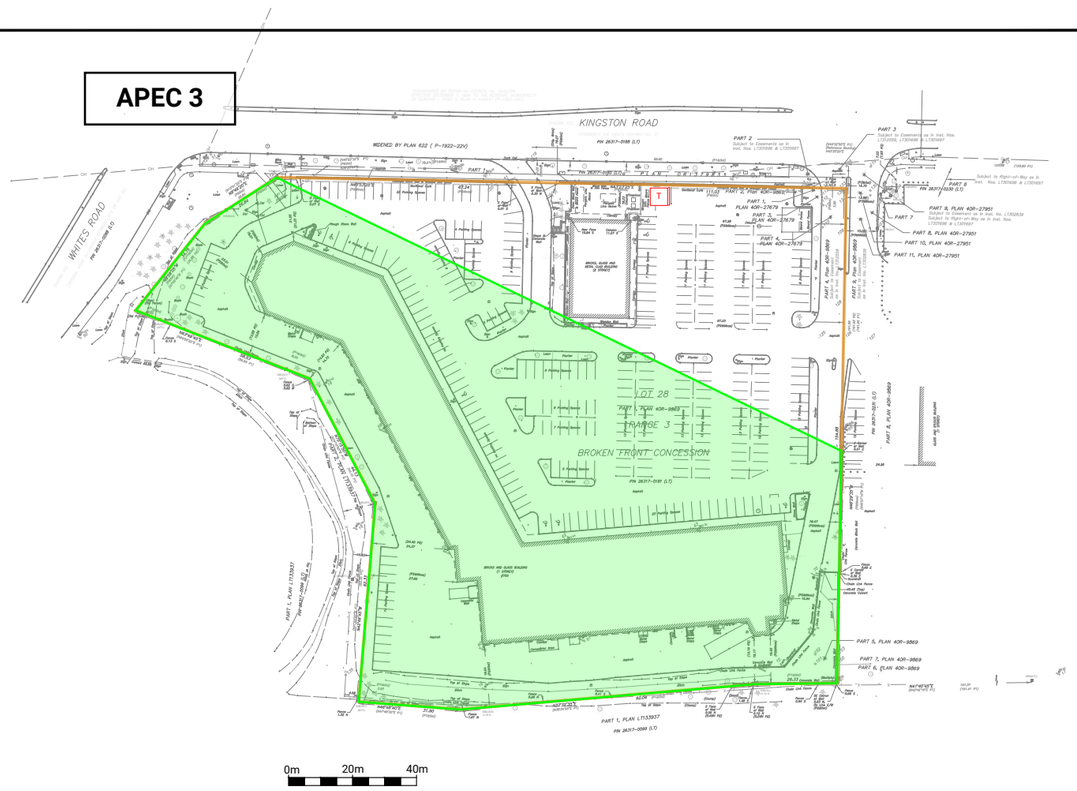
Job No
23-197

Figure No
FIGURE 4

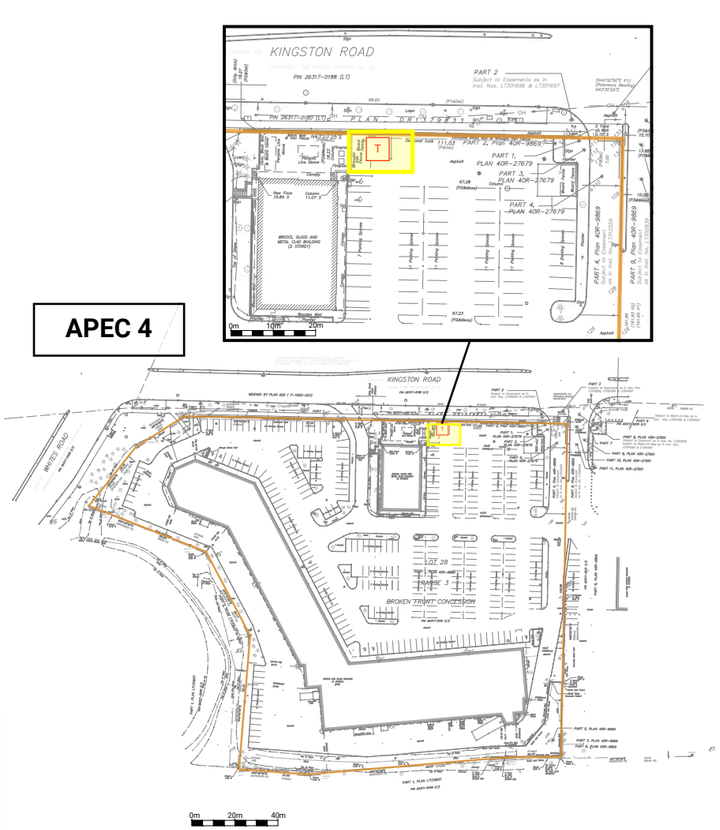
APEC 1 & 2



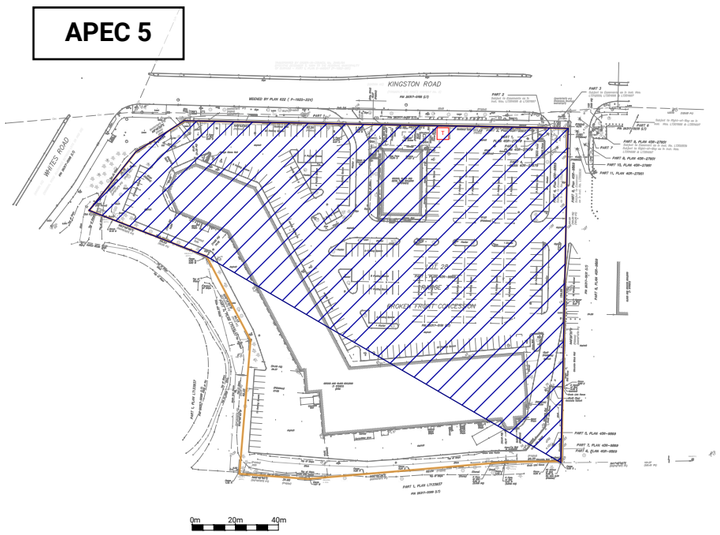
APEC 3



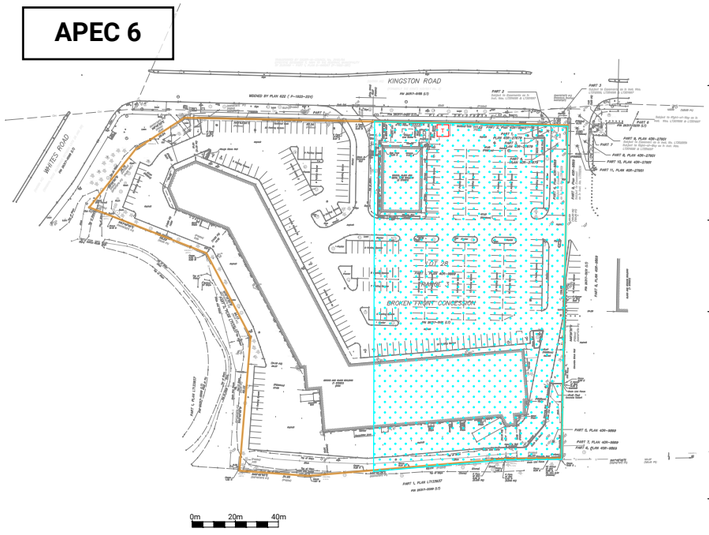
APEC 4



APEC 5



APEC 6



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- APEC 1 & 2
- APEC 3
- APEC 4
- APEC 5
- APEC 6

Note

Utilities shown on this figure are shown for informational purposes only for the Phase One ESA, as outlined by O.Reg. 153/04. This is not an official locate and the information presented should not be relied upon.

Reference

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

APEC LOCATIONS

North

TRUE
PROJECT

Date

NOVEMBER 2023

Scale

AS INDICATED

Job No

23-197

Figure No

FIGURE 5

APPENDIX B

Appendix B: Sampling and Analysis Plan

Areas of Potential Environmental Concern (APECs) & Location	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Rationale
APEC 1 (Entire Property)	30 – Importation of Fill Material of Unknown Quality	Metals As, Sb, Se B-HWS CN- Hg Cr(VI) Low or High pH PAHs PHCs VOCs BTEX	Soil	BH101 BH102-D BH103 BH104-D BH105-D BH106 BH202 BH203	To assess if the soil within the APEC was impacted due to historical use of fill of unknown quality for grading/backfilling purposes during development.
APEC 2 (Entire Property)	Other 1 – De-icing Activities	EC SAR	Soil	BH101 BH102-D BH102-S BH103 BH104-D BH104-S BH105-D BH105-S BH106 BH202 BH203	To assess if the soil and groundwater within the APEC was impacted due to historical and continued application of salt to asphalt parking, adjacent roadways and sidewalks for vehicular and pedestrian safety under conditions of snow or ice or both.
		Na Cl	Groundwater		
APEC 3 (South/Western Portion of the Property)	37 – Operation of Dry-Cleaning Equipment (where chemicals are used)	VOCs	Soil & Groundwater	BH101 BH102-D BH102-S BH103 BH105-D BH105-S BH106 BH201	To assess if the soil and groundwater within the APEC was impacted due to historical dry-cleaning operations identified in Unit #2 of the multi-tenant building on the Property. No intrusive investigation was conducted within the footprint of the location of the former dry cleaner (Unit 2), due to space restrictions and the current use of this unit as an active restaurant.

Areas of Potential Environmental Concern (APECs) & Location	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Rationale
				BH202 BH203	• The limited access equipment and tools required to drill within a confined spacer (such as the south portion of Unit 2) are unable to advance to the required depth to reach the groundwater table. • As such, BH201 and BH202 were advanced directly outside of the footprint of the building to investigate APEC 3 and associated CoPCs. The lack of background information available for this dry cleaner was supplemented by conservatively expanding the area of APEC 3 to incorporate boreholes/monitoring wells located downgradient from the location of the former dry-cleaning unit. • BH202 was advanced directly adjacent to the south of Unit 2 to investigate the area in closest proximity to where dry-cleaning equipment would typically be located. Additionally, storage and handling of materials would occur behind the unit. ○ Therefore, this location is considered an adequate assessment of where the maximum concentrations of CoPCs for APEC 3 would be located.
APEC 4 (Northern Portion of the Property)	55 – Transformer Manufacturing, Processing and Use	PHCs	Soil	GS1 GS2	To assess if the soil within the APEC was impacted due to potential PHC containing oils used within the pad-mounted transformer vault on the Property.
APEC 5 (North/Eastern Portion of the Property)	Other 1 – Ontario Spills 10 – Commercial Autobody Shops	PAHs PHCs BTEX VOCs	Soil & Groundwater	BH101 BH102-D BH102-S BH103 BH104-D BH104-S	• To assess if the soil and groundwater within the APEC was impacted due to historical and current off-site gasoline stations and former autobody shops, as well as associated large volume spills of gasoline/diesel fuel. • To determine the potential presence of LNAPLs on site

Areas of Potential Environmental Concern (APECs) & Location	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Rationale
	28 – Gasoline and Associated Products Storage in Fixed Tanks 37 – Operation of Dry Cleaning Equipment (where chemicals are used)			BH105-D BH105-S BH106 BH202	associated with the historical and current fuel USTs associated with the upgradient gasoline stations and former autobody service stations. • To assess if the soil and groundwater within the APEC was impacted due to the historical dry cleaning activities to the north of the Property.
APEC 6 (Eastern Portion of the Property)	10 – Commercial Autobody Shops 28 – Gasoline and Associated Products Storage in Fixed Tanks	PAHs PHCs BTEX VOCs	Groundwater	BH102-D BH102-S BH104-D BH104-S BH106	To assess if the groundwater within the APEC was impacted due to the historical and current presence of car dealerships and associated autobody service shops on the adjacent Property, as well as the associated waste oil AST and paint spray booth.

APPENDIX C

STANDARD OPERATING PROCEDURE

DRILLING – Augers / SPTs

1 Introduction

Technical employees shall use the following standardized methodology for drilling with auger/boring drill rigs such as the "Sterling auger", Caisson rig", and similar rigs. The purpose is to provide a standardized methodology for drilling with auger/boring drill rigs.

2 Equipment Required

- High-visibility vest
- Eye protection
- Steel-toed boots
- Hard hat
- Hearing protection
- Nitrile gloves
- Deionized or distilled water/Alconox
- RKI Eagle2 Gastech (optional)
- Slider bags
- Soil jars with labels
- Pencils/pens/sharpies
- Tape measure
- Tool to remove stuck soil (screwdriver, knife, chisel, etc.)
- Sampling plan from Project Manager
- Pylons/caution tape (optional)
- Field package
- Locates Package
- Field forms (Field BH Logs, Daily Drilling Notes, Field Notes)
- Garbage bags
- First Aid Kit

3 Procedure

3.1 Before Going to Site

1. Participate in the drilling kickoff meeting to understand the full scope. Refer to soil sampling SOP / Soil Sampling Guide if taking environmental soil samples and prepare accordingly.
2. Print and review the field package and locates package. Have these with you on site.
3. Ensure all equipment batteries are charged.
4. Coordinate site access with PM/client.
5. Review sampling locations and sampling depths from provided sampling plan.

3.2 General Health and Safety Tips

- Always wear your hard hat while on site.
- Hearing protection is strongly recommended while the rig is operational, even when not hammering. This is due to constant noise.
- Eye protection should be worn while the rig is operational. Rig parts can be under a lot of tension or torsion; they can break and fly off at any time.
- Familiarize yourself with the specific drill rig's safety mechanisms (such as emergency stop buttons). Ask the driller for help if unsure.
- Never approach a drill rig while it is operational. Signal to get the driller's attention and allow them to stop the rig. They will advise you when it is safe to approach.
- Stay clear while the rig is moving between boreholes.
- Be aware of the rig's horizontal and vertical clearance. Try to remain farther away from the rig than the rig's tower is tall. This is a precaution in the event a rod detaches from the tower or the rig tips over.
- Watch for above-head power lines.
- Never leave a borehole open overnight or unattended unless you have proper fencing, plywood, or road plates. (pylons and caution tape are not good enough)
- If bubbling is encountered in the drilling mud, please flag to the PC/PM immediately. This could indicate a high concentration of gas in the borehole.
- Be prepared for adverse weather conditions:
    - Rain: Keep paperwork and electrical equipment dry. Wear water-repellant clothes.
    - Thunderstorms: Stop work and take shelter until 30 minutes after you last heard thunder.
    - Snow and cold: Dress warmly. Do not leave equipment or water in your car overnight.
    - Heat: Stay out of direct sunlight as much as possible. Stay hydrated.

3.3 On-Site Activities

Coordinate with PM and drillers when to arrive on site. This will typically be 8am but can be adjusted based on project needs and driller/tech preference. Arrive before the drillers. It is also a good idea to have field forms and soil jars marked up and labeled in advance to save time during drilling.

Keep detailed field notes of drilling starting and stopping times, number of drums used, obstructions encountered, down-time for drilling rig, time on- and off-site, and any inquiries by the public in addition to standard soil descriptions and well installation information. Initial and daily calibration records must be saved to the project folder if using a RKI Eagle 2 Gastech.

3.3.1 Before Drilling

The following steps should be taken before drilling occurs:

1. Take a site walk to familiarize yourself with the site's layout. Update the health and safety form with any hazards you find that were not discussed in the kickoff.
2. Locate the borehole marker. Ensure the area is properly marked according to the locates. If locates and markings are incorrect or missing, advise the PM.

3. Take photos of the marker and the surrounding area. Upload these photos to the "_Photos" folder within the job folder with the date they are taken.
4. Have the contractor mobilize the drill rig to the site. Ensure requested equipment is present. Inspect the drill for cleanliness and look for any oil leaks. Ensure that the drill was properly cleaned prior to mobilizing onto the client's property.
5. Hand the locates package to the driller for review.
6. Host a health & safety meeting and/or participate in the drillers' health and safety meeting:
    a. Provide an overview of the scope of drilling; confirm number of boreholes, intended depths, preferred drilling method, environmental scope, drum storage location, and other special considerations as needed.
    b. Discuss and point out potential hazards on site as discussed with the PM in the kickoff meeting or that you identified on your site walk.
    c. If working on a slope, never stand down-slope of the machine in case of tip-over.
    d. Ensure the drillers use a drill guard or cage whenever possible.
    e. Identify a muster point in the event of an emergency.
    f. Address any questions the drillers may have about the site, locates, or project according to what was discussed in the kickoff. Do not guess answers. If you are unsure, confirm with the PM.
    g. Sign any required paperwork. Our health & safety sheet requires that the lead Grounded field technician and lead driller initial the public and private locates and that all personnel on site sign the bottom of the sheet to confirm they understand. Any new personnel on site must also be briefed and sign. Upload this sheet to the job specific folder on the server.
7. In places with vehicle and/or pedestrian traffic, section off the area the rig will be operating with pylons and/or caution tape.
8. Once the rig has moved into position, ensure the drilling position is on the marker or within tolerances as indicated by the locates.
9. Using field forms, note project name and number, BH/well ID, date, and time.
    a. Review the checklist and update it as items are completed.
    b. Fill in the top section of the borehole log: Drilling company, driller's name, rig name, and drill method used.
    c. The drill method should include the type of drilling (HSA, SSA, Mud Rotary, Direct Push, etc.), what size auger/tricone was used (diameter), and the depths the method was used.
10. If there is an environmental scope, ensure vials are prepared in advance and that the gastech has been checked/calibrated. Refer to Soil Sampling SOP / Soil Sampling Guide.
11. Carry out site specific instructions and health and safety plan.

3.3.2 Drilling Process

This process will be most of the drilling time. As drilling continues, be sure to take note of any downtime that may occur, and what caused it. Also listen for any grinding, and watch the rig for bouncing/shaking, as this

may indicate cobbles or boulders which will not appear in spoons and may cause refusal. Note these observations on the BH log.

1. Note the surficial materials for the BH. Typically, this will be concrete or asphalt with an underlying granular/gravel layer, or topsoil (if on grass or directly on soil). Note the depth of each layer (in inches) and update the depths of future spoons taking this into account. You may need to wait until drillers switch from augers to mud rotary before there is a safe and practical opportunity to obtain this measurement.
2. Identify the split spoon being taken on the left of the BH Log. Make sure it is slotted at the correct depth and that the size of the box matches the size of the spoon (typically 24" for environmental drilling, and 18" for no environmental scope).
3. Count the blows the hammer takes to push the spoon every 6". Sum the 2nd and 3rd blow counts into the N value. Read and understand ASTM D1586 Standard Penetration Test (SPT).
    a. Watch as the drillers mark the 6" segments to ensure they are spaced appropriately.
    b. Use an easily identifiable reference point (such as the lip of the casing or the ground's surface) to keep track of when a given 6" segment has been hammered.
    c. If the blow count exceeds 50 blows for a single 6" segment, stop the hammering to avoid damage to equipment. This is known as spoon refusal. The soil is too dense or hard or may have too many boulders. Note the blows for that 6" segment as "50/x" where x is the number of inches the spoon was successfully hammered.
4. When a split spoon is brought to surface:
    a. Put on a clean pair of nitrile gloves.
    b. Measure the sample's length, possibly ignoring the topmost material (it may be cave-in from when the drilling equipment was pulled out). Note the recovery (in inches) as a fraction: sample recovered / length spoon traveled (typically 24" or 18" but may be less if there was refusal). Be sure to separate different strata as A or B etc.
    c. If soil recovery is low or if odd material is detected in the spoon, send a photo to the PM before disturbing the sample.
    d. Name the spoons sequentially as SS#. Note the top and bottom depths of the split spoon samples (in feet and inches). Remember that the spoon does not always reach 24" (or 18"), so calculate the depth based on refusal if it occurs.
    e. If sampling VOCs or F1 PHCs, sample into vials immediately. Refer to Soil Sampling SOP / Soil Sampling Guide.
    f. Break apart the soil to determine the soil's description.
        - Note the quantities of clay, silt, sand, and gravel.
        - Note any other material found in the sample, such as brick, concrete, asphalt, glass, wood, grass, etc.
        - Note the soil's colouring (brown, grey, red, etc.)
        - Note any staining in the soil.

- Note the moisture level (*dry* soil with no moisture, *wet* if liquid water is present, or *moist* for any other level of moisture).
- Note relative density or consistency, depending on soil type.
- Note any odours detected in the soil, and how strong they are.

g. Put soil into a soil jar, and label it appropriately. These will be checked by the PM and used for lab analysis. Use a different jar for different soil strata. Be sure to note if there is hazardous material in the soil jar such as glass or contamination. Place soil jars in labeled boxes.
   - If environmental sampling, fill remaining soil into a slider bag to test for gas and to use for lab submissions. Label all slider bags as you would on our BH stickers. Refer to Soil Sampling SOP / Soil Sampling Guide.

5. Take split spoon samples every 2.5ft for the first 10ft of drilling (typically 5 spoons), or until native soil is determined (whichever comes **second**).
   a. Refer to any previous BH Logs in the field package to help identify fill and native soil.
   b. For first time drilling on site, native soil may look entirely different from fill material.
   c. If the soil appears similar throughout, the fill may be **reworked native soil.**
      - Native soil is typically more dense/consistent than fill (approx. N > 15).
      - Native soil will not have fragments of construction material (e.g., brick, concrete, asphalt).
   d. If native soil is not found within 10ft, keep sampling at 2.5ft intervals until native soil is found.
   e. Send the PM a photo of the BH Logs to confirm if switching to 5ft sample intervals is appropriate.
6. Continue sampling at 5ft intervals.
7. If the target depth is deep, drilling will typically switch from augers to mud rotary after 10ft. Drillers will set up a tank and mix drilling mud. This takes about 30-50 minutes. Ensure your notes are up to date and catch up on anything you missed at this time. Note that water was introduced to the well on the bottom right of the BH log's first page.
8. Once the target depth is reached, send a photo of the entire BH log to the PM to confirm if the BH can be terminated. If a well is to be installed, confirm the depth of the screen. The PM will use the presence of wet samples and the type of strata encountered.
9. Ask the driller to take depth to cave and depth to groundwater measurements before any well installation or backfilling takes place. Note the measurements on the bottom-right of the BH log's first page.
10. Check with PC/PM for well installation details.
11. If no well is being installed, note the material drillers use to backfill the BH.
12. Once well installation or backfilling is completed, take photos of the BH and the surrounding area. Upload these photos to the "_Photos" folder within the job folder with the date they are taken.
12. If drums were used to dispose of soil cuttings and/or drilling mud, note the total number of drums in the bottom-right of the BH log's first page.
13. Upload all BH logs and field notes to the project folder with the date, document type, and your initials as the name of the file.

3.3.3 End of Day Wrap Up

If ending the day mid-drilling, take the following steps to wrap up the day and to prepare for the next day:

1. Coordinate what time everyone will arrive on site tomorrow.
2. Some drillers may have time sheets and material lists that require a technician's signature at the end of the week. Review these carefully to ensure their time claims are accurate and that the materials listed were used. Refer to your field notes. Reach out to the PM if there is a conflict. Once signed, upload a photo of the time sheet to the "driller time sheets" folder of the project.
3. **Upload all documentation** to the project folder **every day**. If a document is incomplete (such as a partial BH log) it can be noted as such.
4. Do not leave any samples on site. Take them home with you or drop them off at the office. Refrigerate environmental samples.
5. Clean up and secure the site as per instructions in the field package.
6. Advise the PM when you and the drillers are off-site.

3.3.4 End of Drilling

Once the drilling phase of the project is completed, take the following steps to wrap-up the work. It may save time to take some of these steps as the work continues. Longer drilling jobs may require frequent office trips to drop off samples.

1. Take a photo of the drum location. Send it to the PM with a final total drum count.
2. Review driller time sheets as noted in the End of Day Wrap-Up.
3. Submit any environmental samples to the lab or the office. Refer to Soil Sampling SOP / Soil Sampling Guide.
4. Return soil sample jars to the office and log them in the soil submission shelves.
    - Also log any remaining slider bags on the shelf.
5. Return other equipment to the office, arrange the return of any rented equipment with the PM.
6. **Upload all documentation** to the project folder. Attach any well sketch or rock core log as part of the Field Borehole Log file.

3.4 Utility Strike

If a utility is struck, take the following steps:

1. Stop all work.
2. Determine the type of utility hit and proceed accordingly:
    - Electrical: Stay away from any overhead wires that have been hit. Don't touch the drill rig. Clear everyone away from the area. Shuffle slowly away from equipment using very small steps to minimize the contact area with the ground.

- Natural Gas: Hit emergency kill switch/button on drill rig if safe to do so. Clear everyone away from the area. Call the Spills Action Centre (SAC) to report the incident (1-866-663-8477).
- Water/Sewer: Hit emergency kill switch/button on drill rig if safe to do so. Clear everyone away from the area. Call 311 to connect with the appropriate municipality.
- Communication Lines: Hit emergency kill switch/button on drill rig if safe to do so.
- Private Utilities: Hit emergency kill switch/button on drill rig if safe to do so. Contact private utility owner.

3. Call Ontario One Call and utility provided to report the incident and have it repaired.
4. Call the Grounded Project manager to report the incident once all immediate safety concerns have been addressed.
5. Review utility locate plans.

4 References

- ASTM D1452 (2016) Soil Exploration and Sampling by Auger Boring
- ASTM D1586 (2018) Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils
- Note: D1452 refers to HSA standard as D6151

SOIL SAMPLING GUIDE

The procedures outlined in this guide are designed to ensure that the collected soil samples are representative of current site conditions at that time. Soil samples can be collected for onsite screening or for laboratory analysis.

This guideline is written for the sole use of the company employees and will be revised periodically to reflect updates to company policies, work practices, and applicable provincial / territorial and / or federal guidance.

ACRONYMS AND ABBREVIATIONS

A list of common acronyms and abbreviations:

°C	Degrees Celsius	TOV	Total Organic Vapour
PPE	Personal Protective Equipment	IDW	Investigation Derived Waste
CGD	Combustible Gas Detector	QAPP	Quality Assurance Project Plan
TCV	Total Combustible Vapour	QA/QC	Quality Assurance / Quality Control
CGD	Combustible Gas Detector	MIT	Massachusetts Institute of Technology Soil Classification System
PID	Photoionization Detector		

PREPARING FOR SOIL SAMPLING EVENT

When preparing for the soil sampling event, field staff are reminded to:

- Review project scope of work (e.g., proposal) with Project Manager to ensure project requirements are understood
- Review the soil sampling guideline
- Prepare / obtain / rent equipment as needed, including:
    - Field Book
    - PPE (Change disposable gloves for each sample, to limit the possibility for cross-contamination)
    - Field screening equipment (e.g., CGD, PID, etc.)
    - Sample containers
    - Hand tools (e.g., knife, trowel, pocket penetrometer, etc.)
    - Tape measure
    - Sampling equipment (see potential options below)
    - Decontamination supplies (Use lab grade soap and distilled water)

SAMPLING PROGRAM

When preparing for the sampling event, it is appropriate to consider the sampling equipment to be used and the depth of the sample(s) required (e.g., surface, or subsurface). Below is a list of common sampling equipment and approaches:

SAMPLING APPROACH	TO CONSIDER
BOREHOLE 	▪ Borehole to be generally completed by a subcontracted driller unless completed by hand augering which may be done by Grounded staff. ▪ Typical sampling devices include spilt spoons and polyethylene liners. ▪ Sample intervals are project specific to be defined by the Project Manager.
TEST PITS 	▪ NEVER enter a trench, test pit or excavation unless authorized by the Project Manager. ▪ Trench, test pit or excavation to be completed by a subcontractor ▪ A trowel or hand auger may be used within the test pit if it safe to enter. ▪ Sample from the excavator's bucket if the test pit is not safe to enter. Ensure the bucket is at rest and the machinery is turned off when collecting the sample. Always maintain eye contact with the operator when machinery is on. ▪ Log the entire soil stratigraphy within the test pit.
STOCKPILES 	▪ Stockpiles can be sampled either via machinery, hand, or a combination of the two. ▪ Sample the stockpile as directed by the Project Manager. Note there are defined provincial and federal sample requirements.

MACHINERY / DRILL RIG **refer to drilling standard operating procedure for further details	
SAMPLING APPROACH	**TO CONSIDER**
EXCAVATOR 	▪ The excavator shall only be operated by a trained person. Grounded staff shall NOT operate the equipment under any circumstance. ▪ Grounded staff shall have completed training in relation to working around heavy equipment prior to undertaking work. ▪ The operator shall collect the sample and bring to Grounded staff. ▪ The excavator shall not be in operation when Grounded staff are collecting a sample. ▪ The sample shall be collected from within the excavator bucket away from the edges and excavator teeth. ▪ The sample shall be collected away or upwind of fuel-powered equipment (e.g., drill rigs, excavators, backhoes, etc.) and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample.
BACKHOE 	▪ The backhoe shall only be operated by a trained person. Grounded staff shall NOT operate the equipment under any circumstance. ▪ Grounded staff shall have completed training in relation to working around heavy equipment prior to undertaking work. ▪ The operator shall collect the sample and bring to Grounded staff. ▪ The backhoe shall not be in operation when Grounded staff are collecting a sample. ▪ The sample shall be collected from within the backhoe bucket away from the edges and backhoe teeth. ▪ The sample shall be collected away or upwind of fuel-powered equipment (e.g., drill rigs, excavators, backhoes, etc.) and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample.

PIONJAR ® 	▪ Specialized equipment used in limited access conditions (e.g., cramped quarters, low height clearance, restricted access, etc.). ▪ Equipment varies depending on drilling contractor (e.g., PionJar®, tripod, portable with power pack, etc.). ▪ Be aware of limitations of equipment and note limited access rigs are not meant for deep investigative work.
HILTI 	▪ Specialized equipment used in limited access conditions (e.g., cramped quarters, low height clearance, restricted access, etc.). ▪ Equipment varies depending on drilling contractor (e.g., PionJar®, tripod, portable with power pack, etc.). ▪ Hilti drilling has mud rotary and rock coring capabilities. ▪ Be aware of limitations of equipment.
K40 	▪ Specialized equipment used in limited access conditions (e.g., cramped quarters, low height clearance, restricted access, etc.). ▪ Equipment varies depending on drilling contractor (e.g., PionJar®, tripod, portable with power pack, etc.). ▪ K40 drilling has mud rotary and rock coring capabilities. ▪ Be aware of limitations of equipment.
LIMITED ACCESS RIG (LAR) 	▪ Specialized equipment used in limited access conditions (e.g., cramped quarters, low height clearance, restricted access, etc.). ▪ Equipment varies depending on drilling contractor (e.g., PionJar®, tripod, portable with power pack, etc.). ▪ Limited Access Rig (LAR) drilling has mud rotary and rock coring capabilities ▪ Be aware of limitations of equipment.
DIRECT PUSH 	▪ Generally preferred for environmental investigations, provides continuous undisturbed soil samples. ▪ Has ability to auger, but strengths lie in direct push capabilities. ▪ Limitations based on soil conditions. ▪ Equipment varies depending on drilling contractor (e.g., track mount, truck mount, skid steer mount, etc.). ▪ Recent developments with equipment allow SPT sampling and rock coring capabilities (dependent on drill rig and drilling contractor).

CONVENTIONAL 	▪ Generally preferred for geotechnical investigations as it provides SPT values and generally more powerful as compared to direct push drill rigs, provides continuous undisturbed soil samples. ▪ Limitations based on height restrictions. ▪ Equipment varies depending on drilling contractor (e.g., track mount, truck mount, barge mount, etc.). ▪ Very versatile as many drilling options available including: SPT, mud rotary, triconing, telescopic drilling, etc.
SONIC 	▪ Specialized equipment used in adverse drilling conditions (e.g., flowing sands, rock core spoils, etc.). ▪ High hourly rates. ▪ Requires significant height clearance. ▪ Versatile drill rig like a conventional drill rig capability.

SAMPLERS	TO CONSIDER
SPLIT SPOON 	▪ Sample can be obtained from the following above mentioned drill rigs: limited access, direct push, conventional. ▪ Sample to be collected by a licensed driller, who will provide the sample to Grounded, post sample collection. ▪ Sampler is decontaminated between samples. ▪ Sampler shall only be opened by the driller to prevent injury to Grounded staff. ▪ The sample shall be collected away or upwind of fuel-powered equipment (e.g., drill rigs, excavators, backhoes, etc.) and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample.
SHOVEL 	▪ Shovel is in good condition with no noticeable defects. ▪ Shovel is made of non-reactive and non-leachable materials which are compatible with the chemical constituents at the site. E.g. Stainless steel, not plastic. ▪ Decontamination equipment is present to decontaminate between samples. ▪ Preferred depth of sample is achievable with shovel. Ideal for shallow grab samples or confirmatory sampling in excavations that are < 1m.

TROWEL 	▪ Trowel is in good condition with no noticeable defects. ▪ Trowel is made of non-reactive and non-leachable materials which are compatible with the chemical constituents at the site e.g., stainless steel. ▪ Decontamination equipment is present to decontaminate between samples. ▪ Only shallow samples shall be obtained using a trowel (<1ft). Ideal for stockpile or surface grab sampling.
HAND AUGER 	▪ Hand auger is in good condition with no noticeable defects. ▪ Decontamination equipment is present to decontaminate between samples. ▪ Preferred depth of sample is achievable with hand auger extension poles and sampling device (i.e. < 2 m). Ideal for shallow borehole drilling or subsurface grab samples. *NOTE: the sample collection device on the auger is dependent on the soil to be sampled.*
POLYETHYLENE LINER 	▪ Sample can be obtained from a direct push drill rig mentioned above. ▪ Sample to be collected by a licensed driller, who will provide the sample to Grounded, post sample collection. ▪ A new liner is used for each sample collected. ▪ Liner shall only be opened by the driller to prevent injury to Grounded staff. *NOTE: sharp edges may be present along cut liner edges, be aware.* ▪ The sample shall be collected away or upwind of fuel-powered equipment (e.g., drill rigs, excavators, backhoes, etc.) and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample.
SHELBY TUBE 	▪ Sample can be obtained from a conventional drill rig mentioned above. ▪ Typically used for geotechnical sampling (e.g., porosity, permeability) of undisturbed soils. ▪ Once material is sampled, the tube is: capped or sealed (to maintain the sample in its relatively undisturbed state), labelled with the sample name, orientation of the sample (e.g., top and bottom), depth interval and shipped to the appropriate geotechnical laboratory.

DRILLING TECHNIQUES	TO CONSIDER
ROTARY	
SOLID STEM AUGERS 	PROS: ▪ Good for drilling in cohesive soils ▪ Does not require use of drilling fluids ▪ Minimal drilling cuttings generated ▪ Fast production rate ▪ Can be completed with direct push, conventional and some limited access drill rigs CONS: ▪ Unconsolidated soils cause issues for sampling and well installs
HOLLOW STEM AUGER 	PROS: ▪ Good for unconsolidated soils ▪ Allows for good sand pack around wells ▪ Does not require use of drilling fluids ▪ Can be completed with conventional and some direct push drill rigs CONS: ▪ Slower production rate ▪ Increased soil cuttings generated
SLURRY SUPPORTED (e.g., mud, bentonite, grout, polymer) 	PROS: ▪ Ability to sample a wide range of soil conditions ▪ Completed with conventional drill rigs CONS: ▪ Management of drilling fluid ▪ Slower rate of production

PERCUSSION (aka air rotary) 	PROS: ▪ Ability to sample a wide range of soil conditions ▪ Fast production ▪ Cleans borehole ▪ Completed with conventional drill rigs CONS: ▪ Samples become disturbed
VIBRATORY (aka Sonic) 	PROS: ▪ Ability to sample a wide range of soil / bedrock conditions ▪ Does not require use of drilling fluids ▪ Ability for continuous sampling ▪ Large sample volumes CONS: ▪ Hourly rates ($300+ / hour)

SOIL SAMPLING

Reference relevant SOP to start.

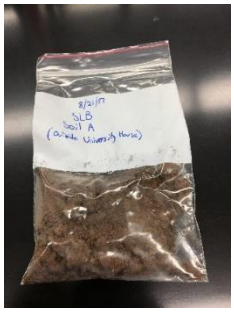
Obtain Sample

- Push or drive one of the above-mentioned pieces of equipment into the soil to the desired sampling depth.
- Then withdraw the equipment opening the sample (where appropriate) and collect the sample safely changing nitrile gloves between each sample.
- Proceed to document the following in the site-specific field book:
    - Date, time, location
    - Weather conditions and temperature
    - Field staff
    - Sampling equipment used, including refusal if encountered (e.g., on concrete)
    - Depth interval through which the sampler was advanced
    - Blow counts (if using a split spoon sampler)
    - Sample recovery (e.g., 75% or 20 of 60 cm) (where applicable)
    - Describe the soil using the preferred soil classification system (e.g., MIT)
    - Describe any markings / staining's / odours or debris noted in the recovered sample including depth intervals
- Where additional soil is required to provide sufficient sample volume, repeat the above steps taking care to ensure that the same depth interval is collected during the resampling. *NOTE: consider using core catchers if sample recovery is poor during drilling.*

SAMPLE CONTAINERS

Sample containers are dependent on the proposed laboratory analysis as well as the specific laboratory. It is prudent to understand what parameters are to be analyzed to ensure appropriate sample containers are available. Sample containers include:

SAMPLE CONTAINER	SPECIAL CONSIDERATIONS
PLASTIC CONTAINER 	▪ Plastic containers may / may not react with certain contaminants. ▪ The container size is dependent on the proposed analysis. ▪ Generally, for geotechnical not environmental purposes.
GLASS CONTAINER 	▪ Glass containers may / may not react with certain contaminants. ▪ Dependent on the proposed laboratory analysis, the containers may be clear or amber coloured. ▪ The container size is dependent on the proposed analysis. ▪ The container will or must contain a Teflon ® liner if volatile analysis is intended.
METHANOL VIALS 	▪ Used for volatile sampling and analysis. ▪ Vial is filled with a predetermined volume of methanol as recorded on the vial and linked through the sample label (e.g., barcode). ▪ Vial is filled with a select portion of soil (usually ~5 grams) using a laboratory provided sample retrieve (e.g., syringe, TerraCore ®). ▪ Ensure when filling out the sample label the barcode is not covered. ▪ For volatile sampling a glass container must also be submitted with each sample.

RESEALABLE BAGS 	▪ Used for quick grab samples, shale samples for excess soil, and geotechnical samples. ▪ Usually used to collect samples for volatile pre-screening using a PID or CGD. These results are used for determining “worst case” soil samples for analysis. ▪ NOT to be submitted for laboratory analysis.
PLASTIC PAIL 	▪ Used when large volumes of soil are to be analyzed (usually for geotechnical purposes). ▪ Exercise proper lifting techniques when moving / transporting the pail.
PROCTOR BAGS 	▪ Used when large volumes of soil are to be analyzed (usually for geotechnical purposes). ▪ Exercise proper lifting techniques when moving / transporting the pail.

PARAMETERS	TRIAGE

METALS & INORGANICS (M&I)
 
	▪ **General lab requirements** = 1 x 250 mL jar.
	▪ Avoid sampling material with aggregate.
	▪ Submit worst case sample (e.g., most debris in fill).
	▪ If fill material encountered, submit native samples for vertical delineation.
	▪ O.Reg. 153/04 requires soil samples for pH at:
	  ○ <1.5 m below ground surface.
	  ○ >1.5 m below ground surface.

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)  	▪ **General lab requirements** = 1 x 120 mL jar. ▪ Avoid sampling material with asphalt. ▪ Submit worst case sample (e.g., most debris in fill). ▪ If fill material encountered, submit native samples for vertical delineation. ▪ PAHs include by-products of incomplete combustion. If ash/cinders encountered, analyze for PAHs.
POLYCHLORINATED BIPHENYLS (PCBs) 	▪ **General lab requirements** = 1 x 120 mL jar. ▪ Submit worst case sample (e.g., black staining). ▪ If fill material encountered, submit native samples for vertical delineation. However, PCBs are generally not mobile, and any impacts are contained to the upper limit (either fill or native). ▪ Sample from fill material as well; worst-case sample by appearance.

PETROLEUM HYDROCARBONS (PHCs)
&
VOLATILE ORGANIC COMPOUND (VOCs)
  
	▪ **General lab requirements** = 1-2 40 mL methanol vials x 120 mL jar.
	▪ Odourous and stained soils should be analyzed for PHCs and VOCs.
	▪ Generally, sweet/solvent smell (VOCs), petroleum smell (PHCs).
	▪ Submit worst case sample (e.g., odour, black staining, highest CGD or PID reading).
	▪ Concerns around water table, remember:
	  ○ PHCs generally float.
	  ○ VOCs generally sink.

VOLATILE ORGANIC COMPOUND SAMPLING

Analytical soil samples for VOC analysis should be collected promptly after the sample has been collected to avoid loss of constituents to the atmosphere. Transfer the soil from the portion of the soil core to be sampled (usually the area where the highest PID or CGD readings were observed) directly into the sample containers, do not homogenize soils for VOC analysis. To reduce volatilization the generally accepted method includes placing a portion of the soil into either a methanol preserved vial using a syringe / TerraCore ® sampler or into an Encore ® sampler. In addition, soil is also placed in a jar for moisture analysis. Note the sample containers are dependent on the selected laboratory.

SOIL HEADSPACE ANALYSIS

Collect soil samples for field-based headspace analysis, if required as part of the project specific work plan, after collecting the VOC sample. First, examine the soil and remove large aggregate (e.g., cobble), organic matter (e.g., roots, grass and woody material) and any other debris. Transfer the soil from the portion of the soil core to be sampled and place in a heavy-duty resealable bag and seal it. Label the sample indicating location, depth and date. Shake the sample vigorously for approximately 15 seconds to disaggregate the sample and expose as much surface area of the soil as possible (to release VOCs to the atmosphere within the bag). If necessary, warm the sample to room temperature (20˚C) by placing the bag in a heated room or vehicle. This step is critical when the ambient temperature is below 0˚C.

The VOCs, if present will volatilize into the sealed bag. Allow the bag to stand (to achieve equilibrium) for approximately 15 minutes. Carefully open the bag slightly and place the tip of the CGD / PID into the opening. Do not insert the tip of the probe into the soil material and avoid uptake of water droplets. Allow the CGD / PID to equilibrate and record the highest TCV / TOV measurement(s) noted. Erratic TCV / TOV responses may result from high organic vapour concentrations or elevated headspace moisture. If these conditions exist, qualify the headspace data in the field book. It is also important to record the ambient temperature, humidity and whether moisture was present in the plastic bag.

SEMI- AND NON-VOLATILE ANALYTICAL SAMPLE COLLECTION

Collect remaining organic samples and then inorganic samples in the following order of volatilization sensitivity:

- Extractable organics, petroleum hydrocarbons and oil & grease
- Metals
- Inorganic nonmetallic and physical and aggregate properties
- Microbiological samples
- Radionuclides

HOMOGENOUS SAMPLES

If homogenization is required, mix the soils (using stainless steel bowls and spoons or other appropriate equipment) to a homogenous particle size and texture. Transfer the soils from the sampler or mixing bowl to the sample container using decontaminated or dedicated stainless steel spoon or spatula.

Discrete Sampling

When sampling for volatiles, discrete sampling shall be completed. Discrete sampling involves sampling from a certain point at a certain location (e.g., methanol vials, encore samplers, etc.).

Composite Soil Samples

If approved by the regulatory agency and specified in the project-specific work plan, composite soil samples can be collected to minimize the total number of analytical samples. Composite samples consist of equal aliquots (same sample size) of soil from each location being sampled (e.g., from each borehole or from multiple areas of a soil pile), by mixing the soil to a homogenous particle size and texture using new or decontaminated stainless-steel bowls and a stainless-steel spoon or trowel. Transfer the contents to the appropriate laboratory supplied sample container using a stainless-steel spoon.

FIELD DUPLICATES

Duplicates are used for QA/QC purposes and generally assess analytical precision, field precision and sample homogeneity. Field duplicates are prepared in the field and are submitted as "blind" duplicates to the lab. Field duplicates shall be collected same time and location, under the same conditions and submitted in separate containers. Where possible, duplicates should be homogenized (e.g., mixed). **NOTE: volatile samples CANNOT be homogenized.**

Approach:

1. Determine naming convention (e.g., Dup 1, etc.). Some Project Managers having specific naming conventions.
2. Collect equal aliquots from the same location into each the original and duplicate sample container.
3. Document in field notes original sample location along with duplicate and ID.
4. Duplicates shall be taken at a rate of 10% per parameter group per media (e.g., soil, sediment, groundwater) unless communicated otherwise by the Project Manager.

STANDARD OPERATING PROCEDURE
BLADDER PUMP SAMPLING

1 Introduction

Please read ASTM D6771-02. Low flow purging and sampling involves extracting groundwater at rates comparable to ambient groundwater flow (typically less than 500 mL/min), so that the drawdown of the water level is minimized, and the mixing of stagnant water, with water from the screened intake area in a well is reduced.

Stabilization parameters of the purged water are monitored before a sample is taken, thus low flow methods facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

Bladder pump sampling causes the least amount of alteration in sample integrity as compared to other sample retrieval methods. Fluid enters the pump through the fluid inlet check valve at the bottom (top of the pump for Spectra pumps) of the pump body via hydrostatic pressure. The pump MUST be submerged to operate. The bladder then fills with fluid. Compressed air enters the space between the bladder and the interior of the pump housing. The intake check valve closes, and the discharge check valve (top) opens. Compressed air squeezes the bladder, pushing the fluid to the surface. The discharge check valve prevents back flow from the discharge tubing. Air does not contact the sample. The bladder prevents contact between the pump driven air and the sample (see figure 1-1). All wetted pump parts are 316 Grade stainless steel to ensure the purity of the sample is maintained. Water contacts the inside of the bladder (Teflon) and sample tubing. One bladder (Teflon) is dedicated to each well and the pump is cleaned thoroughly after every well.

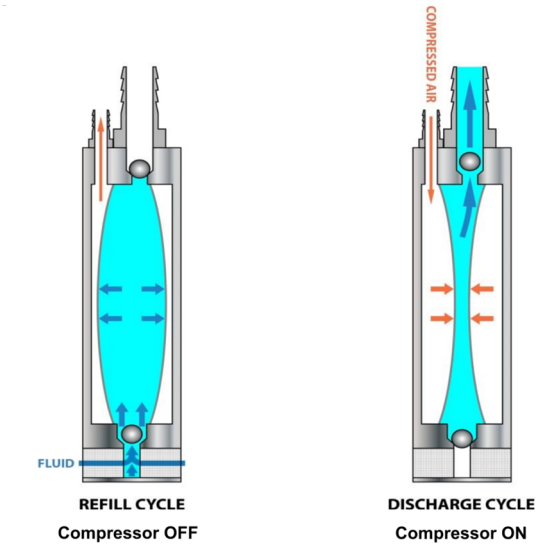


Figure 1-1: Bladder Pump when the Compressor is ON and OFF

2 Equipment Required

- Interface meter *or* water level meter
- Well keys/Rachet set/Allen keys
- Bladder pump (appropriate size for MW) (Diameters: 1.66" and 0.85", Length: 18" for Geotech, 16.5" for Spectra)
- Controller Unit and Battery with charger
- Bladders (enough for all MWs)
- String/Rope for safety loop
- Hanna Meter/YSI/Horiba
- ¼" or ⅝" tubing as appropriate
- Silicone tubing (For YSI or Horiba)
- Field forms (Field Water Levels, Water Quality Monitoring Form (Low Flow), Field Notes)
- Deionized or distilled water/Alconox
- Paper towels
- Nitrile gloves
- Waterra cutters
- Field filters
- Lab sample bottles/jars
- Trip Blank vials
- Cooler (with ice)
- Chain of Custody forms (CoCs)
- Graduated cylinder
- Bucket
- Stopwatch
- Garbage bags
- First aid kit

3 Procedure

3.1 Before Going to Site

1. Print and review the field package. Carry out site specific instructions and health and safety plan.
2. Review well locations and BH logs to determine well/screen depths and well development notes.
3. Confirm all sample bottles are present in coolers (reference the included order sheet).
4. Ensure all equipment batteries are charged.
5. Coordinate site access with PM/client.

3.2 On-Site Activities

When sampling using a bladder pump be sure to place the pump in the middle to upper screen. This ensures formation water is entering the pump and reducing the mix of stagnant water into the sample.

1. Decontaminate all non-disposable field equipment with Alconox and deionized or distilled water.
2. Start sampling at the least contaminated monitoring well based on previous sampling events or olfactory/visual observations during well development.
3. Remove lock or well cap casing and casing cap.

4. Using field forms, note project name and number, well ID, date, time, weather, and ambient air temperature.
5. Record water level (refer to water level SOP).
6. Calculate casing volume (refer to casing volume SOP).
7. If water column is low, confirm with PM if sampling well at this time is appropriate.
8. Confirm well screen depth. Pump intake should be placed in the middle to upper screen.
9. Start sampling at the least contaminated monitoring well based on previous sampling events or olfactory/visual observations during well development.
10. Before deploying the sampling pump, secure a safety cable from an anchoring point at or near the wellhead to the top of the pump, such as the flushmount casing or monument.
11. Attach waterra (typically ¼") to the air line fitting and water (discharge) fitting (see figure 1-1).
12. Carefully lower the bladder pump into the well using the reverse coil method to avoid kinking, until the desired depth is achieved. Pump should be lowered slowly once the groundwater is reached to avoid disruption to the sediment at the bottom of the well. Use the IM to track the depth of the bladder pump as it is lowered.
13. Attach power supply and turn on the pump. Purge well until field parameters have stabilized. (refer to Hanna Meter/YSI SOP).

    *Note - When field parameters are measured record the measurements, the elapsed time, the flow rate, and the water level in the monitoring well. Adequate amount of head pressure above the pump is required. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, decrease the fill/discharge time. Only lower the pump further into the well screen if needed and continue pumping.

    The discharge time is the time it takes to squeeze the bladder and push the water out of the pump. Increase this time with increased depth to water and larger bladder pumps. Decrease this time with lower depth to water and smaller bladder pumps. Timer can be set from approximately 2-75 seconds.

    See chart below for timer recommendations based on depth:

Depth	Discharge Time (seconds)
25' (7.62 m)	5
50' (15.24 m)	20
75' (22.86 m)	35
100' (30.48 m)	45

    Fill time is highly dependent on pump submergence. Start with 30 seconds. More submergence requires less fill time, and vice versa.

- Stabilization occurs when 3 successive readings are taken within the ranges listed below:
    - Temperature is 0.2°C
    - pH (+/- 0.1 unit)
    - Conductivity is within (3%)

- Additional stabilization parameters (DO (±10% or 0.2mg/L) and ORP (±20 mV)) are measured when using YSI meter.

14. Collect and dispose of purge water as specified in the site-specific sampling plan.
15. Assemble and label the appropriate lab supplied bottles.
16. Note the sampling order: VOCs, F1s, F2-F4s, PAHs, PCBs, unfiltered inorganics, filtered metals.
17. Turn pump on, increase the cycle time and reduce the pressure to the minimum that will allow the sample to come to the surface and not induce significant drawdown.
18. Collect samples in the lab supplied bottles (do not collect samples through the YSI):
    a. For non-filtered samples, collect directly from the tubing into the sample bottle.
    b. For filtered samples, connect the tubing directly to the field filter. Refer to field filter SOP.
19. Cap the sample bottle tightly and place labeled sample container upright in cooler with ice.
20. On completion, remove the pump/tubing from the well and clean the pump thoroughly with deionized water and Alconox solution prior to moving to the next well.
21. Use new dedicated tubing and bladder for each well.
22. Decontaminate all non disposable field equipment with deionized water and Alconox solution prior to moving to the next well.
23. Replace the well cap and secure casing.
24. Package samples and trip blanks (refer to BVL sample guide) and complete necessary paperwork and CoC. Send a photo of the CoC to the PM for review before submitting samples.

4 References

Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*.

Geotech Geocontrol Pro Installation and Operation Manual, 2022.
https://www.geotechenv.com/Manuals/Geotech_Geocontrol_PRO_Pump_Controller.pdf

ASTM Standards, 2002. *ASTM D6771-02 Low Flow Groundwater Sampling.* G:\Shared\Shared Documents\8-Standards & Reference\ASTM\ASTM D6771-02 Low Flow GW Sampling.pdf

Spectra Bladder Pump Manul
https://grounded.egnyte.com/navigate/file/be43ba5c-7d6b-4f7a-b05a-1a68c6a18175
Spectra Hydro Pro Operational Manual
https://grounded.egnyte.com/navigate/file/be59fcaa-9b48-4d73-8b72-1706f6e73d2c
Spectra Hydro Pro Cheat Sheet
https://grounded.egnyte.com/navigate/file/3ce46b70-acb2-4fb8-9e09-ab8f1feb99f9

Standard Operating Procedure
Using A Field Filter

1 Introduction

Filtering groundwater can vary by jurisdiction, but generally, certain parameters of groundwater samples are allowed to pass through a 0.45-micron pore size filter. The suspended particulate matter in the groundwater may contain or carry contaminants. These particles could be naturally occurring, or they could form because of drilling activities, inadequate sampling procedures, or well construction. The field filter removes particulate matters up to 0.45-micron diameter to allow the analysis of the dissolved portion of contaminants (usually metals). In some cases, samples could be filtered to determine if the high contaminant concentrations in a groundwater sample could be attributed to the colloidal substances.

2 Equipment Required

- Field filters (Disposable – Single Use)
- Interface meter *or* water level meter
- Waterra cutters
- Well keys/Ratchet set/Allen keys
- Refer to Water Level SOP and/or appropriate sample method SOP for additional equipment

3 Procedure

3.1 Before Going to Site

1. Print and review the field package. Carry out site specific instructions and health and safety plan.
2. Review well locations and BH logs to determine well and screen depths.
3. Coordinate site access with PM/client.

3.2 On-Site Activities

When using a field filter be certain to only filter parameters that require filtration. Typically, the dissolved portion of **Metals, Mercury (Hg), and Chromium VI** are sensitive to turbidity in groundwater and need filtration. Filters are single use and should be disposed of after sampling each well.

1. After groundwater stabilization has been achieved in the well (refer to GW Stabilization [Hanna Meter/YSI/Horiba] SOP), sample all non-filtered parameters.
2. When ready to sample filtered parameters (typically Metals, Mercury (Hg), and Chromium VI) attach the filter to the top of the sampling discharge line.
3. Flow direction is labelled on the field filter, the inlet of the filter is usually serrated. The inlet is designed to support 3/8" (inner diameter of inlet) or ½" (outer diameter of the inlet) tubing. A small piece of LDPE waterra tubing could be used as an adapter for different diameters and to attach to a bailer.
4. High level of particulate matter could clog the filter during sampling. If the flow stops due to clogging, filter should be replaced.
5. Collect filtered groundwater samples for appropriate parameters from well using the sampling discharge line and lab sample bottles (refer to GW Sampling SOP).
6. When sampling is complete, remove used filter from sampling discharge line. Dispose used filter and any associated disposable items.

4 References

1) *Maxim Environmental. Environmental Sampling.* https://www.maximenvironmental.com/sales-environmental-sampling
2) *Waterra Pumps Limited. Ultraclean Waterra 0.45 Micron Groundwater Filters for Metals Analysis.* https://waterra.com/waterra-0-45-micron-groundwater-filters/
3) *Ground Water Sampling for Metal Analyses, 1989, EPA.* https://www.epa.gov/remedytech/ground-water-sampling-metal-analyses

STANDARD OPERATING PROCEDURE
FIELD SCREENING

1 Introduction

Field screening using the RKI Eagle 2 Multi Gas Detector (gastech) provides real time vapour measurements in soil samples. Before use, the gastech must be calibrated (refer to Gastech Calibration Manual) and noted in the logbook in the office. Daily calibration checks and recalibration (as needed) must be noted in the daily drilling notes field form. Soil headspace vapour screening measures relative concentrations of volatile organic compounds in the headspaces of soil sample containers as an indicator of volatile contaminants in the soil sample. After the headspace screening is complete, the relative concentrations are evaluated for indications of possible impacts and to provide guidance on which soil samples are to be submitted to an analytical laboratory.

2 Equipment Required

- Nitrile gloves
- Gastech/Eagle 2
- Hexane and IBL gas cylinders
- Regulator
- Slider bags
- Sampling plan from Project Manager
- Field forms (Field BH Logs, Daily Drilling Notes)
- Garbage bags
- First Aid Kit

3 Procedure

3.1 Before Going to Site

1. Review locations and sampling depths.
2. Calibrate the Gastech/Eagle 2 and note in the provided logbook (refer to Gastech Calibration Manual).
3. Carry out site specific health and safety plan.
4. Coordinate site access with PM/client.

3.2 On-Site Activities

All potential samples must be immediately chemically preserved where necessary. It is important to note that the headspace concentrations measured are relative rather than absolute. The actual concentrations of volatile compounds in soil are determined through laboratory testing. Also, the headspace measurement does not identify the compound(s) that may be in the soil but represents an aggregate of all volatile compounds.

Note that some combustible gas detectors can operate in a “methane elimination” mode that substantially excludes methane from the measurement; however, in some instances naturally occurring methane can interfere with the headspace reading caused by the presence of volatile contaminants.

1. Check the calibration of the gasses using appropriate gas cylinders daily and record the readings in the daily drilling notes. Recalibrate the Gastech if the readings are not within allowed tolerances (refer to Gastech Calibration Manual).
2. Put on clean nitrile gloves and change between every sample.
3. Assemble the appropriate equipment required prior to the soil sample being retrieved.
4. Retrieve soil samples from the borehole, test pit, or stockpile, place in a slider bag, and seal the bag tightly.
5. While the sample is secure in the slider bag, disturb 2 mm to 4 mm of the soil sample to break up.
6. Allow the soil sample to equilibrate for a minimum of 15 minutes and until it reaches a minimum temperature of 10˚C, but complete all headspace measurements within two hours of sample collection. Agitate/manipulate the sample by hand as the measurement is taken.
7. Record on the field form or log the peak reading registered by the instrument during the first 15 seconds of measurement.
8. Samples selected for laboratory analysis should be based on the highest vapour readings for the sample interval.
9. Reset the field screening equipment between each sample reading.

STANDARD OPERATING PROCEDURE
PERISTALTIC PUMP SAMPLING

1 Introduction

Please read ASTM D6771-02. Low flow sampling involves extracting groundwater at rates comparable to ambient groundwater flow (should not exceed 300 mL/min), so that the drawdown of the water level is minimized, and the mixing of stagnant water, with water from the screened intake area in a well is reduced.

Stabilization parameters of the purged water are monitored before a sample is taken, thus low flow methods facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

A peristaltic pump is a type of positive displacement pump used for pumping a variety of fluids. The pump functions through a process known as peristalsis, where a rotor with two or more rollers is used to compress flexible tubing in a circular motion. The rollers create a closed chamber between them where fluid is trapped and transported through the tube towards the outlet. Once this chamber is opened again, more fluid is drawn into the tube. The most used peristaltic pump (Waterra Spectra Field Pro) suction lifts up to 8.5m (27').

2 Equipment Required

- Interface meter *or* water level meter
- Well keys/Rachet set/Allen keys
- Peristaltic Pump
- Hanna Meter/YSI/Horiba
- ¼" or ⅝" tubing as appropriate
- Silicone tubing
- Field forms (Field Water Levels, Water Quality Monitoring Form (Low Flow), Field Notes)
- Deionized or distilled water/Alconox
- Paper towels
- Nitrile gloves
- Waterra cutters
- Field filters
- Lab sample bottles/jars
- Trip Blank vials
- Cooler (with ice)
- Chain of Custody forms (CoCs)
- Graduated cylinder
- Bucket
- Stopwatch
- Garbage bags
- First aid kit

3 Procedure

3.1 Before Going to Site

1. Print and review the field package. Carry out site specific instructions and health and safety plan.
2. Review well locations and BH logs to determine well/screen depths and well development notes.
3. Confirm all sample bottles are present in coolers (reference the included order sheet).
4. Ensure all equipment batteries are charged.
5. Coordinate site access with PM/client.

3.2 On-Site Activities

When sampling using a peristaltic pump, be sure to place the end of the tubing in the middle to upper screen. This ensures formation water is entering the tubing and reduces the mix of stagnant water into the sample.

1. Decontaminate all non-disposable field equipment with Alconox and deionized or distilled water.
2. Start sampling at the least contaminated monitoring well based on previous sampling events or olfactory/visual observations during well development.
3. Remove lock or well cap casing and casing cap.
4. Using field forms, note project name and number, well ID, date, time, weather, and ambient air temperature.
5. Record water level (refer to water level SOP).
6. Calculate casing volume (refer to casing volume SOP).
7. If water column is low, confirm with PM if sampling well at this time is appropriate.
8. Insert ¼" tubing into the well.
9. Cut an approximately 8" piece from the silicon tubing.
10. Use the lever to open the silicon tubing area in the pump head. Place silicon tubing into the pump head and use the lever to secure the tube. Attach ¼" tubing to both sides of the silicon tubing, with one side going into the well.
11. Ensure the flow direction switch matches the water's intended flow direction.
12. Turn on the pump and purge well until field parameters have stabilized (refer to Hanna Meter/YSI/Horiba SOP).

    *Note – When field parameters are measured; record the measurements, the elapsed time, the flow rate and the water level in the monitoring well. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, reduce the pump's speed. Only lower the tubing further into the well screen if needed and continue pumping.
13. Collect and dispose of purge water as specified in the site-specific sampling plan.
14. Assemble and label the appropriate lab supplied bottles.

15. Note the sampling order: VOCs, F1s, F2-F4s, PAHs, PCBs, unfiltered inorganics, filtered metals.
16. Collect samples in the lab supplied bottles (do not collect samples through the YSI):
    a. For non-filtered samples, collect directly from the tubing into the sample bottle.
    b. For filtered samples, connect the tubing directly to the field filter. Refer to field filter SOP.
17. Cap the sample bottles tightly and place labeled sample containers upright in the cooler with ice.
18. On completion, remove the tubing from the well and clean non-disposable field equipment with deionized water and Alconox solution prior to moving to the next well.
19. Use new dedicated tubing for each well.
20. Replace the well cap and secure casing.
21. Package samples and trip blanks (refer to BVL sample guide) and complete necessary paperwork and CoC. Send a photo of the CoC to the PM for review before submitting samples.

4 References

- *Spectra Scientific, Product Specifications Spectra Field Pro Professional Grade Peristaltic Pump, 2021.* *https://cdn.shopify.com/s/files/1/0621/2721/0729/files/Spectra_Field_Pro_Spec_Sheet.pdf?v=1649234909*

  catalogue (maximenvironmental.com)
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, Ontario Ministry of the Environment, February 2021.* *https://files.ontario.ca/mecp-protocol-analytical-methods-assessment-environmental-protection-act-excess-soil-quality-en-2021-02-19.pdf*
- ASTM Standards, 2002. *ASTM D6771-02 Low Flow Groundwater Sampling.* G:\Shared\Shared Documents\8-Standards & Reference\ASTM\ASTM D6771-02 Low Flow GW Sampling.pdf

STANDARD OPERATING PROCEDURE
WELL DEVELOPMENT

1 Introduction

Please read D6452-18 and D5521/D5521M-18. Monitoring well development is necessary to ensure that complete hydraulic connection is made – and maintained – between the well and the aquifer material surrounding the well screen and filter pack. The appropriate development method should be selected for each project based on the circumstances, lithology, objectives, and requirements of that project. If drilling muds are used during well installation, well development should occur within 24 hours following well installation so that the drilling mud does not settle in the well screen. Generally, a phased process is used to develop wells, starting with a gentle bailing phase to remove sand, followed by a surging phase, and then a pumping phase after the well begins to clear up.

2 Equipment Required

- Interface meter *or* water level meter
- Waterra
- Foot valves
- Surge blocks
- Waterra cutters
- Well keys/Ratchet set/Allen keys
- Deionized or distilled water/Alconox (for cleaning probe in between wells)
- Nitrile gloves
- Field Forms (Field Water Levels, Field Notes)
- Graduated bucket
- Garbage bags
- Batteries (9V)
- First Aid Kit
- Purge Drums (as necessary for contaminated sites)

3 Procedure

3.1 Before Going to Site

1. Print and review the field package. Carry out site specific instructions and health and safety plan.
2. Review well locations and BH logs to determine well and screen depths.
3. Coordinate site access with PM/client.

3.2 On-Site Activities

When developing a well, be aware of the drilling method used (e.g., drilling mud) and the local soil conditions (potential recharge rate) as this can dramatically influence the well development methods.

1. Remove well lock or well cap casing, and well pipe cap (e.g., J-plug).
2. Using notebook/field forms, note project name and number, well ID, date, and time.
3. Record water level, well depth, and well stick-up (refer to water level SOP).
4. Calculate casing volume of well (refer to casing volume SOP).
5. Use the calculated casing volume to determine total volume of water to be purged:
    - For initial (new) well development, when **FLUID** is used, purge ten (10) casing volumes, or purge until the well is dry.
    - For initial (new) well development, when **NO FLUID**, purge five (5) casing volumes, or purge until the well is dry.
    - For well development of **a previous consultants' well**, purge five (5) casing volumes, or purge until the well is dry.
    - For **subsequent well development**, purge three (3) casing volumes for redevelopment, or purge until the well is dry.
6. Attach foot valve to the bottom end of the waterra. Slowly lower the bottom of the waterra into the well. Once the foot valve touches the bottom, leave extra waterra above ground so you can pump water from the well.
7. If surging the monitoring well is required, complete the following:
    - Remove the waterra from the well. Remove foot valve from bottom of the waterra.
    - Slide a surge block onto the bottom of the waterra. Reconnect the foot valve to the waterra. Fasten the surge block to the foot valve.
    - Lower the waterra into the monitoring well until well screen is reached. You should be able to feel the well screen with the surge block attached.
    - Lift the waterra up and down along the screen for 5 to10 minutes.
8. Remove the pre-determined number of casing volumes from the monitoring well or until the well is dry (*see step 5*).
    - If well goes dry during development: remove waterra from well, drain remaining fluid in waterra, and reinstall waterra in the well.
9. Record field observations regarding the purge water. (i.e., total volume purged, clarity, appearance, odour, sheen, sediment removed)
10. Discard purge water into drums if contamination of the property is known or suspected (discuss with PM). Otherwise, dispose of water at least 5 metres away from the well in a best management approach and as noted in the field package.

11. See the appropriate Groundwater Stabilization SOP (Hanna Meter/YSI/Horiba SOP) and groundwater sampling SOP (Bailer/Peristaltic Pump/Bladder Pump SOP) before collecting groundwater samples from wells.

4 References

1. ASTM International. D5521/D5521M-18: Standard Guide for Development of Groundwater Monitoring Wells in Granular Aquifers
2. Designation: D6452-18; Guide for Purging Methods for Wells Used for Ground-Water Quality Investigations

STANDARD OPERATING PROCEDURE
Well Decommissioning

1 Introduction

Read **ASTM D5299/D5299M-18** Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities. The decommissioning of wells is covered under Ontario Wells Regulation 903, specifically Abandonment – Subsection 21(13) and Section 21.1 (How to abandon a well) 15. Abandonment: How to Plug & Seal Wells | Water Supply Wells: Requirements and Best Practices | ontario.ca. Under this regulation the well owner (the property owner, usually our client) and our drilling subcontractor take on most of the liability when performing this task. Grounded's responsibility can include supervising our subcontractors, measuring final water levels/well depths before well decommissioning, collecting pictures to verify the work is being completed and ensuring the property is left in a responsible state. Homeowners are usually the most sensitive to potential damage to their property. Under certain circumstances a Grounded representative might not be needed onsite when decommissioning takes place (i.e. site access open, restoration not required, communication with subcontractor is sufficient, and subcontractor provides photographs of final condition, normally only for shallow piezo wells).

2 Equipment Required

- High-visibility vest
- Eye protection
- Steel-toed boots
- Hard hat
- Hearing protection
- Nitrile gloves
- Deionized or distilled water/Alconox
- RKI Eagle2 Gastech (optional)
- Pencils/pens/sharpies
- Tape measure
- Sampling plan from Project Manager
- Pylons/caution tape (optional)
- Field package
- Locates Package
- Field forms (Daily Drilling Notes, Field Notes)
- Garbage bags
- First Aid Kit

3 Procedure

3.1 Before Going to Site

1. Participate in the kickoff meeting to understand the full scope. Refer to water level SOP if measuring water levels before decommissioning.

2. Print and review the field package and locates package. Have these with you on site.
3. Ensure all equipment batteries are charged.
4. Coordinate site access with PM/client.
5. Review decommissioning locations from provided site plan.

3.2 General Health and Safety Tips

- Always wear your hard hat while on site.
- Hearing protection is strongly recommended while the rig is operational, even when not hammering. This is due to constant noise.
- Eye protection should be worn while the rig is operational. Rig parts can be under a lot of tension or torsion; they can break and fly off at any time.
- Familiarize yourself with the specific drill rig's safety mechanisms (such as emergency stop buttons). Ask the driller for help if unsure.
- Never approach a drill rig while it is operational. Signal to get the driller's attention and allow them to stop the rig. They will advise you when it is safe to approach.
- Stay clear while the rig is moving between boreholes.
- Be aware of the rig's horizontal and vertical clearance. Try to remain farther away from the rig than the rig's tower is tall. This is a precaution in the event a rod detaches from the tower or the rig tips over.
- Watch for above-head power lines.
- Be prepared for adverse weather conditions:
    - Rain: Keep paperwork and electrical equipment dry. Wear water-repellant clothes.
    - Thunderstorms: Stop work and take shelter until 30 minutes after you last heard thunder.
    - Snow and cold: Dress warmly. Do not leave equipment or water in your car overnight.
    - Heat: Stay out of direct sunlight as much as possible. Stay hydrated.

3.3 On-Site Activities

Coordinate with PM and drillers when to arrive on site. This will typically be 8am but can be adjusted based on project needs and driller/tech preference. Arrive before the drillers, measure water levels (if necessary) and scope out locations so you can quickly show the drillers where the wells are located.

Our drilling subcontractors are licensed well decommissioners/installers who must conform to the regulation and provide a well decommissioning record to the well owner (usually our client). Multiple techniques and equipment can be used to decommission a well under regulation 903 and it ultimately falls under our drilling subcontractor to properly complete the work. Access to the well and screen depth are important considerations and should be discussed with the drilling subcontractor when setting up the job.

3.3.1 Before Well Decommissioning

The following steps should be taken before well decommissioning occurs:

1. Take a site walk to familiarize yourself with the site's layout. Update the health and safety form with any hazards you find that were not discussed in the kickoff.
2. Locate the wells that need decommissioning and measure the water levels / well depths as necessary. Ensure the area is properly marked according to the locates. If locates and markings are incorrect or missing, advise the PM.
3. Take photos of the wells and the surrounding area as necessary. Upload these photos to the "_Photos" folder within the job folder with the date they are taken.
4. Have the contractor mobilize the drill rig to the site. Ensure requested equipment is present. Inspect the drill for cleanliness and look for any oil leaks. Ensure that the drill was properly cleaned prior to mobilizing onto the client's property.
5. Hand the locates package to the driller for review.
6. Host a health & safety meeting and/or participate in the drillers' health and safety meeting:
    a. Provide an overview of the scope; confirm number of wells to decommission, intended depths, preferred decommissioning method, and other special considerations as needed.
    b. Discuss and point out potential hazards on site as discussed with the PM in the kickoff meeting or that you identified on your site walk.
    c. If working on a slope, never stand down-slope of the machine in case of tip-over.
    d. Ensure the drillers use a drill guard or cage whenever possible.
    e. Identify a muster point in the event of an emergency.
    f. Address any questions the drillers may have about the site, locates, or project according to what was discussed in the kickoff. Do not guess answers. If you are unsure, confirm with the PM.
    g. Sign any required paperwork. Our health & safety sheet requires that the lead Grounded field technician and lead driller initial the public and private locates and that all personnel on site sign the bottom of the sheet to confirm they understand. Any new personnel on site must also be briefed and sign. Upload this sheet to the job specific folder on the server.
7. In places with vehicle and/or pedestrian traffic, section off the area the rig will be operating with pylons and/or caution tape.
8. Once the rig has moved into position, ensure the drilling position is on the marker or within tolerances as indicated by the locates.
9. Using field forms, note project name and number, well ID, date, and time as necessary.
10. Carry out site specific instructions and health and safety plan.

3.3.2 Well Decommissioning Process

This process will be most of the time onsite. As decommissioning continues, be sure to take note of any downtime that may occur, and what caused it.

1. As noted in the sections above, most of the liability and documentation will be completed by the drilling subcontractor and well owner (usually our client).
2. Under certain circumstances we might be asked to provide additional information to our client such as well decommissioning letter. If needed, follow the field package to collect all the information. This may include water levels / well depths, before and after pictures of the wells, and pictures of the well decommissioning technique used by the licensed well decommissioner (drilling subcontractor).
3. Once well decommissioning is completed, take photos of the surrounding area. Upload these photos to the "_Photos" folder within the job folder with the date they are taken.
4. If drums were used for soil disposal note the total number of drums in the bottom-right of the BH log's first page. This may happen if the drilling subcontractor uses an overdrilling method to complete the work.
5. Upload all field notes to the project folder with the date, document type, and your initials as the name of the file.

3.3.3 End of Day Wrap Up

If ending the day without completing the full scope take the following steps to wrap up the day and to prepare for the next day:

1. Coordinate what time everyone will arrive on site tomorrow.
2. Some drillers may have time sheets and material lists that require a technician's signature at the end of the day/week. Review these carefully to ensure their time claims are accurate and that the materials listed were used. Refer to your field notes. Reach out to the PM if there is a conflict. Once signed, upload a photo of the time sheet to the "driller time sheets" folder of the project.
3. **Upload all documentation** to the project folder **every day**. If a document is incomplete (such as a partial BH log) it can be noted as such.
4. Clean up and secure the site as per instructions in the field package.
5. Advise the PM when you and the drillers are off-site.

3.4 Utility Strike

If a utility is struck, take the following steps:

1. Stop all work.
2. Determine the type of utility hit and proceed accordingly:
    - Electrical: Stay away from any overhead wires that have been hit. Don't touch the drill rig. Clear everyone away from the area. Shuffle slowly away from equipment using very small steps to minimize the contact area with the ground.
    - Natural Gas: Hit emergency kill switch/button on drill rig if safe to do so. Clear everyone away from the area. Call the Spills Action Centre (SAC) to report the incident (1-866-663-8477).
    - Water/Sewer: Hit emergency kill switch/button on drill rig if safe to do so. Clear everyone away from the area. Call 311 to connect with the appropriate municipality.

- Communication Lines: Hit emergency kill switch/button on drill rig if safe to do so.
- Private Utilities: Hit emergency kill switch/button on drill rig if safe to do so. Contact private utility owner.

3. Call Ontario One Call and utility provided to report the incident and have it repaired.
4. Call the Grounded Project manager to report the incident once all immediate safety concerns have been addressed.
5. Review utility locate plans.

4 References

- **ASTM D5299/D5299M-18 Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities**
- 15. Abandonment: How to Plug & Seal Wells | Water Supply Wells: Requirements and Best Practices | ontario.ca
- Wells Regulation – Well Abandonment: How to Plug and Seal a Well (technical bulletin) | ontario.ca

ASTM D5299/D5299M-18

Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities

Significance and Use

5.1 Decommissioning of boreholes and monitoring wells, and other devices requires that the specific characteristics of each site be considered. The wide variety of geological, biological, and physical conditions, construction practices, and chemical composition of the surrounding soil, rock, waste, and groundwater precludes the use of a single decommissioning practice. The procedures discussed in this guide are intended to aid the geologist or engineer in selecting the tasks needed to plan, choose materials for, and carry out an effective permanent decommissioning operation. Each individual situation should be evaluated separately and the appropriate technology applied to meet site conditions. Considerations for selection of appropriate procedures are presented in this guide, but other considerations based on site specific conditions should also be considered.

NOTE 6: Ideally, decommissioning should be considered as an integral part of the design of the monitoring well. Planning at this early stage can make the decommissioning activity easier to accomplish. See Practice D5092 for details on monitoring well construction.

5.2 This guide is intended to provide technical information and is not intended to supplant statutes or regulations of local governing bodies. Approval of the appropriate regulatory authorities should be an important consideration during the decommissioning process. This practice is in general accordance with other national and state guidance documents on well decommissioning (ANSI/NGWA-01-14 [1]1 and California EPA [2].

NOTE 7: The quality of the result produced by this standard is dependent on the competence of the personnel performing it, and the suitability of the equipment and facilities used. Agencies that meet the criteria of D3740 are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard

are cautioned that compliance with Practice D3740 does not in itself assure reliable results. Reliable results depend on many factors, Practice D3740 provides a means of evaluating some of those factors.
Practice D3740 was developed for agencies engaged in laboratory testing and/or inspection of soils and rock. As such, it is not totally applicable to agencies performing this practice. However, users of this practice should recognize that the framework of Practice D3740 is appropriate for evaluating the quality of an agency performing this practice. Currently, there is no known qualifying national authority that inspects agencies that perform this practice.

NOTE 8: An extensive research program on annular sealants was conducted from 2001 through 2009 and in subsequent years by the Nebraska Grout Task Force **(2)**. This research included cement and bentonite grouts and the use of pellets and chips. The general finding of the study indicates all sealing methods suffer from some shrinkage in the portion of the well in the unsaturated zone. The best grouts were cement-sand, bentonite chips, neat cements and bentonite slurries with more than 20 percent solids. Especially problematic is the use of low solids content bentonite slurries in the unsaturated zone leading to a prohibition on their use in California **(3)**. Regional or local regulations may specify different sealing methods and mixtures that differ from seal guideline in this standard.

NOTE 9: The decommissioning of wells that intersect openings, fractured layers or other large openings, such as caves, can make sealing and decommissioning efforts difficult. The decommissioning of wells in areas known to have these conditions should involve professionals experienced in decommissioning in these areas.

Scope

1.1 This guide covers procedures that are specifically related to permanent decommissioning (closure) of the following as applied to environmental activities. It is intended for use where solid or hazardous materials or wastes are found, or where conditions occur requiring the need for decommissioning. The following devices are considered in this guide:

1.1.1 A borehole used for geoenvironmental purposes (see Note 1),

1.1.2 Monitoring wells,

1.1.3 Observation wells,

1.1.4 Injection wells (see Note 2),

1.1.5 Piezometers,

1.1.6 Wells used for the extraction of contaminated groundwater, the removal of floating or submerged materials other than water such as gasoline or tetrachloroethylene, or other devices used for the extraction of soil gas,

1.1.7 A borehole used to construct a monitoring well, and

1.1.8 Any other well or boring that houses a vadose zone monitoring device.

1.2 Temporary decommissioning of the above is not covered in this guide.

NOTE 1: This guide may be used to decommission boreholes where no contamination is observed at a site (see Practice D420 for details); however, the primary use of the guide is to decommission boreholes and wells where solid or hazardous waste have been identified. Methods identified in this guide can also be used in other situations such as the decommissioning of water supply wells and boreholes where water contaminated with nonhazardous pollutants (such as nitrates or sulfates) are present. This guide should be consulted in the event that routine geotechnical studies indicate the presence of contamination at a site. Consult and follow national, state, or local regulations as they may control required decommissioning procedures.

NOTE 2: The term “well” is used in this guide to denote monitoring wells, piezometers, or other devices constructed in a manner similar to a well. Some of the devices listed such as injection and extraction wells can be decommissioned using this guide for information but are not specifically covered in detail in the text.

NOTE 3: Details on the decommissioning of multiple-screened wells are not provided in this guide due to the many methods used to construct these types of wells and the numerous types of commercially available multiple-screened well systems. However, in some instances, the methods presented in this guide may be used with few changes. An example of how this guide may be used is the complete removal of the multiple-screened wells by overdrilling.

1.3 Most monitoring wells and piezometers are intended primarily for water quality sampling, water level observation, or soil gas sampling, or combination thereof, to determine quality. Many wells are relatively small in diameter typically 2.5 to 20 cm [1 to 8 inches] and are used to monitor for hazardous chemicals in groundwater. Decommissioning of monitoring wells is necessary to:

1.3.1 Eliminate the possibility that the well is used for purposes other than intended,

1.3.2 Prevent migration of contaminants into an aquifer or between aquifers,

1.3.3 Prevent migration of contaminants in the vadose zone,

1.3.4 Reduce the potential for vertical or horizontal migration of fluids in the well or adjacent to the well, and

1.3.5 Remove the well from active use when the well is no longer capable of rehabilitation or has failed structurally; is no longer needed for monitoring; is no longer capable of providing representative samples or is providing unreliable samples; is required to be decommissioned; or to meet regulatory requirements.

NOTE 4: The determination of whether a well is providing a representative water quality sample is not defined in this guide. Examples of when a representative water quality sample may not be collected include the biological or chemical clogging of well screens, a drop in the water level to below the base of the well screen, or complete silting of the screen. These conditions may indicate that a well is not functioning correctly.

1.4 This guide is intended to provide information for effective permanent closure of wells so that the physical structure of the well does not provide a means of hydraulic communication between aquifers, with above surfaces or react chemically in a detrimental way with the environment.

1.5 The intent of this guide is to provide procedures that when followed result in a reasonable level of confidence in the integrity of the decommissioning activity. However, it may not be practical to verify the integrity of the decommissioning procedure. Currently, methods are not available to substantially determine the integrity of the decommissioning activity.

1.6 This guide may also be used for closure or decommissioning of other systems that could allow vertical or horizontal migration of contaminants or other cross-contamination of aquifers, such as dug wells, geothermal loops, or when ordered by regulatory agencies.

1.7 Units—The values stated in either SI units or inch-pound units (given in brackets) are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.8 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D6026, unless superseded by this standard.

1.9 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.10 *This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word“ Standard” in the title of this document means only that the document has been approved through the ASTM consensus process.*

NOTE 5: If state and local regulations are in effect where the decommissioning is to occur, the regulations take precedence over this guide.

1.11 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

APPENDIX D

GROUNDED ENGINEERING

Date Started : Oct 11, 2023
Position : E: 651695, N: 4853499 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 101

File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

drill method : CME 55

elev depth (m)	description	graphic log	number	type	SPT N-value
102.4	**GROUND SURFACE**				
	100mm **ASPHALT**		1A	SS	23
101.6	**FILL**, sand, some gravel, some silt, trace clay, trace rock fragments, compact, grey, moist		1B	SS	
0.8	...at 0.4 m, silty, brown		2	SS	47
	SANDY SILT, some clay, trace gravel, dense to very dense, grey, moist (GLACIAL TILL)		3	SS	79 / 290mm
			4	SS	82
			5	SS	58
			6	SS	50 / 145mm
	...at 6.1 m, trace rock fragments		7	SS	50 / 50mm
			8	SS	50 / 140mm
91.7					
10.7	**CLAYEY SILT**, some sand, trace gravel, hard, grey, moist (GLACIAL TILL)		1	PMT	
			9	SS	39
			2	PMT	
87.2					
15.2	**SILT AND CLAY**, trace sand, very stiff, grey, moist		10	SS	18
			3	PMT	
84.1					
18.3	**CLAYEY SILT**, trace to some sand, trace gravel, very stiff to hard, grey, moist (GLACIAL TILL)		11	SS	42
			12	SS	26
			13	SS	50 / 125mm
80.8					
21.6	**END OF BOREHOLE**				

hollow stem augers OD=215 mm

mud rotary small OD=100 mm

depth scale (m): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

well details

elevation (m): 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
⊠ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

PMT@91.0 m: 102 MPa

PMT@87.9 m: 127 MPa

PMT@84.9 m: 67 MPa

SS1B: H-Ms, Metals, ORPs, PAHs

SS2: BTEX, PHCs, VOCs
8 29 53 10

SS4: BTEX, H-Ms, Metals, ORPs, PAHs, PHCs, VOCs

5.9m: auger grinding

SS7: BTEX, PHCs, VOCs
6.1m: auger grinding

8.4m: PMT attempted and unsuccessful due to over-drilled testing pocket.

2 18 49 31

1 1 59 39

2 17 52 29

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Oct 17, 2023	18.1	84.3
Oct 19, 2023	11.8	90.6
Oct 23, 2023	10.8	91.6

file: 23-197 gint.gpj

Tech : LB | **PM** : DR/MG | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Oct 13, 2023
Position : E: 651732, N: 4853511 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 102

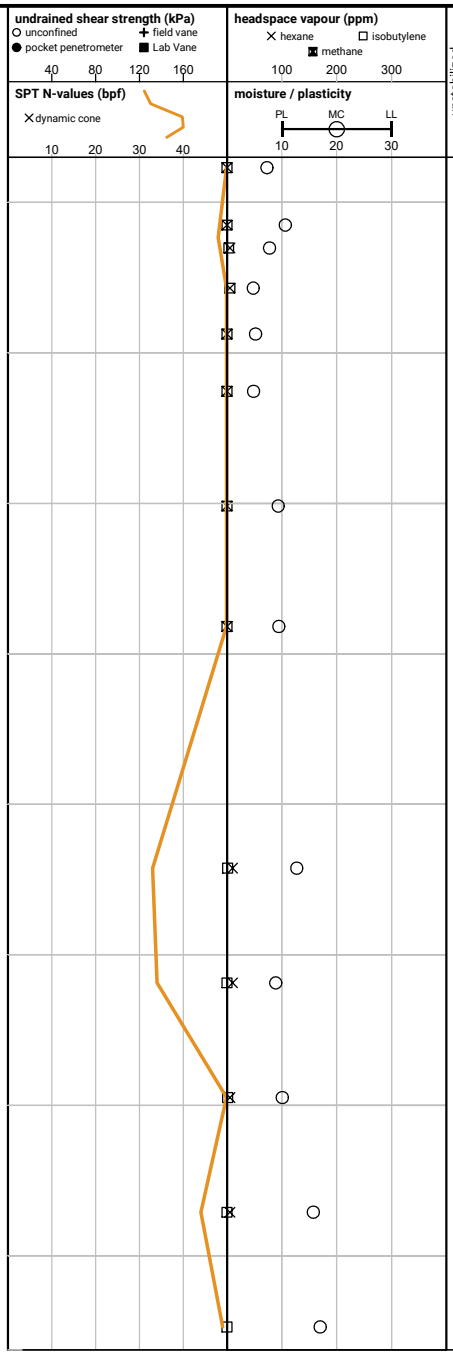
File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

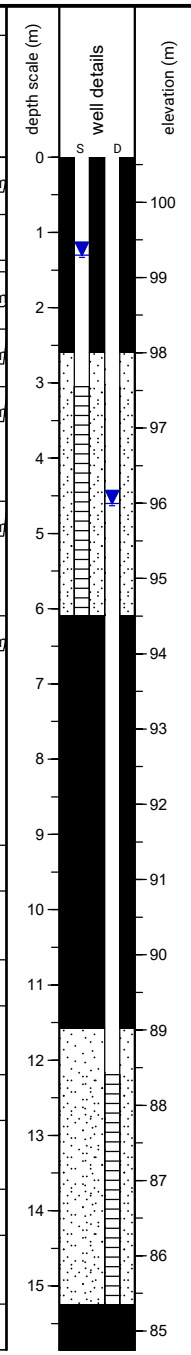
drill method : CME 55

hollow stem augers OD=215 mm

mud rotary small OD=100 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
100.6	**GROUND SURFACE**				
	100mm **ASPHALT**		1	SS	50 / 125mm
	25mm **AGGREGATE**				
99.6 / 1.0	**FILL**, sand, some silt, trace gravel, trace brick fragments, dense to very dense, brown to black, moist		2A	SS	48
			2B	SS	
	SANDY SILT, trace to some clay, trace gravel, trace rock fragments, dense to very dense, brown, moist (GLACIAL TILL)		3	SS	92 / 275mm
			4	SS	50 / 125mm
	...at 3.0 m, grey		5	SS	50 / 125mm
	...at 4.6 m, wet		6	SS	50 / 125mm
			7	SS	50 / 125mm
91.5 / 9.1	**CLAYEY SILT**, sandy, trace gravel, hard, grey, moist (GLACIAL TILL)		8	SS	33
			9	SS	34
	...at 12.2 m, some clay		10	SS	56
86.9 / 13.7	**SILT AND CLAY**, trace sand, hard, grey, moist		11	SS	44
			12	SS	49
84.8 / 15.8					





unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS2A: H-Ms, Metals, ORPs, PAHs

SS3: BTEX, H-Ms, Metals, ORPs, PHCs, VOCs

SS4: PAHs

SS7: BTEX, PHCs, VOCs

8.4m: PMT attempted and unsuccessful due to over-drilled testing pocket.

9 30 43 18

13.4m: auger grinding

0 2 50 48

END OF BOREHOLE

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.

S: 50 mm dia. monitoring well installed.
D: 50 mm dia. monitoring well installed.
No. 10 screen

102-S GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Nov 3, 2023	1.7	98.9
Nov 9, 2023	1.6	99.0
Dec 7, 2023	1.6	99.0
Jan 5, 2024	1.5	99.1
Feb 28, 2024	1.3	99.3

102-D GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Oct 19, 2023	13.9	86.7
Oct 20, 2023	13.8	86.8
Nov 3, 2023	13.3	87.3
Nov 9, 2023	12.6	88.0
Dec 7, 2023	9.6	91.0
Jan 5, 2024	6.9	93.7
Feb 28, 2024	4.6	96.0

file: 23-197 gint.gpj

Tech : IH | **PM** : DR/MG | **Rev** : NN

BOREHOLE LOG 103

Date Started : Oct 11, 2023
Position : E: 651804, N: 4853536 (UTM 17T)
Elev. Datum : Geodetic

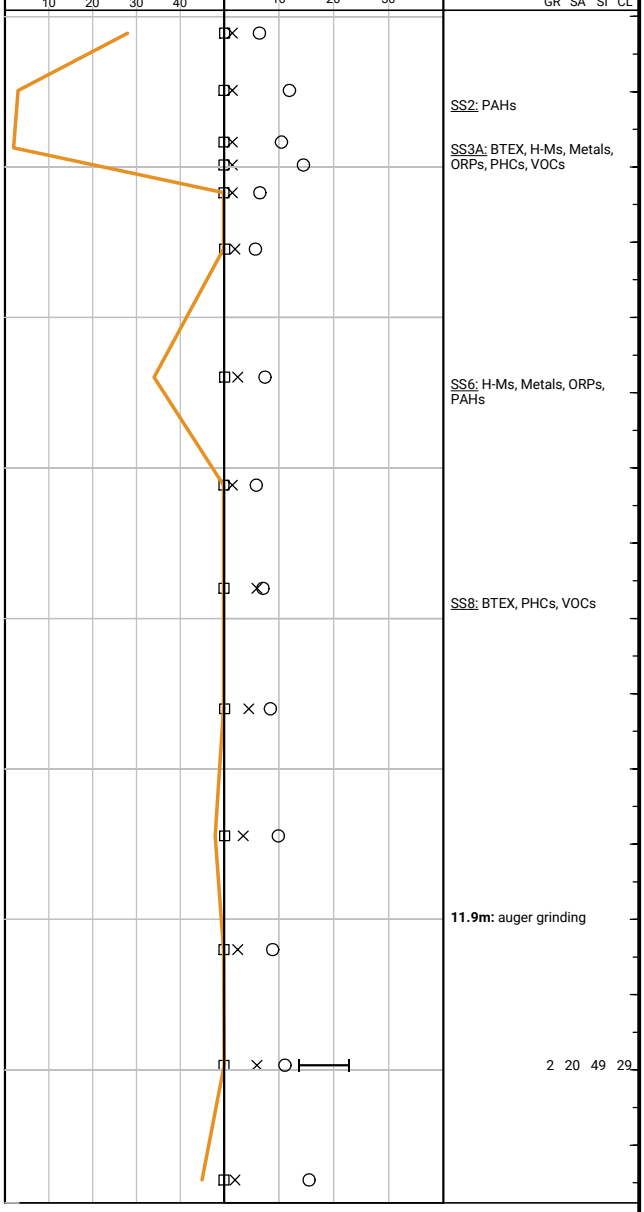
File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

drill method : CME 55

hollow stem augers OD=215 mm

elev / depth (m)	description	graphic log	number	type	SPT N-value
98.1	**GROUND SURFACE**				
	50mm **ASPHALT**		1	SS	28
	FILL, sand and gravel, compact, brown, wet				
	...at 0.8 m, clayey silt, some sand, soft, moist to wet		2	SS	3
95.8 / 2.3	...at 2.0 m, sand, trace gravel, very loose, wet		3A / 3B	SS / SS	2
	SANDY SILT, trace to some clay, trace gravel, trace rock fragments, dense to very dense, brown, moist (GLACIAL TILL)		4	SS	50 / 125mm
	...at 3.0 m, grey		5	SS	50 / 100mm
			6	SS	34
			7	SS	99 / 275mm
89.0 / 9.1			8	SS	50 / 125mm
	CLAYEY SILT, sandy, trace gravel, hard, grey, moist (GLACIAL TILL)		9	SS	50 / 125mm
			10	SS	48
			11	SS	75
			12	SS	50
82.9 / 15.2					
	SILT AND CLAY, trace sand, with light grey silt partings, hard, grey, moist		13	SS	45
82.3 / 15.8					

depth scale (m) | well details | elevation (m)



unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS2: PAHs

SS3A: BTEX, H-Ms, Metals, ORPs, PHCs, VOCs

SS6: H-Ms, Metals, ORPs, PAHs

SS8: BTEX, PHCs, VOCs

11.9m: auger grinding

2 20 49 29

END OF BOREHOLE

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Oct 16, 2023	dry	n/a
Oct 17, 2023	dry	n/a
Oct 19, 2023	dry	n/a

file: 23-197 gint.gpj

Tech : IH | **PM** : DR/MG | **Rev** : NN

BOREHOLE LOG 104

Date Started : Oct 10, 2023
Position : E: 651710, N: 4853616 (UTM 17T)
Elev. Datum : Geodetic

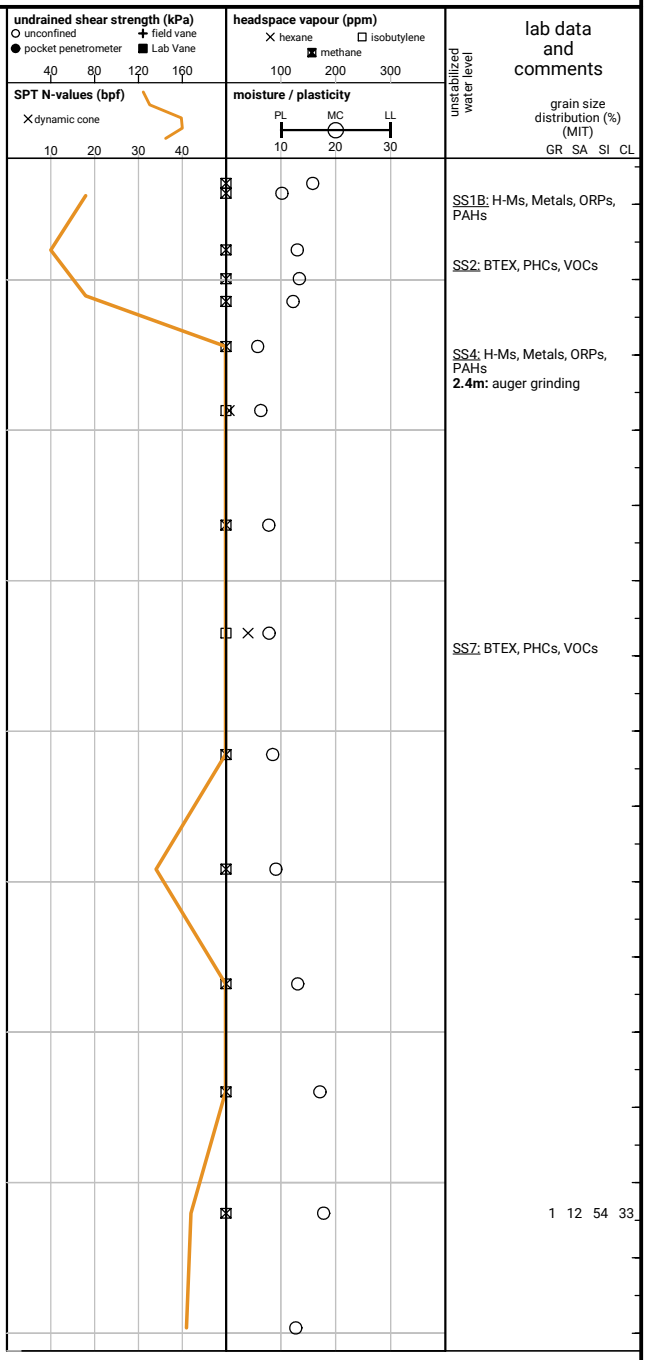
File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

drill method : CME 55

hollow stem augers OD=215 mm

mud rotary small OD=100 mm

elev depth (m)	description	number	type	SPT N-value
99.6	**GROUND SURFACE**			
	190mm **CONCRETE**	1A	SS	18
	FILL, sandy silt, some gravel, trace clay, trace rock fragments, compact, grey, wet	1B	SS	
	...at 0.3 m, clayey silt, sandy, trace gravel, trace asphalt, stiff, moist	2	SS	10
	...at 1.5 m, sand, compact, brown	3A	SS	18
	...at 1.7 m, clayey silt with wet sand seams, very stiff	3B	SS	
97.3				
2.3	**SANDY SILT**, trace to some clay, trace gravel, trace rock fragments, very dense, brown, moist (GLACIAL TILL)	4	SS	86 / 275mm
	...at 3.0 m, grey	5	SS	92
		6	SS	67
		7	SS	85 / 275mm
		8	SS	55
90.5				
9.1	**CLAYEY SILT**, trace to some sand, trace gravel, hard, grey, moist (GLACIAL TILL)	9	SS	34
		10	SS	55
		11	SS	83 / 275mm
85.9				
13.7	**CLAYEY SILT**, some sand, trace gravel, hard, grey, moist to wet	12	SS	42
84.4				
15.2	**CLAYEY SILT**, trace to some sand, trace gravel, hard, grey, moist (GLACIAL TILL)	13	SS	41
83.8				
15.8	**END OF BOREHOLE**			



unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS1B: H-Ms, Metals, ORPs, PAHs

SS2: BTEX, PHCs, VOCs

SS4: H-Ms, Metals, ORPs, PAHs
2.4m: auger grinding

SS7: BTEX, PHCs, VOCs

1 12 54 33

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.

