DILLON CONSULTING

THE CITY OF OTTAWA

Draft Phase Two Environmental Site Assessment

1010 Somerset Street West, Ottawa, Ontario

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Executive Summary

Dillon Consulting Limited (Dillon) was retained by The City of Ottawa (the City) to conduct a Phase Two Environmental Site Assessment (ESA) in accordance with Ontario Regulation 153/04 (referenced herein as the Regulation) for the property located at 1010 Somerset Street West, in Ottawa, Ontario (hereafter referred to as the "RSC Property"). **Figure 1** depicts the general site location and **Figure 2** presents the site plan.

Dillon understands that the Phase Two ESA was initiated as part of an application for a Record of Site Condition (RSC) under the Regulation, which is being completed in support of the future redevelopment of the RSC Property for residential land use. Dillon has also completed a Phase One ESA in accordance with the Regulation to support the filing of a RSC for the RSC Property, which has been submitted under separate cover.

The Ontario Ministry of the Environment, Conservation and Parks (MECP) Table 3, General Site Condition Standards (SCSs) in a Non-Potable Ground Water Condition for Residential, Parkland and Institutional property land use with medium to fine-grained soils were used to evaluate soil and groundwater samples obtained from the RSC Property.

An assessment of soil and groundwater was conducted across the RSC Property through borehole advancement, hand advanced holes and monitoring well installation. The sampling locations and laboratory analysis parameters were selected based on the Areas of Potential Environmental Concern (APECs) identified during the Phase One ESA. No surface water or sediment sampling was completed as part of the Phase Two ESA as no surface water bodies or sediment sources were present at the RSC Property.

The following table summarizes the contaminant concentrations that exceeded the Table 3 Standards, based on the results of the Phase Two ESA.

Table i – Summary of Contaminant Concentration Exceedances in Soil

Location	Sample Interval	Exceeding Contaminant
19-06	SA1 (0 - 0.76 mbgs)	• Benzo(a)anthracene (0.71 mg/kg) • Benzo(a)pyrene (0.57 mg/kg) • Benzo(b)fluoranthene (0.83 mg/kg) • Fluoranthene (2.1 mg/kg) • Indeno(1,2,3-cd)pyrene (0.41 mg/kg)
19-09	SA1 (0-0.76 mbgs)	• 2- Methylnaphthalene (1 mg/kg) • 1&2- Methylnaphthalene (1.7 mg/kg) • Benzo(a)anthracene (0.81 mg/kg) • Benzo(b)fluoranthene (0.95 mg/kg) • Benzo(a)pyrene (0.647 mg/kg) • Dibenzo(a,h)anthracene (0.11 mg/kg) • Fluoranthene (2.4 mg/kg)

Location	Sample Interval	Exceeding Contaminant
		• Indeno(1,2,3-cd)pyrene (0.48 mg/kg)
19-10	SA1 (0-0.76 mbgs)	• PHC F3 (1100 µg/g)
19-11	SA4 (2.29-3.05 mbgs) *	• Vanadium (92 ug/g)
BH21-02	SS1 (0.91-1.37 mbgs) *	• Barium (403 ug/g) • Cobalt (24.8 ug/g) • Vanadium (113 ug/g) • EC (1240 µS/cm) • SAR (9)
	SS4 (3.35-3.66 mbgs)*	• EC (744 µS/cm)
BH21-03	SS1 (0-0.61 mbgs)	• Cadmium (1.5 ug/g)
	SS3 (1.83-2.13 mbgs)*	• EC (803 µS/cm) • SAR (6.03)
BH21-04	SS5 (4.72-5.33 mbgs) *	• Vanadium (92.5/86.6 ug/g)
BH21-05	SS4 (2.29-2.74 mbgs)*	• EC (1370 µS/cm)
BH21-06	SS1 (0.76-1.37 mbgs) *	• Vanadium (96.9 ug/g) • EC (1790 µS/cm) • SAR (14.8)
	SS5 (4.11-4.42 mbgs)*	• EC (970 µS/cm)
BH21-07	SS1 (0.46-0.76 mbgs)	• Acenaphthylene (0.25 mg/kg) • Benzo(a)anthracene (0.68 mg/kg) • Benzo(a)pyrene (0.85 mg/kg) • Benzo(b)fluoranthene (1.05 mg/kg) • Dibenzo(a,h)anthracene (0.15 mg/kg) • Fluoranthene (1.22 mg/kg) • Indeno(1,2,3-cd)pyrene (0.53 mg/kg) • EC (1820 µS/cm) • SAR (12.9)
	SS5 (2.67-2.9 mbgs) *	• Vanadium (107 ug/g) • EC (5570 µS/cm) • SAR (19.6)
BH21-08	SS1 (0.15-0.46 mbgs)	• EC (1560 µS/cm) • SAR (10.3)
	DUP 3 (2.9-3.51 mbgs)*	• Vanadium (91.2 ug/g) • EC (1830 µS/cm) • SAR (16.3)
	SS5 (2.9-3.51 mbgs)*	• EC (1740 µS/cm) • SAR (16.5)
BH21-09	SS1 (0.15-0.61 mbgs)	• Benzo(a)pyrene (0.46 mg/kg) • Fluoranthene (1.00 mg/kg) • EC (2360 µS/cm) • SAR (14.8)
	SS3 (1.52-2.13 mbgs)	• EC (1050 µS/cm) • SAR (8.04)

Location	Sample Interval	Exceeding Contaminant
BH21-11	SS2 (0.76-1.37 mbgs)*	• Acenaphthylene (0.24 mg/kg) • Benzo(a)anthracene (0.58 mg/kg) • Benzo(a)pyrene (0.52 mg/kg) • Fluoranthene (1.18 mg/kg) • EC (1870 µS/cm) • SAR (12.2)
	SS6 (3.05-3.66 mbgs) *	• Vanadium (101 ug/g) • EC (1390 µS/cm) • SAR (6.7)
BH21-12	SS1 (0.15-0.76 mbgs)	• EC (1510 µS/cm) • SAR (5.68)
	SS3 (2.44-3.05 mbgs)*	• EC (767 µS/cm)
BH21-14	SS1 (0.76-1.37 mbgs)	• 1&2- Methylnaphthalene (1.52 mg/kg) • Benzo(a)anthracene (1.09 mg/kg) • Benzo(a)pyrene (0.87 mg/kg) • Benzo(b)fluoranthene (1.13 mg/kg) • Dibenzo(a,h)anthracene (0.15 mg/kg) • Fluoranthene (3.58 mg/kg) • Indeno(1,2,3-cd)pyrene (0.50 mg/kg) • EC (1240 µS/cm)
	SS3 (2.29-2.9 mbgs) *	• Vanadium (99.6 ug/g) • EC (1490 µS/cm) • SAR (9.09)
BH21-15	SS5 (3.81-4.42 mbgs) *	• Vanadium (94.7 ug/g)
BH21-16	SS2 (1.22-1.83 mbgs)	• Cobalt (22.8 ug/g) • Vanadium (99.8 ug/g)
	DUP 4 (1.22-1.83 mbgs)	• Cobalt (24.3 ug/g) • Vanadium (108 ug/g)
BH21-17	SS1 (0.15-0.61 mbgs)	• Acenaphthylene (<0.4 mg/kg) • Benzo(a)anthracene (0.54 mg/kg) • Benzo(a)pyrene (0.51 mg/kg) • Dibenzo(a,h)anthracene (<0.4 mg/kg) • Fluoranthene (0.91 mg/kg) • Indeno(1,2,3-cd)pyrene (<0.4 mg/kg)
	SS3 (1.52