S: 50 mm dia. monitoring well installed.
D: 50 mm dia. monitoring well installed.
No. 10 screen

104-S GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Oct 17, 2023	2.8	96.8
Oct 18, 2023	2.8	96.8
Oct 19, 2023	2.2	97.4
Nov 3, 2023	2.2	97.4
Nov 9, 2023	2.2	97.4
Dec 7, 2023	2.2	97.4
Jan 5, 2024	2.1	97.5
Feb 28, 2024	1.8	97.8

104-D GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Oct 19, 2023	14.1	85.5
Oct 20, 2023	13.1	86.5

file: 23-197 gint.gpj

Tech : LB | **PM** : DR/MG | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Oct 13, 2023
Position : E: 651611, N: 4853504 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 105

File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

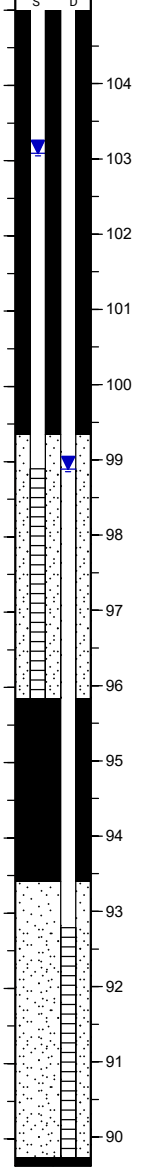
drill method : CME 55

elev depth (m)	description	stratigraphy: graphic log	samples: number	type	SPT N-value
105.0	**GROUND SURFACE**				
	100mm **ASPHALT**		1A	SS	21
104.2	**FILL**, sand, trace silt, compact, grey, moist		1B	SS	
0.8	...at 0.5 m, sand, some silt, trace gravel		2	SS	76 / 290mm
	SANDY SILT, trace to some clay, trace gravel, trace rock fragments, dense to very dense, brown, moist (GLACIAL TILL)		3	SS	69
	...at 2.3 m, grey		4	SS	48
			5	SS	65
			6	SS	90 / 275mm
	...at 6.1 m, sand, trace silt, trace gravel		7A	SS	50 / 145mm
			7B	SS	
			8	SS	50 / 140mm
95.9					
9.1	**CLAYEY SILT**, trace to some sand, trace gravel, hard, grey, moist (GLACIAL TILL)		9	SS	99 / 275mm
	...at 10.7 m, silt seam		10	SS	50 / 125mm
			11	SS	50 / 75mm
			12	SS	50 / 75mm
89.6					
15.4	...at 15.2 m, silt seam		13	SS	50 / 115mm

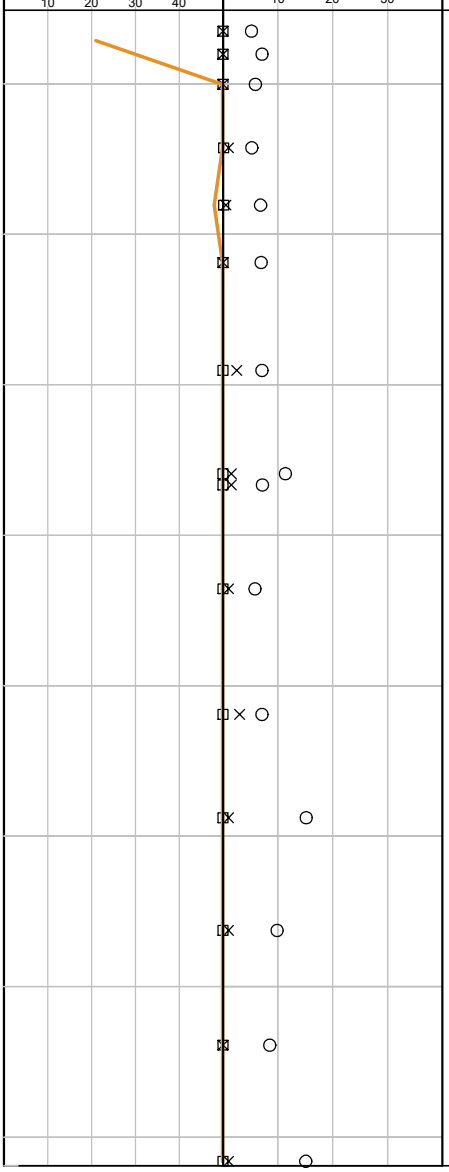
hollow stem augers OD=215 mm

mud rotary small OD=100 mm

depth scale (m) | well details (S, D) | elevation (m)



undrained shear strength (kPa): unconfined, pocket penetrometer, field vane, Lab Vane; 40 80 120 160
SPT N-values (bpf): dynamic cone; 10 20 30 40
headspace vapour (ppm): hexane, isobutylene, methane; 100 200 300
moisture / plasticity: PL MC LL; 10 20 30



unstabilized water level

lab data and comments

grain size distribution (%) (MIT) GR SA SI CL

SS1B: H-Ms, Metals, ORPs, PAHs

SS2: BTEX, PHCs, VOCs

SS3: H-Ms, Metals, ORPs, PAHs

SS7A: BTEX, PHCs, VOCs

7.6m: auger grinding **to 7.8m**

10.7m: spoon bouncing

13.7m: spoon bouncing

END OF BOREHOLE

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.

S: 50 mm dia. monitoring well installed.
D: 50 mm dia. monitoring well installed.
No. 10 screen

105-S GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Nov 3, 2023	7.3	97.7
Nov 9, 2023	6.9	98.1
Dec 7, 2023	3.1	101.9
Jan 5, 2024	2.8	102.2
Feb 28, 2024	1.9	103.1

105-D GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Oct 17, 2023	8.8	96.2
Oct 18, 2023	7.0	98.0
Oct 19, 2023	6.1	98.9

file: 23-197 gint.gpj

Tech : LB | **PM** : DR/MG | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Nov 1, 2023
Position : E: 651781, N: 4853567 (UTM 17T)
Elev. Datum : Geodetic

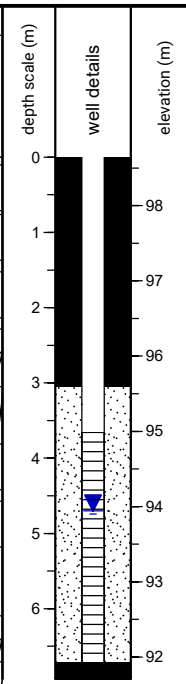
BOREHOLE LOG 106

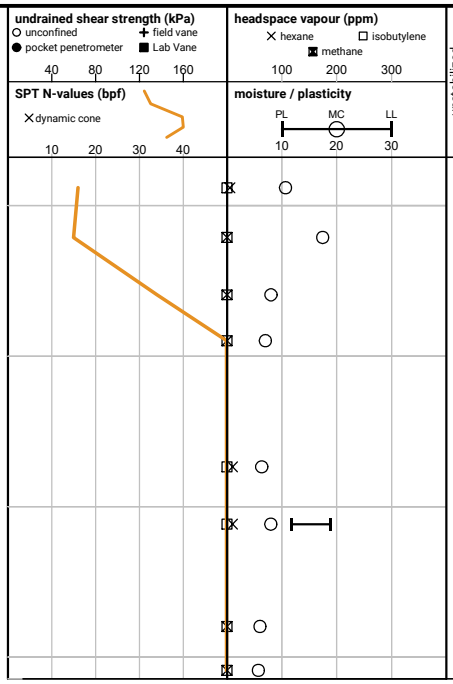
File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

drill method : CME 75

hollow stem augers OD=215 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
98.6	**GROUND SURFACE**				
	100mm **ASPHALT**		1	SS	16
	FILL, silty sand, some gravel, trace clay, compact, brown, moist ...at 0.8 m, organic matter, trace rootlets, dark brown		2	SS	15
97.1 / 1.5	**SANDY SILT**, trace to some gravel, dense to very dense, brown, moist (GLACIAL TILL)		3	SS	34
			4	SS	50 / 150mm
			5	SS	50 / 100mm
	...at 3.8 m, trace clay, grey		6	SS	67
	...at 4.6 m, silty sand, some clay		7	SS	53
	...at 6.1 m, trace rock fragments		8	SS	50 / 125mm
91.7 / 6.9			9	SS	50 / 75mm





unstabilized water level

lab data and comments

grain size distribution (%) (MIT)

GR SA SI CL

SS2: H-Ms, Metals, ORPs, PAHs

SS3: BTEX, PHCs, VOCs

SS4: H-Ms, Metals, ORPs, PAHs

3.2m: auger grinding **to 3.4m**

SS6: BTEX, PHCs, VOCs

13 35 33 19

END OF BOREHOLE

Borehole was dry upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Nov 2, 2023	dry	n/a
Nov 3, 2023	dry	n/a
Nov 9, 2023	dry	n/a
Dec 7, 2023	6.6	92.0
Jan 5, 2024	6.1	92.5
Feb 28, 2024	4.9	93.7
Mar 14, 2024	4.7	93.9

file: 23-197 gint.gpj

Tech : HP | **PM** : DR/MG | **Rev** : NN

BOREHOLE LOG 201

Date Started : Mar 6, 2024
Position : E: 651629, N: 4853508 (UTM 17T)
Elev. Datum : Geodetic

File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

drill method : CME 55

hollow stem augers OD=215 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
104.5	**GROUND SURFACE**				
	25mm **ASPHALT**		1	SS	25
103.9					
0.6	**FILL**, silty sand, trace clay, trace to some gravel, compact, brown, moist		2	SS	81 / 275mm
	SANDY SILT, trace gravel, trace clay, moderate sweet odour, very dense, brown, moist (GLACIAL TILL)		3	SS	50 / 125mm
	...at 1.5 m, no odour, some gravel				
	...at 2.3 m, grey		4	SS	73
	...at 3.0 m, trace gravel, mild sweet odour		5	SS	64
	...at 4.6 m, no odour		6	SS	54
			7	SS	71
	...at 7.6 m, trace rock fragments		8	SS	83
95.1			9	SS	50 / 125mm
9.4	**END OF BOREHOLE**				

depth scale (m) 0 1 2 3 4 5 6 9

well details

elevation (m) 104 103 102 101 100 99 98 97 96

undrained shear strength (kPa)
○ unconfined ● pocket penetrometer + field vane ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene ⊠ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS2: VOCs

SS5: VOCs

SS8: VOCs

Borehole was dry upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Mar 14, 2024	dry	n/a

file: 23-197 gint.gpj

Tech : IH | **PM** : DR/YQ | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Mar 6, 2024
Position : E: 651644, N: 4853481 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 202

File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

drill method : CME 55

elev depth (m)	description	graphic log	number	type	SPT N-value
104.1	**GROUND SURFACE**				
	25mm **ASPHALT**		1	GS	
	15mm **AGGREGATE**		2	GS	
102.9	**FILL**, sandy silt, gravelly, trace clay, brown, wet (hydrovac)		3	GS	
1.2	...at 0.3 m, sand, some silt, trace to some gravel		4	GS	
	...at 0.6 m, sandy silt, some gravel, trace clay		5	GS	
	...at 0.9 m, brownish-grey		1	SS	50 / 100mm
	SANDY SILT, gravelly, trace clay, brown (GLACIAL TILL)		2	SS	64
	...at 1.8 m, trace gravel, grey, very dense below 1.8 m, moist		3	SS	75
	...at 3.2 m, some gravel		4	SS	99 / 250mm
	...at 6.1 m, mild sweet odour to 6.7 m		5	SS	78
	...at 7.6 m, wet sand seam, some silt to 7.8 m		6A 6B	SS	60
			7	SS	50 / 100mm
	...at 9.9 m, trace gravel		8	SS	50 / 125mm
93.4 10.7					
93.2 10.9	**CLAYEY SILT**, trace sand, hard, grey, moist (GLACIAL TILL)		9	SS	50 / 125mm

vac (hydro)

hollow stem augers OD=215 mm

depth scale (m): 0 1 2 3 4 5 6 7 8 9 10

elevation (m): 104 103 102 101 100 99 98 97 96 95 94

well details

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; 40 80 120 160

SPT N-values (bpf): dynamic cone; 10 20 30 40

headspace vapour (ppm): hexane, isobutylene, methane; 100 200 300

moisture / plasticity: PL MC LL; 10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT) GR SA SI CL

GS2: H-Ms, Metals, ORPs, PAHs

GS3: BTEX, PHCs, VOCs

SS1: H-Ms, Metals, ORPs, PAHs

SS5: VOCs

6A: BTEX, PHCs, VOCs

0 4 71 25

END OF BOREHOLE

Borehole was dry upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Mar 14, 2024	6.3	97.8

file: 23-197 gint.gpj

Tech : IH | **PM** : DR/YQ | **Rev** : NN

Date Started : Mar 5, 2024
Position : E: 651729, N: 4853435 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 203

File No. : 23-197 **Project** : 705 Kingston Road, Pickering, Ontario **Client** : Plaza Partners

drill method : CME 55

elev depth (m)	description	graphic log	number	type	SPT N-value
101.0	**GROUND SURFACE**				
	25mm **ASPHALT**		1	GS	
	15mm **AGGREGATE**		2	GS	
	FILL, sand and gravel, some silt, trace clay, brown, wet (hydrovac)		3	GS	
	...at 0.3 m, clayey silt, trace to some sand, trace gravel, brown		4	GS	
99.2			5	GS	
1.8	...at 0.6 m, gravelly		1	SS	97 / 275mm
	SANDY SILT, some gravel, trace clay, trace rock fragments, very dense, grey, moist (GLACIAL TILL)		2	SS	59
			3	SS	77
	...at 4.6 m, sand and silt, trace clay, trace gravel, grey, wet		4	SS	56
94.8			5	SS	50 / 125mm
6.2	...at 6.1 m, granite rock fragments				

vac (hydro)

hollow stem augers OD=215 mm

depth scale (m): 0 1 2 3 4 5 6

elevation (m): 101 100 99 98 97 96 95

well details

undrained shear strength (kPa): unconfined, pocket penetrometer, field vane, Lab Vane; 40 80 120 160

SPT N-values (bpf): dynamic cone; 10 20 30 40

headspace vapour (ppm): hexane, isobutylene, methane; 100 200 300

moisture / plasticity: PL MC LL; 10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT) GR SA SI CL

GS2: H-Ms, Metals, ORPs, PAHs

GS4: BTEX, PHCs, VOCs

SS1: H-Ms, Metals, ORPs, PAHs

2 43 50 5

SS4: BTEX, PHCs, VOCs

5.5m: auger grinding

5.8m: auger grinding

6.1m: auger grinding

END OF BOREHOLE
Refusal (obstruction in the hole)

Water level and cave not measured upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Mar 14, 2024	0.8	100.2

file: 23-197 gint.gpj

Tech : IH | **PM** : DR/YQ | **Rev** : NN

Peterborough
Barrie
Oshawa
Kingston
T: 866-217-7900
www.cambium-inc.com

Log of Borehole: BH101

Client:	Valiant Rental Properties Ltd.	**Project Name:**	Phase II Environmental Site Assessment	**Project No.:**	12699-001
Contractor:	Strata Drilling Group	**Method:**	DP, solid stem	**Date Completed:**	May 25, 2021
Location:	705 Kingston Rd, Pickering	**UTM:**	17T 651608 m E, 4853498 m N	**Elevation:**	

SUBSURFACE PROFILE					SAMPLING INFO						
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)	OV (ppm)	Well Installation	Remarks
0	0		Asphalt: granular material	0						Jplug	
1			Sandy Silt: trace clay, trace gravel, brown, stiff, moist							Concrete	
2					SS1	DP	100	20	<2		
3	1			-1	SS2	DP		30	<2	Bentonite	BH101_0.8-1.5 (PHC & BTEX)
4											
5			-dark grey, very stiff							PVC Standpipe	
6	2			-2	SS3	DP	100	20	<2		
7											Recorded dry on June 8, 2021
8					SS4	DP		20	<2		
9											
10	3		-hard	-3	SS5	DP	100	25	<2		
11											
12										Sand Pack	
13	4		-increased moisture	-4	SS6	DP		25	<2	PVC Screen	
14											
15			-DP refusal at 4.6 mbgs, augered to depth								
16	5			-5							
17										Cap	
18											
19											Borehole cave-in from 5 to 6.7 mbgs
20	6			-6							
21											
22			-BH terminated at 6.7 mbgs upon completion in SANDY SILT								
23	7			-7							
24											

Logged By: DN **Input By:** LW

Peterborough
Barrie
Oshawa
Kingston
T: 866-217-7900
www.cambium-inc.com

Log of Borehole: BH102

Client:	Valiant Rental Properties Ltd.	**Project Name:**	Phase II Environmental Site Assessment	**Project No.:**	12699-001
Contractor:	Strata Drilling Group	**Method:**	DP, solid stem	**Date Completed:**	May 25, 2021
Location:	705 Kingston Rd, Pickering	**UTM:**	17T 651649 m E, 4853551 m N	**Elevation:**	

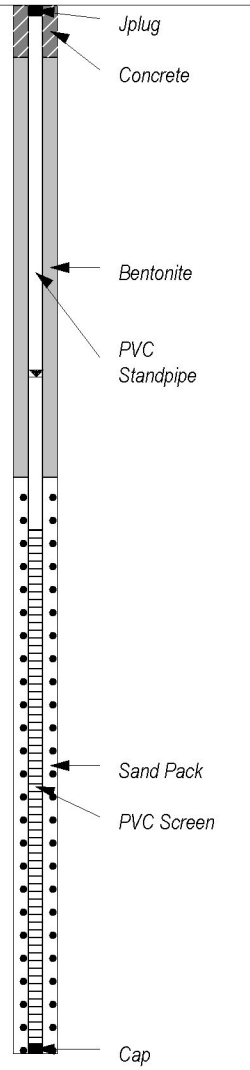
SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)
0	0		Asphalt	0
1			Fill: Sand, some gravel, trace silt, grey, loose, moist	
2			Sandy Silt: trace clay, trace gravel, brown, stiff, moist	
3	1			-1
4				
5			-increased moisture	
6	2			-2
7				
8			-decreased moisture, hard	
9				
10	3			-3
11			-DP refusal at 3.4 mbgs, drilled to depth	
12				
13	4		-grey, increased moisture/wet	-4
14				
15				
16	5			-5
17				
18				
19				
20	6			-6
21			Borehole terminated at 6.1 mbgs upon completion in SANDY SILT	
22				
23	7			-7
24				

SAMPLING INFO

Number	Type	% Recovery	CSV (ppm)	OV (ppm)
SS1	DP	40	30	<2
SS2	DP		20	<2
SS3	DP	100	80	<2
SS4	DP		35	<2
SS5	DP	100	35	<2
SS6	GB		320	<2
SS7	GB		80	<2

Well Installation



Remarks

Recorded water level of 2.16 mbgs on June 8, 2021

BH102_4.0-4.6 (PHC & BTEX)

Logged By: DN **Input By:** LW

Peterborough
Barrie
Oshawa
Kingston
T: 866-217-7900
www.cambium-inc.com

Log of Borehole: BH103

Client: Valiant Rental Properties Ltd. **Project Name:** Phase II Environmental Site Assessment **Project No.:** 12699-001

Contractor: Strata Drilling Group **Method:** DP, solid stem **Date Completed:** May 31, 2021

Location: 705 Kingston Rd, Pickering **UTM:** 17T 651687 m E, 4853583 m N **Elevation:**

SUBSURFACE PROFILE				SAMPLING INFO						
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)	OV (ppm)	Well Installation	Remarks
0	0		Asphalt: some sand and gravel	0							
1			Sandy Silt: trace clay, low plasticity, dark grey, medium-dense, moist		SS1	DP	40	<1	<2	Jplug, Concrete, Bentonite, PVC Standpipe	
2											
3	1			-1							
4											
5			-wet and soft		SS2	DP		40	<2		BH103_1.5-1.8 (PHC/VOC)
6			-brown, medium-dense to hard, some gravel								
7	2			-2	SS3	DP	100	<1	<2		
8											
9											
10	3			-3						Sand Pack, PVC Screen	
11			-grey								
12											
13	4			-4	SS4	DP	100	<1	<2		Recorded water level of 3.99 mbgs on June 8, 2021
14											
15			Borehole terminated at 4.6 mbgs upon completion in SANDY SILT							Cap	
16	5			-5							
17											
18											
19	6			-6							
20											
21											
22											
23	7			-7							
24											

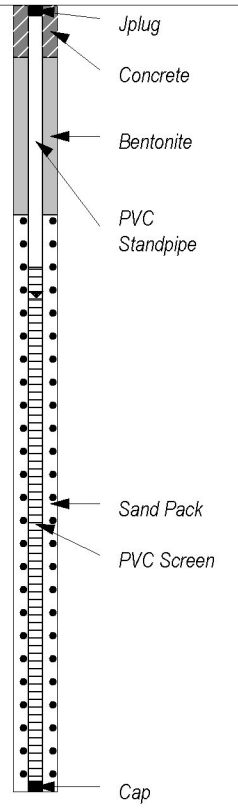
Logged By: RD **Input By:** LW

Peterborough
Barrie
Oshawa
Kingston
T: 866-217-7900
www.cambium-inc.com

Log of Borehole: BH104

Client:	Valiant Rental Properties Ltd.	**Project Name:**	Phase II Environmental Site Assessment	**Project No.:**	12699-001
Contractor:	Strata Drilling Group	**Method:**	DP, solid stem	**Date Completed:**	May 25, 2021
Location:	705 Kingston Rd, Pickering	**UTM:**	17T 651785 m E, 4853555 m N	**Elevation:**	

SUBSURFACE PROFILE					SAMPLING INFO						
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)	OV (ppm)	Well Installation	Remarks
0	0		Asphalt	0							
1			Fill: Sand, some gravel, trace silt, dark brown, medium-dense, moist		SS1	DP	40	30	<2		
2											
3	1			-1							
4											
5			-increased silt, increased moisture		SS2	DP	50	25	<2		
6	2			-2							
7											
8			-wet, minor black staining, minor HC odour								
9					SS3	DP		30	<2		
10	3		Concrete: Greenish grey lean mix concrete	-3							
11											
12			Sandy Silt: (native) trace clay, trace gravel, trace organics, dark brown, very stiff, moist		SS4	DP	100	30	<2		
13	4		-dark brownish grey, no organics	-4							
14					SS5	DP		15	<2		
15											
16			Borehole terminated at 4.6 mbgs upon completion in SANDY SILT								
17	5			-5							
18											
19											
20	6			-6							
21											
22											
23	7			-7							
24											

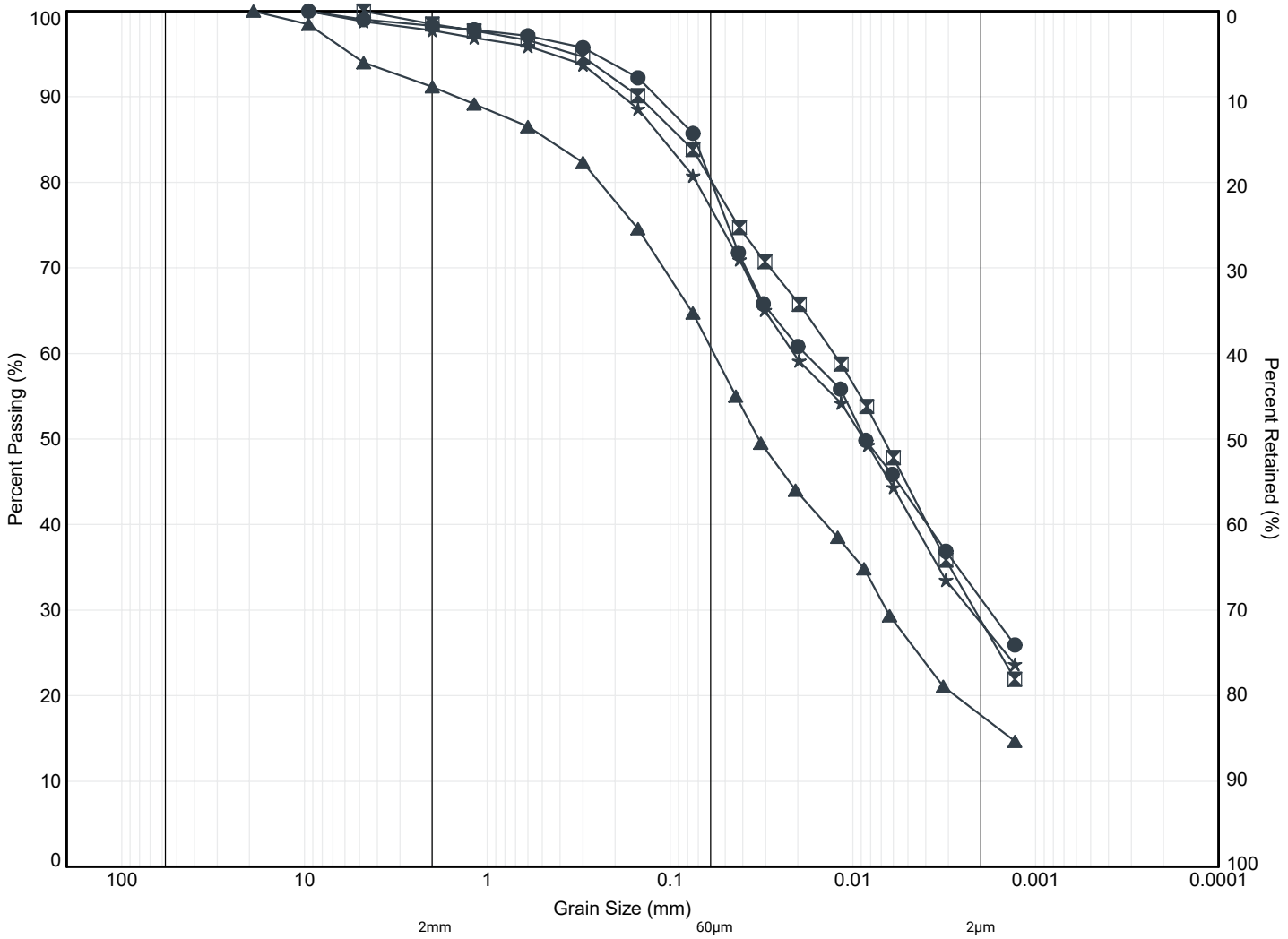


Recorded water level of 1.70 mbgs on June 8, 2021

BH104_2.7-2.9 (PHC/VOC)

Logged By: DN **Input By:** LW

APPENDIX E



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

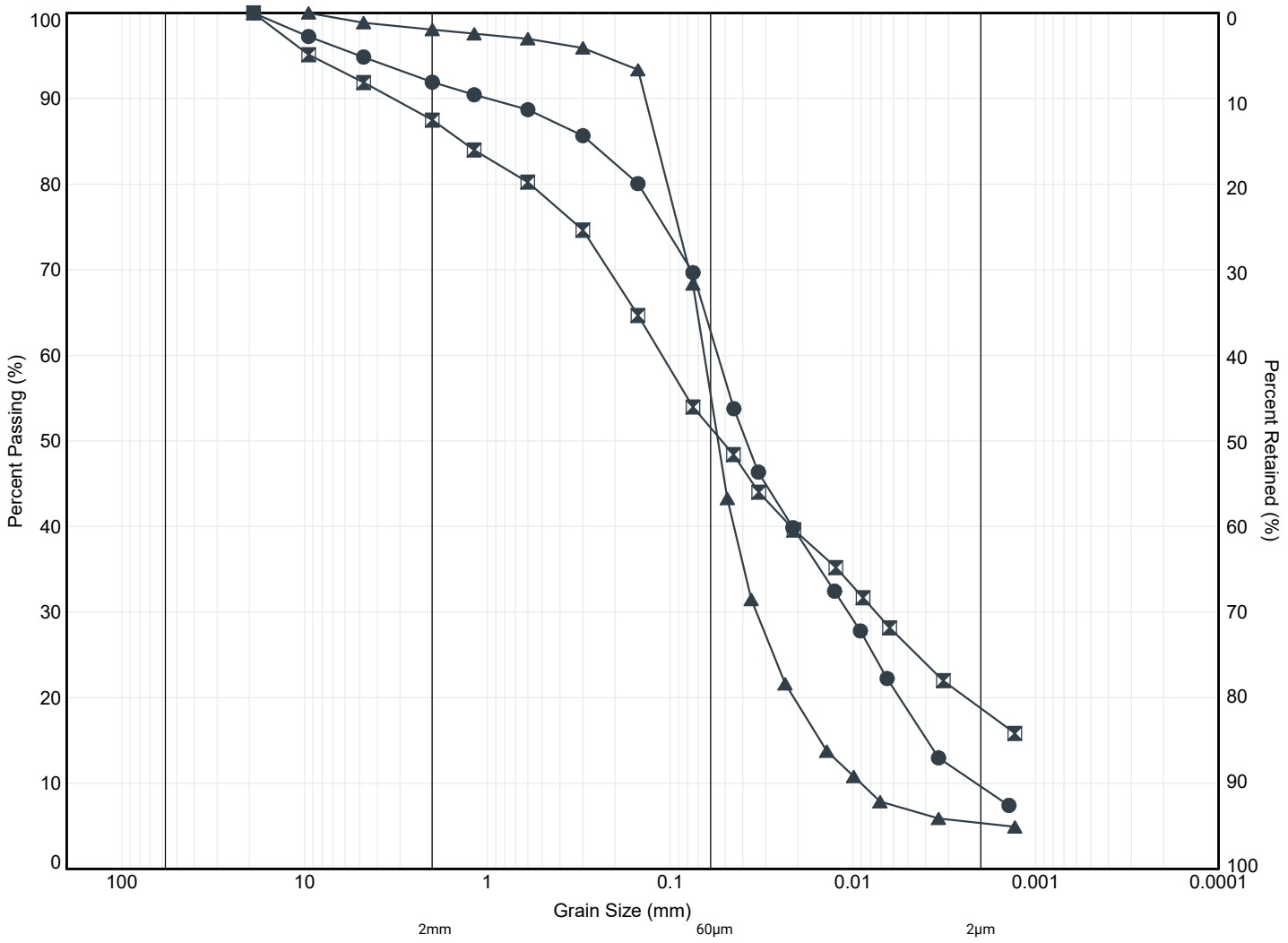
	Location	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
●	**BH 101**	SS9	12.5	89.9	2	18	49	31
⊠	**BH 101**	SS11	18.6	83.8	2	17	52	29
▲	**BH 102**	SS10	12.5	88.1	9	30	43	18
★	**BH 103**	SS12	14.0	84.1	2	20	49	29

GROUNDED ENGINEERING

Title: **GRAIN SIZE DISTRIBUTION**
CLAYEY SILT TILL

File No.: **23-197**

file: 23-197 gint.gpj



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

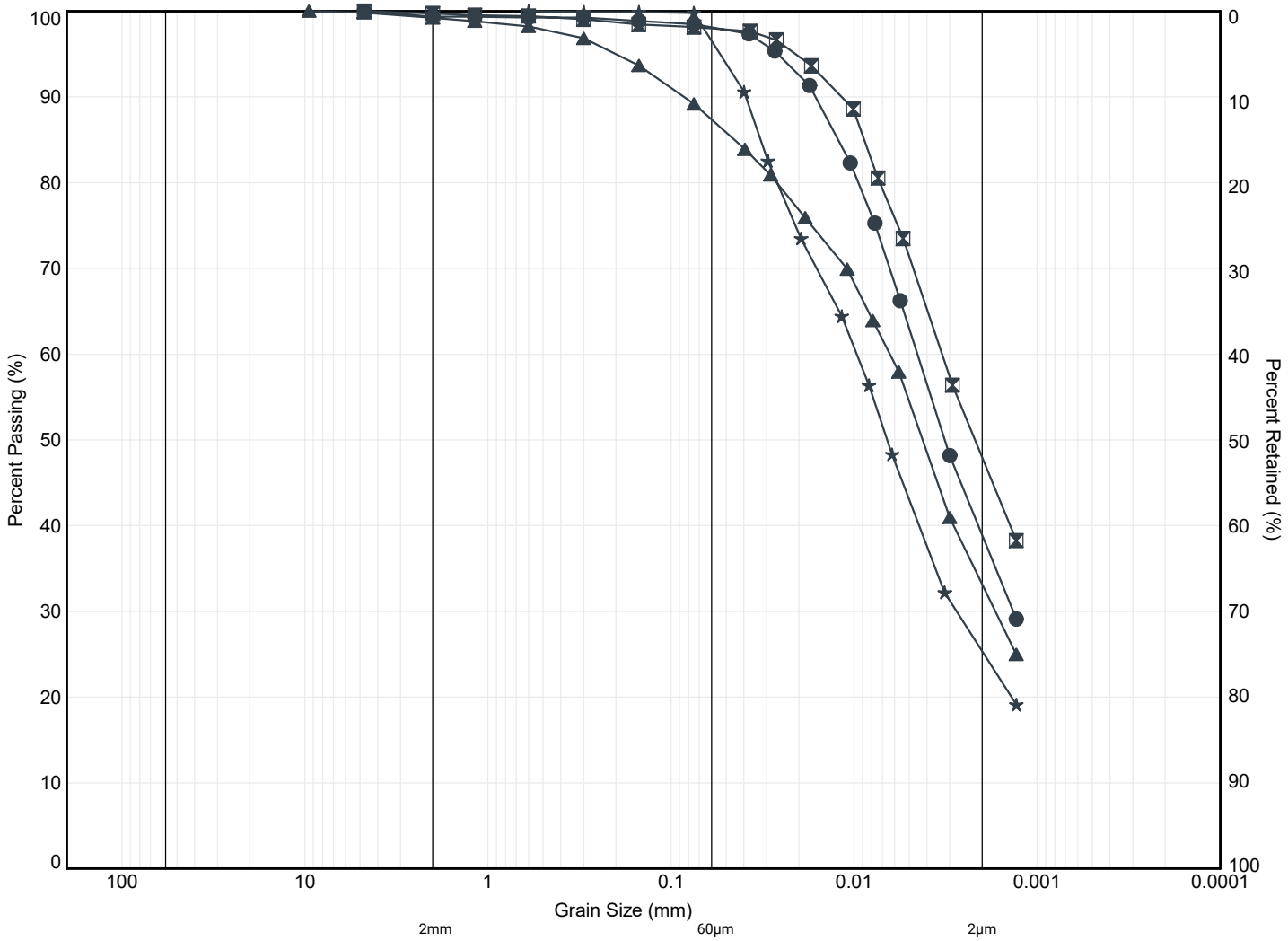
	Location	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
●	**BH 101**	SS3	1.7	100.7	8	29	53	10
⊠	**BH 106**	SS7	4.9	93.8	13	35	33	19
▲	**BH 203**	SS4	4.9	96.1	2	43	50	5

GROUNDED ENGINEERING

Title: **GRAIN SIZE DISTRIBUTION COHESIONLESS TILL**

File No.: **23-197**

file: 23-197 gint.gpj



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

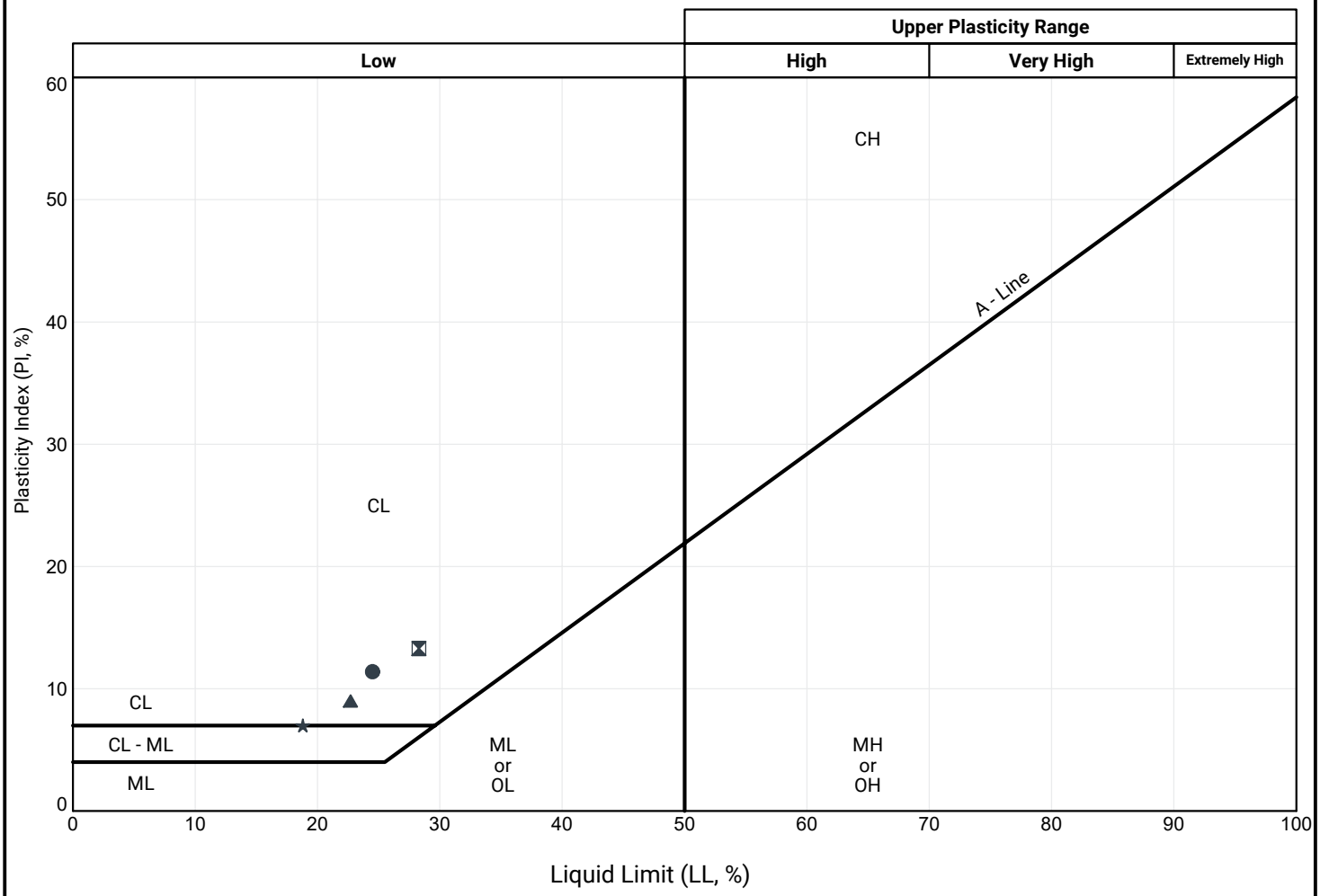
	Location	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
●	**BH 101**	SS10	15.5	86.9	1	1	59	39
⊠	**BH 102**	SS11	14.0	86.6	0	2	50	48
▲	**BH 104**	SS12	14.0	85.6	1	12	54	33
★	**BH 202**	SS9	10.8	93.3	0	4	71	25

GROUNDED ENGINEERING

Title: **GRAIN SIZE DISTRIBUTION CLAY AND SILT TO CLAYEY SILT**

File No.: **23-197**

file: 23-197 gint.gpj



	Location	Sample	Depth (m)	Elev. (m)	LL (%)	PL (%)	PI (%)
●	**BH 101**	SS9	12.5	89.9	25	13	11
⊠	**BH 101**	SS10	15.5	86.9	28	15	13
▲	**BH 103**	SS12	14.0	84.1	23	14	9
★	**BH 106**	SS7	4.9	93.8	19	12	7

GROUNDED ENGINEERING

Title: **ATTERBERG LIMITS CHART**

File No.: **23-197**

file: 23-197 gint.gpj

APPENDIX F

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2333397**	Page	: 1 of 25
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197-101	Date Samples Received	: 16-Oct-2023 18:00
PO	: ----	Date Analysis Commenced	: 17-Oct-2023
C-O-C number	: 20-1047506	Issue Date	: 23-Oct-2023 18:16
Sampler	: LB/IH		
Site	: 705 KINGSTON ROAD, PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 31		
No. of samples analysed	: 22		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
BH101-SS1(B)	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	2.82 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	91.3 -	5 -
BH101-SS4	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	0.852 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	14.1 -	5 -
BH102-SS2A	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	5.20 -	5 -
BH102-SS3	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	5.51 -	5 -
BH104-SS4	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	10.7 -	5 -
BH105-SS3	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	15.3 -	5 -
DUP-1	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	15.0 -	5 -

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3	BH102-SS7
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00	13-Oct-2023 17:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-005	WT2333397-007	WT2333397-008	WT2333397-009
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		2.82	----	0.852	----	0.695	0.430	----
Moisture	----	E144/WT	%		9.45	8.07	10.4	7.78	7.79	5.93	8.10
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.93	----	7.82	----	7.87	7.85	----
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	<0.050	----
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		3.09	----	6.20	----	17.8	3.28	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		<0.50	----	1.11	----	20.6	5.79	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		583	----	145	----	136	71.7	----
Sodium adsorption ratio [SAR]	----	E484/WT	-		91.3	----	14.1	----	5.20	5.51	----
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	----	<0.10	----	<0.10	<0.10	----
Arsenic	7440-38-2	E440C/WT	mg/kg		3.42	----	3.68	----	2.92	2.54	----
Barium	7440-39-3	E440C/WT	mg/kg		35.1	----	69.0	----	53.6	35.0	----
Beryllium	7440-41-7	E440C/WT	mg/kg		0.33	----	0.37	----	0.40	0.26	----
Boron	7440-42-8	E440C/WT	mg/kg		6.0	----	6.6	----	6.0	5.3	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		0.33	----	<0.10	----	0.32	<0.10	----
Cadmium	7440-43-9	E440C/WT	mg/kg		0.082	----	0.073	----	0.144	0.077	----
Chromium	7440-47-3	E440C/WT	mg/kg		13.1	----	16.7	----	16.5	10.6	----
Cobalt	7440-48-4	E440C/WT	mg/kg		6.39	----	8.67	----	5.72	5.77	----
Copper	7440-50-8	E440C/WT	mg/kg		16.9	----	18.0	----	12.2	10.4	----
Lead	7439-92-1	E440C/WT	mg/kg		7.49	----	7.91	----	8.85	6.63	----
Mercury	7439-97-6	E510C/WT	mg/kg		0.0169	----	0.0134	----	0.0256	0.0092	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.66	----	0.60	----	0.38	0.36	----
Nickel	7440-02-0	E440C/WT	mg/kg		15.4	----	18.8	----	12.8	13.4	----
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	----	<0.20	----	<0.20	<0.20	----
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	----	<0.10	----	<0.10	<0.10	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3	BH102-SS7
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00	13-Oct-2023 17:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-005	WT2333397-007	WT2333397-008	WT2333397-009
Metals											
Thallium	7440-28-0	E440C/WT	mg/kg		0.133	----	0.132	----	0.114	0.118	----
Uranium	7440-61-1	E440C/WT	mg/kg		0.482	----	0.656	----	0.631	0.472	----
Vanadium	7440-62-2	E440C/WT	mg/kg		22.6	----	27.1	----	28.6	20.1	----
Zinc	7440-66-6	E440C/WT	mg/kg		33.0	----	34.3	----	37.1	33.7	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	----	0.12	----	<0.10	0.10	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	<0.50	----	<0.50	----	<0.50	<0.50
Benzene	71-43-2	E611D/WT	mg/kg		----	<0.0050	----	<0.0050	----	<0.0050	<0.0050
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Bromoform	75-25-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Bromomethane	74-83-9	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Chloroform	67-66-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	<0.045	----	<0.045	----	<0.045	<0.045
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3	BH102-SS7
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00	13-Oct-2023 17:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-005	WT2333397-007	WT2333397-008	WT2333397-009
Volatile Organic Compounds											
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		----	<0.030	----	<0.030	----	<0.030	<0.030
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		----	<0.030	----	<0.030	----	<0.030	<0.030
Ethylbenzene	100-41-4	E611D/WT	mg/kg		----	<0.015	----	<0.015	----	<0.015	<0.015
Hexane, n-	110-54-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		----	<0.50	----	<0.50	----	<0.50	<0.50
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		----	<0.50	----	<0.50	----	<0.50	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		----	<0.040	----	<0.040	----	<0.040	<0.040
Styrene	100-42-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Toluene	108-88-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Trichloroethylene	79-01-6	E611D/WT	mg/kg		----	<0.010	----	<0.010	----	<0.010	<0.010
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
Vinyl chloride	75-01-4	E611D/WT	mg/kg		----	<0.020	----	<0.020	----	<0.020	<0.020
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		----	<0.030	----	<0.030	----	<0.030	<0.030
Xylene, o-	95-47-6	E611D/WT	mg/kg		----	<0.030	----	<0.030	----	<0.030	<0.030
Xylenes, total	1330-20-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	<0.050
BTEX, total	----	E611D/WT	mg/kg		----	<0.10	----	<0.10	----	<0.10	<0.10
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		----	<5.0	----	<5.0	----	<5.0	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		----	<10	----	13	----	13	<10
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		----	<50	----	52	----	<50	<50
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		----	<50	----	<50	----	<50	<50
F1-BTEX	----	EC580/WT	mg/kg		----	<5.0	----	<5.0	----	<5.0	<5.0

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3	BH102-SS7
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00	13-Oct-2023 17:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-005	WT2333397-007	WT2333397-008	WT2333397-009
Hydrocarbons											
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		----	<80	----	<80	----	<80	<80
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	YES	----	YES	----	YES	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	90.2	----	87.7	----	89.6	88.8
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	102	----	101	----	103	102
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	89.2	----	84.8	----	89.4	82.4
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	99.3	----	95.1	----	99.4	93.2
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	----	<0.010	----	<0.010	----	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3	BH102-SS7
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00	13-Oct-2023 17:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-005	WT2333397-007	WT2333397-008	WT2333397-009
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		95.0	----	90.8	----	90.9	----	----
Chrysene-d12	1719-03-5	E641A/WT	%		109	----	102	----	106	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		106	----	99.9	----	102	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		97.8	----	92.5	----	94.0	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)	BH104-SS2
				Sampling date/time	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00	10-Oct-2023 15:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018	WT2333397-019
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		----	----	0.430	0.178	----	0.416	----
Moisture	----	E144/WT	%		4.94	13.9	10.8	7.84	6.77	10.1	10.8
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		----	----	7.76	7.93	----	7.72	----
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		----	----	<0.050	<0.050	----	<0.050	----
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		----	----	10.8	5.37	----	21.4	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		----	----	15.6	3.44	----	25.7	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		----	----	79.5	4.67	----	84.2	----
Sodium adsorption ratio [SAR]	----	E484/WT	-		----	----	3.62	0.39	----	2.90	----
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		----	----	<0.10	<0.10	----	<0.10	----
Arsenic	7440-38-2	E440C/WT	mg/kg		----	----	2.17	3.19	----	2.48	----
Barium	7440-39-3	E440C/WT	mg/kg		----	----	38.4	63.7	----	44.3	----
Beryllium	7440-41-7	E440C/WT	mg/kg		----	----	0.28	0.38	----	0.32	----
Boron	7440-42-8	E440C/WT	mg/kg		----	----	6.3	7.5	----	5.4	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		----	----	<0.10	0.22	----	0.23	----
Cadmium	7440-43-9	E440C/WT	mg/kg		----	----	0.073	0.074	----	0.103	----
Chromium	7440-47-3	E440C/WT	mg/kg		----	----	12.5	17.1	----	14.2	----
Cobalt	7440-48-4	E440C/WT	mg/kg		----	----	4.54	6.84	----	5.13	----
Copper	7440-50-8	E440C/WT	mg/kg		----	----	10.1	16.7	----	12.1	----
Lead	7439-92-1	E440C/WT	mg/kg		----	----	7.81	8.86	----	7.26	----
Mercury	7439-97-6	E510C/WT	mg/kg		----	----	0.0077	0.0130	----	0.0204	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		----	----	0.29	0.58	----	0.44	----
Nickel	7440-02-0	E440C/WT	mg/kg		----	----	10.5	16.8	----	11.6	----
Selenium	7782-49-2	E440C/WT	mg/kg		----	----	<0.20	<0.20	----	<0.20	----
Silver	7440-22-4	E440C/WT	mg/kg		----	----	<0.10	<0.10	----	<0.10	----
Thallium	7440-28-0	E440C/WT	mg/kg		----	----	0.101	0.103	----	0.098	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)	BH104-SS2
				Sampling date/time	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00	10-Oct-2023 15:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018	WT2333397-019
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		----	----	0.446	1.25	----	0.530	----
Vanadium	7440-62-2	E440C/WT	mg/kg		----	----	21.8	25.5	----	26.7	----
Zinc	7440-66-6	E440C/WT	mg/kg		----	----	31.4	36.3	----	32.3	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		----	----	0.11	<0.10	----	<0.10	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	----	<0.50	----	<0.50	----	<0.50
Benzene	71-43-2	E611D/WT	mg/kg		----	----	<0.0050	----	<0.0050	----	<0.0050
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Bromoform	75-25-2	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Bromomethane	74-83-9	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Chloroform	67-66-3	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	----	<0.045	----	<0.045	----	<0.045
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)	BH104-SS2
				Sampling date/time	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00	10-Oct-2023 15:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018	WT2333397-019
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		----	----	<0.030	----	<0.030	----	<0.030
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		----	----	<0.030	----	<0.030	----	<0.030
Ethylbenzene	100-41-4	E611D/WT	mg/kg		----	----	<0.015	----	<0.015	----	<0.015
Hexane, n-	110-54-3	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		----	----	<0.50	----	<0.50	----	<0.50
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		----	----	<0.50	----	<0.50	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		----	----	<0.040	----	<0.040	----	<0.040
Styrene	100-42-5	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Toluene	108-88-3	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Trichloroethylene	79-01-6	E611D/WT	mg/kg		----	----	<0.010	----	<0.010	----	<0.010
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
Vinyl chloride	75-01-4	E611D/WT	mg/kg		----	----	<0.020	----	<0.020	----	<0.020
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		----	----	<0.030	----	<0.030	----	<0.030
Xylene, o-	95-47-6	E611D/WT	mg/kg		----	----	<0.030	----	<0.030	----	<0.030
Xylenes, total	1330-20-7	E611D/WT	mg/kg		----	----	<0.050	----	<0.050	----	<0.050
BTEX, total	----	E611D/WT	mg/kg		----	----	<0.10	----	<0.10	----	<0.10
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		----	----	<5.0	----	<5.0	----	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		----	----	<10	----	22	----	<10
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		----	----	<50	----	85	----	<50
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		----	----	<50	----	<50	----	<50
F1-BTEX	----	EC580/WT	mg/kg		----	----	<5.0	----	<5.0	----	<5.0
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		----	----	<80	----	107	----	<80

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)	BH104-SS2
				Sampling date/time	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00	10-Oct-2023 15:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018	WT2333397-019
Hydrocarbons											
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	----	YES	----	YES	----	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	----	89.4	----	91.6	----	90.2
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	----	102	----	102	----	98.5
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	----	123	----	130	----	83.6
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	----	136	----	95.7	----	94.9
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	----	<0.030	----	<0.030	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	----	<0.030	----	<0.030	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	----	<0.010	----	<0.010	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	<0.050	----	0.066	----	<0.050	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	<0.050	----	<0.050	----	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates											

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)	BH104-SS2
				Sampling date/time	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00	10-Oct-2023 15:10
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018	WT2333397-019
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		94.1	91.9	----	96.1	----	87.2	----
Chrysene-d12	1719-03-5	E641A/WT	%		100	105	----	104	----	102	----
Naphthalene-d8	1146-65-2	E641A/WT	%		102	100	----	101	----	97.5	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		96.2	93.6	----	96.3	----	90.5	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)	DUP-1
				Sampling date/time	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20	13-Oct-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027	WT2333397-030
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.292	----	0.383	----	0.627	----	0.611
Moisture	----	E144/WT	%		7.16	10.4	7.46	5.62	6.29	10.8	6.99
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.89	----	7.96	----	7.97	----	7.99
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		1.15	----	6.64	----	2.38	----	2.25
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		<0.50	----	10.2	----	0.76	----	0.77
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		41.8	----	67.0	----	106	----	102
Sodium adsorption ratio [SAR]	----	E484/WT	-		10.7	----	3.81	----	15.3	----	15.0
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	----	<0.10	----	<0.10	----	<0.10
Arsenic	7440-38-2	E440C/WT	mg/kg		2.45	----	2.32	----	2.32	----	1.96
Barium	7440-39-3	E440C/WT	mg/kg		47.3	----	30.0	----	65.4	----	56.2
Beryllium	7440-41-7	E440C/WT	mg/kg		0.26	----	0.24	----	0.29	----	0.28
Boron	7440-42-8	E440C/WT	mg/kg		5.8	----	5.2	----	7.0	----	6.8
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		<0.10	----	<0.10	----	<0.10	----	<0.10
Cadmium	7440-43-9	E440C/WT	mg/kg		0.074	----	0.053	----	0.063	----	0.047
Chromium	7440-47-3	E440C/WT	mg/kg		12.4	----	10.2	----	14.1	----	12.6
Cobalt	7440-48-4	E440C/WT	mg/kg		5.61	----	4.94	----	5.49	----	4.50
Copper	7440-50-8	E440C/WT	mg/kg		11.2	----	9.49	----	10.2	----	8.86
Lead	7439-92-1	E440C/WT	mg/kg		5.85	----	4.85	----	4.78	----	4.30
Mercury	7439-97-6	E510C/WT	mg/kg		0.0090	----	0.0058	----	0.0057	----	0.0056
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.36	----	0.27	----	0.36	----	0.31
Nickel	7440-02-0	E440C/WT	mg/kg		12.0	----	10.7	----	10.9	----	9.36
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	----	<0.20	----	<0.20	----	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	----	<0.10	----	<0.10	----	<0.10
Thallium	7440-28-0	E440C/WT	mg/kg		0.108	----	0.089	----	0.089	----	0.076

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)	DUP-1
				Sampling date/time	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20	13-Oct-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027	WT2333397-030
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		0.511	----	0.454	----	0.535	----	0.503
Vanadium	7440-62-2	E440C/WT	mg/kg		22.4	----	21.6	----	26.1	----	23.2
Zinc	7440-66-6	E440C/WT	mg/kg		26.7	----	21.9	----	26.2	----	23.2
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	----	<0.10	----	<0.10	----	<0.10
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	<0.50	----	<0.50	----	<0.50	----
Benzene	71-43-2	E611D/WT	mg/kg		----	<0.0050	----	<0.0050	----	<0.0050	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Bromoform	75-25-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Bromomethane	74-83-9	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Chloroform	67-66-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	<0.045	----	<0.045	----	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)	DUP-1
				Sampling date/time	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20	13-Oct-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027	WT2333397-030
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	<0.030	----
Ethylbenzene	100-41-4	E611D/WT	mg/kg	----	<0.015	----	<0.015	----	<0.015	----
Hexane, n-	110-54-3	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg	----	<0.50	----	<0.50	----	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg	----	<0.50	----	<0.50	----	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg	----	<0.040	----	<0.040	----	<0.040	----
Styrene	100-42-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Toluene	108-88-3	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg	----	<0.010	----	<0.010	----	<0.010	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg	----	<0.020	----	<0.020	----	<0.020	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	<0.030	----
Xylene, o-	95-47-6	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	<0.030	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	<0.050	----
BTEX, total	----	E611D/WT	mg/kg	----	<0.10	----	<0.10	----	<0.10	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg	----	<5.0	----	<5.0	----	<5.0	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	----	30	----	<10	----	<10	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	----	95	----	<50	----	<50	----
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	----	<50	----	<50	----	<50	----
F1-BTEX	----	EC580/WT	mg/kg	----	<5.0	----	<5.0	----	<5.0	----
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg	----	125	----	<80	----	<80	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)	DUP-1
				Sampling date/time	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20	13-Oct-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027	WT2333397-030
Hydrocarbons											
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	YES	----	YES	----	YES	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	90.1	----	87.7	----	88.1	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	98.3	----	92.5	----	95.6	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	130	----	87.8	----	84.2	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	94.7	----	99.6	----	94.3	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	<0.030
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	<0.030
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	----	<0.010	----	<0.010	----	<0.010
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates											

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)	DUP-1
				Sampling date/time	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20	13-Oct-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027	WT2333397-030
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		94.1	----	90.9	----	92.2	----	81.1
Chrysene-d12	1719-03-5	E641A/WT	%		112	----	115	----	117	----	82.2
Naphthalene-d8	1146-65-2	E641A/WT	%		103	----	100.0	----	102	----	80.8
Phenanthrene-d10	1517-22-2	E641A/WT	%		97.1	----	93.3	----	95.3	----	83.6

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP-2	----	----	----	----	----	----
				Sampling date/time	13-Oct-2023 17:10	----	----	----	----	----	----
				Sub-Matrix	Soil/Solid	----	----	----	----	----	----
					WT2333397-031	--------	--------	--------	--------	--------	--------
Physical Tests											
Moisture	----	E144/WT	%		8.52	----	----	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		<0.50	----	----	----	----	----	----
Benzene	71-43-2	E611D/WT	mg/kg		<0.0050	----	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		<0.045	----	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	mg/kg		<0.015	----	----	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: DUP-2	----	----	----	----	----	----
Sampling date/time				13-Oct-2023 17:10	----	----	----	----	----	----
Sub-Matrix				Soil/Solid	----	----	----	----	----	----
				WT2333397-031	--------	--------	--------	--------	--------	--------
Volatile Organic Compounds										
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg	<0.50	----	----	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg	<0.50	----	----	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg	<0.040	----	----	----	----	----	----
Styrene	100-42-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Toluene	108-88-3	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg	<0.010	----	----	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg	<0.020	----	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg	<0.030	----	----	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	mg/kg	<0.030	----	----	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
BTEX, total	----	E611D/WT	mg/kg	<0.10	----	----	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WT	mg/kg	<5.0	----	----	----	----	----	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	<10	----	----	----	----	----	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	<50	----	----	----	----	----	----
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	<50	----	----	----	----	----	----
F1-BTEX	----	EC580/WT	mg/kg	<5.0	----	----	----	----	----	----
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg	<80	----	----	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-	YES	----	----	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%	81.2	----	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%	92.6	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP-2	----	----	----	----	----	----
				Sampling date/time	13-Oct-2023 17:10	----	----	----	----	----	----
				Sub-Matrix	Soil/Solid	----	----	----	----	----	----
					WT2333397-031	--------	--------	--------	--------	--------	--------
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		91.2	----	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		97.8	----	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Physical Tests			
Conductivity (1:2 leachate)	----	mS/cm	**0.7 mS/cm**
Moisture	----	%	**--**
pH (1:2 soil:CaCl2-aq)	----	pH units	**--**
Cyanides			
Cyanide, weak acid dissociable	----	mg/kg	**0.051 mg/kg**
Fixed-Ratio Extractables			
Calcium, soluble ion content	7440-70-2	mg/L	**--**
Magnesium, soluble ion content	7439-95-4	mg/L	**--**
Sodium adsorption ratio [SAR]	----	-	**5 -**
Sodium, soluble ion content	17341-25-2	mg/L	**--**
Metals			
Antimony	7440-36-0	mg/kg	**7.5 mg/kg**
Arsenic	7440-38-2	mg/kg	**18 mg/kg**
Barium	7440-39-3	mg/kg	**390 mg/kg**
Beryllium	7440-41-7	mg/kg	**4 mg/kg**
Boron, hot water soluble	7440-42-8	mg/kg	**1.5 mg/kg**
Boron	7440-42-8	mg/kg	**120 mg/kg**
Cadmium	7440-43-9	mg/kg	**1.2 mg/kg**
Chromium	7440-47-3	mg/kg	**160 mg/kg**
Cobalt	7440-48-4	mg/kg	**22 mg/kg**
Copper	7440-50-8	mg/kg	**140 mg/kg**
Lead	7439-92-1	mg/kg	**120 mg/kg**
Mercury	7439-97-6	mg/kg	**0.27 mg/kg**
Molybdenum	7439-98-7	mg/kg	**6.9 mg/kg**
Nickel	7440-02-0	mg/kg	**100 mg/kg**
Selenium	7782-49-2	mg/kg	**2.4 mg/kg**
Silver	7440-22-4	mg/kg	**20 mg/kg**
Thallium	7440-28-0	mg/kg	**1 mg/kg**
Uranium	7440-61-1	mg/kg	**23 mg/kg**
Vanadium	7440-62-2	mg/kg	**86 mg/kg**
Zinc	7440-66-6	mg/kg	**340 mg/kg**
Speciated Metals			
Chromium, hexavalent [Cr VI]	18540-29-9	mg/kg	**8 mg/kg**
Volatile Organic Compounds			
Acetone	67-64-1	mg/kg	**16 mg/kg**
Benzene	71-43-2	mg/kg	**0.21 mg/kg**
Bromodichloromethane	75-27-4	mg/kg	**13 mg/kg**

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Bromoform	75-25-2	mg/kg	**0.27 mg/kg**
Bromomethane	74-83-9	mg/kg	**0.05 mg/kg**
BTEX, total	----	mg/kg	--
Carbon tetrachloride	56-23-5	mg/kg	**0.05 mg/kg**
Chlorobenzene	108-90-7	mg/kg	**2.4 mg/kg**
Chloroform	67-66-3	mg/kg	**0.05 mg/kg**
Dibromochloromethane	124-48-1	mg/kg	**9.4 mg/kg**
Dibromoethane, 1,2-	106-93-4	mg/kg	**0.05 mg/kg**
Dichlorobenzene, 1,2-	95-50-1	mg/kg	**3.4 mg/kg**
Dichlorobenzene, 1,3-	541-73-1	mg/kg	**4.8 mg/kg**
Dichlorobenzene, 1,4-	106-46-7	mg/kg	**0.083 mg/kg**
Dichlorodifluoromethane	75-71-8	mg/kg	**16 mg/kg**
Dichloroethane, 1,1-	75-34-3	mg/kg	**3.5 mg/kg**
Dichloroethane, 1,2-	107-06-2	mg/kg	**0.05 mg/kg**
Dichloroethylene, 1,1-	75-35-4	mg/kg	**0.05 mg/kg**
Dichloroethylene, cis-1,2-	156-59-2	mg/kg	**3.4 mg/kg**
Dichloroethylene, trans-1,2-	156-60-5	mg/kg	**0.084 mg/kg**
Dichloromethane	75-09-2	mg/kg	**0.1 mg/kg**
Dichloropropane, 1,2-	78-87-5	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis+trans-1,3-	542-75-6	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis-1,3-	10061-01-5	mg/kg	--
Dichloropropylene, trans-1,3-	10061-02-6	mg/kg	--
Ethylbenzene	100-41-4	mg/kg	**2 mg/kg**
Hexane, n-	110-54-3	mg/kg	**2.8 mg/kg**
Methyl ethyl ketone [MEK]	78-93-3	mg/kg	**16 mg/kg**
Methyl isobutyl ketone [MIBK]	108-10-1	mg/kg	**1.7 mg/kg**
Methyl-tert-butyl ether [MTBE]	1634-04-4	mg/kg	**0.75 mg/kg**
Styrene	100-42-5	mg/kg	**0.7 mg/kg**
Tetrachloroethane, 1,1,1,2-	630-20-6	mg/kg	**0.058 mg/kg**
Tetrachloroethane, 1,1,2,2-	79-34-5	mg/kg	**0.05 mg/kg**
Tetrachloroethylene	127-18-4	mg/kg	**0.28 mg/kg**
Toluene	108-88-3	mg/kg	**2.3 mg/kg**
Trichloroethane, 1,1,1-	71-55-6	mg/kg	**0.38 mg/kg**
Trichloroethane, 1,1,2-	79-00-5	mg/kg	**0.05 mg/kg**
Trichloroethylene	79-01-6	mg/kg	**0.061 mg/kg**
Trichlorofluoromethane	75-69-4	mg/kg	**4 mg/kg**
Vinyl chloride	75-01-4	mg/kg	**0.02 mg/kg**
Xylene, m+p-	179601-23-1	mg/kg	--
Xylene, o-	95-47-6	mg/kg	--

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Xylenes, total	1330-20-7	mg/kg	**3.1 mg/kg**
Hydrocarbons			
Chromatogram to baseline at nC50	n/a	-	**--**
F1 (C6-C10)	----	mg/kg	**55 mg/kg**
F1-BTEX	----	mg/kg	**55 mg/kg**
F2 (C10-C16)	----	mg/kg	**98 mg/kg**
F3 (C16-C34)	----	mg/kg	**300 mg/kg**
F4 (C34-C50)	----	mg/kg	**2800 mg/kg**
Hydrocarbons, total (C6-C50)	----	mg/kg	**--**
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%	
Dichlorotoluene, 3,4-	95-75-0	%	
Bromofluorobenzene, 4-	460-00-4	%	
Difluorobenzene, 1,4-	540-36-3	%	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	83-32-9	mg/kg	**7.9 mg/kg**
Acenaphthylene	208-96-8	mg/kg	**0.15 mg/kg**
Anthracene	120-12-7	mg/kg	**0.67 mg/kg**
Benz(a)anthracene	56-55-3	mg/kg	**0.5 mg/kg**
Benzo(a)pyrene	50-32-8	mg/kg	**0.3 mg/kg**
Benzo(b+j)fluoranthene	n/a	mg/kg	**0.78 mg/kg**
Benzo(g,h,i)perylene	191-24-2	mg/kg	**6.6 mg/kg**
Benzo(k)fluoranthene	207-08-9	mg/kg	**0.78 mg/kg**
Chrysene	218-01-9	mg/kg	**7 mg/kg**
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.1 mg/kg**
Fluoranthene	206-44-0	mg/kg	**0.69 mg/kg**
Fluorene	86-73-7	mg/kg	**62 mg/kg**
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	**0.38 mg/kg**
Methylnaphthalene, 1+2-	----	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 1-	90-12-0	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 2-	91-57-6	mg/kg	**0.99 mg/kg**
Naphthalene	91-20-3	mg/kg	**0.6 mg/kg**
Phenanthrene	85-01-8	mg/kg	**6.2 mg/kg**
Pyrene	129-00-0	mg/kg	**78 mg/kg**
Acridine-d9	34749-75-2	%	
Chrysene-d12	1719-03-5	%	
Naphthalene-d8	1146-65-2	%	
Phenanthrene-d10	1517-22-2	%	

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04		Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
	T3-RPI-C	153 T3-Soil-Res/Park/Inst. Property Use (Coarse)

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2333397**	Page	: 1 of 26
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197-101	Date Samples Received	: 16-Oct-2023 18:00
PO	: ----	Issue Date	: 23-Oct-2023 18:16
C-O-C number	: 20-1047506		
Sampler	: LB/IH		
Site	: 705 KINGSTON ROAD, PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 31		
No. of samples analysed	: 22		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Duplicate outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Hydrocarbons	Anonymous	Anonymous	F3 (C16-C34)	----	E601.SG-L	166 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Matrix Spike (MS) Recoveries								
Volatile Organic Compounds	Anonymous	Anonymous	Acetone	67-64-1	E611D	143 % MES	50.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E336A	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E336A	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	14 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH102-SS3	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH102-SS7	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH105-SS2	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH105-SS7(A)	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
DUP-2	E581.F1	13-Oct-2023	18-Oct-2023	14 days	5 days	✓	19-Oct-2023	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH101-SS2	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH101-SS7	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH103-SS3A	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH103-SS8	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH104-SS2	E581.F1	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH104-SS7	E581.F1	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] DUP-2	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	19-Oct-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS7	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS2	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS7(A)	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS2	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS7	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS8	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS2	E601.SG-L	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS7	E601.SG-L	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	23-Oct-2023	40 days	6 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E487	13-Oct-2023	19-Oct-2023	180 days	7 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E487	10-Oct-2023	19-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS4	E487	10-Oct-2023	19-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS2A	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS3	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E510C	13-Oct-2023	18-Oct-2023	28 days	6 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS3A	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E510C	10-Oct-2023	18-Oct-2023	28 days	8 days	✓	19-Oct-2023	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E510C	10-Oct-2023	18-Oct-2023	28 days	8 days	✓	19-Oct-2023	28 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E440C	13-Oct-2023	18-Oct-2023	180 days	6 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E440C	10-Oct-2023	18-Oct-2023	180 days	8 days	✓	19-Oct-2023	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E440C	10-Oct-2023	18-Oct-2023	180 days	8 days	✓	19-Oct-2023	180 days	9 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E484	13-Oct-2023	20-Oct-2023	180 days	7 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E484	10-Oct-2023	20-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E484	10-Oct-2023	20-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS3	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E100-L	13-Oct-2023	20-Oct-2023	30 days	7 days	✓	20-Oct-2023	30 days	8 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS3A	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS6	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS1(B)	E100-L	10-Oct-2023	20-Oct-2023	30 days	9 days	✓	20-Oct-2023	30 days	10 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS4	E100-L	10-Oct-2023	20-Oct-2023	30 days	9 days	✓	20-Oct-2023	30 days	10 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS4	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS7	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS2	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS7(A)	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] DUP-2	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS2	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS7	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS2	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS3A	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS6	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS8	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS1(B)	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS2	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS4	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS7	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS2A	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS3	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E108A	10-Oct-2023	17-Oct-2023	30 days	7 days	✓	18-Oct-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E108A	10-Oct-2023	17-Oct-2023	30 days	7 days	✓	18-Oct-2023	30 days	8 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS4	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E641A	13-Oct-2023	17-Oct-2023	60 days	5 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS2	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E641A	10-Oct-2023	17-Oct-2023	60 days	7 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E641A	10-Oct-2023	17-Oct-2023	60 days	7 days	✓	18-Oct-2023	40 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS3	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E532	13-Oct-2023	18-Oct-2023	30 days	5 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E532	11-Oct-2023	18-Oct-2023	30 days	6 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E532	11-Oct-2023	18-Oct-2023	30 days	6 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS3A	E532	11-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS6	E532	11-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS1(B)	E532	10-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS4	E532	10-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH102-SS3	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH102-SS7	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH105-SS2	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH105-SS7(A)	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] DUP-2	E611D	13-Oct-2023	18-Oct-2023	14 days	5 days	✓	19-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH101-SS2	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH101-SS7	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH103-SS3A	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH103-SS8	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH104-SS2	E611D	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH104-SS7	E611D	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1189097	1	11	9.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	2	16	12.5	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1189095	1	16	6.2	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1190678	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1189098	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1189099	1	11	9.0	5.0	✓
Moisture Content by Gravimetry	E144	1188845	3	56	5.3	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1188807	1	17	5.8	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1189096	1	11	9.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	2	38	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1189097	2	11	18.1	10.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	2	16	12.5	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1189095	2	16	12.5	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1190678	2	20	10.0	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1189098	2	11	18.1	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1189099	2	11	18.1	10.0	✓
Moisture Content by Gravimetry	E144	1188845	3	56	5.3	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1188807	1	17	5.8	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1189096	2	11	18.1	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	2	38	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1189097	1	11	9.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	2	16	12.5	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1189095	1	16	6.2	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1190678	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1189098	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1189099	1	11	9.0	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Moisture Content by Gravimetry	E144	1188845	3	56	5.3	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1189096	1	11	9.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	2	38	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	2	16	12.5	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	2	38	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3137A	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

QUALITY CONTROL REPORT

Work Order	: **WT2333397**	Page	: 1 of 27
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197-101	Date Samples Received	: 16-Oct-2023 18:00
PO	: ----	Date Analysis Commenced	: 17-Oct-2023
C-O-C number	: 20-1047506	Issue Date	: 23-Oct-2023 18:16
Sampler	: LB/IH 647 370 3191		
Site	: 705 KINGSTON ROAD, PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 31		
No. of samples analysed	: 22		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1188807)											
WT2333342-003	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	4.61	4.84	4.87%	5%	----
Physical Tests (QC Lot: 1188845)											
WT2333389-001	Anonymous	Moisture	----	E144	0.25	%	6.55	6.72	2.54%	20%	----
Physical Tests (QC Lot: 1189095)											
WT2333397-001	BH101-SS1(B)	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	2.82 mS/cm	2850	1.06%	20%	----
Physical Tests (QC Lot: 1189441)											
WT2333319-002	Anonymous	Moisture	----	E144	0.25	%	17.2	17.0	1.35%	20%	----
Physical Tests (QC Lot: 1189511)											
TY2310567-001	Anonymous	Moisture	----	E144	0.25	%	7.14	7.55	5.52%	20%	----
Cyanides (QC Lot: 1188873)											
WT2333397-001	BH101-SS1(B)	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1189096)											
WT2333397-001	BH101-SS1(B)	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	3.09	3.10	0.01	Diff <2x LOR	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	583	587	0.684%	30%	----
Metals (QC Lot: 1189097)											
WT2333397-001	BH101-SS1(B)	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.33	0.31	0.02	Diff <2x LOR	----
Metals (QC Lot: 1189098)											
WT2333397-001	BH101-SS1(B)	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0169	0.0170	0.00003	Diff <2x LOR	----
Metals (QC Lot: 1189099)											
WT2333397-001	BH101-SS1(B)	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	3.42	3.44	0.620%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	35.1	35.4	0.875%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.33	0.36	0.02	Diff <2x LOR	----
		Boron	7440-42-8	E440C	5.0	mg/kg	6.0	6.7	0.8	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.082	0.079	0.003	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	13.1	13.9	5.83%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	6.39	6.64	3.77%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	16.9	17.1	1.27%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	7.49	7.62	1.66%	40%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1189099) - continued											
WT2333397-001	BH101-SS1(B)	Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.66	0.69	4.72%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	15.4	15.7	2.06%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440C	0.050	mg/kg	0.133	0.134	0.001	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.482	0.516	6.98%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	22.6	24.7	8.99%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	33.0	34.1	3.27%	30%	----
Speciated Metals (QC Lot: 1190678)											
WT2333397-001	BH101-SS1(B)	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1190729)											
WT2333299-003	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1190729) - continued											
WT2333299-003	Anonymous	Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1193077)											
WT2332529-001	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1193077) - continued											
WT2332529-001	Anonymous	Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1188789)											
WT2333397-002	BH101-SS2	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1189146)											
WT2333482-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	60	# 226	166	Diff <2x LOR	DUP-H
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	69	19	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1190730)											
WT2333299-003	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Hydrocarbons (QC Lot: 1193078)											
WT2332529-001	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1188788)											
WT2333397-001	BH101-SS1(B)	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1189145)											
WT2333482-001	Anonymous	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1189145) - continued											
WT2333482-001	Anonymous	Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1188845)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1189095)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1189441)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1189511)						
Moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 1188873)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1189096)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1189097)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1189098)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1189099)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1189099) - continued						
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----
Speciated Metals (QCLot: 1190678)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1190729)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1190729) - continued						
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1193077)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1193077) - continued						
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1188789)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1189146)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1190730)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1193078)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788) - continued						
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1188807)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 1188845)									
Moisture	----	E144	0.25	%	50 %	99.4	90.0	110	----
Physical Tests (QCLot: 1189095)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	96.7	90.0	110	----
Physical Tests (QCLot: 1189441)									
Moisture	----	E144	0.25	%	50 %	99.6	90.0	110	----
Physical Tests (QCLot: 1189511)									
Moisture	----	E144	0.25	%	50 %	99.2	90.0	110	----
Cyanides (QCLot: 1188873)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	92.1	80.0	120	----
Metals (QCLot: 1189096)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	105	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	101	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	103	80.0	120	----
Metals (QCLot: 1189097)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	101	70.0	130	----
Metals (QCLot: 1189098)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	107	80.0	120	----
Metals (QCLot: 1189099)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	97.1	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	102	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	91.9	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	89.8	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	91.5	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	94.6	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	96.8	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	93.1	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	95.6	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	96.3	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1189099) - continued									
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	89.1	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	95.3	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	95.8	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	83.4	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	92.8	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	89.0	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	101	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	97.7	80.0	120	----
Speciated Metals (QCLot: 1190678)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	94.5	80.0	120	----
Volatile Organic Compounds (QCLot: 1190729)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	113	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	93.9	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	97.6	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	90.0	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	88.2	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	91.5	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	93.2	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	97.8	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	85.8	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	93.0	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	93.7	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	90.6	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	89.1	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	69.4	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	98.6	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	103	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	93.7	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	96.2	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	95.2	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	102	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	97.1	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	80.0	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	74.4	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1190729) - continued									
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	88.6	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	86.5	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	94.0	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	89.0	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	96.9	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	90.9	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	88.5	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	92.7	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	88.8	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	88.3	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	94.4	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	93.6	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	92.5	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	90.3	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	80.9	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	89.3	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	90.1	70.0	130	----
Volatile Organic Compounds (QCLot: 1193077)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	106	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	100	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	98.6	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	91.7	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	106	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	95.9	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	103	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	91.6	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	92.1	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	93.6	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	97.2	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	97.6	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	83.0	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	103	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	101	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	106	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	100	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1193077) - continued									
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	110	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	109	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	98.7	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	92.7	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	86.1	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	93.5	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	103	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	103	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	90.2	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	93.1	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	90.4	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	93.6	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	99.0	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	98.4	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	92.9	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	101	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	95.2	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	101	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	106	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	99.8	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	99.7	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Hydrocarbons (QCLot: 1188789)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	110	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	110	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	102	70.0	130	----
Hydrocarbons (QCLot: 1189146)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	101	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	98.3	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	94.0	70.0	130	----
Hydrocarbons (QCLot: 1190730)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	107	80.0	120	----
Hydrocarbons (QCLot: 1193078)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	95.0	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	93.3	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	92.9	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	92.1	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	105	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	88.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	99.4	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	87.1	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	96.0	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	89.2	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	82.1	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	93.4	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	93.5	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	92.8	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	91.6	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	101	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	94.7	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	90.5	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	92.2	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	80.0	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	79.4	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	77.6	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	77.7	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	76.8	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	81.6	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	82.7	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	79.8	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	66.3	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	70.7	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	79.2	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	80.4	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	82.4	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	75.4	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	82.1	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	76.9	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	76.4	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145) - continued									
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	77.8	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1188873)										
WT2333397-001	BH101-SS1(B)	Cyanide, weak acid dissociable	----	E336A	1.11 mg/kg	1.25 mg/kg	89.2	70.0	130	----
Volatile Organic Compounds (QCLot: 1190729)										
WT2333299-003	Anonymous	Acetone	67-64-1	E611D	3.21 mg/kg	3.125 mg/kg	143	50.0	140	MES
		Benzene	71-43-2	E611D	2.13 mg/kg	3.125 mg/kg	94.6	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.23 mg/kg	3.125 mg/kg	99.2	50.0	140	----
		Bromoform	75-25-2	E611D	2.30 mg/kg	3.125 mg/kg	102	50.0	140	----
		Bromomethane	74-83-9	E611D	2.22 mg/kg	3.125 mg/kg	98.8	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	1.94 mg/kg	3.125 mg/kg	86.2	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.05 mg/kg	3.125 mg/kg	91.2	50.0	140	----
		Chloroform	67-66-3	E611D	2.21 mg/kg	3.125 mg/kg	98.5	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	2.02 mg/kg	3.125 mg/kg	90.0	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.36 mg/kg	3.125 mg/kg	105	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	2.06 mg/kg	3.125 mg/kg	91.7	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.05 mg/kg	3.125 mg/kg	91.2	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.00 mg/kg	3.125 mg/kg	89.1	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	1.48 mg/kg	3.125 mg/kg	66.0	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.24 mg/kg	3.125 mg/kg	99.4	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.55 mg/kg	3.125 mg/kg	114	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.08 mg/kg	3.125 mg/kg	92.5	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.20 mg/kg	3.125 mg/kg	97.8	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.12 mg/kg	3.125 mg/kg	94.4	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.50 mg/kg	3.125 mg/kg	111	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.23 mg/kg	3.125 mg/kg	99.1	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	1.92 mg/kg	3.125 mg/kg	85.2	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	1.90 mg/kg	3.125 mg/kg	84.4	50.0	140	----
		Ethylbenzene	100-41-4	E611D	1.94 mg/kg	3.125 mg/kg	86.2	50.0	140	----
		Hexane, n-	110-54-3	E611D	1.91 mg/kg	3.125 mg/kg	84.8	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.64 mg/kg	3.125 mg/kg	118	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.09 mg/kg	3.125 mg/kg	93.2	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.11 mg/kg	3.125 mg/kg	93.9	50.0	140	----
		Styrene	100-42-5	E611D	1.95 mg/kg	3.125 mg/kg	86.9	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1190729) - continued										
WT2333299-003	Anonymous	Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	1.95 mg/kg	3.125 mg/kg	86.7	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.30 mg/kg	3.125 mg/kg	102	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	1.93 mg/kg	3.125 mg/kg	86.0	50.0	140	----
		Toluene	108-88-3	E611D	2.07 mg/kg	3.125 mg/kg	91.9	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.03 mg/kg	3.125 mg/kg	90.3	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.28 mg/kg	3.125 mg/kg	102	50.0	140	----
		Trichloroethylene	79-01-6	E611D	1.99 mg/kg	3.125 mg/kg	88.5	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.04 mg/kg	3.125 mg/kg	90.9	50.0	140	----
		Vinyl chloride	75-01-4	E611D	1.96 mg/kg	3.125 mg/kg	87.4	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	3.93 mg/kg	6.25 mg/kg	87.4	50.0	140	----
		Xylene, o-	95-47-6	E611D	1.98 mg/kg	3.125 mg/kg	87.9	50.0	140	----
Volatile Organic Compounds (QCLot: 1193077)										
WT2332529-001	Anonymous	Acetone	67-64-1	E611D	2.35 mg/kg	3.125 mg/kg	112	50.0	140	----
		Benzene	71-43-2	E611D	2.17 mg/kg	3.125 mg/kg	103	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.15 mg/kg	3.125 mg/kg	102	50.0	140	----
		Bromoform	75-25-2	E611D	2.04 mg/kg	3.125 mg/kg	97.1	50.0	140	----
		Bromomethane	74-83-9	E611D	2.47 mg/kg	3.125 mg/kg	117	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	2.18 mg/kg	3.125 mg/kg	104	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.02 mg/kg	3.125 mg/kg	96.3	50.0	140	----
		Chloroform	67-66-3	E611D	2.22 mg/kg	3.125 mg/kg	106	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	1.99 mg/kg	3.125 mg/kg	94.8	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.05 mg/kg	3.125 mg/kg	97.4	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	1.94 mg/kg	3.125 mg/kg	92.4	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.00 mg/kg	3.125 mg/kg	95.1	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.01 mg/kg	3.125 mg/kg	95.5	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	2.80 mg/kg	3.125 mg/kg	133	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.26 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.26 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.32 mg/kg	3.125 mg/kg	110	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.19 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.36 mg/kg	3.125 mg/kg	112	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.42 mg/kg	3.125 mg/kg	115	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.16 mg/kg	3.125 mg/kg	103	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	2.05 mg/kg	3.125 mg/kg	97.6	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	1.90 mg/kg	3.125 mg/kg	90.2	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1193077) - continued										
WT2332529-001	Anonymous	Ethylbenzene	100-41-4	E611D	1.94 mg/kg	3.125 mg/kg	92.3	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.30 mg/kg	3.125 mg/kg	110	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.32 mg/kg	3.125 mg/kg	110	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.02 mg/kg	3.125 mg/kg	95.9	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	1.96 mg/kg	3.125 mg/kg	93.2	50.0	140	----
		Styrene	100-42-5	E611D	1.90 mg/kg	3.125 mg/kg	90.2	50.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	1.98 mg/kg	3.125 mg/kg	94.1	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.19 mg/kg	3.125 mg/kg	104	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	2.03 mg/kg	3.125 mg/kg	96.5	50.0	140	----
		Toluene	108-88-3	E611D	1.95 mg/kg	3.125 mg/kg	92.9	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.16 mg/kg	3.125 mg/kg	103	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.09 mg/kg	3.125 mg/kg	99.2	50.0	140	----
		Trichloroethylene	79-01-6	E611D	2.14 mg/kg	3.125 mg/kg	102	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.40 mg/kg	3.125 mg/kg	114	50.0	140	----
		Vinyl chloride	75-01-4	E611D	2.41 mg/kg	3.125 mg/kg	115	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	4.12 mg/kg	6.25 mg/kg	98.1	50.0	140	----
		Xylene, o-	95-47-6	E611D	1.98 mg/kg	3.125 mg/kg	94.0	50.0	140	----
Hydrocarbons (QCLot: 1188789)										
WT2333397-002	BH101-SS2	F2 (C10-C16)	----	E601.SG-L	582 mg/kg	656.4125 mg/kg	111	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1150 mg/kg	1332.613 mg/kg	109	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	647 mg/kg	761.4625 mg/kg	107	60.0	140	----
Hydrocarbons (QCLot: 1189146)										
WT2333482-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	543 mg/kg	656.4125 mg/kg	96.9	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1120 mg/kg	1332.613 mg/kg	98.3	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	616 mg/kg	761.4625 mg/kg	94.9	60.0	140	----
Hydrocarbons (QCLot: 1190730)										
WT2333299-003	Anonymous	F1 (C6-C10)	----	E581.F1	44.9 mg/kg	62.5 mg/kg	99.8	60.0	140	----
Hydrocarbons (QCLot: 1193078)										
WT2332529-001	Anonymous	F1 (C6-C10)	----	E581.F1	37.4 mg/kg	62.5 mg/kg	89.1	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788)										
WT2333397-001	BH101-SS1(B)	Acenaphthene	83-32-9	E641A	0.388 mg/kg	0.5 mg/kg	97.7	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.390 mg/kg	0.5 mg/kg	98.1	50.0	140	----
		Anthracene	120-12-7	E641A	0.390 mg/kg	0.5 mg/kg	98.2	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.440 mg/kg	0.5 mg/kg	111	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788) - continued										
WT2333397-001	BH101-SS1(B)	Benzo(a)pyrene	50-32-8	E641A	0.370 mg/kg	0.5 mg/kg	93.0	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.414 mg/kg	0.5 mg/kg	104	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.333 mg/kg	0.5 mg/kg	83.8	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.414 mg/kg	0.5 mg/kg	104	50.0	140	----
		Chrysene	218-01-9	E641A	0.368 mg/kg	0.5 mg/kg	92.7	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.339 mg/kg	0.5 mg/kg	85.1	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.390 mg/kg	0.5 mg/kg	98.0	50.0	140	----
		Fluorene	86-73-7	E641A	0.393 mg/kg	0.5 mg/kg	98.8	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.373 mg/kg	0.5 mg/kg	93.8	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.387 mg/kg	0.5 mg/kg	97.4	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.426 mg/kg	0.5 mg/kg	107	50.0	140	----
		Naphthalene	91-20-3	E641A	0.406 mg/kg	0.5 mg/kg	102	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.385 mg/kg	0.5 mg/kg	96.8	50.0	140	----
		Pyrene	129-00-0	E641A	0.382 mg/kg	0.5 mg/kg	96.2	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145)										
WT2333482-001	Anonymous	Acenaphthene	83-32-9	E641A	0.350 mg/kg	0.5 mg/kg	82.2	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.350 mg/kg	0.5 mg/kg	82.3	50.0	140	----
		Anthracene	120-12-7	E641A	0.353 mg/kg	0.5 mg/kg	83.0	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.361 mg/kg	0.5 mg/kg	85.0	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.338 mg/kg	0.5 mg/kg	79.6	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.356 mg/kg	0.5 mg/kg	83.7	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.370 mg/kg	0.5 mg/kg	87.0	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.357 mg/kg	0.5 mg/kg	83.9	50.0	140	----
		Chrysene	218-01-9	E641A	0.291 mg/kg	0.5 mg/kg	68.3	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.316 mg/kg	0.5 mg/kg	74.3	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.350 mg/kg	0.5 mg/kg	82.3	50.0	140	----
		Fluorene	86-73-7	E641A	0.356 mg/kg	0.5 mg/kg	83.7	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.363 mg/kg	0.5 mg/kg	85.4	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.334 mg/kg	0.5 mg/kg	78.5	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.371 mg/kg	0.5 mg/kg	87.3	50.0	140	----
		Naphthalene	91-20-3	E641A	0.346 mg/kg	0.5 mg/kg	81.4	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.345 mg/kg	0.5 mg/kg	81.2	50.0	140	----
		Pyrene	129-00-0	E641A	0.344 mg/kg	0.5 mg/kg	80.9	50.0	140	----

Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

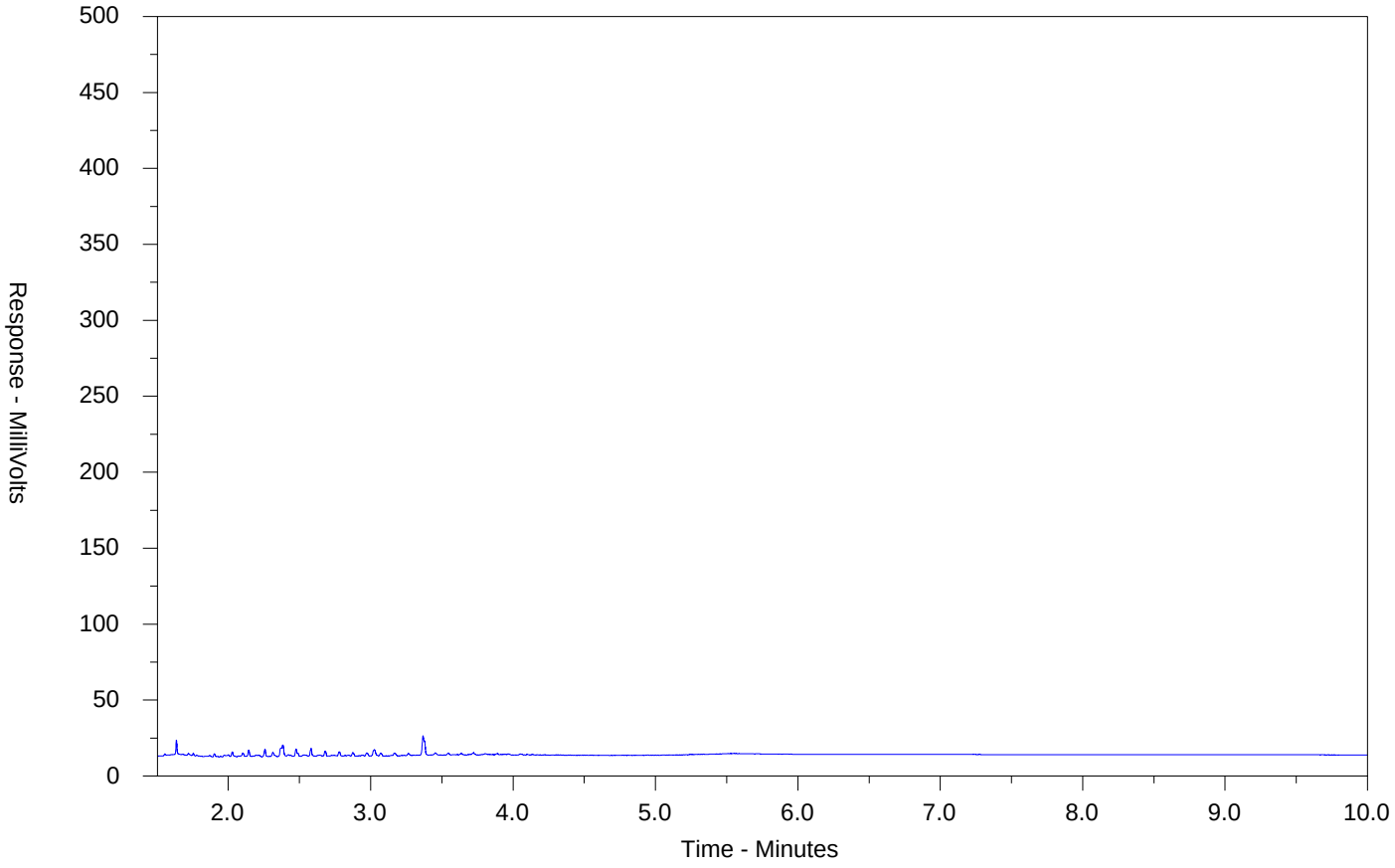
					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1189095)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1970.3 µS/cm	104	70.0	130	----
Metals (QCLot: 1189096)									
	RM	Calcium, soluble ion content	7440-70-2	E484	79.7 mg/L	107	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	24.87 mg/L	106	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	89.79 mg/L	105	70.0	130	----
Metals (QCLot: 1189097)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.9944 mg/kg	83.1	60.0	140	----
Metals (QCLot: 1189098)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	104	70.0	130	----
Metals (QCLot: 1189099)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	90.1	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	108	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	105	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	95.7	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	100	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	99.4	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	106	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	96.5	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	124	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	96.0	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	102	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	101	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	86.5	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	91.5	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	93.4	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	99.3	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	101	70.0	130	----
Speciated Metals (QCLot: 1190678)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%) Low	Recovery Limits (%) High	Qualifier
Speciated Metals (QCLot: 1190678) - continued									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	89.6	70.0	130	----

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-002-E601.SG-L
Client Sample ID: BH101-SS2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

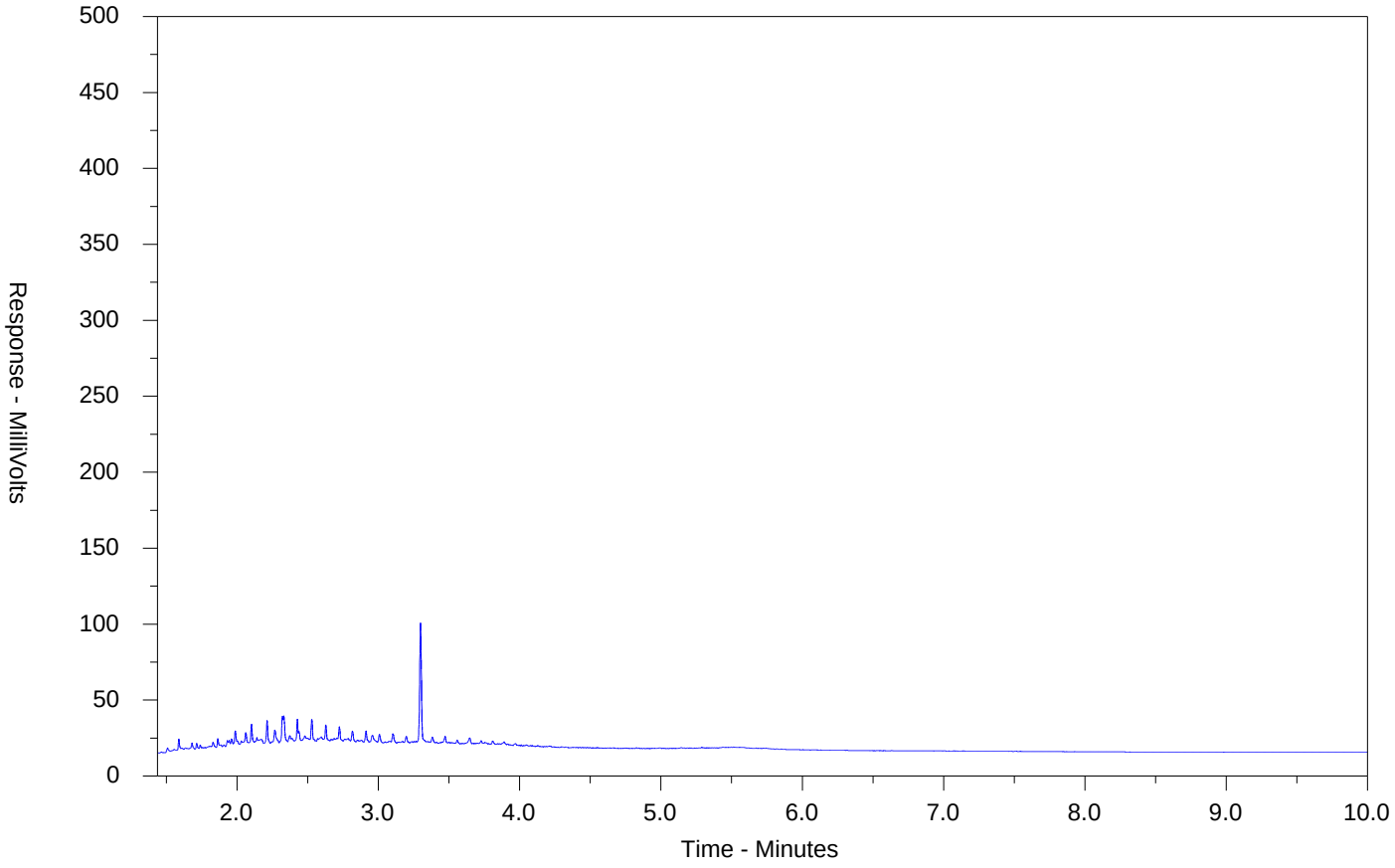
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-005-E601.SG-L
Client Sample ID: BH101-SS7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

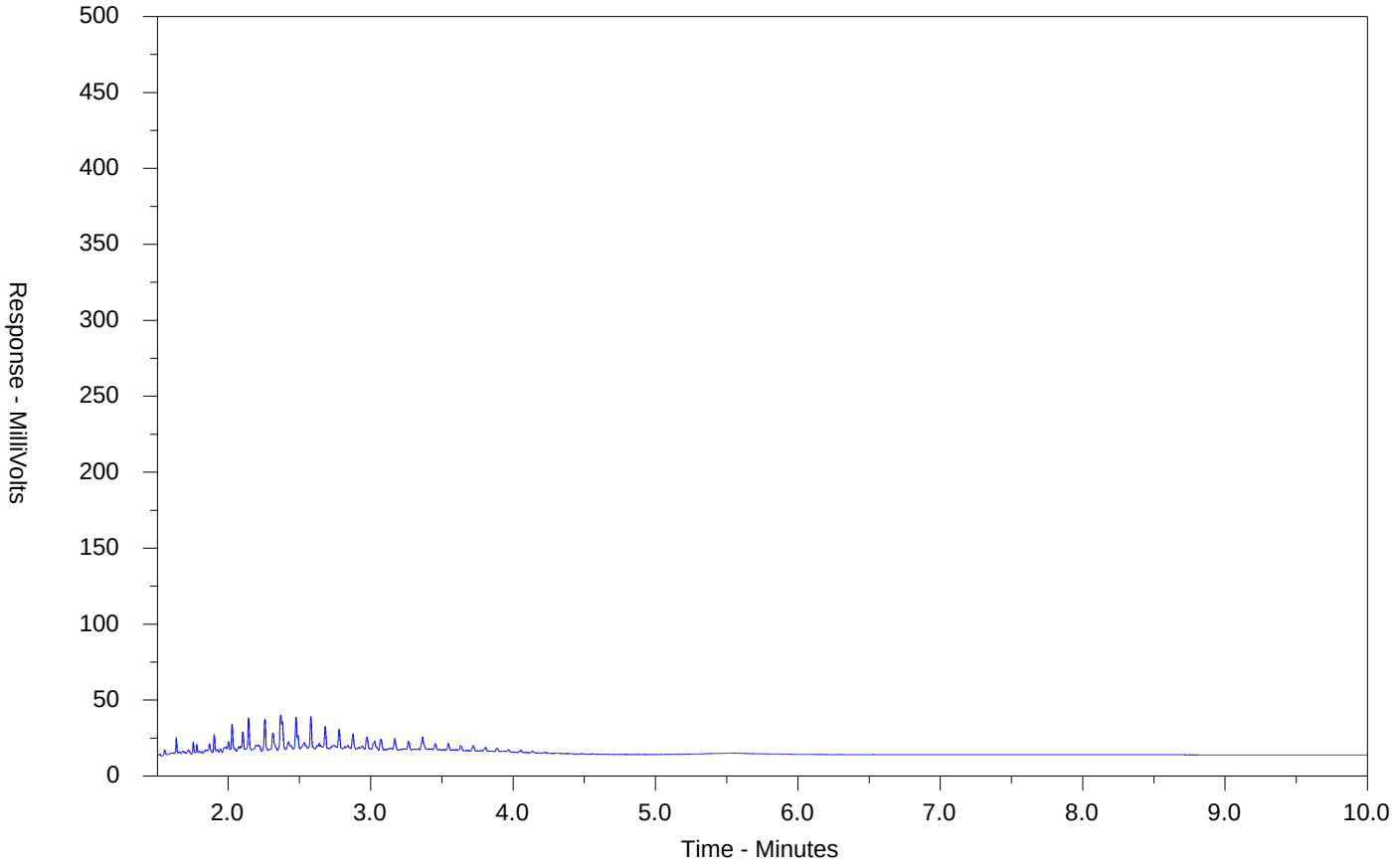
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-008-E601.SG-L
Client Sample ID: BH102-SS3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

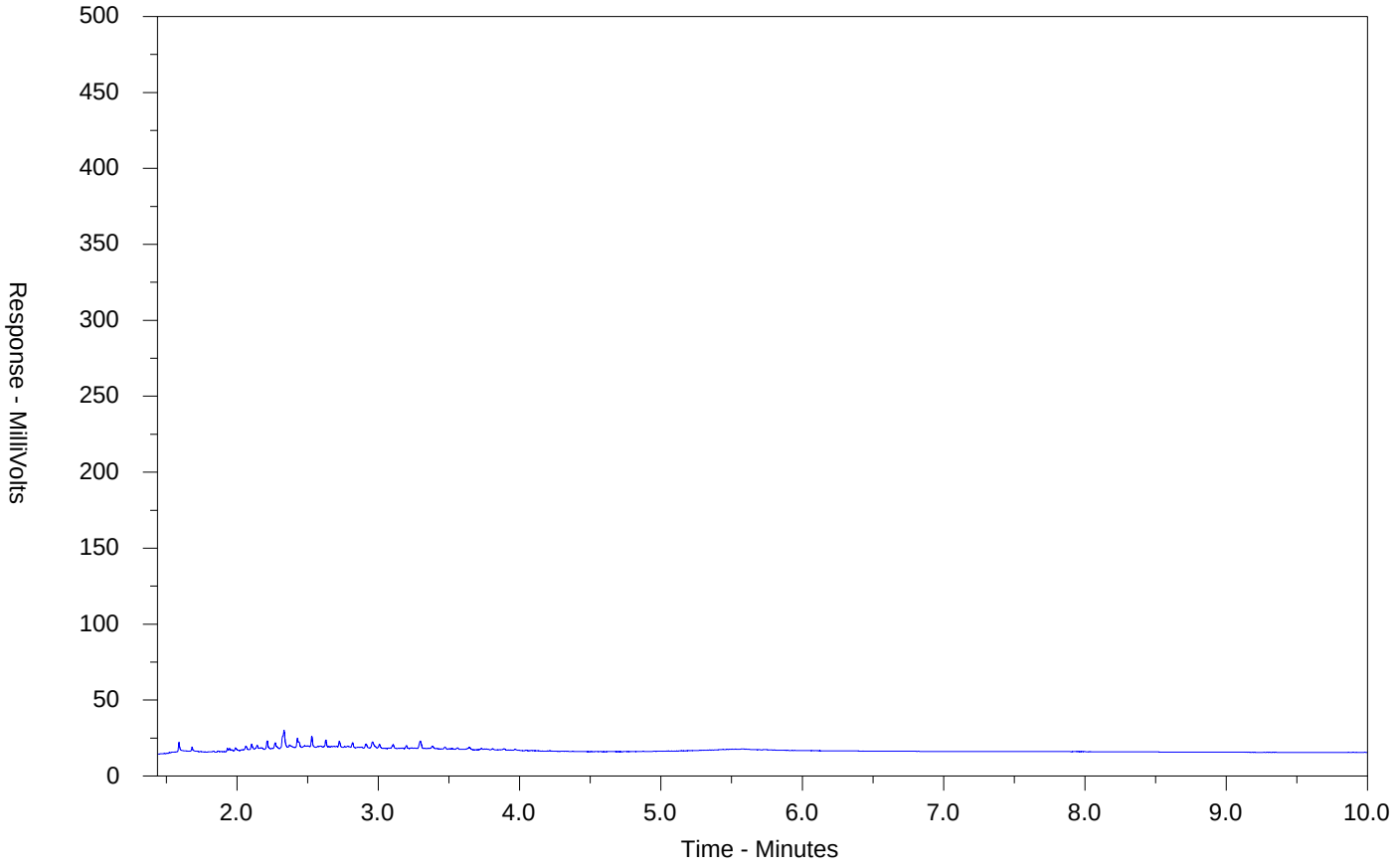
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-009-E601.SG-L
Client Sample ID: BH102-SS7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

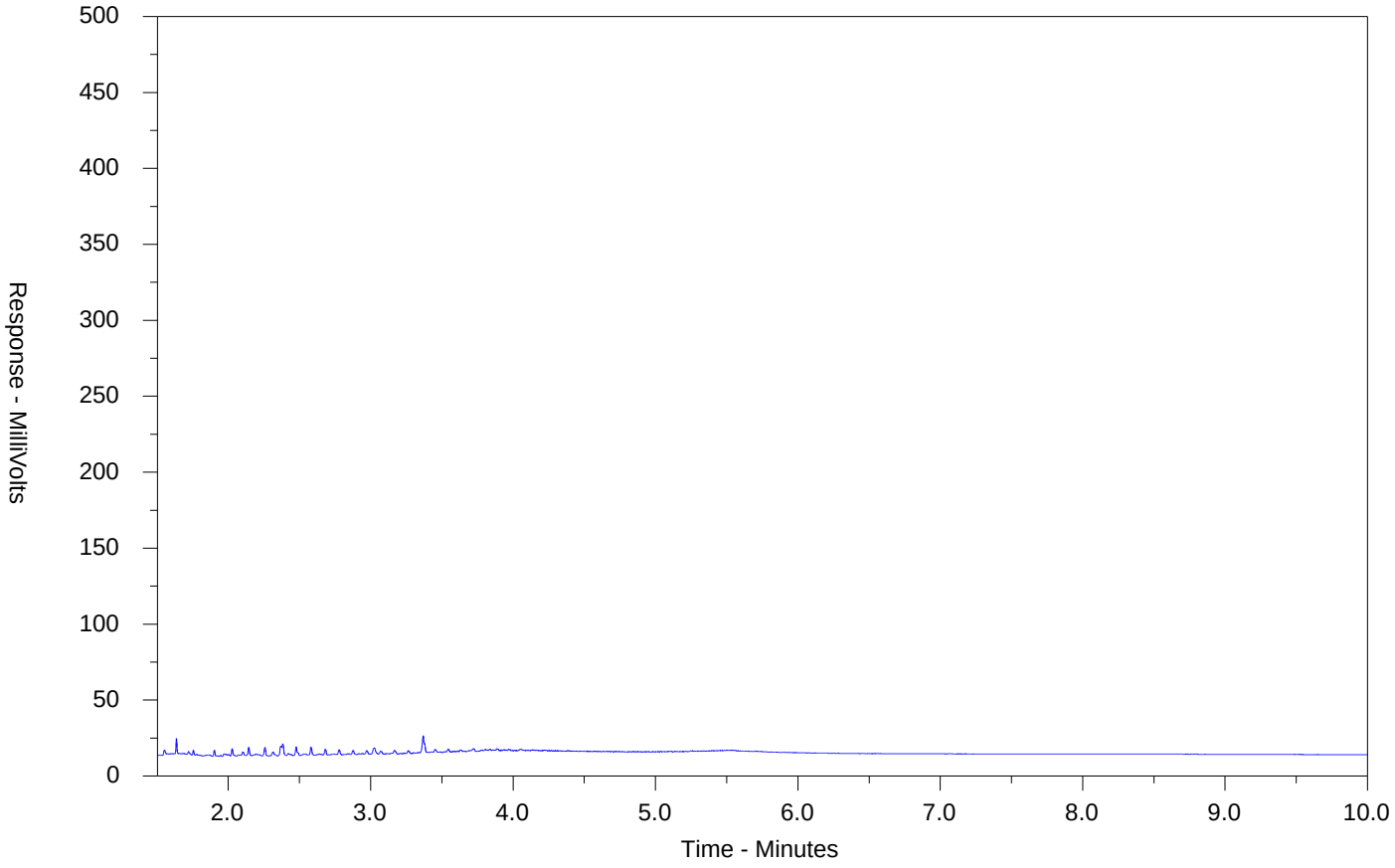
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-013-E601.SG-L
Client Sample ID: BH103-SS3A



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

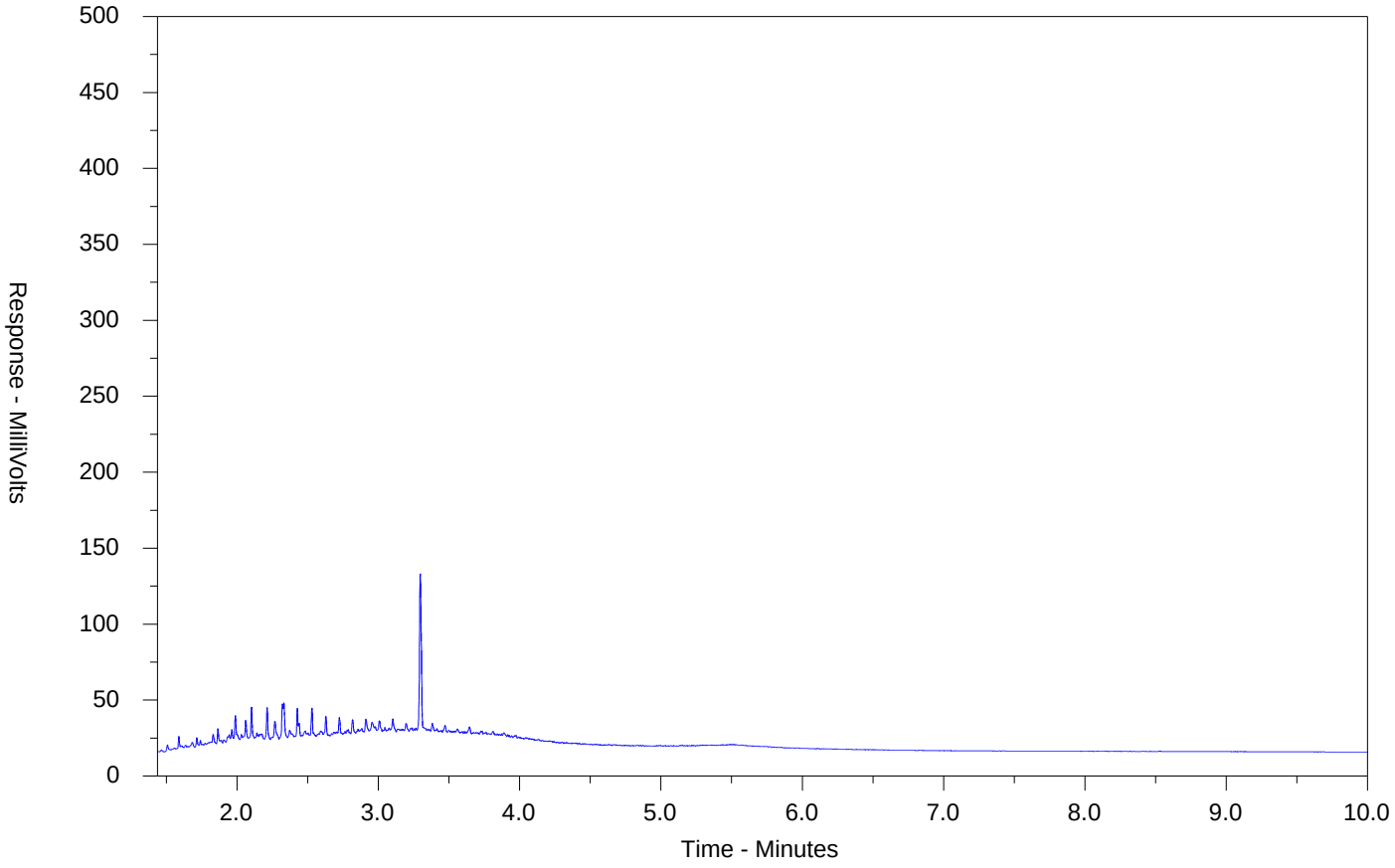
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-015-E601.SG-L
Client Sample ID: BH103-SS8



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

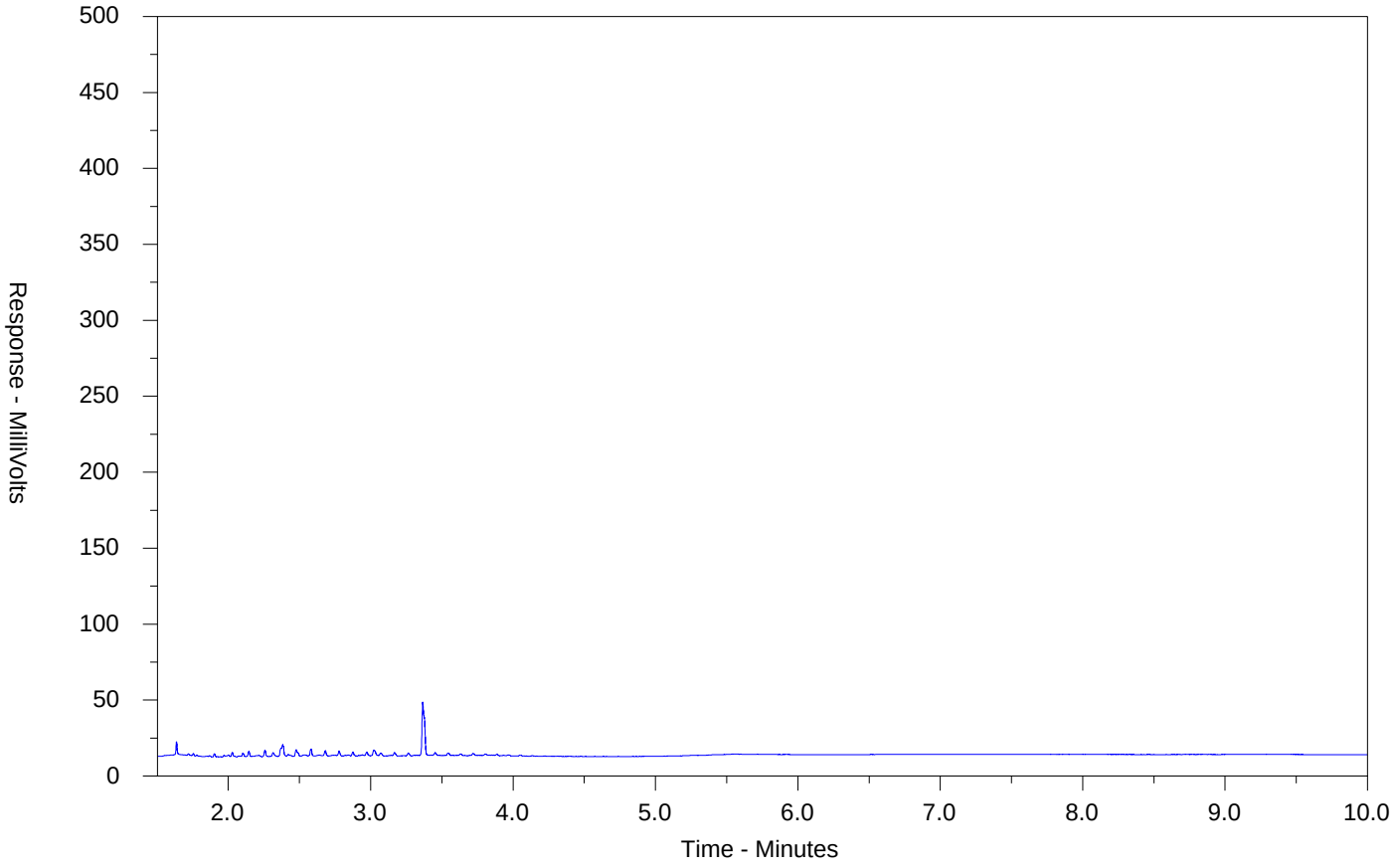
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-019-E601.SG-L
Client Sample ID: BH104-SS2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

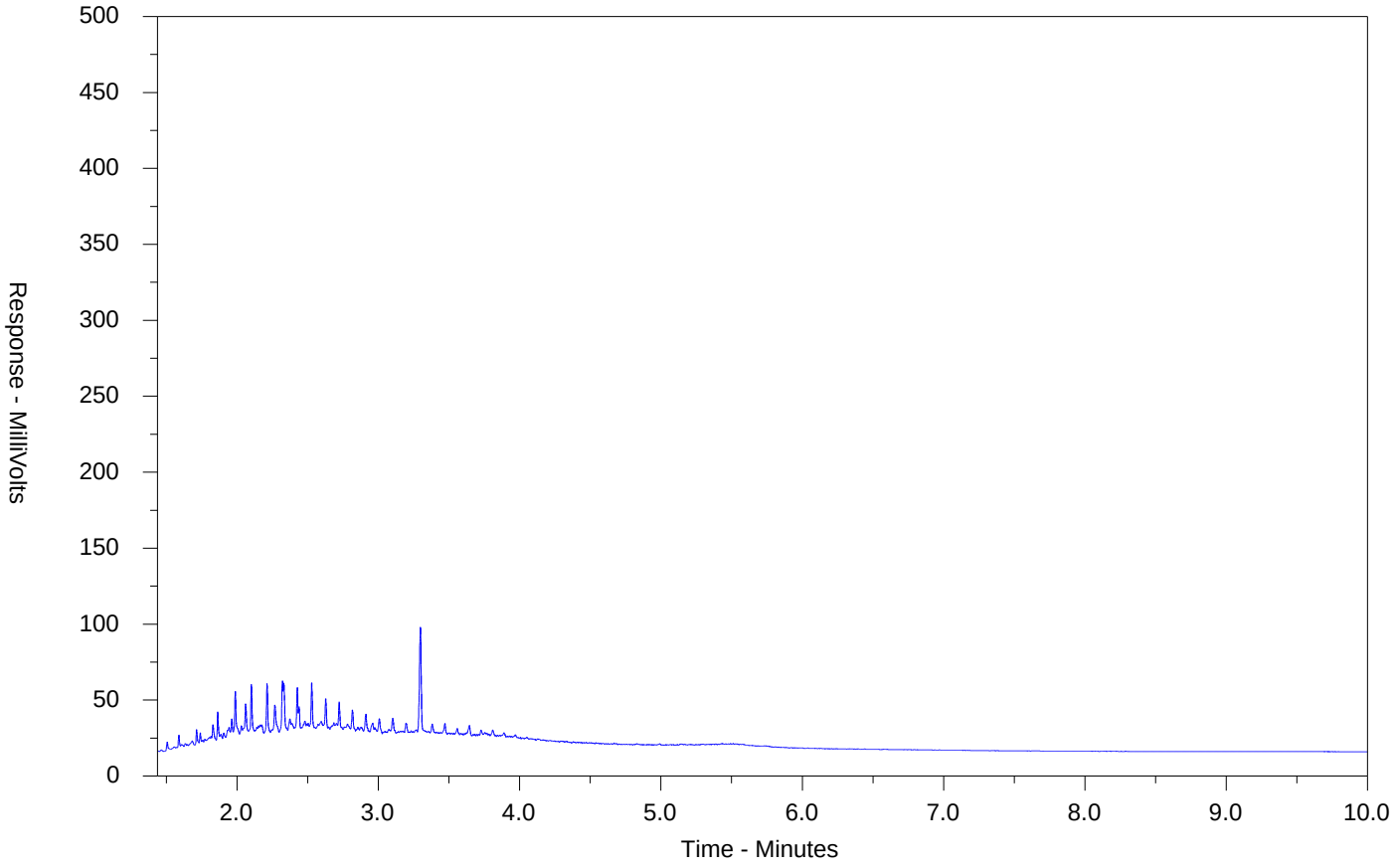
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-022-E601.SG-L
Client Sample ID: BH104-SS7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

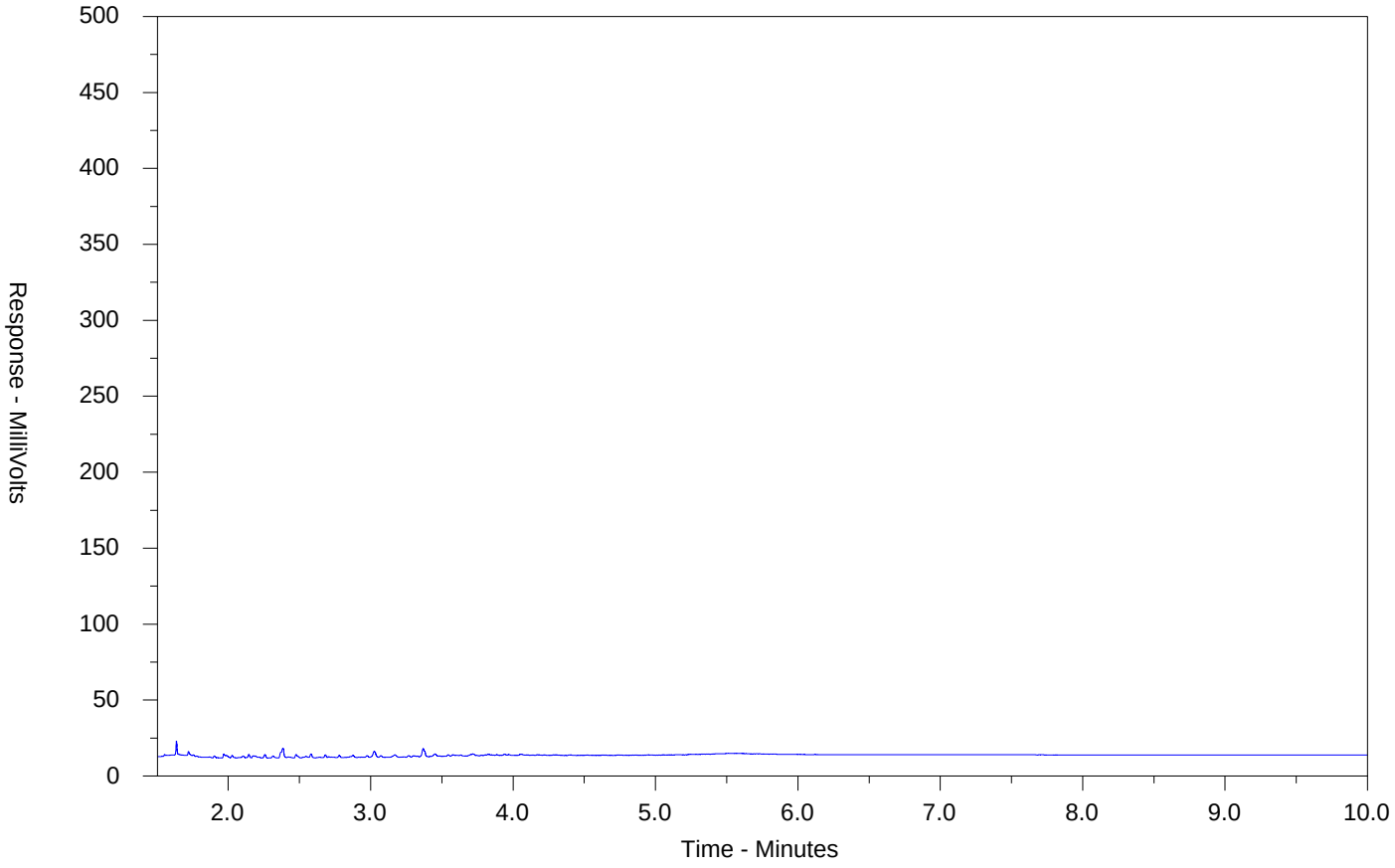
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-025-E601.SG-L
Client Sample ID: BH105-SS2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

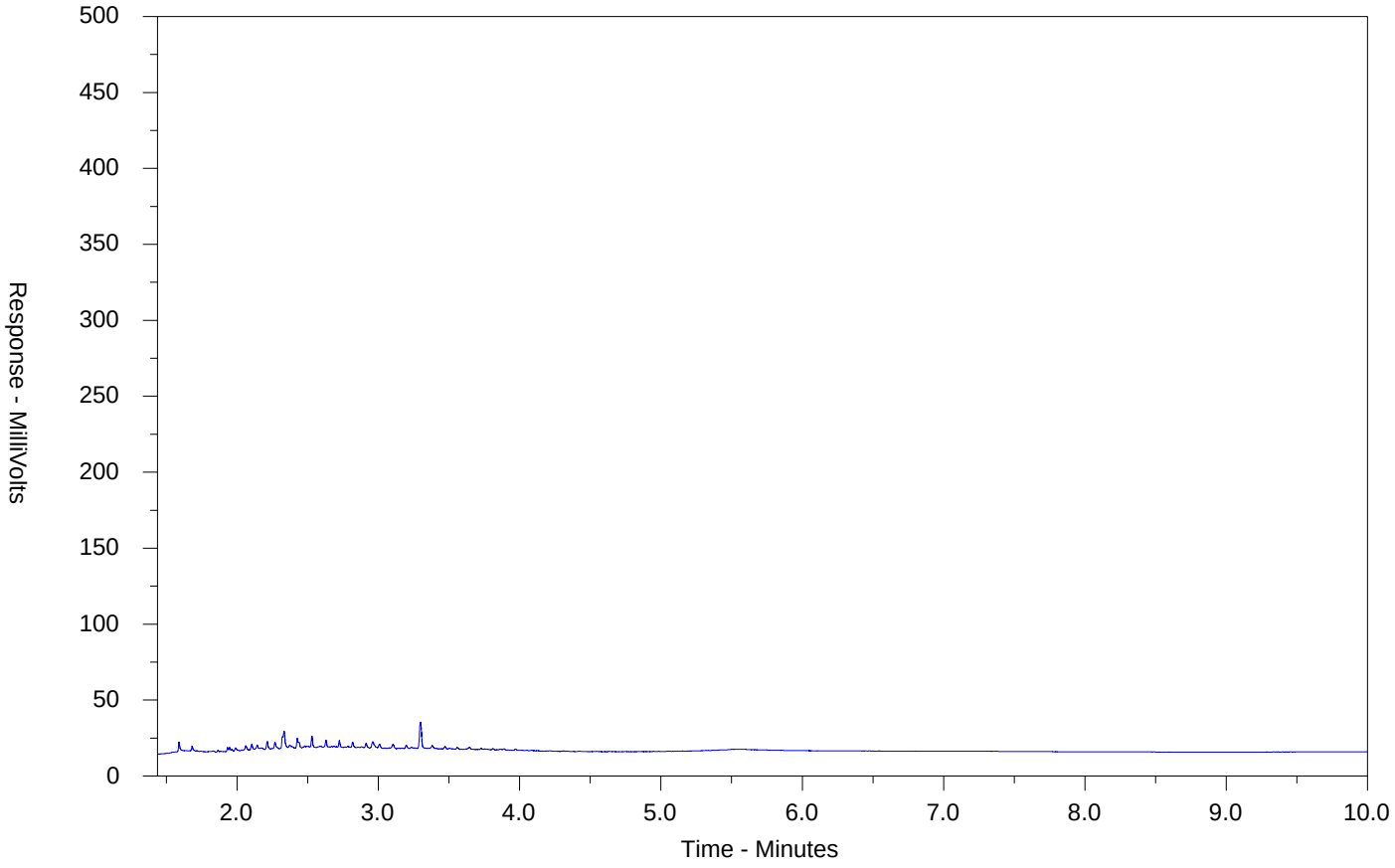
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-027-E601.SG-L
Client Sample ID: BH105-SS7(A)



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

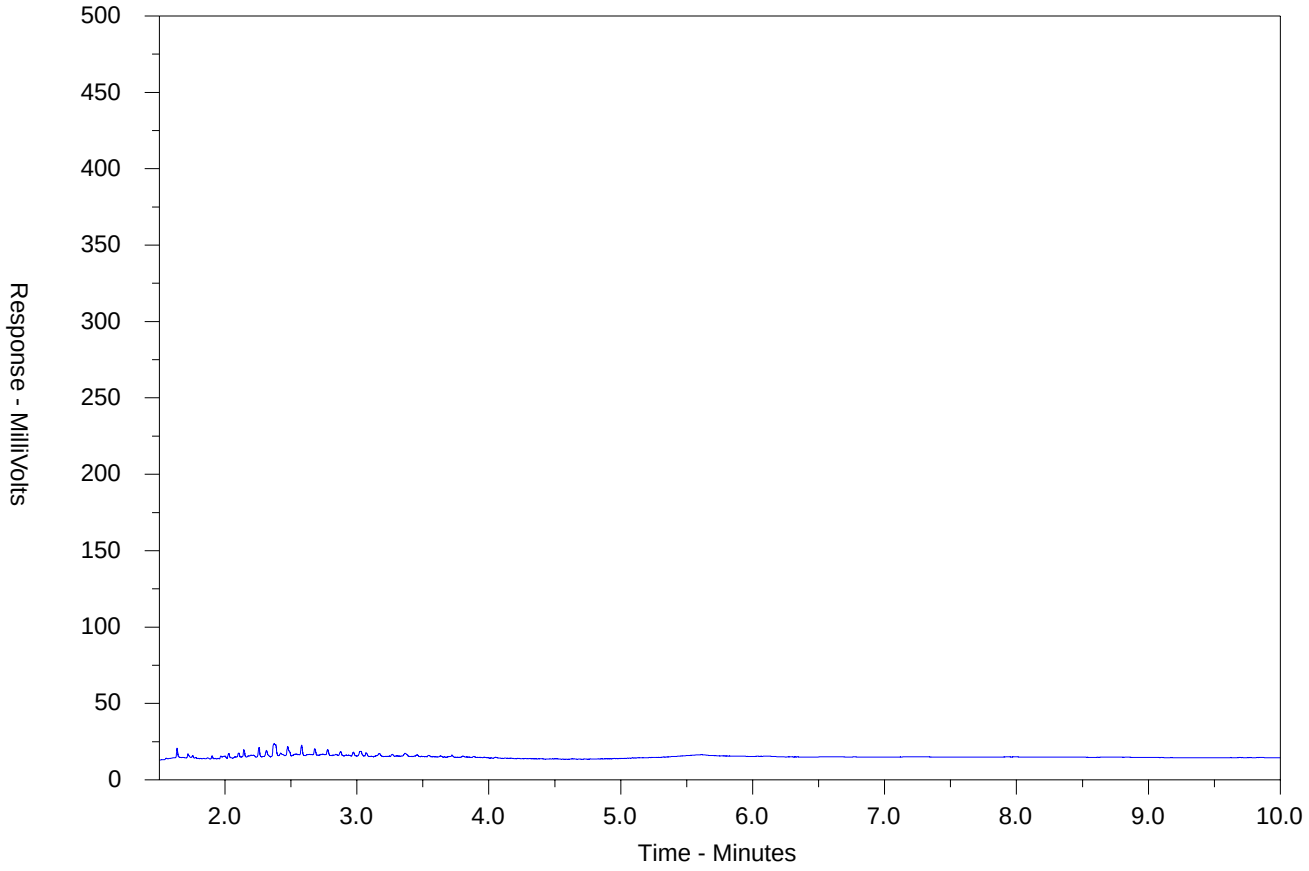
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-031-E601.SG-L
Client Sample ID: DUP-2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

SC 0114/15
US11

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047506

Canada Toll Free: 1 800 668 9878

Page 1 of 2

www.alsglobal.com

Environmental Division
Waterloo
Work Order Reference
WT2333397

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Deeana Reynolds
Phone:	647-370-3491
Company address below will appear on the final report	
Street:	1 Bagigga Dr
City/Province:	Toronto / ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: dreynolds@groundedeng.ca
Email 2: mgarcia@groundedeng.ca
Email 3:

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: accounting@groundedeng.ca
Email 2: cjaques@groundedeng.ca

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additio may apply to rush requests on weekends, statutory holidays and non-rout
Date and Time Required for all E&P TATs:
For all tests with rush TATs requested, please cc

Project Information

ALS Account # / Quote #:
Job #: 23-197-101
PO / AFE:
LSD: 705 Kingston Road, Pickering
ALS Lab Work Order # (ALS use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#
Major/Minor Code: | Routing Code:
Requisitioner:
Location:
ALS Contact: | Sampler: LB/FH

Analysis Re

Indicate Filtered (F), Preserved (P) or Filtered and

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&T	PAH	PHC/BTEX	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUI	SUSPECTED HAZARD (see no
	BH101-SS1(B)	11-Oct-23	3:00 pm	Soil	2	X	X					
	BH101-SS2		3:10 pm		3			X	X			
	BH101-SS4		3:30 pm		2	X	X					
	BH101-SS4		3:30 pm		3			X	X	X		
	BH101-SS7		4:00 pm		3			X	X			
	BH101-SS11	12-Oct-23	9:00 am		3			X	X	X		
	BH102-SS2A	13 OCT 23	16:55		2	X	X					
	BH102-SS5		17:00		4	X		X	X			
	BH102-SS7		17:10		3			X	X			
	BH102-SS11		17:15		3			X	X	X		
	BH102-SS4		17:20		2		X					

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O.Reg 153/04, Table 3, RPI
Coarse-Texture RSC: Yes
Use Grounded Temp.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				5.4	3.4		

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Lawrence	10/17/23	6 p.m.

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
FH	2023-10-16	18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047505

Page 2 of 3

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Dreena Reynolds
Phone:	647-370-3141
	Company address below will appear on the final report
Street:	1 Banigan Dr.
City/Province:	Toronto, ON
Postal Code:	M4H 1G3

Invoice To		
	Same as Report To	☒ YES ☐ NO
	Copy of Invoice with Report	☒ YES ☐ NO
Company:		
Contact:		

Reports / Recipients	
Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☒ YES ☐ NO ☐ N/A
☒ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	dreynolds@groundedeng.ca
Email 2	mgould@groundedeng.ca
Email 3	

Invoice Recipients	
Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	accounting@groundedeng.ca
Email 2	shaun@groundedeng.ca

Turnaround Time (TAT) Requested
☒ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests
Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information	
ALS Account # / Quote #	
Job #:	23-197-101
PO / AFE:	
LSD:	705 Kingston Rd, Pickering
ALS Lab Work Order # (ALS use only):	

Oil and Gas Required Fields (client use)		
AFE/Cost Center:		PO#
Major/Minor Code:		Routing Code:
Requisitioner:		
Location:		
ALS Contact:		Sampler: LB / IH

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	MAH	PAH	PHC/BTEX	PHC/BTEX VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH103 - SS2	11 OCT 23	13:55	S. I	1		X					
	BH103 - SS3A		14:00		4	X		X	X			
	BH103 - SS6		14:05		2	X	X					
	BH103 - SS8		14:10		3			X	X			
	BH103 SS3B		14:45		3			X	X	X		
	BH103 SS12		14:50		3			X	X	X		
	BH104 - SS1(B)	10-Oct-23	8:00 pm		2	X	X					
	BH104 - SS2		3:10 pm		3			X	X			
	BH104 - SS3(B)		3:30 pm		3			X	X	X		
	BH104 - SS4		3:20 pm		2	X	X					
	BH104 - SS7		3:40		3			X	X			
	BH104 - SS12		4:00pm		3			X	X	X		

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	O. Reg 153/04, Table 3, RPI Coarse Texture RSC = Yes Use Grounded Template
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.4	3.4		

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:
Laurence	10/13/23	6:00

INITIAL SHIPMENT RECEPTION (ALS use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)		
Received by:	Date:	Time:
FH	2023-10-16	18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047462

Page 3 of 3

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Crandell Engineering
Contact:	Alana Reynolds
Phone:	647-370-[illegible] 3191
	Company address below will appear on the final report
Street:	1 Barrie Dr.
City/Province:	Toronto ON
Postal Code:	M4H 1G3

Invoice To		
	Same as Report To	☒ YES ☐ NO
	Copy of Invoice with Report	☒ YES ☐ NO
Company:		
Contact:		

Project Information

ALS Account # / Quote #:	
Job #:	23-197-101
PO / AFE:	
LSD:	705 Kingston Rd, Pickering.
ALS Lab Work Order # (ALS use only):	

Reports / Recipients

Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☒ YES ☐ NO ☐ N/A
	☒ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	dreynolds@crandeleng.ca
Email 2	mgarcia@crandeleng.ca
Email 3	

Invoice Recipients

Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	accounting@crandeleng.ca
Email 2	ctenkorang@crandeleng.ca

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Contact: | **Sampler:** LB/JH

Turnaround Time (TAT) Requested

- ☑ Routine [R] if received by 3pm M-F - no surcharges apply
- ☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
- ☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
- ☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
- ☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
- ☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Analysis Request

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	PAH	PHC (SIEVE)	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH105 - SS1 (B)	13-Oct-23	2:05 PM	Soil	2	X	X				
	BH105 - SS2		3:10PM		3		X	X			
	BH105 - SS3		3:20PM		2	X	X				
	BH105 - SS7 (A)		3:30PM		3		X	X			
	BH105 - SS9		4:30PM		3		X	X	X		
	BH105 - SS11		16:55		3		X	X	X		
	DUP-1				2	X	X				
	DUP-2		17:10		3		X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O. Reg 153/04 Table 3, RPI
Coarse Texture. RSC = Yes
Please use Grounded Template.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				5.4	3.4		

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Lawrence	10/17/23	6:30

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
FH	2023-10-16	18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2333397**	Page	: 1 of 27
Amendment	: **1**		
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197-101	Date Samples Received	: 16-Oct-2023 18:00
PO	: ----	Date Analysis Commenced	: 17-Oct-2023
C-O-C number	: 20-1047506	Issue Date	: 31-Oct-2023 10:38
Sampler	: LB/IH		
Site	: 705 KINGSTON ROAD, PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 31		
No. of samples analysed	: 23		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario
Josphin Masihi	Analyst	Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
BH101-SS1(B)	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	2.82 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	91.3 -	5 -
BH101-SS4	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	0.852 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	14.1 -	5 -
BH102-SS2A	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	5.20 -	5 -
BH102-SS3	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	5.51 -	5 -
BH104-SS4	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	10.7 -	5 -
BH105-SS3	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	15.3 -	5 -
DUP-1	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	15.0 -	5 -

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Workorder Comments

Amendment (25/10/2023): This report has been amended and re-released to allow the reporting of additional analytical data.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-004	WT2333397-005	WT2333397-007	WT2333397-008
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		2.82	----	0.852	----	----	0.695	0.430
Moisture	----	E144/WT	%		9.45	8.07	10.4	5.02	7.78	7.79	5.93
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.93	----	7.82	----	----	7.87	7.85
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		3.09	----	6.20	----	----	17.8	3.28
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		<0.50	----	1.11	----	----	20.6	5.79
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		583	----	145	----	----	136	71.7
Sodium adsorption ratio [SAR]	----	E484/WT	-		91.3	----	14.1	----	----	5.20	5.51
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	----	<0.10	----	----	<0.10	<0.10
Arsenic	7440-38-2	E440C/WT	mg/kg		3.42	----	3.68	----	----	2.92	2.54
Barium	7440-39-3	E440C/WT	mg/kg		35.1	----	69.0	----	----	53.6	35.0
Beryllium	7440-41-7	E440C/WT	mg/kg		0.33	----	0.37	----	----	0.40	0.26
Boron	7440-42-8	E440C/WT	mg/kg		6.0	----	6.6	----	----	6.0	5.3
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		0.33	----	<0.10	----	----	0.32	<0.10
Cadmium	7440-43-9	E440C/WT	mg/kg		0.082	----	0.073	----	----	0.144	0.077
Chromium	7440-47-3	E440C/WT	mg/kg		13.1	----	16.7	----	----	16.5	10.6
Cobalt	7440-48-4	E440C/WT	mg/kg		6.39	----	8.67	----	----	5.72	5.77
Copper	7440-50-8	E440C/WT	mg/kg		16.9	----	18.0	----	----	12.2	10.4
Lead	7439-92-1	E440C/WT	mg/kg		7.49	----	7.91	----	----	8.85	6.63
Mercury	7439-97-6	E510C/WT	mg/kg		0.0169	----	0.0134	----	----	0.0256	0.0092
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.66	----	0.60	----	----	0.38	0.36
Nickel	7440-02-0	E440C/WT	mg/kg		15.4	----	18.8	----	----	12.8	13.4
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	----	<0.20	----	----	<0.20	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	----	<0.10	----	----	<0.10	<0.10

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-004	WT2333397-005	WT2333397-007	WT2333397-008
Metals											
Thallium	7440-28-0	E440C/WT	mg/kg		0.133	----	0.132	----	----	0.114	0.118
Uranium	7440-61-1	E440C/WT	mg/kg		0.482	----	0.656	----	----	0.631	0.472
Vanadium	7440-62-2	E440C/WT	mg/kg		22.6	----	27.1	----	----	28.6	20.1
Zinc	7440-66-6	E440C/WT	mg/kg		33.0	----	34.3	----	----	37.1	33.7
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	----	0.12	----	----	<0.10	0.10
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	<0.50	----	<0.50	<0.50	----	<0.50
Benzene	71-43-2	E611D/WT	mg/kg		----	<0.0050	----	<0.0050	<0.0050	----	<0.0050
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Bromoform	75-25-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Bromomethane	74-83-9	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Chloroform	67-66-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	<0.045	----	<0.045	<0.045	----	<0.045
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-004	WT2333397-005	WT2333397-007	WT2333397-008
Volatile Organic Compounds											
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		----	<0.030	----	<0.030	<0.030	----	<0.030
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		----	<0.030	----	<0.030	<0.030	----	<0.030
Ethylbenzene	100-41-4	E611D/WT	mg/kg		----	<0.015	----	<0.015	<0.015	----	<0.015
Hexane, n-	110-54-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		----	<0.50	----	<0.50	<0.50	----	<0.50
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		----	<0.50	----	<0.50	<0.50	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		----	<0.040	----	<0.040	<0.040	----	<0.040
Styrene	100-42-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Toluene	108-88-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Trichloroethylene	79-01-6	E611D/WT	mg/kg		----	<0.010	----	<0.010	<0.010	----	<0.010
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Vinyl chloride	75-01-4	E611D/WT	mg/kg		----	<0.020	----	<0.020	<0.020	----	<0.020
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		----	<0.030	----	<0.030	<0.030	----	<0.030
Xylene, o-	95-47-6	E611D/WT	mg/kg		----	<0.030	----	<0.030	<0.030	----	<0.030
Xylenes, total	1330-20-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
BTEX, total	----	E611D/WT	mg/kg		----	<0.10	----	<0.10	<0.10	----	<0.10
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		----	<5.0	----	<5.0	<5.0	----	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		----	<10	----	<10	13	----	13
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		----	<50	----	<50	52	----	<50
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		----	<50	----	<50	<50	----	<50
F1-BTEX	----	EC580/WT	mg/kg		----	<5.0	----	<5.0	<5.0	----	<5.0

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-004	WT2333397-005	WT2333397-007	WT2333397-008
Hydrocarbons											
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		----	<80	----	<80	<80	----	<80
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	YES	----	YES	YES	----	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	90.2	----	85.8	87.7	----	89.6
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	102	----	112	101	----	103
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	89.2	----	78.6	84.8	----	89.4
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	99.3	----	86.9	95.1	----	99.4
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	----	<0.030	----	----	<0.030	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	----	<0.030	----	----	<0.030	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	----	<0.010	----	----	<0.010	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101-SS1(B)	BH101-SS2	BH101-SS4	BH101-SS4	BH101-SS7	BH102-SS2A	BH102-SS3
				Sampling date/time	11-Oct-2023 15:00	11-Oct-2023 15:10	11-Oct-2023 15:30	11-Oct-2023 15:30	11-Oct-2023 16:00	13-Oct-2023 16:55	13-Oct-2023 17:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-001	WT2333397-002	WT2333397-003	WT2333397-004	WT2333397-005	WT2333397-007	WT2333397-008
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		95.0	----	90.8	----	----	90.9	----
Chrysene-d12	1719-03-5	E641A/WT	%		109	----	102	----	----	106	----
Naphthalene-d8	1146-65-2	E641A/WT	%		106	----	99.9	----	----	102	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		97.8	----	92.5	----	----	94.0	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS7	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)
				Sampling date/time	13-Oct-2023 17:10	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-009	WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		----	----	----	0.430	0.178	----	0.416
Moisture	----	E144/WT	%		8.10	4.94	13.9	10.8	7.84	6.77	10.1
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		----	----	----	7.76	7.93	----	7.72
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		----	----	----	<0.050	<0.050	----	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		----	----	----	10.8	5.37	----	21.4
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		----	----	----	15.6	3.44	----	25.7
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		----	----	----	79.5	4.67	----	84.2
Sodium adsorption ratio [SAR]	----	E484/WT	-		----	----	----	3.62	0.39	----	2.90
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		----	----	----	<0.10	<0.10	----	<0.10
Arsenic	7440-38-2	E440C/WT	mg/kg		----	----	----	2.17	3.19	----	2.48
Barium	7440-39-3	E440C/WT	mg/kg		----	----	----	38.4	63.7	----	44.3
Beryllium	7440-41-7	E440C/WT	mg/kg		----	----	----	0.28	0.38	----	0.32
Boron	7440-42-8	E440C/WT	mg/kg		----	----	----	6.3	7.5	----	5.4
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		----	----	----	<0.10	0.22	----	0.23
Cadmium	7440-43-9	E440C/WT	mg/kg		----	----	----	0.073	0.074	----	0.103
Chromium	7440-47-3	E440C/WT	mg/kg		----	----	----	12.5	17.1	----	14.2
Cobalt	7440-48-4	E440C/WT	mg/kg		----	----	----	4.54	6.84	----	5.13
Copper	7440-50-8	E440C/WT	mg/kg		----	----	----	10.1	16.7	----	12.1
Lead	7439-92-1	E440C/WT	mg/kg		----	----	----	7.81	8.86	----	7.26
Mercury	7439-97-6	E510C/WT	mg/kg		----	----	----	0.0077	0.0130	----	0.0204
Molybdenum	7439-98-7	E440C/WT	mg/kg		----	----	----	0.29	0.58	----	0.44
Nickel	7440-02-0	E440C/WT	mg/kg		----	----	----	10.5	16.8	----	11.6
Selenium	7782-49-2	E440C/WT	mg/kg		----	----	----	<0.20	<0.20	----	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		----	----	----	<0.10	<0.10	----	<0.10
Thallium	7440-28-0	E440C/WT	mg/kg		----	----	----	0.101	0.103	----	0.098

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS7	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)
				Sampling date/time	13-Oct-2023 17:10	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-009	WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		----	----	----	0.446	1.25	----	0.530
Vanadium	7440-62-2	E440C/WT	mg/kg		----	----	----	21.8	25.5	----	26.7
Zinc	7440-66-6	E440C/WT	mg/kg		----	----	----	31.4	36.3	----	32.3
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		----	----	----	0.11	<0.10	----	<0.10
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		<0.50	----	----	<0.50	----	<0.50	----
Benzene	71-43-2	E611D/WT	mg/kg		<0.0050	----	----	<0.0050	----	<0.0050	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Bromoform	75-25-2	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Bromomethane	74-83-9	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Chloroform	67-66-3	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		<0.045	----	----	<0.045	----	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS7	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)
				Sampling date/time	13-Oct-2023 17:10	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-009	WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	----	----	<0.030	----	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	----	----	<0.030	----	<0.030	----
Ethylbenzene	100-41-4	E611D/WT	mg/kg		<0.015	----	----	<0.015	----	<0.015	----
Hexane, n-	110-54-3	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		<0.50	----	----	<0.50	----	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		<0.50	----	----	<0.50	----	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		<0.040	----	----	<0.040	----	<0.040	----
Styrene	100-42-5	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Toluene	108-88-3	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg		<0.010	----	----	<0.010	----	<0.010	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg		<0.020	----	----	<0.020	----	<0.020	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		<0.030	----	----	<0.030	----	<0.030	----
Xylene, o-	95-47-6	E611D/WT	mg/kg		<0.030	----	----	<0.030	----	<0.030	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg		<0.050	----	----	<0.050	----	<0.050	----
BTEX, total	----	E611D/WT	mg/kg		<0.10	----	----	<0.10	----	<0.10	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		<5.0	----	----	<5.0	----	<5.0	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		<10	----	----	<10	----	22	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		<50	----	----	<50	----	85	----
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		<50	----	----	<50	----	<50	----
F1-BTEX	----	EC580/WT	mg/kg		<5.0	----	----	<5.0	----	<5.0	----
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		<80	----	----	<80	----	107	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS7	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)
				Sampling date/time	13-Oct-2023 17:10	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-009	WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018
Hydrocarbons											
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		YES	----	----	YES	----	YES	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		88.8	----	----	89.4	----	91.6	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		102	----	----	102	----	102	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		82.4	----	----	123	----	130	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		93.2	----	----	136	----	95.7	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Acenaphthylene	208-96-8	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Anthracene	120-12-7	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Chrysene	218-01-9	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Fluoranthene	206-44-0	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Fluorene	86-73-7	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		----	<0.030	<0.030	----	<0.030	----	<0.030
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		----	<0.030	<0.030	----	<0.030	----	<0.030
Naphthalene	91-20-3	E641A/WT	mg/kg		----	<0.010	<0.010	----	<0.010	----	<0.010
Phenanthrene	85-01-8	E641A/WT	mg/kg		----	<0.050	<0.050	----	0.066	----	<0.050
Pyrene	129-00-0	E641A/WT	mg/kg		----	<0.050	<0.050	----	<0.050	----	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates											

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102-SS7	BH102-SS4	BH103-SS2	BH103-SS3A	BH103-SS6	BH103-SS8	BH104-SS1(B)
				Sampling date/time	13-Oct-2023 17:10	13-Oct-2023 17:20	11-Oct-2023 13:55	11-Oct-2023 14:00	11-Oct-2023 14:05	11-Oct-2023 14:10	10-Oct-2023 15:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-009	WT2333397-011	WT2333397-012	WT2333397-013	WT2333397-014	WT2333397-015	WT2333397-018
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		----	94.1	91.9	----	96.1	----	87.2
Chrysene-d12	1719-03-5	E641A/WT	%		----	100	105	----	104	----	102
Naphthalene-d8	1146-65-2	E641A/WT	%		----	102	100	----	101	----	97.5
Phenanthrene-d10	1517-22-2	E641A/WT	%		----	96.2	93.6	----	96.3	----	90.5

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS2	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)
				Sampling date/time	10-Oct-2023 15:10	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-019	WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		----	0.292	----	0.383	----	0.627	----
Moisture	----	E144/WT	%		10.8	7.16	10.4	7.46	5.62	6.29	10.8
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		----	7.89	----	7.96	----	7.97	----
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		----	1.15	----	6.64	----	2.38	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		----	<0.50	----	10.2	----	0.76	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		----	41.8	----	67.0	----	106	----
Sodium adsorption ratio [SAR]	----	E484/WT	-		----	10.7	----	3.81	----	15.3	----
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		----	<0.10	----	<0.10	----	<0.10	----
Arsenic	7440-38-2	E440C/WT	mg/kg		----	2.45	----	2.32	----	2.32	----
Barium	7440-39-3	E440C/WT	mg/kg		----	47.3	----	30.0	----	65.4	----
Beryllium	7440-41-7	E440C/WT	mg/kg		----	0.26	----	0.24	----	0.29	----
Boron	7440-42-8	E440C/WT	mg/kg		----	5.8	----	5.2	----	7.0	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		----	<0.10	----	<0.10	----	<0.10	----
Cadmium	7440-43-9	E440C/WT	mg/kg		----	0.074	----	0.053	----	0.063	----
Chromium	7440-47-3	E440C/WT	mg/kg		----	12.4	----	10.2	----	14.1	----
Cobalt	7440-48-4	E440C/WT	mg/kg		----	5.61	----	4.94	----	5.49	----
Copper	7440-50-8	E440C/WT	mg/kg		----	11.2	----	9.49	----	10.2	----
Lead	7439-92-1	E440C/WT	mg/kg		----	5.85	----	4.85	----	4.78	----
Mercury	7439-97-6	E510C/WT	mg/kg		----	0.0090	----	0.0058	----	0.0057	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		----	0.36	----	0.27	----	0.36	----
Nickel	7440-02-0	E440C/WT	mg/kg		----	12.0	----	10.7	----	10.9	----
Selenium	7782-49-2	E440C/WT	mg/kg		----	<0.20	----	<0.20	----	<0.20	----
Silver	7440-22-4	E440C/WT	mg/kg		----	<0.10	----	<0.10	----	<0.10	----
Thallium	7440-28-0	E440C/WT	mg/kg		----	0.108	----	0.089	----	0.089	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS2	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)
				Sampling date/time	10-Oct-2023 15:10	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-019	WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		----	0.511	----	0.454	----	0.535	----
Vanadium	7440-62-2	E440C/WT	mg/kg		----	22.4	----	21.6	----	26.1	----
Zinc	7440-66-6	E440C/WT	mg/kg		----	26.7	----	21.9	----	26.2	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		----	<0.10	----	<0.10	----	<0.10	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		<0.50	----	<0.50	----	<0.50	----	<0.50
Benzene	71-43-2	E611D/WT	mg/kg		<0.0050	----	<0.0050	----	<0.0050	----	<0.0050
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Bromoform	75-25-2	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Bromomethane	74-83-9	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Chlorobenzene	108-90-7	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Chloroform	67-66-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichloromethane	75-09-2	E611D/WT	mg/kg		<0.045	----	<0.045	----	<0.045	----	<0.045
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS2	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)
				Sampling date/time	10-Oct-2023 15:10	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-019	WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	<0.030
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	<0.030
Ethylbenzene	100-41-4	E611D/WT	mg/kg		<0.015	----	<0.015	----	<0.015	----	<0.015
Hexane, n-	110-54-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		<0.50	----	<0.50	----	<0.50	----	<0.50
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		<0.50	----	<0.50	----	<0.50	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		<0.040	----	<0.040	----	<0.040	----	<0.040
Styrene	100-42-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Toluene	108-88-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Trichloroethylene	79-01-6	E611D/WT	mg/kg		<0.010	----	<0.010	----	<0.010	----	<0.010
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
Vinyl chloride	75-01-4	E611D/WT	mg/kg		<0.020	----	<0.020	----	<0.020	----	<0.020
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	<0.030
Xylene, o-	95-47-6	E611D/WT	mg/kg		<0.030	----	<0.030	----	<0.030	----	<0.030
Xylenes, total	1330-20-7	E611D/WT	mg/kg		<0.050	----	<0.050	----	<0.050	----	<0.050
BTEX, total	----	E611D/WT	mg/kg		<0.10	----	<0.10	----	<0.10	----	<0.10
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		<5.0	----	<5.0	----	<5.0	----	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		<10	----	30	----	<10	----	<10
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		<50	----	95	----	<50	----	<50
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		<50	----	<50	----	<50	----	<50
F1-BTEX	----	EC580/WT	mg/kg		<5.0	----	<5.0	----	<5.0	----	<5.0
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		<80	----	125	----	<80	----	<80

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS2	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)
				Sampling date/time	10-Oct-2023 15:10	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-019	WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027
Hydrocarbons											
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		YES	----	YES	----	YES	----	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		90.2	----	90.1	----	87.7	----	88.1
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		98.5	----	98.3	----	92.5	----	95.6
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		83.6	----	130	----	87.8	----	84.2
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		94.9	----	94.7	----	99.6	----	94.3
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Anthracene	120-12-7	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Chrysene	218-01-9	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Fluorene	86-73-7	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		----	<0.030	----	<0.030	----	<0.030	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		----	<0.030	----	<0.030	----	<0.030	----
Naphthalene	91-20-3	E641A/WT	mg/kg		----	<0.010	----	<0.010	----	<0.010	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Pyrene	129-00-0	E641A/WT	mg/kg		----	<0.050	----	<0.050	----	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates											

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH104-SS2	BH104-SS4	BH104-SS7	BH105-SS1(B)	BH105-SS2	BH105-SS3	BH105-SS7(A)
				Sampling date/time	10-Oct-2023 15:10	10-Oct-2023 15:20	10-Oct-2023 15:40	13-Oct-2023 15:05	13-Oct-2023 15:10	13-Oct-2023 15:20	13-Oct-2023 15:20
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2333397-019	WT2333397-021	WT2333397-022	WT2333397-024	WT2333397-025	WT2333397-026	WT2333397-027
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		----	94.1	----	90.9	----	92.2	----
Chrysene-d12	1719-03-5	E641A/WT	%		----	112	----	115	----	117	----
Naphthalene-d8	1146-65-2	E641A/WT	%		----	103	----	100.0	----	102	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		----	97.1	----	93.3	----	95.3	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: DUP-1	DUP-2	----	----	----	----	----
				Sampling date/time: 13-Oct-2023 00:00	13-Oct-2023 17:10	----	----	----	----	----
				Sub-Matrix: Soil/Solid	Soil/Solid	----	----	----	----	----
				WT2333397-030	WT2333397-031	--------	--------	--------	--------	--------
Physical Tests										
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm	0.611	----	----	----	----	----	----
Moisture	----	E144/WT	%	6.99	8.52	----	----	----	----	----
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units	7.99	----	----	----	----	----	----
Cyanides										
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg	<0.050	----	----	----	----	----	----
Fixed-Ratio Extractables										
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L	2.25	----	----	----	----	----	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L	0.77	----	----	----	----	----	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L	102	----	----	----	----	----	----
Sodium adsorption ratio [SAR]	----	E484/WT	-	15.0	----	----	----	----	----	----
Metals										
Antimony	7440-36-0	E440C/WT	mg/kg	<0.10	----	----	----	----	----	----
Arsenic	7440-38-2	E440C/WT	mg/kg	1.96	----	----	----	----	----	----
Barium	7440-39-3	E440C/WT	mg/kg	56.2	----	----	----	----	----	----
Beryllium	7440-41-7	E440C/WT	mg/kg	0.28	----	----	----	----	----	----
Boron	7440-42-8	E440C/WT	mg/kg	6.8	----	----	----	----	----	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg	<0.10	----	----	----	----	----	----
Cadmium	7440-43-9	E440C/WT	mg/kg	0.047	----	----	----	----	----	----
Chromium	7440-47-3	E440C/WT	mg/kg	12.6	----	----	----	----	----	----
Cobalt	7440-48-4	E440C/WT	mg/kg	4.50	----	----	----	----	----	----
Copper	7440-50-8	E440C/WT	mg/kg	8.86	----	----	----	----	----	----
Lead	7439-92-1	E440C/WT	mg/kg	4.30	----	----	----	----	----	----
Mercury	7439-97-6	E510C/WT	mg/kg	0.0056	----	----	----	----	----	----
Molybdenum	7439-98-7	E440C/WT	mg/kg	0.31	----	----	----	----	----	----
Nickel	7440-02-0	E440C/WT	mg/kg	9.36	----	----	----	----	----	----
Selenium	7782-49-2	E440C/WT	mg/kg	<0.20	----	----	----	----	----	----
Silver	7440-22-4	E440C/WT	mg/kg	<0.10	----	----	----	----	----	----
Thallium	7440-28-0	E440C/WT	mg/kg	0.076	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP-1	DUP-2	----	----	----	----	----
				Sampling date/time	13-Oct-2023 00:00	13-Oct-2023 17:10	----	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	----	----	----	----	----
					WT2333397-030	WT2333397-031	--------	--------	--------	--------	--------
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		0.503	----	----	----	----	----	----
Vanadium	7440-62-2	E440C/WT	mg/kg		23.2	----	----	----	----	----	----
Zinc	7440-66-6	E440C/WT	mg/kg		23.2	----	----	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	----	----	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	<0.50	----	----	----	----	----
Benzene	71-43-2	E611D/WT	mg/kg		----	<0.0050	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	<0.045	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		----	<0.050	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP-1	DUP-2	----	----	----	----	----
				Sampling date/time	13-Oct-2023 00:00	13-Oct-2023 17:10	----	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	----	----	----	----	----
					WT2333397-030	WT2333397-031	--------	--------	--------	--------	--------
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg	----	<0.030	----	----	----	----	----	
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg	----	<0.030	----	----	----	----	----	
Ethylbenzene	100-41-4	E611D/WT	mg/kg	----	<0.015	----	----	----	----	----	
Hexane, n-	110-54-3	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg	----	<0.50	----	----	----	----	----	
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg	----	<0.50	----	----	----	----	----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg	----	<0.040	----	----	----	----	----	
Styrene	100-42-5	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Toluene	108-88-3	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Trichloroethylene	79-01-6	E611D/WT	mg/kg	----	<0.010	----	----	----	----	----	
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
Vinyl chloride	75-01-4	E611D/WT	mg/kg	----	<0.020	----	----	----	----	----	
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg	----	<0.030	----	----	----	----	----	
Xylene, o-	95-47-6	E611D/WT	mg/kg	----	<0.030	----	----	----	----	----	
Xylenes, total	1330-20-7	E611D/WT	mg/kg	----	<0.050	----	----	----	----	----	
BTEX, total	----	E611D/WT	mg/kg	----	<0.10	----	----	----	----	----	
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg	----	<5.0	----	----	----	----	----	
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	----	<10	----	----	----	----	----	
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	----	<50	----	----	----	----	----	
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	----	<50	----	----	----	----	----	
F1-BTEX	----	EC580/WT	mg/kg	----	<5.0	----	----	----	----	----	
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg	----	<80	----	----	----	----	----	

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP-1	DUP-2	----	----	----	----	----
				Sampling date/time	13-Oct-2023 00:00	13-Oct-2023 17:10	----	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	----	----	----	----	----
					WT2333397-030	WT2333397-031	--------	--------	--------	--------	--------
Hydrocarbons											
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	YES	----	----	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	81.2	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	92.6	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	91.2	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	97.8	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	----	----	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	----	----	----	----	----	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	----	----	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	----	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP-1	DUP-2	----	----	----	----	----
				Sampling date/time	13-Oct-2023 00:00	13-Oct-2023 17:10	----	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	----	----	----	----	----
					WT2333397-030	WT2333397-031	--------	--------	--------	--------	--------
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		81.1	----	----	----	----	----	----
Chrysene-d12	1719-03-5	E641A/WT	%		82.2	----	----	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		80.8	----	----	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		83.6	----	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Physical Tests			
Conductivity (1:2 leachate)	----	mS/cm	**0.7 mS/cm**
Moisture	----	%	**--**
pH (1:2 soil:CaCl2-aq)	----	pH units	**--**
Cyanides			
Cyanide, weak acid dissociable	----	mg/kg	**0.051 mg/kg**
Fixed-Ratio Extractables			
Calcium, soluble ion content	7440-70-2	mg/L	**--**
Magnesium, soluble ion content	7439-95-4	mg/L	**--**
Sodium adsorption ratio [SAR]	----	-	**5 -**
Sodium, soluble ion content	17341-25-2	mg/L	**--**
Metals			
Antimony	7440-36-0	mg/kg	**7.5 mg/kg**
Arsenic	7440-38-2	mg/kg	**18 mg/kg**
Barium	7440-39-3	mg/kg	**390 mg/kg**
Beryllium	7440-41-7	mg/kg	**4 mg/kg**
Boron, hot water soluble	7440-42-8	mg/kg	**1.5 mg/kg**
Boron	7440-42-8	mg/kg	**120 mg/kg**
Cadmium	7440-43-9	mg/kg	**1.2 mg/kg**
Chromium	7440-47-3	mg/kg	**160 mg/kg**
Cobalt	7440-48-4	mg/kg	**22 mg/kg**
Copper	7440-50-8	mg/kg	**140 mg/kg**
Lead	7439-92-1	mg/kg	**120 mg/kg**
Mercury	7439-97-6	mg/kg	**0.27 mg/kg**
Molybdenum	7439-98-7	mg/kg	**6.9 mg/kg**
Nickel	7440-02-0	mg/kg	**100 mg/kg**
Selenium	7782-49-2	mg/kg	**2.4 mg/kg**
Silver	7440-22-4	mg/kg	**20 mg/kg**
Thallium	7440-28-0	mg/kg	**1 mg/kg**
Uranium	7440-61-1	mg/kg	**23 mg/kg**
Vanadium	7440-62-2	mg/kg	**86 mg/kg**
Zinc	7440-66-6	mg/kg	**340 mg/kg**
Speciated Metals			
Chromium, hexavalent [Cr VI]	18540-29-9	mg/kg	**8 mg/kg**
Volatile Organic Compounds			
Acetone	67-64-1	mg/kg	**16 mg/kg**
Benzene	71-43-2	mg/kg	**0.21 mg/kg**
Bromodichloromethane	75-27-4	mg/kg	**13 mg/kg**

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Bromoform	75-25-2	mg/kg	**0.27 mg/kg**
Bromomethane	74-83-9	mg/kg	**0.05 mg/kg**
BTEX, total	----	mg/kg	**--**
Carbon tetrachloride	56-23-5	mg/kg	**0.05 mg/kg**
Chlorobenzene	108-90-7	mg/kg	**2.4 mg/kg**
Chloroform	67-66-3	mg/kg	**0.05 mg/kg**
Dibromochloromethane	124-48-1	mg/kg	**9.4 mg/kg**
Dibromoethane, 1,2-	106-93-4	mg/kg	**0.05 mg/kg**
Dichlorobenzene, 1,2-	95-50-1	mg/kg	**3.4 mg/kg**
Dichlorobenzene, 1,3-	541-73-1	mg/kg	**4.8 mg/kg**
Dichlorobenzene, 1,4-	106-46-7	mg/kg	**0.083 mg/kg**
Dichlorodifluoromethane	75-71-8	mg/kg	**16 mg/kg**
Dichloroethane, 1,1-	75-34-3	mg/kg	**3.5 mg/kg**
Dichloroethane, 1,2-	107-06-2	mg/kg	**0.05 mg/kg**
Dichloroethylene, 1,1-	75-35-4	mg/kg	**0.05 mg/kg**
Dichloroethylene, cis-1,2-	156-59-2	mg/kg	**3.4 mg/kg**
Dichloroethylene, trans-1,2-	156-60-5	mg/kg	**0.084 mg/kg**
Dichloromethane	75-09-2	mg/kg	**0.1 mg/kg**
Dichloropropane, 1,2-	78-87-5	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis+trans-1,3-	542-75-6	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis-1,3-	10061-01-5	mg/kg	**--**
Dichloropropylene, trans-1,3-	10061-02-6	mg/kg	**--**
Ethylbenzene	100-41-4	mg/kg	**2 mg/kg**
Hexane, n-	110-54-3	mg/kg	**2.8 mg/kg**
Methyl ethyl ketone [MEK]	78-93-3	mg/kg	**16 mg/kg**
Methyl isobutyl ketone [MIBK]	108-10-1	mg/kg	**1.7 mg/kg**
Methyl-tert-butyl ether [MTBE]	1634-04-4	mg/kg	**0.75 mg/kg**
Styrene	100-42-5	mg/kg	**0.7 mg/kg**
Tetrachloroethane, 1,1,1,2-	630-20-6	mg/kg	**0.058 mg/kg**
Tetrachloroethane, 1,1,2,2-	79-34-5	mg/kg	**0.05 mg/kg**
Tetrachloroethylene	127-18-4	mg/kg	**0.28 mg/kg**
Toluene	108-88-3	mg/kg	**2.3 mg/kg**
Trichloroethane, 1,1,1-	71-55-6	mg/kg	**0.38 mg/kg**
Trichloroethane, 1,1,2-	79-00-5	mg/kg	**0.05 mg/kg**
Trichloroethylene	79-01-6	mg/kg	**0.061 mg/kg**
Trichlorofluoromethane	75-69-4	mg/kg	**4 mg/kg**
Vinyl chloride	75-01-4	mg/kg	**0.02 mg/kg**
Xylene, m+p-	179601-23-1	mg/kg	**--**
Xylene, o-	95-47-6	mg/kg	**--**

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Xylenes, total	1330-20-7	mg/kg	**3.1 mg/kg**
Hydrocarbons			
Chromatogram to baseline at nC50	n/a	-	**--**
F1 (C6-C10)	----	mg/kg	**55 mg/kg**
F1-BTEX	----	mg/kg	**55 mg/kg**
F2 (C10-C16)	----	mg/kg	**98 mg/kg**
F3 (C16-C34)	----	mg/kg	**300 mg/kg**
F4 (C34-C50)	----	mg/kg	**2800 mg/kg**
Hydrocarbons, total (C6-C50)	----	mg/kg	**--**
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%	
Dichlorotoluene, 3,4-	95-75-0	%	
Bromofluorobenzene, 4-	460-00-4	%	
Difluorobenzene, 1,4-	540-36-3	%	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	83-32-9	mg/kg	**7.9 mg/kg**
Acenaphthylene	208-96-8	mg/kg	**0.15 mg/kg**
Anthracene	120-12-7	mg/kg	**0.67 mg/kg**
Benz(a)anthracene	56-55-3	mg/kg	**0.5 mg/kg**
Benzo(a)pyrene	50-32-8	mg/kg	**0.3 mg/kg**
Benzo(b+j)fluoranthene	n/a	mg/kg	**0.78 mg/kg**
Benzo(g,h,i)perylene	191-24-2	mg/kg	**6.6 mg/kg**
Benzo(k)fluoranthene	207-08-9	mg/kg	**0.78 mg/kg**
Chrysene	218-01-9	mg/kg	**7 mg/kg**
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.1 mg/kg**
Fluoranthene	206-44-0	mg/kg	**0.69 mg/kg**
Fluorene	86-73-7	mg/kg	**62 mg/kg**
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	**0.38 mg/kg**
Methylnaphthalene, 1+2-	----	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 1-	90-12-0	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 2-	91-57-6	mg/kg	**0.99 mg/kg**
Naphthalene	91-20-3	mg/kg	**0.6 mg/kg**
Phenanthrene	85-01-8	mg/kg	**6.2 mg/kg**
Pyrene	129-00-0	mg/kg	**78 mg/kg**
Acridine-d9	34749-75-2	%	
Chrysene-d12	1719-03-5	%	
Naphthalene-d8	1146-65-2	%	
Phenanthrene-d10	1517-22-2	%	

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04		Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
	T3-RPI-C	153 T3-Soil-Res/Park/Inst. Property Use (Coarse)

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2333397**	Page	: 1 of 26
Amendment	: **1**		
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197-101	Date Samples Received	: 16-Oct-2023 18:00
PO	: ----	Issue Date	: 31-Oct-2023 10:38
C-O-C number	: 20-1047506		
Sampler	: LB/IH		
Site	: 705 KINGSTON ROAD, PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 31		
No. of samples analysed	: 23		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Duplicate outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Hydrocarbons	Anonymous	Anonymous	F3 (C16-C34)	----	E601.SG-L	166 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Matrix Spike (MS) Recoveries								
Volatile Organic Compounds	Anonymous	Anonymous	Acetone	67-64-1	E611D	143 % MES	50.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E336A	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E336A	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E336A	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E336A	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	14 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH101-SS4	E581.F1	11-Oct-2023	25-Oct-2023	14 days	14 days	✓	26-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH102-SS3	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH102-SS7	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH105-SS2	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH105-SS7(A)	E581.F1	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] DUP-2	E581.F1	13-Oct-2023	18-Oct-2023	14 days	5 days	✓	19-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH101-SS2	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH101-SS7	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH103-SS3A	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH103-SS8	E581.F1	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH104-SS2	E581.F1	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH104-SS7	E581.F1	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E601.SG-L	11-Oct-2023	25-Oct-2023	14 days	14 days	✓	26-Oct-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] DUP-2	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	19-Oct-2023	40 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS7	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS2	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS7(A)	E601.SG-L	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS2	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS7	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS8	E601.SG-L	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	23-Oct-2023	40 days	6 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS2	E601.SG-L	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	23-Oct-2023	40 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS7	E601.SG-L	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	23-Oct-2023	40 days	6 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS2A	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS3	E487	13-Oct-2023	19-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E487	13-Oct-2023	19-Oct-2023	180 days	7 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS3A	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E487	11-Oct-2023	19-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E487	10-Oct-2023	19-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E487	10-Oct-2023	19-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E510C	13-Oct-2023	18-Oct-2023	28 days	5 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E510C	13-Oct-2023	18-Oct-2023	28 days	6 days	✓	19-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E510C	11-Oct-2023	18-Oct-2023	28 days	7 days	✓	19-Oct-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E510C	10-Oct-2023	18-Oct-2023	28 days	8 days	✓	19-Oct-2023	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E510C	10-Oct-2023	18-Oct-2023	28 days	8 days	✓	19-Oct-2023	28 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E440C	13-Oct-2023	18-Oct-2023	180 days	5 days	✓	19-Oct-2023	180 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E440C	13-Oct-2023	18-Oct-2023	180 days	6 days	✓	19-Oct-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS3A	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS6	E440C	11-Oct-2023	18-Oct-2023	180 days	7 days	✓	19-Oct-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS1(B)	E440C	10-Oct-2023	18-Oct-2023	180 days	8 days	✓	19-Oct-2023	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS4	E440C	10-Oct-2023	18-Oct-2023	180 days	8 days	✓	19-Oct-2023	180 days	9 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS2A	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E484	13-Oct-2023	20-Oct-2023	180 days	6 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E484	13-Oct-2023	20-Oct-2023	180 days	7 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E484	11-Oct-2023	20-Oct-2023	180 days	8 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E484	10-Oct-2023	20-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E484	10-Oct-2023	20-Oct-2023	180 days	9 days	✓	20-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS2A	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS3	E100-L	13-Oct-2023	20-Oct-2023	30 days	6 days	✓	20-Oct-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E100-L	13-Oct-2023	20-Oct-2023	30 days	7 days	✓	20-Oct-2023	30 days	8 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS3A	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS6	E100-L	11-Oct-2023	20-Oct-2023	30 days	8 days	✓	20-Oct-2023	30 days	9 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS1(B)	E100-L	10-Oct-2023	20-Oct-2023	30 days	9 days	✓	20-Oct-2023	30 days	10 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH104-SS4	E100-L	10-Oct-2023	20-Oct-2023	30 days	9 days	✓	20-Oct-2023	30 days	10 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E144	11-Oct-2023	----	----	----		25-Oct-2023	----	14 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS2A	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS3	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS4	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS7	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS2	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS7(A)	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-2	E144	13-Oct-2023	----	----	----		17-Oct-2023	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS2	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS7	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS2	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS8	E144	11-Oct-2023	----	----	----		17-Oct-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS2	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS7	E144	10-Oct-2023	----	----	----		17-Oct-2023	----	7 days	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E108A	13-Oct-2023	17-Oct-2023	30 days	4 days	✓	18-Oct-2023	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E108A	11-Oct-2023	17-Oct-2023	30 days	6 days	✓	18-Oct-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E108A	10-Oct-2023	17-Oct-2023	30 days	7 days	✓	18-Oct-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E108A	10-Oct-2023	17-Oct-2023	30 days	7 days	✓	18-Oct-2023	30 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS2A	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH102-SS4	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS1(B)	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH105-SS3	E641A	13-Oct-2023	17-Oct-2023	60 days	4 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] DUP-1	E641A	13-Oct-2023	17-Oct-2023	60 days	5 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS1(B)	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH101-SS4	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS2	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH103-SS6	E641A	11-Oct-2023	17-Oct-2023	60 days	6 days	✓	18-Oct-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E641A	10-Oct-2023	17-Oct-2023	60 days	7 days	✓	18-Oct-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E641A	10-Oct-2023	17-Oct-2023	60 days	7 days	✓	18-Oct-2023	40 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS2A	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH102-SS3	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS1(B)	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH105-SS3	E532	13-Oct-2023	18-Oct-2023	30 days	4 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP-1	E532	13-Oct-2023	18-Oct-2023	30 days	5 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS1(B)	E532	11-Oct-2023	18-Oct-2023	30 days	6 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH101-SS4	E532	11-Oct-2023	18-Oct-2023	30 days	6 days	✓	19-Oct-2023	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS3A	E532	11-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH103-SS6	E532	11-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS1(B)	E532	10-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH104-SS4	E532	10-Oct-2023	18-Oct-2023	30 days	7 days	✓	19-Oct-2023	7 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH101-SS4	E611D	11-Oct-2023	25-Oct-2023	14 days	14 days	✓	26-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH102-SS3	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH102-SS7	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH105-SS2	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH105-SS7(A)	E611D	13-Oct-2023	17-Oct-2023	14 days	4 days	✓	18-Oct-2023	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] DUP-2	E611D	13-Oct-2023	18-Oct-2023	14 days	5 days	✓	19-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH101-SS2	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH101-SS7	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH103-SS3A	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH103-SS8	E611D	11-Oct-2023	17-Oct-2023	14 days	6 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH104-SS2	E611D	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH104-SS7	E611D	10-Oct-2023	17-Oct-2023	14 days	7 days	✓	18-Oct-2023	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1189097	1	11	9.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	3	48	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	3	29	10.3	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1189095	1	16	6.2	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1190678	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1189098	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1189099	1	11	9.0	5.0	✓
Moisture Content by Gravimetry	E144	1188845	4	67	5.9	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1188807	1	17	5.8	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1189096	1	11	9.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	3	57	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1189097	2	11	18.1	10.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	3	48	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	3	29	10.3	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1189095	2	16	12.5	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1190678	2	20	10.0	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1189098	2	11	18.1	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1189099	2	11	18.1	10.0	✓
Moisture Content by Gravimetry	E144	1188845	4	67	5.9	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1188807	1	17	5.8	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1189096	2	11	18.1	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	3	57	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1189097	1	11	9.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	3	48	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	3	29	10.3	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1189095	1	16	6.2	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1190678	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1189098	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1189099	1	11	9.0	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Moisture Content by Gravimetry	E144	1188845	4	67	5.9	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1189096	1	11	9.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	3	57	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID	E581.F1	1190730	3	48	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1188789	3	29	10.3	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1188788	2	16	12.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1190729	3	57	5.2	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1188873	1	15	6.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3137A	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

QUALITY CONTROL REPORT

Work Order	: **WT2333397**	Page	: 1 of 31
Amendment	: **1**		
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197-101	Date Samples Received	: 16-Oct-2023 18:00
PO	: ----	Date Analysis Commenced	: 17-Oct-2023
C-O-C number	: 20-1047506	Issue Date	: 31-Oct-2023 10:38
Sampler	: LB/IH 647 370 3191		
Site	: 705 KINGSTON ROAD, PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 31		
No. of samples analysed	: 23		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario
Josphin Masihi	Analyst	Waterloo Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1188807)											
WT2333342-003	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	4.61	4.84	4.87%	5%	----
Physical Tests (QC Lot: 1188845)											
WT2333389-001	Anonymous	Moisture	----	E144	0.25	%	6.55	6.72	2.54%	20%	----
Physical Tests (QC Lot: 1189095)											
WT2333397-001	BH101-SS1(B)	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	2.82 mS/cm	2850	1.06%	20%	----
Physical Tests (QC Lot: 1189441)											
WT2333319-002	Anonymous	Moisture	----	E144	0.25	%	17.2	17.0	1.35%	20%	----
Physical Tests (QC Lot: 1189511)											
TY2310567-001	Anonymous	Moisture	----	E144	0.25	%	7.14	7.55	5.52%	20%	----
Physical Tests (QC Lot: 1205373)											
WT2334633-001	Anonymous	Moisture	----	E144	0.25	%	10.8	10.1	7.04%	20%	----
Cyanides (QC Lot: 1188873)											
WT2333397-001	BH101-SS1(B)	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1189096)											
WT2333397-001	BH101-SS1(B)	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	3.09	3.10	0.01	Diff <2x LOR	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	583	587	0.684%	30%	----
Metals (QC Lot: 1189097)											
WT2333397-001	BH101-SS1(B)	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.33	0.31	0.02	Diff <2x LOR	----
Metals (QC Lot: 1189098)											
WT2333397-001	BH101-SS1(B)	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0169	0.0170	0.00003	Diff <2x LOR	----
Metals (QC Lot: 1189099)											
WT2333397-001	BH101-SS1(B)	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	3.42	3.44	0.620%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	35.1	35.4	0.875%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.33	0.36	0.02	Diff <2x LOR	----
		Boron	7440-42-8	E440C	5.0	mg/kg	6.0	6.7	0.8	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.082	0.079	0.003	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	13.1	13.9	5.83%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	6.39	6.64	3.77%	30%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1189099) - continued											
WT2333397-001	BH101-SS1(B)	Copper	7440-50-8	E440C	0.50	mg/kg	16.9	17.1	1.27%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	7.49	7.62	1.66%	40%	----
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.66	0.69	4.72%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	15.4	15.7	2.06%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440C	0.050	mg/kg	0.133	0.134	0.001	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.482	0.516	6.98%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	22.6	24.7	8.99%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	33.0	34.1	3.27%	30%	----
Speciated Metals (QC Lot: 1190678)											
WT2333397-001	BH101-SS1(B)	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1190729)											
WT2333299-003	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1190729) - continued											
WT2333299-003	Anonymous	Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1193077)											
WT2332529-001	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1193077) - continued											
WT2332529-001	Anonymous	Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1205280)											
WT2333397-004	BH101-SS4	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1205280) - continued											
WT2333397-004	BH101-SS4	Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1188789)											

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Hydrocarbons (QC Lot: 1188789) - continued											
WT2333397-002	BH101-SS2	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1189146)											
WT2333482-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	60	# 226	166	Diff <2x LOR	DUP-H
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	69	19	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1190730)											
WT2333299-003	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1193078)											
WT2332529-001	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1205281)											
WT2333397-004	BH101-SS4	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1206349)											
WT2334619-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1188788)											
WT2333397-001	BH101-SS1(B)	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1188788) - continued											
WT2333397-001	BH101-SS1(B)	Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1189145)											
WT2333482-001	Anonymous	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1188845)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1189095)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1189441)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1189511)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1205373)						
Moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 1188873)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1189096)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1189097)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1189098)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1189099)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1189099) - continued						
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----
Speciated Metals (QCLot: 1190678)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1190729)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1190729) - continued						
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1193077)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1193077) - continued						
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1205280)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1205280) - continued						
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1188789)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1189146)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1190730)						

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Hydrocarbons (QCLot: 1190730) - continued						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1193078)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1205281)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1206349)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145) - continued						
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1188807)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 1188845)									
Moisture	----	E144	0.25	%	50 %	99.4	90.0	110	----
Physical Tests (QCLot: 1189095)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	96.7	90.0	110	----
Physical Tests (QCLot: 1189441)									
Moisture	----	E144	0.25	%	50 %	99.6	90.0	110	----
Physical Tests (QCLot: 1189511)									
Moisture	----	E144	0.25	%	50 %	99.2	90.0	110	----
Physical Tests (QCLot: 1205373)									
Moisture	----	E144	0.25	%	50 %	99.4	90.0	110	----
Cyanides (QCLot: 1188873)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	92.1	80.0	120	----
Metals (QCLot: 1189096)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	105	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	101	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	103	80.0	120	----
Metals (QCLot: 1189097)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	101	70.0	130	----
Metals (QCLot: 1189098)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	107	80.0	120	----
Metals (QCLot: 1189099)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	97.1	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	102	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	91.9	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	89.8	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	91.5	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	94.6	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	96.8	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	93.1	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1189099) - continued									
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	95.6	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	96.3	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	89.1	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	95.3	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	95.8	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	83.4	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	92.8	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	89.0	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	101	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	97.7	80.0	120	----
Speciated Metals (QCLot: 1190678)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	94.5	80.0	120	----
Volatile Organic Compounds (QCLot: 1190729)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	113	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	93.9	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	97.6	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	90.0	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	88.2	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	91.5	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	93.2	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	97.8	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	85.8	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	93.0	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	93.7	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	90.6	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	89.1	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	69.4	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	98.6	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	103	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	93.7	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	96.2	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	95.2	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	102	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	97.1	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1190729) - continued									
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	80.0	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	74.4	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	88.6	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	86.5	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	94.0	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	89.0	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	96.9	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	90.9	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	88.5	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	92.7	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	88.8	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	88.3	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	94.4	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	93.6	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	92.5	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	90.3	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	80.9	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	89.3	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	90.1	70.0	130	----
Volatile Organic Compounds (QCLot: 1193077)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	106	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	100	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	98.6	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	91.7	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	106	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	95.9	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	103	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	91.6	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	92.1	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	93.6	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	97.2	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	97.6	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	83.0	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	103	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	101	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1193077) - continued									
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	106	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	100	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	110	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	109	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	98.7	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	92.7	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	86.1	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	93.5	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	103	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	103	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	90.2	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	93.1	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	90.4	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	93.6	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	99.0	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	98.4	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	92.9	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	101	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	95.2	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	101	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	106	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	99.8	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	99.7	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Volatile Organic Compounds (QCLot: 1205280)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	128	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	101	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	106	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	96.5	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	97.2	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	86.1	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	97.9	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	103	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	88.6	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	104	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	98.0	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1205280) - continued									
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	95.4	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	50.9	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	108	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	114	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	101	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	107	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	114	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	108	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	92.5	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	89.0	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	88.1	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	111	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	101	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	103	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	94.5	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	88.2	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	111	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	85.5	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	90.6	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	91.8	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	106	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	91.0	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	89.2	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	87.2	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	91.3	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	91.4	70.0	130	----
Hydrocarbons (QCLot: 1188789)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	110	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	110	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	102	70.0	130	----
Hydrocarbons (QCLot: 1189146)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	101	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Hydrocarbons (QCLot: 1189146) - continued									
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	98.3	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	94.0	70.0	130	----
Hydrocarbons (QCLot: 1190730)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	107	80.0	120	----
Hydrocarbons (QCLot: 1193078)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	95.0	80.0	120	----
Hydrocarbons (QCLot: 1205281)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	105	80.0	120	----
Hydrocarbons (QCLot: 1206349)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	109	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	105	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	114	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	93.3	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	92.9	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	92.1	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	105	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	88.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	99.4	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	87.1	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	96.0	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	89.2	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	82.1	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	93.4	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	93.5	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	92.8	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	91.6	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	101	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	94.7	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	90.5	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	92.2	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	80.0	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	79.4	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	77.6	60.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145) - continued									
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	77.7	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	76.8	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	81.6	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	82.7	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	79.8	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	66.3	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	70.7	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	79.2	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	80.4	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	82.4	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	75.4	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	82.1	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	76.9	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	76.4	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	77.8	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1188873)										
WT2333397-001	BH101-SS1(B)	Cyanide, weak acid dissociable	----	E336A	1.11 mg/kg	1.25 mg/kg	89.2	70.0	130	----
Volatile Organic Compounds (QCLot: 1190729)										
WT2333299-003	Anonymous	Acetone	67-64-1	E611D	3.21 mg/kg	3.125 mg/kg	143	50.0	140	MES
		Benzene	71-43-2	E611D	2.13 mg/kg	3.125 mg/kg	94.6	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.23 mg/kg	3.125 mg/kg	99.2	50.0	140	----
		Bromoform	75-25-2	E611D	2.30 mg/kg	3.125 mg/kg	102	50.0	140	----
		Bromomethane	74-83-9	E611D	2.22 mg/kg	3.125 mg/kg	98.8	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	1.94 mg/kg	3.125 mg/kg	86.2	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.05 mg/kg	3.125 mg/kg	91.2	50.0	140	----
		Chloroform	67-66-3	E611D	2.21 mg/kg	3.125 mg/kg	98.5	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	2.02 mg/kg	3.125 mg/kg	90.0	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.36 mg/kg	3.125 mg/kg	105	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	2.06 mg/kg	3.125 mg/kg	91.7	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.05 mg/kg	3.125 mg/kg	91.2	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.00 mg/kg	3.125 mg/kg	89.1	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	1.48 mg/kg	3.125 mg/kg	66.0	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.24 mg/kg	3.125 mg/kg	99.4	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.55 mg/kg	3.125 mg/kg	114	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.08 mg/kg	3.125 mg/kg	92.5	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.20 mg/kg	3.125 mg/kg	97.8	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.12 mg/kg	3.125 mg/kg	94.4	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.50 mg/kg	3.125 mg/kg	111	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.23 mg/kg	3.125 mg/kg	99.1	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	1.92 mg/kg	3.125 mg/kg	85.2	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	1.90 mg/kg	3.125 mg/kg	84.4	50.0	140	----
		Ethylbenzene	100-41-4	E611D	1.94 mg/kg	3.125 mg/kg	86.2	50.0	140	----
		Hexane, n-	110-54-3	E611D	1.91 mg/kg	3.125 mg/kg	84.8	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.64 mg/kg	3.125 mg/kg	118	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.09 mg/kg	3.125 mg/kg	93.2	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.11 mg/kg	3.125 mg/kg	93.9	50.0	140	----
		Styrene	100-42-5	E611D	1.95 mg/kg	3.125 mg/kg	86.9	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1190729) - continued										
WT2333299-003	Anonymous	Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	1.95 mg/kg	3.125 mg/kg	86.7	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.30 mg/kg	3.125 mg/kg	102	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	1.93 mg/kg	3.125 mg/kg	86.0	50.0	140	----
		Toluene	108-88-3	E611D	2.07 mg/kg	3.125 mg/kg	91.9	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.03 mg/kg	3.125 mg/kg	90.3	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.28 mg/kg	3.125 mg/kg	102	50.0	140	----
		Trichloroethylene	79-01-6	E611D	1.99 mg/kg	3.125 mg/kg	88.5	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.04 mg/kg	3.125 mg/kg	90.9	50.0	140	----
		Vinyl chloride	75-01-4	E611D	1.96 mg/kg	3.125 mg/kg	87.4	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	3.93 mg/kg	6.25 mg/kg	87.4	50.0	140	----
		Xylene, o-	95-47-6	E611D	1.98 mg/kg	3.125 mg/kg	87.9	50.0	140	----
Volatile Organic Compounds (QCLot: 1193077)										
WT2332529-001	Anonymous	Acetone	67-64-1	E611D	2.35 mg/kg	3.125 mg/kg	112	50.0	140	----
		Benzene	71-43-2	E611D	2.17 mg/kg	3.125 mg/kg	103	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.15 mg/kg	3.125 mg/kg	102	50.0	140	----
		Bromoform	75-25-2	E611D	2.04 mg/kg	3.125 mg/kg	97.1	50.0	140	----
		Bromomethane	74-83-9	E611D	2.47 mg/kg	3.125 mg/kg	117	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	2.18 mg/kg	3.125 mg/kg	104	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.02 mg/kg	3.125 mg/kg	96.3	50.0	140	----
		Chloroform	67-66-3	E611D	2.22 mg/kg	3.125 mg/kg	106	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	1.99 mg/kg	3.125 mg/kg	94.8	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.05 mg/kg	3.125 mg/kg	97.4	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	1.94 mg/kg	3.125 mg/kg	92.4	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.00 mg/kg	3.125 mg/kg	95.1	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.01 mg/kg	3.125 mg/kg	95.5	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	2.80 mg/kg	3.125 mg/kg	133	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.26 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.26 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.32 mg/kg	3.125 mg/kg	110	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.19 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.36 mg/kg	3.125 mg/kg	112	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.42 mg/kg	3.125 mg/kg	115	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.16 mg/kg	3.125 mg/kg	103	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	2.05 mg/kg	3.125 mg/kg	97.6	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	1.90 mg/kg	3.125 mg/kg	90.2	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1193077) - continued										
WT2332529-001	Anonymous	Ethylbenzene	100-41-4	E611D	1.94 mg/kg	3.125 mg/kg	92.3	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.30 mg/kg	3.125 mg/kg	110	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.32 mg/kg	3.125 mg/kg	110	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.02 mg/kg	3.125 mg/kg	95.9	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	1.96 mg/kg	3.125 mg/kg	93.2	50.0	140	----
		Styrene	100-42-5	E611D	1.90 mg/kg	3.125 mg/kg	90.2	50.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	1.98 mg/kg	3.125 mg/kg	94.1	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.19 mg/kg	3.125 mg/kg	104	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	2.03 mg/kg	3.125 mg/kg	96.5	50.0	140	----
		Toluene	108-88-3	E611D	1.95 mg/kg	3.125 mg/kg	92.9	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.16 mg/kg	3.125 mg/kg	103	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.09 mg/kg	3.125 mg/kg	99.2	50.0	140	----
		Trichloroethylene	79-01-6	E611D	2.14 mg/kg	3.125 mg/kg	102	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.40 mg/kg	3.125 mg/kg	114	50.0	140	----
		Vinyl chloride	75-01-4	E611D	2.41 mg/kg	3.125 mg/kg	115	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	4.12 mg/kg	6.25 mg/kg	98.1	50.0	140	----
		Xylene, o-	95-47-6	E611D	1.98 mg/kg	3.125 mg/kg	94.0	50.0	140	----
Volatile Organic Compounds (QCLot: 1205280)										
WT2333397-004	BH101-SS4	Acetone	67-64-1	E611D	2.67 mg/kg	3.125 mg/kg	115	50.0	140	----
		Benzene	71-43-2	E611D	2.32 mg/kg	3.125 mg/kg	99.8	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.37 mg/kg	3.125 mg/kg	102	50.0	140	----
		Bromoform	75-25-2	E611D	2.13 mg/kg	3.125 mg/kg	91.9	50.0	140	----
		Bromomethane	74-83-9	E611D	2.48 mg/kg	3.125 mg/kg	107	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	2.02 mg/kg	3.125 mg/kg	87.0	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.24 mg/kg	3.125 mg/kg	96.4	50.0	140	----
		Chloroform	67-66-3	E611D	2.34 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	1.99 mg/kg	3.125 mg/kg	85.6	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.29 mg/kg	3.125 mg/kg	98.8	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	2.23 mg/kg	3.125 mg/kg	96.2	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.17 mg/kg	3.125 mg/kg	93.7	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.15 mg/kg	3.125 mg/kg	92.7	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	2.15 mg/kg	3.125 mg/kg	92.6	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.49 mg/kg	3.125 mg/kg	107	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.54 mg/kg	3.125 mg/kg	109	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.46 mg/kg	3.125 mg/kg	106	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1205280) - continued										
WT2333397-004	BH101-SS4	Dichloroethylene, cis-1,2-	156-59-2	E611D	2.35 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.52 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.62 mg/kg	3.125 mg/kg	113	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.44 mg/kg	3.125 mg/kg	105	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	2.10 mg/kg	3.125 mg/kg	90.6	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	2.03 mg/kg	3.125 mg/kg	87.6	50.0	140	----
		Ethylbenzene	100-41-4	E611D	2.07 mg/kg	3.125 mg/kg	89.3	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.36 mg/kg	3.125 mg/kg	102	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.43 mg/kg	3.125 mg/kg	104	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.16 mg/kg	3.125 mg/kg	92.9	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.38 mg/kg	3.125 mg/kg	102	50.0	140	----
		Styrene	100-42-5	E611D	2.19 mg/kg	3.125 mg/kg	94.2	50.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	2.01 mg/kg	3.125 mg/kg	86.6	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.48 mg/kg	3.125 mg/kg	107	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	2.00 mg/kg	3.125 mg/kg	86.0	50.0	140	----
		Toluene	108-88-3	E611D	2.10 mg/kg	3.125 mg/kg	90.3	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.14 mg/kg	3.125 mg/kg	92.3	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.34 mg/kg	3.125 mg/kg	101	50.0	140	----
		Trichloroethylene	79-01-6	E611D	2.11 mg/kg	3.125 mg/kg	90.9	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.27 mg/kg	3.125 mg/kg	97.8	50.0	140	----
		Vinyl chloride	75-01-4	E611D	2.42 mg/kg	3.125 mg/kg	104	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	4.26 mg/kg	6.25 mg/kg	91.9	50.0	140	----
		Xylene, o-	95-47-6	E611D	2.13 mg/kg	3.125 mg/kg	91.6	50.0	140	----
Hydrocarbons (QCLot: 1188789)										
WT2333397-002	BH101-SS2	F2 (C10-C16)	----	E601.SG-L	582 mg/kg	656.4125 mg/kg	111	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1150 mg/kg	1332.613 mg/kg	109	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	647 mg/kg	761.4625 mg/kg	107	60.0	140	----
Hydrocarbons (QCLot: 1189146)										
WT2333482-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	543 mg/kg	656.4125 mg/kg	96.9	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1120 mg/kg	1332.613 mg/kg	98.3	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	616 mg/kg	761.4625 mg/kg	94.9	60.0	140	----
Hydrocarbons (QCLot: 1190730)										
WT2333299-003	Anonymous	F1 (C6-C10)	----	E581.F1	44.9 mg/kg	62.5 mg/kg	99.8	60.0	140	----
Hydrocarbons (QCLot: 1193078)										

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Hydrocarbons (QCLot: 1193078) - continued										
WT2332529-001	Anonymous	F1 (C6-C10)	----	E581.F1	37.4 mg/kg	62.5 mg/kg	89.1	60.0	140	----
Hydrocarbons (QCLot: 1205281)										
WT2333397-004	BH101-SS4	F1 (C6-C10)	----	E581.F1	49.3 mg/kg	62.5 mg/kg	106	60.0	140	----
Hydrocarbons (QCLot: 1206349)										
WT2334619-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	560 mg/kg	656.4125 mg/kg	101	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1100 mg/kg	1332.613 mg/kg	98.3	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	608 mg/kg	761.4625 mg/kg	94.8	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1188788)										
WT2333397-001	BH101-SS1(B)	Acenaphthene	83-32-9	E641A	0.388 mg/kg	0.5 mg/kg	97.7	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.390 mg/kg	0.5 mg/kg	98.1	50.0	140	----
		Anthracene	120-12-7	E641A	0.390 mg/kg	0.5 mg/kg	98.2	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.440 mg/kg	0.5 mg/kg	111	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.370 mg/kg	0.5 mg/kg	93.0	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.414 mg/kg	0.5 mg/kg	104	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.333 mg/kg	0.5 mg/kg	83.8	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.414 mg/kg	0.5 mg/kg	104	50.0	140	----
		Chrysene	218-01-9	E641A	0.368 mg/kg	0.5 mg/kg	92.7	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.339 mg/kg	0.5 mg/kg	85.1	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.390 mg/kg	0.5 mg/kg	98.0	50.0	140	----
		Fluorene	86-73-7	E641A	0.393 mg/kg	0.5 mg/kg	98.8	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.373 mg/kg	0.5 mg/kg	93.8	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.387 mg/kg	0.5 mg/kg	97.4	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.426 mg/kg	0.5 mg/kg	107	50.0	140	----
		Naphthalene	91-20-3	E641A	0.406 mg/kg	0.5 mg/kg	102	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.385 mg/kg	0.5 mg/kg	96.8	50.0	140	----
		Pyrene	129-00-0	E641A	0.382 mg/kg	0.5 mg/kg	96.2	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145)										
WT2333482-001	Anonymous	Acenaphthene	83-32-9	E641A	0.350 mg/kg	0.5 mg/kg	82.2	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.350 mg/kg	0.5 mg/kg	82.3	50.0	140	----
		Anthracene	120-12-7	E641A	0.353 mg/kg	0.5 mg/kg	83.0	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.361 mg/kg	0.5 mg/kg	85.0	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.338 mg/kg	0.5 mg/kg	79.6	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.356 mg/kg	0.5 mg/kg	83.7	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.370 mg/kg	0.5 mg/kg	87.0	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1189145) - continued										
WT2333482-001	Anonymous	Benzo(k)fluoranthene	207-08-9	E641A	0.357 mg/kg	0.5 mg/kg	83.9	50.0	140	----
		Chrysene	218-01-9	E641A	0.291 mg/kg	0.5 mg/kg	68.3	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.316 mg/kg	0.5 mg/kg	74.3	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.350 mg/kg	0.5 mg/kg	82.3	50.0	140	----
		Fluorene	86-73-7	E641A	0.356 mg/kg	0.5 mg/kg	83.7	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.363 mg/kg	0.5 mg/kg	85.4	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.334 mg/kg	0.5 mg/kg	78.5	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.371 mg/kg	0.5 mg/kg	87.3	50.0	140	----
		Naphthalene	91-20-3	E641A	0.346 mg/kg	0.5 mg/kg	81.4	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.345 mg/kg	0.5 mg/kg	81.2	50.0	140	----
		Pyrene	129-00-0	E641A	0.344 mg/kg	0.5 mg/kg	80.9	50.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

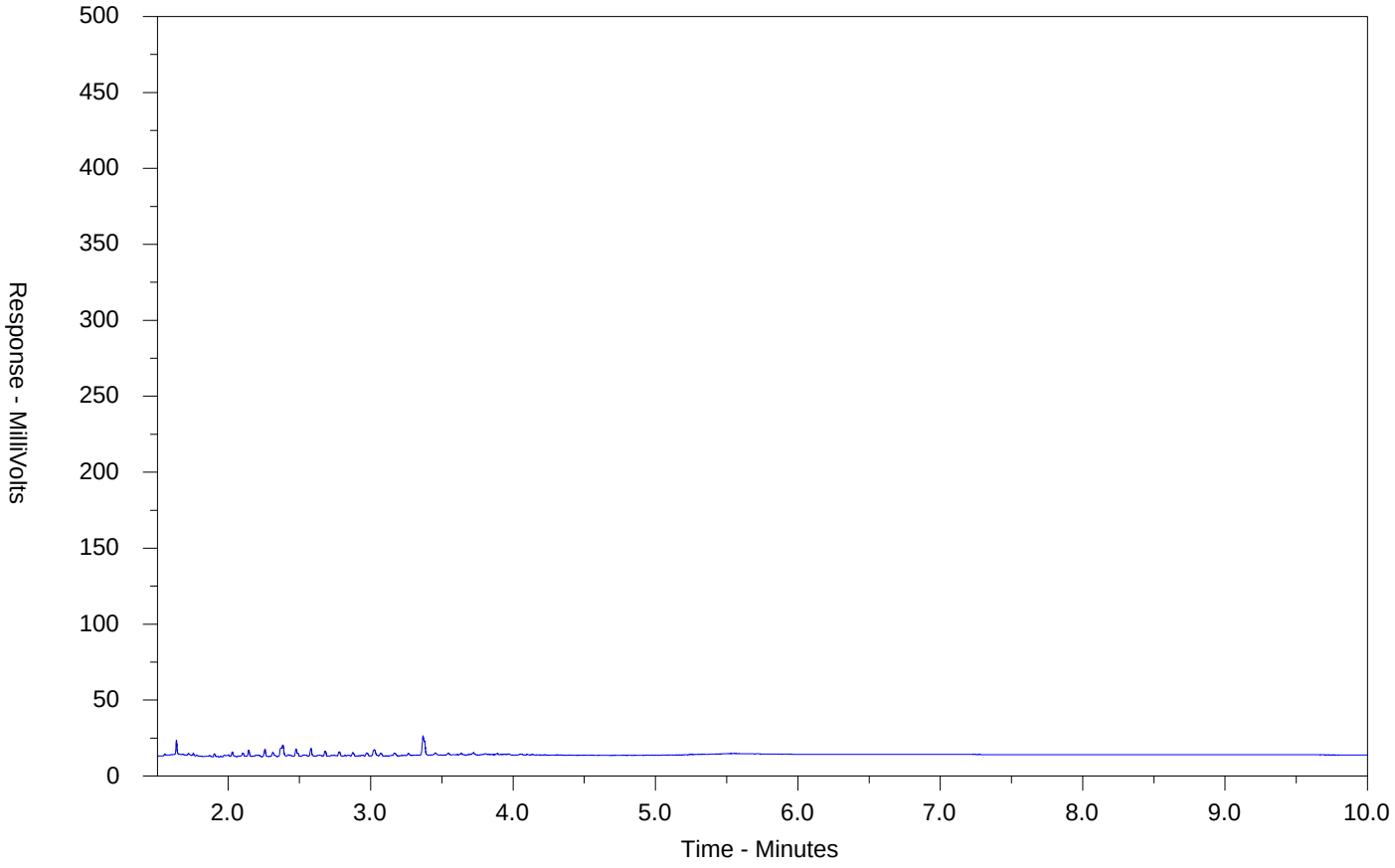
					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1189095)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1970.3 µS/cm	104	70.0	130	----
Metals (QCLot: 1189096)									
	RM	Calcium, soluble ion content	7440-70-2	E484	79.7 mg/L	107	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	24.87 mg/L	106	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	89.79 mg/L	105	70.0	130	----
Metals (QCLot: 1189097)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.9944 mg/kg	83.1	60.0	140	----
Metals (QCLot: 1189098)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	104	70.0	130	----
Metals (QCLot: 1189099)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	90.1	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	108	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	105	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	95.7	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	100	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	99.4	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	106	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	96.5	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	124	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	96.0	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	102	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	101	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	86.5	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	91.5	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	93.4	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	99.3	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	101	70.0	130	----
Speciated Metals (QCLot: 1190678)									

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Speciated Metals (QCLot: 1190678) - continued									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	89.6	70.0	130	----

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-002-E601.SG-L
Client Sample ID: BH101-SS2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

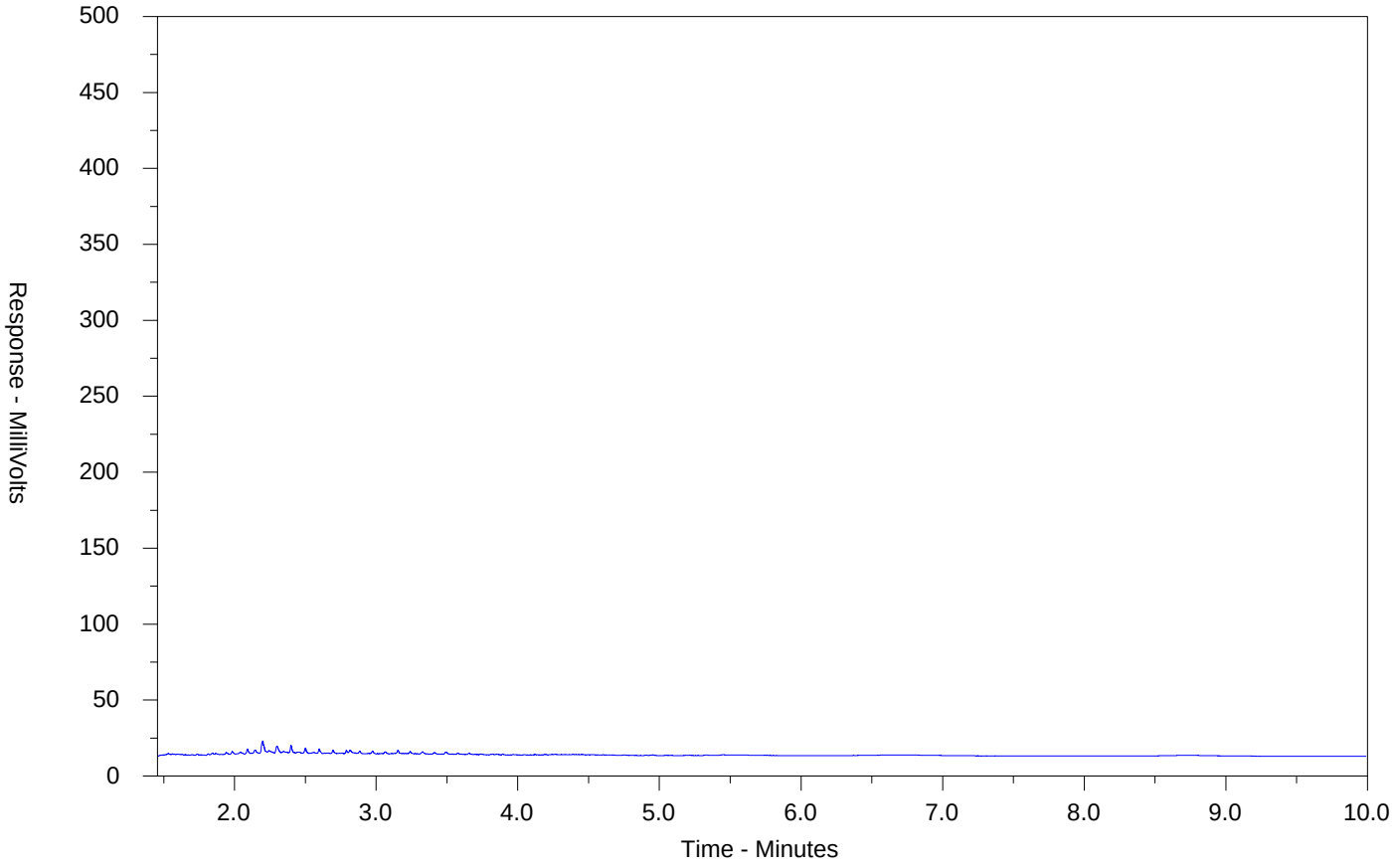
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-004-E601.SG-L
Client Sample ID: BH101-SS4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

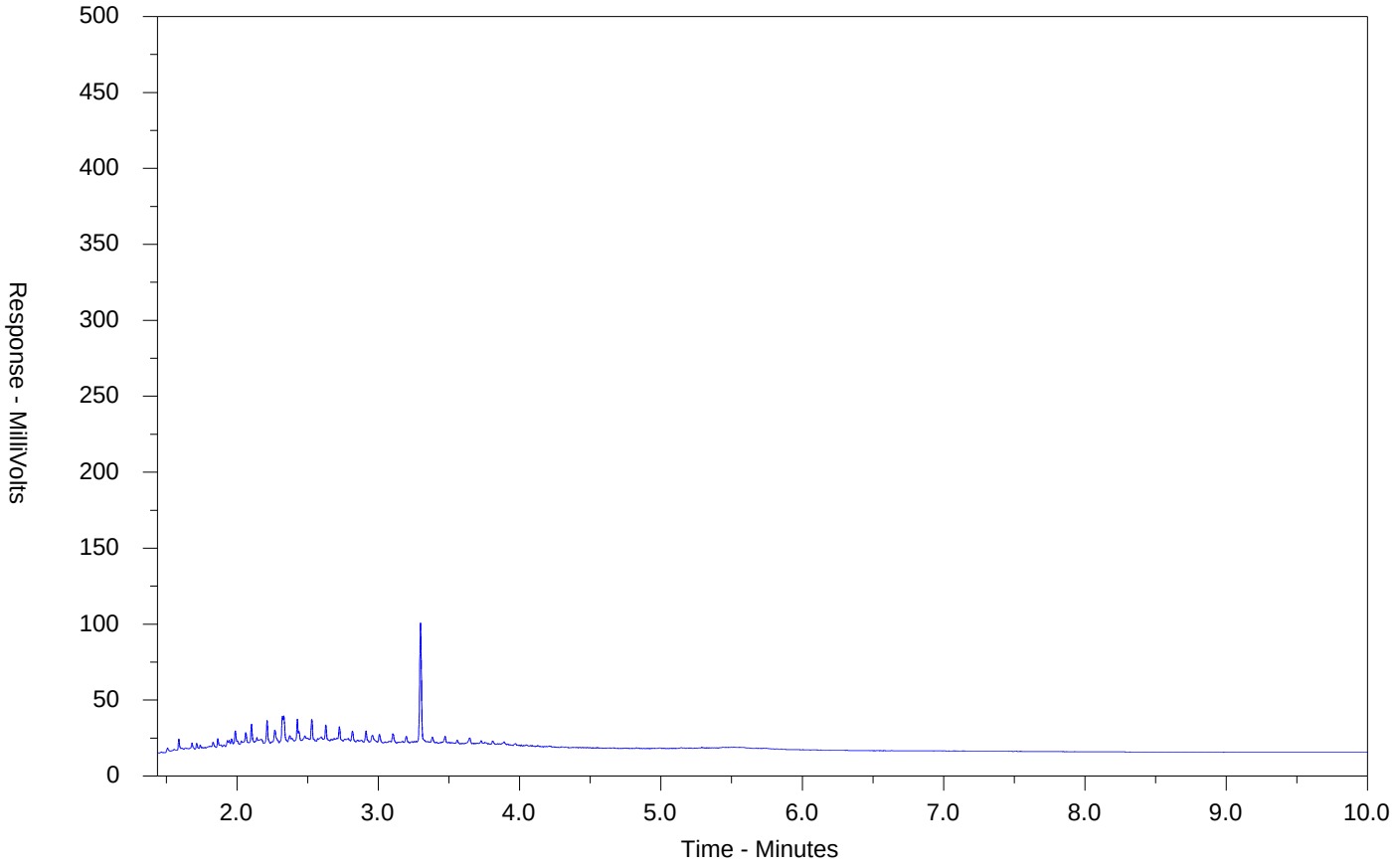
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-005-E601.SG-L
Client Sample ID: BH101-SS7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

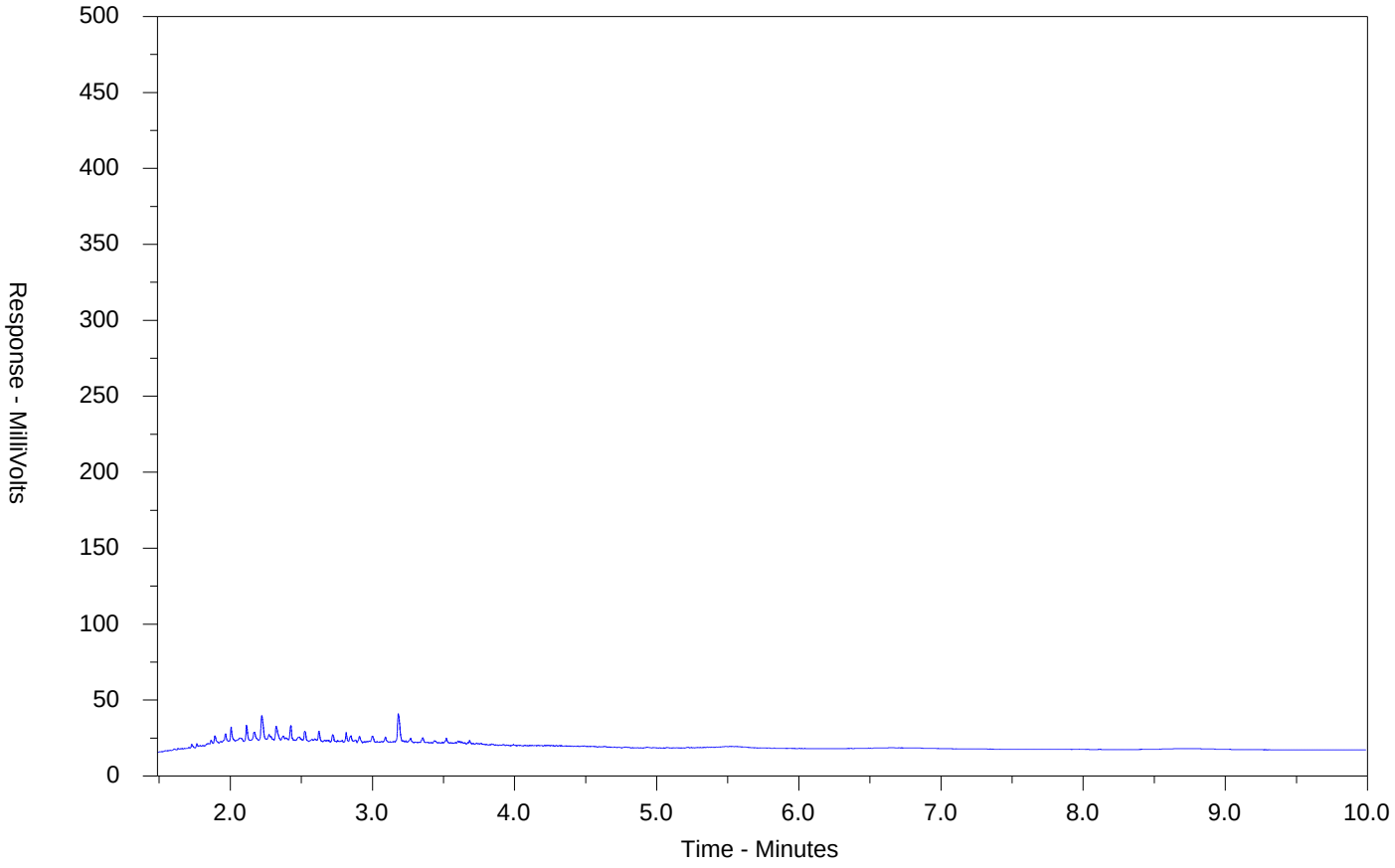
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-006-E601.SG-L
Client Sample ID: BH101-SS11



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

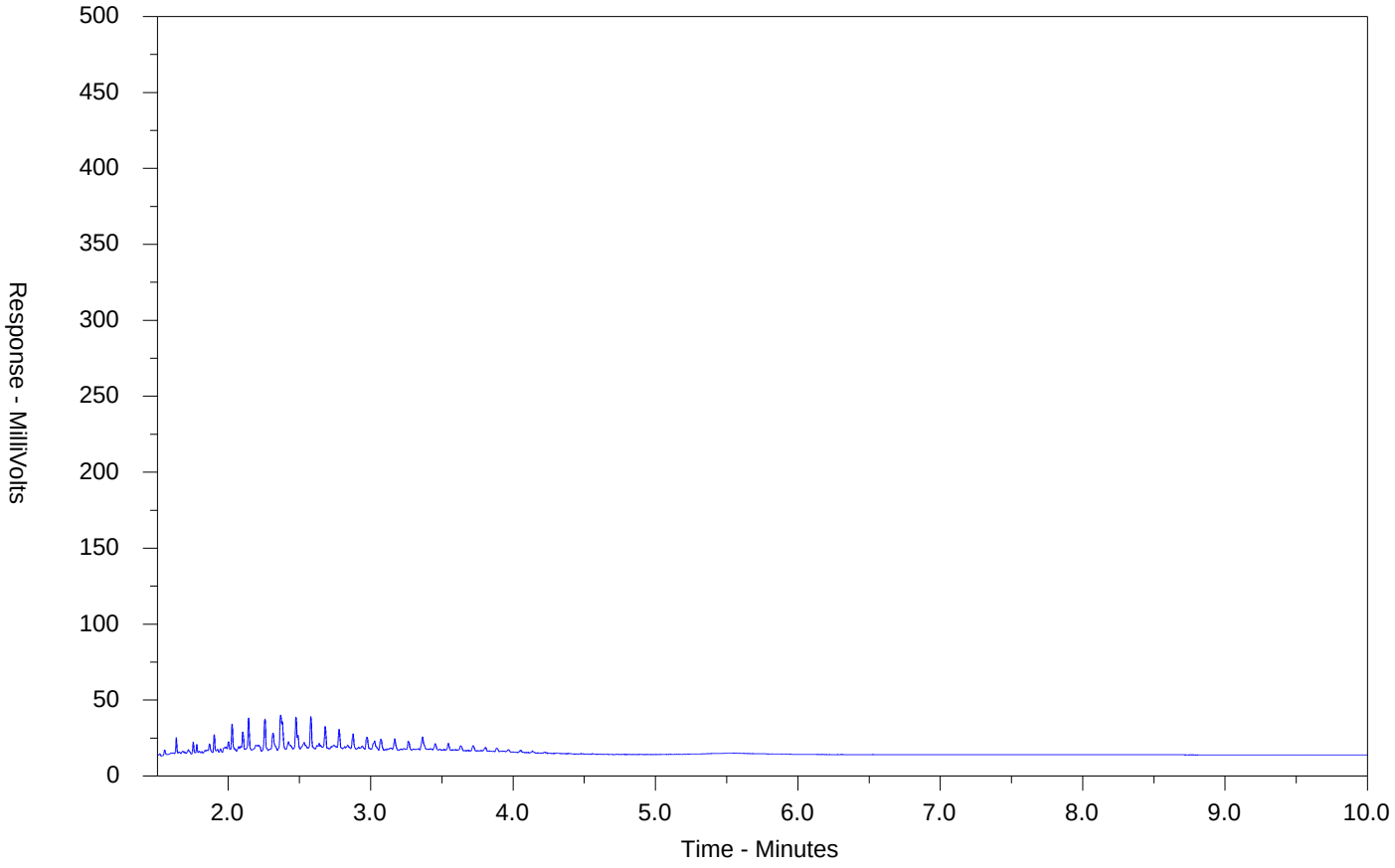
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-008-E601.SG-L
Client Sample ID: BH102-SS3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

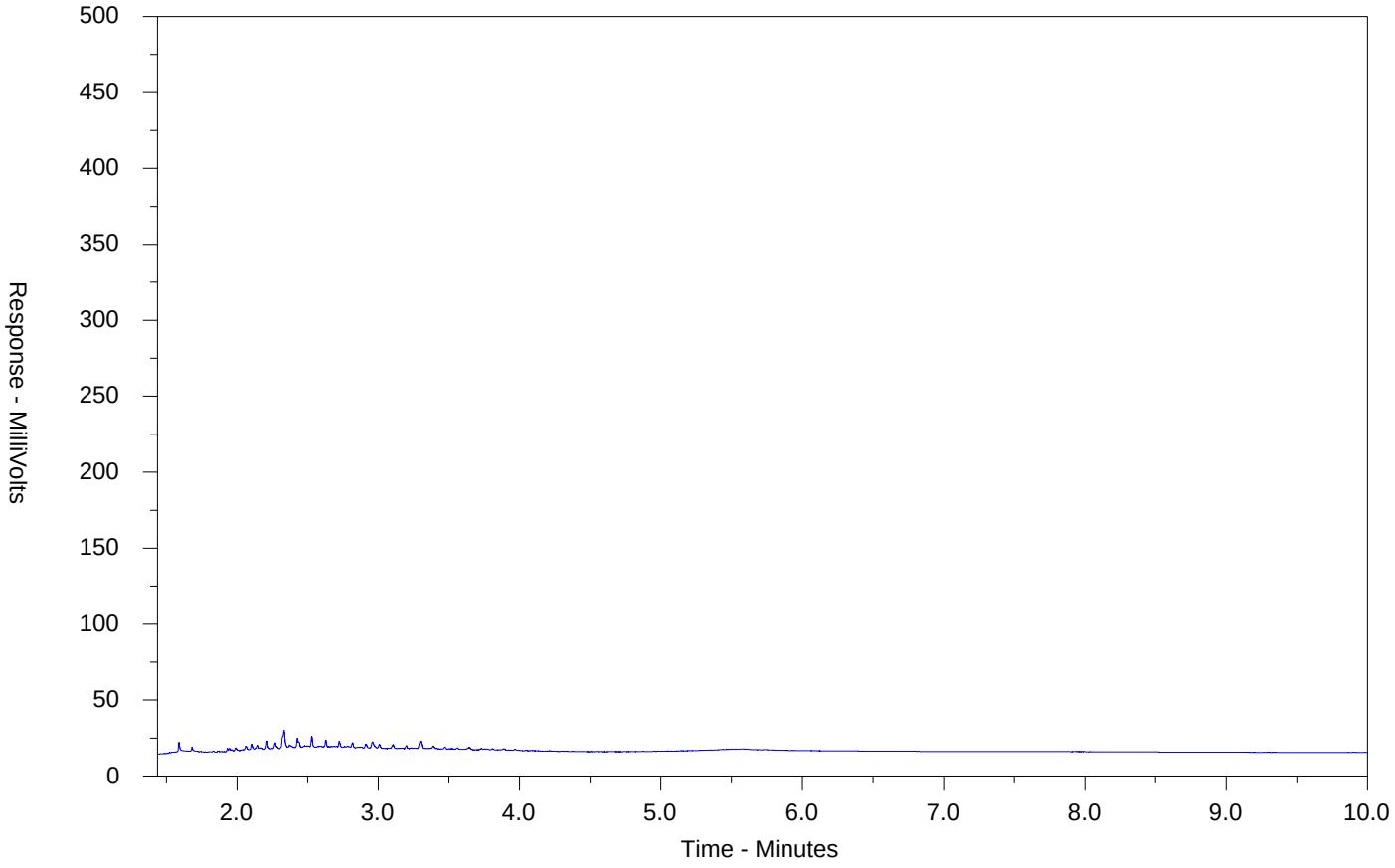
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-009-E601.SG-L
Client Sample ID: BH102-SS7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

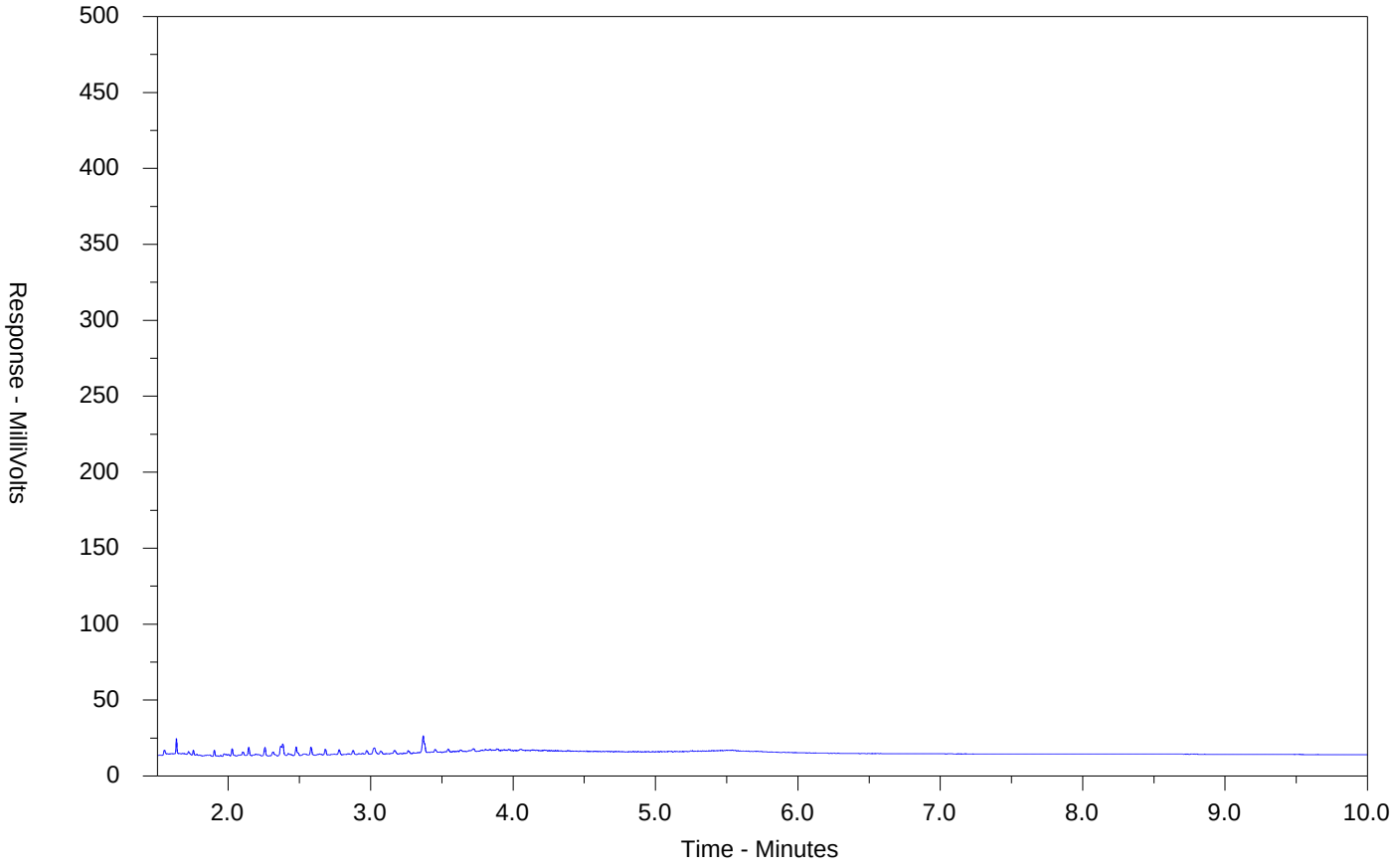
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-013-E601.SG-L
Client Sample ID: BH103-SS3A



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

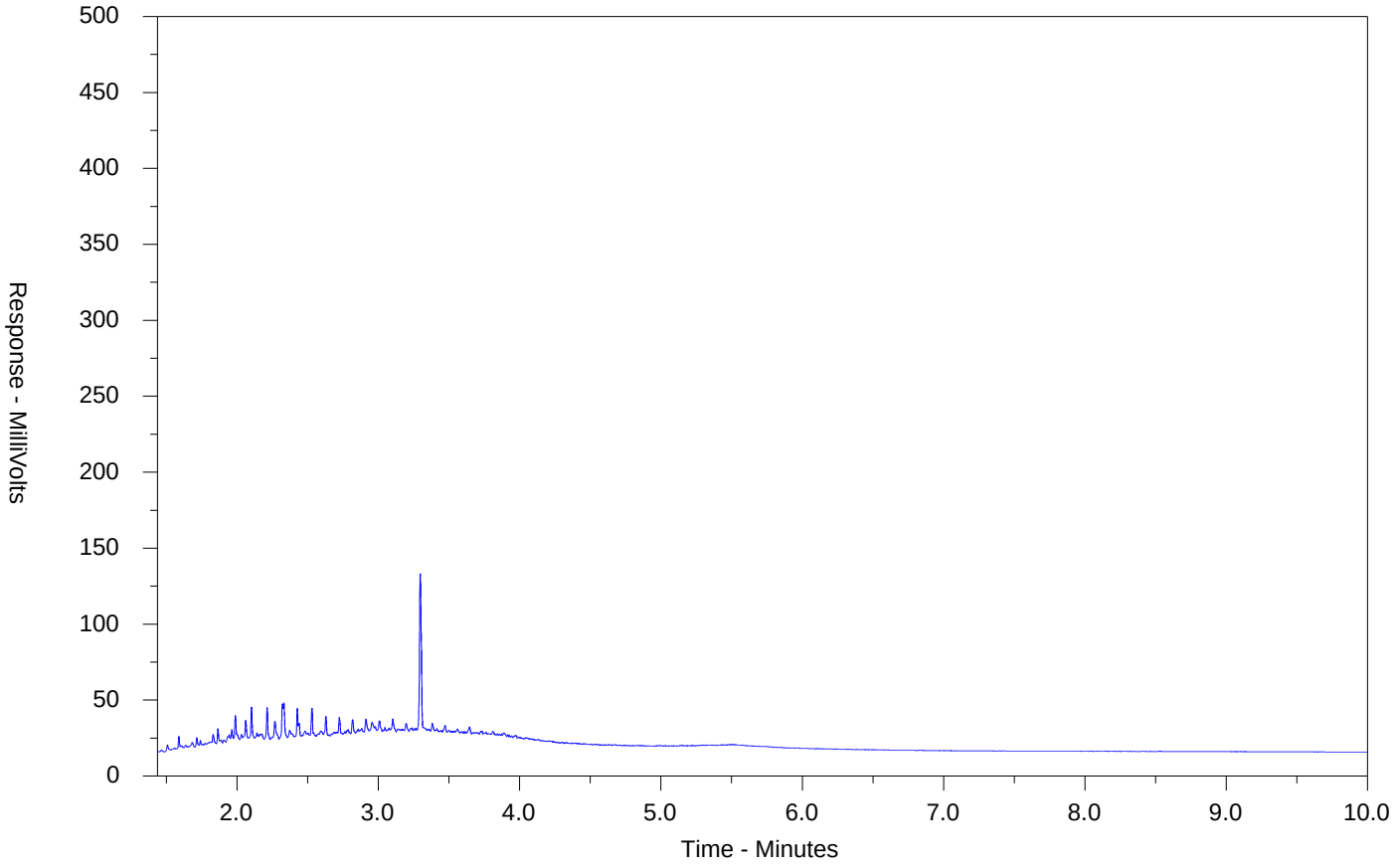
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-015-E601.SG-L
Client Sample ID: BH103-SS8



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

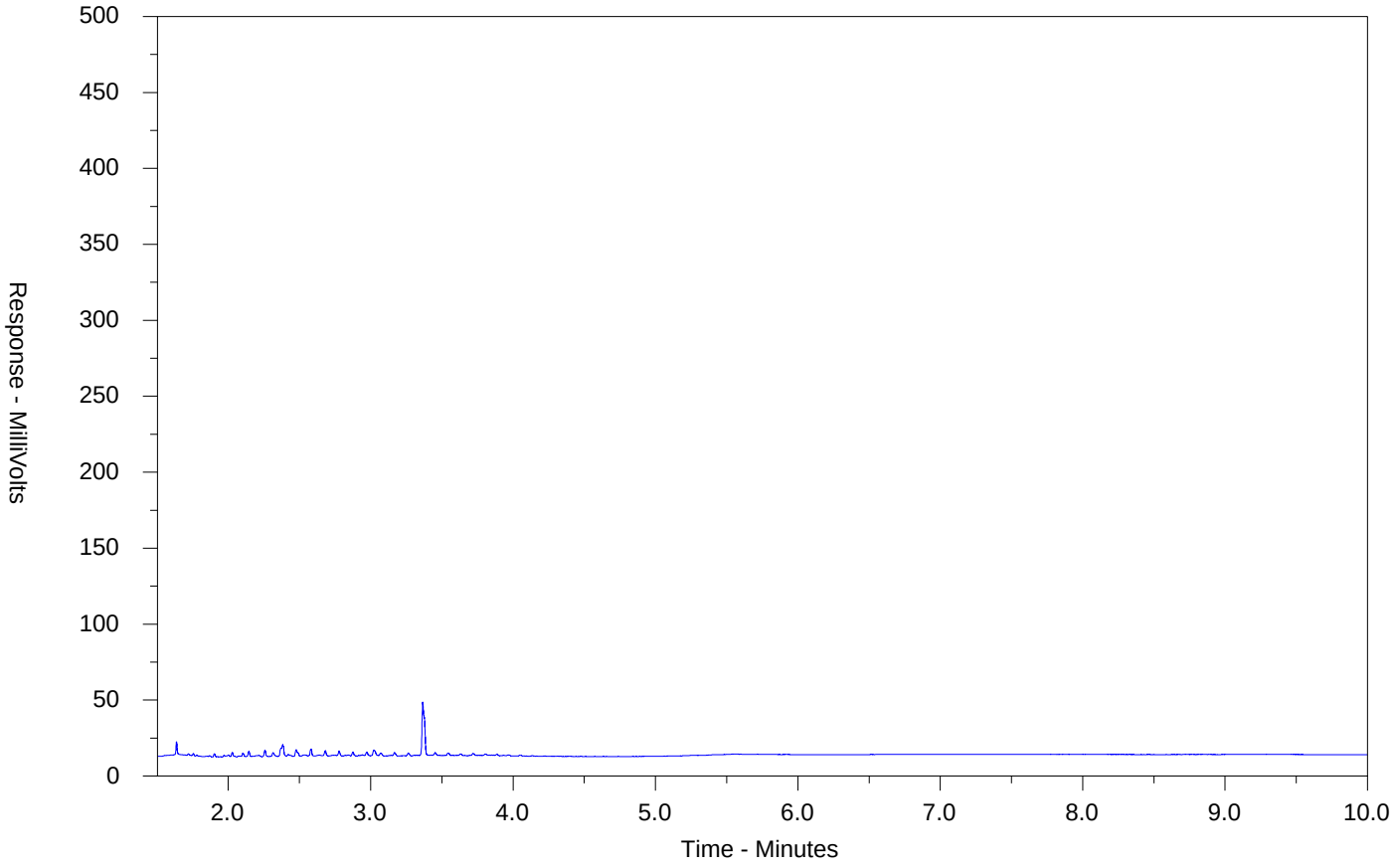
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-019-E601.SG-L
Client Sample ID: BH104-SS2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

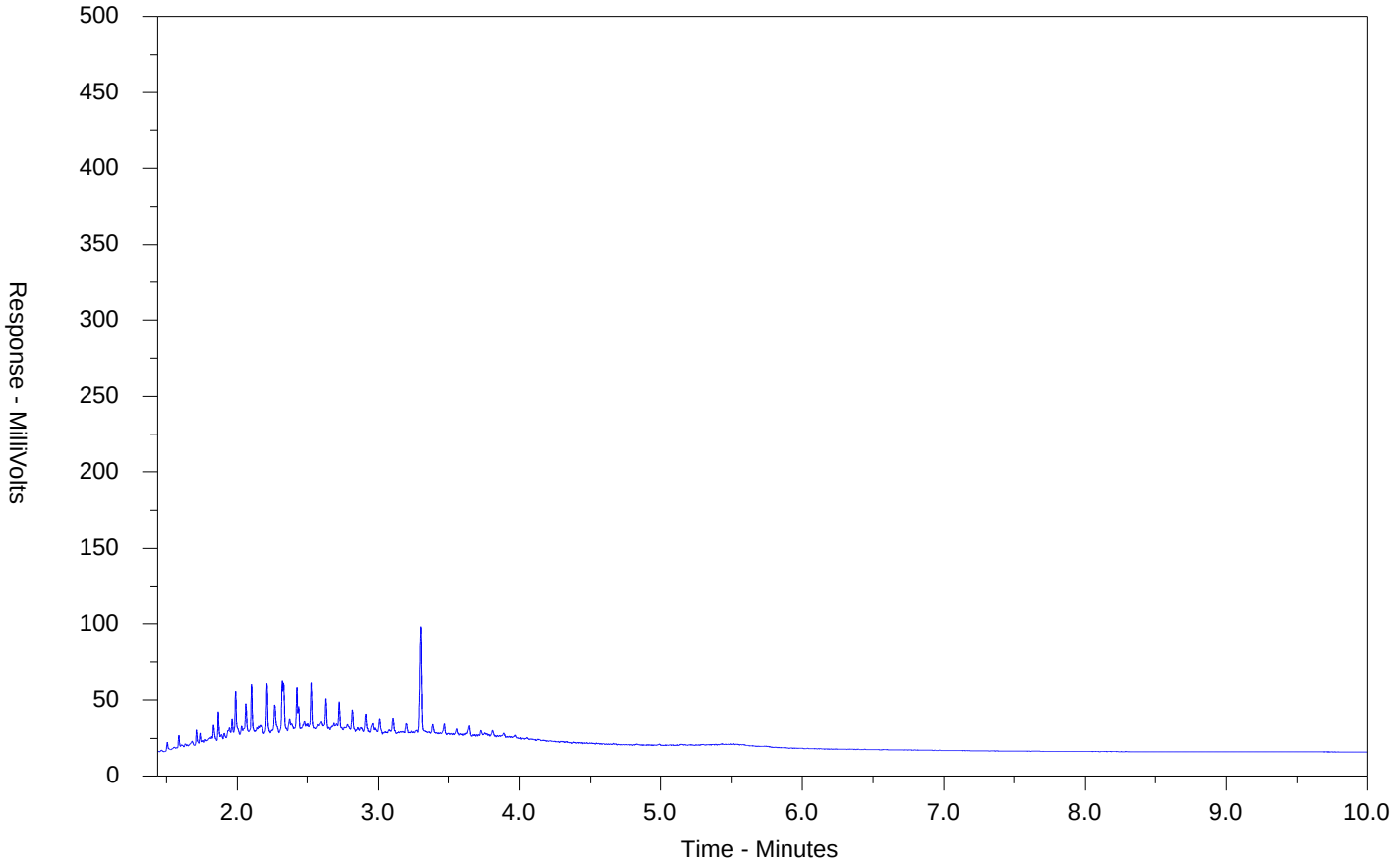
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-022-E601.SG-L
Client Sample ID: BH104-SS7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

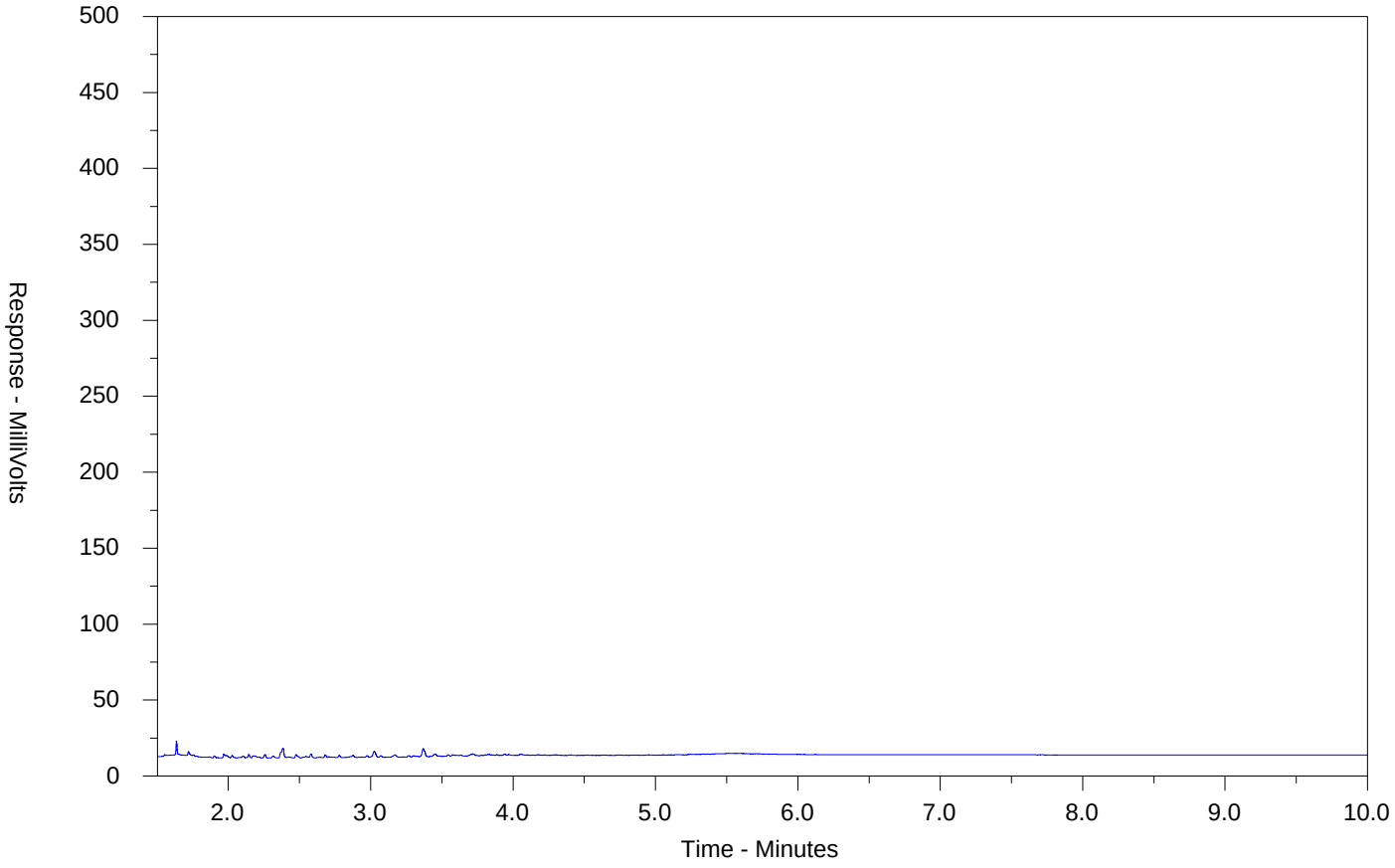
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-025-E601.SG-L
Client Sample ID: BH105-SS2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

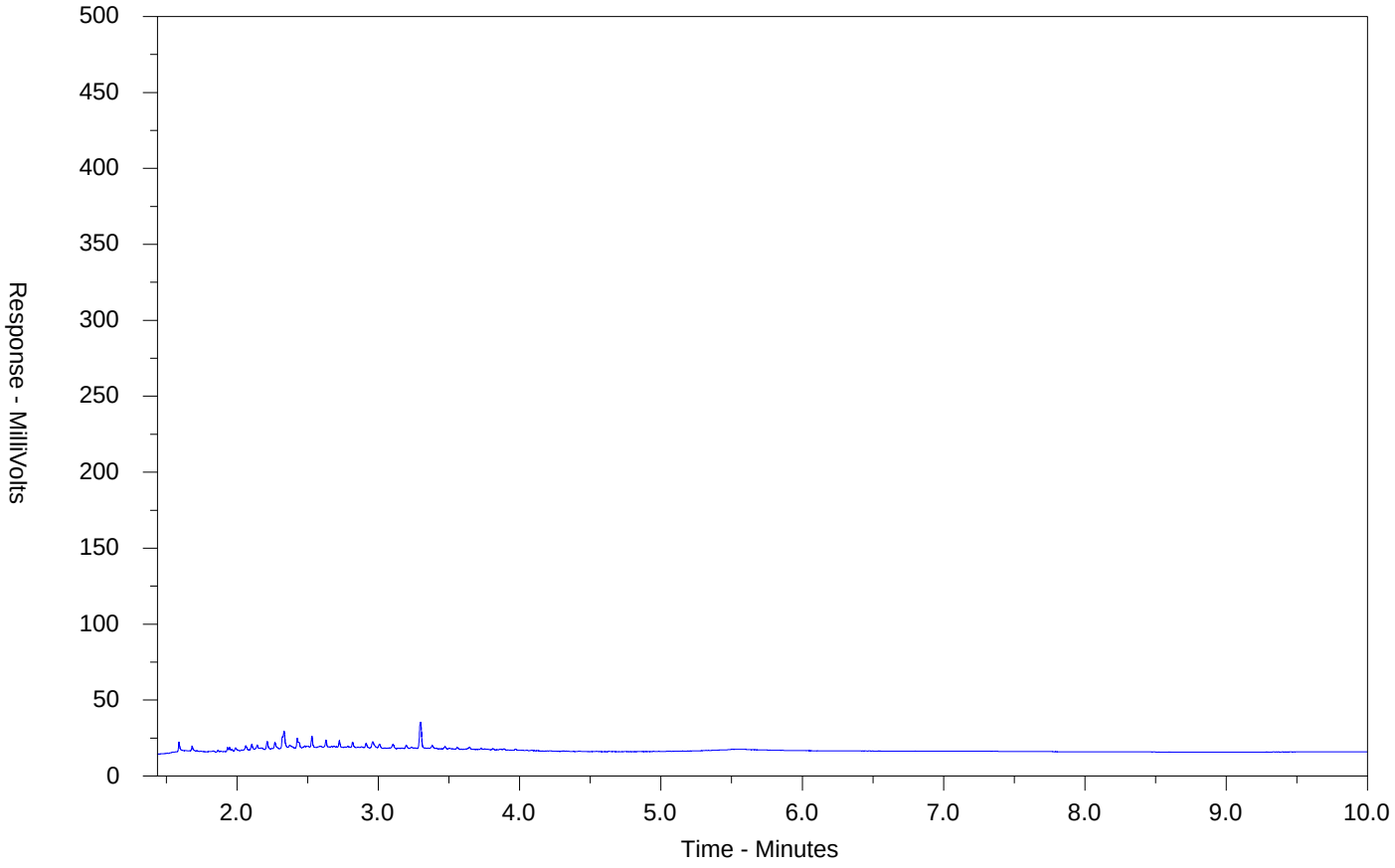
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-027-E601.SG-L
Client Sample ID: BH105-SS7(A)



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

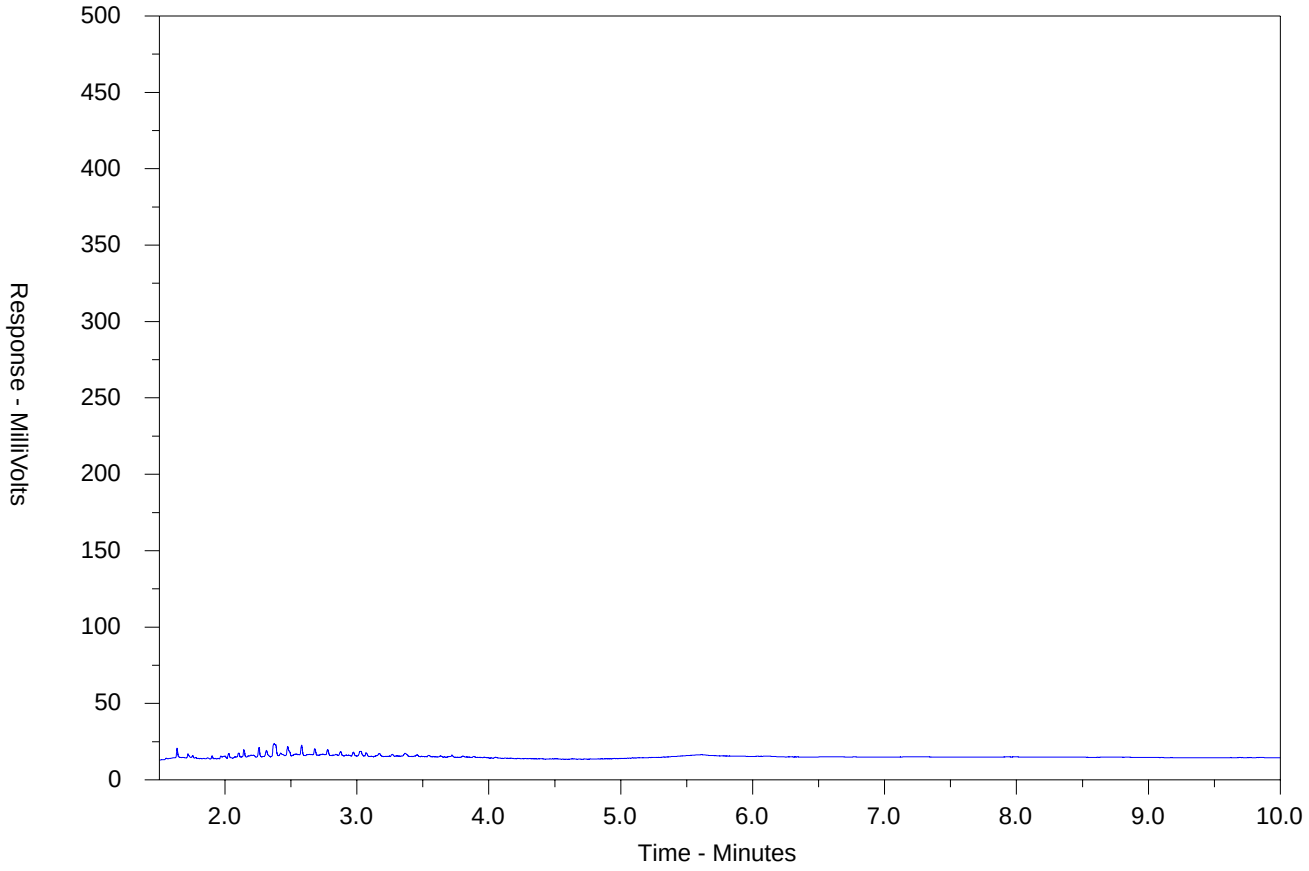
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2333397-031-E601.SG-L
Client Sample ID: DUP-2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

SC 0114/15
US11

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047506

Canada Toll Free: 1 800 668 9878

Page 1 of 2

www.alsglobal.com

Environmental Division
Waterloo
Work Order Reference
WT2333397

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Deeana Reynolds
Phone:	647-370-3491
Company address below will appear on the final report	
Street:	1 Bagigga Dr
City/Province:	Toronto / ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: dreynolds@groundedeng.ca
Email 2: mgarcia@groundedeng.ca
Email 3:

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: accounting@groundedeng.ca
Email 2: cjaques@groundedeng.ca

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additio may apply to rush requests on weekends, statutory holidays and non-rout
Date and Time Required for all E&P TATs:
For all tests with rush TATs requested, please cc

Project Information

ALS Account # / Quote #:
Job #: 23-197-101
PO / AFE:
LSD: 705 Kingston Road, Pickering
ALS Lab Work Order # (ALS use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#
Major/Minor Code: | Routing Code:
Requisitioner:
Location:
ALS Contact: | Sampler: LB/FH

Analysis Re

Indicate Filtered (F), Preserved (P) or Filtered and

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&T	PAH	PHC/BTEX	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUI	SUSPECTED HAZARD (see no
	BH101-SS1(B)	11-Oct-23	3:00 pm	Soil	2	X	X					
	BH101-SS2		3:10 pm		3			X	X			
	BH101-SS4		3:30 pm		2	X	X					
	BH101-SS4		3:30 pm		3			X	X	X		
	BH101-SS7		4:00 pm		3			X	X			
	BH101-SS11	12-Oct-23	9:00 am		3			X	X	X		
	BH102-SS2A	13 OCT 23	16:55		2	X	X					
	BH102-SS5		17:00		4	X		X	X			
	BH102-SS7		17:10		3			X	X			
	BH102-SS11		17:15		3			X	X	X		
	BH102-SS4		17:20		2		X					

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O.Reg 153/04, Table 3, RPI
Coarse-Texture RSC: Yes
Use Grounded Temp.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				5.4	3.4		

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Lawrence	10/17/23	6 p.m.

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
FH	2023-10-16	18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047505

Page 2 of 3

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Dreena Reynolds
Phone:	647-370-3141
	Company address below will appear on the final report
Street:	1 Banigan Dr.
City/Province:	Toronto, ON
Postal Code:	M4H 1G3

Invoice To		
	Same as Report To	☒ YES ☐ NO
	Copy of Invoice with Report	☒ YES ☐ NO
Company:		
Contact:		

Reports / Recipients	
Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☒ YES ☐ NO ☐ N/A
☒ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	dreynolds@groundedeng.ca
Email 2	mgould@groundedeng.ca
Email 3	

Invoice Recipients	
Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	accounting@groundedeng.ca
Email 2	shaun@groundedeng.ca

Turnaround Time (TAT) Requested
☒ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests
Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information	
ALS Account # / Quote #	
Job #:	23-197-101
PO / AFE:	
LSD:	705 Kingston Rd, Pickering
ALS Lab Work Order # (ALS use only):	

Oil and Gas Required Fields (client use)		
AFE/Cost Center:		PO#
Major/Minor Code:		Routing Code:
Requisitioner:		
Location:		
ALS Contact:		Sampler: LB / IH

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	MAH	PAH	PHC/BTEX	PHC/BTEX VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH103 - SS2	11 OCT 23	13:55	S. I	1		X					
	BH103 - SS3A		14:00		4	X		X	X			
	BH103 - SS6		14:05		2	X	X					
	BH103 - SS8		14:10		3			X	X			
	BH103 SS3B		14:45		3			X	X	X		
	BH103 SS12		14:50		3			X	X	X		
	BH104 - SS1(B)	10-Oct-23	8:00 pm		2	X	X					
	BH104 - SS2		3:10 pm		3			X	X			
	BH104 - SS3(B)		3:30 pm		3			X	X	X		
	BH104 - SS4		3:20 pm		2	X	X					
	BH104 - SS7		3:40		3			X	X			
	BH104 - SS12		4:00pm		3			X	X	X		

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	O. Reg 153/04, Table 3, RPI Coarse Texture RSC = Yes Use Grounded Template
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.4	3.4		

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:
Laurence	10/13/23	6:00

INITIAL SHIPMENT RECEPTION (ALS use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)		
Received by:	Date:	Time:
FH	2023-10-16	18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047462

Page 3 of 3

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Crandell Engineering
Contact:	Alana Reynolds
Phone:	647-370-[illegible] 3191
	Company address below will appear on the final report
Street:	1 Barrie Dr.
City/Province:	Toronto ON
Postal Code:	M4H 1G3

Invoice To		
	Same as Report To	☒ YES ☐ NO
	Copy of Invoice with Report	☒ YES ☐ NO
Company:		
Contact:		

Project Information

ALS Account # / Quote #:	
Job #:	23-197-101
PO / AFE:	
LSD:	705 Kingston Rd, Pickering.
ALS Lab Work Order # (ALS use only):	

Reports / Recipients

Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☒ YES ☐ NO ☐ N/A
	☒ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	dreynolds@crandeleng.ca
Email 2	mgarcia@crandeleng.ca
Email 3	

Invoice Recipients

Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	accounting@crandeleng.ca
Email 2	ctenkorang@crandeleng.ca

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Contact: | **Sampler:** LB/JH

Turnaround Time (TAT) Requested

- ☑ Routine [R] if received by 3pm M-F - no surcharges apply
- ☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
- ☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
- ☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
- ☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
- ☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Analysis Request

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	PAH	PHC (SIEVE)	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH105 - SS1 (B)	13-Oct-23	2:05 PM	Soil	2	X	X				
	BH105 - SS2		3:10PM		3		X	X			
	BH105 - SS3		3:20PM		2	X	X				
	BH105 - SS7 (A)		3:30PM		3		X	X			
	BH105 - SS9		4:30PM		3		X	X	X		
	BH105 - SS11		16:55		3		X	X	X		
	DUP-1				2	X	X				
	DUP-2		17:10		3		X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O. Reg 153/04 Table 3, RPI
Coarse Texture. RSC = Yes
Please use Grounded Template.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				5.4	3.4		

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Lawrence	10/17/23	6:30

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
FH	2023-10-16	18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2336062**	Page	: 1 of 12
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 03-Nov-2023 18:30
PO	: ----	Date Analysis Commenced	: 07-Nov-2023
C-O-C number	: 20-1047638	Issue Date	: 10-Nov-2023 18:21
Sampler	: CLIENT		
Site	: ----		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 5		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
BH106SS2	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	1.21 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	16.9 -	5 -
BH106SS4	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	1.33 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	39.3 -	5 -

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Workorder Comments

RRQC: Matrix spike recovered outside ALS DQOs for Acetone. LCS results were within acceptable limits.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106SS2	BH106SS3	BH106SS4	BH106SS6	----	----	----
				Sampling date/time	02-Nov-2023 09:05	02-Nov-2023 09:10	02-Nov-2023 09:15	02-Nov-2023 09:25	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	----	----	----
					WT2336062-001	WT2336062-002	WT2336062-003	WT2336062-004	--------	--------	--------
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		1.21	----	1.33	----	----	----	----
Moisture	----	E144/WT	%		16.4	10.1	7.34	8.53	----	----	----
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.43	----	7.83	----	----	----	----
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		9.99	----	2.60	----	----	----	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		0.63	----	<0.50	----	----	----	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		204	----	230	----	----	----	----
Sodium adsorption ratio [SAR]	----	E484/WT	-		16.9	----	39.3	----	----	----	----
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	----	<0.10	----	----	----	----
Arsenic	7440-38-2	E440C/WT	mg/kg		3.41	----	2.25	----	----	----	----
Barium	7440-39-3	E440C/WT	mg/kg		79.6	----	72.7	----	----	----	----
Beryllium	7440-41-7	E440C/WT	mg/kg		0.61	----	0.31	----	----	----	----
Boron	7440-42-8	E440C/WT	mg/kg		6.6	----	7.1	----	----	----	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		0.25	----	<0.10	----	----	----	----
Cadmium	7440-43-9	E440C/WT	mg/kg		0.169	----	0.072	----	----	----	----
Chromium	7440-47-3	E440C/WT	mg/kg		23.1	----	14.9	----	----	----	----
Cobalt	7440-48-4	E440C/WT	mg/kg		7.48	----	6.67	----	----	----	----
Copper	7440-50-8	E440C/WT	mg/kg		14.5	----	11.2	----	----	----	----
Lead	7439-92-1	E440C/WT	mg/kg		8.85	----	5.81	----	----	----	----
Mercury	7439-97-6	E510C/WT	mg/kg		0.0370	----	0.0074	----	----	----	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.50	----	0.54	----	----	----	----
Nickel	7440-02-0	E440C/WT	mg/kg		17.7	----	14.2	----	----	----	----
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	----	<0.20	----	----	----	----
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	----	<0.10	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106SS2	BH106SS3	BH106SS4	BH106SS6	----	----	----
				Sampling date/time	02-Nov-2023 09:05	02-Nov-2023 09:10	02-Nov-2023 09:15	02-Nov-2023 09:25	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	----	----	----
					WT2336062-001	WT2336062-002	WT2336062-003	WT2336062-004	--------	--------	--------
Metals											
Thallium	7440-28-0	E440C/WT	mg/kg		0.136	----	0.121	----	----	----	----
Uranium	7440-61-1	E440C/WT	mg/kg		0.508	----	0.507	----	----	----	----
Vanadium	7440-62-2	E440C/WT	mg/kg		35.4	----	24.4	----	----	----	----
Zinc	7440-66-6	E440C/WT	mg/kg		43.8	----	29.2	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	----	0.11	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	<0.50	----	<0.50	----	----	----
Benzene	71-43-2	E611D/WT	mg/kg		----	<0.0050	----	<0.0050	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Bromoform	75-25-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Bromomethane	74-83-9	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Chloroform	67-66-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	<0.045	----	<0.045	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106SS2	BH106SS3	BH106SS4	BH106SS6	----	----	----
				Sampling date/time	02-Nov-2023 09:05	02-Nov-2023 09:10	02-Nov-2023 09:15	02-Nov-2023 09:25	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	----	----	----
					WT2336062-001	WT2336062-002	WT2336062-003	WT2336062-004	--------	--------	--------
Volatile Organic Compounds											
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	----	----
Ethylbenzene	100-41-4	E611D/WT	mg/kg	----	<0.015	----	<0.015	----	----	----
Hexane, n-	110-54-3	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg	----	<0.50	----	<0.50	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg	----	<0.50	----	<0.50	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg	----	<0.040	----	<0.040	----	----	----
Styrene	100-42-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Toluene	108-88-3	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg	----	<0.010	----	<0.010	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg	----	<0.020	----	<0.020	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	----	----
Xylene, o-	95-47-6	E611D/WT	mg/kg	----	<0.030	----	<0.030	----	----	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg	----	<0.050	----	<0.050	----	----	----
BTEX, total	----	E611D/WT	mg/kg	----	<0.10	----	<0.10	----	----	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg	----	<5.0	----	<5.0	----	----	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	----	<10	----	<10	----	----	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	----	<50	----	56	----	----	----
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	----	<50	----	<50	----	----	----
F1-BTEX	----	EC580/WT	mg/kg	----	<5.0	----	<5.0	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106SS2	BH106SS3	BH106SS4	BH106SS6	----	----	----
				Sampling date/time	02-Nov-2023 09:05	02-Nov-2023 09:10	02-Nov-2023 09:15	02-Nov-2023 09:25	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	----	----	----
					WT2336062-001	WT2336062-002	WT2336062-003	WT2336062-004	--------	--------	--------
Hydrocarbons											
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	mg/kg		----	<80	----	<80	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	YES	----	YES	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	87.0	----	87.0	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	82.1	----	85.4	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	88.4	----	89.1	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	95.4	----	93.5	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	----	<0.030	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	----	<0.030	----	----	----	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	----	<0.010	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106SS2	BH106SS3	BH106SS4	BH106SS6	----	----	----
				Sampling date/time	02-Nov-2023 09:05	02-Nov-2023 09:10	02-Nov-2023 09:15	02-Nov-2023 09:25	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	----	----	----
					WT2336062-001	WT2336062-002	WT2336062-003	WT2336062-004	--------	--------	--------
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		90.5	----	90.0	----	----	----	----
Chrysene-d12	1719-03-5	E641A/WT	%		81.5	----	80.5	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		90.1	----	88.1	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		88.3	----	87.8	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Physical Tests			
Conductivity (1:2 leachate)	----	mS/cm	**0.7 mS/cm**
Moisture	----	%	**--**
pH (1:2 soil:CaCl2-aq)	----	pH units	**--**
Cyanides			
Cyanide, weak acid dissociable	----	mg/kg	**0.051 mg/kg**
Fixed-Ratio Extractables			
Calcium, soluble ion content	7440-70-2	mg/L	**--**
Magnesium, soluble ion content	7439-95-4	mg/L	**--**
Sodium adsorption ratio [SAR]	----	-	**5 -**
Sodium, soluble ion content	17341-25-2	mg/L	**--**
Metals			
Antimony	7440-36-0	mg/kg	**7.5 mg/kg**
Arsenic	7440-38-2	mg/kg	**18 mg/kg**
Barium	7440-39-3	mg/kg	**390 mg/kg**
Beryllium	7440-41-7	mg/kg	**4 mg/kg**
Boron, hot water soluble	7440-42-8	mg/kg	**1.5 mg/kg**
Boron	7440-42-8	mg/kg	**120 mg/kg**
Cadmium	7440-43-9	mg/kg	**1.2 mg/kg**
Chromium	7440-47-3	mg/kg	**160 mg/kg**
Cobalt	7440-48-4	mg/kg	**22 mg/kg**
Copper	7440-50-8	mg/kg	**140 mg/kg**
Lead	7439-92-1	mg/kg	**120 mg/kg**
Mercury	7439-97-6	mg/kg	**0.27 mg/kg**
Molybdenum	7439-98-7	mg/kg	**6.9 mg/kg**
Nickel	7440-02-0	mg/kg	**100 mg/kg**
Selenium	7782-49-2	mg/kg	**2.4 mg/kg**
Silver	7440-22-4	mg/kg	**20 mg/kg**
Thallium	7440-28-0	mg/kg	**1 mg/kg**
Uranium	7440-61-1	mg/kg	**23 mg/kg**
Vanadium	7440-62-2	mg/kg	**86 mg/kg**
Zinc	7440-66-6	mg/kg	**340 mg/kg**
Speciated Metals			
Chromium, hexavalent [Cr VI]	18540-29-9	mg/kg	**8 mg/kg**
Volatile Organic Compounds			
Acetone	67-64-1	mg/kg	**16 mg/kg**
Benzene	71-43-2	mg/kg	**0.21 mg/kg**
Bromodichloromethane	75-27-4	mg/kg	**13 mg/kg**

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Bromoform	75-25-2	mg/kg	**0.27 mg/kg**
Bromomethane	74-83-9	mg/kg	**0.05 mg/kg**
BTEX, total	----	mg/kg	--
Carbon tetrachloride	56-23-5	mg/kg	**0.05 mg/kg**
Chlorobenzene	108-90-7	mg/kg	**2.4 mg/kg**
Chloroform	67-66-3	mg/kg	**0.05 mg/kg**
Dibromochloromethane	124-48-1	mg/kg	**9.4 mg/kg**
Dibromoethane, 1,2-	106-93-4	mg/kg	**0.05 mg/kg**
Dichlorobenzene, 1,2-	95-50-1	mg/kg	**3.4 mg/kg**
Dichlorobenzene, 1,3-	541-73-1	mg/kg	**4.8 mg/kg**
Dichlorobenzene, 1,4-	106-46-7	mg/kg	**0.083 mg/kg**
Dichlorodifluoromethane	75-71-8	mg/kg	**16 mg/kg**
Dichloroethane, 1,1-	75-34-3	mg/kg	**3.5 mg/kg**
Dichloroethane, 1,2-	107-06-2	mg/kg	**0.05 mg/kg**
Dichloroethylene, 1,1-	75-35-4	mg/kg	**0.05 mg/kg**
Dichloroethylene, cis-1,2-	156-59-2	mg/kg	**3.4 mg/kg**
Dichloroethylene, trans-1,2-	156-60-5	mg/kg	**0.084 mg/kg**
Dichloromethane	75-09-2	mg/kg	**0.1 mg/kg**
Dichloropropane, 1,2-	78-87-5	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis+trans-1,3-	542-75-6	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis-1,3-	10061-01-5	mg/kg	--
Dichloropropylene, trans-1,3-	10061-02-6	mg/kg	--
Ethylbenzene	100-41-4	mg/kg	**2 mg/kg**
Hexane, n-	110-54-3	mg/kg	**2.8 mg/kg**
Methyl ethyl ketone [MEK]	78-93-3	mg/kg	**16 mg/kg**
Methyl isobutyl ketone [MIBK]	108-10-1	mg/kg	**1.7 mg/kg**
Methyl-tert-butyl ether [MTBE]	1634-04-4	mg/kg	**0.75 mg/kg**
Styrene	100-42-5	mg/kg	**0.7 mg/kg**
Tetrachloroethane, 1,1,1,2-	630-20-6	mg/kg	**0.058 mg/kg**
Tetrachloroethane, 1,1,2,2-	79-34-5	mg/kg	**0.05 mg/kg**
Tetrachloroethylene	127-18-4	mg/kg	**0.28 mg/kg**
Toluene	108-88-3	mg/kg	**2.3 mg/kg**
Trichloroethane, 1,1,1-	71-55-6	mg/kg	**0.38 mg/kg**
Trichloroethane, 1,1,2-	79-00-5	mg/kg	**0.05 mg/kg**
Trichloroethylene	79-01-6	mg/kg	**0.061 mg/kg**
Trichlorofluoromethane	75-69-4	mg/kg	**4 mg/kg**
Vinyl chloride	75-01-4	mg/kg	**0.02 mg/kg**
Xylene, m+p-	179601-23-1	mg/kg	--
Xylene, o-	95-47-6	mg/kg	--

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Xylenes, total	1330-20-7	mg/kg	**3.1 mg/kg**
Hydrocarbons			
Chromatogram to baseline at nC50	n/a	-	**--**
F1 (C6-C10)	----	mg/kg	**55 mg/kg**
F1-BTEX	----	mg/kg	**55 mg/kg**
F2 (C10-C16)	----	mg/kg	**98 mg/kg**
F3 (C16-C34)	----	mg/kg	**300 mg/kg**
F4 (C34-C50)	----	mg/kg	**2800 mg/kg**
Hydrocarbons, total (C6-C50)	n/a	mg/kg	**--**
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%	
Dichlorotoluene, 3,4-	95-75-0	%	
Bromofluorobenzene, 4-	460-00-4	%	
Difluorobenzene, 1,4-	540-36-3	%	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	83-32-9	mg/kg	**7.9 mg/kg**
Acenaphthylene	208-96-8	mg/kg	**0.15 mg/kg**
Anthracene	120-12-7	mg/kg	**0.67 mg/kg**
Benz(a)anthracene	56-55-3	mg/kg	**0.5 mg/kg**
Benzo(a)pyrene	50-32-8	mg/kg	**0.3 mg/kg**
Benzo(b+j)fluoranthene	n/a	mg/kg	**0.78 mg/kg**
Benzo(g,h,i)perylene	191-24-2	mg/kg	**6.6 mg/kg**
Benzo(k)fluoranthene	207-08-9	mg/kg	**0.78 mg/kg**
Chrysene	218-01-9	mg/kg	**7 mg/kg**
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.1 mg/kg**
Fluoranthene	206-44-0	mg/kg	**0.69 mg/kg**
Fluorene	86-73-7	mg/kg	**62 mg/kg**
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	**0.38 mg/kg**
Methylnaphthalene, 1+2-	----	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 1-	90-12-0	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 2-	91-57-6	mg/kg	**0.99 mg/kg**
Naphthalene	91-20-3	mg/kg	**0.6 mg/kg**
Phenanthrene	85-01-8	mg/kg	**6.2 mg/kg**
Pyrene	129-00-0	mg/kg	**78 mg/kg**
Acridine-d9	34749-75-2	%	
Chrysene-d12	1719-03-5	%	
Naphthalene-d8	1146-65-2	%	
Phenanthrene-d10	1517-22-2	%	

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04		Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
	T3-RPI-C	153 T3-Soil-Res/Park/Inst. Property Use (Coarse)

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2336062**	Page	: 1 of 12
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 03-Nov-2023 18:30
PO	: ----	Issue Date	: 10-Nov-2023 18:25
C-O-C number	: 20-1047638		
Sampler	: CLIENT		
Site	: ----		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 5		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Volatile Organic Compounds	QC-1229189-002	----	Dichlorodifluoromethane	75-71-8	E611D	48.0 % MES	50.0-140%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Recoveries								
Volatile Organic Compounds	Anonymous	Anonymous	Acetone	67-64-1	E611D	169 % RRQC	50.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
RRQC	*Refer to report comments for information regarding this QC result.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E336A	02-Nov-2023	07-Nov-2023	14 days	5 days	✓	08-Nov-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E336A	02-Nov-2023	07-Nov-2023	14 days	5 days	✓	08-Nov-2023	14 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH106SS3	E581.F1	02-Nov-2023	08-Nov-2023	14 days	6 days	✓	08-Nov-2023	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH106SS6	E581.F1	02-Nov-2023	08-Nov-2023	14 days	6 days	✓	08-Nov-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS3	E601.SG-L	02-Nov-2023	07-Nov-2023	14 days	6 days	✓	09-Nov-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS6	E601.SG-L	02-Nov-2023	07-Nov-2023	14 days	6 days	✓	09-Nov-2023	40 days	2 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E487	02-Nov-2023	08-Nov-2023	180 days	6 days	✓	08-Nov-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E487	02-Nov-2023	08-Nov-2023	180 days	6 days	✓	08-Nov-2023	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E510C	02-Nov-2023	08-Nov-2023	28 days	6 days	✓	08-Nov-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E510C	02-Nov-2023	08-Nov-2023	28 days	6 days	✓	08-Nov-2023	28 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E440C	02-Nov-2023	08-Nov-2023	180 days	6 days	✓	08-Nov-2023	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E440C	02-Nov-2023	08-Nov-2023	180 days	6 days	✓	08-Nov-2023	180 days	6 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E484	02-Nov-2023	08-Nov-2023	180 days	6 days	✓	08-Nov-2023	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E484	02-Nov-2023	08-Nov-2023	180 days	6 days	✓	08-Nov-2023	180 days	0 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E100-L	02-Nov-2023	08-Nov-2023	30 days	6 days	✓	09-Nov-2023	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E100-L	02-Nov-2023	08-Nov-2023	30 days	6 days	✓	09-Nov-2023	30 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E144	02-Nov-2023	----	----	----		07-Nov-2023	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS3	E144	02-Nov-2023	----	----	----		07-Nov-2023	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E144	02-Nov-2023	----	----	----		07-Nov-2023	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS6	E144	02-Nov-2023	----	----	----		07-Nov-2023	----	5 days	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E108A	02-Nov-2023	08-Nov-2023	30 days	6 days	✓	10-Nov-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E108A	02-Nov-2023	08-Nov-2023	30 days	6 days	✓	10-Nov-2023	30 days	8 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E641A	02-Nov-2023	08-Nov-2023	60 days	6 days	✓	09-Nov-2023	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E641A	02-Nov-2023	08-Nov-2023	60 days	6 days	✓	09-Nov-2023	40 days	2 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS2	E532	02-Nov-2023	07-Nov-2023	30 days	5 days	✓	08-Nov-2023	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH106SS4	E532	02-Nov-2023	07-Nov-2023	30 days	5 days	✓	08-Nov-2023	7 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH106SS3	E611D	02-Nov-2023	08-Nov-2023	14 days	6 days	✓	08-Nov-2023	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH106SS6	E611D	02-Nov-2023	08-Nov-2023	14 days	6 days	✓	08-Nov-2023	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1224604	1	7	14.2	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1229188	1	16	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1226471	1	15	6.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1224598	1	20	5.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1225976	1	17	5.8	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1224605	1	7	14.2	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1224606	1	7	14.2	5.0	✓
Moisture Content by Gravimetry	E144	1225822	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1227603	1	18	5.5	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1227951	1	19	5.2	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1224599	1	10	10.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1229189	1	18	5.5	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1225957	1	16	6.2	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1224604	2	7	28.5	10.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1229188	1	16	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1226471	1	15	6.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1224598	2	20	10.0	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1225976	2	17	11.7	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1224605	2	7	28.5	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1224606	2	7	28.5	10.0	✓
Moisture Content by Gravimetry	E144	1225822	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1227603	1	18	5.5	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1227951	1	19	5.2	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1224599	2	10	20.0	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1229189	1	18	5.5	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1225957	1	16	6.2	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1224604	1	7	14.2	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1229188	1	16	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1226471	1	15	6.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1224598	1	20	5.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1225976	1	17	5.8	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1224605	1	7	14.2	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1224606	1	7	14.2	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Moisture Content by Gravimetry	E144	1225822	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1227603	1	18	5.5	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1224599	1	10	10.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1229189	1	18	5.5	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1225957	1	16	6.2	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID	E581.F1	1229188	1	16	6.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1226471	1	15	6.6	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1227603	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1229189	1	18	5.5	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1225957	1	16	6.2	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3530	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL REPORT

Work Order	: **WT2336062**	Page	: 1 of 19
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 03-Nov-2023 18:30
PO	: ----	Date Analysis Commenced	: 07-Nov-2023
C-O-C number	: 20-1047638	Issue Date	: 10-Nov-2023 18:20
Sampler	: CLIENT 647 370 3191		
Site	: ----		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 5		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1224598)											
WT2336062-003	BH106SS4	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	1.33 mS/cm	1340	0.300%	20%	----
Physical Tests (QC Lot: 1225822)											
WT2336062-001	BH106SS2	Moisture	----	E144	0.25	%	16.4	16.4	0.00%	20%	----
Physical Tests (QC Lot: 1227951)											
WT2336062-001	BH106SS2	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.43	7.60	2.26%	5%	----
Cyanides (QC Lot: 1225957)											
WT2335982-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	0.942	mg/kg	<0.935	<0.942	0.007	Diff <2x LOR	----
Metals (QC Lot: 1224599)											
WT2336062-003	BH106SS4	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	2.60	2.70	0.10	Diff <2x LOR	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	230	235	2.15%	30%	----
Metals (QC Lot: 1224604)											
WT2336062-001	BH106SS2	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.25	0.26	0.01	Diff <2x LOR	----
Metals (QC Lot: 1224605)											
WT2336062-001	BH106SS2	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0370	0.0369	0.198%	40%	----
Metals (QC Lot: 1224606)											
WT2336062-001	BH106SS2	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	3.41	3.20	6.45%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	79.6	77.0	3.30%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.61	0.61	0.003	Diff <2x LOR	----
		Boron	7440-42-8	E440C	5.0	mg/kg	6.6	5.8	0.8	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.169	0.170	0.972%	30%	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	23.1	21.6	6.29%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	7.48	7.14	4.73%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	14.5	13.9	4.19%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	8.85	9.20	3.85%	40%	----
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.50	0.47	0.03	Diff <2x LOR	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	17.7	17.0	4.34%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1224606) - continued											
WT2336062-001	BH106SS2	Thallium	7440-28-0	E440C	0.050	mg/kg	0.136	0.150	0.014	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.508	0.523	2.98%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	35.4	32.6	8.07%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	43.8	41.9	4.34%	30%	----
Speciated Metals (QC Lot: 1225976)											
VA23C4028-010	Anonymous	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1229189)											
WT2336550-004	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1229189) - continued											
WT2336550-004	Anonymous	Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1226471)											
WT2336088-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1229188)											
WT2336550-004	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1227603)											
WT2336059-001	Anonymous	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	0.060	0.010	Diff <2x LOR	J
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	0.055	0.005	Diff <2x LOR	J
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	0.062	0.085	0.023	Diff <2x LOR	J
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	0.067	0.017	Diff <2x LOR	J
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	0.079	0.132	0.053	Diff <2x LOR	J
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1227603) - continued											
WT2336059-001	Anonymous	Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	0.101	0.149	0.048	Diff <2x LOR	J

Qualifiers

Qualifier	*Description*
J	*Duplicate results and limits are expressed in terms of absolute difference.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1224598)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1225822)						
Moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 1225957)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1224599)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1224604)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1224605)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1224606)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Speciated Metals (QCLot: 1225976)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1229189)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1229189) - continued						
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1226471)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1229188)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1227603)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1224598)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	97.2	90.0	110	----
Physical Tests (QCLot: 1225822)									
Moisture	----	E144	0.25	%	50 %	100.0	90.0	110	----
Physical Tests (QCLot: 1227951)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	100	98.0	102	----
Cyanides (QCLot: 1225957)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	84.4	80.0	120	----
Metals (QCLot: 1224599)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	102	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	98.8	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	100	80.0	120	----
Metals (QCLot: 1224604)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	105	70.0	130	----
Metals (QCLot: 1224605)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	102	80.0	120	----
Metals (QCLot: 1224606)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	106	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	97.2	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	95.2	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	94.8	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	97.4	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	95.5	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	93.0	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	101	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	101	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	96.1	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	94.6	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	92.8	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	98.4	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1224606) - continued									
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	87.4	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	101	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	95.7	80.0	120	----
Speciated Metals (QCLot: 1225976)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	100	80.0	120	----
Volatile Organic Compounds (QCLot: 1229189)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	128	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	96.4	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	101	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	91.0	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	97.9	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	97.1	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	99.8	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	104	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	96.9	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	95.3	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	96.4	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	# 48.0	50.0	140	MES
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	82.4	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	109	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	88.9	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	98.6	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	96.4	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	103	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	100	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	114	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	104	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	92.9	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	72.0	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	106	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	111	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	99.4	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1229189) - continued									
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	95.1	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	101	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	111	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	86.4	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	91.2	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	91.2	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	104	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	91.3	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	79.8	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	80.4	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	93.6	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	93.1	70.0	130	----
Hydrocarbons (QCLot: 1226471)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	95.7	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	95.7	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	90.4	70.0	130	----
Hydrocarbons (QCLot: 1229188)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	97.2	80.0	120	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1227603)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	88.6	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	90.0	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	88.0	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	91.4	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	87.8	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	93.4	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	93.1	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	94.6	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	77.8	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	79.4	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	91.2	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	91.5	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	95.0	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	82.1	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	90.1	60.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1227603) - continued									
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	83.9	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	88.3	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	89.1	60.0	130	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1225957)										
WT2335982-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	11.6 mg/kg	12.5 mg/kg	93.7	70.0	130	----
Volatile Organic Compounds (QCLot: 1229189)										
WT2336550-004	Anonymous	Acetone	67-64-1	E611D	5.39 mg/kg	3.125 mg/kg	169	50.0	140	RRQC
		Benzene	71-43-2	E611D	3.40 mg/kg	3.125 mg/kg	107	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	3.67 mg/kg	3.125 mg/kg	115	50.0	140	----
		Bromoform	75-25-2	E611D	3.62 mg/kg	3.125 mg/kg	114	50.0	140	----
		Bromomethane	74-83-9	E611D	3.51 mg/kg	3.125 mg/kg	110	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	3.34 mg/kg	3.125 mg/kg	105	50.0	140	----
		Chlorobenzene	108-90-7	E611D	3.32 mg/kg	3.125 mg/kg	104	50.0	140	----
		Chloroform	67-66-3	E611D	3.55 mg/kg	3.125 mg/kg	112	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	3.71 mg/kg	3.125 mg/kg	117	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	3.80 mg/kg	3.125 mg/kg	119	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	3.23 mg/kg	3.125 mg/kg	102	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	3.13 mg/kg	3.125 mg/kg	98.4	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	3.17 mg/kg	3.125 mg/kg	99.6	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	2.65 mg/kg	3.125 mg/kg	83.2	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	3.28 mg/kg	3.125 mg/kg	103	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	4.12 mg/kg	3.125 mg/kg	130	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	3.20 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	3.54 mg/kg	3.125 mg/kg	111	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	3.41 mg/kg	3.125 mg/kg	107	50.0	140	----
		Dichloromethane	75-09-2	E611D	3.85 mg/kg	3.125 mg/kg	121	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	3.63 mg/kg	3.125 mg/kg	114	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	3.99 mg/kg	3.125 mg/kg	125	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	3.58 mg/kg	3.125 mg/kg	113	50.0	140	----
		Ethylbenzene	100-41-4	E611D	3.07 mg/kg	3.125 mg/kg	96.6	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.75 mg/kg	3.125 mg/kg	86.5	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	4.25 mg/kg	3.125 mg/kg	134	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	4.22 mg/kg	3.125 mg/kg	133	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	3.26 mg/kg	3.125 mg/kg	102	50.0	140	----
		Styrene	100-42-5	E611D	3.22 mg/kg	3.125 mg/kg	101	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1229189) - continued										
WT2336550-004	Anonymous	Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	3.47 mg/kg	3.125 mg/kg	109	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	3.94 mg/kg	3.125 mg/kg	124	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	2.84 mg/kg	3.125 mg/kg	89.5	50.0	140	----
		Toluene	108-88-3	E611D	3.06 mg/kg	3.125 mg/kg	96.2	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	3.13 mg/kg	3.125 mg/kg	98.6	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	3.82 mg/kg	3.125 mg/kg	120	50.0	140	----
		Trichloroethylene	79-01-6	E611D	3.16 mg/kg	3.125 mg/kg	99.3	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.96 mg/kg	3.125 mg/kg	93.1	50.0	140	----
		Vinyl chloride	75-01-4	E611D	3.25 mg/kg	3.125 mg/kg	102	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	6.24 mg/kg	6.25 mg/kg	98.1	50.0	140	----
		Xylene, o-	95-47-6	E611D	3.13 mg/kg	3.125 mg/kg	98.5	50.0	140	----
Hydrocarbons (QCLot: 1226471)										
WT2336088-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	518 mg/kg	656.4125 mg/kg	99.8	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1040 mg/kg	1332.613 mg/kg	98.9	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	569 mg/kg	761.4625 mg/kg	94.4	60.0	140	----
Hydrocarbons (QCLot: 1229188)										
WT2336550-004	Anonymous	F1 (C6-C10)	----	E581.F1	56.5 mg/kg	62.5 mg/kg	88.8	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1227603)										
WT2336059-001	Anonymous	Acenaphthene	83-32-9	E641A	0.367 mg/kg	0.5 mg/kg	92.4	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.372 mg/kg	0.5 mg/kg	93.5	50.0	140	----
		Anthracene	120-12-7	E641A	0.371 mg/kg	0.5 mg/kg	93.2	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.399 mg/kg	0.5 mg/kg	100	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.383 mg/kg	0.5 mg/kg	96.5	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.420 mg/kg	0.5 mg/kg	106	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.409 mg/kg	0.5 mg/kg	103	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.397 mg/kg	0.5 mg/kg	100	50.0	140	----
		Chrysene	218-01-9	E641A	0.341 mg/kg	0.5 mg/kg	85.8	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.328 mg/kg	0.5 mg/kg	82.6	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.421 mg/kg	0.5 mg/kg	106	50.0	140	----
		Fluorene	86-73-7	E641A	0.378 mg/kg	0.5 mg/kg	95.1	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.417 mg/kg	0.5 mg/kg	105	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.347 mg/kg	0.5 mg/kg	87.2	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.384 mg/kg	0.5 mg/kg	96.5	50.0	140	----
		Naphthalene	91-20-3	E641A	0.368 mg/kg	0.5 mg/kg	92.6	50.0	140	----

Sub-Matrix: **Soil/Solid**

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: Spike Target	Matrix Spike (MS) Report: Recovery (%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1227603) - continued										
WT2336059-001	Anonymous	Phenanthrene	85-01-8	E641A	0.377 mg/kg	0.5 mg/kg	94.9	50.0	140	----
		Pyrene	129-00-0	E641A	0.413 mg/kg	0.5 mg/kg	104	50.0	140	----

Qualifiers

Qualifier	Description
RRQC	*Refer to report comments for information regarding this QC result.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

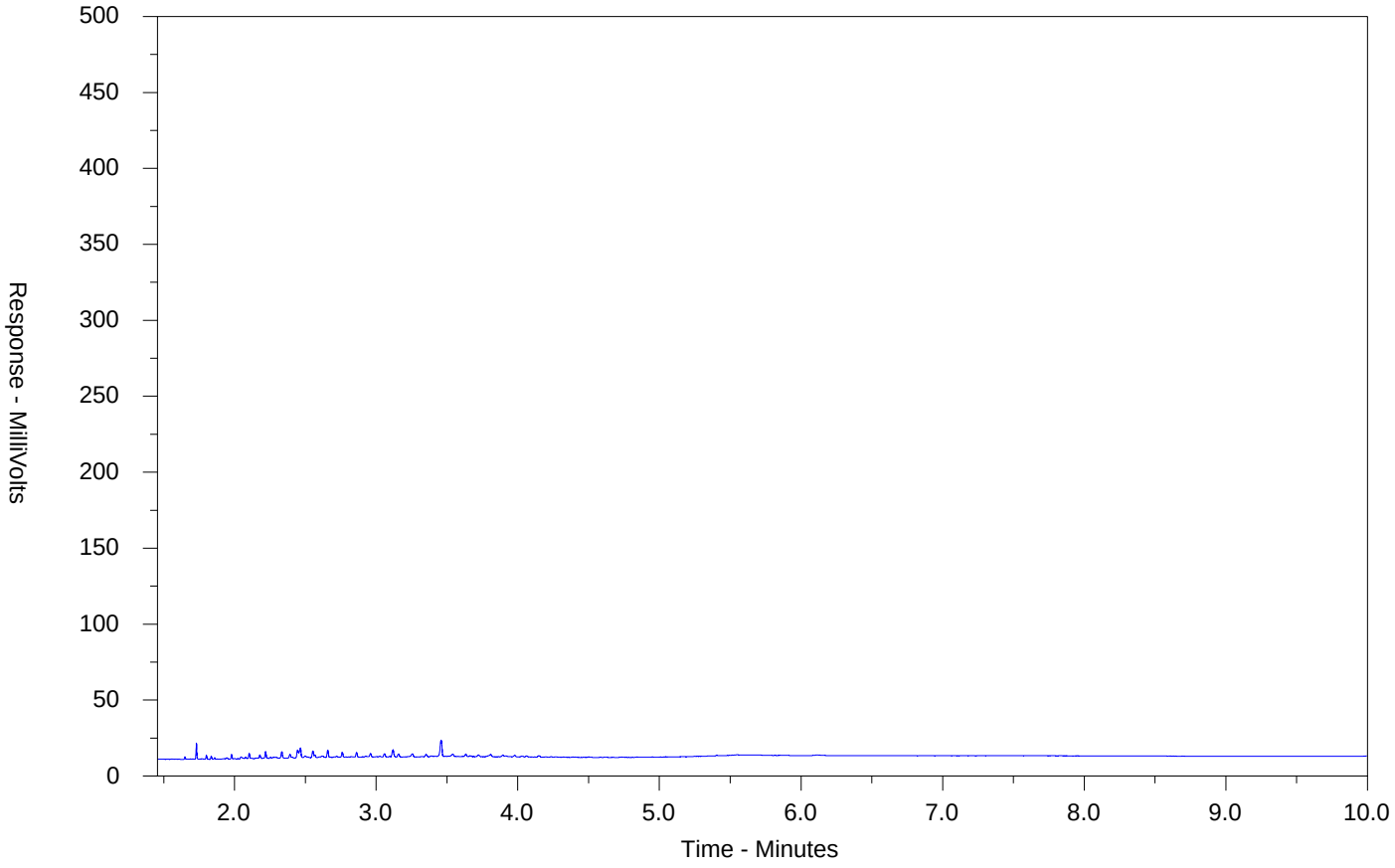
					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1224598)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1970.3 µS/cm	109	70.0	130	----
Metals (QCLot: 1224599)									
	RM	Calcium, soluble ion content	7440-70-2	E484	79.7 mg/L	102	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	24.87 mg/L	101	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	89.79 mg/L	104	70.0	130	----
Metals (QCLot: 1224604)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.9944 mg/kg	92.8	60.0	140	----
Metals (QCLot: 1224605)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	104	70.0	130	----
Metals (QCLot: 1224606)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	97.2	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	104	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	103	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	97.9	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	112	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	94.4	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	104	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	102	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	117	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	99.3	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	101	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	103	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	88.4	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	106	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	93.8	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	105	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	100	70.0	130	----
Speciated Metals (QCLot: 1225976)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Speciated Metals (QCLot: 1225976) - continued									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	97.6	70.0	130	----

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2336062-002-E601.SG-L
Client Sample ID: BH106SS3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

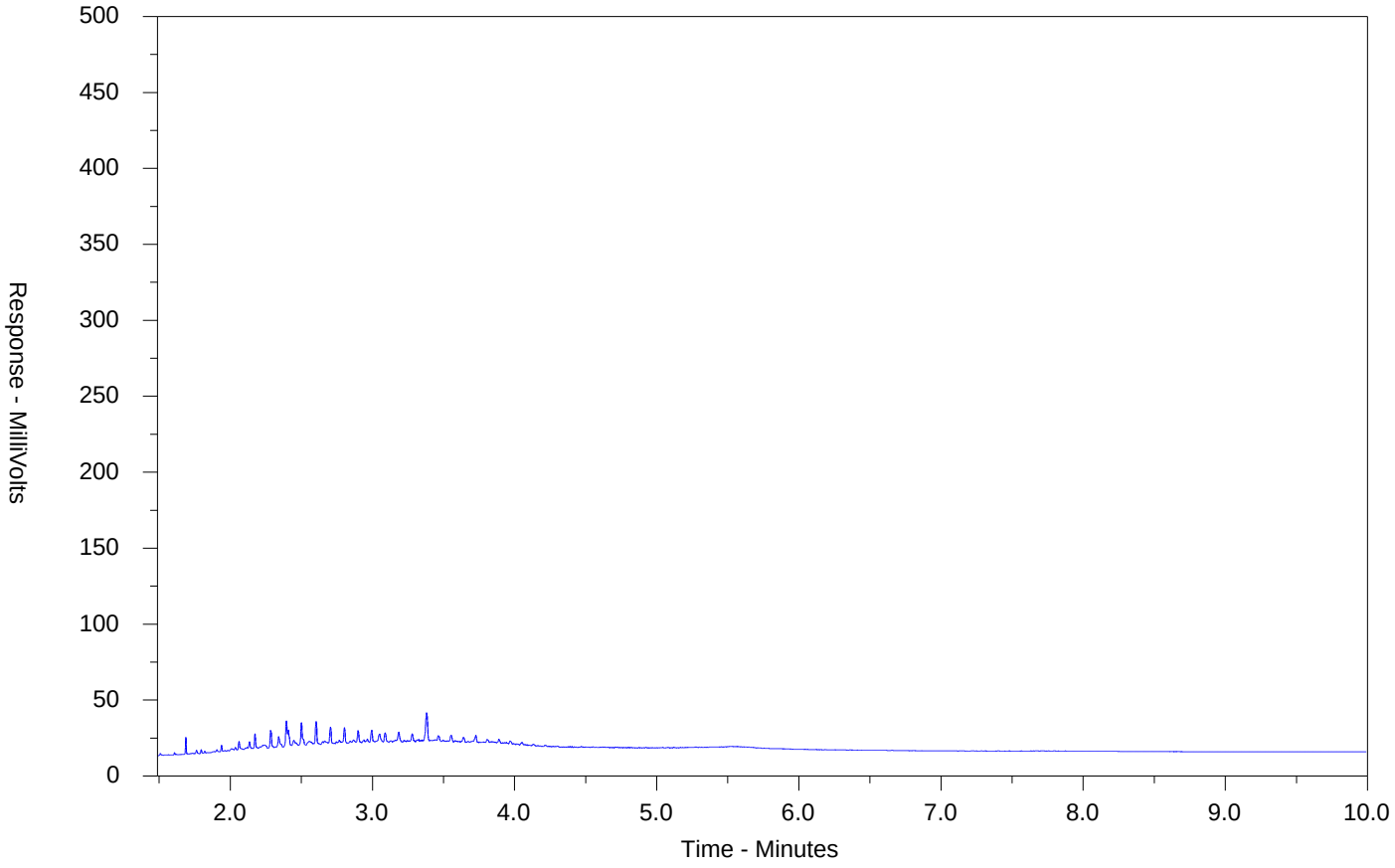
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2336062-004-E601.SG-L
Client Sample ID: BH106SS6



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047638

Page 1 of 1

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo

Work Order Reference WT2336062

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Groundedeng	Select Report Format: PDF EXCEL EDD (DIGITAL)	Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Deeana Reynolds	Merge QC/QCI Reports with COA YES NO N/A	4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	6473708191	Compare Results to Criteria on Report - provide details below if box checked	3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	1 Banigan drive	Email 1 or Fax dreynolds@groundedeng.ca	1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Toronto	Email 2	Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests
Postal Code:	M4H1G3	Email 3	Date and Time Required for all E&P TATs:
Invoice To	Same as Report To YES NO	Invoice Recipients	For all tests with rush TATs requested, please contact your AM to confirm availability.
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	Analysis Request
Company:		Email 1 or Fax dreynolds@groundedeng.ca	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Contact:		Email 2	

Project Information	Oil and Gas Required Fields (client use)
ALS Account # / Quote #: 23-197	AFE/Cost Center: PO#:
Job #:	Major/Minor Code: Routing Code:
PO / AFE:	Requisitioner:
LSD:	Location:
ALS Lab Work Order # (ALS use only):	ALS Contact: Sampler:

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	HRT	PAH	PHC/BTEX	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH106SS2	02/11/23	9:05	Soil	2	X	X					
	BH106SS3		9:10		3			X	X			
	BH106SS4		9:15		2	X	X					
	BH106SS6		9:25		3			X	X			
	BH106SS7		9:35		3			X	X	X		

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? YES NO	Compare to O.Reg. 153/04 Table 3 RPI Coarse Textured Grounded standard template
Are samples for human consumption/ use? YES NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: NONE ICE ICE PACKS FROZEN COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: YES NO

Cooler Custody Seals Intact: YES N/A Sample Custody Seals Intact: YES N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				5.9			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: Jet Pandya	Date: 02/11/23	Time:	Received by:	Date:	Time:	Received by: MA	Date: 2023-11-03	Time: 18:20

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

VS-096

SOL-585

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2405164**	Page	: 1 of 19
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 07-Mar-2024 18:15
PO	: ----	Date Analysis Commenced	: 12-Mar-2024
C-O-C number	: 20-950111/20-1047521	Issue Date	: 20-Mar-2024 14:24
Sampler	: IH		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 18		
No. of samples analysed	: 17		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	VOC, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Metals, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Organics, Waterloo, Ontario
Josphin Masihi	Analyst	Centralized Prep, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
BH202 SS1	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-F	5.26 -	5 -
BH203 GS2	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-RPI-F	1.08 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-F	17.9 -	5 -

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH202 GS2	BH202 GS3	BH202 SS1	BH202 SS5	BH202 SS6A	BH203 GS2	BH203 GS4
				Sampling date/time	04-Mar-2024 14:50	04-Mar-2024 14:55	05-Mar-2024 12:00	05-Mar-2024 12:05	05-Mar-2024 12:10	04-Mar-2024 15:00	04-Mar-2024 15:05
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-001	WT2405164-002	WT2405164-003	WT2405164-004	WT2405164-005	WT2405164-007	WT2405164-008
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.262	----	0.387	----	----	1.08	----
Moisture	----	E144/WT	%		14.8	16.8	7.99	6.87	10.8	17.2	19.0
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.76	----	7.97	----	----	7.72	----
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		1.55	----	5.15	----	----	7.22	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		1.97	----	1.11	----	----	0.93	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		39.0	----	50.5	----	----	192	----
Sodium adsorption ratio [SAR]	----	E484/WT	-		4.90	----	5.26	----	----	17.9	----
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	----	<0.10	----	----	<0.10	----
Arsenic	7440-38-2	E440C/WT	mg/kg		2.40	----	1.63	----	----	3.57	----
Barium	7440-39-3	E440C/WT	mg/kg		23.4	----	39.1	----	----	54.6	----
Beryllium	7440-41-7	E440C/WT	mg/kg		0.25	----	0.23	----	----	0.46	----
Boron	7440-42-8	E440C/WT	mg/kg		5.3	----	5.5	----	----	7.0	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		<0.10	----	<0.10	----	----	0.10	----
Cadmium	7440-43-9	E440C/WT	mg/kg		0.049	----	0.050	----	----	0.072	----
Chromium	7440-47-3	E440C/WT	mg/kg		9.56	----	11.5	----	----	17.6	----
Cobalt	7440-48-4	E440C/WT	mg/kg		4.94	----	3.78	----	----	7.29	----
Copper	7440-50-8	E440C/WT	mg/kg		12.4	----	9.04	----	----	16.8	----
Lead	7439-92-1	E440C/WT	mg/kg		6.16	----	3.90	----	----	7.37	----
Mercury	7439-97-6	E510C/WT	mg/kg		0.0114	----	0.0058	----	----	0.0156	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.38	----	0.49	----	----	0.49	----
Nickel	7440-02-0	E440C/WT	mg/kg		10.9	----	7.92	----	----	16.9	----
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	----	<0.20	----	----	<0.20	----
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	----	<0.10	----	----	<0.10	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH202 GS2	BH202 GS3	BH202 SS1	BH202 SS5	BH202 SS6A	BH203 GS2	BH203 GS4
				Sampling date/time	04-Mar-2024 14:50	04-Mar-2024 14:55	05-Mar-2024 12:00	05-Mar-2024 12:05	05-Mar-2024 12:10	04-Mar-2024 15:00	04-Mar-2024 15:05
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-001	WT2405164-002	WT2405164-003	WT2405164-004	WT2405164-005	WT2405164-007	WT2405164-008
Metals											
Thallium	7440-28-0	E440C/WT	mg/kg		0.105	----	0.061	----	----	0.166	----
Uranium	7440-61-1	E440C/WT	mg/kg		0.485	----	0.746	----	----	0.522	----
Vanadium	7440-62-2	E440C/WT	mg/kg		18.7	----	20.0	----	----	28.1	----
Zinc	7440-66-6	E440C/WT	mg/kg		22.2	----	20.4	----	----	33.4	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		0.12	----	<0.10	----	----	<0.10	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	<0.50	----	<0.50	<0.50	----	<0.50
Benzene	71-43-2	E611D/WT	mg/kg		----	<0.0050	----	<0.0050	<0.0050	----	<0.0050
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Bromoform	75-25-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Bromomethane	74-83-9	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Chloroform	67-66-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	<0.045	----	<0.045	<0.045	----	<0.045
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	<0.050	----	<0.050	<0.050	----	<0.050

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH202 GS2	BH202 GS3	BH202 SS1	BH202 SS5	BH202 SS6A	BH203 GS2	BH203 GS4
				Sampling date/time	04-Mar-2024 14:50	04-Mar-2024 14:55	05-Mar-2024 12:00	05-Mar-2024 12:05	05-Mar-2024 12:10	04-Mar-2024 15:00	04-Mar-2024 15:05
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-001	WT2405164-002	WT2405164-003	WT2405164-004	WT2405164-005	WT2405164-007	WT2405164-008
Volatile Organic Compounds											
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg	----	<0.030	----	<0.030	<0.030	----	<0.030	
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg	----	<0.030	----	<0.030	<0.030	----	<0.030	
Ethylbenzene	100-41-4	E611D/WT	mg/kg	----	<0.015	----	<0.015	<0.015	----	<0.015	
Hexane, n-	110-54-3	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg	----	<0.50	----	<0.50	<0.50	----	<0.50	
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg	----	<0.50	----	<0.50	<0.50	----	<0.50	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg	----	<0.040	----	<0.040	<0.040	----	<0.040	
Styrene	100-42-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Toluene	108-88-3	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Trichloroethylene	79-01-6	E611D/WT	mg/kg	----	<0.010	----	<0.010	<0.010	----	<0.010	
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
Vinyl chloride	75-01-4	E611D/WT	mg/kg	----	<0.020	----	<0.020	<0.020	----	<0.020	
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg	----	<0.030	----	<0.030	<0.030	----	<0.030	
Xylene, o-	95-47-6	E611D/WT	mg/kg	----	<0.030	----	<0.030	<0.030	----	<0.030	
Xylenes, total	1330-20-7	E611D/WT	mg/kg	----	<0.050	----	<0.050	<0.050	----	<0.050	
BTEX, total	----	E611D/WT	mg/kg	----	<0.10	----	<0.10	<0.10	----	<0.10	
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg	----	<5.0	----	----	<5.0	----	<5.0	
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	----	<10	----	----	<10	----	<10	
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	----	<50	----	----	<50	----	<50	
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	----	<50	----	----	<50	----	<50	
F1-BTEX	----	EC580/WT	mg/kg	----	<5.0	----	----	<5.0	----	<5.0	

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH202 GS2	BH202 GS3	BH202 SS1	BH202 SS5	BH202 SS6A	BH203 GS2	BH203 GS4
				Sampling date/time	04-Mar-2024 14:50	04-Mar-2024 14:55	05-Mar-2024 12:00	05-Mar-2024 12:05	05-Mar-2024 12:10	04-Mar-2024 15:00	04-Mar-2024 15:05
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-001	WT2405164-002	WT2405164-003	WT2405164-004	WT2405164-005	WT2405164-007	WT2405164-008
Hydrocarbons											
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	mg/kg		----	<80	----	----	<80	----	<80
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	YES	----	----	YES	----	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	77.4	----	----	76.3	----	80.8
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	95.6	----	----	106	----	97.0
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	96.0	----	91.1	90.4	----	91.5
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	102	----	98.3	96.2	----	97.0
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	----	<0.030	----	----	<0.030	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	----	<0.030	----	----	<0.030	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	----	<0.010	----	----	<0.010	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	----	<0.050	----	----	<0.050	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH202 GS2	BH202 GS3	BH202 SS1	BH202 SS5	BH202 SS6A	BH203 GS2	BH203 GS4
				Sampling date/time	04-Mar-2024 14:50	04-Mar-2024 14:55	05-Mar-2024 12:00	05-Mar-2024 12:05	05-Mar-2024 12:10	04-Mar-2024 15:00	04-Mar-2024 15:05
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-001	WT2405164-002	WT2405164-003	WT2405164-004	WT2405164-005	WT2405164-007	WT2405164-008
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		87.6	----	86.6	----	----	95.0	----
Chrysene-d12	1719-03-5	E641A/WT	%		72.9	----	73.1	----	----	80.3	----
Naphthalene-d8	1146-65-2	E641A/WT	%		74.4	----	74.4	----	----	65.3	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		81.8	----	78.7	----	----	87.2	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH203 SS1	BH203 SS4	BH201 SS2	BH201 SS5	BH201 SS8	DUP 01	DUP 02
				Sampling date/time	05-Mar-2024 14:50	05-Mar-2024 14:55	06-Mar-2024 13:10	06-Mar-2024 13:15	06-Mar-2024 13:20	04-Mar-2024 14:50	05-Mar-2024 14:50
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-009	WT2405164-010	WT2405164-011	WT2405164-012	WT2405164-013	WT2405164-014	WT2405164-015
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.301	----	----	----	----	----	0.312
Moisture	----	E144/WT	%		8.41	15.0	6.68	7.60	6.44	14.4	7.13
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		8.12	----	----	----	----	----	8.13
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	----	----	----	----	----	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		10.2	----	----	----	----	----	11.2
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		3.13	----	----	----	----	----	3.45
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		25.2	----	----	----	----	----	25.6
Sodium adsorption ratio [SAR]	----	E484/WT	-		1.77	----	----	----	----	----	1.72
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	----	----	----	----	----	<0.10
Arsenic	7440-38-2	E440C/WT	mg/kg		2.02	----	----	----	----	----	1.80
Barium	7440-39-3	E440C/WT	mg/kg		57.8	----	----	----	----	----	50.6
Beryllium	7440-41-7	E440C/WT	mg/kg		0.35	----	----	----	----	----	0.32
Boron	7440-42-8	E440C/WT	mg/kg		7.6	----	----	----	----	----	7.4
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		<0.10	----	----	----	----	----	0.10
Cadmium	7440-43-9	E440C/WT	mg/kg		0.056	----	----	----	----	----	0.050
Chromium	7440-47-3	E440C/WT	mg/kg		15.4	----	----	----	----	----	14.8
Cobalt	7440-48-4	E440C/WT	mg/kg		5.20	----	----	----	----	----	4.78
Copper	7440-50-8	E440C/WT	mg/kg		11.5	----	----	----	----	----	10.9
Lead	7439-92-1	E440C/WT	mg/kg		6.16	----	----	----	----	----	4.79
Mercury	7439-97-6	E510C/WT	mg/kg		0.0080	----	----	----	----	----	0.0092
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.60	----	----	----	----	----	0.55
Nickel	7440-02-0	E440C/WT	mg/kg		11.4	----	----	----	----	----	10.4
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	----	----	----	----	----	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	----	----	----	----	----	<0.10
Thallium	7440-28-0	E440C/WT	mg/kg		0.099	----	----	----	----	----	0.090

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH203 SS1	BH203 SS4	BH201 SS2	BH201 SS5	BH201 SS8	DUP 01	DUP 02
				Sampling date/time	05-Mar-2024 14:50	05-Mar-2024 14:55	06-Mar-2024 13:10	06-Mar-2024 13:15	06-Mar-2024 13:20	04-Mar-2024 14:50	05-Mar-2024 14:50
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-009	WT2405164-010	WT2405164-011	WT2405164-012	WT2405164-013	WT2405164-014	WT2405164-015
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		0.892	----	----	----	----	----	0.744
Vanadium	7440-62-2	E440C/WT	mg/kg		25.2	----	----	----	----	----	24.2
Zinc	7440-66-6	E440C/WT	mg/kg		26.8	----	----	----	----	----	25.8
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	----	----	----	----	----	<0.10
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		----	<0.50	<0.50	<0.50	<0.50	----	----
Benzene	71-43-2	E611D/WT	mg/kg		----	<0.0050	<0.0050	<0.0050	<0.0050	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Bromoform	75-25-2	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Bromomethane	74-83-9	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Chloroform	67-66-3	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		----	<0.045	<0.045	<0.045	<0.045	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		----	<0.050	<0.050	<0.050	<0.050	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH203 SS1	BH203 SS4	BH201 SS2	BH201 SS5	BH201 SS8	DUP 01	DUP 02
				Sampling date/time	05-Mar-2024 14:50	05-Mar-2024 14:55	06-Mar-2024 13:10	06-Mar-2024 13:15	06-Mar-2024 13:20	04-Mar-2024 14:50	05-Mar-2024 14:50
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-009	WT2405164-010	WT2405164-011	WT2405164-012	WT2405164-013	WT2405164-014	WT2405164-015
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg	----	<0.030	<0.030	<0.030	<0.030	----	----	
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg	----	<0.030	<0.030	<0.030	<0.030	----	----	
Ethylbenzene	100-41-4	E611D/WT	mg/kg	----	<0.015	<0.015	<0.015	<0.015	----	----	
Hexane, n-	110-54-3	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg	----	<0.50	<0.50	<0.50	<0.50	----	----	
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg	----	<0.50	<0.50	<0.50	<0.50	----	----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg	----	<0.040	<0.040	<0.040	<0.040	----	----	
Styrene	100-42-5	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Toluene	108-88-3	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Trichloroethylene	79-01-6	E611D/WT	mg/kg	----	<0.010	<0.010	<0.010	<0.010	----	----	
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
Vinyl chloride	75-01-4	E611D/WT	mg/kg	----	<0.020	<0.020	<0.020	<0.020	----	----	
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg	----	<0.030	<0.030	<0.030	<0.030	----	----	
Xylene, o-	95-47-6	E611D/WT	mg/kg	----	<0.030	<0.030	<0.030	<0.030	----	----	
Xylenes, total	1330-20-7	E611D/WT	mg/kg	----	<0.050	<0.050	<0.050	<0.050	----	----	
BTEX, total	----	E611D/WT	mg/kg	----	<0.10	<0.10	<0.10	<0.10	----	----	
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg	----	<5.0	----	----	----	----	----	
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	----	12	----	----	----	----	----	
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	----	76	----	----	----	----	----	
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	----	<50	----	----	----	----	----	
F1-BTEX	----	EC580/WT	mg/kg	----	<5.0	----	----	----	----	----	
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	mg/kg	----	88	----	----	----	----	----	

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH203 SS1	BH203 SS4	BH201 SS2	BH201 SS5	BH201 SS8	DUP 01	DUP 02
				Sampling date/time	05-Mar-2024 14:50	05-Mar-2024 14:55	06-Mar-2024 13:10	06-Mar-2024 13:15	06-Mar-2024 13:20	04-Mar-2024 14:50	05-Mar-2024 14:50
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-009	WT2405164-010	WT2405164-011	WT2405164-012	WT2405164-013	WT2405164-014	WT2405164-015
Hydrocarbons											
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		----	YES	----	----	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		----	78.2	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		----	101	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		----	139	103	101	97.9	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		----	99.7	111	108	106	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	----	----	----	----	<0.030	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	----	----	----	----	<0.030	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	----	----	----	----	<0.010	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	----	----	----	----	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates											

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH203 SS1	BH203 SS4	BH201 SS2	BH201 SS5	BH201 SS8	DUP 01	DUP 02
				Sampling date/time	05-Mar-2024 14:50	05-Mar-2024 14:55	06-Mar-2024 13:10	06-Mar-2024 13:15	06-Mar-2024 13:20	04-Mar-2024 14:50	05-Mar-2024 14:50
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2405164-009	WT2405164-010	WT2405164-011	WT2405164-012	WT2405164-013	WT2405164-014	WT2405164-015
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		97.3	----	----	----	----	86.5	----
Chrysene-d12	1719-03-5	E641A/WT	%		83.4	----	----	----	----	72.5	----
Naphthalene-d8	1146-65-2	E641A/WT	%		85.1	----	----	----	----	74.5	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		91.7	----	----	----	----	80.9	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP 03	GS1	GS2	----	----	----	----
				Sampling date/time	05-Mar-2024 14:55	05-Mar-2024 14:55	05-Mar-2024 14:55	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	----	----	----	----
					WT2405164-016	WT2405164-017	WT2405164-018	--------	--------	--------	--------
Physical Tests											
Moisture	----	E144/WT	%		14.0	13.4	12.4	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		<0.50	----	----	----	----	----	----
Benzene	71-43-2	E611A/WT	mg/kg		----	<0.0050	<0.0050	----	----	----	----
Benzene	71-43-2	E611D/WT	mg/kg		<0.0050	----	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		<0.045	----	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Ethylbenzene	100-41-4	E611A/WT	mg/kg		----	<0.015	<0.015	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: DUP 03	GS1	GS2	----	----	----	----
				Sampling date/time: 05-Mar-2024 14:55	05-Mar-2024 14:55	05-Mar-2024 14:55	----	----	----	----
				Sub-Matrix: Soil/Solid	Soil/Solid	Soil/Solid	----	----	----	----
				WT2405164-016	WT2405164-017	WT2405164-018	--------	--------	--------	--------
Volatile Organic Compounds										
Ethylbenzene	100-41-4	E611D/WT	mg/kg	<0.015	----	----	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg	<0.50	----	----	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg	<0.50	----	----	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg	<0.040	----	----	----	----	----	----
Styrene	100-42-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Toluene	108-88-3	E611A/WT	mg/kg	----	<0.050	<0.050	----	----	----	----
Toluene	108-88-3	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg	<0.010	----	----	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg	<0.020	----	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WT	mg/kg	----	<0.030	<0.030	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg	<0.030	----	----	----	----	----	----
Xylene, o-	95-47-6	E611A/WT	mg/kg	----	<0.030	<0.030	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	mg/kg	<0.030	----	----	----	----	----	----
Xylenes, total	1330-20-7	E611A/WT	mg/kg	----	<0.050	<0.050	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----
BTEX, total	----	E611A/WT	mg/kg	----	<0.10	<0.10	----	----	----	----
BTEX, total	----	E611D/WT	mg/kg	<0.10	----	----	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WT	mg/kg	<5.0	<5.0	<5.0	----	----	----	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	12	<10	<10	----	----	----	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	75	<50	<50	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: DUP 03	GS1	GS2	----	----	----	----
				Sampling date/time: 05-Mar-2024 14:55	05-Mar-2024 14:55	05-Mar-2024 14:55	----	----	----	----
				Sub-Matrix: Soil/Solid	Soil/Solid	Soil/Solid	----	----	----	----
				WT2405164-016	WT2405164-017	WT2405164-018	--------	--------	--------	--------
Hydrocarbons										
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	<50	<50	<50	----	----	----	----
F1-BTEX	----	EC580/WT	mg/kg	<5.0	<5.0	<5.0	----	----	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	mg/kg	87	<80	<80	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-	YES	YES	YES	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%	83.8	83.8	74.9	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%	108	94.5	88.0	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	%	----	100	102	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%	93.4	----	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	%	----	102	105	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%	100	----	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T2-RPI-F
Physical Tests			
Conductivity (1:2 leachate)	----	mS/cm	**0.7 mS/cm**
Moisture	----	%	**--**
pH (1:2 soil:CaCl2-aq)	----	pH units	**--**
Cyanides			
Cyanide, weak acid dissociable	----	mg/kg	**0.051 mg/kg**
Fixed-Ratio Extractables			
Calcium, soluble ion content	7440-70-2	mg/L	**--**
Magnesium, soluble ion content	7439-95-4	mg/L	**--**
Sodium adsorption ratio [SAR]	----	-	**5 -**
Sodium, soluble ion content	17341-25-2	mg/L	**--**
Metals			
Antimony	7440-36-0	mg/kg	**7.5 mg/kg**
Arsenic	7440-38-2	mg/kg	**18 mg/kg**
Barium	7440-39-3	mg/kg	**390 mg/kg**
Beryllium	7440-41-7	mg/kg	**5 mg/kg**
Boron, hot water soluble	7440-42-8	mg/kg	**1.5 mg/kg**
Boron	7440-42-8	mg/kg	**120 mg/kg**
Cadmium	7440-43-9	mg/kg	**1.2 mg/kg**
Chromium	7440-47-3	mg/kg	**160 mg/kg**
Cobalt	7440-48-4	mg/kg	**22 mg/kg**
Copper	7440-50-8	mg/kg	**180 mg/kg**
Lead	7439-92-1	mg/kg	**120 mg/kg**
Mercury	7439-97-6	mg/kg	**1.8 mg/kg**
Molybdenum	7439-98-7	mg/kg	**6.9 mg/kg**
Nickel	7440-02-0	mg/kg	**130 mg/kg**
Selenium	7782-49-2	mg/kg	**2.4 mg/kg**
Silver	7440-22-4	mg/kg	**25 mg/kg**
Thallium	7440-28-0	mg/kg	**1 mg/kg**
Uranium	7440-61-1	mg/kg	**23 mg/kg**
Vanadium	7440-62-2	mg/kg	**86 mg/kg**
Zinc	7440-66-6	mg/kg	**340 mg/kg**
Speciated Metals			
Chromium, hexavalent [Cr VI]	18540-29-9	mg/kg	**10 mg/kg**
Volatile Organic Compounds			
Acetone	67-64-1	mg/kg	**28 mg/kg**
Benzene	71-43-2	mg/kg	**0.17 mg/kg**
Bromodichloromethane	75-27-4	mg/kg	**1.9 mg/kg**

Analyte	CAS Number	Unit	ON153/04 T2-RPI-F
Volatile Organic Compounds - Continued			
Bromoform	75-25-2	mg/kg	**0.26 mg/kg**
Bromomethane	74-83-9	mg/kg	**0.05 mg/kg**
BTEX, total	----	mg/kg	--
Carbon tetrachloride	56-23-5	mg/kg	**0.12 mg/kg**
Chlorobenzene	108-90-7	mg/kg	**2.7 mg/kg**
Chloroform	67-66-3	mg/kg	**0.18 mg/kg**
Dibromochloromethane	124-48-1	mg/kg	**2.9 mg/kg**
Dibromoethane, 1,2-	106-93-4	mg/kg	**0.05 mg/kg**
Dichlorobenzene, 1,2-	95-50-1	mg/kg	**1.7 mg/kg**
Dichlorobenzene, 1,3-	541-73-1	mg/kg	**6 mg/kg**
Dichlorobenzene, 1,4-	106-46-7	mg/kg	**0.097 mg/kg**
Dichlorodifluoromethane	75-71-8	mg/kg	**25 mg/kg**
Dichloroethane, 1,1-	75-34-3	mg/kg	**0.6 mg/kg**
Dichloroethane, 1,2-	107-06-2	mg/kg	**0.05 mg/kg**
Dichloroethylene, 1,1-	75-35-4	mg/kg	**0.05 mg/kg**
Dichloroethylene, cis-1,2-	156-59-2	mg/kg	**2.5 mg/kg**
Dichloroethylene, trans-1,2-	156-60-5	mg/kg	**0.75 mg/kg**
Dichloromethane	75-09-2	mg/kg	**0.96 mg/kg**
Dichloropropane, 1,2-	78-87-5	mg/kg	**0.085 mg/kg**
Dichloropropylene, cis+trans-1,3-	542-75-6	mg/kg	**0.081 mg/kg**
Dichloropropylene, cis-1,3-	10061-01-5	mg/kg	--
Dichloropropylene, trans-1,3-	10061-02-6	mg/kg	--
Ethylbenzene	100-41-4	mg/kg	**1.6 mg/kg**
Hexane, n-	110-54-3	mg/kg	**34 mg/kg**
Methyl ethyl ketone [MEK]	78-93-3	mg/kg	**44 mg/kg**
Methyl isobutyl ketone [MIBK]	108-10-1	mg/kg	**4.3 mg/kg**
Methyl-tert-butyl ether [MTBE]	1634-04-4	mg/kg	**1.4 mg/kg**
Styrene	100-42-5	mg/kg	**2.2 mg/kg**
Tetrachloroethane, 1,1,1,2-	630-20-6	mg/kg	**0.05 mg/kg**
Tetrachloroethane, 1,1,2,2-	79-34-5	mg/kg	**0.05 mg/kg**
Tetrachloroethylene	127-18-4	mg/kg	**2.3 mg/kg**
Toluene	108-88-3	mg/kg	**6 mg/kg**
Trichloroethane, 1,1,1-	71-55-6	mg/kg	**3.4 mg/kg**
Trichloroethane, 1,1,2-	79-00-5	mg/kg	**0.05 mg/kg**
Trichloroethylene	79-01-6	mg/kg	**0.52 mg/kg**
Trichlorofluoromethane	75-69-4	mg/kg	**5.8 mg/kg**
Vinyl chloride	75-01-4	mg/kg	**0.022 mg/kg**
Xylene, m+p-	179601-23-1	mg/kg	--
Xylene, o-	95-47-6	mg/kg	--

Analyte	CAS Number	Unit	ON153/04 T2-RPI-F
Volatile Organic Compounds - Continued			
Xylenes, total	1330-20-7	mg/kg	**25 mg/kg**
Hydrocarbons			
Chromatogram to baseline at nC50	n/a	-	--
F1 (C6-C10)	----	mg/kg	**65 mg/kg**
F1-BTEX	----	mg/kg	**65 mg/kg**
F2 (C10-C16)	----	mg/kg	**150 mg/kg**
F3 (C16-C34)	----	mg/kg	**1300 mg/kg**
F4 (C34-C50)	----	mg/kg	**5600 mg/kg**
Hydrocarbons, total (C6-C50)	n/a	mg/kg	--
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%	--
Dichlorotoluene, 3,4-	95-75-0	%	--
Bromofluorobenzene, 4-	460-00-4	%	--
Difluorobenzene, 1,4-	540-36-3	%	--
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	83-32-9	mg/kg	**29 mg/kg**
Acenaphthylene	208-96-8	mg/kg	**0.17 mg/kg**
Anthracene	120-12-7	mg/kg	**0.74 mg/kg**
Benz(a)anthracene	56-55-3	mg/kg	**0.63 mg/kg**
Benzo(a)pyrene	50-32-8	mg/kg	**0.3 mg/kg**
Benzo(b+j)fluoranthene	n/a	mg/kg	**0.78 mg/kg**
Benzo(g,h,i)perylene	191-24-2	mg/kg	**7.8 mg/kg**
Benzo(k)fluoranthene	207-08-9	mg/kg	**0.78 mg/kg**
Chrysene	218-01-9	mg/kg	**7.8 mg/kg**
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.1 mg/kg**
Fluoranthene	206-44-0	mg/kg	**0.69 mg/kg**
Fluorene	86-73-7	mg/kg	**69 mg/kg**
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	**0.48 mg/kg**
Methylnaphthalene, 1+2-	----	mg/kg	**3.4 mg/kg**
Methylnaphthalene, 1-	90-12-0	mg/kg	**3.4 mg/kg**
Methylnaphthalene, 2-	91-57-6	mg/kg	**3.4 mg/kg**
Naphthalene	91-20-3	mg/kg	**0.75 mg/kg**
Phenanthrene	85-01-8	mg/kg	**7.8 mg/kg**
Pyrene	129-00-0	mg/kg	**78 mg/kg**
Acridine-d9	34749-75-2	%	--
Chrysene-d12	1719-03-5	%	--
Naphthalene-d8	1146-65-2	%	--
Phenanthrene-d10	1517-22-2	%	--

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04		Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
	T2-RPI-F	153 T2-Soil-Res/Park/Inst. Property Use (Fine)

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2405164**	Page	: 1 of 17
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 07-Mar-2024 18:15
PO	: ----	Issue Date	: 20-Mar-2024 14:24
C-O-C number	: 20-950111/20-1047521		
Sampler	: IH		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 18		
No. of samples analysed	: 17		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS1	E336A	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH203 SS1	E336A	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] DUP 02	E336A	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH202 GS2	E336A	04-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH203 GS2	E336A	04-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	14 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH202 SS6A	E581.F1	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH203 SS4	E581.F1	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
DUP 03	E581.F1	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH202 GS3	E581.F1	04-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH203 GS4	E581.F1	04-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
GS1	E581.F1	05-Mar-2024	14-Mar-2024	14 days	9 days	✓	14-Mar-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
GS2	E581.F1	05-Mar-2024	14-Mar-2024	14 days	9 days	✓	14-Mar-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
GS1	E601.SG-L	05-Mar-2024	18-Mar-2024	14 days	13 days	✓	20-Mar-2024	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
GS2	E601.SG-L	05-Mar-2024	18-Mar-2024	14 days	13 days	✓	20-Mar-2024	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 SS6A	E601.SG-L	05-Mar-2024	12-Mar-2024	14 days	7 days	✓	13-Mar-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 SS4	E601.SG-L	05-Mar-2024	12-Mar-2024	14 days	7 days	✓	13-Mar-2024	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP 03	E601.SG-L	05-Mar-2024	12-Mar-2024	14 days	7 days	✓	13-Mar-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 GS3	E601.SG-L	04-Mar-2024	12-Mar-2024	14 days	8 days	✓	13-Mar-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 GS4	E601.SG-L	04-Mar-2024	12-Mar-2024	14 days	8 days	✓	13-Mar-2024	40 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 SS1	E487	05-Mar-2024	13-Mar-2024	180 days	7 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP 02	E487	05-Mar-2024	13-Mar-2024	180 days	7 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 GS2	E487	04-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 SS1	E487	05-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 GS2	E487	04-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 SS1	E510C	05-Mar-2024	13-Mar-2024	28 days	7 days	✓	13-Mar-2024	28 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] DUP 02	E510C	05-Mar-2024	13-Mar-2024	28 days	7 days	✓	13-Mar-2024	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS1	E510C	05-Mar-2024	13-Mar-2024	28 days	8 days	✓	13-Mar-2024	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH202 GS2	E510C	04-Mar-2024	13-Mar-2024	28 days	8 days	✓	13-Mar-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH203 GS2	E510C	04-Mar-2024	13-Mar-2024	28 days	8 days	✓	13-Mar-2024	28 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH203 SS1	E440C	05-Mar-2024	13-Mar-2024	180 days	7 days	✓	13-Mar-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] DUP 02	E440C	05-Mar-2024	13-Mar-2024	180 days	7 days	✓	13-Mar-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS1	E440C	05-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH202 GS2	E440C	04-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP] BH203 GS2	E440C	04-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	9 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 SS1	E484	05-Mar-2024	13-Mar-2024	180 days	7 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP 02	E484	05-Mar-2024	13-Mar-2024	180 days	7 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 GS2	E484	04-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 SS1	E484	05-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 GS2	E484	04-Mar-2024	13-Mar-2024	180 days	8 days	✓	13-Mar-2024	180 days	0 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 SS1	E100-L	05-Mar-2024	13-Mar-2024	30 days	7 days	✓	13-Mar-2024	30 days	8 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP 02	E100-L	05-Mar-2024	13-Mar-2024	30 days	7 days	✓	13-Mar-2024	30 days	8 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 SS1	E100-L	05-Mar-2024	13-Mar-2024	30 days	8 days	✓	13-Mar-2024	30 days	8 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 GS2	E100-L	04-Mar-2024	13-Mar-2024	30 days	8 days	✓	13-Mar-2024	30 days	9 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH203 GS2	E100-L	04-Mar-2024	13-Mar-2024	30 days	8 days	✓	13-Mar-2024	30 days	9 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] GS1	E144	05-Mar-2024	----	----	----		18-Mar-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] GS2	E144	05-Mar-2024	----	----	----		18-Mar-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH201 SS2	E144	06-Mar-2024	----	----	----		13-Mar-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH201 SS5	E144	06-Mar-2024	----	----	----		13-Mar-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH201 SS8	E144	06-Mar-2024	----	----	----		13-Mar-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS1	E144	05-Mar-2024	----	----	----		12-Mar-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS6A	E144	05-Mar-2024	----	----	----		12-Mar-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH203 SS1	E144	05-Mar-2024	----	----	----		12-Mar-2024	----	7 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 SS4	E144	05-Mar-2024	----	----	----		12-Mar-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP 03	E144	05-Mar-2024	----	----	----		12-Mar-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 GS2	E144	04-Mar-2024	----	----	----		12-Mar-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 GS3	E144	04-Mar-2024	----	----	----		12-Mar-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH202 SS5	E144	05-Mar-2024	----	----	----		13-Mar-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 GS2	E144	04-Mar-2024	----	----	----		12-Mar-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH203 GS4	E144	04-Mar-2024	----	----	----		12-Mar-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP 01	E144	04-Mar-2024	----	----	----		12-Mar-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP 02	E144	05-Mar-2024	----	----	----		13-Mar-2024	----	8 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS1	E108A	05-Mar-2024	12-Mar-2024	30 days	6 days	✓	12-Mar-2024	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH203 SS1	E108A	05-Mar-2024	12-Mar-2024	30 days	6 days	✓	12-Mar-2024	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] DUP 02	E108A	05-Mar-2024	12-Mar-2024	30 days	6 days	✓	12-Mar-2024	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH202 GS2	E108A	04-Mar-2024	12-Mar-2024	30 days	7 days	✓	12-Mar-2024	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH203 GS2	E108A	04-Mar-2024	12-Mar-2024	30 days	7 days	✓	12-Mar-2024	30 days	8 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS1	E641A	05-Mar-2024	12-Mar-2024	60 days	7 days	✓	13-Mar-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH203 SS1	E641A	05-Mar-2024	12-Mar-2024	60 days	7 days	✓	13-Mar-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH202 GS2	E641A	04-Mar-2024	12-Mar-2024	60 days	8 days	✓	13-Mar-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH203 GS2	E641A	04-Mar-2024	12-Mar-2024	60 days	8 days	✓	13-Mar-2024	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] DUP 01	E641A	04-Mar-2024	12-Mar-2024	60 days	8 days	✓	13-Mar-2024	40 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH202 SS1	E532	05-Mar-2024	12-Mar-2024	30 days	6 days	✓	13-Mar-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH203 SS1	E532	05-Mar-2024	12-Mar-2024	30 days	6 days	✓	13-Mar-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] DUP 02	E532	05-Mar-2024	12-Mar-2024	30 days	6 days	✓	13-Mar-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH202 GS2	E532	04-Mar-2024	12-Mar-2024	30 days	7 days	✓	13-Mar-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH203 GS2	E532	04-Mar-2024	12-Mar-2024	30 days	7 days	✓	13-Mar-2024	7 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] GS1	E611A	05-Mar-2024	14-Mar-2024	14 days	9 days	✓	14-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] GS2	E611A	05-Mar-2024	14-Mar-2024	14 days	9 days	✓	14-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH201 SS2	E611D	06-Mar-2024	12-Mar-2024	14 days	5 days	✓	12-Mar-2024	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH201 SS5	E611D	06-Mar-2024	12-Mar-2024	14 days	5 days	✓	12-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH201 SS8	E611D	06-Mar-2024	12-Mar-2024	14 days	5 days	✓	12-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH202 SS5	E611D	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH202 SS6A	E611D	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH203 SS4	E611D	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] DUP 03	E611D	05-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH202 GS3	E611D	04-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH203 GS4	E611D	04-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1362151	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1366105	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1362279	2	36	5.5	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1362378	2	32	6.2	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1362150	1	20	5.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1362147	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1362152	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1362153	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1362380	3	60	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1362379	1	7	14.2	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1362148	1	20	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1362149	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1362278	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1362146	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1362151	2	20	10.0	10.0	✓
BTEX by Headspace GC-MS	E611A	1366105	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1362279	2	36	5.5	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1362378	2	32	6.2	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1362150	2	20	10.0	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1362147	2	20	10.0	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1362152	2	20	10.0	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1362153	2	20	10.0	10.0	✓
Moisture Content by Gravimetry	E144	1362380	3	60	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1362379	1	7	14.2	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1362148	1	20	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1362149	2	20	10.0	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1362278	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1362146	1	20	5.0	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1362151	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1366105	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1362279	2	36	5.5	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1362378	2	32	6.2	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1362150	1	20	5.0	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Hexavalent Chromium (Cr VI) by IC	E532	1362147	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1362152	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1362153	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1362380	3	60	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1362379	1	7	14.2	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1362149	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1362278	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1362146	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1366105	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1362279	2	36	5.5	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1362378	2	32	6.2	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1362379	1	7	14.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1362278	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1362146	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3530	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode. This method is equivalent to ASTM D4972 and is acceptable for topsoil analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

QUALITY CONTROL REPORT

Work Order	: **WT2405164**	Page	: 1 of 19
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 07-Mar-2024 18:15
PO	: ----	Date Analysis Commenced	: 12-Mar-2024
C-O-C number	: 20-950111/20-1047521	Issue Date	: 20-Mar-2024 14:24
Sampler	: IH 647 370 3191		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 18		
No. of samples analysed	: 17		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	Waterloo VOC, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Metals, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Organics, Waterloo, Ontario
Josphin Masihi	Analyst	Waterloo Centralized Prep, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1362148)											
WT2405396-003	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.89	7.81	1.02%	5%	----
Physical Tests (QC Lot: 1362150)											
WT2405153-001	Anonymous	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	0.289 mS/cm	293	1.37%	20%	----
Physical Tests (QC Lot: 1362380)											
WT2405162-001	Anonymous	Moisture	----	E144	0.25	%	10.1	10.3	2.36%	20%	----
Physical Tests (QC Lot: 1364638)											
WT2404497-001	Anonymous	Moisture	----	E144	0.25	%	18.5	18.2	1.22%	20%	----
Physical Tests (QC Lot: 1370883)											
HA2400509-001	Anonymous	Moisture	----	E144	0.25	%	9.95	10.2	2.62%	20%	----
Cyanides (QC Lot: 1362146)											
WT2405396-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1362149)											
WT2405153-001	Anonymous	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	4.80	5.08	5.67%	30%	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	11.5	12.9	11.5%	30%	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	51.0	48.3	5.44%	30%	----
Metals (QC Lot: 1362151)											
WT2405153-001	Anonymous	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.12	0.11	0.001	Diff <2x LOR	----
Metals (QC Lot: 1362152)											
WT2405153-001	Anonymous	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0145	0.0146	0.0001	Diff <2x LOR	----
Metals (QC Lot: 1362153)											
WT2405153-001	Anonymous	Antimony	7440-36-0	E440C	0.10	mg/kg	0.15	0.15	0.003	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	4.81	4.83	0.515%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	55.9	56.1	0.458%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.56	0.54	0.02	Diff <2x LOR	----
		Boron	7440-42-8	E440C	5.0	mg/kg	10.2	9.4	0.8	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.119	0.113	0.005	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	17.7	17.5	1.50%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	8.83	8.99	1.82%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	26.6	27.1	1.77%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	12.6	13.0	2.93%	40%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1362153) - continued											
WT2405153-001	Anonymous	Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.47	0.48	0.006	Diff <2x LOR	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	18.0	18.4	2.61%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440C	0.050	mg/kg	0.119	0.120	0.001	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.574	0.574	0.00%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	29.4	28.6	2.99%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	56.5	55.7	1.44%	30%	----
Speciated Metals (QC Lot: 1362147)											
WT2405396-002	Anonymous	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	0.14	0.13	0.004	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1362278)											
WT2405307-005	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1362278) - continued											
WT2405307-005	Anonymous	Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1366105)											
WT2404772-004	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050 µg/g	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015 µg/g	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	<0.030 µg/g	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030 µg/g	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1362279)											
WT2405307-005	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1362378)											
WT2405174-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1366106)											
WT2404772-004	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0 µg/g	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1370882)											
WT2405698-003	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Hydrocarbons (QC Lot: 1370882) - continued											
WT2405698-003	Anonymous	F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1362379)											
WT2405174-001	Anonymous	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1362150)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1362380)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1364638)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1370883)						
Moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 1362146)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1362149)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1362151)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1362152)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1362153)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1362153) - continued						
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----
Speciated Metals (QCLot: 1362147)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1362278)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1362278) - continued						
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1366105)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1362279)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1362378)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1366106)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1370882)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1362379)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1362379) - continued						
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1362148)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1362150)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	97.1	90.0	110	----
Physical Tests (QCLot: 1362380)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 1364638)									
Moisture	----	E144	0.25	%	50 %	99.7	90.0	110	----
Physical Tests (QCLot: 1370883)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Cyanides (QCLot: 1362146)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	95.7	80.0	120	----
Metals (QCLot: 1362149)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	109	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	103	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	104	80.0	120	----
Metals (QCLot: 1362151)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	103	70.0	130	----
Metals (QCLot: 1362152)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	114	80.0	120	----
Metals (QCLot: 1362153)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	118	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	113	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	107	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	110	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	106	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	109	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	107	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	110	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1362153) - continued									
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	113	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	105	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	112	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	104	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	106	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	110	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	110	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	104	80.0	120	----
Speciated Metals (QCLot: 1362147)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	99.0	80.0	120	----
Volatile Organic Compounds (QCLot: 1362278)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	98.0	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	92.2	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	94.7	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	85.9	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	90.8	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	95.2	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	94.5	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	92.7	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	89.3	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	92.3	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	93.2	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	93.6	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	93.6	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	59.6	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	93.8	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	96.4	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	91.4	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	95.4	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	93.7	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	95.3	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	93.9	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	93.0	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	88.3	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1362278) - continued									
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	91.1	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	87.6	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	93.8	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	93.5	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	96.9	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	91.5	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	92.6	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	86.3	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	95.5	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	89.6	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	96.4	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	93.7	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	98.1	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	97.2	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	85.5	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	92.4	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	91.0	70.0	130	----
Volatile Organic Compounds (QCLot: 1366105)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	104	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	95.7	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	96.9	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	96.4	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	97.6	70.0	130	----
Hydrocarbons (QCLot: 1362279)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	92.5	80.0	120	----
Hydrocarbons (QCLot: 1362378)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	671.175 mg/kg	87.1	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1384.058 mg/kg	91.9	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	738.5 mg/kg	102	70.0	130	----
Hydrocarbons (QCLot: 1366106)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	86.9	80.0	120	----
Hydrocarbons (QCLot: 1370882)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	671.175 mg/kg	92.6	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1384.058 mg/kg	95.4	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	738.5 mg/kg	97.1	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1362379)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	74.7	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	77.4	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	78.7	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	76.1	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	75.2	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	79.2	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	80.3	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	76.7	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	70.0	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	78.3	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	77.9	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	80.5	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	82.5	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	66.1	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	71.6	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	65.8	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	77.4	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	75.9	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1362146)										
WT2405396-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	1.28 mg/kg	1.25 mg/kg	103	70.0	130	----
Volatile Organic Compounds (QCLot: 1362278)										
WT2405307-005	Anonymous	Acetone	67-64-1	E611D	2.24 mg/kg	3.125 mg/kg	114	50.0	140	----
		Benzene	71-43-2	E611D	2.09 mg/kg	3.125 mg/kg	106	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.10 mg/kg	3.125 mg/kg	107	50.0	140	----
		Bromoform	75-25-2	E611D	1.78 mg/kg	3.125 mg/kg	90.4	50.0	140	----
		Bromomethane	74-83-9	E611D	2.17 mg/kg	3.125 mg/kg	110	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	2.16 mg/kg	3.125 mg/kg	110	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.08 mg/kg	3.125 mg/kg	106	50.0	140	----
		Chloroform	67-66-3	E611D	2.16 mg/kg	3.125 mg/kg	110	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	1.93 mg/kg	3.125 mg/kg	98.2	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	1.99 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	1.99 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	1.96 mg/kg	3.125 mg/kg	99.5	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	1.96 mg/kg	3.125 mg/kg	99.5	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	2.03 mg/kg	3.125 mg/kg	103	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.33 mg/kg	3.125 mg/kg	118	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.13 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.15 mg/kg	3.125 mg/kg	109	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.15 mg/kg	3.125 mg/kg	109	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.12 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.16 mg/kg	3.125 mg/kg	110	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.10 mg/kg	3.125 mg/kg	107	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	2.00 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	1.85 mg/kg	3.125 mg/kg	94.0	50.0	140	----
		Ethylbenzene	100-41-4	E611D	2.00 mg/kg	3.125 mg/kg	102	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.21 mg/kg	3.125 mg/kg	112	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.01 mg/kg	3.125 mg/kg	102	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.07 mg/kg	3.125 mg/kg	105	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.08 mg/kg	3.125 mg/kg	106	50.0	140	----
		Styrene	100-42-5	E611D	2.02 mg/kg	3.125 mg/kg	103	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1362278) - continued										
WT2405307-005	Anonymous	Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	2.02 mg/kg	3.125 mg/kg	103	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	1.87 mg/kg	3.125 mg/kg	95.2	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	2.07 mg/kg	3.125 mg/kg	105	50.0	140	----
		Toluene	108-88-3	E611D	1.98 mg/kg	3.125 mg/kg	101	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.22 mg/kg	3.125 mg/kg	113	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.04 mg/kg	3.125 mg/kg	104	50.0	140	----
		Trichloroethylene	79-01-6	E611D	2.20 mg/kg	3.125 mg/kg	112	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.35 mg/kg	3.125 mg/kg	119	50.0	140	----
		Vinyl chloride	75-01-4	E611D	2.16 mg/kg	3.125 mg/kg	110	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	4.02 mg/kg	6.25 mg/kg	102	50.0	140	----
		Xylene, o-	95-47-6	E611D	2.01 mg/kg	3.125 mg/kg	102	50.0	140	----
Volatile Organic Compounds (QCLot: 1366105)										
WT2404772-004	Anonymous	Benzene	71-43-2	E611A	2.31 mg/kg	3.125 mg/kg	110	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.20 mg/kg	3.125 mg/kg	105	60.0	140	----
		Toluene	108-88-3	E611A	2.21 mg/kg	3.125 mg/kg	105	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	4.36 mg/kg	6.25 mg/kg	104	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.21 mg/kg	3.125 mg/kg	105	60.0	140	----
Hydrocarbons (QCLot: 1362279)										
WT2405307-005	Anonymous	F1 (C6-C10)	----	E581.F1	39.0 mg/kg	62.5 mg/kg	99.1	60.0	140	----
Hydrocarbons (QCLot: 1362378)										
WT2405174-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	541 mg/kg	671.175 mg/kg	94.4	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1170 mg/kg	1384.058 mg/kg	99.2	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	637 mg/kg	738.5 mg/kg	101	60.0	140	----
Hydrocarbons (QCLot: 1366106)										
WT2404772-004	Anonymous	F1 (C6-C10)	----	E581.F1	38.2 mg/kg	62.5 mg/kg	91.2	60.0	140	----
Hydrocarbons (QCLot: 1370882)										
WT2405698-003	Anonymous	F2 (C10-C16)	----	E601.SG-L	555 mg/kg	671.175 mg/kg	97.5	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1130 mg/kg	1384.058 mg/kg	96.4	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	635 mg/kg	738.5 mg/kg	102	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1362379)										
WT2405174-001	Anonymous	Acenaphthene	83-32-9	E641A	0.345 mg/kg	0.5 mg/kg	80.8	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.357 mg/kg	0.5 mg/kg	83.6	50.0	140	----
		Anthracene	120-12-7	E641A	0.357 mg/kg	0.5 mg/kg	83.6	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.345 mg/kg	0.5 mg/kg	80.8	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1362379) - continued										
WT2405174-001	Anonymous	Benzo(a)pyrene	50-32-8	E641A	0.338 mg/kg	0.5 mg/kg	79.2	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.360 mg/kg	0.5 mg/kg	84.2	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.367 mg/kg	0.5 mg/kg	85.9	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.345 mg/kg	0.5 mg/kg	80.7	50.0	140	----
		Chrysene	218-01-9	E641A	0.320 mg/kg	0.5 mg/kg	74.8	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.358 mg/kg	0.5 mg/kg	83.7	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.351 mg/kg	0.5 mg/kg	82.1	50.0	140	----
		Fluorene	86-73-7	E641A	0.362 mg/kg	0.5 mg/kg	84.7	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.376 mg/kg	0.5 mg/kg	87.9	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.328 mg/kg	0.5 mg/kg	76.7	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.358 mg/kg	0.5 mg/kg	83.7	50.0	140	----
		Naphthalene	91-20-3	E641A	0.332 mg/kg	0.5 mg/kg	77.7	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.354 mg/kg	0.5 mg/kg	82.7	50.0	140	----
		Pyrene	129-00-0	E641A	0.339 mg/kg	0.5 mg/kg	79.3	50.0	140	----

Reference Material (RM) Report

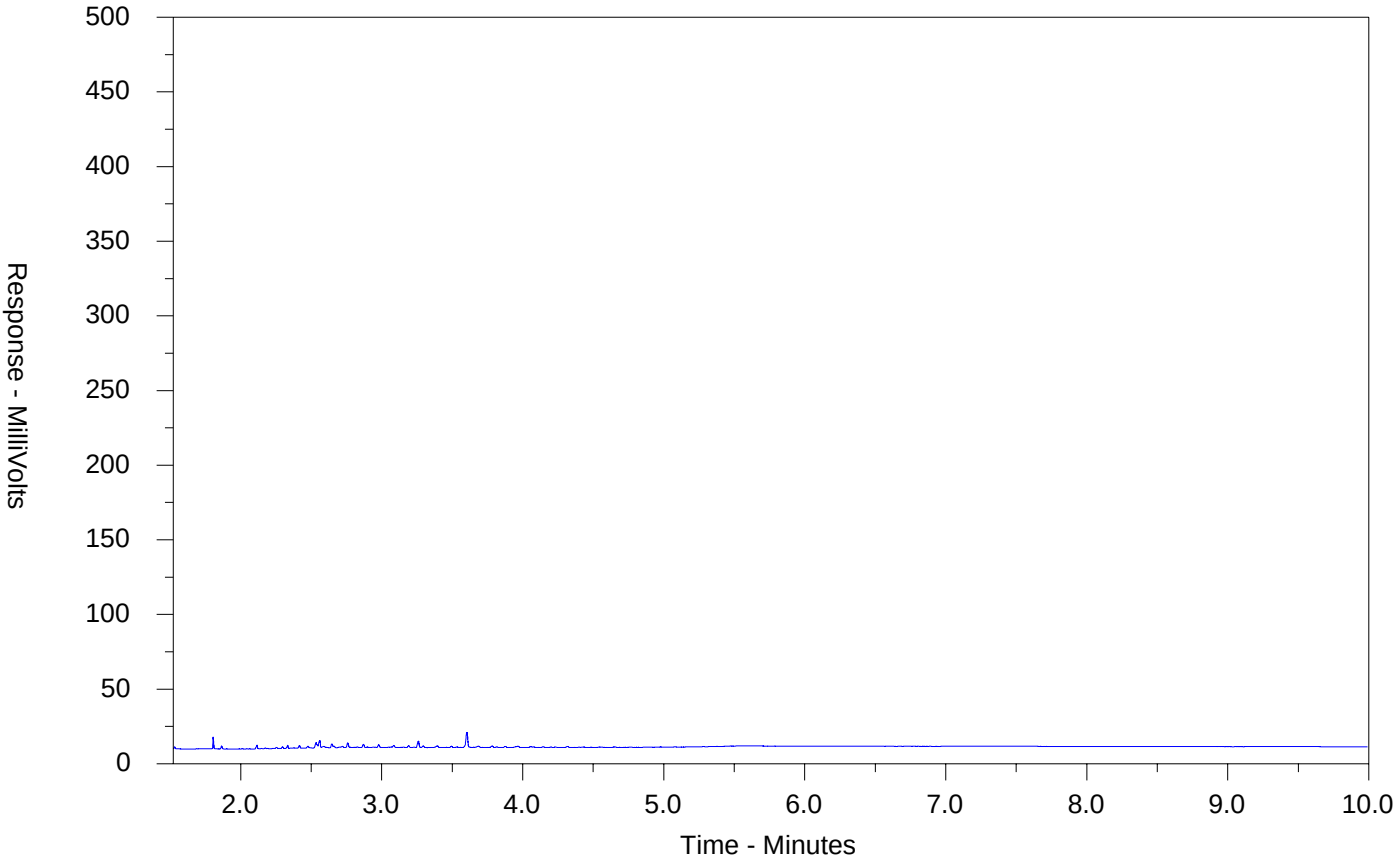
A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1362150)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1384 µS/cm	104	70.0	130	----
Metals (QCLot: 1362149)									
	RM	Calcium, soluble ion content	7440-70-2	E484	43.54 mg/L	113	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	15.24 mg/L	109	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	33.47 mg/L	108	70.0	130	----
Metals (QCLot: 1362151)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.366 mg/kg	120	60.0	140	----
Metals (QCLot: 1362152)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	111	70.0	130	----
Metals (QCLot: 1362153)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	97.1	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	97.0	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	103	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	103	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	125	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	98.6	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	105	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	102	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	107	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	99.9	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	103	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	102	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	102	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	99.0	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	104	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	99.0	70.0	130	----
Speciated Metals (QCLot: 1362147)									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	94.1	70.0	130	----

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405164-002-E601.SG-L
Client Sample ID: BH202 GS3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

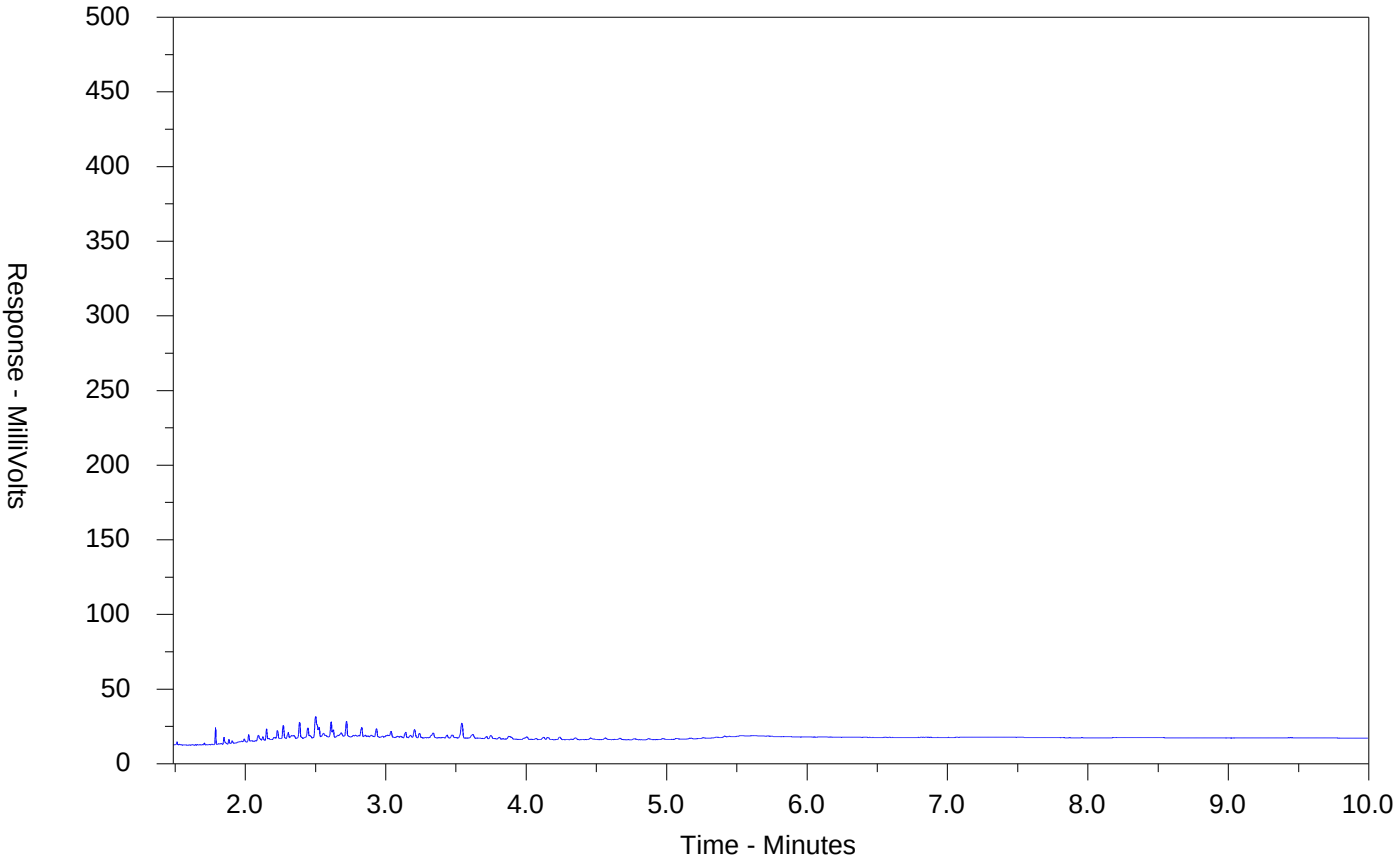
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405164-005-E601.SG-L
Client Sample ID: BH202 SS6A



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

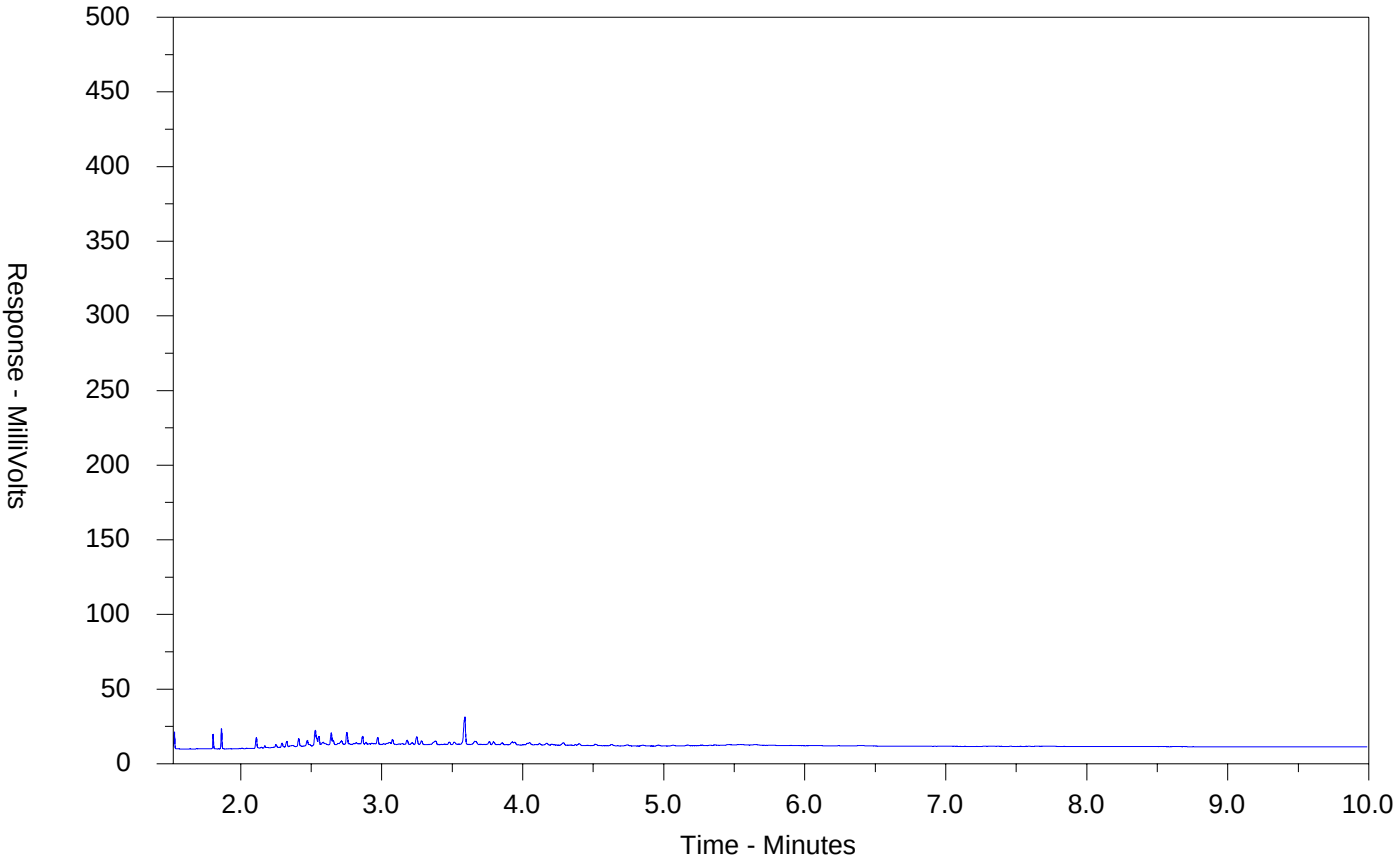
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405164-008-E601.SG-L
Client Sample ID: BH203 GS4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

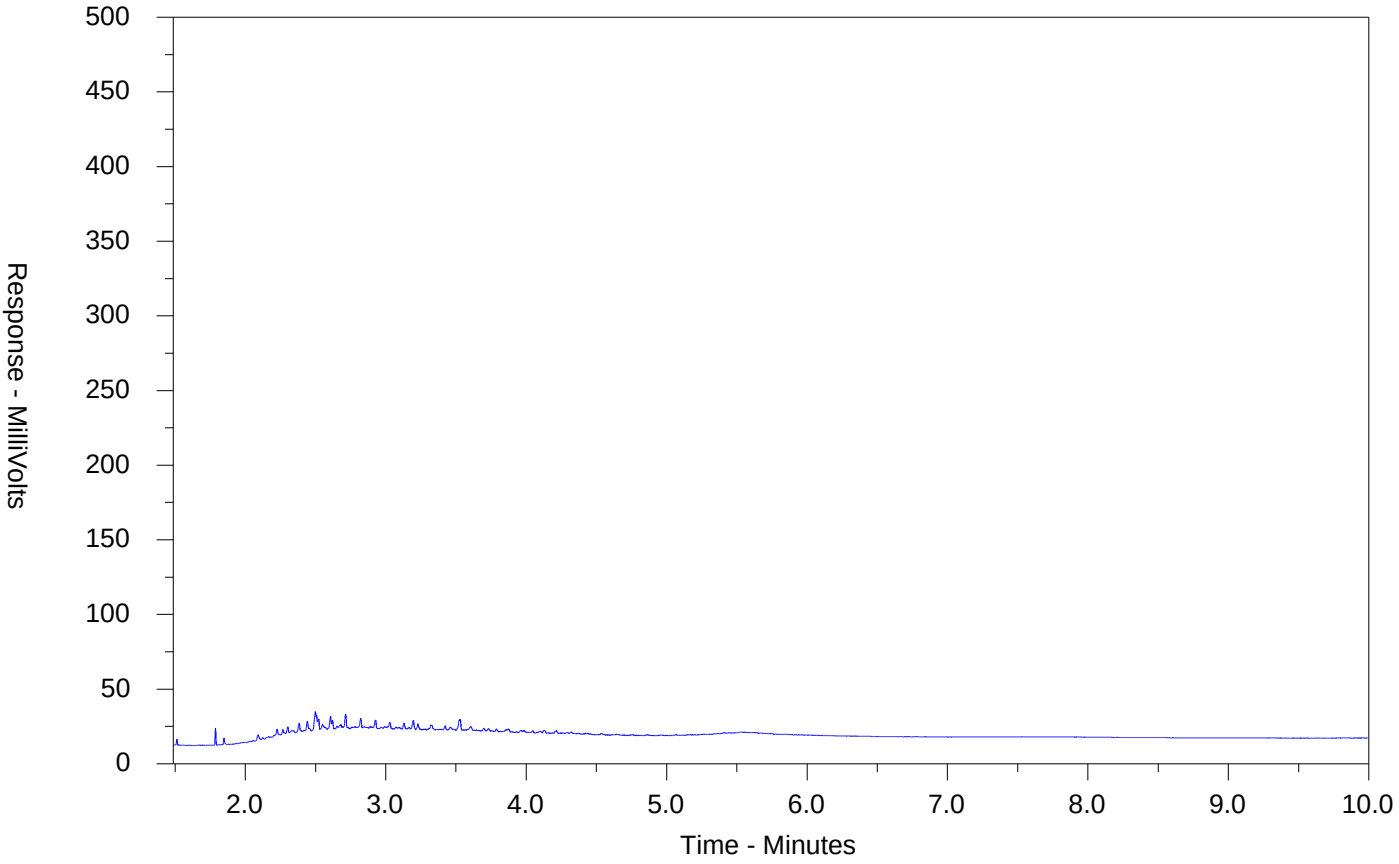
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405164-010-E601.SG-L
Client Sample ID: BH203 SS4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

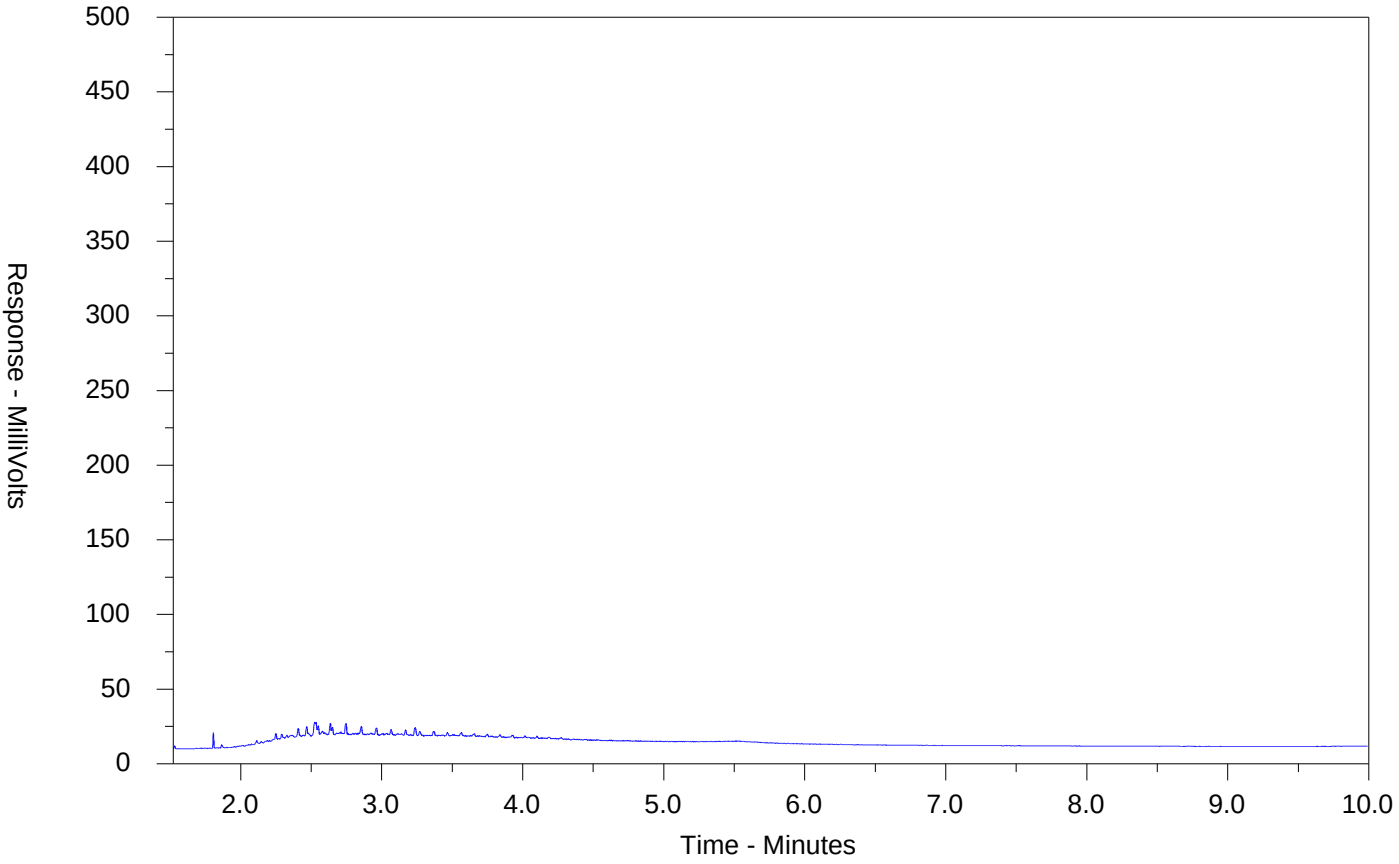
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405164-016-E601.SG-L
Client Sample ID: DUP 03



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

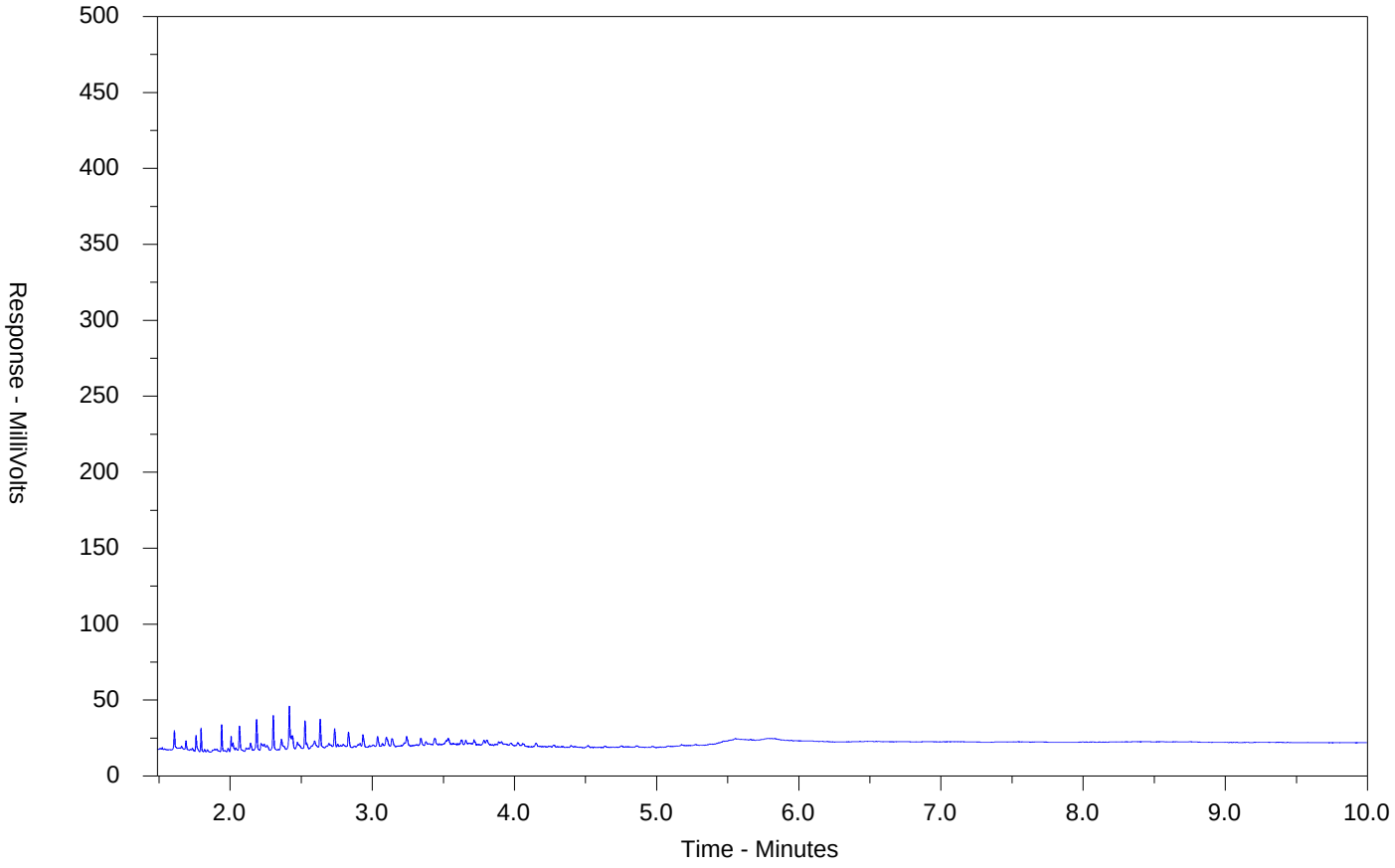
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405164-017-E601.SG-L
Client Sample ID: GS1



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

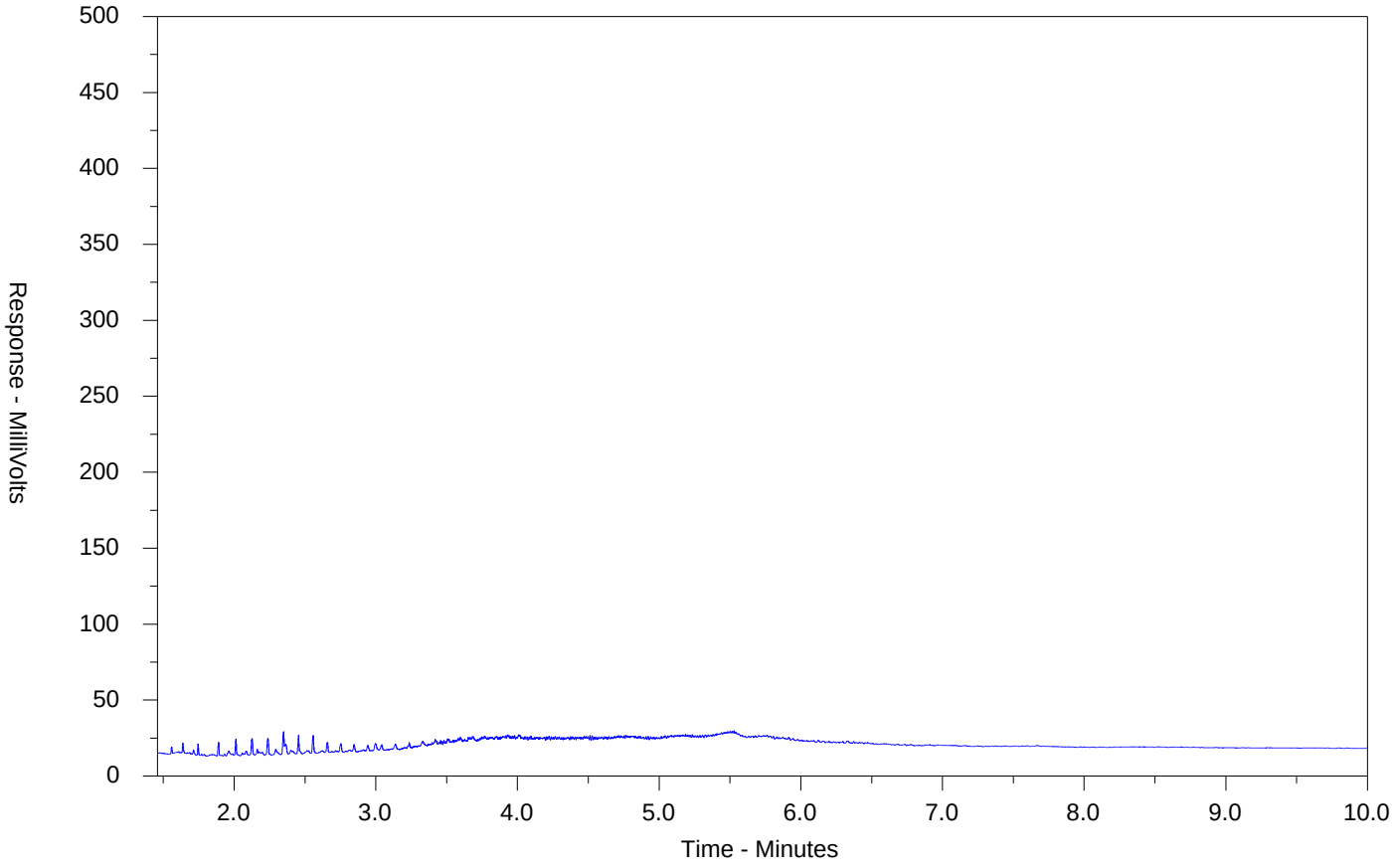
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405164-018-E601.SG-L
Client Sample ID: GS2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 950111

Page 1 of 2

ALS www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo

Work Order Reference WT2405164

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Deeana Reynolds
Phone:	647 370 3141
Company address below will appear on the final report	
Street:	1 Banigan Dr.
City/Province:	Toronto
Postal Code:	M4H 1G3

Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☒ YES ☐ NO
Company:	
Contact:	

Project Information	
ALS Account # / Quote #:	
Job #:	23-197
PO / AFE:	
LSD:	

Reports / Recipients	
Select Report Format:	☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Dreynolds@groundedeng.ca
Email 2	yquan@groundedeng.ca
Email 3	

Invoice Recipients	
Select Invoice Distribution:	☒ EMAIL ☒ MAIL ☐ FAX
Email 1 or Fax	Dreynolds@groundedeng.ca
Email 2	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact:

Sampler: IH

Turnaround Time (TAT) Requested

☒ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests.

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contact

Analysis Reques

Indicate Filtered (F), Preserved (P) or Filtered and Pres

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	MPI	PAH	PHC/BTEX	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIR	SUSPECTED HAZARD (see not
	BH202 GS2	4/03/24	14:50	SOIL	2	X	X					
	BH202 GS3	4/03/24	14:55		3			X	X			
	BH202 SS1	5/03/24	12:00		2	X	X					
	BH202 SS5		12:05		3				X			
	BH202 SS6A		12:10		3			X	X	X		
	BH202 SS8		12:15		3			X	X	X		
	BH203 GS2	4/03/24	15:00		2	X	X					
	BH203 GS4	4/03/24	15:05		3			X	X			
	BH203 SS1	5/03/24	14:50		2	X	X					
	BH203 SS4	5/03/24	14:55		3			X	X			
	BH201 SS2	6/03/24	13:10		3				X			
	BH201 SS5	6/03/24	13:15		3				X			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Table 2, RPI, MED/FINE TEX SOILS
Are samples for human consumption/ use? ☐ YES ☐ NO	RSC O.Reg 153/04

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			1.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: IMRAN HAJI	Date: 6/03/24	Time: 16:50	Received by:	Date:	Time:	Received by: FH	Date: 2024-Mar-07	Time: 18:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

SOL-013

CN

VS-199

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047521

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Grandied Engineering
Contact:	Deeana Reynolds
Phone:	647 370 3191
	Company address below will appear on the final report
Street:	1 Banigan Dr.
City/Province:	Toronto
Postal Code:	M4H 1G3

Reports / Recipients

Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: Dreynolds@grandiedeng.ca

Email 2: yguair@grandiedeng.ca

Email 3:

Turnaround Time (TAT) Requested

☒ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Invoice To		
	Same as Report To	☒ YES ☐ NO
	Copy of Invoice with Report	☒ YES ☐ NO
Company:		
Contact:		

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☒ MAIL ☐ FAX

Email 1 or Fax: Dreynolds@grandiedeng.ca

Email 2:

Project Information

ALS Account # / Quote #:

Job #: 23-197

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#:

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&I	PAH	PHC/BTEX	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH201 SS8	6/03/24	13:20	SOIL	3				X			
	DUP 01	4/03/24	14:50		1		X					
	DUP 02	5/03/24	14:50		1	X						
	DUP 03	5/03/24	14:55		3			X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O.Reg 153/04, Table 2, MED/FINE TEX SOILS, RSC

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				1.6			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
IMRAN HAJI	6/03/24	16:50

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
AH	2024-Mar-07	18:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any of samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2336132**	Page	: 1 of 12
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 06-Nov-2023 09:50
PO	: ----	Date Analysis Commenced	: 06-Nov-2023
C-O-C number	: 20-1047633	Issue Date	: 15-Nov-2023 16:25
Sampler	: KS		
Site	: 705 KINGSTON RD. PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Metals, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102S	TRIP BLANK	----	----	----	----	----
				Sampling date/time	03-Nov-2023 12:30	03-Nov-2023 12:30	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					WT2336132-001	WT2336132-002	--------	--------	--------	--------	--------
Physical Tests											
Conductivity	----	E100/WT	mS/cm		2.31	----	----	----	----	----	----
pH	----	E108/WT	pH units		7.92	----	----	----	----	----	----
Anions and Nutrients											
Chloride	16887-00-6	E235.Cl/WT	mg/L		570 DLDS	----	----	----	----	----	----
Cyanides											
Cyanide, weak acid dissociable	----	E336/WT	µg/L		<2.0	----	----	----	----	----	----
Dissolved Metals											
Antimony, dissolved	7440-36-0	E421/WT	µg/L		0.16	----	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/WT	µg/L		0.48	----	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/WT	µg/L		173	----	----	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/WT	µg/L		<0.020	----	----	----	----	----	----
Boron, dissolved	7440-42-8	E421/WT	µg/L		46	----	----	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/WT	µg/L		0.0477	----	----	----	----	----	----
Chromium, dissolved	7440-47-3	E421/WT	µg/L		<0.50	----	----	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/WT	µg/L		1.27	----	----	----	----	----	----
Copper, dissolved	7440-50-8	E421/WT	µg/L		1.53	----	----	----	----	----	----
Lead, dissolved	7439-92-1	E421/WT	µg/L		<0.050	----	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/WT	µg/L		<0.0050	----	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/WT	µg/L		6.13	----	----	----	----	----	----
Nickel, dissolved	7440-02-0	E421/WT	µg/L		2.17	----	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/WT	µg/L		0.251	----	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/WT	µg/L		<0.010	----	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/WT	µg/L		108000	----	----	----	----	----	----
Thallium, dissolved	7440-28-0	E421/WT	µg/L		0.055	----	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/WT	µg/L		1.97	----	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/WT	µg/L		<0.50	----	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/WT	µg/L		1.8	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: BH102S	TRIP BLANK	----	----	----	----	----
				Sampling date/time: 03-Nov-2023 12:30	03-Nov-2023 12:30	----	----	----	----	----
				Sub-Matrix: Water	Water	----	----	----	----	----
				WT2336132-001	WT2336132-002	--------	--------	--------	--------	--------
Dissolved Metals										
Dissolved mercury filtration location	----	EP509/WT	-	Field	----	----	----	----	----	----
Dissolved metals filtration location	----	EP421/WT	-	Field	----	----	----	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	µg/L	<0.50	----	----	----	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	µg/L	<20	<20	----	----	----	----	----
Benzene	71-43-2	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	µg/L	<0.20	<0.20	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	µg/L	<0.20	<0.20	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	µg/L	<1.0	<1.0	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	µg/L	<0.30	<0.30	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: BH102S	TRIP BLANK	----	----	----	----	----
				Sampling date/time: 03-Nov-2023 12:30	03-Nov-2023 12:30	----	----	----	----	----
				Sub-Matrix: Water	Water	----	----	----	----	----
				WT2336132-001	WT2336132-002	--------	--------	--------	--------	--------
Volatile Organic Compounds										
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	µg/L	<0.30	<0.30	----	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	µg/L	<20	<20	----	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	µg/L	<20	<20	----	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Styrene	100-42-5	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Toluene	108-88-3	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	µg/L	<0.40	<0.40	----	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	µg/L	<0.30	<0.30	----	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	µg/L	<0.50	<0.50	----	----	----	----	----
BTEX, total	----	E611D/WT	µg/L	<1.0	<1.0	----	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1-L/WT	µg/L	<25	<25	----	----	----	----	----
F2 (C10-C16)	----	E601.SG/WT	µg/L	<100	----	----	----	----	----	----
F2-Naphthalene	----	EC600SG/WT	µg/L	<100	----	----	----	----	----	----
F3 (C16-C34)	----	E601.SG/WT	µg/L	<250	----	----	----	----	----	----
F3-PAH	n/a	EC600SG/WT	µg/L	<250	----	----	----	----	----	----
F4 (C34-C50)	----	E601.SG/WT	µg/L	<250	----	----	----	----	----	----
F1-BTEX	----	EC580/WT	µg/L	<25	<25	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: BH102S	TRIP BLANK	----	----	----	----	----
				Sampling date/time: 03-Nov-2023 12:30	03-Nov-2023 12:30	----	----	----	----	----
				Sub-Matrix: Water	Water	----	----	----	----	----
				WT2336132-001	WT2336132-002	--------	--------	--------	--------	--------
Hydrocarbons										
Hydrocarbons, total (C6-C50)	n/a	EC581SG/WT	µg/L	<370	----	----	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG/WT	-	YES	----	----	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/WT	%	84.4	----	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1-L/WT	%	97.9	99.1	----	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%	94.4	94.2	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%	98.9	99.7	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Anthracene	120-12-7	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	µg/L	<0.0050	----	----	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	µg/L	<0.0050	----	----	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Fluorene	86-73-7	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L	<0.015	----	----	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	µg/L	<0.010	----	----	----	----	----	----
Naphthalene	91-20-3	E641A/WT	µg/L	<0.050	----	----	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	µg/L	<0.020	----	----	----	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L	<0.010	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH102S	TRIP BLANK	----	----	----	----	----
				Sampling date/time	03-Nov-2023 12:30	03-Nov-2023 12:30	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
				WT2336132-001	WT2336132-002	--------	--------	--------	--------	--------	
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT	%	134	----	----	----	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%	88.5	----	----	----	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%	117	----	----	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-AI I
Physical Tests			
Conductivity	----	mS/cm	--
pH	----	pH units	--
Anions and Nutrients			
Chloride	16887-00-6	mg/L	**2300 mg/L**
Cyanides			
Cyanide, weak acid dissociable	----	µg/L	**66 µg/L**
Dissolved Metals			
Antimony, dissolved	7440-36-0	µg/L	**20000 µg/L**
Arsenic, dissolved	7440-38-2	µg/L	**1900 µg/L**
Barium, dissolved	7440-39-3	µg/L	**29000 µg/L**
Beryllium, dissolved	7440-41-7	µg/L	**67 µg/L**
Boron, dissolved	7440-42-8	µg/L	**45000 µg/L**
Cadmium, dissolved	7440-43-9	µg/L	**2.7 µg/L**
Chromium, dissolved	7440-47-3	µg/L	**810 µg/L**
Cobalt, dissolved	7440-48-4	µg/L	**66 µg/L**
Copper, dissolved	7440-50-8	µg/L	**87 µg/L**
Dissolved mercury filtration location	----	-	--
Dissolved metals filtration location	----	-	--
Lead, dissolved	7439-92-1	µg/L	**25 µg/L**
Mercury, dissolved	7439-97-6	µg/L	**0.29 µg/L**
Molybdenum, dissolved	7439-98-7	µg/L	**9200 µg/L**
Nickel, dissolved	7440-02-0	µg/L	**490 µg/L**
Selenium, dissolved	7782-49-2	µg/L	**63 µg/L**
Silver, dissolved	7440-22-4	µg/L	**1.5 µg/L**
Sodium, dissolved	7440-23-5	µg/L	**2300000 µg/L**
Thallium, dissolved	7440-28-0	µg/L	**510 µg/L**
Uranium, dissolved	7440-61-1	µg/L	**420 µg/L**
Vanadium, dissolved	7440-62-2	µg/L	**250 µg/L**
Zinc, dissolved	7440-66-6	µg/L	**1100 µg/L**
Speciated Metals			
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	µg/L	**140 µg/L**
Volatile Organic Compounds			
Acetone	67-64-1	µg/L	**130000 µg/L**
Benzene	71-43-2	µg/L	**44 µg/L**
Bromodichloromethane	75-27-4	µg/L	**85000 µg/L**
Bromoform	75-25-2	µg/L	**380 µg/L**

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-Al l						
Volatile Organic Compounds - Continued									
Bromomethane	74-83-9	µg/L	**5.6 µg/L**						
BTEX, total	----	µg/L	**--**						
Carbon tetrachloride	56-23-5	µg/L	**0.79 µg/L**						
Chlorobenzene	108-90-7	µg/L	**630 µg/L**						
Chloroform	67-66-3	µg/L	**2.4 µg/L**						
Dibromochloromethane	124-48-1	µg/L	**82000 µg/L**						
Dibromoethane, 1,2-	106-93-4	µg/L	**0.25 µg/L**						
Dichlorobenzene, 1,2-	95-50-1	µg/L	**4600 µg/L**						
Dichlorobenzene, 1,3-	541-73-1	µg/L	**9600 µg/L**						
Dichlorobenzene, 1,4-	106-46-7	µg/L	**8 µg/L**						
Dichlorodifluoromethane	75-71-8	µg/L	**4400 µg/L**						
Dichloroethane, 1,1-	75-34-3	µg/L	**320 µg/L**						
Dichloroethane, 1,2-	107-06-2	µg/L	**1.6 µg/L**						
Dichloroethylene, 1,1-	75-35-4	µg/L	**1.6 µg/L**						
Dichloroethylene, cis-1,2-	156-59-2	µg/L	**1.6 µg/L**						
Dichloroethylene, trans-1,2-	156-60-5	µg/L	**1.6 µg/L**						
Dichloromethane	75-09-2	µg/L	**610 µg/L**						
Dichloropropane, 1,2-	78-87-5	µg/L	**16 µg/L**						
Dichloropropylene, cis+trans-1,3-	542-75-6	µg/L	**5.2 µg/L**						
Dichloropropylene, cis-1,3-	10061-01-5	µg/L	**--**						
Dichloropropylene, trans-1,3-	10061-02-6	µg/L	**--**						
Ethylbenzene	100-41-4	µg/L	**2300 µg/L**						
Hexane, n-	110-54-3	µg/L	**51 µg/L**						
Methyl ethyl ketone [MEK]	78-93-3	µg/L	**470000 µg/L**						
Methyl isobutyl ketone [MIBK]	108-10-1	µg/L	**140000 µg/L**						
Methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L	**190 µg/L**						
Styrene	100-42-5	µg/L	**1300 µg/L**						
Tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	**3.3 µg/L**						
Tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	**3.2 µg/L**						
Tetrachloroethylene	127-18-4	µg/L	**1.6 µg/L**						
Toluene	108-88-3	µg/L	**18000 µg/L**						
Trichloroethane, 1,1,1-	71-55-6	µg/L	**640 µg/L**						
Trichloroethane, 1,1,2-	79-00-5	µg/L	**4.7 µg/L**						
Trichloroethylene	79-01-6	µg/L	**1.6 µg/L**						
Trichlorofluoromethane	75-69-4	µg/L	**2500 µg/L**						
Vinyl chloride	75-01-4	µg/L	**0.5 µg/L**						
Xylene, m+p-	179601-23-1	µg/L	**--**						
Xylene, o-	95-47-6	µg/L	**--**						

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-Al l						
Volatile Organic Compounds - Continued									
Xylenes, total	1330-20-7	µg/L	**4200 µg/L**						
Hydrocarbons									
Chromatogram to baseline at nC50	n/a	-	**--**						
F1 (C6-C10)	----	µg/L	**750 µg/L**						
F1-BTEX	----	µg/L	**750 µg/L**						
F2 (C10-C16)	----	µg/L	**150 µg/L**						
F2-Naphthalene	----	µg/L	**--**						
F3 (C16-C34)	----	µg/L	**500 µg/L**						
F3-PAH	n/a	µg/L	**--**						
F4 (C34-C50)	----	µg/L	**500 µg/L**						
Hydrocarbons, total (C6-C50)	n/a	µg/L	**--**						
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%							
Dichlorotoluene, 3,4-	95-75-0	%							
Bromofluorobenzene, 4-	460-00-4	%							
Difluorobenzene, 1,4-	540-36-3	%							
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	µg/L	**600 µg/L**						
Acenaphthylene	208-96-8	µg/L	**1.8 µg/L**						
Anthracene	120-12-7	µg/L	**2.4 µg/L**						
Benz(a)anthracene	56-55-3	µg/L	**4.7 µg/L**						
Benzo(a)pyrene	50-32-8	µg/L	**0.81 µg/L**						
Benzo(b+j)fluoranthene	n/a	µg/L	**0.75 µg/L**						
Benzo(g,h,i)perylene	191-24-2	µg/L	**0.2 µg/L**						
Benzo(k)fluoranthene	207-08-9	µg/L	**0.4 µg/L**						
Chrysene	218-01-9	µg/L	**1 µg/L**						
Dibenz(a,h)anthracene	53-70-3	µg/L	**0.52 µg/L**						
Fluoranthene	206-44-0	µg/L	**130 µg/L**						
Fluorene	86-73-7	µg/L	**400 µg/L**						
Indeno(1,2,3-c,d)pyrene	193-39-5	µg/L	**0.2 µg/L**						
Methylnaphthalene, 1+2-	----	µg/L	**1800 µg/L**						
Methylnaphthalene, 1-	90-12-0	µg/L	**1800 µg/L**						
Methylnaphthalene, 2-	91-57-6	µg/L	**1800 µg/L**						
Naphthalene	91-20-3	µg/L	**1400 µg/L**						
Phenanthrene	85-01-8	µg/L	**580 µg/L**						
Pyrene	129-00-0	µg/L	**68 µg/L**						
Chrysene-d12	1719-03-5	%							
Naphthalene-d8	1146-65-2	%							
Phenanthrene-d10	1517-22-2	%							

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04		Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
	T3-NPGW-C-All	153 T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2336132**	Page	: 1 of 10
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 06-Nov-2023 09:50
PO	: ----	Issue Date	: 15-Nov-2023 16:28
C-O-C number	: 20-1047633		
Sampler	: KS		
Site	: 705 KINGSTON RD. PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Volatile Organic Compounds	QC-1225807-002	----	Dichlorodifluoromethane	75-71-8	E611D	59.2 % MES	60.0-140%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Recoveries								
Volatile Organic Compounds	Anonymous	Anonymous	Dichlorodifluoromethane	75-71-8	E611D	56.5 % MES	60.0-140%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH102S	E235.Cl	03-Nov-2023	07-Nov-2023	28 days	4 days	✓	07-Nov-2023	28 days	4 days	✓
Cyanides : WAD Cyanide										
HDPE - total (sodium hydroxide)										
BH102S	E336	03-Nov-2023	08-Nov-2023	14 days	5 days	✓	08-Nov-2023	14 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
BH102S	E509	03-Nov-2023	08-Nov-2023	28 days	5 days	✓	09-Nov-2023	23 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH102S	E421	03-Nov-2023	06-Nov-2023	180 days	3 days	✓	06-Nov-2023	180 days	3 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
BH102S	E581.F1-L	03-Nov-2023	07-Nov-2023	14 days	4 days	✓	07-Nov-2023	14 days	4 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
TRIP BLANK	E581.F1-L	03-Nov-2023	07-Nov-2023	14 days	4 days	✓	07-Nov-2023	14 days	4 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH102S	E601.SG	03-Nov-2023	06-Nov-2023	14 days	3 days	✓	10-Nov-2023	40 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : Conductivity in Water										
HDPE [ON MECP] BH102S	E100	03-Nov-2023	07-Nov-2023	28 days	4 days	✓	08-Nov-2023	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] BH102S	E108	03-Nov-2023	07-Nov-2023	14 days	4 days	✓	08-Nov-2023	14 days	5 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) BH102S	E641A	03-Nov-2023	06-Nov-2023	14 days	3 days	✓	15-Nov-2023	40 days	9 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP] BH102S	E532A	03-Nov-2023	----	----	----		06-Nov-2023	28 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH102S	E611D	03-Nov-2023	07-Nov-2023	14 days	4 days	✓	07-Nov-2023	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIP BLANK	E611D	03-Nov-2023	07-Nov-2023	14 days	4 days	✓	07-Nov-2023	14 days	4 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1225808	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	1226405	1	18	5.5	5.0	✓
Conductivity in Water	E100	1226410	1	15	6.6	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1224692	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228411	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1224701	1	20	5.0	5.0	✓
pH by Meter	E108	1226409	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1225807	1	20	5.0	5.0	✓
WAD Cyanide	E336	1226752	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1225808	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	1226405	1	18	5.5	5.0	✓
Conductivity in Water	E100	1226410	1	15	6.6	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1224692	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228411	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1224701	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1224844	1	20	5.0	5.0	✓
pH by Meter	E108	1226409	1	20	5.0	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1231817	2	36	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1225807	1	20	5.0	5.0	✓
WAD Cyanide	E336	1226752	1	20	5.0	5.0	✓
Method Blanks (MB)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1225808	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	1226405	1	18	5.5	5.0	✓
Conductivity in Water	E100	1226410	1	15	6.6	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1224692	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228411	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1224701	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1224844	1	20	5.0	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1231817	2	36	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1225807	1	20	5.0	5.0	✓
WAD Cyanide	E336	1226752	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1225808	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	1226405	1	18	5.5	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1224692	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228411	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1224701	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1225807	1	20	5.0	5.0	✓
WAD Cyanide	E336	1226752	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
WAD Cyanide	E336 ALS Environmental - Waterloo	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. sample pretreatment involved field or lab filtration following by sample preservation.
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
F1-BTEX	EC580 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
SUM F1 to F4 where F2-F4 is SG treated	EC581SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fraction F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50), where F2-F4 have been treated with silica gel. F4G-sg is not used within this calculation due to overlap with other fractions.
F2-F4 (sg) minus PAH	EC600SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F2-F4 (sg) minus PAH is calculated as follows: F2-F4 minus PAH = Sum of CCME Fraction 2 (C10-C16), CCME Fraction 3 (C16-C34), and CCME Fraction 4 (C34-C50), minus select Polycyclic Aromatic Hydrocarbons (PAH).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL REPORT

Work Order	: **WT2336132**	Page	: 1 of 16
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 06-Nov-2023 09:50
PO	: ----	Date Analysis Commenced	: 06-Nov-2023
C-O-C number	: 20-1047633	Issue Date	: 15-Nov-2023 16:15
Sampler	: KS 647 370 3191		
Site	: 705 KINGSTON RD. PICKERING		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1226409)											
WT2335994-001	Anonymous	pH	----	E108	0.10	pH units	8.26	8.26	0.00%	4%	----
Physical Tests (QC Lot: 1226410)											
WT2335994-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	832	831	0.120%	10%	----
Anions and Nutrients (QC Lot: 1226405)											
WT2335994-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	106	106	0.257%	20%	----
Cyanides (QC Lot: 1226752)											
WT2336124-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.0020	mg/L	<2.0 µg/L	<0.0020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1224701)											
WT2335974-001	Anonymous	Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00378	0.00388	2.52%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0620	0.0621	0.116%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.021	0.021	0.0002	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000065	0.0000077	0.0000012	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00029	0.00029	0.0000007	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000073	0.000074	0.000001	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00127	0.00128	0.485%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00109	0.00112	0.00004	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	6.77	6.71	0.899%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000044	0.000046	0.000002	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000419	0.000441	5.00%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0212	0.0217	2.20%	20%	----
Dissolved Metals (QC Lot: 1228411)											
FJ2302920-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1224692)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 1224692) - continued											
WT2336106-009	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1225807)											
WT2335952-003	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1225807) - continued											
WT2335952-003	Anonymous	Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1225808)											
WT2335952-003	Anonymous	F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1226410)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 1226405)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Cyanides (QCLot: 1226752)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Dissolved Metals (QCLot: 1224701)						
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Dissolved Metals (QCLot: 1228411)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1224692)						
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1225807)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1225807) - continued						
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1225807) - continued						
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1224845)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----
Hydrocarbons (QCLot: 1225808)						
F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	----
Hydrocarbons (QCLot: 1231817)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1224844)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1226409)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1226410)									
Conductivity	----	E100	1	µS/cm	1409 µS/cm	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1226405)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.9	90.0	110	----
Cyanides (QCLot: 1226752)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	97.1	80.0	120	----
Dissolved Metals (QCLot: 1224701)									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	105	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	107	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	99.5	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	93.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	104	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	99.5	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	99.2	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	99.3	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	98.0	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	99.3	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	98.7	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	92.8	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	99.2	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	105	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	99.5	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	101	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	99.5	80.0	120	----
Speciated Metals (QCLot: 1224692)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Speciated Metals (QCLot: 1224692) - continued									
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	0.025 mg/L	93.7	80.0	120	----
Volatile Organic Compounds (QCLot: 1225807)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	99.3	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	84.9	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	87.0	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	93.9	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	78.6	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	86.0	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	89.4	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	88.4	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	90.0	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	90.9	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	88.7	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	86.7	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	85.8	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	# 59.2	60.0	140	MES
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	87.8	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	91.6	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	82.4	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	86.6	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	82.6	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	89.2	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	89.6	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	86.1	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	82.6	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	84.0	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	76.2	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	91.5	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	97.7	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	90.4	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	89.0	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	89.6	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	96.6	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	83.0	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	83.6	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1225807) - continued									
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	86.6	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	92.1	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	84.7	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	80.6	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	77.8	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	84.2	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	85.5	70.0	130	----
Hydrocarbons (QCLot: 1224845)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3685.12 µg/L	99.8	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7481.33 µg/L	104	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4274.88 µg/L	99.1	70.0	130	----
Hydrocarbons (QCLot: 1225808)									
F1 (C6-C10)	----	E581.F1-L	25	µg/L	2000 µg/L	106	80.0	120	----
Hydrocarbons (QCLot: 1231817)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3685.12 µg/L	98.7	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7481.33 µg/L	101	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4274.88 µg/L	104	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1224844)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5263 µg/L	105	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5263 µg/L	108	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5263 µg/L	114	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5263 µg/L	131	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5263 µg/L	124	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5263 µg/L	103	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5263 µg/L	111	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5263 µg/L	106	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5263 µg/L	124	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5263 µg/L	105	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5263 µg/L	122	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5263 µg/L	118	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5263 µg/L	120	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5263 µg/L	95.2	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5263 µg/L	93.7	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5263 µg/L	85.6	50.0	140	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1224844) - continued									
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5263 µg/L	114	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5263 µg/L	115	50.0	140	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1226405)										
WT2335994-001	Anonymous	Chloride	16887-00-6	E235.Cl	ND mg/L	100 mg/L	ND	75.0	125	----
Cyanides (QCLot: 1226752)										
WT2336124-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.123 mg/L	0.125 mg/L	98.2	75.0	125	----
Dissolved Metals (QCLot: 1224701)										
WT2336103-031	Anonymous	Antimony, dissolved	7440-36-0	E421	0.0498 mg/L	0.05 mg/L	99.6	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0561 mg/L	0.05 mg/L	112	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.00508 mg/L	0.005 mg/L	102	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.044 mg/L	0.05 mg/L	87.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00520 mg/L	0.005 mg/L	104	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0124 mg/L	0.0125 mg/L	98.8	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0121 mg/L	0.0125 mg/L	96.8	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0118 mg/L	0.0125 mg/L	94.7	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0252 mg/L	0.025 mg/L	101	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0119 mg/L	0.0125 mg/L	95.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0238 mg/L	0.025 mg/L	95.3	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0544 mg/L	0.05 mg/L	109	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00399 mg/L	0.005 mg/L	79.8	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0514 mg/L	0.05 mg/L	103	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.00025 mg/L	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0256 mg/L	0.025 mg/L	102	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0243 mg/L	0.025 mg/L	97.2	70.0	130	----
Dissolved Metals (QCLot: 1228411)										
FJ2302939-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000886 mg/L	0.0001 mg/L	88.6	70.0	130	----
Speciated Metals (QCLot: 1224692)										
WT2336106-009	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
Volatile Organic Compounds (QCLot: 1225807)										
WT2335952-003	Anonymous	Acetone	67-64-1	E611D	98 µg/L	100 µg/L	98.5	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1225807) - continued										
WT2335952-003	Anonymous	Benzene	71-43-2	E611D	92.0 µg/L	100 µg/L	92.0	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	94.6 µg/L	100 µg/L	94.6	60.0	140	----
		Bromoform	75-25-2	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Bromomethane	74-83-9	E611D	82.7 µg/L	100 µg/L	82.7	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Chlorobenzene	108-90-7	E611D	95.8 µg/L	100 µg/L	95.8	60.0	140	----
		Chloroform	67-66-3	E611D	95.8 µg/L	100 µg/L	95.8	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	94.4 µg/L	100 µg/L	94.4	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	92.5 µg/L	100 µg/L	92.5	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	92.2 µg/L	100 µg/L	92.2	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	91.1 µg/L	100 µg/L	91.1	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	56.5 µg/L	100 µg/L	56.5	60.0	140	MES
		Dichloroethane, 1,1-	75-34-3	E611D	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	96.1 µg/L	100 µg/L	96.1	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	88.8 µg/L	100 µg/L	88.8	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	93.0 µg/L	100 µg/L	93.0	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	96.5 µg/L	100 µg/L	96.5	60.0	140	----
		Dichloromethane	75-09-2	E611D	94.8 µg/L	100 µg/L	94.8	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	91.6 µg/L	100 µg/L	91.6	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	86.2 µg/L	100 µg/L	86.2	60.0	140	----
		Ethylbenzene	100-41-4	E611D	90.6 µg/L	100 µg/L	90.6	60.0	140	----
		Hexane, n-	110-54-3	E611D	80.8 µg/L	100 µg/L	80.8	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	89 µg/L	100 µg/L	89.3	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	99 µg/L	100 µg/L	98.8	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Styrene	100-42-5	E611D	94.4 µg/L	100 µg/L	94.4	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	97.4 µg/L	100 µg/L	97.4	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	90.9 µg/L	100 µg/L	90.9	60.0	140	----
		Toluene	108-88-3	E611D	89.2 µg/L	100 µg/L	89.2	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	95.0 µg/L	100 µg/L	95.0	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Trichloroethylene	79-01-6	E611D	93.3 µg/L	100 µg/L	93.3	60.0	140	----

Sub-Matrix: **Water**

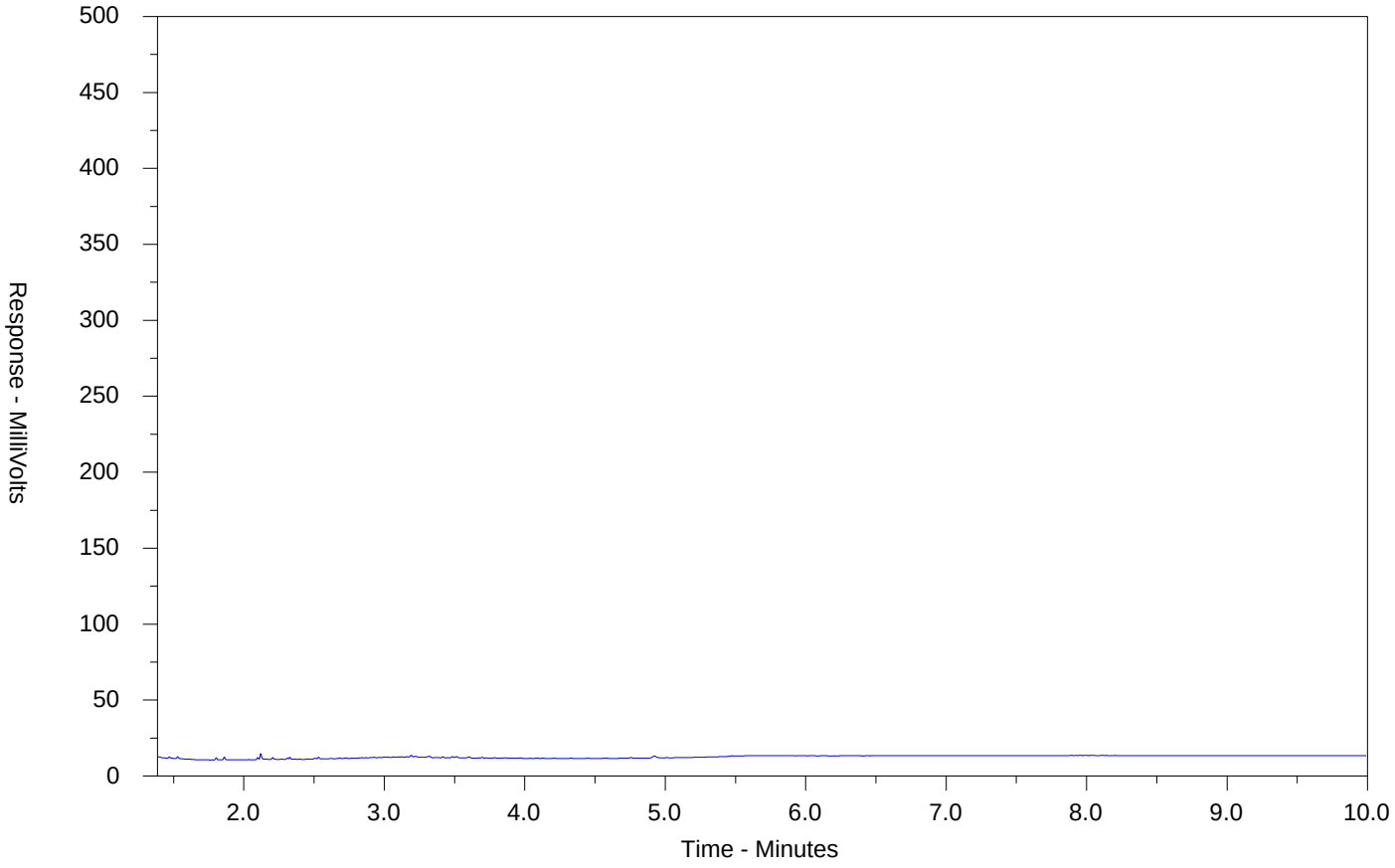
					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1225807) - continued										
WT2335952-003	Anonymous	Trichlorofluoromethane	75-69-4	E611D	85.9 µg/L	100 µg/L	85.9	60.0	140	----
		Vinyl chloride	75-01-4	E611D	79.4 µg/L	100 µg/L	79.4	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	183 µg/L	200 µg/L	91.4	60.0	140	----
		Xylene, o-	95-47-6	E611D	92.1 µg/L	100 µg/L	92.1	60.0	140	----
Hydrocarbons (QCLot: 1225808)										
WT2335952-003	Anonymous	F1 (C6-C10)	----	E581.F1-L	1860 µg/L	2000 µg/L	92.8	60.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2336132-001-E601.SG
Client Sample ID: BH102S



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

DR-426 CN-468
UW-200 MM-98
SC-544 GC-128

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 1047633

Page

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Waterloo

Work Order Reference WT2336132

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Deeana Reynolds
Phone:	
Company address below will appear on the final report	
Street:	1 Banigan Dr.
City/Province:	Toronto ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☑ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: dreynolds@groundedengr

Email 2:

Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimun

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimu

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimu

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimu

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Add may apply to rush requests on weekends, statutory holidays and non-

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contact your

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:	23-197	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:	705 Kingston Rd. Pickering	Location:	
ALS Lab Work Order # (ALS use only):	WT2336132	ALS Contact:	Sampler: KS

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&I	PHCs+BTEX	VOCs	PAHs	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH102S	03-Nov-23	12:30	GW	13	X	X	X	X			
	Trip Blank	03-Nov-23	12:30				X	X				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O.Reg 153/04 Table 3 Coarse
RSC: Yes
(use grounded standard template)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				0.4			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Kishani Sundaralingam	Nov 3/23	14:40

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	110603	7:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2336398**	Page	: 1 of 12
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 07-Nov-2023 18:30
PO	: ----	Date Analysis Commenced	: 08-Nov-2023
C-O-C number	: 20-1047632	Issue Date	: 17-Nov-2023 15:25
Sampler	: KS		
Site	: 705 Kingston Rd, Pickering		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
John Tang	Lab Analyst	Inorganics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	Description
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH105S	TRIP BLANK	----	----	----	----	----
				Sampling date/time	06-Nov-2023 13:00	06-Nov-2023 13:00	----	----	----	----	----
				Sub-Matrix	Groundwater	Groundwater	----	----	----	----	----
					WT2336398-001	WT2336398-002	--------	--------	--------	--------	--------
Physical Tests											
Conductivity	----	E100/WT	mS/cm		0.298	----	----	----	----	----	----
pH	----	E108/WT	pH units		8.06	----	----	----	----	----	----
Anions and Nutrients											
Chloride	16887-00-6	E235.Cl/WT	mg/L		6.71	----	----	----	----	----	----
Cyanides											
Cyanide, weak acid dissociable	----	E336/WT	µg/L		<2.0	----	----	----	----	----	----
Dissolved Metals											
Antimony, dissolved	7440-36-0	E421/WT	µg/L		1.22	----	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/WT	µg/L		1.82	----	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/WT	µg/L		42.2	----	----	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/WT	µg/L		<0.020	----	----	----	----	----	----
Boron, dissolved	7440-42-8	E421/WT	µg/L		187	----	----	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/WT	µg/L		<0.0050	----	----	----	----	----	----
Chromium, dissolved	7440-47-3	E421/WT	µg/L		<0.50	----	----	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/WT	µg/L		0.13	----	----	----	----	----	----
Copper, dissolved	7440-50-8	E421/WT	µg/L		7.69	----	----	----	----	----	----
Lead, dissolved	7439-92-1	E421/WT	µg/L		<0.050	----	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/WT	µg/L		<0.0050	----	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/WT	µg/L		27.5	----	----	----	----	----	----
Nickel, dissolved	7440-02-0	E421/WT	µg/L		1.02	----	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/WT	µg/L		0.354	----	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/WT	µg/L		<0.010	----	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/WT	µg/L		49000	----	----	----	----	----	----
Thallium, dissolved	7440-28-0	E421/WT	µg/L		<0.010	----	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/WT	µg/L		2.28	----	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/WT	µg/L		1.57	----	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/WT	µg/L		1.0	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH105S	TRIP BLANK	----	----	----	----	----
				Sampling date/time	06-Nov-2023 13:00	06-Nov-2023 13:00	----	----	----	----	----
				Sub-Matrix	Groundwater	Groundwater	----	----	----	----	----
					WT2336398-001	WT2336398-002	--------	--------	--------	--------	--------
Dissolved Metals											
Dissolved mercury filtration location	----	EP509/WT	-		Field	----	----	----	----	----	----
Dissolved metals filtration location	----	EP421/WT	-		Field	----	----	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	µg/L		<0.50	----	----	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	µg/L		<20 OWP	<20	----	----	----	----	----
Benzene	71-43-2	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	µg/L		<0.20 OWP	<0.20	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	µg/L		<0.20 OWP	<0.20	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	µg/L		<1.0 OWP	<1.0	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	µg/L		<0.50 OWP	<0.50	----	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	µg/L		<0.30 OWP	<0.30	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID: BH105S		Client sample ID: TRIP BLANK							
				Sampling date/time: 06-Nov-2023 13:00		Sampling date/time: 06-Nov-2023 13:00							
				Sub-Matrix: Groundwater		Sub-Matrix: Groundwater							
				WT2336398-001		WT2336398-002							
Volatile Organic Compounds													
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	µg/L	<0.30	OWP	<0.30		----		----		----		----	
Ethylbenzene	100-41-4	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Hexane, n-	110-54-3	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	µg/L	<20	OWP	<20		----		----		----		----	
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	µg/L	<20	OWP	<20		----		----		----		----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Styrene	100-42-5	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Tetrachloroethylene	127-18-4	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Toluene	108-88-3	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Trichloroethylene	79-01-6	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Trichlorofluoromethane	75-69-4	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Vinyl chloride	75-01-4	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
Xylene, m+p-	179601-23-1	E611D/WT	µg/L	<0.40	OWP	<0.40		----		----		----		----	
Xylene, o-	95-47-6	E611D/WT	µg/L	<0.30	OWP	<0.30		----		----		----		----	
Xylenes, total	1330-20-7	E611D/WT	µg/L	<0.50	OWP	<0.50		----		----		----		----	
BTEX, total	----	E611D/WT	µg/L	<1.0	OWP	<1.0		----		----		----		----	
Hydrocarbons													
F1 (C6-C10)	----	E581.F1-L/WT	µg/L	<25	OWP	<25		----		----		----		----	
F2 (C10-C16)	----	E601.SG/WT	µg/L	<100		----		----		----		----		----	
F2-Naphthalene	----	EC600SG/WT	µg/L	<100		----		----		----		----		----	
F3 (C16-C34)	----	E601.SG/WT	µg/L	<250		----		----		----		----		----	
F3-PAH	n/a	EC600SG/WT	µg/L	<250		----		----		----		----		----	
F4 (C34-C50)	----	E601.SG/WT	µg/L	<250		----		----		----		----		----	
F1-BTEX	----	EC580/WT	µg/L	<25		<25		----		----		----		----	

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH105S	TRIP BLANK	----	----	----	----	----
				Sampling date/time	06-Nov-2023 13:00	06-Nov-2023 13:00	----	----	----	----	----
				Sub-Matrix	Groundwater	Groundwater	----	----	----	----	----
					WT2336398-001	WT2336398-002	--------	--------	--------	--------	--------
Hydrocarbons											
Hydrocarbons, total (C6-C50)	n/a	EC581SG/WT	µg/L		<370	----	----	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG/WT	-		YES	----	----	----	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/WT	%		85.3	----	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1-L/WT	%		90.3	98.7	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		88.4	89.2	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		94.0	93.7	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Anthracene	120-12-7	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	µg/L		<0.0050	----	----	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	µg/L		<0.0050	----	----	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Fluorene	86-73-7	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L		<0.010	----	----	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	µg/L		0.015	----	----	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L		0.031	----	----	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	µg/L		0.016	----	----	----	----	----	----
Naphthalene	91-20-3	E641A/WT	µg/L		<0.050	----	----	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	µg/L		<0.020	----	----	----	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L		0.039	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH105S	TRIP BLANK	----	----	----	----	----
				Sampling date/time	06-Nov-2023 13:00	06-Nov-2023 13:00	----	----	----	----	----
				Sub-Matrix	Groundwater	Groundwater	----	----	----	----	----
					WT2336398-001	WT2336398-002	--------	--------	--------	--------	--------
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT	%		130	----	----	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		91.7	----	----	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		114	----	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-AI I						
Physical Tests									
Conductivity	----	mS/cm	--						
pH	----	pH units	--						
Anions and Nutrients									
Chloride	16887-00-6	mg/L	**2300 mg/L**						
Cyanides									
Cyanide, weak acid dissociable	----	µg/L	**66 µg/L**						
Dissolved Metals									
Antimony, dissolved	7440-36-0	µg/L	**20000 µg/L**						
Arsenic, dissolved	7440-38-2	µg/L	**1900 µg/L**						
Barium, dissolved	7440-39-3	µg/L	**29000 µg/L**						
Beryllium, dissolved	7440-41-7	µg/L	**67 µg/L**						
Boron, dissolved	7440-42-8	µg/L	**45000 µg/L**						
Cadmium, dissolved	7440-43-9	µg/L	**2.7 µg/L**						
Chromium, dissolved	7440-47-3	µg/L	**810 µg/L**						
Cobalt, dissolved	7440-48-4	µg/L	**66 µg/L**						
Copper, dissolved	7440-50-8	µg/L	**87 µg/L**						
Dissolved mercury filtration location	----	-	--						
Dissolved metals filtration location	----	-	--						
Lead, dissolved	7439-92-1	µg/L	**25 µg/L**						
Mercury, dissolved	7439-97-6	µg/L	**0.29 µg/L**						
Molybdenum, dissolved	7439-98-7	µg/L	**9200 µg/L**						
Nickel, dissolved	7440-02-0	µg/L	**490 µg/L**						
Selenium, dissolved	7782-49-2	µg/L	**63 µg/L**						
Silver, dissolved	7440-22-4	µg/L	**1.5 µg/L**						
Sodium, dissolved	7440-23-5	µg/L	**2300000 µg/L**						
Thallium, dissolved	7440-28-0	µg/L	**510 µg/L**						
Uranium, dissolved	7440-61-1	µg/L	**420 µg/L**						
Vanadium, dissolved	7440-62-2	µg/L	**250 µg/L**						
Zinc, dissolved	7440-66-6	µg/L	**1100 µg/L**						
Speciated Metals									
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	µg/L	**140 µg/L**						
Volatile Organic Compounds									
Acetone	67-64-1	µg/L	**130000 µg/L**						
Benzene	71-43-2	µg/L	**44 µg/L**						
Bromodichloromethane	75-27-4	µg/L	**85000 µg/L**						
Bromoform	75-25-2	µg/L	**380 µg/L**						

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-Al l						
Volatile Organic Compounds - Continued									
Bromomethane	74-83-9	µg/L	**5.6 µg/L**						
BTEX, total	----	µg/L	**--**						
Carbon tetrachloride	56-23-5	µg/L	**0.79 µg/L**						
Chlorobenzene	108-90-7	µg/L	**630 µg/L**						
Chloroform	67-66-3	µg/L	**2.4 µg/L**						
Dibromochloromethane	124-48-1	µg/L	**82000 µg/L**						
Dibromoethane, 1,2-	106-93-4	µg/L	**0.25 µg/L**						
Dichlorobenzene, 1,2-	95-50-1	µg/L	**4600 µg/L**						
Dichlorobenzene, 1,3-	541-73-1	µg/L	**9600 µg/L**						
Dichlorobenzene, 1,4-	106-46-7	µg/L	**8 µg/L**						
Dichlorodifluoromethane	75-71-8	µg/L	**4400 µg/L**						
Dichloroethane, 1,1-	75-34-3	µg/L	**320 µg/L**						
Dichloroethane, 1,2-	107-06-2	µg/L	**1.6 µg/L**						
Dichloroethylene, 1,1-	75-35-4	µg/L	**1.6 µg/L**						
Dichloroethylene, cis-1,2-	156-59-2	µg/L	**1.6 µg/L**						
Dichloroethylene, trans-1,2-	156-60-5	µg/L	**1.6 µg/L**						
Dichloromethane	75-09-2	µg/L	**610 µg/L**						
Dichloropropane, 1,2-	78-87-5	µg/L	**16 µg/L**						
Dichloropropylene, cis+trans-1,3-	542-75-6	µg/L	**5.2 µg/L**						
Dichloropropylene, cis-1,3-	10061-01-5	µg/L	**--**						
Dichloropropylene, trans-1,3-	10061-02-6	µg/L	**--**						
Ethylbenzene	100-41-4	µg/L	**2300 µg/L**						
Hexane, n-	110-54-3	µg/L	**51 µg/L**						
Methyl ethyl ketone [MEK]	78-93-3	µg/L	**470000 µg/L**						
Methyl isobutyl ketone [MIBK]	108-10-1	µg/L	**140000 µg/L**						
Methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L	**190 µg/L**						
Styrene	100-42-5	µg/L	**1300 µg/L**						
Tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	**3.3 µg/L**						
Tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	**3.2 µg/L**						
Tetrachloroethylene	127-18-4	µg/L	**1.6 µg/L**						
Toluene	108-88-3	µg/L	**18000 µg/L**						
Trichloroethane, 1,1,1-	71-55-6	µg/L	**640 µg/L**						
Trichloroethane, 1,1,2-	79-00-5	µg/L	**4.7 µg/L**						
Trichloroethylene	79-01-6	µg/L	**1.6 µg/L**						
Trichlorofluoromethane	75-69-4	µg/L	**2500 µg/L**						
Vinyl chloride	75-01-4	µg/L	**0.5 µg/L**						
Xylene, m+p-	179601-23-1	µg/L	**--**						
Xylene, o-	95-47-6	µg/L	**--**						

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-Al l						
Volatile Organic Compounds - Continued									
Xylenes, total	1330-20-7	µg/L	**4200 µg/L**						
Hydrocarbons									
Chromatogram to baseline at nC50	n/a	-	**--**						
F1 (C6-C10)	----	µg/L	**750 µg/L**						
F1-BTEX	----	µg/L	**750 µg/L**						
F2 (C10-C16)	----	µg/L	**150 µg/L**						
F2-Naphthalene	----	µg/L	**--**						
F3 (C16-C34)	----	µg/L	**500 µg/L**						
F3-PAH	n/a	µg/L	**--**						
F4 (C34-C50)	----	µg/L	**500 µg/L**						
Hydrocarbons, total (C6-C50)	n/a	µg/L	**--**						
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%							
Dichlorotoluene, 3,4-	95-75-0	%							
Bromofluorobenzene, 4-	460-00-4	%							
Difluorobenzene, 1,4-	540-36-3	%							
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	µg/L	**600 µg/L**						
Acenaphthylene	208-96-8	µg/L	**1.8 µg/L**						
Anthracene	120-12-7	µg/L	**2.4 µg/L**						
Benz(a)anthracene	56-55-3	µg/L	**4.7 µg/L**						
Benzo(a)pyrene	50-32-8	µg/L	**0.81 µg/L**						
Benzo(b+j)fluoranthene	n/a	µg/L	**0.75 µg/L**						
Benzo(g,h,i)perylene	191-24-2	µg/L	**0.2 µg/L**						
Benzo(k)fluoranthene	207-08-9	µg/L	**0.4 µg/L**						
Chrysene	218-01-9	µg/L	**1 µg/L**						
Dibenz(a,h)anthracene	53-70-3	µg/L	**0.52 µg/L**						
Fluoranthene	206-44-0	µg/L	**130 µg/L**						
Fluorene	86-73-7	µg/L	**400 µg/L**						
Indeno(1,2,3-c,d)pyrene	193-39-5	µg/L	**0.2 µg/L**						
Methylnaphthalene, 1+2-	----	µg/L	**1800 µg/L**						
Methylnaphthalene, 1-	90-12-0	µg/L	**1800 µg/L**						
Methylnaphthalene, 2-	91-57-6	µg/L	**1800 µg/L**						
Naphthalene	91-20-3	µg/L	**1400 µg/L**						
Phenanthrene	85-01-8	µg/L	**580 µg/L**						
Pyrene	129-00-0	µg/L	**68 µg/L**						
Chrysene-d12	1719-03-5	%							
Naphthalene-d8	1146-65-2	%							
Phenanthrene-d10	1517-22-2	%							

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04		Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
	T3-NPGW-C-All	153 T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2336398**	Page	: 1 of 9
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 07-Nov-2023 18:30
PO	: ----	Issue Date	: 17-Nov-2023 15:24
C-O-C number	: 20-1047632		
Sampler	: KS		
Site	: 705 Kingston Rd, Pickering		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] BH105S	E235.Cl	06-Nov-2023	10-Nov-2023	28 days	4 days	✓	10-Nov-2023	28 days	4 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) BH105S	E336	06-Nov-2023	09-Nov-2023	14 days	3 days	✓	09-Nov-2023	14 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH105S	E509	06-Nov-2023	08-Nov-2023	28 days	2 days	✓	09-Nov-2023	26 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) BH105S	E421	06-Nov-2023	08-Nov-2023	180 days	2 days	✓	08-Nov-2023	180 days	2 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH105S	E581.F1-L	06-Nov-2023	08-Nov-2023	14 days	2 days	✓	08-Nov-2023	14 days	2 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) TRIP BLANK	E581.F1-L	06-Nov-2023	08-Nov-2023	14 days	2 days	✓	08-Nov-2023	14 days	2 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BH105S	E601.SG	06-Nov-2023	08-Nov-2023	14 days	2 days	✓	09-Nov-2023	40 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH105S	E100	06-Nov-2023	10-Nov-2023	28 days	4 days	✓	11-Nov-2023	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
BH105S	E108	06-Nov-2023	10-Nov-2023	14 days	4 days	✓	11-Nov-2023	14 days	5 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH105S	E641A	06-Nov-2023	08-Nov-2023	14 days	2 days	✓	17-Nov-2023	40 days	9 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH105S	E532A	06-Nov-2023	----	----	----		08-Nov-2023	28 days	2 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH105S	E611D	06-Nov-2023	08-Nov-2023	14 days	2 days	✓	08-Nov-2023	14 days	2 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
TRIP BLANK	E611D	06-Nov-2023	08-Nov-2023	14 days	2 days	✓	08-Nov-2023	14 days	2 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1227743	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1232669	1	10	10.0	5.0	✓
Conductivity in Water	E100	1232664	1	10	10.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1228034	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228416	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1227634	1	20	5.0	5.0	✓
pH by Meter	E108	1232665	1	19	5.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1227742	1	20	5.0	5.0	✓
WAD Cyanide	E336	1228780	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1227743	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1232669	1	10	10.0	5.0	✓
Conductivity in Water	E100	1232664	1	10	10.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1228034	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228416	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1227634	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1227792	1	5	20.0	5.0	✓
pH by Meter	E108	1232665	1	19	5.2	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1227791	1	11	9.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1227742	1	20	5.0	5.0	✓
WAD Cyanide	E336	1228780	1	20	5.0	5.0	✓
Method Blanks (MB)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1227743	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1232669	1	10	10.0	5.0	✓
Conductivity in Water	E100	1232664	1	10	10.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1228034	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228416	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1227634	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1227792	1	5	20.0	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1227791	1	11	9.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1227742	1	20	5.0	5.0	✓
WAD Cyanide	E336	1228780	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1227743	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1232669	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1228034	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1228416	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1227634	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1227742	1	20	5.0	5.0	✓
WAD Cyanide	E336	1228780	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
WAD Cyanide	E336 ALS Environmental - Waterloo	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. sample pretreatment involved field or lab filtration following by sample preservation.
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
F1-BTEX	EC580 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
SUM F1 to F4 where F2-F4 is SG treated	EC581SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fraction F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50), where F2-F4 have been treated with silica gel. F4G-sg is not used within this calculation due to overlap with other fractions.
F2-F4 (sg) minus PAH	EC600SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F2-F4 (sg) minus PAH is calculated as follows: F2-F4 minus PAH = Sum of CCME Fraction 2 (C10-C16), CCME Fraction 3 (C16-C34), and CCME Fraction 4 (C34-C50), minus select Polycyclic Aromatic Hydrocarbons (PAH).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **WT2336398**	Page	: 1 of 14
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 07-Nov-2023 18:30
PO	: ----	Date Analysis Commenced	: 08-Nov-2023
C-O-C number	: 20-1047632	Issue Date	: 17-Nov-2023 15:24
Sampler	: KS 647 370 3191		
Site	: 705 Kingston Rd, Pickering		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
John Tang	Lab Analyst	Waterloo Inorganics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1232664)											
HA2301020-001	Anonymous	Conductivity	----	E100	1.0	µS/cm	37.6	38.0	1.06%	10%	----
Physical Tests (QC Lot: 1232665)											
HA2301020-001	Anonymous	pH	----	E108	0.10	pH units	4.59	4.55	0.04	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1232669)											
WT2336591-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	58.2	58.2	0.122%	20%	----
Cyanides (QC Lot: 1228780)											
TY2311624-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1227634)											
WT2336124-025	Anonymous	Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.88 µg/L	0.00087	0.000003	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	85.9 µg/L	0.0887	3.16%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	16 µg/L	0.018	0.001	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0507 µg/L	0.0000489	0.0000018	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.78 µg/L	0.00079	0.000008	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	1.07 µg/L	0.00112	0.00005	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	1.35 µg/L	0.00137	1.58%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	4.70 µg/L	0.00479	0.00009	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	134000 µg/L	134	0.277%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.030 µg/L	0.000029	0.0000006	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	2.23 µg/L	0.00221	0.761%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	1.26 µg/L	0.00123	0.00003	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	1.4 µg/L	0.0015	0.00002	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1228416)											
TY2311552-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1228034)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 1228034) - continued											
WT2336124-025	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.00050	mg/L	0.67 µg/L	<0.00050	0.00017	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1227742)											
TY2311554-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1227742) - continued											
TY2311554-001	Anonymous	Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1227743)											
TY2311554-001	Anonymous	F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1232664)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 1232669)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Cyanides (QCLot: 1228780)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Dissolved Metals (QCLot: 1227634)						
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Dissolved Metals (QCLot: 1228416)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1228034)						
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1227742)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1227742) - continued						
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1227742) - continued						
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1227743)						
F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	----
Hydrocarbons (QCLot: 1227791)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1227792)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1232664)									
Conductivity	----	E100	1	µS/cm	1409 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1232665)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Anions and Nutrients (QCLot: 1232669)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.0	90.0	110	----
Cyanides (QCLot: 1228780)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	96.5	80.0	120	----
Dissolved Metals (QCLot: 1227634)									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	102	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	108	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	101	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	99.9	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	101	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	101	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	102	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	100	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	98.4	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	102	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	101	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	91.1	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	107	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	100.0	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	98.9	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	104	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	101	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	99.0	80.0	120	----
Speciated Metals (QCLot: 1228034)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Speciated Metals (QCLot: 1228034) - continued									
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	0.025 mg/L	96.6	80.0	120	----
Volatile Organic Compounds (QCLot: 1227742)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	124	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	110	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	100	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	96.8	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	96.5	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	94.2	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	93.9	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	93.2	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	95.6	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	112	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	101	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	100	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	92.1	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	113	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	91.9	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	96.3	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	99.3	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	122	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	97.4	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	94.5	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1227742) - continued									
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	94.8	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	96.7	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	98.5	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	106	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	95.4	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	95.1	70.0	130	----
Hydrocarbons (QCLot: 1227743)									
F1 (C6-C10)	----	E581.F1-L	25	µg/L	2000 µg/L	94.1	80.0	120	----
Hydrocarbons (QCLot: 1227791)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3685.12 µg/L	111	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7481.33 µg/L	113	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4274.88 µg/L	104	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1227792)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5263 µg/L	106	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5263 µg/L	108	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5263 µg/L	124	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5263 µg/L	118	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5263 µg/L	123	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5263 µg/L	108	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5263 µg/L	117	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5263 µg/L	116	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5263 µg/L	136	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5263 µg/L	122	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5263 µg/L	127	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5263 µg/L	118	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5263 µg/L	139	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5263 µg/L	98.0	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5263 µg/L	94.3	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5263 µg/L	83.7	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5263 µg/L	125	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5263 µg/L	130	50.0	140	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1232669)										
WT2336591-001	Anonymous	Chloride	16887-00-6	E235.Cl	100 mg/L	100 mg/L	100	75.0	125	----
Cyanides (QCLot: 1228780)										
TY2311624-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.123 mg/L	0.125 mg/L	98.2	75.0	125	----
Dissolved Metals (QCLot: 1227634)										
WT2336263-001	Anonymous	Antimony, dissolved	7440-36-0	E421	0.0534 mg/L	0.05 mg/L	107	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0586 mg/L	0.05 mg/L	117	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.00526 mg/L	0.005 mg/L	105	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.051 mg/L	0.05 mg/L	102	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00510 mg/L	0.005 mg/L	102	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0127 mg/L	0.0125 mg/L	102	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0126 mg/L	0.0125 mg/L	100	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0122 mg/L	0.0125 mg/L	97.6	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0244 mg/L	0.025 mg/L	97.6	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0135 mg/L	0.0125 mg/L	108	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0245 mg/L	0.025 mg/L	98.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0609 mg/L	0.05 mg/L	122	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00455 mg/L	0.005 mg/L	91.1	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0502 mg/L	0.05 mg/L	100	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.00025 mg/L	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0270 mg/L	0.025 mg/L	108	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0253 mg/L	0.025 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1228416)										
TY2311552-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000975 mg/L	0.0001 mg/L	97.5	70.0	130	----
Speciated Metals (QCLot: 1228034)										
WT2336124-025	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0362 mg/L	0.04 mg/L	90.5	70.0	130	----
Volatile Organic Compounds (QCLot: 1227742)										
TY2311554-001	Anonymous	Acetone	67-64-1	E611D	122 µg/L	100 µg/L	122	60.0	140	----

Sub-Matrix: **Water**

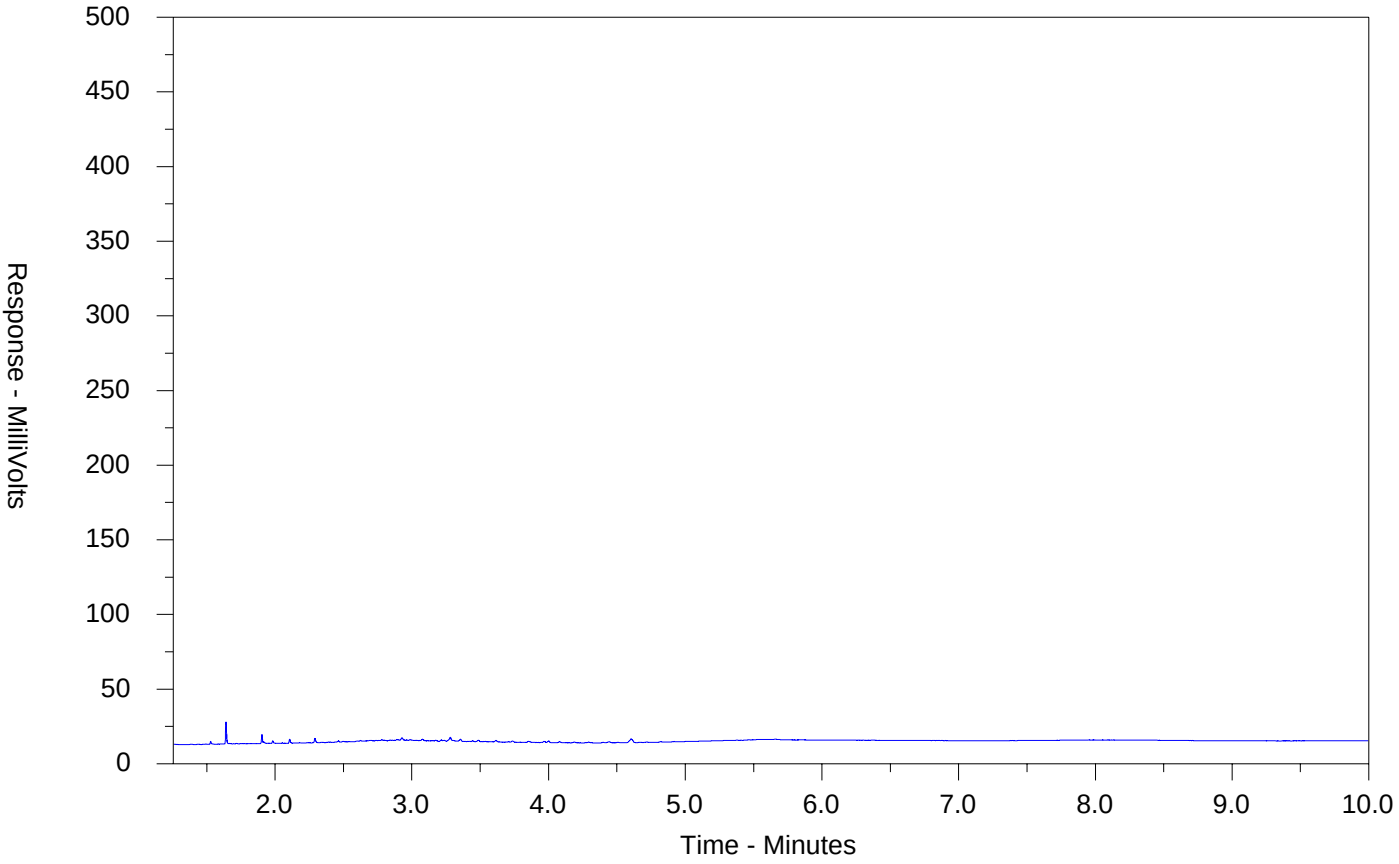
					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1227742) - continued										
TY2311554-001	Anonymous	Benzene	71-43-2	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Bromoform	75-25-2	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		Bromomethane	74-83-9	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Chlorobenzene	108-90-7	E611D	97.6 µg/L	100 µg/L	97.6	60.0	140	----
		Chloroform	67-66-3	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	97.7 µg/L	100 µg/L	97.7	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	97.9 µg/L	100 µg/L	97.9	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	97.1 µg/L	100 µg/L	97.1	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	66.5 µg/L	100 µg/L	66.5	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	99.3 µg/L	100 µg/L	99.3	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloromethane	75-09-2	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	98.6 µg/L	100 µg/L	98.6	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	96.6 µg/L	100 µg/L	96.6	60.0	140	----
		Ethylbenzene	100-41-4	E611D	93.6 µg/L	100 µg/L	93.6	60.0	140	----
		Hexane, n-	110-54-3	E611D	99.8 µg/L	100 µg/L	99.8	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	98 µg/L	100 µg/L	98.3	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	82 µg/L	100 µg/L	82.1	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Styrene	100-42-5	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	120 µg/L	100 µg/L	120	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		Toluene	108-88-3	E611D	96.1 µg/L	100 µg/L	96.1	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Trichloroethylene	79-01-6	E611D	97.9 µg/L	100 µg/L	97.9	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1227742) - continued										
TY2311554-001	Anonymous	Trichlorofluoromethane	75-69-4	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Vinyl chloride	75-01-4	E611D	92.9 µg/L	100 µg/L	92.9	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	195 µg/L	200 µg/L	97.7	60.0	140	----
		Xylene, o-	95-47-6	E611D	96.6 µg/L	100 µg/L	96.6	60.0	140	----
Hydrocarbons (QCLot: 1227743)										
TY2311554-001	Anonymous	F1 (C6-C10)	----	E581.F1-L	1610 µg/L	2000 µg/L	80.4	60.0	140	----

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2336398-001-E601.SG
Client Sample ID: BH105S



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047632

Page | of |

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division
Waterloo
Work Order Reference
WT2336398

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Deeana Reynolds
Phone:	
Company address below will appear on the final report	
Street:	1 Banigan Drive
City/Province:	Toronto ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☑ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: dreynolds@groundedeng.ca

Email 2:

Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additiona may apply to rush requests on weekends, statutory holidays and non-routin

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please conta

Project Information

ALS Account # / Quote #:

Job #: 23-197

PO / AFE:

LSD: 705 Kingston Rd, Pickering

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#:

Major/Minor Code: | Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: | Sampler: KS

Analysis Reque

Indicate Filtered (F), Preserved (P) or Filtered and Pr

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&I	PHCs+BTEX	VOCs	PAH	PHC (F1 only)	SAMPLES ON HOLD	EXTENDED STORAGE REQ	SUSPECTED HAZARD (see
	BH105	06-nov-23	13:00	GW		x	x	x	x				
	Trip blank	↓	13:00				x	x		x			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O.Reg 153/04 Table 3 coarse RSC: Yes
Sample field filtered for Metals, Hg, Cr (VI)

(use grounded standard template)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A | Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	3.8

SHIPMENT RELEASE (client use)

Released by: Kishani Senderalingam | Date: Nov 6/23 | Time: 13:30

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: | Date: | Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: | Date: Nov 7/23 | Time: 08:30

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CM

GC-136
MM-103

CN-
SC-545

OR-436
VW-210

MT

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2405980**	Page	: 1 of 7
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 15-Mar-2024 17:05
PO	: ----	Date Analysis Commenced	: 18-Mar-2024
C-O-C number	: 20-950112	Issue Date	: 22-Mar-2024 17:44
Sampler	: IH		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Metals, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Inorganics, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
BH203	Water	Chloride		ON153/04	T2-GW-F-All	908 mg/L	790 mg/L

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
mg/L	milligrams per litre

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	*Description*
DLDS	*Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.*
DLHC	*Detection Limit Raised: Dilution required due to high concentration of test analyte(s).*

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106	BH202	BH203	DUP01	Trip Blank	----	----
				Sampling date/time	14-Mar-2024 13:05	14-Mar-2024 14:25	14-Mar-2024 15:30	14-Mar-2024 13:05	14-Mar-2024 00:00	----	----
				Sub-Matrix	Water	Water	Water	Water	Water	----	----
					WT2405980-001	WT2405980-002	WT2405980-003	WT2405980-004	WT2405980-005	--------	--------
Anions and Nutrients											
Chloride	16887-00-6	E235.Cl/WT	mg/L		----	28.4	908 DLDS	----	----	----	----
Dissolved Metals											
Sodium, dissolved	7440-23-5	E421/WT	µg/L		----	53400	400000 DLHC	----	----	----	----
Dissolved metals filtration location	----	EP421/WT	-		----	Field	Field	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	µg/L		<20	<20	<20	<20	<20	----	----
Benzene	71-43-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Bromodichloromethane	75-27-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Bromoform	75-25-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Bromomethane	74-83-9	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Carbon tetrachloride	56-23-5	E611D/WT	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	----	----
Chlorobenzene	108-90-7	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Chloroform	67-66-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dibromochloromethane	124-48-1	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichloromethane	75-09-2	E611D/WT	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106	BH202	BH203	DUP01	Trip Blank	----	----
				Sampling date/time	14-Mar-2024 13:05	14-Mar-2024 14:25	14-Mar-2024 15:30	14-Mar-2024 13:05	14-Mar-2024 00:00	----	----
				Sub-Matrix	Water	Water	Water	Water	Water	----	----
					WT2405980-001	WT2405980-002	WT2405980-003	WT2405980-004	WT2405980-005	--------	--------
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30	----	----
Ethylbenzene	100-41-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Hexane, n-	110-54-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	µg/L		<20	<20	<20	<20	<20	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	µg/L		<20	<20	<20	<20	<20	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Styrene	100-42-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Tetrachloroethylene	127-18-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Toluene	108-88-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Trichloroethylene	79-01-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Vinyl chloride	75-01-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
Xylene, m+p-	179601-23-1	E611D/WT	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40	----	----
Xylene, o-	95-47-6	E611D/WT	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30	----	----
Xylenes, total	1330-20-7	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	----	----
BTEX, total	----	E611D/WT	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0	----	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1-L/WT	µg/L		<25	----	----	<25	<25	----	----
F2 (C10-C16)	----	E601.SG/WT	µg/L		<100	----	----	<100	----	----	----
F3 (C16-C34)	----	E601.SG/WT	µg/L		<250	----	----	<250	----	----	----
F4 (C34-C50)	----	E601.SG/WT	µg/L		<250	----	----	<250	----	----	----
F1-BTEX	----	EC580/WT	µg/L		<25	----	----	<25	<25	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581SG/WT	µg/L		<370	----	----	<370	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH106	BH202	BH203	DUP01	Trip Blank	----	----
				Sampling date/time	14-Mar-2024 13:05	14-Mar-2024 14:25	14-Mar-2024 15:30	14-Mar-2024 13:05	14-Mar-2024 00:00	----	----
				Sub-Matrix	Water	Water	Water	Water	Water	----	----
					WT2405980-001	WT2405980-002	WT2405980-003	WT2405980-004	WT2405980-005	--------	--------
Hydrocarbons											
Chromatogram to baseline at nC50	n/a	E601.SG/WT	-		YES	----	----	YES	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/WT	%		113	----	----	110	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1-L/WT	%		87.6	----	----	96.2	108	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		98.3	114	114	99.3	99.7	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		96.4	102	102	95.9	96.5	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T2-GW-F-All
Anions and Nutrients			
Chloride	16887-00-6	mg/L	**790 mg/L**
Dissolved Metals			
Dissolved metals filtration location	----	-	**--**
Sodium, dissolved	7440-23-5	µg/L	**490000 µg/L**
Volatile Organic Compounds			
Acetone	67-64-1	µg/L	**2700 µg/L**
Benzene	71-43-2	µg/L	**5 µg/L**
Bromodichloromethane	75-27-4	µg/L	**16 µg/L**
Bromoform	75-25-2	µg/L	**25 µg/L**
Bromomethane	74-83-9	µg/L	**0.89 µg/L**
BTEX, total	----	µg/L	**--**
Carbon tetrachloride	56-23-5	µg/L	**5 µg/L**
Chlorobenzene	108-90-7	µg/L	**30 µg/L**
Chloroform	67-66-3	µg/L	**22 µg/L**
Dibromochloromethane	124-48-1	µg/L	**25 µg/L**
Dibromoethane, 1,2-	106-93-4	µg/L	**0.2 µg/L**
Dichlorobenzene, 1,2-	95-50-1	µg/L	**3 µg/L**
Dichlorobenzene, 1,3-	541-73-1	µg/L	**59 µg/L**
Dichlorobenzene, 1,4-	106-46-7	µg/L	**1 µg/L**
Dichlorodifluoromethane	75-71-8	µg/L	**590 µg/L**
Dichloroethane, 1,1-	75-34-3	µg/L	**5 µg/L**
Dichloroethane, 1,2-	107-06-2	µg/L	**5 µg/L**
Dichloroethylene, 1,1-	75-35-4	µg/L	**14 µg/L**
Dichloroethylene, cis-1,2-	156-59-2	µg/L	**17 µg/L**
Dichloroethylene, trans-1,2-	156-60-5	µg/L	**17 µg/L**
Dichloromethane	75-09-2	µg/L	**50 µg/L**
Dichloropropane, 1,2-	78-87-5	µg/L	**5 µg/L**
Dichloropropylene, cis+trans-1,3-	542-75-6	µg/L	**0.5 µg/L**
Dichloropropylene, cis-1,3-	10061-01-5	µg/L	**--**
Dichloropropylene, trans-1,3-	10061-02-6	µg/L	**--**
Ethylbenzene	100-41-4	µg/L	**2.4 µg/L**
Hexane, n-	110-54-3	µg/L	**520 µg/L**
Methyl ethyl ketone [MEK]	78-93-3	µg/L	**1800 µg/L**
Methyl isobutyl ketone [MIBK]	108-10-1	µg/L	**640 µg/L**
Methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L	**15 µg/L**
Styrene	100-42-5	µg/L	**5.4 µg/L**
Tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	**1.1 µg/L**

Analyte	CAS Number	Unit	ON153/04 T2-GW-F-All
Volatile Organic Compounds - Continued			
Tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	**1 µg/L**
Tetrachloroethylene	127-18-4	µg/L	**17 µg/L**
Toluene	108-88-3	µg/L	**24 µg/L**
Trichloroethane, 1,1,1-	71-55-6	µg/L	**200 µg/L**
Trichloroethane, 1,1,2-	79-00-5	µg/L	**5 µg/L**
Trichloroethylene	79-01-6	µg/L	**5 µg/L**
Trichlorofluoromethane	75-69-4	µg/L	**150 µg/L**
Vinyl chloride	75-01-4	µg/L	**1.7 µg/L**
Xylene, m+p-	179601-23-1	µg/L	--
Xylene, o-	95-47-6	µg/L	--
Xylenes, total	1330-20-7	µg/L	**300 µg/L**
Hydrocarbons			
Chromatogram to baseline at nC50	n/a	-	--
F1 (C6-C10)	----	µg/L	**750 µg/L**
F1-BTEX	----	µg/L	**750 µg/L**
F2 (C10-C16)	----	µg/L	**150 µg/L**
F3 (C16-C34)	----	µg/L	**500 µg/L**
F4 (C34-C50)	----	µg/L	**500 µg/L**
Hydrocarbons, total (C6-C50)	n/a	µg/L	--
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%	--
Dichlorotoluene, 3,4-	95-75-0	%	--
Bromofluorobenzene, 4-	460-00-4	%	--
Difluorobenzene, 1,4-	540-36-3	%	--

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T2-GW-F-All	153 T2-Ground Water (Fine Soil)-All Types of Property Use

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2405980**	Page	: 1 of 7
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 15-Mar-2024 17:05
PO	: ----	Issue Date	: 22-Mar-2024 17:46
C-O-C number	: 20-950112		
Sampler	: IH		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH202	E235.Cl	14-Mar-2024	19-Mar-2024	28 days	5 days	✓	20-Mar-2024	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH203	E235.Cl	14-Mar-2024	19-Mar-2024	28 days	5 days	✓	20-Mar-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH202	E421	14-Mar-2024	18-Mar-2024	180 days	4 days	✓	18-Mar-2024	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH203	E421	14-Mar-2024	18-Mar-2024	180 days	4 days	✓	18-Mar-2024	180 days	4 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
BH106	E581.F1-L	14-Mar-2024	19-Mar-2024	14 days	5 days	✓	19-Mar-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
DUP01	E581.F1-L	14-Mar-2024	19-Mar-2024	14 days	5 days	✓	19-Mar-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
Trip Blank	E581.F1-L	14-Mar-2024	19-Mar-2024	14 days	5 days	✓	19-Mar-2024	14 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) [ON MECP]										
BH106	E601.SG	14-Mar-2024	20-Mar-2024	40 days	6 days	✓	21-Mar-2024	40 days	1 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) [ON MECP]										
DUP01	E601.SG	14-Mar-2024	20-Mar-2024	40 days	6 days	✓	21-Mar-2024	40 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH202	E611D	14-Mar-2024	18-Mar-2024	14 days	4 days	✓	18-Mar-2024	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH203	E611D	14-Mar-2024	18-Mar-2024	14 days	4 days	✓	18-Mar-2024	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH106	E611D	14-Mar-2024	19-Mar-2024	14 days	5 days	✓	19-Mar-2024	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
DUP01	E611D	14-Mar-2024	19-Mar-2024	14 days	5 days	✓	19-Mar-2024	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
Trip Blank	E611D	14-Mar-2024	19-Mar-2024	14 days	5 days	✓	19-Mar-2024	14 days	5 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1371068	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1371920	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1369873	1	4	25.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1370036	2	29	6.9	5.0	✓
Laboratory Control Samples (LCS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1371068	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1371920	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1369873	1	4	25.0	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1373468	1	2	50.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1370036	2	29	6.9	5.0	✓
Method Blanks (MB)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1371068	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1371920	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1369873	1	4	25.0	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1373468	1	2	50.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1370036	2	29	6.9	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1371068	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1371920	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1369873	1	4	25.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1370036	2	29	6.9	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
F1-BTEX	EC580 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
SUM F1 to F4 where F2-F4 is SG treated	EC581SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fraction F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50), where F2-F4 have been treated with silica gel. F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL REPORT

Work Order	: **WT2405980**	Page	: 1 of 14
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197	Date Samples Received	: 15-Mar-2024 17:05
PO	: ----	Date Analysis Commenced	: 18-Mar-2024
C-O-C number	: 20-950112	Issue Date	: 22-Mar-2024 17:44
Sampler	: IH 647 370 3191		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Metals, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1371920)											
WT2406089-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	19.9	19.7	0.788%	20%	----
Dissolved Metals (QC Lot: 1369873)											
WT2405980-002	BH202	Sodium, dissolved	7440-23-5	E421	0.050	mg/L	53400 µg/L	53.1	0.558%	20%	----
Volatile Organic Compounds (QC Lot: 1370036)											
WT2405832-002	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	9.89	7.53	27.1%	30%	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	0.77	0.70	0.07	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1370036) - continued											
WT2405832-002	Anonymous	Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	48.5	43.8	10.1%	30%	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1371067)											
WT2405980-001	BH106	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1371067) - continued											
WT2405980-001	BH106	Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1371068)											
WT2405980-001	BH106	F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1371920)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Dissolved Metals (QCLot: 1369873)						
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Volatile Organic Compounds (QCLot: 1370036)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1370036) - continued						
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Volatile Organic Compounds (QCLot: 1371067)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1371067) - continued						
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1371068)						
F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	----
Hydrocarbons (QCLot: 1373468)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1371920)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	107	80.0	120	----
Volatile Organic Compounds (QCLot: 1370036)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	101	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	92.7	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	113	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	122	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	113	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	98.0	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	87.6	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	98.5	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	99.9	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	109	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	96.9	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	94.4	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	89.5	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	92.9	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	84.1	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	99.9	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1370036) - continued									
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	98.8	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	86.8	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	120	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	99.7	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	119	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	97.3	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	119	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	119	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	99.2	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	97.0	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	99.2	70.0	130	----
Volatile Organic Compounds (QCLot: 1371067)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	107	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	113	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	100.0	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	115	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	118	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	103	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	106	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	116	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	117	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	93.1	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	89.7	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1371067) - continued									
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	120	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	94.5	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	95.0	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	121	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	118	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	113	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	116	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	107	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	104	70.0	130	----
Hydrocarbons (QCLot: 1371068)									
F1 (C6-C10)	----	E581.F1-L	25	µg/L	2000 µg/L	100	80.0	120	----
Hydrocarbons (QCLot: 1373468)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3768 µg/L	112	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7770.15 µg/L	120	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4145.96 µg/L	121	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1371920)										
WT2406089-001	Anonymous	Chloride	16887-00-6	E235.Cl	99.5 mg/L	100 mg/L	99.5	75.0	125	----
Dissolved Metals (QCLot: 1369873)										
WT2405980-003	BH203	Sodium, dissolved	7440-23-5	E421	ND mg/L	25 mg/L	ND	70.0	130	----
Volatile Organic Compounds (QCLot: 1370036)										
WT2405832-002	Anonymous	Acetone	67-64-1	E611D	83 µg/L	100 µg/L	82.8	60.0	140	----
		Benzene	71-43-2	E611D	88.8 µg/L	100 µg/L	88.8	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Bromoform	75-25-2	E611D	81.2 µg/L	100 µg/L	81.2	60.0	140	----
		Bromomethane	74-83-9	E611D	96.3 µg/L	100 µg/L	96.3	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Chlorobenzene	108-90-7	E611D	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Chloroform	67-66-3	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	91.0 µg/L	100 µg/L	91.0	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	85.0 µg/L	100 µg/L	85.0	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	98.9 µg/L	100 µg/L	98.9	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	68.7 µg/L	100 µg/L	68.7	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	85.7 µg/L	100 µg/L	85.7	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	99.2 µg/L	100 µg/L	99.2	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	89.4 µg/L	100 µg/L	89.4	60.0	140	----
		Dichloromethane	75-09-2	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	84.3 µg/L	100 µg/L	84.3	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	83.4 µg/L	100 µg/L	83.4	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	79.0 µg/L	100 µg/L	79.0	60.0	140	----
		Ethylbenzene	100-41-4	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Hexane, n-	110-54-3	E611D	90.5 µg/L	100 µg/L	90.5	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	76 µg/L	100 µg/L	75.5	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	68 µg/L	100 µg/L	68.1	60.0	140	----

Sub-Matrix: **Water**

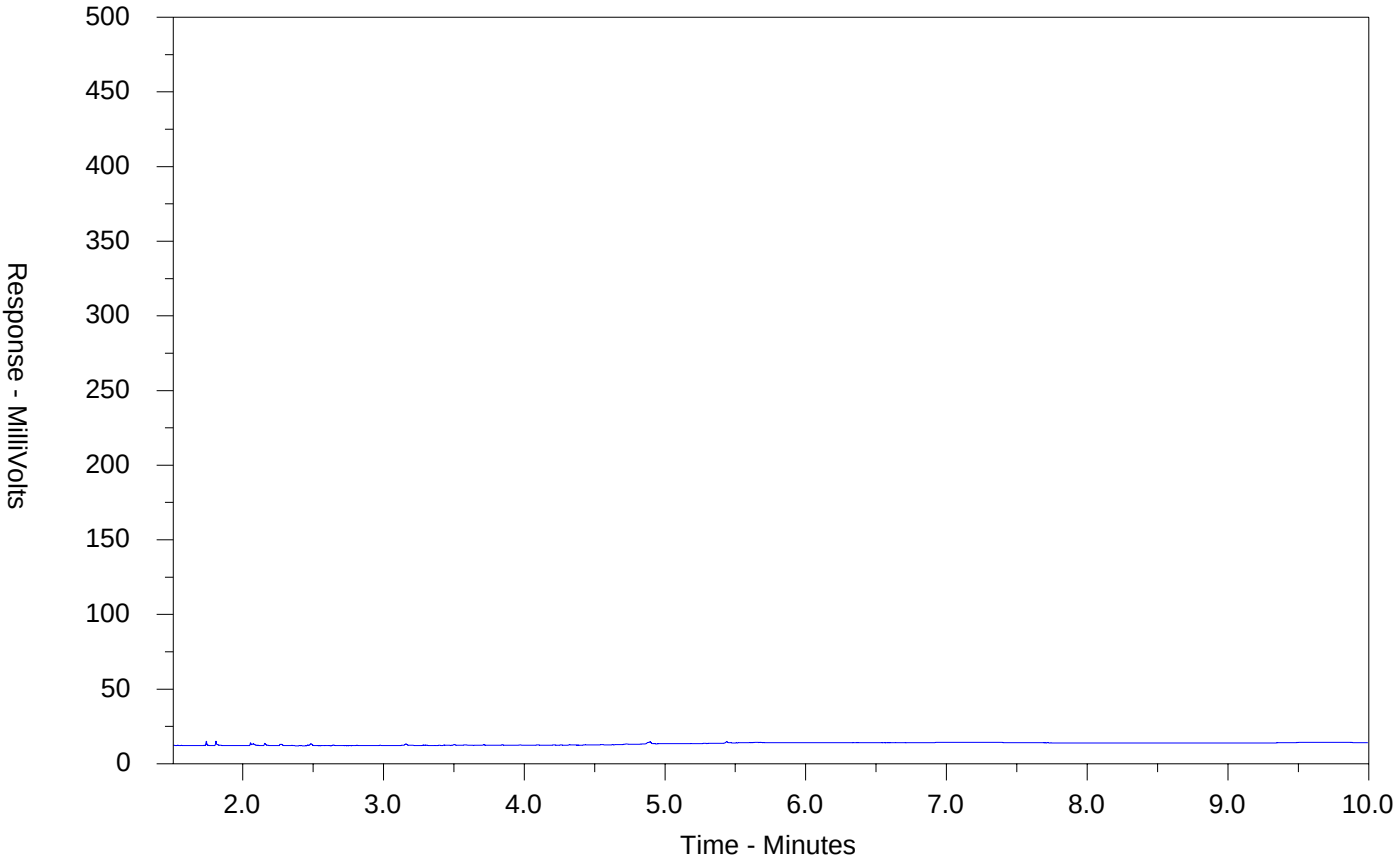
					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1370036) - continued										
WT2405832-002	Anonymous	Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Styrene	100-42-5	E611D	89.2 µg/L	100 µg/L	89.2	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	75.8 µg/L	100 µg/L	75.8	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	113 µg/L	100 µg/L	113	60.0	140	----
		Toluene	108-88-3	E611D	90.4 µg/L	100 µg/L	90.4	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	85.0 µg/L	100 µg/L	85.0	60.0	140	----
		Trichloroethylene	79-01-6	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Vinyl chloride	75-01-4	E611D	82.6 µg/L	100 µg/L	82.6	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	179 µg/L	200 µg/L	89.5	60.0	140	----
		Xylene, o-	95-47-6	E611D	90.4 µg/L	100 µg/L	90.4	60.0	140	----
Volatile Organic Compounds (QCLot: 1371067)										
WT2405980-001	BH106	Acetone	67-64-1	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Benzene	71-43-2	E611D	99.6 µg/L	100 µg/L	99.6	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Bromoform	75-25-2	E611D	93.3 µg/L	100 µg/L	93.3	60.0	140	----
		Bromomethane	74-83-9	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Chlorobenzene	108-90-7	E611D	96.3 µg/L	100 µg/L	96.3	60.0	140	----
		Chloroform	67-66-3	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	96.3 µg/L	100 µg/L	96.3	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	97.3 µg/L	100 µg/L	97.3	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	97.7 µg/L	100 µg/L	97.7	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	97.5 µg/L	100 µg/L	97.5	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichloromethane	75-09-2	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	99.1 µg/L	100 µg/L	99.1	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1371067) - continued										
WT2405980-001	BH106	Dichloropropylene, cis-1,3-	10061-01-5	E611D	87.2 µg/L	100 µg/L	87.2	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	83.6 µg/L	100 µg/L	83.6	60.0	140	----
		Ethylbenzene	100-41-4	E611D	97.1 µg/L	100 µg/L	97.1	60.0	140	----
		Hexane, n-	110-54-3	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	87 µg/L	100 µg/L	87.1	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	86 µg/L	100 µg/L	86.4	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Styrene	100-42-5	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		Toluene	108-88-3	E611D	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	98.0 µg/L	100 µg/L	98.0	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		Trichloroethylene	79-01-6	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	99.5 µg/L	100 µg/L	99.5	60.0	140	----
		Vinyl chloride	75-01-4	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	197 µg/L	200 µg/L	98.6	60.0	140	----
		Xylene, o-	95-47-6	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
Hydrocarbons (QCLot: 1371068)										
WT2405980-001	BH106	F1 (C6-C10)	----	E581.F1-L	1760 µg/L	2000 µg/L	87.9	60.0	140	----

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405980-001-E601.SG
Client Sample ID: BH106



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

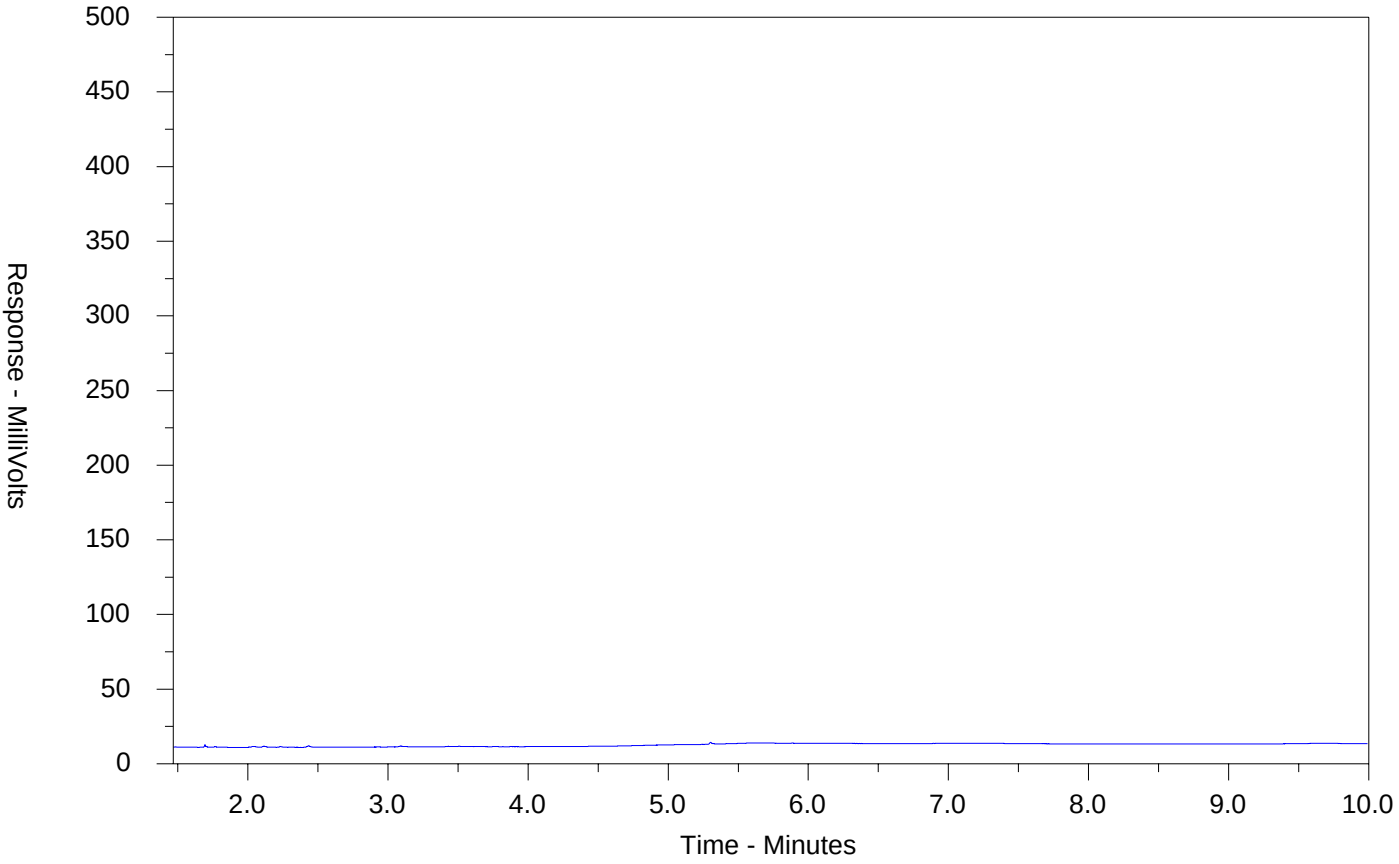
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2405980-004-E601.SG
Client Sample ID: DUP01



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 950112

Canada Toll Free: 1 800 668 9878

Page of

www.alsglobal.com

Environmental Division Waterloo
Work Order Reference
WT2405980

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Grounded Engineering
Contact:	Deena Reynolds
Phone:	647 370 3811
Company address below will appear on the final report	
Street:	1 Banigan Dr.
City/Province:	Toronto
Postal Code:	M4H1G3
Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☒ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: Dreynolds@grounded.ca
Email 2: kyuen@grounded.ca
Email 3:

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: Dreynolds@grounded.ca
Email 2: kyuen@grounded.ca

Turnaround Time (TAT) Requested

☒ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minin
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minin
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minin
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. A may apply to rush requests on weekends, statutory holidays and nor

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, plea

Project Information

ALS Account # / Quote #:
Job #: 23-197
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only): WT2405980
ALS Contact: Sampler: IH

Analysis

Indicate Filtered (F), Preserved (P) or Filtere

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	HEXANE	PHC/BTEX	VOC	Chloride	SAMPLES ON HO	EXTENDED STORAGE	SUSPECTED HAZARD
	BH106	14/03/24	13:05	GW	6		X	X				
	BH202		14:25		4	X		X	X			
	BH203		15:30		4	X		X	X			
	DUP 01		13:05		6		X	X				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☒ NO
Are samples for human consumption/ use? ☐ YES ☒ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Table 2, O Reg 153/04, Med/fine, RSC

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				3.6			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
IMRAN HAJI	14/03/24	17:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	15-Mar-24	17:05

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

GC-631
MM-411
OR-828
VW-275

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2334536**	Page	: 1 of 12
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197-202	Date Samples Received	: 24-Oct-2023 17:25
PO	: ----	Date Analysis Commenced	: 25-Oct-2023
C-O-C number	: 20-1047519	Issue Date	: 01-Nov-2023 15:27
Sampler	: LB		
Site	: 705 Kingston Rd., Pickering		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
John Tang	Lab Analyst	Inorganics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
VPDW	Visible particulate observed in Dissolved fraction of field preserved water sample (may represent post-sampling precipitation or filtration issue). Analyzed as submitted

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101	BH102	BH104-D	BH104-S	BH105	DUP-1	TRIP BLANK
				Sampling date/time	23-Oct-2023 12:00	20-Oct-2023 15:30	20-Oct-2023 11:30	18-Oct-2023 15:00	18-Oct-2023 13:00	20-Oct-2023 00:00	24-Oct-2023 00:00
				Sub-Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
					WT2334536-001	WT2334536-002	WT2334536-003	WT2334536-004	WT2334536-005	WT2334536-006	WT2334536-007
Physical Tests											
Conductivity	----	E100/WT	mS/cm		0.373	0.357	1.90	4.47	0.265	0.354	----
pH	----	E108/WT	pH units		8.31	8.10	7.90	8.11	8.27	8.07	----
Anions and Nutrients											
Chloride	16887-00-6	E235.Cl/WT	mg/L		25.9 DLM	5.86	431	1130 DLDS	6.12	5.95	----
Cyanides											
Cyanide, weak acid dissociable	----	E336/WT	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	----
Dissolved Metals											
Antimony, dissolved	7440-36-0	E421/WT	µg/L		0.26	0.70	1.14	<1.00 DLHC	0.40	0.71	----
Arsenic, dissolved	7440-38-2	E421/WT	µg/L		3.75	1.63	5.13	<1.00 DLHC	7.79	1.66	----
Barium, dissolved	7440-39-3	E421/WT	µg/L		75.4	67.2	392	174 DLHC	37.2	64.3	----
Beryllium, dissolved	7440-41-7	E421/WT	µg/L		0.026	0.024	<0.020	<0.200 DLHC	<0.020	0.028	----
Boron, dissolved	7440-42-8	E421/WT	µg/L		206	101	163	126 DLHC	154	103	----
Cadmium, dissolved	7440-43-9	E421/WT	µg/L		0.0201	0.0771	0.0454	<0.0500 DLHC	0.0068	0.0772	----
Chromium, dissolved	7440-47-3	E421/WT	µg/L		0.97	1.11	<0.50	<5.00 DLHC	<0.50	1.10	----
Cobalt, dissolved	7440-48-4	E421/WT	µg/L		0.73	0.58	0.49	<1.00 DLHC	0.10	0.56	----
Copper, dissolved	7440-50-8	E421/WT	µg/L		1.68	1.34	1.78	3.42 DLHC	2.32	1.29	----
Lead, dissolved	7439-92-1	E421/WT	µg/L		0.334	0.409	0.093	<0.500 DLHC	<0.050	0.416	----
Mercury, dissolved	7439-97-6	E509/WT	µg/L		<0.0050 VPDW	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	----
Molybdenum, dissolved	7439-98-7	E421/WT	µg/L		24.7	14.0	17.9	21.0 DLHC	22.4	14.0	----
Nickel, dissolved	7440-02-0	E421/WT	µg/L		0.92	2.05	1.80	<5.00 DLHC	1.20	1.96	----
Selenium, dissolved	7782-49-2	E421/WT	µg/L		0.137	0.418	0.287	<0.500 DLHC	0.158	0.383	----
Silver, dissolved	7440-22-4	E421/WT	µg/L		<0.010	<0.010	<0.010	<0.100 DLHC	<0.010	<0.010	----
Sodium, dissolved	7440-23-5	E421/WT	µg/L		61600	39500	267000	754000 DLHC	43600	39100	----
Thallium, dissolved	7440-28-0	E421/WT	µg/L		<0.010	0.017	0.014	<0.100 DLHC	<0.010	0.018	----
Uranium, dissolved	7440-61-1	E421/WT	µg/L		0.077	2.17	0.996	3.08 DLHC	0.993	2.21	----
Vanadium, dissolved	7440-62-2	E421/WT	µg/L		1.70	2.20	3.05	<5.00 DLHC	3.08	2.68	----
Zinc, dissolved	7440-66-6	E421/WT	µg/L		7.3	4.7	2.4	<10.0 DLHC	1.1	4.4	----

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101	BH102	BH104-D	BH104-S	BH105	DUP-1	TRIP BLANK
				Sampling date/time	23-Oct-2023 12:00	20-Oct-2023 15:30	20-Oct-2023 11:30	18-Oct-2023 15:00	18-Oct-2023 13:00	20-Oct-2023 00:00	24-Oct-2023 00:00
				Sub-Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
					WT2334536-001	WT2334536-002	WT2334536-003	WT2334536-004	WT2334536-005	WT2334536-006	WT2334536-007
Dissolved Metals											
Dissolved mercury filtration location	----	EP509/WT	-		Field	Field	Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/WT	-		Field	Field	Field	Field	Field	Field	----
Speciated Metals											
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	µg/L		<20 OWP	<20 OWP	<20 OWP	<20	<20	<20 OWP	<20
Benzene	71-43-2	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Bromodichloromethane	75-27-4	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Bromoform	75-25-2	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Bromomethane	74-83-9	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Carbon tetrachloride	56-23-5	E611D/WT	µg/L		<0.20 OWP	<0.20 OWP	<0.20 OWP	<0.20	<0.20	<0.20 OWP	<0.20
Chlorobenzene	108-90-7	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Chloroform	67-66-3	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dibromochloromethane	124-48-1	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	µg/L		<0.20 OWP	<0.20 OWP	<0.20 OWP	<0.20	<0.20	<0.20 OWP	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloromethane	75-09-2	E611D/WT	µg/L		<1.0 OWP	<1.0 OWP	<1.0 OWP	<1.0	<1.0	<1.0 OWP	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	µg/L		<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30	<0.30	<0.30 OWP	<0.30

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101	BH102	BH104-D	BH104-S	BH105	DUP-1	TRIP BLANK
				Sampling date/time	23-Oct-2023 12:00	20-Oct-2023 15:30	20-Oct-2023 11:30	18-Oct-2023 15:00	18-Oct-2023 13:00	20-Oct-2023 00:00	24-Oct-2023 00:00
				Sub-Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
					WT2334536-001	WT2334536-002	WT2334536-003	WT2334536-004	WT2334536-005	WT2334536-006	WT2334536-007
Volatile Organic Compounds											
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	µg/L		<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30	<0.30	<0.30 OWP	<0.30
Ethylbenzene	100-41-4	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Hexane, n-	110-54-3	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	µg/L		<20 OWP	<20 OWP	<20 OWP	<20	<20	<20 OWP	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	µg/L		<20 OWP	<20 OWP	<20 OWP	<20	<20	<20 OWP	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Styrene	100-42-5	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Toluene	108-88-3	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Trichloroethylene	79-01-6	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Vinyl chloride	75-01-4	E611D/WT	µg/L		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50	<0.50	<0.50 OWP	<0.50
Xylene, m+p-	179601-23-1	E611D/WT	µg/L		<0.40 OWP	<0.40 OWP	<0.40 OWP	<0.40	<0.40	<0.40 OWP	<0.40
Xylene, o-	95-47-6	E611D/WT	µg/L		<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30	<0.30	<0.30 OWP	<0.30
Xylenes, total	1330-20-7	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
BTEX, total	----	E611D/WT	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydrocarbons											
F1 (C6-C10)	----	E581.F1-L/WT	µg/L		<25 OWP	<25 OWP	<25 OWP	<25	<25	<25 OWP	<25
F2 (C10-C16)	----	E601.SG/WT	µg/L		<100	<100	<100	<100	<100	<100	----
F2-Naphthalene	----	EC600SG/WT	µg/L		<100	<100	<100	<100	<100	<100	----
F3 (C16-C34)	----	E601.SG/WT	µg/L		<250	<250	<250	<250	<250	<250	----
F3-PAH	n/a	EC600SG/WT	µg/L		<250	<250	<250	<250	<250	<250	----
F4 (C34-C50)	----	E601.SG/WT	µg/L		<250	<250	<250	<250	<250	<250	----
F1-BTEX	----	EC580/WT	µg/L		<25	<25	<25	<25	<25	<25	<25

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101	BH102	BH104-D	BH104-S	BH105	DUP-1	TRIP BLANK
				Sampling date/time	23-Oct-2023 12:00	20-Oct-2023 15:30	20-Oct-2023 11:30	18-Oct-2023 15:00	18-Oct-2023 13:00	20-Oct-2023 00:00	24-Oct-2023 00:00
				Sub-Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
					WT2334536-001	WT2334536-002	WT2334536-003	WT2334536-004	WT2334536-005	WT2334536-006	WT2334536-007
Hydrocarbons											
Hydrocarbons, total (C6-C50)	n/a	EC581SG/WT	µg/L		<370	<370	<370	<370	<370	<370	----
Chromatogram to baseline at nC50	n/a	E601.SG/WT	-		YES	YES	YES	YES	YES	YES	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/WT	%		73.9	92.3	74.5	86.6	70.3	81.0	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1-L/WT	%		85.0	97.1	84.0	87.6	88.7	92.3	94.2
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		119	119	119	120	120	120	120
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		104	105	105	105	105	105	105
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Acenaphthylene	208-96-8	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Anthracene	120-12-7	E641A/WT	µg/L		<0.028 DLM	<0.010	<0.010	<0.010	<0.010	<0.010	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Benzo(a)pyrene	50-32-8	E641A/WT	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Chrysene	218-01-9	E641A/WT	µg/L		<0.040 DLM	<0.019 DLM	<0.010	<0.010	<0.010	<0.015 DLM	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	----
Fluoranthene	206-44-0	E641A/WT	µg/L		<0.013 DLM	0.010	<0.010	<0.010	<0.010	<0.010	----
Fluorene	86-73-7	E641A/WT	µg/L		0.011	<0.010	<0.010	<0.010	<0.010	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	µg/L		0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L		0.022	<0.015	<0.015	<0.015	<0.015	<0.015	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	µg/L		0.012	<0.010	<0.010	<0.010	<0.010	<0.010	----
Naphthalene	91-20-3	E641A/WT	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Phenanthrene	85-01-8	E641A/WT	µg/L		0.050	0.025	<0.020	<0.020	<0.020	0.027	----
Pyrene	129-00-0	E641A/WT	µg/L		0.039	0.012	0.012	<0.010	<0.010	0.012	----

Analytical Results Evaluation

Matrix: **Groundwater**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH101	BH102	BH104-D	BH104-S	BH105	DUP-1	TRIP BLANK
				Sampling date/time	23-Oct-2023 12:00	20-Oct-2023 15:30	20-Oct-2023 11:30	18-Oct-2023 15:00	18-Oct-2023 13:00	20-Oct-2023 00:00	24-Oct-2023 00:00
				Sub-Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
					WT2334536-001	WT2334536-002	WT2334536-003	WT2334536-004	WT2334536-005	WT2334536-006	WT2334536-007
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT	%		110	122	121	115	115	115	----
Naphthalene-d8	1146-65-2	E641A/WT	%		95.7	94.0	98.7	93.4	92.4	93.4	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		106	109	114	109	110	109	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-AI I
Physical Tests			
Conductivity	----	mS/cm	--
pH	----	pH units	--
Anions and Nutrients			
Chloride	16887-00-6	mg/L	**2300 mg/L**
Cyanides			
Cyanide, weak acid dissociable	----	µg/L	**66 µg/L**
Dissolved Metals			
Antimony, dissolved	7440-36-0	µg/L	**20000 µg/L**
Arsenic, dissolved	7440-38-2	µg/L	**1900 µg/L**
Barium, dissolved	7440-39-3	µg/L	**29000 µg/L**
Beryllium, dissolved	7440-41-7	µg/L	**67 µg/L**
Boron, dissolved	7440-42-8	µg/L	**45000 µg/L**
Cadmium, dissolved	7440-43-9	µg/L	**2.7 µg/L**
Chromium, dissolved	7440-47-3	µg/L	**810 µg/L**
Cobalt, dissolved	7440-48-4	µg/L	**66 µg/L**
Copper, dissolved	7440-50-8	µg/L	**87 µg/L**
Dissolved mercury filtration location	----	-	--
Dissolved metals filtration location	----	-	--
Lead, dissolved	7439-92-1	µg/L	**25 µg/L**
Mercury, dissolved	7439-97-6	µg/L	**0.29 µg/L**
Molybdenum, dissolved	7439-98-7	µg/L	**9200 µg/L**
Nickel, dissolved	7440-02-0	µg/L	**490 µg/L**
Selenium, dissolved	7782-49-2	µg/L	**63 µg/L**
Silver, dissolved	7440-22-4	µg/L	**1.5 µg/L**
Sodium, dissolved	7440-23-5	µg/L	**2300000 µg/L**
Thallium, dissolved	7440-28-0	µg/L	**510 µg/L**
Uranium, dissolved	7440-61-1	µg/L	**420 µg/L**
Vanadium, dissolved	7440-62-2	µg/L	**250 µg/L**
Zinc, dissolved	7440-66-6	µg/L	**1100 µg/L**
Speciated Metals			
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	µg/L	**140 µg/L**
Volatile Organic Compounds			
Acetone	67-64-1	µg/L	**130000 µg/L**
Benzene	71-43-2	µg/L	**44 µg/L**
Bromodichloromethane	75-27-4	µg/L	**85000 µg/L**
Bromoform	75-25-2	µg/L	**380 µg/L**

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-Al l						
Volatile Organic Compounds - Continued									
Bromomethane	74-83-9	µg/L	**5.6 µg/L**						
BTEX, total	----	µg/L	**--**						
Carbon tetrachloride	56-23-5	µg/L	**0.79 µg/L**						
Chlorobenzene	108-90-7	µg/L	**630 µg/L**						
Chloroform	67-66-3	µg/L	**2.4 µg/L**						
Dibromochloromethane	124-48-1	µg/L	**82000 µg/L**						
Dibromoethane, 1,2-	106-93-4	µg/L	**0.25 µg/L**						
Dichlorobenzene, 1,2-	95-50-1	µg/L	**4600 µg/L**						
Dichlorobenzene, 1,3-	541-73-1	µg/L	**9600 µg/L**						
Dichlorobenzene, 1,4-	106-46-7	µg/L	**8 µg/L**						
Dichlorodifluoromethane	75-71-8	µg/L	**4400 µg/L**						
Dichloroethane, 1,1-	75-34-3	µg/L	**320 µg/L**						
Dichloroethane, 1,2-	107-06-2	µg/L	**1.6 µg/L**						
Dichloroethylene, 1,1-	75-35-4	µg/L	**1.6 µg/L**						
Dichloroethylene, cis-1,2-	156-59-2	µg/L	**1.6 µg/L**						
Dichloroethylene, trans-1,2-	156-60-5	µg/L	**1.6 µg/L**						
Dichloromethane	75-09-2	µg/L	**610 µg/L**						
Dichloropropane, 1,2-	78-87-5	µg/L	**16 µg/L**						
Dichloropropylene, cis+trans-1,3-	542-75-6	µg/L	**5.2 µg/L**						
Dichloropropylene, cis-1,3-	10061-01-5	µg/L	**--**						
Dichloropropylene, trans-1,3-	10061-02-6	µg/L	**--**						
Ethylbenzene	100-41-4	µg/L	**2300 µg/L**						
Hexane, n-	110-54-3	µg/L	**51 µg/L**						
Methyl ethyl ketone [MEK]	78-93-3	µg/L	**470000 µg/L**						
Methyl isobutyl ketone [MIBK]	108-10-1	µg/L	**140000 µg/L**						
Methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L	**190 µg/L**						
Styrene	100-42-5	µg/L	**1300 µg/L**						
Tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	**3.3 µg/L**						
Tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	**3.2 µg/L**						
Tetrachloroethylene	127-18-4	µg/L	**1.6 µg/L**						
Toluene	108-88-3	µg/L	**18000 µg/L**						
Trichloroethane, 1,1,1-	71-55-6	µg/L	**640 µg/L**						
Trichloroethane, 1,1,2-	79-00-5	µg/L	**4.7 µg/L**						
Trichloroethylene	79-01-6	µg/L	**1.6 µg/L**						
Trichlorofluoromethane	75-69-4	µg/L	**2500 µg/L**						
Vinyl chloride	75-01-4	µg/L	**0.5 µg/L**						
Xylene, m+p-	179601-23-1	µg/L	**--**						
Xylene, o-	95-47-6	µg/L	**--**						

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-All
Volatile Organic Compounds - Continued			
Xylenes, total	1330-20-7	µg/L	**4200 µg/L**
Hydrocarbons			
Chromatogram to baseline at nC50	n/a	-	**--**
F1 (C6-C10)	----	µg/L	**750 µg/L**
F1-BTEX	----	µg/L	**750 µg/L**
F2 (C10-C16)	----	µg/L	**150 µg/L**
F2-Naphthalene	----	µg/L	**--**
F3 (C16-C34)	----	µg/L	**500 µg/L**
F3-PAH	n/a	µg/L	**--**
F4 (C34-C50)	----	µg/L	**500 µg/L**
Hydrocarbons, total (C6-C50)	n/a	µg/L	**--**
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%	
Dichlorotoluene, 3,4-	95-75-0	%	
Bromofluorobenzene, 4-	460-00-4	%	
Difluorobenzene, 1,4-	540-36-3	%	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	83-32-9	µg/L	**600 µg/L**
Acenaphthylene	208-96-8	µg/L	**1.8 µg/L**
Anthracene	120-12-7	µg/L	**2.4 µg/L**
Benz(a)anthracene	56-55-3	µg/L	**4.7 µg/L**
Benzo(a)pyrene	50-32-8	µg/L	**0.81 µg/L**
Benzo(b+j)fluoranthene	n/a	µg/L	**0.75 µg/L**
Benzo(g,h,i)perylene	191-24-2	µg/L	**0.2 µg/L**
Benzo(k)fluoranthene	207-08-9	µg/L	**0.4 µg/L**
Chrysene	218-01-9	µg/L	**1 µg/L**
Dibenz(a,h)anthracene	53-70-3	µg/L	**0.52 µg/L**
Fluoranthene	206-44-0	µg/L	**130 µg/L**
Fluorene	86-73-7	µg/L	**400 µg/L**
Indeno(1,2,3-c,d)pyrene	193-39-5	µg/L	**0.2 µg/L**
Methylnaphthalene, 1+2-	----	µg/L	**1800 µg/L**
Methylnaphthalene, 1-	90-12-0	µg/L	**1800 µg/L**
Methylnaphthalene, 2-	91-57-6	µg/L	**1800 µg/L**
Naphthalene	91-20-3	µg/L	**1400 µg/L**
Phenanthrene	85-01-8	µg/L	**580 µg/L**
Pyrene	129-00-0	µg/L	**68 µg/L**
Chrysene-d12	1719-03-5	%	
Naphthalene-d8	1146-65-2	%	
Phenanthrene-d10	1517-22-2	%	

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04		Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
	T3-NPGW-C-All	153 T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2334536**	Page	: 1 of 16
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 370 3191	Telephone	: 1 416 817 2944
Project	: 23-197-202	Date Samples Received	: 24-Oct-2023 17:25
PO	: ----	Issue Date	: 01-Nov-2023 15:27
C-O-C number	: 20-1047519		
Sampler	: LB		
Site	: 705 Kingston Rd., Pickering		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Dissolved Metals	WT2334536-002	BH102	Silver, dissolved	7440-22-4	E421	61.8 % MES	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	*Description*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH101	E235.Cl	23-Oct-2023	25-Oct-2023	28 days	2 days	✓	25-Oct-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH102	E235.Cl	20-Oct-2023	25-Oct-2023	28 days	5 days	✓	25-Oct-2023	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH104-D	E235.Cl	20-Oct-2023	25-Oct-2023	28 days	5 days	✓	25-Oct-2023	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
DUP-1	E235.Cl	20-Oct-2023	25-Oct-2023	28 days	6 days	✓	25-Oct-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH104-S	E235.Cl	18-Oct-2023	25-Oct-2023	28 days	7 days	✓	25-Oct-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
BH105	E235.Cl	18-Oct-2023	25-Oct-2023	28 days	7 days	✓	25-Oct-2023	28 days	7 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
BH101	E336	23-Oct-2023	27-Oct-2023	14 days	4 days	✓	27-Oct-2023	14 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) BH102	E336	20-Oct-2023	27-Oct-2023	14 days	7 days	✓	27-Oct-2023	14 days	7 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) BH104-D	E336	20-Oct-2023	27-Oct-2023	14 days	7 days	✓	27-Oct-2023	14 days	7 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) DUP-1	E336	20-Oct-2023	27-Oct-2023	14 days	8 days	✓	27-Oct-2023	14 days	8 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) BH104-S	E336	18-Oct-2023	27-Oct-2023	14 days	9 days	✓	27-Oct-2023	14 days	9 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) BH105	E336	18-Oct-2023	27-Oct-2023	14 days	9 days	✓	27-Oct-2023	14 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH101	E509	23-Oct-2023	25-Oct-2023	28 days	2 days	✓	25-Oct-2023	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH102	E509	20-Oct-2023	25-Oct-2023	28 days	5 days	✓	25-Oct-2023	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH104-D	E509	20-Oct-2023	25-Oct-2023	28 days	5 days	✓	25-Oct-2023	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) DUP-1	E509	20-Oct-2023	25-Oct-2023	28 days	5 days	✓	25-Oct-2023	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
BH104-S	E509	18-Oct-2023	25-Oct-2023	28 days	7 days	✓	25-Oct-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
BH105	E509	18-Oct-2023	25-Oct-2023	28 days	7 days	✓	25-Oct-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH101	E421	23-Oct-2023	26-Oct-2023	180 days	3 days	✓	26-Oct-2023	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH102	E421	20-Oct-2023	26-Oct-2023	180 days	6 days	✓	26-Oct-2023	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH104-D	E421	20-Oct-2023	26-Oct-2023	180 days	6 days	✓	26-Oct-2023	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-1	E421	20-Oct-2023	26-Oct-2023	180 days	6 days	✓	26-Oct-2023	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH104-S	E421	18-Oct-2023	26-Oct-2023	180 days	8 days	✓	26-Oct-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
BH105	E421	18-Oct-2023	26-Oct-2023	180 days	8 days	✓	26-Oct-2023	180 days	8 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate)										
TRIP BLANK	E581.F1-L	24-Oct-2023	25-Oct-2023	14 days	1 days	✓	25-Oct-2023	14 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH101	E581.F1-L	23-Oct-2023	25-Oct-2023	14 days	2 days	✓	25-Oct-2023	14 days	2 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH102	E581.F1-L	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	25-Oct-2023	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH104-D	E581.F1-L	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	25-Oct-2023	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) DUP-1	E581.F1-L	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	25-Oct-2023	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH104-S	E581.F1-L	18-Oct-2023	25-Oct-2023	14 days	7 days	✓	25-Oct-2023	14 days	7 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH105	E581.F1-L	18-Oct-2023	25-Oct-2023	14 days	7 days	✓	25-Oct-2023	14 days	7 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BH101	E601.SG	23-Oct-2023	26-Oct-2023	14 days	3 days	✓	30-Oct-2023	40 days	4 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BH102	E601.SG	20-Oct-2023	26-Oct-2023	14 days	6 days	✓	30-Oct-2023	40 days	4 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BH104-D	E601.SG	20-Oct-2023	26-Oct-2023	14 days	6 days	✓	30-Oct-2023	40 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-1	E601.SG	20-Oct-2023	26-Oct-2023	14 days	7 days	✓	30-Oct-2023	40 days	4 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH104-S	E601.SG	18-Oct-2023	26-Oct-2023	14 days	8 days	✓	30-Oct-2023	40 days	4 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH105	E601.SG	18-Oct-2023	26-Oct-2023	14 days	8 days	✓	30-Oct-2023	40 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH101	E100	23-Oct-2023	25-Oct-2023	28 days	2 days	✓	26-Oct-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH102	E100	20-Oct-2023	25-Oct-2023	28 days	5 days	✓	26-Oct-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH104-D	E100	20-Oct-2023	25-Oct-2023	28 days	5 days	✓	26-Oct-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
DUP-1	E100	20-Oct-2023	25-Oct-2023	28 days	6 days	✓	26-Oct-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH104-S	E100	18-Oct-2023	25-Oct-2023	28 days	7 days	✓	26-Oct-2023	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH105	E100	18-Oct-2023	25-Oct-2023	28 days	7 days	✓	26-Oct-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE [ON MECP] BH101	E108	23-Oct-2023	25-Oct-2023	14 days	2 days	✓	26-Oct-2023	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] BH102	E108	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	26-Oct-2023	14 days	6 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] BH104-D	E108	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	26-Oct-2023	14 days	6 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] DUP-1	E108	20-Oct-2023	25-Oct-2023	14 days	6 days	✓	26-Oct-2023	14 days	6 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] BH104-S	E108	18-Oct-2023	25-Oct-2023	14 days	7 days	✓	26-Oct-2023	14 days	8 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] BH105	E108	18-Oct-2023	25-Oct-2023	14 days	7 days	✓	26-Oct-2023	14 days	8 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) BH101	E641A	23-Oct-2023	26-Oct-2023	14 days	3 days	✓	01-Nov-2023	40 days	6 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) BH102	E641A	20-Oct-2023	26-Oct-2023	14 days	6 days	✓	01-Nov-2023	40 days	6 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) BH104-D	E641A	20-Oct-2023	26-Oct-2023	14 days	6 days	✓	01-Nov-2023	40 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-1	E641A	20-Oct-2023	26-Oct-2023	14 days	7 days	✓	01-Nov-2023	40 days	6 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH104-S	E641A	18-Oct-2023	26-Oct-2023	14 days	8 days	✓	01-Nov-2023	40 days	6 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH105	E641A	18-Oct-2023	26-Oct-2023	14 days	8 days	✓	01-Nov-2023	40 days	6 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH101	E532A	23-Oct-2023	----	----	----		26-Oct-2023	28 days	3 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH102	E532A	20-Oct-2023	----	----	----		26-Oct-2023	28 days	6 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH104-D	E532A	20-Oct-2023	----	----	----		26-Oct-2023	28 days	6 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
DUP-1	E532A	20-Oct-2023	----	----	----		26-Oct-2023	28 days	6 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH104-S	E532A	18-Oct-2023	----	----	----		26-Oct-2023	28 days	8 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH105	E532A	18-Oct-2023	----	----	----		26-Oct-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIP BLANK	E611D	24-Oct-2023	25-Oct-2023	14 days	1 days	✓	25-Oct-2023	14 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH101	E611D	23-Oct-2023	25-Oct-2023	14 days	2 days	✓	25-Oct-2023	14 days	2 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH102	E611D	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	25-Oct-2023	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH104-D	E611D	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	25-Oct-2023	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUP-1	E611D	20-Oct-2023	25-Oct-2023	14 days	5 days	✓	25-Oct-2023	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH104-S	E611D	18-Oct-2023	25-Oct-2023	14 days	7 days	✓	25-Oct-2023	14 days	7 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH105	E611D	18-Oct-2023	25-Oct-2023	14 days	7 days	✓	25-Oct-2023	14 days	7 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1204247	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1205875	1	12	8.3	5.0	✓
Conductivity in Water	E100	1205873	1	11	9.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1206663	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1205115	2	39	5.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1206461	1	20	5.0	5.0	✓
pH by Meter	E108	1205872	1	16	6.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1204246	2	19	10.5	5.0	✓
WAD Cyanide	E336	1210580	1	12	8.3	5.0	✓
Laboratory Control Samples (LCS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1204247	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1205875	1	12	8.3	5.0	✓
Conductivity in Water	E100	1205873	1	11	9.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1206663	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1205115	2	39	5.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1206461	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1207554	1	15	6.6	5.0	✓
pH by Meter	E108	1205872	1	16	6.2	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1214246	2	21	9.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1204246	1	19	5.2	5.0	✓
WAD Cyanide	E336	1210580	1	12	8.3	5.0	✓
Method Blanks (MB)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1204247	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1205875	1	12	8.3	5.0	✓
Conductivity in Water	E100	1205873	1	11	9.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1206663	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1205115	2	39	5.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1206461	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1207554	1	15	6.6	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1214246	2	21	9.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1204246	1	19	5.2	5.0	✓
WAD Cyanide	E336	1210580	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1204247	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1205875	1	12	8.3	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1206663	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1205115	2	39	5.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1206461	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1204246	1	19	5.2	5.0	✓
WAD Cyanide	E336	1210580	1	12	8.3	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
WAD Cyanide	E336 ALS Environmental - Waterloo	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. sample pretreatment involved field or lab filtration following by sample preservation.
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
F1-BTEX	EC580 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
SUM F1 to F4 where F2-F4 is SG treated	EC581SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fraction F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50), where F2-F4 have been treated with silica gel. F4G-sg is not used within this calculation due to overlap with other fractions.
F2-F4 (sg) minus PAH	EC600SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F2-F4 (sg) minus PAH is calculated as follows: F2-F4 minus PAH = Sum of CCME Fraction 2 (C10-C16), CCME Fraction 3 (C16-C34), and CCME Fraction 4 (C34-C50), minus select Polycyclic Aromatic Hydrocarbons (PAH).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **WT2334536**	Page	: 1 of 16
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deeana Reynolds	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 1 416 817 2944
Project	: 23-197-202	Date Samples Received	: 24-Oct-2023 17:25
PO	: ----	Date Analysis Commenced	: 25-Oct-2023
C-O-C number	: 20-1047519	Issue Date	: 01-Nov-2023 15:27
Sampler	: LB 647 370 3191		
Site	: 705 Kingston Rd., Pickering		
Quote number	: 2023 SOA Pricing		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
John Tang	Lab Analyst	Waterloo Inorganics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1205872)											
WT2334536-001	BH101	pH	----	E108	0.10	pH units	8.31	8.30	0.120%	4%	----
Physical Tests (QC Lot: 1205873)											
WT2334536-001	BH101	Conductivity	----	E100	1.0	µS/cm	0.373 mS/cm	373	0.00%	10%	----
Anions and Nutrients (QC Lot: 1205875)											
WT2334749-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Cyanides (QC Lot: 1210580)											
WT2334536-001	BH101	Cyanide, weak acid dissociable	----	E336	0.0020	mg/L	<2.0 µg/L	<0.0020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1204367)											
TY2310887-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1205115)											
TY2310771-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1206461)											
WT2334536-001	BH101	Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.26 µg/L	0.00025	0.00001	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	3.75 µg/L	0.00375	0.0240%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	75.4 µg/L	0.0736	2.40%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	0.026 µg/L	0.000023	0.000003	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	206 µg/L	0.208	1.11%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0201 µg/L	0.0000213	0.0000012	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.97 µg/L	0.00084	0.00014	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.73 µg/L	0.00070	0.00003	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	1.68 µg/L	0.00160	0.00007	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.334 µg/L	0.000312	0.000022	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	24.7 µg/L	0.0244	1.00%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.92 µg/L	0.00087	0.00006	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.137 µg/L	0.000146	0.000009	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	61600 µg/L	61.6	0.0796%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.077 µg/L	0.000066	0.000011	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	1.70 µg/L	0.00141	0.00030	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1206461) - continued											
WT2334536-001	BH101	Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	7.3 µg/L	0.0073	0.000009	Diff <2x LOR	----
Speciated Metals (QC Lot: 1206663)											
KS2304081-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.00050	mg/L	0.00095	0.00096	0.00001	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1204246)											
TY2310887-001	Anonymous	Dichloromethane	75-09-2	E611D	10.0	µg/L	<10.0	<10.0	0	Diff <2x LOR	----
TY2310887-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	0.80	0.76	0.04	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1204246) - continued											
TY2310887-001	Anonymous	Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	0.41	<0.40	0.01	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	0.34	0.33	0.01	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1204247)											
TY2310887-001	Anonymous	F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1205873)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 1205875)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Cyanides (QCLot: 1210580)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Dissolved Metals (QCLot: 1204367)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1205115)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1206461)						
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Speciated Metals (QCLot: 1206663)						
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1204246)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1204246) - continued						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1204246) - continued						
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1204247)						
F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	----
Hydrocarbons (QCLot: 1207553)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----
Hydrocarbons (QCLot: 1214246)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1207554)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1205872)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1205873)									
Conductivity	----	E100	1	µS/cm	1409 µS/cm	100	90.0	110	----
Anions and Nutrients (QCLot: 1205875)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.2	90.0	110	----
Cyanides (QCLot: 1210580)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	99.5	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	95.7	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	87.7	80.0	120	----
Dissolved Metals (QCLot: 1206461)									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	101	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	101	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	97.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	95.2	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	102	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	98.8	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	98.5	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	98.9	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	97.3	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	98.7	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	103	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	93.7	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	101	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	104	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	105	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	99.7	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	103	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 1206663)									
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	0.025 mg/L	96.1	80.0	120	----
Volatile Organic Compounds (QCLot: 1204246)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	118	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	99.7	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	93.2	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	113	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	112	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	113	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	116	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	78.0	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	89.6	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	97.6	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	97.4	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	111	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	105	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	90.8	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	92.8	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	80.7	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	129	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	109	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	96.4	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	98.7	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	92.0	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1204246) - continued									
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	118	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	106	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	94.1	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	93.3	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	94.0	70.0	130	----
Hydrocarbons (QCLot: 1204247)									
F1 (C6-C10)	----	E581.F1-L	25	µg/L	2000 µg/L	94.6	80.0	120	----
Hydrocarbons (QCLot: 1207553)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3685.12 µg/L	119	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7481.33 µg/L	117	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4274.88 µg/L	112	70.0	130	----
Hydrocarbons (QCLot: 1214246)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3685.12 µg/L	102	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7481.33 µg/L	108	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4274.88 µg/L	97.0	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1207554)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5263 µg/L	97.8	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5263 µg/L	93.5	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5263 µg/L	85.6	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5263 µg/L	85.1	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5263 µg/L	106	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5263 µg/L	86.2	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5263 µg/L	85.2	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5263 µg/L	100	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5263 µg/L	96.9	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5263 µg/L	87.7	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5263 µg/L	98.4	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5263 µg/L	97.4	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5263 µg/L	84.9	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5263 µg/L	94.3	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5263 µg/L	90.8	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5263 µg/L	90.8	50.0	140	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1207554) - continued									
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5263 µg/L	91.3	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5263 µg/L	100	50.0	140	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1205875)										
WT2334749-001	Anonymous	Chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Cyanides (QCLot: 1210580)										
WT2334536-001	BH101	Cyanide, weak acid dissociable	----	E336	0.122 mg/L	0.125 mg/L	97.7	75.0	125	----
Dissolved Metals (QCLot: 1204367)										
TY2310887-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000935 mg/L	0.0001 mg/L	93.5	70.0	130	----
Dissolved Metals (QCLot: 1205115)										
TY2310856-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000830 mg/L	0.0001 mg/L	83.0	70.0	130	----
Dissolved Metals (QCLot: 1206461)										
WT2334536-002	BH102	Antimony, dissolved	7440-36-0	E421	0.0510 mg/L	0.05 mg/L	102	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0601 mg/L	0.05 mg/L	120	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.00508 mg/L	0.005 mg/L	102	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	0.05 mg/L	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00524 mg/L	0.005 mg/L	105	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0132 mg/L	0.0125 mg/L	106	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0126 mg/L	0.0125 mg/L	100	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0124 mg/L	0.0125 mg/L	99.6	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0262 mg/L	0.025 mg/L	105	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0248 mg/L	0.025 mg/L	99.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0625 mg/L	0.05 mg/L	125	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00309 mg/L	0.005 mg/L	61.8	70.0	130	MES
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0523 mg/L	0.05 mg/L	104	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.00025 mg/L	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0264 mg/L	0.025 mg/L	106	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0269 mg/L	0.025 mg/L	108	70.0	130	----
Speciated Metals (QCLot: 1206663)										
KS2304081-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0402 mg/L	0.04 mg/L	100	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1204246)										
TY2310887-001	Anonymous	Acetone	67-64-1	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Benzene	71-43-2	E611D	95.8 µg/L	100 µg/L	95.8	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Bromoform	75-25-2	E611D	84.9 µg/L	100 µg/L	84.9	60.0	140	----
		Bromomethane	74-83-9	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Chlorobenzene	108-90-7	E611D	98.9 µg/L	100 µg/L	98.9	60.0	140	----
		Chloroform	67-66-3	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	99.0 µg/L	100 µg/L	99.0	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	99.0 µg/L	100 µg/L	99.0	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	98.7 µg/L	100 µg/L	98.7	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	96.7 µg/L	100 µg/L	96.7	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	80.6 µg/L	100 µg/L	80.6	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	95.1 µg/L	100 µg/L	95.1	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	98.6 µg/L	100 µg/L	98.6	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	94.3 µg/L	100 µg/L	94.3	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	96.6 µg/L	100 µg/L	96.6	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Ethylbenzene	100-41-4	E611D	89.2 µg/L	100 µg/L	89.2	60.0	140	----
		Hexane, n-	110-54-3	E611D	87.1 µg/L	100 µg/L	87.1	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	95 µg/L	100 µg/L	95.2	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Styrene	100-42-5	E611D	90.8 µg/L	100 µg/L	90.8	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	89.4 µg/L	100 µg/L	89.4	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Toluene	108-88-3	E611D	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Trichloroethylene	79-01-6	E611D	115 µg/L	100 µg/L	115	60.0	140	----

Sub-Matrix: **Water**

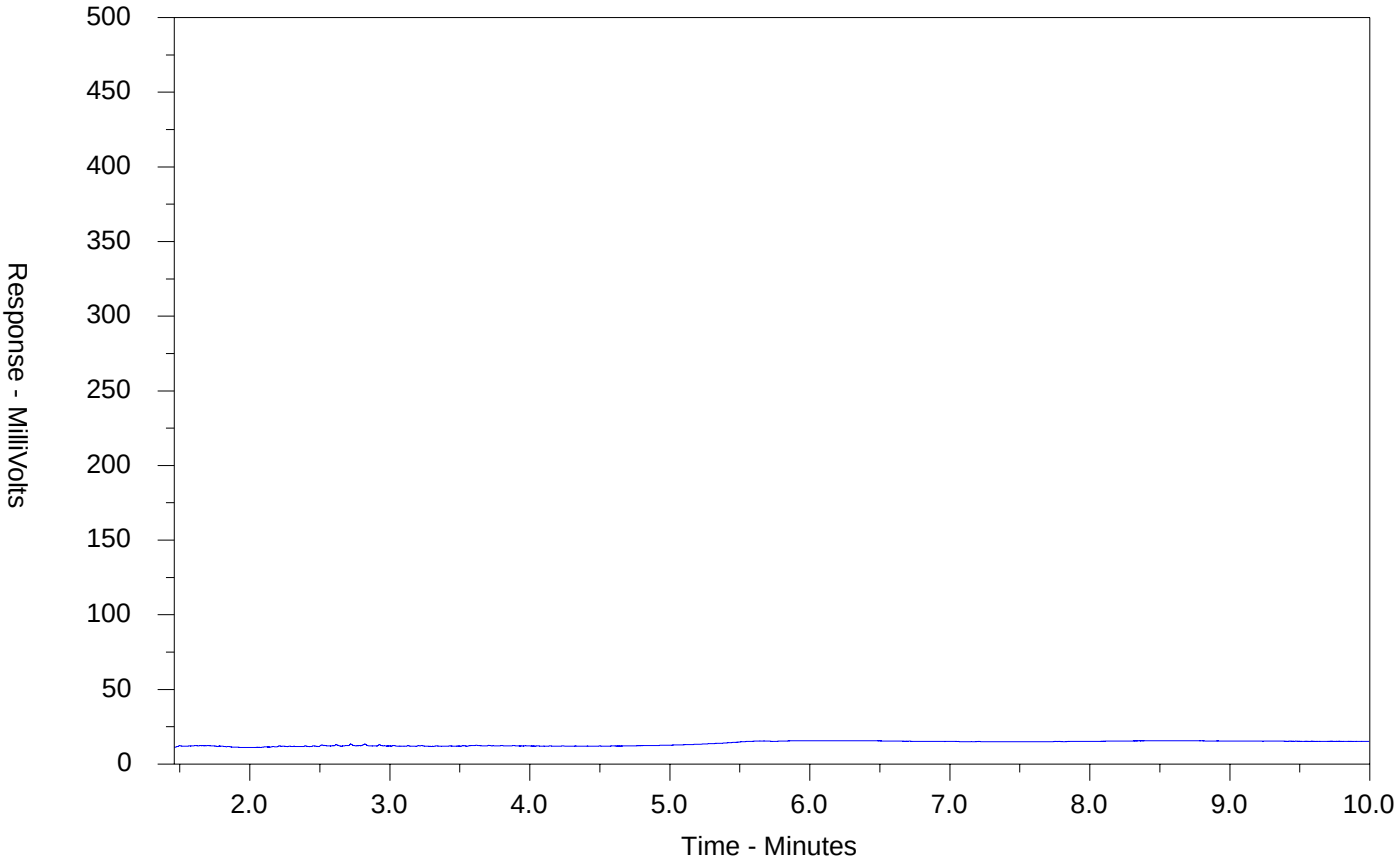
					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1204246) - continued										
TY2310887-001	Anonymous	Trichlorofluoromethane	75-69-4	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Vinyl chloride	75-01-4	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	178 µg/L	200 µg/L	89.3	60.0	140	----
		Xylene, o-	95-47-6	E611D	90.2 µg/L	100 µg/L	90.2	60.0	140	----
Hydrocarbons (QCLot: 1204247)										
TY2310887-001	Anonymous	F1 (C6-C10)	----	E581.F1-L	1920 µg/L	2000 µg/L	96.2	60.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2334536-001-E601.SG
Client Sample ID: BH101



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

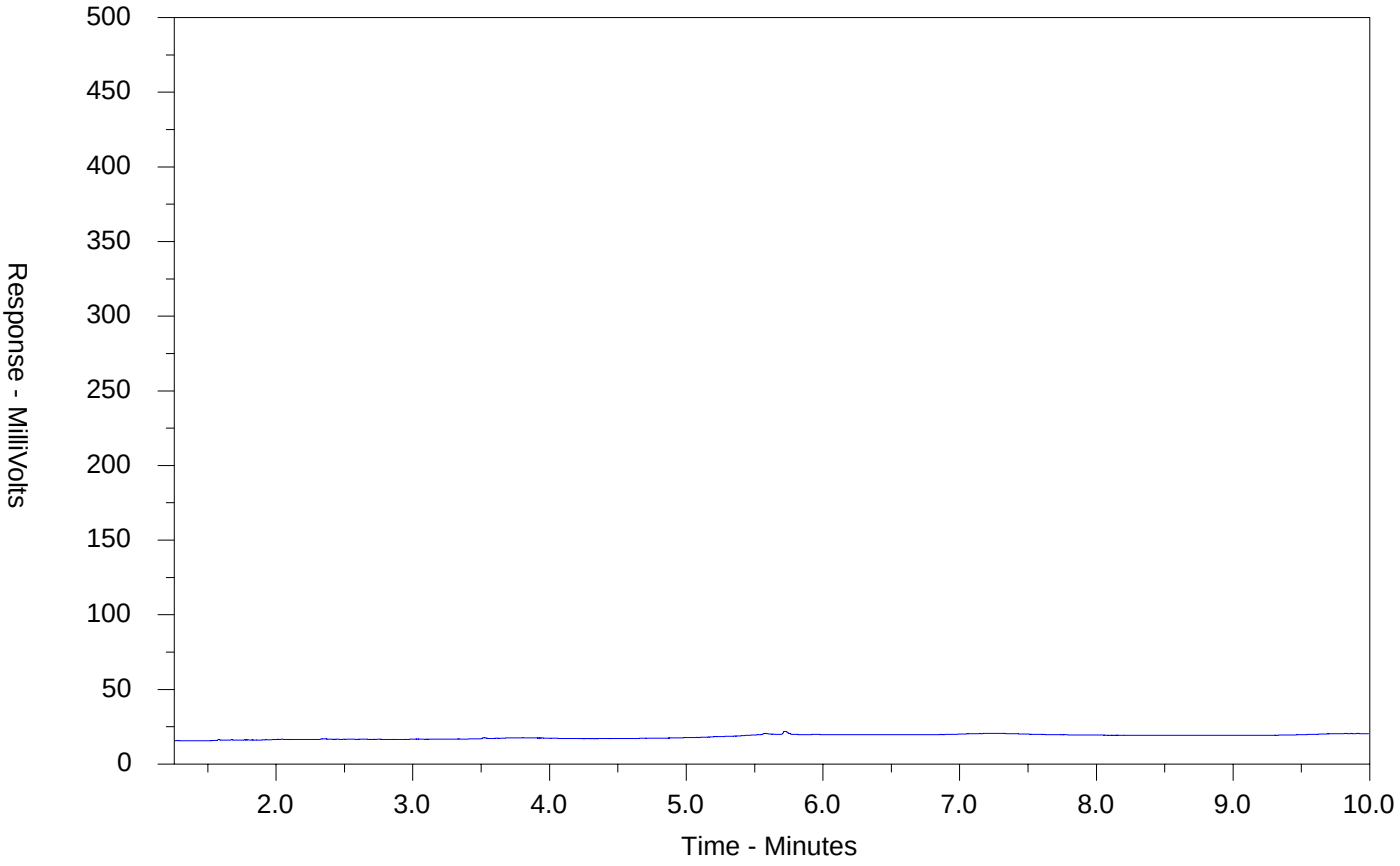
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2334536-002-E601.SG
Client Sample ID: BH102



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

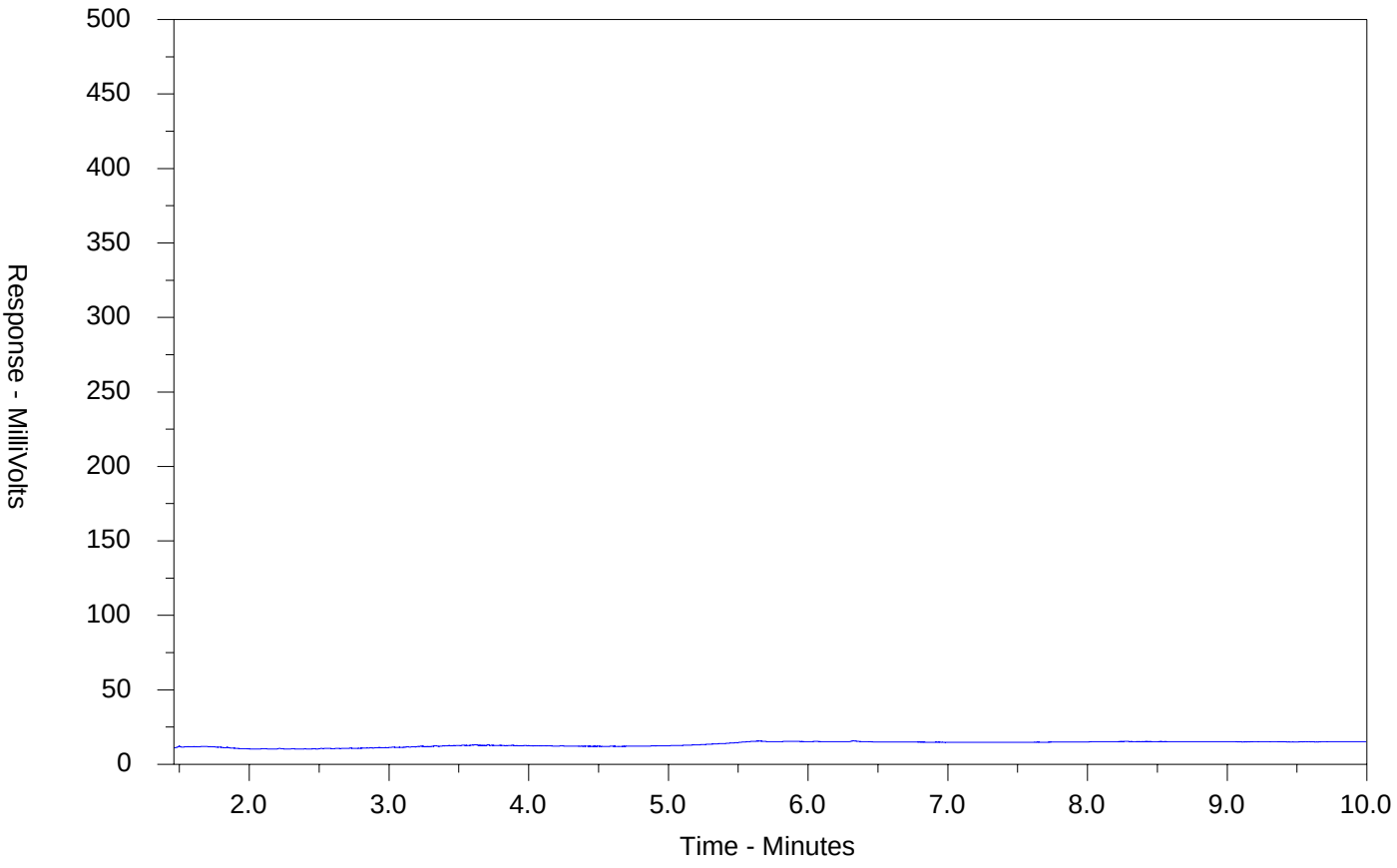
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2334536-003-E601.SG
Client Sample ID: BH104-D



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

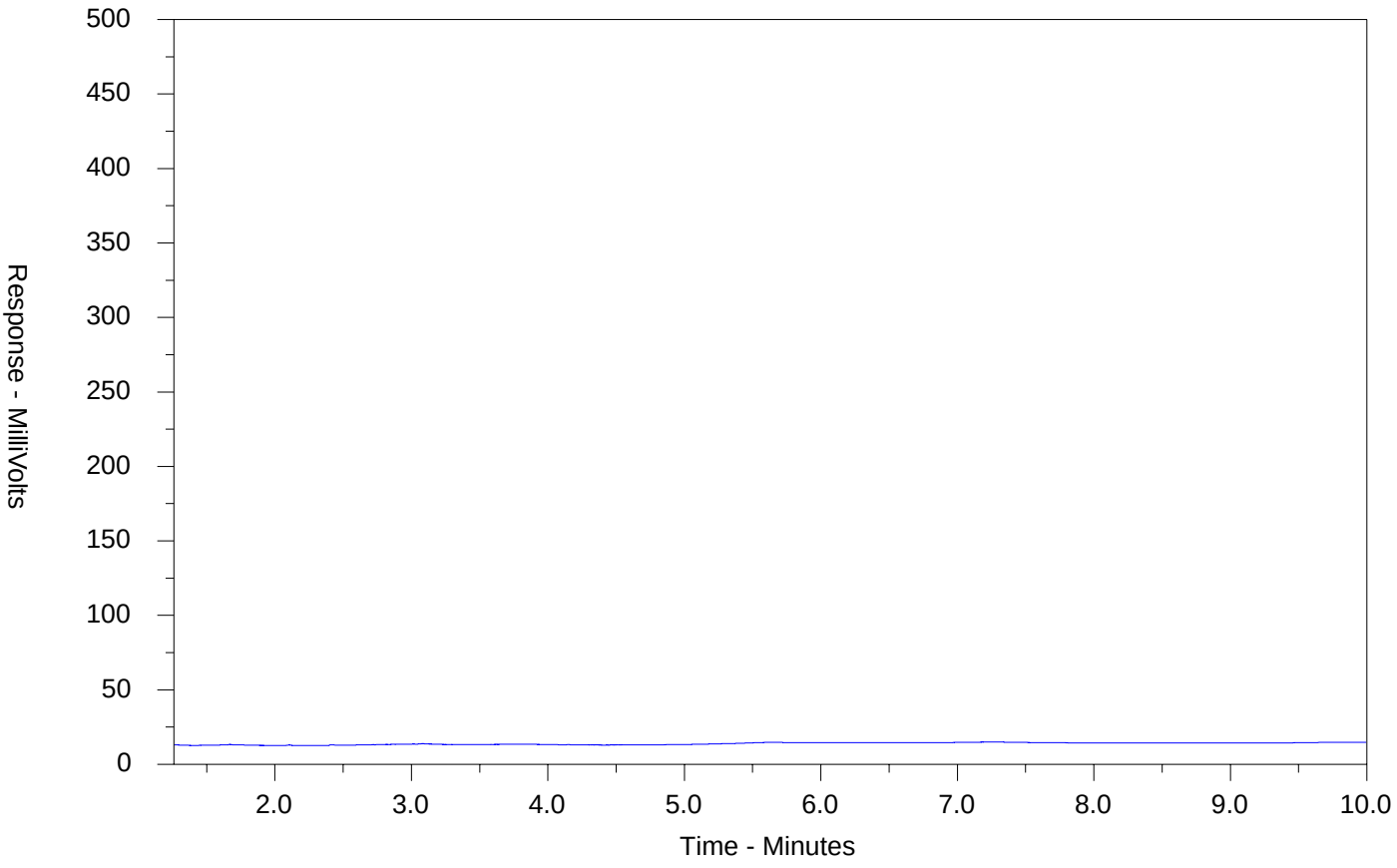
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2334536-004-E601.SG
Client Sample ID: BH104-S



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

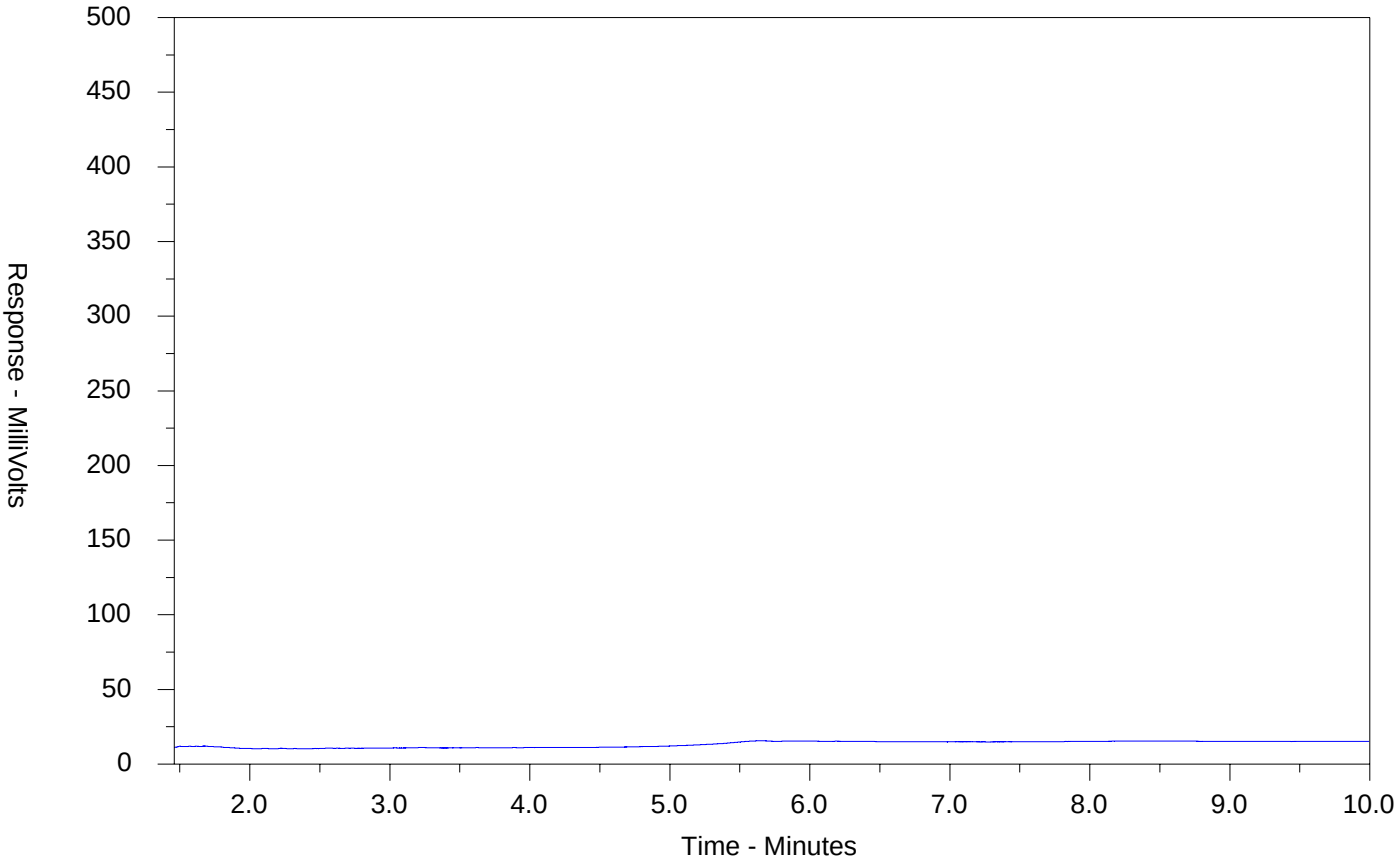
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2334536-005-E601.SG
Client Sample ID: BH105



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

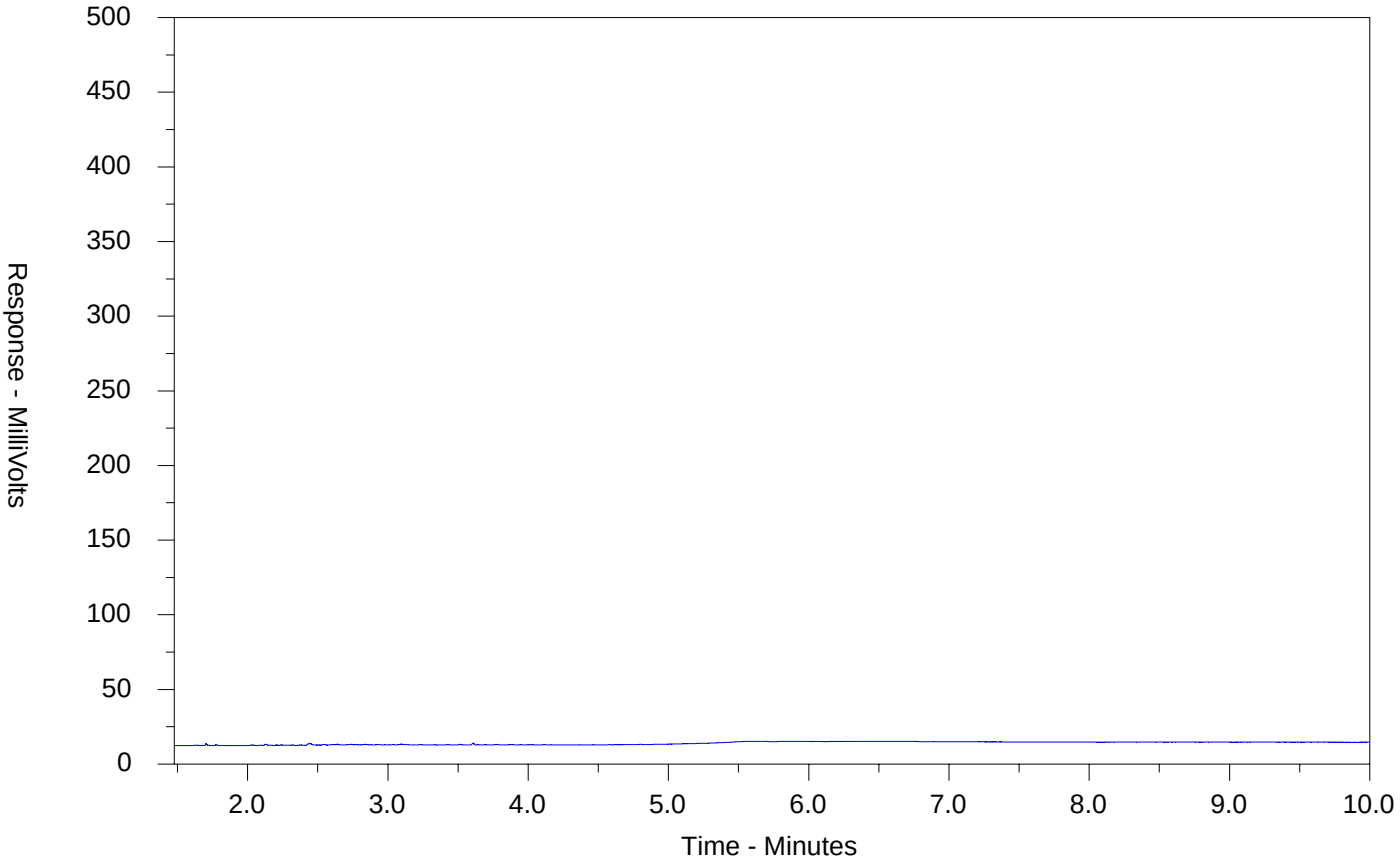
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2334536-006-E601.SG
Client Sample ID: DUP-1



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

COC Number:

Environmental Divisi
Waterloo

Work Order Reference
WT2334536

Canada Toll Free: 1 800 668 9878

Telephone : +1 519 886 6910

www.alsglobal.com

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Groundwater Eng	Select Report Format: ☐ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Deegan Reynolds	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge mir
Phone:	647-370-3191	☑ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge mi
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge mi
Street:	1 Bantigan Dr	Email 1 or Fax dreynolds@groundeng.ca	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge mi
City/Province:	Toronto ON	Email 2	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. may apply to rush requests on weekends, statutory holidays and r
Postal Code:	M4H 1G3	Email 3	Date and Time Required for all E&P TATs:
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	For all tests with rush TATs requested, please contact your AM to confirm availability.
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information	Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	AFE/Cost Center:	PO#
Job #: 23-197-202	Major/Minor Code:	Routing Code:
PO / AFE:	Requisitioner:	
LSD: 705 Kingston Rd Pickering	Location:	
ALS Lab Work Order # (ALS use only):	ALS Contact:	Sampler: LB

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Analysis Request: Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
						F: MRP, PAH, PHC/BTEX, VOC			
	BH101	23-Oct-23	12:00	GW	13	X X X X			
	BH102	20-Oct-23	15:30		13	X X X X			
	BH104-D	20-Oct-23	11:30		13	X X X X			
	BH104-S	18-Oct-23	15:00		13	X X X X			
	BH105	18-Oct-23	13:00		13	X X X X			
	DUP-1	20-Oct-23			13	X X X X			
	TRIP BLANK				2	X X			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Compare to O.Reg 153/04 RPI, Coarse Table 3
Are samples for human consumption/ use? ☐ YES ☐ NO	RSC-Yes. Please use Groundeng Template - BH101- High Sediments.

SAMPLE RECEIPT DETAILS (ALS use only)					
Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN	☐ COOLING INITIATED				
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO					
Cooler Custody Seals Intact: ☐ YES ☐ N/A	Sample Custody Seals Intact: ☐ YES ☐ N/A				
INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C	
				1.2	

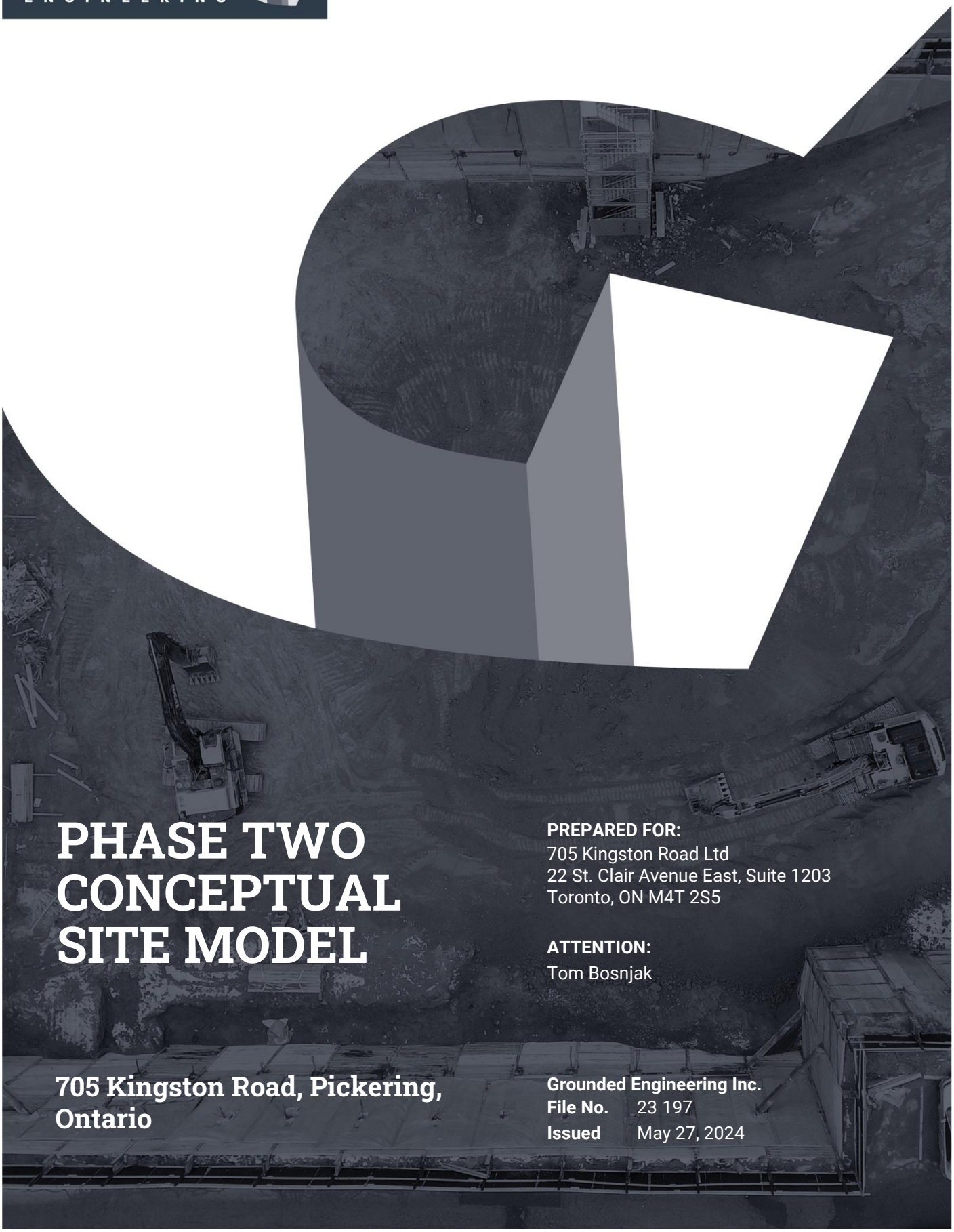
SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: EC	Date: Oct. 24 23	Time: 17:25
Deegan Reynolds	10/27/23	6:00						

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

VW-144 MM-023 EC
OR-352 CN-429
GC-039 SC-528

APPENDIX G



PHASE TWO CONCEPTUAL SITE MODEL

PREPARED FOR:
705 Kingston Road Ltd
22 St. Clair Avenue East, Suite 1203
Toronto, ON M4T 2S5

ATTENTION:
Tom Bosnjak

705 Kingston Road, Pickering, Ontario

Grounded Engineering Inc.
File No. 23 197
Issued May 27, 2024

1 Banigan Drive, Toronto ON M4H 1G3 | (647) 264-7909 | groundedeng.ca | Grounded Engineering

TABLE OF CONTENTS

FIGURES

TABLES

1 Introduction

1.1 Site Description

The Phase Two Property is located at the municipal address of 705 Kingston Road, Pickering, Ontario (the Property). The site location is presented in Figure 1.

The Property is irregular in shape, with a total area of 2.7317 ha (27,317 m^2). The Property is bounded by Kingston Road to the North, Whites Road to the West and Highway 401 to the South. The Property is currently developed as a commercial plaza with a multi-tenant commercial building, and a standalone commercial restaurant building, with associated at-grade asphalt parking lot across the central portion of the Property. The Property is considered to be in commercial land use by the Ontario Ministry of the Environment, Conservation and Parks (MECP).

It is understood that the Phase Two Property will be developed with multiple mid- to high-rise towers resting on up to two (2) levels of underground parking. There will be a proposed parkland dedication in the northeast corner of the Property (approx. 2,536 m^2) and a proposed road widening along the eastern side of the Property that will be conveyed to the City of Pickering. Under Ontario Regulation 153/04 (O.Reg. 153/04), the future land use of the Property would be considered residential.

1.2 Property Ownership

The Property information is provided below:

Municipal Address	705 Kingston Road, Pickering, Ontario L1V 6K3
Legal Description	PT LT 28 RANGE 3 CON BROKEN FRONT PTS 1, 2, 3, 4 & 5, 40R9869 EXCEPT PARTS 1, 2 AND 3 PLAN DR1379833; S/T PTS 3 & 4 40R9869 AS IN LT312559; T/W PT LT 28 RANGE 3 CON BROKEN FRONT PTS 9 & 10, 40R9869 AS IN LT312559; T/W PT LT 28 RANGE 3 CON BROKEN FRONT PT 7, 40R9869 AS IN LT312559 ; S/T LT301696, LT301697; CITY OF PICKERING
PIN(s)	26317-0181 (LT)
Assessment Roll Number	18010100300480000000
Zoning	The Property is zoned as Urban Mixed Use and Residential Areas under City of Pickering Zoning By-Law 3036.
Area	Approx. 2.7317 ha (27,317 m^2)
Zone Northing Easting	17T 4853529.26 m N, 651716.70 m E
Property Owner Information	Tom Bosnjak tbosnjak@resident.ca 22 St. Clair Avenue East, Suite 1203 Toronto ON, M4T 2S5

1.3 Summary of Previous Investigations

Title and File No.	Final Phase I Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: BRM-00011934-C0
Report Date	December 18, 2014
Prepared By	exp Services Inc.
Prepared for	Valiant Rental Inc.

Description of Data, Analysis or Findings	• The Phase I ESA was completed for due diligence purposes, to support the potential purchase of the Property.
	  ○ The original Phase I ESA report conducted by exp in 2011 was not provided for review.
	• The Phase I ESA was generally completed in accordance with CSA Standard Z768-01.
	• At the time of the site inspection completed on December 9, 2014, the Property was occupied by two (2) commercial buildings, one occupied by a restaurant and the other is a multi-tenant commercial building divided into 28 units.
	  ○ The restaurant building was occupied by Lone Star Restaurant, and the multitenant building was occupied by the following retailers:
	  ▪ Stag Shop, China One Restaurant, Arts Plus, Chick'n Joy, Pizza Pizza, Tanning Salon, Red House Thai Restaurant, 1st Choice Haircutters, Popeyes, Dental Office, Violet Blooms, M&M's Meat Shop, Belaggio's, LCBO, Party Depot, The Source, Henry's Photo, SAPA Nail Salon, Subway, Convenience Store and The Beer Store.
	  ○ It was noted that the commercial buildings on the Property were constructed in 1988.
	  ○ Both buildings on the Property were reportedly heated by a natural gas-fired HVAC unit.
	• The report identified the following APEC causing PCAs:
	  ○ Historical and current gas station present 60 m west of the Property at 698 Kingston Road since at least 1983. The facility reportedly had 5 USTs.
	  ○ Historical and current gas station located at 704 Kingston Road, 35 m north of the Property. The site was occupied by Esso Imperial Oil in 1994 and was occupied by a Petro Canada gas station at the time of the site visit.
	  ○ Active dry-cleaning facility was present at 726 Kingston Road 35 m north of the Property, noted during the site visit. Property listed as a generator of halogenated solvents from 2007 to 2014.
	  ○ Historical and current car dealership present at 715 Kingston Road, adjacent to the east of the Property, and has occupied this site since at least 1988.
	• No on-site APECs were noted.

	• The Phase I ESA referenced a Phase II ESA conducted by exp in 2011. It was noted that the Phase II ESA investigation involved the sampling and analysis of groundwater from one monitoring well. The remaining two monitoring wells installed were found to be dry. Therefore, it was concluded that the groundwater quality on the northern portion of the Property remained uncertain and the current groundwater quality across the site is unknown. • Exp recommended that the monitoring wells installed during exp's 2011 Phase II ESA should be re-assessed and re-sampled to establish current groundwater quality in the areas of potential environmental concern (APECs).

Title and File No.	Phase II Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: BRM-00011934-A0
Report Date	July 11, 2011
Prepared By	exp Services Inc.
Prepared for	Linmar Investment Corporation Limited

Description of Data, Analysis or Findings	• The purpose of the Phase II ESA was for due diligence only, to investigate APECs identified in the Phase I Environmental Site Assessment conducted by exp on April 18, 2011.
	• The Phase II ESA was generally completed in accordance with CSA Standard Z769-00
	• The Phase II ESA consisted of advancing three (3) boreholes to approximately 6 m depth, all subsequently instrumented with monitoring wells.
	• The following soil samples were submitted for analysis:
	  ○ BH1-S4 → PHC (F1-F4)/BTEX, VOCs
	  ○ BH2-S5 → PHC (F1-F4)/BTEX, VOCs
	  ○ BH3-S2 → pH
	  ○ BH3-S4 → PHC (F1-F4)/BTEX, VOCs
	  ○ BH3-S5 → pH
	• The results of the above listed soil analyses all meet the applicable Site Condition Standards (Table 2 RPI)
	• Groundwater samples collected from BH/MW3 were analyzed for PHCs and VOCs, and met applicable Site Condition Standards (Table 2 RPI)
	  ○ Monitoring wells MW1 and MW2 were dry and therefore not sampled.
	  ○ No evidence of free product was observed during well purging and groundwater sampling.
	• Due to insufficient groundwater elevation data, the direction of groundwater flow was not accurately determined, however based on the local topography and proximity to Frenchman's Bay, it was inferred that the groundwater flow is towards the southeast.

	• Exp concluded due to the non-detect results of PHCs and VOCs in soil and groundwater, no further environmental investigations were warranted at the time ○ **There was insufficient analytical groundwater data collected during the investigation due to the absence of groundwater in select monitoring wells. Therefore, it is Grounded's opinion that further environmental investigation is warranted to determine groundwater flow direction and to sufficiently evaluate the APECs identified.** ○ **Upon Grounded's investigation, monitoring wells were not accessible, and construction details could not be confirmed. Therefore, Grounded will not be relying upon the monitoring well data and has chosen to exclude the analytical data collected as part of the exp Phase II ESA.**

Title and File No.	Final Phase I Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: 12699-001
Report Date	April 1, 2021
Prepared By	Cambium Inc.
Prepared for	Valiant Rental Properties Limited
Description of Data, Analysis or Findings	• The Phase I ESA was completed to support the potential purchase of the Property. • The Phase I ESA was generally completed in accordance with CSA Standard Z768-01. • At the time of the site inspection completed on March 25, 2021, the Property was occupied by two (2) commercial buildings; one (1) slab on grade multi-tenant commercial building, and one (1) standalone single storey commercial building. ○ The standalone commercial building was occupied by Lonestar Restaurant, and the multi-tenant commercial building was occupied by the following: ▪ One Plant Pickering, Milanu's Tandoori Grill, The Great Canadian Bagel, Chicken Joy, Retro Burger, Pizza Pizza, Red House Thai and Malaysian Cuisine, Scotia Bank, First Choice Hair Cutters, Popeye's Supplements, Dental Office, Violet Bloom Fresh Flowers, M&M Food Market, Belaggio's Gelato, LCBO, Pet Valu, Wimpy's Diner, Spa Nails Salon, Convenience King, Subway, The Beer Store, five (5) additional vacant units, a maintenance room and an electrical room ○ It was noted that the site Custodian Supervisor provided access to five (5) vacant units, maintenance, and electrical rooms within the multi-tenant commercial building, however the remaining units and the standalone commercial building were not accessed during the visit. ○ It was reported that both buildings on the Property were originally constructed in 1988. ○ No evidence of ASTs or USTs were observed during the site visit. ○ Both buildings were reportedly heated by a natural gas-fired HVAC unit.

- Three grease disposal bins were noted to be observed on site: two (2) located south of the western portion, and one (1) located south of the eastern portion of the multi-tenant commercial building.
    - Small, localized staining was observed around the base of the two grease disposal bins located south of the western portion of the multi-tenant commercial building.
- A pad-mounted transformer was observed along the northern Property boundary, northeast of the standalone restaurant building. The transformer was observed to be mounted on a competent concrete pad, with no staining on the pad or the surrounding area.
    - **Response from Elexicon Energy identified the transformer was manufactured in 2014 and does not contain PCBs in the oil.**
    - No records of PCBs were identified at the Site in the ERIS report.

- The report identified the following APEC causing PCAs:
    - Current and historical retail fuel outlets, with documented spills, 50 m and 75 m west/northwest of the Property (704 Kingston Road and 698 Kingston Road)
    - Automotive service station at the property adjacent to the east
    - Historical fuel spills within the adjacent roadways
        - No additional information (addresses, distances, directions, etc.) was provided, however Grounded believes these are the listings noted per Section 4.2.1 of Grounded's Phase One ESA report, and PCAs are noted in that section.
    - Current and historical operation of a dry-cleaning facility 45 m northwest of the Property (726 Kingston Road)
- Multiple spills listed for adjacent roadways, however due to expected clean-up efforts and down-gradient location of spills along Highway 401, these were considered to be low risk for the Property.
- A Sketchly cleaners was identified on the Property in the 1990 COPE Report, however it was identified in this report as a **dry-cleaning depot** only, and not considered a PCA for the Property.
    - The industry code for the business is identified as: 722 – Laundries, Drycleaners, Dyers
    - The occupancy for the business is identified as: 5144A – DRY CLEANERS DEPOT ONLY
    - The location is noted to be in Unit 11 of the shared commercial building, with an area of 79 m^2 (approx. 1.4% of the total building area)
- No on-site APECs were noted.
- It was noted that due to the Covid-19 pandemic, the city directories for the Property were inaccessible through the National Library and Archives as the office was closed indefinitely.
    - Digital City Directories were searched through Toronto Public Library, however the attached documents note that due to Covid-19, access to the information sources for the search had been prohibited, and additional measures were taken to provide accurate information wherever possible, however some searches still yielded no results.
- Cambium recommended a Phase II Environmental Site Assessment to evaluate the soil and groundwater quality at the site, based on the above identified APEC causing PCAs.

	• Cambium also recommended a designated substance survey to be completed prior to renovation/demolition of the site buildings due to the age of the construction and the potential for the presence of designated substances (e.g. asbestos, lead).

Title and File No.	Phase II Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: 12699-001
Report Date	June 25, 2021
Prepared By	Cambium Inc.
Prepared for	Valiant Rental Properties Limited

Description of Data, Analysis or Findings	• The Phase II ESA was completed for due diligence purposes only, to investigate APECs identified in the Phase I Environmental Site Assessment conducted by Cambium on April 1, 2021.
	• The Phase II ESA was generally completed in accordance with CSA Standard Z769-00
	• The Phase II ESA consisted of advancing four (4) boreholes, all subsequently instrumented with monitoring wells.
	  ○ Three boreholes (BH101, BH102, BH104) advanced to 6.7 mbgs
	  ○ One borehole (BH103) advanced to 4.5 mbgs
	• During the installation of the monitoring well for BH101, the borehole caved from 6.7 mbgs to 5 mbgs. The well was subsequent installed at a higher elevation and was observed dry during the following monitoring events.
	• Groundwater levels ranged from 1.70 to 3.99 mbgs on June 8, 2021 (BH102 to BH104), BH101 was dry.
	  ○ Groundwater flow direction was inferred to be south to southeast
	• Four (4) soil samples (1 per borehole) and three (3) groundwater samples were analyzed for the COPCs identified in the Cambium Phase I ESA Report (PHCs, BTEX, VOCs)
	  ○ All soil and groundwater sample results met the applicable Site Condition Standards (Table 2 RPI).
	• Cambium recommended the following work for the Property:
	  ○ When no longer required, all monitoring wells should be abandoned as per the requirements of R.R.O. 1990 Regulation 903 – Wells.
	  ○ Soil cuttings and purge water are considered inert and can be disposed on the Property, and in accordance with the regional sewer use by-law, and the drums recycled. Alternatively, Cambium noted that they could arrange for the drum removal from the site.
	• **For the purpose of this Phase Two Environmental Site Assessment, only select boreholes and monitoring wells installed during the Cambium 2021 Phase II Environmental Site Assessment will be relied upon.**
	  ○ **Grounded is relying upon the borehole data for stratigraphic purposes and monitoring well construction data.**

	○ **Grounded is relying upon the soil analytical data for boreholes CMB-BH101-21, CMB-BH102-21, CMB-BH103-21, CMB-BH104-21.** ○ **Groundwater quality data collected in CMB-BH104-21 will <u>not</u> be relied upon as the well is screened across multiple units (fill, an apparent 0.61 m thick buried concrete slab, and native sandy silt). The well is likely being infiltrated and influenced by surface water, and therefore is not representative of the groundwater quality conditions at the Property. It is therefore not possible to confirm the stabilized groundwater table at this location.** ○ **All other monitoring wells will be relied upon for groundwater level monitoring data and groundwater quality data.**

Title and File No.	Phase One Environmental Site Assessment, 705 Kingston Road, Pickering, Ontario File No.: 23-197
Report Date	March 5, 2024
Prepared By	Grounded Engineering Inc.
Prepared for	705 Kingston Road Ltd
Description of Data, Analysis or Findings	• The Phase One ESA was completed to support a Record of Site Condition, and in accordance with Ontario Regulation 153/04 (O.Reg. 153/04). • At the time of the site inspection completed on September 27, 2023, the Property was operating as a shared commercial plaza, including two buildings: a multi-tenant commercial building and a separate standalone Lone Star restaurant. ○ At-grade asphalt parking lot if present in the central area of the Property, surrounding both commercial buildings, and a laneway on the south portion of the Property for access to the rear of the multi-tenant building. ○ Small air-cooled transformers were observed in the interior utility rooms within each of the accessed commercial units within the multi-tenant building, as well as the standalone restaurant. ○ Exterior pad-mounted transformer vault is present on the northern portion of the Property at the northeast corner of the standalone restaurant building. ▪ **A response was received from Cam Tran Co. Ltd., the manufacturer of the transformer on the Property, confirming the findings from the 2021 Cambium Phase I ESA report. It was confirmed that the transformer was manufactured in 2014 and does not have PCB-containing oil.** ○ Three (3) above ground waste cooking/food oil tanks were observed on the south side of the multi-tenant building. These tanks are used for storage of used cooking/food oil and are emptied approximately bi-weekly. ○ Multiple restaurants were observed to have small metal drums (approx. 55 gallons) on the south side of the multi-tenant building for storage of used cooking/food oil. According to restaurant owners on the Property, these drums are typically picked up and disposed of once a week. ○ Both buildings were reportedly heated by a natural gas-fired HVAC unit.

	○ No evidence of current or historical USTs on the Property. • The Property is categorized as an Enhanced Investigation Property, because based on records and interviews, a historical dry cleaner was located in unit #2 of the multi-tenant commercial building for 15 – 20 years, until 2006 – 2007. • The report identified the following APEC causing PCAs: ○ Historical importation of fill of unknown quality for minor backfilling/grading, etc. across the Property during construction of the buildings in the mid to late 1980s. ○ Application of salt to surfaces of the associated at-grade parking lot and the sidewalks on and adjacent to the Property for safety of vehicular and pedestrian traffic under conditions of snow or ice or both. ○ Historical presence of a dry cleaner in unit #2 of the multi-tenant commercial building until 2006 – 2007. ○ Existing pad-mounted transformer observed on the north side of the Property. ○ Several minor spill events as well was a spill of 300 L of gasoline onto the asphalt at the intersection of Whites Road and Kingston Road approximately 47 m west of the Property. ○ Historical and existing car dealership with associated service shop, attached Fix Auto collision repair shop and used oil AST identified at 715 Kingston Road, approximately 52 m northeast of the Property. ○ Historical dry-cleaning facility identified at 734 Kingston Road, approximately 55 m north of the Property. ○ Historical dry-cleaning facility identified at 726 Kingston Road, approximately 65 m northwest of the Property. ○ Historical and existing gas station with three (3) USTs identified and multiple gasoline spill events recorded at 704 Kingston Road, approximately 69 m northwest of the Property. ○ Historical autobody shops and existing gas station with nine (9) USTs identified on site, as well as multiple minor spill events recorded at 698 Kingston Road, approximately 133 m west of the Property. • The report identified the following Contaminants of Potential Concern associated with the above PCAs, to be assessed in the Phase Two Environmental Site Assessment: ○ M, H-M, Select ORPs, PAHs, PHCs, BTEX, VOCs, in soil ○ Select ORPs, PAHs, PHCs, BTEX, VOCs in groundwater

2 Information from the Phase One Environmental Site Assessment

2.1 Areas Where Potential Contaminating Activity Has Occurred

Potential Contaminating Activity (PCAs) were identified in the Phase One ESA completed for the Property. The information regarding whether the PCAs have the potential to cause Areas of Potential Environmental Concerns (APECs) is provided below.

Location of PCA	PCA	APEC (Yes/No)	Rationalization
Phase One Property	30 – Importation of Fill Material of Unknown Quality *(PCA 30A)*	Yes (APEC 1)	Fill of unknown quality was likely imported to and used at the Property for minor backfilling, grading, etc. across the site during construction of the buildings in the mid to late 1980s. Therefore, the unknown quality of the fill has the potential to cause an APEC at the Property.
Phase One Property	Other 2 – De-icing Activities *(PCA Oth2A)*	Yes (APEC 2)	Application of salt to surfaces of the associated at grade parking lot and the sidewalks on and adjacent to the Property for safety of vehicular and pedestrian traffic under conditions of snow or ice or both.
Phase One Property	37 – Operation of Dry Cleaning Equipment (where chemicals are used) *(PCA 37A)*	Yes (APEC 3)	City Directory records indicated the presence of dry-cleaning businesses on the Property in 1991, 2012 and 2017. Based on the 1990 COPE Report appended in the 2011 EXP Phase I ESA, the former dry cleaner (Sketchly Cleaners) on the Property in the early 1990s was identified as a depot only. No records were available to confirm the presence of the former dry cleaner in Unit 2 (Signature Cleaners) to be a depot. As such, it is assumed that the dry-cleaning activities were conducted at this location. The historical presence of dry-cleaning operations in Unit 2 of the shared commercial building has the potential to cause an APEC on the Property.
Phase One Property	55 – Transformer Manufacturing, Processing and Use *(PCA 55A)*	Yes (APEC 4)	A pad-mounted transformer was observed adjacent to the north Property boundary at the time of the site inspection. The presence of a transformer vault has the potential to cause an APEC on the Property.
Whites Road & Kingston Road (Hwy 2) 47 m West	Other 1 – Ontario Spills *(PCA Oth1A)*	Yes (APEC 5)	Several minor spill events (<25 L) of gasoline and oil recorded in the 1990s, as well as a spill of 300 L of gasoline onto the asphalt near the Shell gas station in 2002. The historical gasoline and associated product spills at this location have the potential to cause an APEC at the Property.
715 Kinston Road 52 m Northeast	10 – Commercial Autobody Shops *(PCA 10A)*	Yes (APEC 6)	The site was historically and currently occupied by a Chevrolet, Buick, Cadillac, GMC car dealership and associated autobody service garage with a paint spray

Location of PCA	PCA	APEC (Yes/No)	Rationalization
	28 – Gasoline and Associated Products Storage in Fixed Tanks *(PCA 28A)*		booth (ECA approval #4640-5RNQ9B). An associated collision repair garage was also observed on the property during the site inspection. A used oil AST was also observed on the south side of the building behind the Fix Auto repair garage. Therefore, the presence of multiple autobody shops has the potential to cause an APEC at the Property.
734 Kingston Road 55 m North	37 – Operation of Dry Cleaning Equipment (where chemicals are used) *(PCA 37B)*	Yes (APEC 5)	City Directory records identified a dry cleaning facility present at this property in 2012. At the time of the site inspection, the dry cleaner was no longer present. The historical presence of a dry cleaning facility has the potential to cause an APEC at the Property.
726 Kingston Road 65 m Northwest	37 – Operation of Dry Cleaning Equipment (where chemicals are used) *(PCA 37C)*	Yes (APEC 5)	City Directory records identified the presence of a dry cleaning facility on site in 2017 and 2021. ERIS records identified Pickering Martinizing Dry Cleaners being registered on the property from 2004 – 2020 and was a registered waste generator for halogenated solvents from 2007 - 2022. At the time of the site inspection, the dry cleaner was no longer present. The historical presence of a dry cleaning facility has the potential to cause an APEC on the Property.
704 Kingston Road 69 m Northwest	28 – Gasoline and Associated Products Storage in Fixed Tanks *(PCA 28B)* Other 1 – Ontario Spills *(PCA Oth1B)*	Yes (APEC 5)	City Directory records identified Esso Imperial Oil on the property in 1995 and Petro Canada in 2021. Three (3) single wall USTs were installed on the property in 1990, and an additional UST registered to the property in 1995. The property was occupied by a Petro Canada gasoline station at the time of the site visit. Multiple spill events recorded at the ESSO gas station on the property, including a 20-30 L overflow of gasoline in 1991, and a gas pump spill in 2003 due to equipment failure. The historical and current presence of the gas stations at this site have the potential to cause an APEC on the Property.
698 Kingston Road 133 m West	10 – Commercial Autobody Shops *(PCA 10B)*	Yes (APEC 5)	City Directory records identified multiple autobody shops registered to this address from 1970 to 2021 including, Me Auto Electric, Dunbarton Service Centre,

Location of PCA	PCA	APEC (Yes/No)	Rationalization
	28 – Gasoline and Associated Products Storage in Fixed Tanks *(PCA 28C)* Other 1 – Ontario Spills *(PCA Oth1C)*		Bridgeport Towing & Garage Service and Doria's Garage Ltd. The address was also listed for Shell service stations from 1985 to 2021. Up to nine (9) single wall USTs have been registered to the property, installed in 1980 – 1985. Multiple minor spills (> 25 L) have been recorded at the gas station on the property from 1995 to 2012. The property was occupied by an active Shell gas station was present on the property at the time of the site inspection. The historical and current presence of the gas stations and autobody garages at this site have the potential to cause an APEC on the Property.
744 Kingston Road 65 m North	49 – Salvage Yard, including automobile wrecking *(PCA 49A)*	No	City Directory records identified Robinson Wrecking and Salvage at this address in 1981. This record is not corroborated through any other sources reviewed, and the property appeared to be vacant and covered in vegetation in the 1981 aerial photograph. Therefore, the QP does not anticipate this PCA to cause an APEC on the Property.
699 Kingston Road 75 m Southwest	18 – Electricity Generation, Transformation and Power Stations *(PCA 18A)*	No	City Directory records identified Veridian Energy at this address in 2017. Due to the cross-gradient location of this property, the QP does not anticipate this PCA to cause an APEC on the Property.
759 Kingston Road 135 m Northeast	10 – Commercial Autobody Shops *(PCA 10C)*	No	City Directory records identified Eastern Tire on the property in 1995. Due to the cross gradient distance from the Property, the QP does not anticipate this PCA to cause an APEC on the Property.
Hwy 401 Westbound Collectors (East of Whites Road) 153 m South	Other 1 – Ontario Spills *(PCA Oth1D)*	No	100 L spill of diesel fuel due to a collision on Highway 401 in 2017. Due to the down gradient distance, the QP does not anticipate this PCA to cause an APEC on the Property.
Hwy 401 Westbound Lane 157 m Southwest	Other 1 – Ontario Spills *(PCA Oth1E)*	No	450 L spill of diesel fuel onto Highway 401 from a saddle tank of a transport truck in 1992, 50 L spill of diesel fuel onto Highway 401 due to a fire in 2016, as well as multiple minor spills of diesel fuel reported for this location (> 25 L).

Location of PCA	PCA	APEC (Yes/No)	Rationalization
			Due to the down gradient distance, the QP does not anticipate this PCA to cause an APEC on the Property.
Hwy 401 Eastbound 157 m Southwest	Other 1 – Ontario Spills *(PCA 0th1F)*	No	500 L spill of diesel fuel onto Highway 401 due to a transportation accident in 2001. Due to the down gradient distance, the QP does not anticipate this PCA to cause an APEC on the Property.
775 Kingston Road 175 m Northeast	10 – Commercial Autobody Shops *(PCA 10D)*	No	Site occupied by Boyer Hyundai dealership with associated auto service garage at the time of the site inspection. The Hyundai dealership is a registered waste generator for waste class 251 (waste oils/sludges – petroleum based) in 2021. Due to the cross-gradient distance, the QP does not anticipate this PCA to cause an APEC on the Property.
Canadian Pacific Railway 177 m Southeast	46 – Rail Yards, Tracks and Spurs *(PCA 46A)*	No	Railway lines are present to the south/southeast of the Property, running southwest – northeast, as identified in 1939 and all subsequent aerial photographs. The railway lines were present at the time of the site inspection. Due to the down-gradient distance, the QP does not anticipate this PCA to cause an APEC on the Property.
650 Kingston Road 200 m Northwest	37 – Operation of Dry Cleaning Equipment (where chemicals are used) *(PCA 37D)*	No	City Directory records identified City Cleaners on the property in 2012, and Steeple Hill Cleaners on the property in 2017 and 2021. Due to the distance from the Property, the QP does not anticipate this PCA to cause an APEC on the Property.
777 Kingston Road 200 m Northeast	37 – Operation of Dry Cleaning Equipment (where chemicals are used) *(PCA 37E)*	No	City Directory records identified Cameron Dry Cleaners on the property in 2012 and 2017. Due to the cross-gradient distance from the Property, the QP does not anticipate this PCA to cause an APEC on the Property.
655 Sheppard Avenue 243 m Northwest	10 – Commercial Autobody Shops *(PCA 10E)*	No	The property is occupied by Dunbarton High School and is a registered waste generator for waste classes 145, 148, 150, 213, 221, 251, 252, 253, 263, 264 and 331. Dunbarton High School was present on the property, and an apparent automotive garage and

Location of PCA	PCA	APEC (Yes/No)	Rationalization
	28 – Gasoline and Associated Products Storage in Fixed Tanks *(PCA 28D)*		associated used oil above ground storage tank (AST) was observed on the south side of the building at the time of the site inspection. Due to the distance from the Property, the QP does not anticipate this PCA to cause an APEC on the Property.

The locations of the PCAs and APECs are shown on Figure 2 and 3. The PCAs that were deemed to cause APECs are listed in Section 2.2 below.

2.2 Areas of Potential Environmental Concern

The following APECs resulting from PCAs were identified below and shown on Figure 2.

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	PCA	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1	Entire Property	30 – Importation of Fill Material of Unknown Quality	Metals As, Sb, Se B-HWS CN- Hg Cr(VI) PAHs PHCs VOCs BTEX	Soil Soil Soil Soil Soil Soil Soil Soil Soil Soil
APEC 2	Entire Property	Other 1 – De-icing Activities	EC SAR Na Cl	Soil Soil Groundwater Groundwater
APEC 3	South/Western Portion of the Property	37 – Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	Soil & Groundwater
APEC 4	Northern Portion of the Property	55 – Transformer Manufacturing, Processing and Use	PHCs	Soil

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	PCA	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 5	North/Eastern Portion of the Property	Other 1 – Ontario Spills	PAHs PHCs BTEX VOCs	Soil & Groundwater Soil & Groundwater Soil & Groundwater Soil & Groundwater
		10 – Commercial Autobody Shops		
		28 – Gasoline and Associated Products Storage in Fixed Tanks		
		37 – Operation of Dry Cleaning Equipment (where chemicals are used)		
APEC 6	Eastern Portion of the Property	10 – Commercial Autobody Shops	PAHs PHCs BTEX VOCs	Groundwater Groundwater Groundwater Groundwater
		28 – Gasoline and Associated Products Storage in Fixed Tanks		

2.3 Subsurface Structures and Utilities

The site inspection of the Property and utility locates conducted as part of the Phase One ESA found the following information regarding utilities and services at the Property:

- Buried hydro enters the Property via Kingston Road from the northwest, runs southeast and enters the multi-tenant building from the north. Buried hydro also enters the Property via Kingston Road from the northeast, runs west through the pad-mounted transformer on the north side of the Property, and enters the north side of the standalone restaurant.
- Gas line enters the Property via Whites Road from the west, runs adjacent to the south side of the multi-tenant building and enters each individual unit from the south. Gas line also enters the Property via Kingston Road from the north and runs south to enter the standalone restaurant on the west side of the building. Another gas line runs from the north side of the standalone restaurant, beneath the associated patio area, to fuel two outdoor fireplaces.

- Buried communication line enters the Property via Kingston Road from the north, runs southeast directory adjacent to buried hydro, and enters the multi-tenant building from the north. Buried communication line also enters the Property via Kingston Road from the north and enters the standalone restaurant on the north side of the building.
- Electrical line enters the Property via the Whites Road Centre sign in the northeast corner of the Property, and runs through the central area of the Property, diverting to connect to street lighting in the southwest corner, and enters the multi-tenant building from the south.

Based on the highest groundwater level observed on the Property at 0.2 mbgs, there is the potential that the utilities will intersect the water table and affect the distribution and transportation of contaminants underneath the Property.

3 Physical Setting of the Phase Two Property

3.1 Stratigraphy

Detailed geological information for the Property is presented on the geologic cross sections shown in Figures 7 and 8, as well as Figures 10 and 11. The geology at the Property is summarized below.

3.1.1 Geological Unit Thickness

Geological Unit Thickness (Estimate)	
Borehole	**BH101 to BH106** **BH201 to BH203** **CMB-BH101-21 to CMB-BH104-21**
	Thickness Range (m)
Earth Fill	0.4 - 2.7
Sandy Silt Till	6.8 - 9.9
Clayey Silt Till	Boreholes terminated in this unit.
Bedrock	Bedrock was not encountered during the investigation. Based on the well record for well ID # 4601906, located south of the Property, the bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property. Bedrock was not encountered during the EXP or Cambium investigations.

3.1.2 Elevations of Geological Units

Geological Unit Elevations		
Borehole	**BH101 to BH106** **BH201 to BH203** **CMB-BH101-21 to CMB-BH104-21**	
	Elev. Top Range (masl)	**Elev. Bottom Range (masl)**
Earth Fill	104.9 – 98.0	104.2 – 95.6
Sandy Silt Till	104.2 – 94.9	95.9 – 89.0
Clayey Silt Till	95.9 – 89.0	Boreholes terminated in this unit.
Bedrock	Bedrock was not encountered during the investigation. Based on the well record for well ID # 4601906, located south of the Property, the bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property. Bedrock was not encountered during the EXP or Cambium investigations.	

3.1.3 Material in Geological Units

Geological Units	**Description**
Pavement Structure/Surficial Materials	Boreholes 101 to 103, 105 to 106 and 201 to 203 encountered a 25 to 100 mm thick asphalt pavement structure at ground surface. Boreholes 102, 202 and 203 further encountered 15 to 25 mm of aggregate below the asphalt. Borehole 104 encountered a 190 mm thick concrete pavement structure at ground surface. During the Cambium investigation in 2021, all boreholes (CMB-BH101-21 to CMB-BH104-21) encountered a 50 to 150 mm thick asphalt pavement structure at ground surface. Cambium borehole 104-21 encountered a 0.5 m thick concrete structure at a depth of approximately 2.9 m below ground surface.
Earth Fill	Underlying the surficial materials, the boreholes observed a layer of earth fill that extends to depths of 0.8 to 2.3 m below grade (Elev. 104.2 to 95.8 m). The earth fill varies in composition but generally consists of sands and silts with some gravel. It contains brick fragments, asphalt fragments, and rootlets. The earth fill is typically brown and moist. Due to inconsistent placement and inherent heterogeneity of earth fill materials, the relative density of the earth fill varies. Cambium boreholes 102-21 and 104-21 observed a layer of earth fill underlying the surficial materials, that extended to depths of 0.5 to 2.7 m below grade (Elev. 103.1 to 95.6 masl).
Sandy Silt Till	Underlying the fill materials, all the Grounded boreholes encountered an undisturbed native glacial till deposit with a matrix of cohesionless sandy silts. This unit was encountered at depths of 0.8 to 2.3 m below grade (Elev. 104.2 to

Geological Units	Description
	95.8 m) and extends down to depths of 9.1 to 10.7 m below grade (Elev. 95.9 to 89.0 m). The sandy silt till generally transitions from brown to grey at a depth of 2 to 3 m. It is moist. It contains occasional seams of silty sandy to sand and rock fragments inferring cobbles. Borehole 106 reached target investigation depth in the sandy silt unit. Standard Penetration Test (SPT) results (N-Values) measured in the sandy silt unit range from 34 to over 50 blows per 300 mm of penetration ("bpf"), indicating a relative density ranging from dense to very dense. All Cambium boreholes encountered a sandy silt unit underlying the surficial materials and/or fill materials. Based on stratigraphical descriptions provided in the 2021 borehole logs, the sandy silt unit appears to be the same composition as the sandy silt till unit defined by Grounded. All Cambium boreholes (CMB-101-21 to CMB-BH104-21) encountered this unit, at depths of 0.1 to 3.4 m below grade (Elev. 99.7 to 94.9 masl). All Cambium boreholes were terminated in this unit.
Clayey Silt Till	Underlying the sandy silt till, Boreholes 101 to 105 encountered an undisturbed native glacial till deposit with a matrix of cohesive clayey silts. This unit was encountered at depths of 9.1 to 10.7 m below grade (Elev. 95.9 to 89.0 m) and extends down to target investigation depths of 15.4 to 21.6 m below grade (Elev. 89.6 to 80.8 m). It is generally grey and moist. Within the clayey silt till, Boreholes 101 to 104 encountered a more plastic silt and clay to clayey silt deposit. This unit was encountered at depths of 13.7 to 15.2 m below grade (Elev. 87.2 to 82.9 m) and extends down to depths of 15.2 to 18.3 m below grade (Elev. 84.8 to 82.3 m). It is generally grey and moist. SPT N-values measured in the clayey silt till range from 26 to over 50 bpf (very stiff to hard) while SPT N-values measured in the more plastic silt and clay deposit range from 18 to 49 (stiff to hard).
Bedrock	Bedrock was not encountered during the investigation. Based on the well record for well ID # 4601906, located south of the Property, the bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property. Bedrock is part of the Blue Mountain formation and predominantly consists of shale and limestone.

3.2 Approximate Depth to Water Table

- Three (3) monitoring wells were installed by exp during the 2011 Phase II ESA investigation; however, these monitoring wells were not relied upon for groundwater elevation and flow direction determination.
- Four (4) monitoring wells were installed by Cambium during the 2021 Phase Two ESA investigation, however only two (2) of these monitoring wells (CMB-BH102 and CMB-BH103) were relied upon for groundwater elevation and flow direction determination (CMB-BH101-21 is dry, CMB-BH104-21 is screened across multiple units)
- Twelve (12) monitoring wells were installed by Grounded Engineering Inc between October 2023 and March 2024.

- Four (4) monitoring wells were decommissioned in October 2023 due to sustained elevated methane levels. All wells that discovered elevated methane levels and were subsequently decommissioned, were all screened in the lower clayey silt till unit.
- The monitoring wells were located within the APECs identified in the Phase One ESA completed by Grounded (dated March 2024) for the Property. Screened intervals of the monitoring wells were selected for the collection of groundwater samples within the desired stratum.

Twelve (12) groundwater level measurements were conducted by Grounded Engineering Inc. in the newly installed monitoring wells using a Solinst interface probe on the following dates:

- October 17, 2023
- October 18, 2023
- October 19, 2023
- October 20, 2023
- October 23, 2023
- November 3, 2023
- November 9, 2023
- December 7, 2023
- January 5, 2024
- February 28, 2024
- March 14, 2024
- April 16, 2024

To calculate the groundwater elevation in the monitoring well, the following calculation was completed:

- *Geodetic Ground Elevation (masl) – Measured Depth to Water Table (m) + Stick up of Well (m) = Groundwater Elevation (masl)*

The groundwater levels are presented in Table 1 and on Figure 5. Groundwater elevations were assessed in both the overlying sandy silt till and underlying clayey silt till units. Groundwater within the monitoring wells screened in the sandy silt till was encountered at a range of 0.2 to 7.3 mbgs (Elev. 100.9 to 97.7 masl). The groundwater in the sandy silt till was determined to flow locally to the east. The maximum groundwater level of 0.2 mbgs (Elev. 100.9 masl) measured in BH203 is considered to be anomalously high in relation to the ground surface in this portion of the Property. However, it should be noted that there is a significant grade change from the west (Elev. 105 masl) to the east (Elev. 98 masl) and the groundwater table within the sandy silt till is observed to follow the sloping topography across the Property.

Groundwater within the monitoring wells screened in the lower clayey silt till was encountered at a range of 3.9 to 14.1 mbgs (Elev. 96.7 to 85.5 masl). This variability in elevation can be attributed to the following items:

- Due to the presence of methane gas, many of the deeper monitoring wells were decommissioned shortly after installation.
- This did not provide the opportunity for the water levels to recover to their full extent given the low permeability of the clayey silt till and therefore slower recharge rates.
- Due to the timing of the decommissioning of the monitoring wells, a complete set of groundwater level measurements could not be collected from the deeper monitoring wells on the same date. As such, groundwater flow direction and the horizontal hydraulic gradient of the clayey silt till could not be determined.

Should the deeper wells have had more time to recover, it is understood that the groundwater levels exhibited would be generally consistent with those in the sandy silt till as evidenced by water levels recorded in BH105-D and BH102-D. As such, the two units are hydraulically connected, and one groundwater table is present at the Property.

Given the natural variability in composition within both glacial till units (i.e., zones of higher sand or clay content), there is a variability in the depth to groundwater across the site. Overall, the local groundwater flow regime is to the east. Regional groundwater flow is expected to flow to the east/southeast towards Lake Ontario. Groundwater contours for the Property (within the sandy silt till) are presented in Figure 5.

No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) or free-flowing products were detected on the Property.

Additional groundwater data will be required to assess seasonal variability in groundwater quantity and flow direction. Based on the highest groundwater level of 0.2 mbgs observed at the Property, there is the potential that the buried utilities could influence the groundwater flow.

3.3 Site Hydrogeological Characteristics

Horizontal Hydraulic Gradients	The horizontal hydraulic gradient at the Property within the sandy silt till was determined to be approximately 0.048 m/m based on the groundwater levels in boreholes BH105-S and BH106. The horizontal hydraulic gradient within the clayey silt till could not be determined for reasons specified in Section 3.2 above.
Vertical Hydraulic Gradients	The vertical hydraulic gradient at the Property was determined to be approximately 0.297 m/m downwards based on the groundwater levels in boreholes BH102-S and BH102-D.
Hydraulic Conductivity	Earth Fill → 1.0×10^{-5} m/s* Sandy Silt Till → 1.9×10^{-7} m/s** Clayey Silt Till → 3.9×10^{-9} m/s**

*Freeze and Cherry (1979)

** Determined via in situ single well response tests (slug test)

3.4 Approximate Depth to Bedrock

Bedrock was not encountered during the investigation. Based on the well record for well ID # 4601906, located south of the Property, the bedrock was encountered at approx. 28 mbgs, and therefore is anticipated to be encountered at an elevation of approximately 70 – 77 masl on the Property.

The bedrock beneath the Property is part of the Blue Mountain Formation, which is comprised of shale, limestone, dolostone and siltstone.

3.5 O.Reg. 153/04 Section 35

Section 35(2) of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The owner has not given the clerk of the municipality (Durham Region) written notice of intention to apply the standards in preparing a record of site condition for the property. Potable standards will be applied.

3.6 O.Reg. 153/04 Section 41

Section 41 of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The Property is not located within an area of natural significance;
- The Property does not include or is not adjacent to an area of natural significance or part of such an area;
- The Property does not include land that is within 30 m of an area of natural significance or part of such an area;
- The surface soil at the Property has a pH value that is not less than 5 or greater than 9; and
- The sub-surface soil at the Property has a pH value that is not less than 5 or greater than 11.

3.7 O.Reg. 153/04 Section 43.1

Section 43.1 of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The Property is not considered a shallow soil property; or
- The Property does not include all or part of a water body and is not adjacent to a water body and does not include land that is within 30 m of a water body.

3.8 Areas On, In or Under the Phase Two Property Where Excess Soil is Finally Placed

No excess soils have been imported or placed on, in or under the Phase Two Property since the site reconnaissance completed for the Phase One ESA on September 27, 2023.

3.9 Proposed Buildings

It is understood that the Phase Two Property will be developed with multiple mid- to high-rise towers resting on up to two (2) levels of underground parking. There will be a proposed parkland dedication in the northeast corner of the Property (approx. 2,536 m^2) that will be conveyed to the City of Pickering. The Property will be considered to be in Residential land use as defined by the O.Reg 153/04.

4 Contamination In or Under the Phase Two Property

4.1 Applicable Site Condition Standard

The applicable site condition standard for the Phase Two Property is determined to be Table 2 Site Condition Standard for Residential/Parkland/Institutional in potable groundwater condition for medium to fine textured soil due to the following reasons:

Current Land Use	Commercial
Future Land Use	Residential
Soil Texture	Medium to fine textured based on grain size analysis performed on the soil
Potable Water Source	Municipal service/ municipal water supply from regional groundwater supply wells
Bedrock Depth	Bedrock is located at a depth of greater than 2 m.
Property located within 30 m of a surface water body (Yes/No)	No
Property located in or adjacent to a provincial park or an Area of Natural Significance (Yes/No)	No

4.2 Media Investigated

Grounded Engineering Inc. conducted the following specific subsurface work at the Property:

Boreholes and Monitoring Wells	**Cambium Investigation (2021):** • Advancing of three (3) boreholes to depths of approximately 6.7 m below ground surface (mbgs) • Advancing of one (1) borehole to a depth of 4.5 mbgs • Installation of four (4) monitoring wells **Grounded Investigation (2023):** • Advancing of one (1) borehole to a depth of approximately 21 mbsg • Advancing of four (4) boreholes to depths of approximately 15 mbgs • Advancing of one (1) borehole to a depth of approximately 6.7 mbgs • Installation of six (6) monitoring wells, and three (3) shallow nested monitoring wells • Decommissioning of the four (4) deeper monitoring wells due to high methane levels. **Grounded Investigation (2024):** • Collection of two (2) discrete samples at depths of approximately 0.3 mbgs around the existing transformer • Advancing of two (2) boreholes to depths of approximately 9.4 to 10.9 mbgs • Advancing of one (1) borehole to a depth of approximately 6.2 mbgs • Installation of three (3) monitoring wells

Parameters Investigated for Soil	**Cambium Investigation (2021):**
	• Petroleum Hydrocarbons (PHCs)
	• Volatile Organic Compounds II – Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
	• Volatile Organic Compounds I (VOCs)
	Grounded Investigation (2023 & 2024):
	• Metals
	• Hydride-forming Metals
	  ○ As, Sb, Se
	• Other Regulated Parameters
	  ○ B-HWS, Cr(VI), CN-, EC, Hg, SAR
	• Polycyclic Aromatic Hydrocarbons (PAHs)
	• Petroleum Hydrocarbons (PHCs)
	• Volatile Organic Compounds II – Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
	• Volatile Organic Compounds I (VOCs)

Parameters Investigated for Groundwater	**Cambium Investigation (2021):** • PHCs • BTEX • VOCs **Grounded Investigation (2023)**

	• M
	• H-M
	  ○ Sb, As, Se
	• ORPs
	  ○ Cr(VI), CN-, Hg, Cl-
	• Sodium (Na)
	• PAHs
	• PHCs
	• BTEX
	• VOCs
	
	Grounded Investigation (2024)
	
	• ORPs
	  ○ Cl-
	• Sodium (Na)
	• PHCs
	• BTEX
	• VOCs

• Eleven (11) soil samples were submitted for grain size analysis and soil classification. • All boreholes and monitoring wells were surveyed to a geodetic benchmark. • All new monitoring wells were developed prior to sampling. Existing EXP and Cambium monitoring wells were not developed, nor sampled during the Phase Two investigation. • Groundwater level measurements were conducted in all accessible monitoring wells to determine groundwater elevation on the Property	

4.3 Sampling Rationale and Areas Where Contaminants are Present

The table below identified all APECs listed in the Phase One ESA as well as the boreholes that were used to evaluate each APEC. The findings with respect to any contaminant noted are also presented.

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Exceedances
APEC 1	Entire Property	30 – Importation of Fill Material of Unknown Quality	Metals As, Sb, Se B-HWS CN- Hg Cr(VI) Low or High pH PAHs PHCs	Soil	BH101 BH102-D BH103 BH104-D BH105-D BH106 BH202 BH203	*Soil:* None

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Exceedances
			VOCs BTEX			
APEC 2	Entire Property	Other 1 – De-icing Activities	EC SAR	Soil	BH101 BH102-D BH102-S BH103 BH104-D BH104-S BH105-D BH105-S BH106 BH202 BH203	*Soil:* None *Groundwater:* None
			Na Cl	Groundwater		
APEC 3	South/Western Portion of the Property	37 – Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	Soil & Groundwater	BH101 BH102-D BH102-S BH103 BH105-D BH105-S BH106 BH201 BH202 BH203	*Soil:* None *Groundwater:* None
APEC 4	Northern Portion of the Property	55 – Transformer Manufacturing, Processing and Use	PHCs	Soil	GS1 GS2	*Soil:* None
APEC 5	North/Eastern Portion of the Property	Other 1 – Ontario Spills 10 – Commercial Autobody Shops 28 – Gasoline and Associated Products Storage in Fixed Tanks	PAHs PHCs BTEX VOCs	Soil & Groundwater	BH101 BH102-D BH102-S BH103 BH104-D BH104-S BH105-D BH105-S BH106 BH202	*Soil:* None *Groundwater:* None

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Exceedances
		37 – Operation of Dry Cleaning Equipment (where chemicals are used)				
APEC 6	Eastern Portion of the Property	10 – Commercial Autobody Shops 28 – Gasoline and Associated Products Storage in Fixed Tanks	PAHs PHCs BTEX VOCs	Groundwater	BH102-D BH102-S BH104-D BH104-S BH106	*Soil:* None *Groundwater:* None

No exceedances were identified in the soil or groundwater.

A monitoring well was installed in Borehole 103 (BH103) to assess APECs 2, 3, 5 and 6 on the Property, per the intended Sampling and Analysis Plan. However, the monitoring well was dry, and there was insufficient recovery time prior to being decommissioned due to elevated methane concentration readings.

- To supplement the need for groundwater assessment in the southeast corner of the Property, Borehole 106 was installed, and groundwater was sampled to adequately assess these APECs.

No intrusive investigation was conducted within the footprint of the location of the former dry cleaner (Unit 2), due to space restrictions and the current use of this unit as an active restaurant.

- The limited access equipment and tools required to drill within a confined space (such as the south portion of Unit 2) are unable to advance to the required depth to reach the groundwater table.
- As such, BH201 and BH202 were advanced directly outside of the footprint of the building to investigate APEC 3 and associated CoPCs. The lack of background information available for this dry cleaner was supplemented by conservatively expanding the area of APEC 3 to incorporate boreholes/monitoring wells located downgradient from the location of the former dry-cleaning unit.

- BH202 was advanced directly adjacent to the south of Unit 2 to investigate the area in closest proximity to where dry cleaning equipment would typically be located. Additionally, storage and handling of materials would occur behind the unit.
    - Therefore, this location is considered an adequate assessment of where the maximum concentrations of CoPCs for APEC 3 would be located.

A monitoring well was installed in Borehole 201 (BH201), in front of Unit 2 of the multi-tenant commercial building to assess APEC 3 (historical dry-cleaning activities), per the intended Sampling and Analysis Plan. However, the monitoring well was dry, despite being screened below the inferred groundwater table in that portion of the Property and screened at the same depth/elevation as the nearest monitoring well (BH105-S) located approx. 17 m upgradient from BH201. Therefore, a groundwater sample was not collected within BH201. It is the opinion of the Qualified Person that APEC 3 has been adequately assessed in accordance with O.Reg. 153/04 for the following reasons:

- The soil in this location was analyzed for the CoPCs identified for APEC 3. Based on field screening (TOV) measurements, and visual and olfactory examination of all soil samples within Borehole 201, the “worst case” soil samples (BH201-SS2, BH201-SS5, BH201-SS8) were submitted for VOC laboratory analysis.
    - All soil samples collected in this location met the applicable Site Condition Standards.
    - As the soil samples met the applicable SCS, it is unlikely that leaching of the CoPCs through the overburden and into the groundwater table has occurred.
- Both soil and groundwater were analyzed for the CoPCs identified for APEC 3 in the location of BH105 (upgradient from BH201).
    - All soil and groundwater samples collected in this location met the applicable Site Condition Standards.
- The soil and groundwater in the location of BH202 (behind Unit 2 of the multi-tenant commercial building, the location of the historical dry cleaning activities) was sampled to assess APEC 3 downgradient from the potential source of CoPCs.
    - All soil and groundwater samples collected in this location met the applicable Site Condition Standards.
- All soil and groundwater analyzed in boreholes/monitoring wells installed in downgradient locations from the historical dry-cleaning facility in Unit 2 of the multi-tenant building (BH101, BH102S/D, BH103, BH106, BH202, BH203) met the applicable Site Condition Standards.

Despite the deviations listed, the sampling completed to date and overall quality of the field data was considered by the Qualified Person to meet the objectives of the investigation and assessment.

It is the QPs opinion that the Property has been adequately assessed and the maximum concentrations were identified and delineated.

4.3.1 Location and Depth of Soil Samples

Sample ID	Depth / Elev. mbgs / masl	Strata	APEC Investigated	M, H-M & ORPs	PAH	PHC	BTEX	VOC/ THM
Cambium 2021 Phase II ESA Investigation								
CMB-BH101-21	0.8 - 1.5 / 104.2 - 103.5	NATIVE	5			✓	✓	
CMB-BH102-21	4 - 4.6 / 99.6 – 99.0	NATIVE	5			✓	✓	
CMB-BH103-21	1.5 - 1.8 / 98.3 – 98.0	NATIVE	5, 6			✓	✓	✓
CMB-BH104-21	2.7 - 2.9 / 95.6 – 95.4	FILL	1, 3, 5, 6			✓	✓	✓
Grounded 2023 Drilling Investigation								
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	FILL	1, 2, 3, 5	✓	✓			
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0	NATIVE	2, 3, 5			✓	✓	✓
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	NATIVE	2, 3, 5	✓	✓	✓	✓	✓
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1	NATIVE	2, 3, 5			✓	✓	✓
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	FILL	1, 2, 3, 5	✓	✓			
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	NATIVE	2, 3, 5	✓		✓	✓	✓
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2	NATIVE	2, 3, 5		✓			
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2	NATIVE	2, 3, 5			✓	✓	✓
DUP-2	6.1 - 6.4 / 94.5 - 94.2	NATIVE	2, 3, 5			✓	✓	✓
BH103 SS2	0.8 - 1.4 / 97.3 - 96.7	FILL	1, 2, 3, 5		✓			
BH103 SS3A	1.5 - 2.0 / 96.6 - 96.1	FILL	1, 2, 3, 5	✓		✓	✓	✓
BH103 SS6	4.6 - 5.2 / 93.5 - 92.9	NATIVE	2, 3, 5	✓	✓			
BH103 SS8	7.6 - 7.7 / 90.5 - 90.3	NATIVE	2, 3, 5			✓	✓	✓
BH104 SS1B	0.3 - 0.6 / 99.3 - 99.0	FILL	1, 2, 5	✓	✓			

Sample ID	Depth / Elev. mbgs / masl	Strata	APEC Investigated	M, H-M & ORPs	PAH	PHC	BTEX	VOC/ THM
BH104 SS2	0.9 - 1.5 / 98.7 - 98.1	FILL	1, 2, 5			✓	✓	✓
BH104 SS4	2.3 - 2.7 / 97.3 - 96.9	NATIVE	2, 5	✓	✓			
BH104 SS7	6.1 - 6.5 / 93.5 - 93.1	NATIVE	2, 5			✓	✓	✓
BH105 SS1B	0.5 - 0.7 / 104.5 - 104.3	FILL	1, 2, 3, 5	✓	✓			
BH105 SS2	0.8 - 1.2 / 104.2 - 103.8	NATIVE	2, 3, 5			✓	✓	✓
BH105 SS3	1.5 - 2.1 / 103.5 - 102.8	NATIVE	2, 3, 5	✓	✓			
DUP-1	1.5 - 2.1 / 103.5 - 102.8	NATIVE	2, 3, 5	✓	✓			
BH105 SS7A	6.1 - 6.2 / 98.9 - 98.8	NATIVE	2, 3, 5			✓	✓	✓
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	FILL	1, 2, 3, 5	✓	✓			
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5	NATIVE	2, 3, 5			✓	✓	✓
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	NATIVE	2, 3, 5	✓	✓			
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2	NATIVE	2, 3, 5			✓	✓	✓
Grounded 2024 Drilling Investigation								
BH201 SS2	0.8 - 1.2 / 103.7 - 103.3	NATIVE	3					✓
BH201 SS5	3.0 - 3.7 / 101.4 - 100.8	NATIVE	3,5					✓
BH201 SS8	7.6 - 8.2 / 96.9 - 96.3	NATIVE	3,5					✓
BH202 GS2	0.3 - 0.6 / 103.8 - 103.5	FILL	1,2,5	✓	✓			
BH202 GS3	0.6 - 0.9 / 103.5 - 103.2	FILL	1,3,5			✓	✓	✓
BH202 SS1	1.8 - 2.1 / 102.3 - 102.0	NATIVE	2,5	✓	✓			
BH202 SS5	6.1 - 6.7 / 98.0 - 97.4	NATIVE	3,5					✓

Sample ID	Depth / Elev. mbgs / masl	Strata	APEC Investigated	M, H-M & ORPs	PAH	PHC	BTEX	VOC/ THM
BH202 SS6A	7.6 - 7.8 / 96.5 - 96.3	NATIVE	1,3,5			✓	✓	✓
BH203 GS2	0.3 - 0.6 / 100.7 - 100.4	FILL	1,2	✓	✓			
BH203 GS4	0.9 - 1.2 / 100.1 - 99.8	FILL	1,3			✓	✓	✓
BH203 SS1	1.8 - 2.3 / 99.2 - 98.7	NATIVE	1,2	✓	✓			
BH203 SS4	4.6 - 5.2 / 96.4 - 95.8	NATIVE	3			✓	✓	✓
Grounded 2024 Transformer Samples								
GS1	0.3 / 100.5	FILL	4			✓	✓	
GS2	0.3 / 100.5	FILL	4			✓	✓	

4.3.2 Location and Depth of Groundwater Samples

Sample ID	Screen Depth mbgs	Screen Depth masl	Screen Strata	APEC Assessed	Metals, H-Metals & ORPs	PAHs	PHC & BTEX	VOCs & THMs
Cambium 2021 Phase II ESA Investigation								
CMB-102-21	3.1 - 6.1	100.5 - 97.5	Sandy Silt Till	5			✓	
CMB-103-21	1.6 - 4.6	98.2 - 95.2	Sandy Silt Till	5, 6				✓
Grounded 2023 Investigation								
BH101	18.3 - 21.3	84.1 - 81.1	Clayey Silt Till	2, 3, 5	✓	✓	✓	✓
BH102-S	3.0 - 6.1	97.6 - 94.5	Sandy Silt Till	2, 3, 5, 6	✓	✓	✓	✓
BH102-D	12.2 - 15.2	88.4 - 85.4	Clayey Silt Till	2, 3, 5, 6	✓	✓	✓	✓
BH104-S	2.1 - 5.2	97.5 - 94.4	Sandy Silt Till	2, 5, 6	✓	✓	✓	✓
BH104-D	12.2 - 15.2	87.4 - 84.4	Clayey Silt Till	2, 5, 6	✓	✓	✓	✓
BH105-S	6.1 - 9.1	98.9 - 95.8	Sandy Silt Till	2, 3, 5	✓	✓	✓	✓
BH105-D	12.2 - 15.2	92.8 - 89.7	Clayey Silt Till	2, 3, 5	✓	✓	✓	✓
Grounded 2024 Investigation								
BH106	3.7 - 6.7	95.0 - 91.9	Sandy Silt Till	3,6			✓	✓
BH202	7.6 - 10.7	96.5 - 93.4	Sandy Silt Till	2,3	✓*			✓

Sample ID	Screen Depth		Screen Strata	APEC Assessed	Metals, H-Metals & ORPs	PAHs	PHC & BTEX	VOCs & THMs
	mbgs	masl						
BH203	4.6 - 6.1	96.4 - 94.9	Sand and Silt Till	2,3	✓*			✓

*Sample submitted for Na/Cl- analysis only

4.4 Exemption of Exceedances (O.Reg. 153/04 Sec 49.1)

4.4.1 Exemption of Salt-Related Exceedances (Sec 49.1 (1))

Chemical analysis of the soil indicates that there are exceedances of the MECP Table 2 RPI Standards for Electrical Conductivity and Sodium Adsorption Ratio (salt related compound) within the upper soils and Sodium (Na) within the groundwater.

The Property is bound by municipal roadways to the north (Kingston Road), west (Whites Road North), as well as Highway 401 to the south, and Highway 401 on-ramp to the west. The roadways have public sidewalks between the road and the Property boundary. The Property features at grade car parking throughout a majority of the Property as well as sidewalks surrounding the buildings. The roadways, sidewalks, and parking area are all salted during the winter months for safety purposes.

The Qualified Person has determined, based on the Phase One Environmental Site Assessment and the Phase Two Environmental Site Assessment, that a substance (salt) has been applied to surfaces of the roadway, sidewalks, driveway and parking area for the safety of vehicular and pedestrian traffic under conditions of snow or ice or both.

The applicable site condition standard is exceeded at the Property solely because of the reason as stated above (application of salt for safety purposes during winter months). As per O.Reg. 153/04 49.1 the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act.

4.5 Contaminants Associated with Each Area

No Contaminants of Concerns (CoCs) were associated with Areas of Potential Concerns (APECs) identified on the Property.

APEC 1	APEC 2	APEC 3	APEC 4	APEC 5	APEC 6
None	None	None	None	None	None

4.6 Medium in Which Contaminants are Associated

Fill, native soil and groundwater were investigated as part of the Phase Two ESA investigation. No CoCs were identified in the following media for the contaminants listed.

Metals	H-Metals	ORPs	PAHs	PHCs	BTEX	VOCs
None	None	None	None	None	None	None

4.7 Information Known about Each Contaminated Area

No contaminants were identified in the soil and groundwater on the Property. All the samples met the Table 2 RPI Standard.

4.8 Distribution of Contaminant

No contaminants were identified in the soil or groundwater during the investigation. The cross sections of the Property are presented on Figures 7 and 8, as well as Figures 10 and 11.

4.9 Reasons for Discharge of Contaminant

No contaminants were identified in the soil or groundwater during the investigation. The cross sections of the Property are presented on Figures 7 and 8, as well as Figures 10 and 11.

4.10 Migration of Contaminant

No contaminants were identified on the Property. As such, there is no migration associated with contaminant on the Property.

4.11 Climatic or Meteorological Influences on Migration

No contaminants were identified on the Property. As such, there is no climatic or meteorological influences on migration on the Property.

4.12 Soil Vapour Intrusion into Buildings

No contaminants were identified in the soil or groundwater during the investigation. As such, there is no possibility for soil vapour intrusion of contaminants into buildings.

4.13 Relevant Construction Features of Buildings

Two (2) single slab buildings were observed on the Property. The building was built in the mid to late 1980s.

Building #	Above Grade Levels	Below Grade Levels	Use	Entry/Exits
1	1	0	Multi-tenant commercial building	2 x single door entrances to utility rooms on the south side of the building 1 x loading bay on the southeast corner of the building (The Beer Store) 25 x single/double door entrances to each active commercial unit on the north side of the building 18 x single door exits/shipment entrances to select commercial units on the south side of the building.
2	1	1	Lone Star restaurant	2 x double door main entrances on the east side of the building 2 x single door patio entrances on the north side of the building 1 x single door entrance on the south side of the building 3 x single door entrances on the west side of the building 1 x single door entrance to the electrical/sprinkler room on the west side of the building

4.14 Building HVAC

Current HVAC systems present in each building on the Property will not affect the distribution and transport of contaminants because no volatile CoCs were identified.

4.15 Subsurface Structures and Utilities

The site inspection of the Property and utility locates conducted as part of the Phase One ESA found the following information regarding utilities and services at the Property:

- Buried hydro enters the Property via Kingston Road from the northwest, runs southeast and enters the multi-tenant building from the north. Buried hydro also enters the Property via Kingston Road from the northeast, runs west through the pad-mounted transformer on the north side of the Property, and enters the north side of the standalone restaurant.

- Gas line enters the Property via Whites Road from the west, runs adjacent to the south side of the multi-tenant building and enters each individual unit from the south. Gas line also enters the Property via Kingston Road from the north and runs south to enter the standalone restaurant on the west side of the building. Another gas line runs from the north side of the standalone restaurant, beneath the associated patio area, to fuel two outdoor fireplaces.
- Buried communication line enters the Property via Kingston Road from the north, runs southeast directory adjacent to buried hydro, and enters the multi-tenant building from the north. Buried communication line also enters the Property via Kingston Road from the north and enters the standalone restaurant on the north side of the building.
- Electrical line enters the Property via the Whites Road Centre sign in the northeast corner of the Property, and runs through the central area of the Property, diverting to connect to street lighting in the southwest corner, and enters the multi-tenant building from the south.

Based on highest groundwater level observed on the Property at 0.2 mbgs, there is the potential that the utilities will intersect the water table and affect the distribution and transportation of contaminants underneath the Property.

5 Potential Exposures Pathways and Receptors

5.1 Description of All Components

A list of all risk-based components of potential exposure pathways and receptors are presented below and presented on Figures 12 and 13.

Potential Pathway	Description
GW1	Groundwater for drinking water purposes
GW2	Groundwater for protection from movement to indoor air
GW3	Groundwater for protection of aquatic life
S1	Soil for protection of a residential receptor from direct contact with surface soil
S2	Soil for protection from direct soil contact for a lower frequency and intensity exposure than residential surface soil, such as commercial or industrial scenarios
S3	Soil for direct soil contact for a low-frequency, high-intensity, human health exposure scenario without children present that is protective of a worker digging in the soil

Potential Pathway	Description
S-IA	Soil for protection of movement to indoor air and human exposure
S-OA	Soil for protection of movement to outdoor air and human exposure
S-Odour	Soil for protection of movement to outdoor air and human exposure
S-GW1	Soil for protection from movement to groundwater for drinking water purposes
S-GW3	Soil for protection from movement to groundwater and then to aquatic life
Plants and Soil Organisms	Soil for protection against adverse effects to plants and soil dwelling organisms
Mammals and Birds	Soil for protection against adverse effects through direct soil and food ingestion to mammals and birds

5.2 Receptor Human Health

Potential Pathway	Sources	CoCs from Phase Two ESA	Potential Risks (Yes/No)			
			Source	Pathway	Receptor	Risk
GW1	Contamination not present in groundwater	None	No	Yes	Yes	No Risk
GW2	Contamination not present in groundwater	None	No	Yes	Yes	No Risk
GW3	Contamination not present in groundwater	None	No	Yes	Yes	No Risk
S1	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S2	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S3	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-IA	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk

Potential Pathway	Sources	CoCs from Phase Two ESA	Potential Risks (Yes/No)			
			Source	Pathway	Receptor	Risk
S-OA	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-Odour	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-GW1	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-GW3	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk

5.3 Receptor Terrestrial Environment

Potential Pathway	Sources	CoCs from Phase Two ESA	Potential Risks (Yes/No)			
			Source	Pathway	Receptor	Risk
Plants and Soil Organisms	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
Mammals and Birds	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk

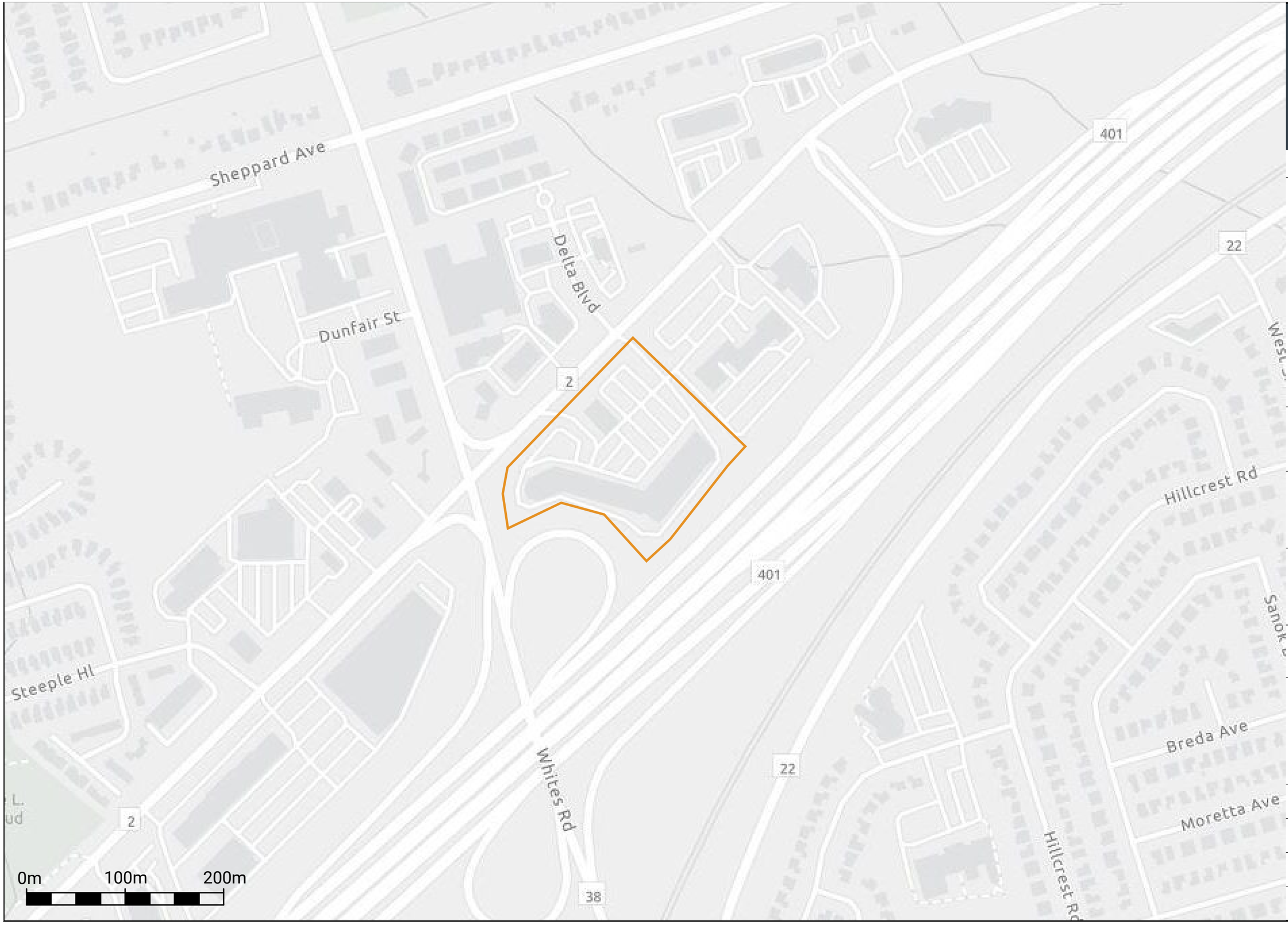
5.4 Receptor Aquatic Environment

Potential Pathway	Sources	CoCs from Phase Two ESA	Potential Risks (Yes/No)			
			Source	Pathway	Receptor	Risk
GW3	Contamination not present in groundwater	None	No	Yes	Yes	No Risk
S-GW3	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk

5.5 Summary of Potential Receptor Risks

No Contaminants of Concern were identified during the Phase Two ESA investigation. There is no potential risk associated with the Human Receptor, the Terrestrial or the Aquatic Environment.

FIGURES



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

APPROXIMATE PROPERTY BOUNDARY

Note

Reference
ArcGIS My Map, 2023.

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
SITE LOCATION PLAN

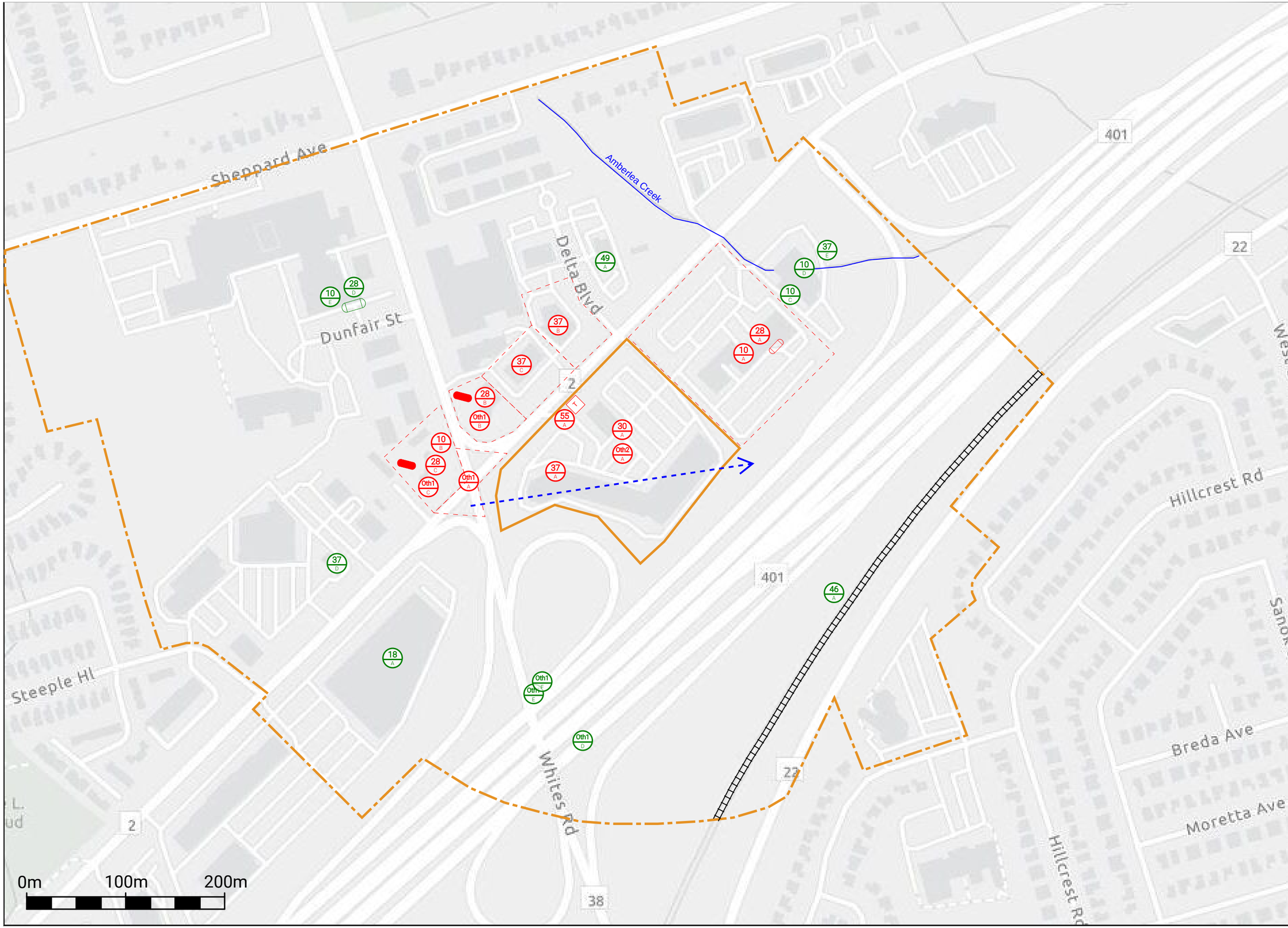
North
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 1



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA (250 m RADIUS)
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPERTY/BUILDING OUTLINE WHERE APEC-CAUSING PCA OCCURRED
- ABOVEGROUND FUEL STORAGE TANK
- UNDERGROUND FUEL STORAGE TANK

#10 – Commercial Autobody Shops
#18 – Electricity Generation, Transformation and Power Stations
#28 – Gasoline and Associated Products Storage in Fixed Tanks
#30 – Importation of Fill Material of Unknown Quality
#37 – Operation of Dry Cleaning Equipment (where chemicals are used)
#46 – Rail Yards, Tracks and Spurs
#49 – Salvage Yard, including automobile wrecking
#55 - Transformer Manufacturing, Processing and Use
Other 1 – Ontario Spills
Other 2 – De-icing Activities

Note
GREEN - PCA NOT CAUSING APEC
RED - PCA CAUSING APEC

Reference
ArcGIS My Map, 2023.

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
PCA LOCATIONS

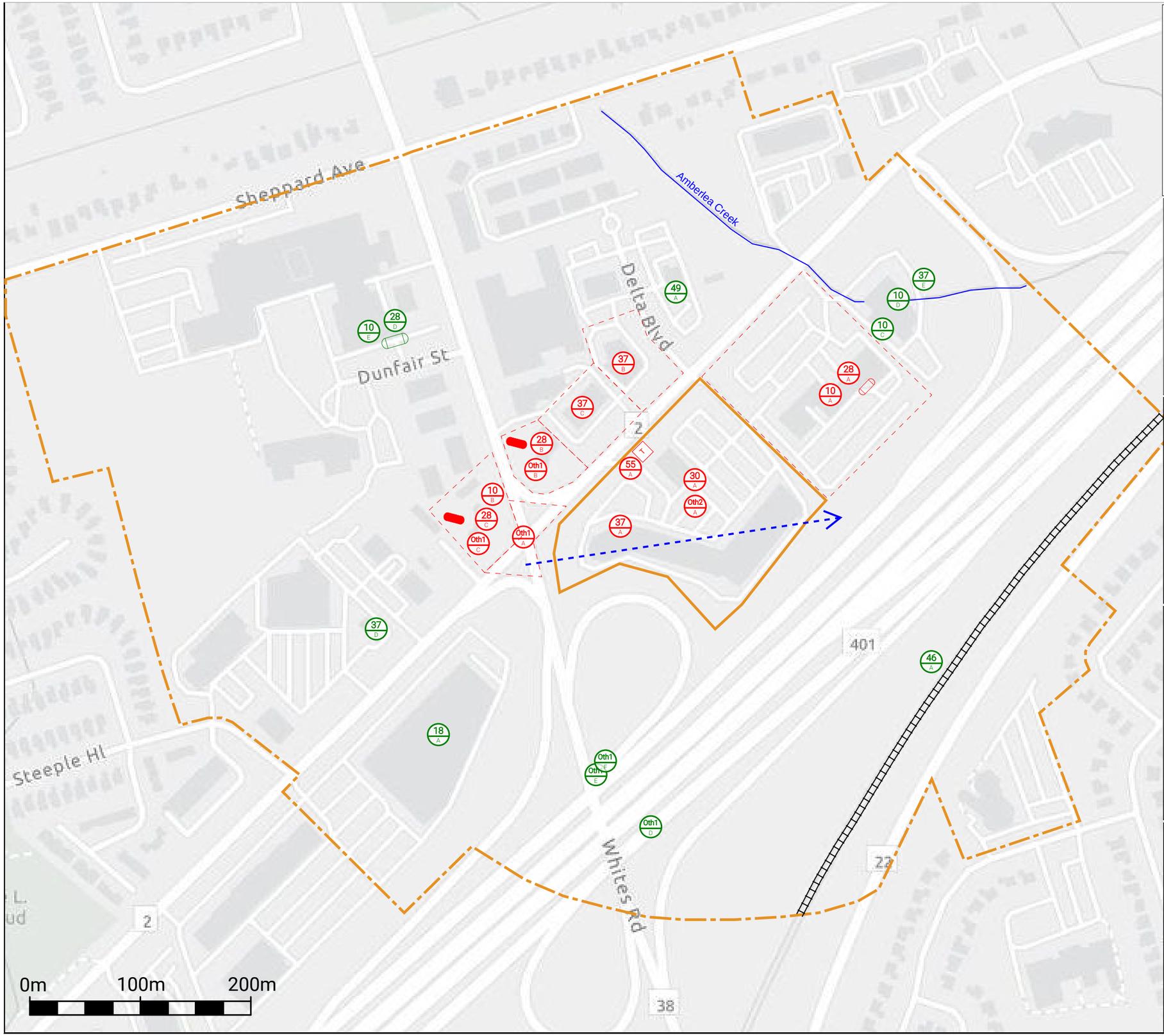
North
TRUE
PROJECT

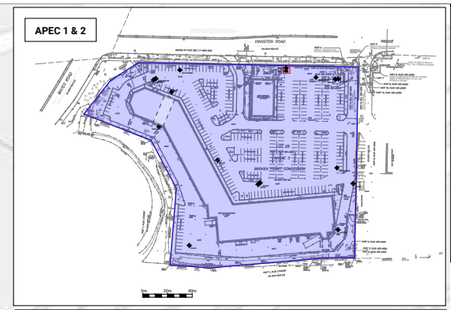
Date
JULY 2024

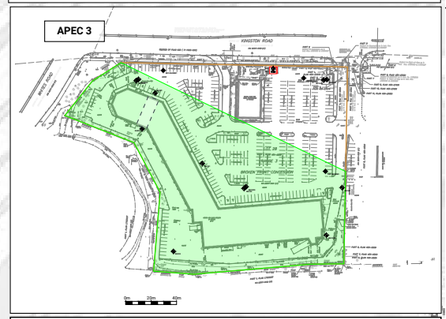
Scale
AS INDICATED

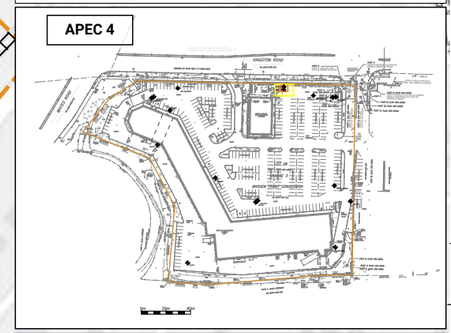
Job No
23-197

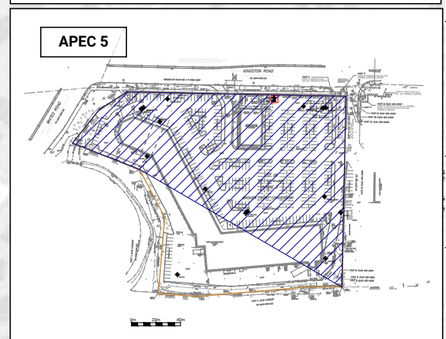
Figure No
FIGURE 2

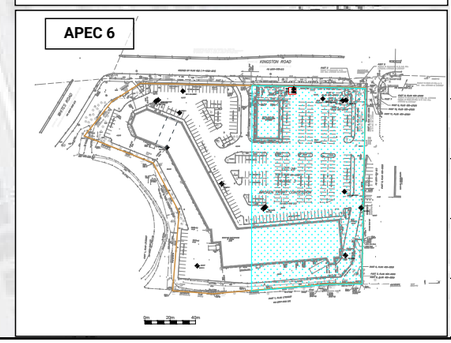












GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA (250 m RADIUS)
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPERTY/BUILDING OUTLINE WHERE APEC-CAUSING PCA OCCURRED
- ABOVEGROUND FUEL STORAGE TANK
- UNDERGROUND FUEL STORAGE TANK

#10 – Commercial Autobody Shops
#18 – Electricity Generation, Transformation and Power Stations
#28 – Gasoline and Associated Products Storage in Fixed Tanks
#30 – Importation of Fill Material of Unknown Quality
#37 – Operation of Dry Cleaning Equipment (where chemicals are used)
#46 – Rail Yards, Tracks and Spurs
#49 – Salvage Yard, including automobile wrecking
#55 – Transformer Manufacturing, Processing and Use
Other 1 – Ontario Spills
Other 2 – De-icing Activities

- APPROXIMATE LOCATION OF HISTORICAL DRY CLEANER
- APEC 1 & 2
- APEC 3
- APEC 4
- APEC 5
- APEC 6

Note
GREEN - PCA NOT CAUSING APEC
RED - PCA CAUSING APEC

Reference
ArcGIS My Map, 2023.

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
PCA & APEC LOCATIONS

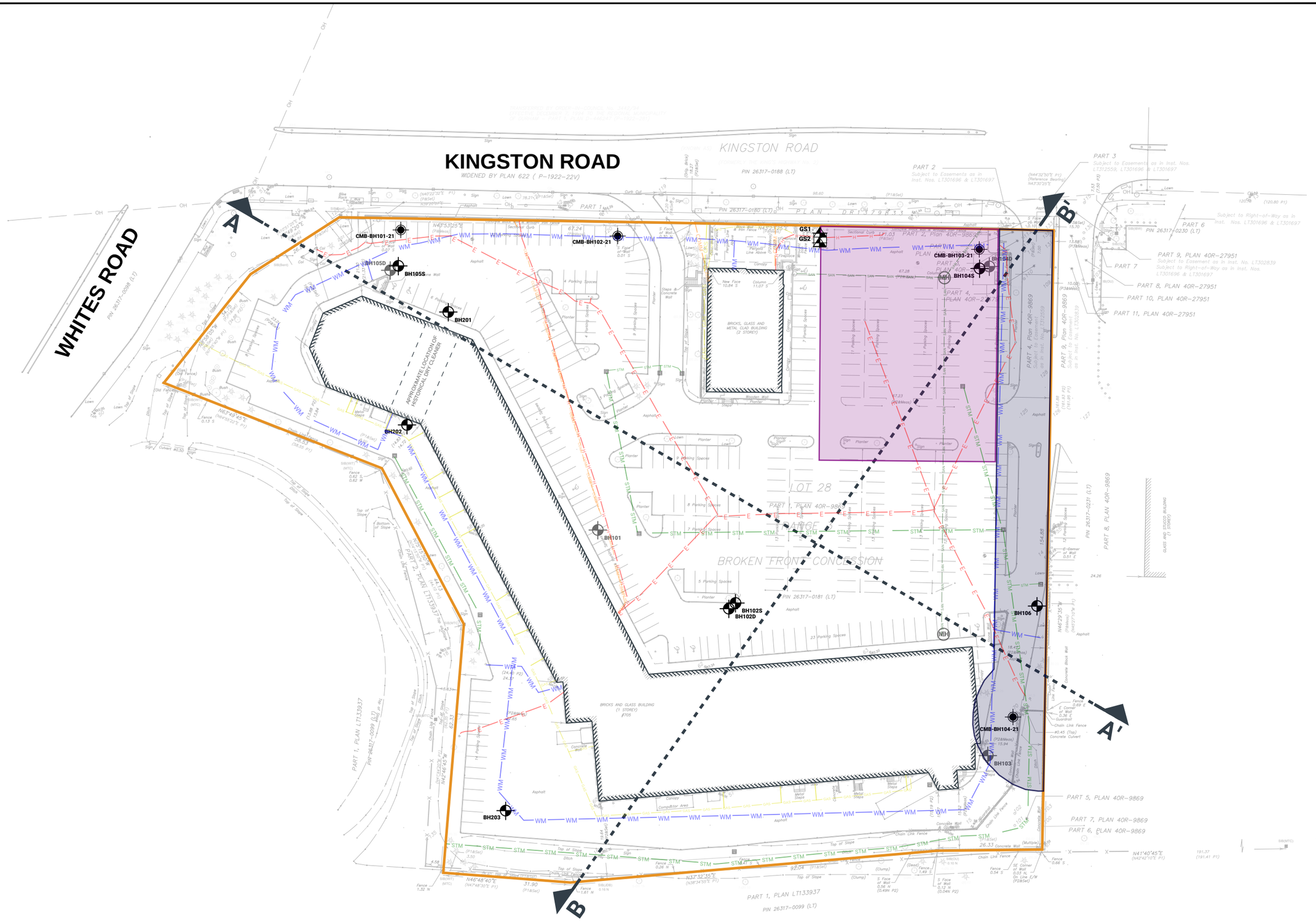
North
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 3



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE DECOMISSIONED DUE TO METHANE
- MONITORING WELL/BOREHOLE BY OTHERS
- GRAB SAMPLE LOCATION BY GROUNDED
- CROSS SECTION LINE
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS — GAS
- E — ELECTRICAL
- H — BURIED HYDRO
- O/H — OVERHEAD HYDRO
- WM — WATER
- COMM — COMMUNICATION
- SAN — SANITARY
- STM — STORM
- MH — MANHOLE
- CATCH BASIN
- T — TRANSFORMER

Note

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

BOREHOLE AND MONITORING WELL LOCATIONS PLAN

North

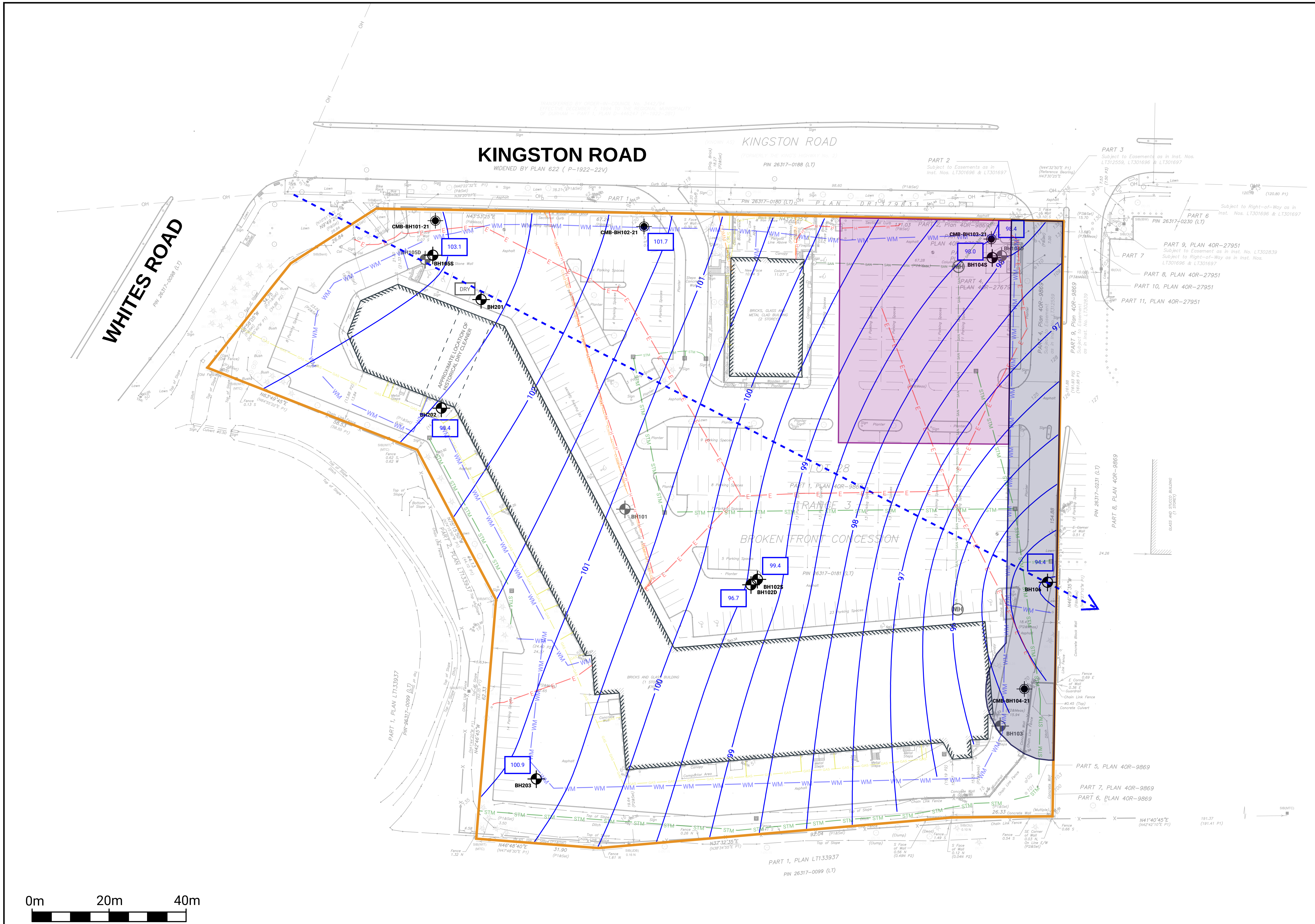
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 4



GROUNDED ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE DECOMISSIONED DUE TO METHANE
- MONITORING WELL/BOREHOLE BY OTHERS
- 119.4 — GROUNDWATER ELEVATIONS (masl)
- 119.4 — GROUNDWATER CONTOURS (masl)
- APPROXIMATE INFERRED GROUNDWATER FLOW DIRECTION
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS — GAS
- E — ELECTRICAL
- H — BURIED HYDRO
- O/H — OVERHEAD HYDRO
- WM — WATER
- COMM — COMMUNICATION
- SAN — SANITARY
- STM — STORM
- MH — MANHOLE
- CATCH BASIN
- T — TRANSFORMER

Note
Groundwater elevation data used was collected during February 28, 2024 and March 14, 2024.

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

GROUNDWATER ELEVATIONS AND CONTOUR PLAN

North

TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 5

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH105 SS1B	0.5 - 0.7 / 104.5 - 104.3	✓	✓				Meets
BH105 SS2	0.8 - 1.2 / 104.2 - 103.8			✓	✓	✓	Meets
BH105 SS3	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
DUP-1 (BH105 SS3)	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
BH105 SS7A	6.1 - 6.2 / 98.9 - 98.8			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH201 SS2	0.8 - 1.2 / 103.7 - 103.3					✓	Meets
BH201 SS5	3.0 - 3.7 / 101.4 - 100.8					✓	Meets
BH201 SS8	7.6 - 8.2 / 96.9 - 96.3					✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH202 GS2	0.3 - 0.6 / 103.8 - 103.5	✓	✓				Meets
DUP 01 (BH202 GS2)	0.3 - 0.6 / 103.8 - 103.5		✓				Meets
BH202 GS3	0.6 - 0.9 / 103.5 - 103.2			✓	✓	✓	Meets
BH202 SS1	1.8 - 2.1 / 102.3 - 102.0	✓	✓				Meets
BH202 SS5	6.1 - 6.7 / 98.0 - 97.4					✓	Meets
BH202 SS6A	7.6 - 7.8 / 96.5 - 96.3			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	✓	✓				Meets
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0			✓	✓	✓	Meets
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	✓	✓	✓	✓	✓	Meets
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	✓	✓				Meets
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	✓		✓	✓	✓	Meets
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2		✓				Meets
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets
DUP-2 (BH102 SS7)	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH203 GS2	0.3 - 0.6 / 100.7 - 100.4	✓	✓				Meets
BH203 GS4	0.9 - 1.2 / 100.1 - 99.8			✓	✓	✓	Meets
BH203 SS1	1.8 - 2.3 / 99.2 - 98.7	✓	✓				Meets
DUP 02 (BH203 SS1)	1.8 - 2.3 / 99.2 - 98.7	✓					Meets
BH203 SS4	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets
DUP 03 (BH203 SS4)	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH101-21	0.8 - 1.5 / 104.2 - 103.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH102-21	4 - 4.6 / 99.6 – 99.0			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH103-21	1.5 - 1.8 / 98.3 – 98.0			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
GS1	0.3 / 100.5			✓	✓		Meets
GS2	0.3 / 100.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH104 SS1B	0.3 - 0.6 / 99.3 - 99.0	✓	✓				Meets
BH104 SS2	0.9 - 1.5 / 98.7 - 98.1			✓	✓	✓	Meets
BH104 SS4	2.3 - 2.7 / 97.3 - 96.9	✓	✓				Meets
BH104 SS7	6.1 - 6.5 / 93.5 - 93.1			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	✓	✓				Meets
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5			✓	✓	✓	Meets
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	✓	✓				Meets
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH103 SS2	0.8 - 1.4 / 97.3 - 96.7		✓				Meets
BH103 SS3A	1.5 - 2.0 / 96.6 - 96.1	✓		✓	✓	✓	Meets
BH103 SS6	4.6 - 5.2 / 93.5 - 92.9	✓	✓				Meets
BH103 SS8	7.6 - 7.7 / 90.5 - 90.3			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH104-21	2.7 - 2.9 / 95.6 – 95.4			✓	✓	✓	Meets

KINGSTON ROAD

WIDENED BY PLAN 622 (P-1922-22V)

WHITES ROAD

PIN 26317-0098 (LT)

BROKEN FRONT CONCESSION

LOT 28

RANGE

PART 1, PLAN 40R-9869

PART 2, PLAN LT339371

PART 1, PLAN LT339371

PART 3, PLAN 40R-27951

PART 4, PLAN 40R-27951

PART 5, PLAN 40R-9869

PART 6, PLAN 40R-9869

PART 7, PLAN 40R-9869

PART 8, PLAN 40R-27951

PART 9, PLAN 40R-27951

PART 10, PLAN 40R-27951

PART 11, PLAN 40R-27951

PIN 26317-0230 (LT)

APPROXIMATE LOCATION OF HISTORICAL DRY CLEANER

BRICKS, GLASS AND METAL CLAD BUILDING (2 STOREY)

BRICKS AND GLASS BUILDING (1 STOREY) #705

CMB-BH101-21

CMB-BH102-21

CMB-BH103-21

CMB-BH104-21

BH101

BH102S

BH102D

BH103

BH104D

BH104S

BH105D

BH105S

BH106

BH201

BH202

BH203

GS1

GS2

A

A'

B

B'

0m 20m 40m

GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE BY OTHERS
- MONITORING WELL/BOREHOLE NOT SAMPLED
- CROSS SECTION LINE
- SOIL SAMPLE MEETS TABLE 2 RPI MF STANDARDS
- GRAB SAMPLE MEETS TABLE 2 RPI MF STANDARDS
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS
- ELECTRICAL
- BURIED HYDRO
- OVERHEAD HYDRO
- WATER
- COMMUNICATION
- SANITARY
- STORM
- MH MANHOLE
- CATCH BASIN
- T TRANSFORMER

Note
M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), OTHER REGULATED PARAMETERS (ORPs) (B-HWS, Cr(VI), CN, EC, Hg, SAR)

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
SOIL ANALYTICAL RESULTS - PLAN VIEW

North
TRUE
PROJECT

Date
JULY 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 6

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH105 SS1B	0.5 - 0.7 / 104.5 - 104.3	✓	✓				Meets
BH105 SS2	0.8 - 1.2 / 104.2 - 103.8			✓	✓	✓	Meets
BH105 SS3	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
DUP-1 (BH105 SS3)	1.5 - 2.1 / 103.5 - 102.8	✓	✓				Meets
BH105 SS7A	6.1 - 6.2 / 98.9 - 98.8			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH101-21	0.8 - 1.5 / 104.2 - 103.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH201 SS2	0.8 - 1.2 / 103.7 - 103.3					✓	Meets
BH201 SS5	3.0 - 3.7 / 101.4 - 100.8					✓	Meets
BH201 SS8	7.6 - 8.2 / 96.9 - 96.3					✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH202 GS2	0.3 - 0.6 / 103.8 - 103.5	✓	✓				Meets
DUP 01 (BH202 GS2)	0.3 - 0.6 / 103.8 - 103.5		✓				Meets
BH202 GS3	0.6 - 0.9 / 103.5 - 103.2			✓	✓	✓	Meets
BH202 SS1	1.8 - 2.1 / 102.3 - 102.0	✓	✓				Meets
BH202 SS5	6.1 - 6.7 / 98.0 - 97.4					✓	Meets
BH202 SS6A	7.6 - 7.8 / 96.5 - 96.3			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	✓	✓				Meets
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0			✓	✓	✓	Meets
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	✓	✓	✓	✓	✓	Meets
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1			✓	✓	✓	Meets

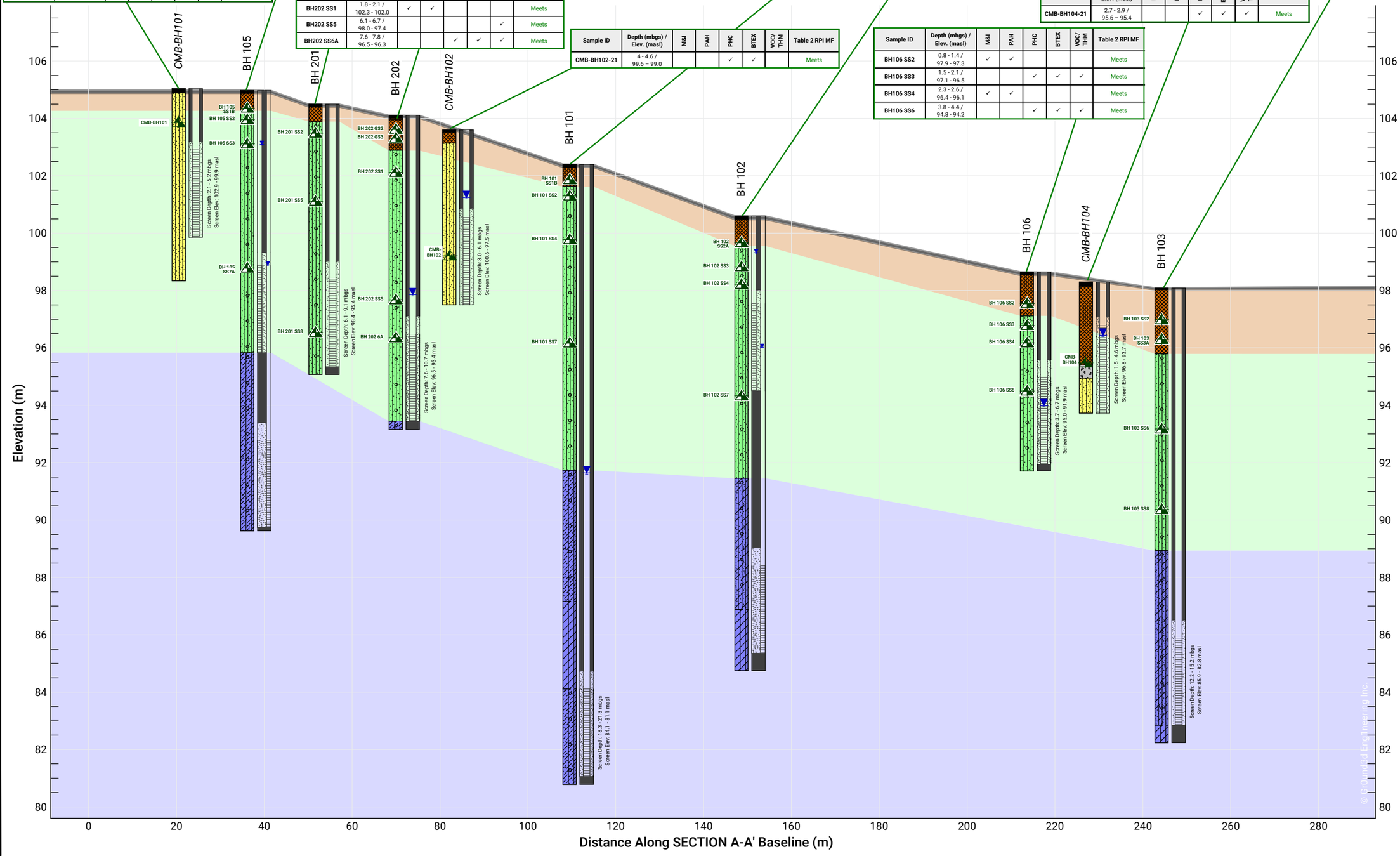
Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH102-21	4 - 4.6 / 99.6 – 99.0			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	✓	✓				Meets
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	✓		✓	✓	✓	Meets
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2		✓				Meets
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets
DUP-2 (BH102 SS7)	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	✓	✓				Meets
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5			✓	✓	✓	Meets
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	✓	✓				Meets
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH104-21	2.7 - 2.9 / 95.6 – 95.4			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH103 SS2	0.8 - 1.4 / 97.3 - 96.7		✓				Meets
BH103 SS3A	1.5 - 2.0 / 96.6 - 96.1	✓		✓	✓	✓	Meets
BH103 SS6	4.6 - 5.2 / 93.5 - 92.9	✓	✓				Meets
BH103 SS8	7.6 - 7.7 / 90.5 - 90.3			✓	✓	✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)
- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note
The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), OTHER REGULATED PARAMETERS (ORPs) (B-HWS, Cr(VI), CN, EC, Hg, SAR)

Reference

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

SOIL ANALYTICAL RESULTS - SECTION A-A'

North

Date
APRIL 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 7

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH101 SS1B	0.4 - 0.6 / 102.0 - 101.8	✓	✓				Meets
BH101 SS2	0.8 - 1.4 / 101.6 - 101.0			✓	✓	✓	Meets
BH101 SS4	2.3 - 2.9 / 100.1 - 99.5	✓	✓	✓	✓	✓	Meets
BH101 SS7	6.1 - 6.3 / 96.3 - 96.1			✓	✓	✓	Meets

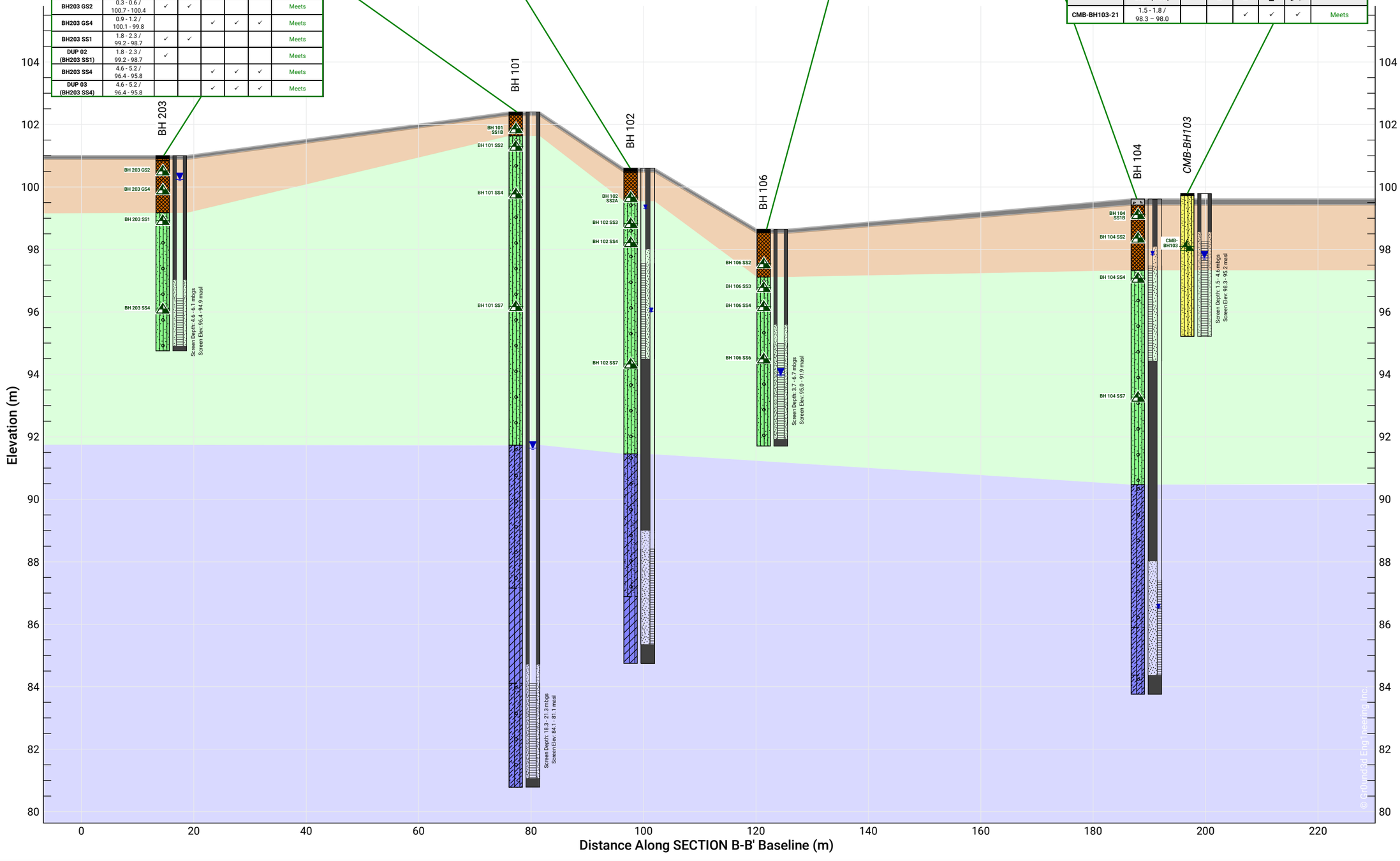
Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH102 SS2A	0.8 - 1.0 / 99.8 - 99.6	✓	✓				Meets
BH102 SS3	1.5 - 2.0 / 99.1 - 98.6	✓		✓	✓	✓	Meets
BH102 SS4	2.3 - 2.4 / 98.3 - 98.2		✓				Meets
BH102 SS7	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets
DUP-2 (BH102 SS7)	6.1 - 6.4 / 94.5 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH106 SS2	0.8 - 1.4 / 97.9 - 97.3	✓	✓				Meets
BH106 SS3	1.5 - 2.1 / 97.1 - 96.5			✓	✓	✓	Meets
BH106 SS4	2.3 - 2.6 / 96.4 - 96.1	✓	✓				Meets
BH106 SS6	3.8 - 4.4 / 94.8 - 94.2			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH104 SS1B	0.3 - 0.6 / 99.3 - 99.0	✓	✓				Meets
BH104 SS2	0.9 - 1.5 / 98.7 - 98.1			✓	✓	✓	Meets
BH104 SS4	2.3 - 2.7 / 97.3 - 96.9	✓	✓				Meets
BH104 SS7	6.1 - 6.5 / 93.5 - 93.1			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
CMB-BH103-21	1.5 - 1.8 / 98.3 – 98.0			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI MF
BH203 GS2	0.3 - 0.6 / 100.7 - 100.4	✓	✓				Meets
BH203 GS4	0.9 - 1.2 / 100.1 - 99.8			✓	✓	✓	Meets
BH203 SS1	1.8 - 2.3 / 99.2 - 98.7	✓	✓				Meets
DUP 02 (BH203 SS1)	1.8 - 2.3 / 99.2 - 98.7	✓					Meets
BH203 SS4	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets
DUP 03 (BH203 SS4)	4.6 - 5.2 / 96.4 - 95.8			✓	✓	✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- CONCRETE
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)
- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note

The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), OTHER REGULATED PARAMETERS (ORPs) (B-HWS, Cr(VI), CN, EC, Hg, SAR)

Reference

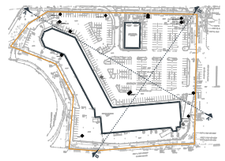
Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

SOIL ANALYTICAL RESULTS - SECTION B-B'

North



Date

APRIL 2024

Scale

AS INDICATED

Job No

23-197

Figure No

FIGURE 8

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH105S	6.1 - 9.1 / 98.9 - 95.8	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH105D	12.2 - 15.2 / 92.8 - 89.7	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-102-21	3.1 - 6.1 / 100.5 - 97.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH104D	12.2 - 15.2 / 87.4 - 84.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH104S	2.1 - 5.2 / 97.5 - 94.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-103-21	1.6 - 4.6 / 98.2 - 95.2					✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH202	7.6 - 10.7 / 96.5 - 93.4	✓*				✓	Meets

*Sample submitted for Na/Cl- only

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH101	18.3 - 21.3 / 84.1 - 81.1	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102S	3.0 - 6.1 / 97.6 - 94.5	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102D	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets
DUP-1 (BH102D)	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH203	4.6 - 6.1 / 96.4 - 94.9	✓*				✓	Meets

*Sample submitted for Na/Cl- only

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH106	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets
DUP01 (BH106)	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets

KINGSTON ROAD
WIDENED BY PLAN 622 (P-1922-22V)

WHITES ROAD

BROKEN FRONT CONCESSION

LOT 28

RANGE

0m 20m 40m

GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE BY OTHERS
- MONITORING WELL/BOREHOLE NOT SAMPLED/NOT RELIED UPON
- CROSS SECTION LINE
- GROUNDWATER SAMPLE MEETS TABLE 2 RPI MF STANDARDS
- APPROXIMATE PARKLAND CONVEYANCE
- APPROXIMATE ROAD WIDENING CONVEYANCE
- GAS — GAS
- E — ELECTRICAL
- H — BURIED HYDRO
- O/H — OVERHEAD HYDRO
- WM — WATER
- COMM — COMMUNICATION
- SAN — SANITARY
- STM — STORM
- MH — MANHOLE
- CATCH BASIN
- T — TRANSFORMER

Note
M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), SODIUM (Na), OTHER REGULATED PARAMETERS (ORPs) (Cr(VI), CN, Hg, Cl)

Reference
Survey Drawing no. 220-0094.
Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.
Date not listed.
Received - July 27, 2023

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
GROUNDWATER ANALYTICAL RESULTS - PLAN VIEW

North

Date
APRIL 2024

Scale
AS INDICATED

Job No
23-197

Figure No
FIGURE 9

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH105S	6.1 - 9.1 / 98.9 - 95.8	✓	✓	✓	✓	✓	Meets
BH105D	12.2 - 15.2 / 92.8 - 89.7	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH202	7.6 - 10.7 / 96.5 - 93.4	✓*				✓	Meets

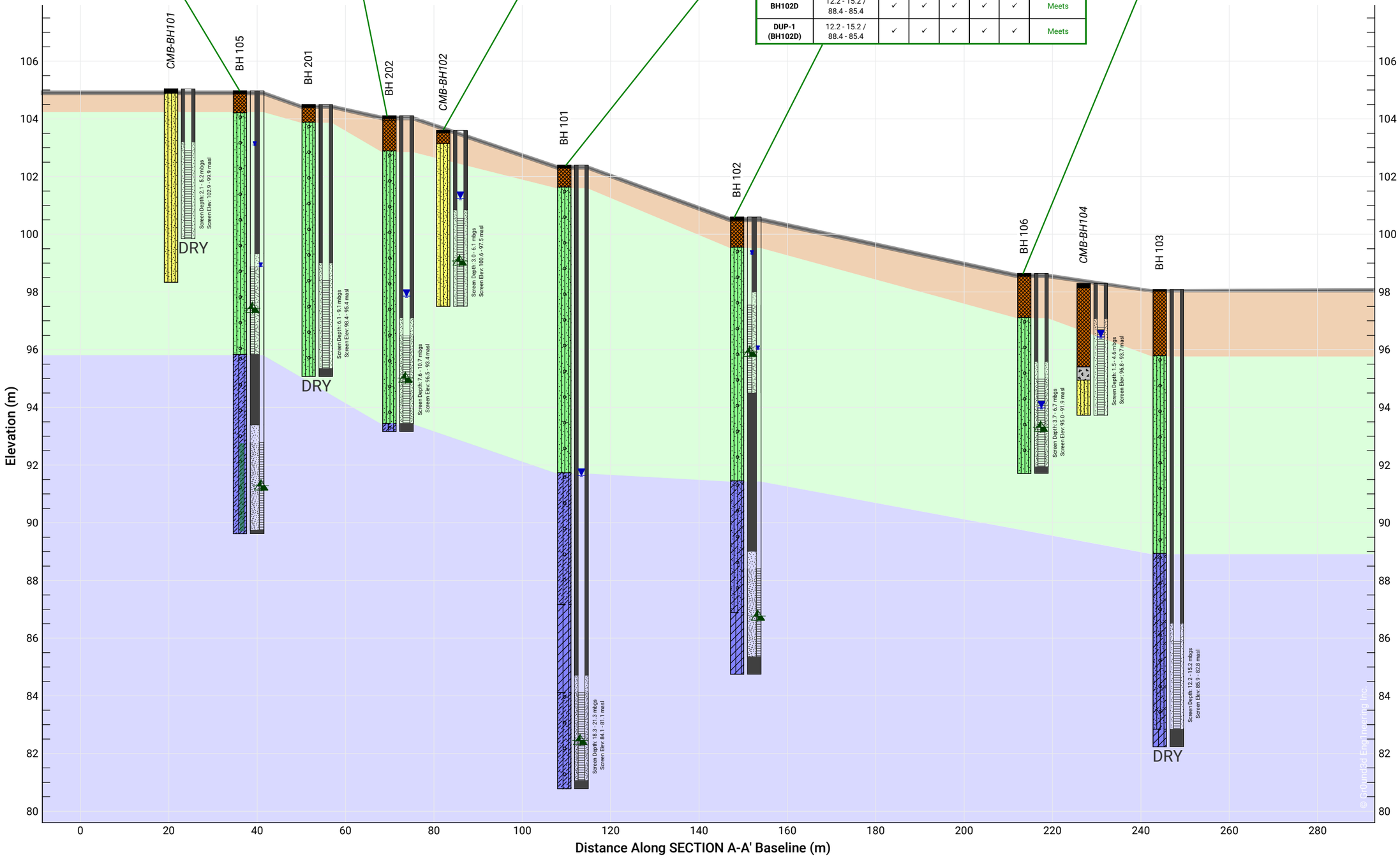
*Sample submitted for Na/Cl- only

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-102-21	3.1 - 6.1 / 100.5 - 97.5			✓	✓		Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH101	18.3 - 21.3 / 84.1 - 81.1	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102S	3.0 - 6.1 / 97.6 - 94.5	✓	✓	✓	✓	✓	Meets
BH102D	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets
DUP-1 (BH102D)	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH106	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets
DUP01 (BH106)	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)

- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note
The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), SODIUM (Na), OTHER REGULATED PARAMETERS (ORPs) (Cr(VI), CN, Hg, Cl)

Reference

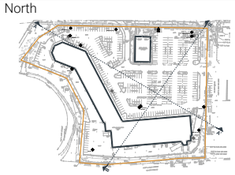
Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

GROUND WATER ANALYTICAL RESULTS - SECTION A-A'

North



Date

APRIL 2024

Scale

AS INDICATED

Job No

23-197

Figure No

FIGURE 10

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH203	4.6 - 6.1 / 96.4 - 94.9	✓*				✓	Meets

*Sample submitted for Na/Cl- only

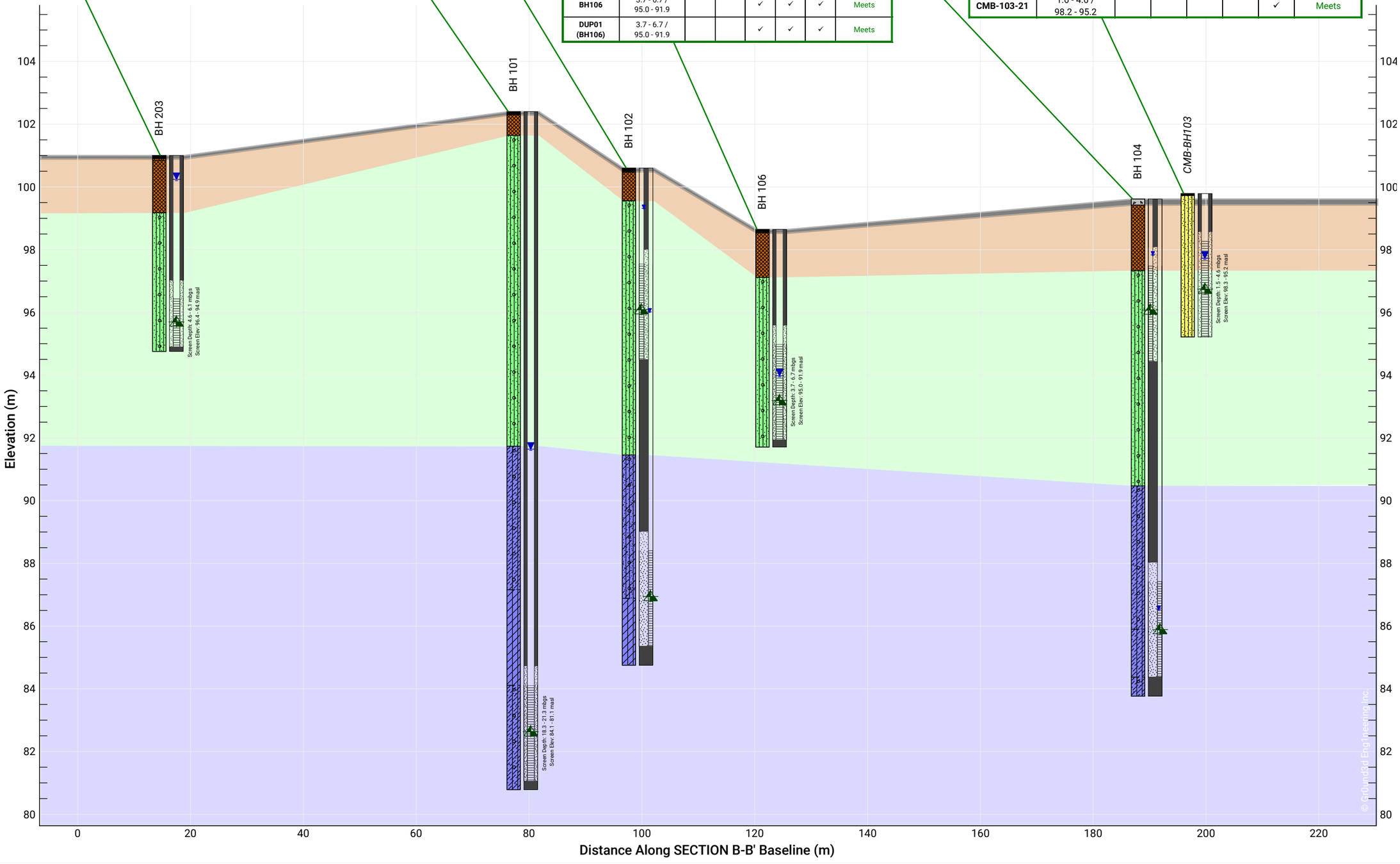
Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH101	18.3 - 21.3 / 84.1 - 81.1	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH102S	3.0 - 6.1 / 97.6 - 94.5	✓	✓	✓	✓	✓	Meets
BH102D	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets
DUP-1 (BH102D)	12.2 - 15.2 / 88.4 - 85.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH106	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets
DUP01 (BH106)	3.7 - 6.7 / 95.0 - 91.9			✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
BH104D	12.2 - 15.2 / 87.4 - 84.4	✓	✓	✓	✓	✓	Meets
BH104S	2.1 - 5.2 / 97.5 - 94.4	✓	✓	✓	✓	✓	Meets

Sample ID	Depth (mbgs) / Elev. (masl)	M&I	PAH	PHC	BTEX	VOC/ THM	Table 2 RPI
CMB-103-21	1.6 - 4.6 / 98.2 - 95.2					✓	Meets



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- SURFICIAL MATERIALS
- CONCRETE
- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLES TILLS
- COHESIVE SOILS (clayey silt to clay, inc. tills)
- DISTURBED SOILS (clayey silt to clay, inc. tills)

- SAMPLE LOCATION MEETS STANDARD
- water level, unstabilized
- water level, stabilized

Note

The soil/rock stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil/rock conditions may vary. Stratigraphy is interpreted based on Grounded boreholes only.

M&I ANALYSIS: METALS, HYDRIDE-FORMING METALS (As, Sb, Se), SODIUM (Na), OTHER REGULATED PARAMETERS (ORPs) (Cr(VI), CN, Hg, Cl)

Reference

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

GROUND WATER ANALYTICAL RESULTS - SECTION B-B'

North

Date

APRIL 2024

Scale

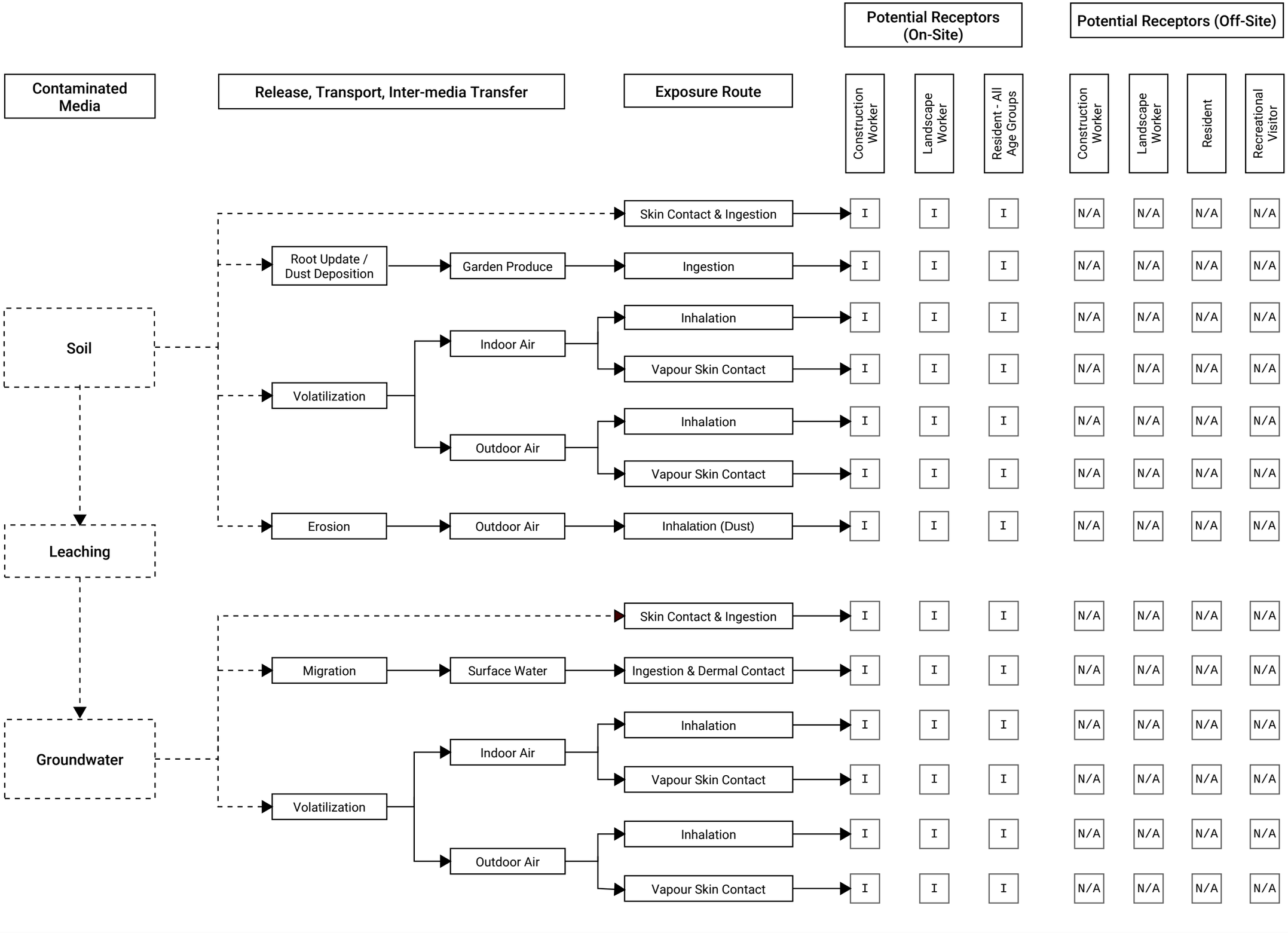
AS INDICATED

Job No

23-197

Figure No

FIGURE 11



GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- C — Pathway Complete
- I — Pathway Incomplete
- X — Pathway Blocked
- N/A — Pathway Not Applicable for Receptor
- Pathway Completed
- Pathway Incompleted

Note

1. Constructions Workers are considered protective of Utility Workers
2. Landscape Workers are considered protective of Trespassers
3. Residents are considered protective of Long Term Workers, Short Term Works and Site Visitors

Project

705 Kingston Road, PICKERING, ONTARIO

Figure Title

HUMAN HEALTH CSM

Reference

Date

APRIL 2024

Scale

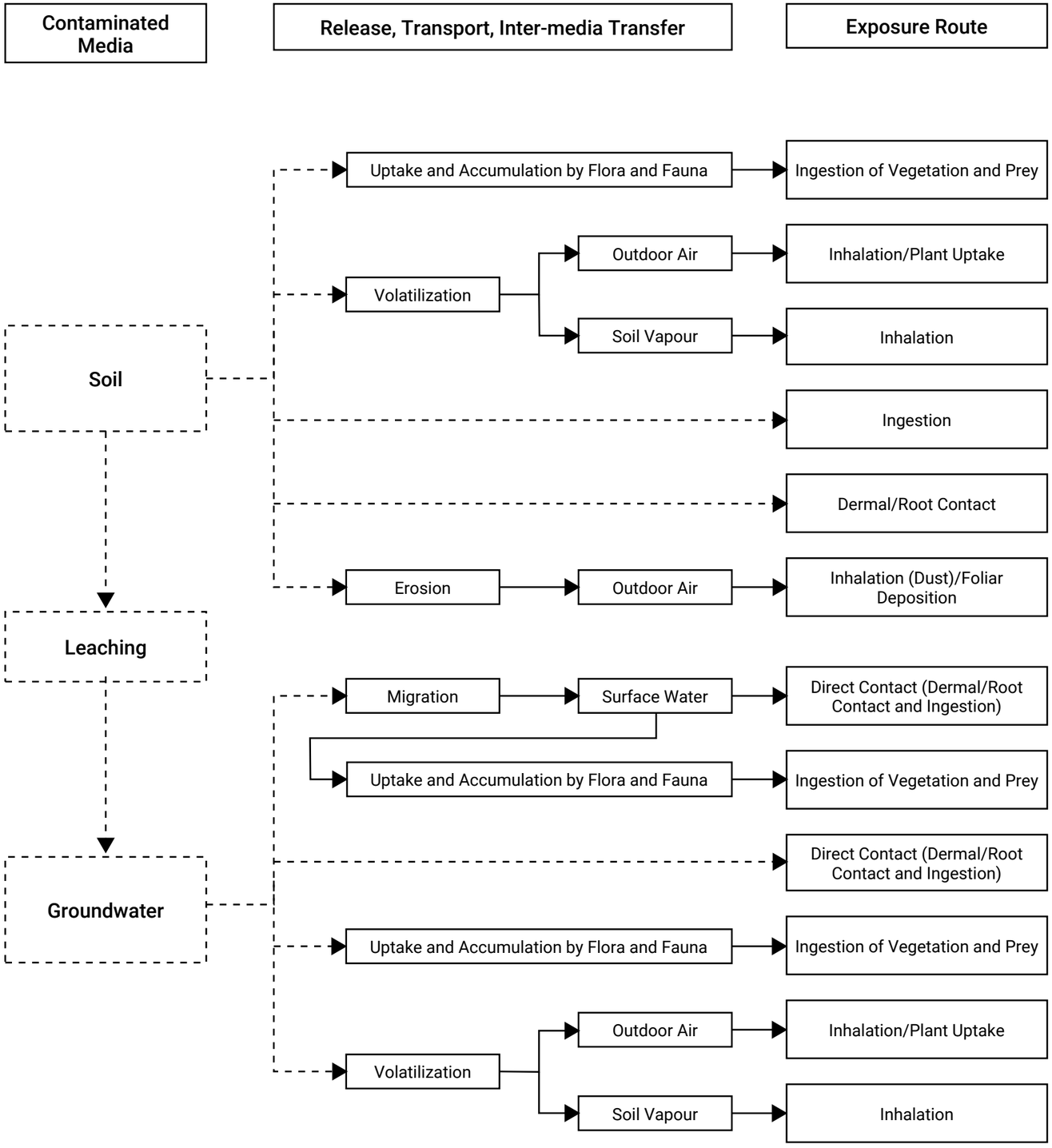
N/A

Job No

23-197

Figure No

FIGURE 12



Potential Receptors (On-Site)				Potential Receptors (Off-Site)			
Terrestrial Plants	Soil Invertebrates	Terrestrial Mammals	Terrestrial Birds	Terrestrial Plants	Soil Invertebrates	Terrestrial Mammals	Terrestrial Birds
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A
I	I	I	I	N/A	N/A	N/A	N/A

GROUNDED ENGINEERING
1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3
www.groundedeng.ca

LEGEND

- C — Pathway Complete
- I — Pathway Incomplete
- X — Pathway Blocked
- N/A — Pathway Not Applicable for Receptor
- Pathway Completed
- Pathway Incompleted

Note
1. Constructions Workers are considered protective of Utility Workers
2.Landscape Workers are considered protective of Trespassers
3. Residents are considered protective of Long Term Workers, Short Term Works and Site Visitors

Project
705 Kingston Road, PICKERING, ONTARIO

Figure Title
ECOLOGICAL CSM

Reference

Date
APRIL 2024

Scale
N/A

Job No
23-197

Figure No
FIGURE 13

TABLES

TABLE 1
GROUNDWATER LEVEL MONITORING SUMMARY
705 KINGSTON ROAD
PICKERING, ON
PROJECT #23-197

Well ID	Ground Surface Elevation (masl)	Screen Interval (mbgs)	Screen Interval (masl)	Soil Strata	Other consultant		Grounded Engineering																						Minimum Elev. (Lowest)		Maximum Elev. (Highest)		Seasonal Fluctuation
					June 8, 2021		October 17, 2023*		October 18, 2023		October 19, 2023		October 20, 2023		October 23, 2023		November 3, 2023		November 9, 2023		December 7, 2023		January 5, 2024		February 28, 2024		March 14, 2024		April 16, 2024						
		(mbgs)	(masl)		(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(±m)
BH101	102.4	18.3 - 21.3	84.1 - 81.1	Clayey Silt Till	-	-	18.1	84.3	-	-	11.8	90.6	-	-	10.8	91.6	-- DECOMMISSIONED--												11.8	90.6	10.8	91.6	0.5
BH102-S	100.6	3.0 - 6.1	97.6 - 94.5	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	1.7	98.9	1.6	99.0	1.6	99.0	1.5	99.1	1.3	99.4	-	-	1.3	99.4	1.7	98.9	1.3	99.4	0.2
BH102-D	100.6	12.2 - 15.2	88.4 - 85.4	Clayey Silt Till to Silt & Clay	-	-	0.7	100.0	-	-	13.9	86.7	13.8	86.8	-	-	13.3	87.3	12.6	88.0	9.6	91.0	6.9	93.7	4.6	96.0	-	-	3.9	96.7	13.9	86.7	3.9	96.7	5.0
BH103	98.1	12.2 - 15.2	85.9 - 82.8	Clayey Silt Till	-	-	DRY	-	-	-	DRY	-	-	-	-	-	-- DECOMMISSIONED--												0.0	-	-	-	-
BH104-S	99.6	2.1 - 5.2	97.5 - 94.4	Sandy Silt Till	-	-	2.8	96.8	2.8	96.8	2.2	97.4	-	-	-	-	2.2	97.4	2.2	97.4	2.2	97.4	2.1	97.5	1.8	97.8	-	-	1.6	98.0	2.8	96.8	1.6	98.0	0.6
BH104-D	99.6	12.2 - 15.2	87.4 - 84.4	Clayey Silt Till	-	-	9.0	90.6	-	-	14.1	85.5	13.1	86.5	-	-	-- DECOMMISSIONED--												14.1	85.5	13.1	86.5	0.5
BH105-S	105.0	6.1 - 9.1	98.9 - 95.8	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	7.3	97.7	6.9	98.2	3.1	101.9	2.8	102.2	1.9	103.1	-	-	2.0	103.1	7.3	97.7	1.9	103.1	2.7
BH105-D	105.0	12.2 - 15.2	92.8 - 89.7	Clayey Silt Till	-	-	8.8	96.3	7.0	98.0	6.1	98.9	-	-	-	-	-- DECOMMISSIONED--												7.0	98.0	6.1	98.9	0.4
BH106	98.6	3.7 - 6.7	95.0 - 91.9	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	DRY	-	DRY	-	6.6	92.0	6.1	92.6	4.9	93.7	4.7	93.9	4.2	94.4	6.6	92.0	4.2	94.4	1.2
BH201	104.5	6.1 - 9.1	98.4 - 95.4	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DRY	-	DRY	-	0.0	-	-	-	-
BH202	104.1	7.6 - 10.7	96.5 - 93.4	Sandy Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	97.8	4.7	99.4	6.3	97.8	4.7	99.4	0.8
BH203	101.0	4.6 - 6.1	96.4 - 94.9	Sand and Silt Till	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	100.2	0.2	100.9	0.8	100.2	0.2	100.9	0.3
CMB-BH101-21	105.0	2.0 - 5.0	103.0 - 100.0	Sandy Silt Till	DRY	-	Flushmount Damaged - Cannot Open																						0.0	-	-	-	-
CMB-BH102-21	103.6	3.1 - 6.1	100.5 - 97.5	Sandy Silt Till	2.2	101.4	-	-	-	-	2.8	100.8	-	-	-	-	-	-	-	-	2.9	100.7	2.4	101.2	2.4	101.2	-	-	1.9	101.7	2.9	100.7	1.9	101.7	0.5
CMB-BH103-21	99.8	1.6 - 4.6	98.2 - 95.2	Sandy Silt Till	4.0	95.8	-	-	-	-	2.2	97.6	-	-	-	-	2.4	97.4	-	-	2.4	97.4	2.2	97.6	2.1	97.7	-	-	1.4	98.4	2.4	95.8	1.4	98.4	0.5
CMB-BH104-21	98.3	1.6 - 4.6	96.7 - 93.7	Fill, Concrete, Sandy Silt Till	1.7	96.6	-	-	-	-	2.0	96.3	-	-	-	-	-	-	-	-	1.9	96.4	1.9	96.4	1.9	96.4	-	-	1.8	96.5	2.0	96.3	1.7	96.6	0.1

mbgs = metres below existing ground surface
masl = metres above sea level
***** = unstabilized groundwater level
NA = not available: unable to access monitoring well
- = not measured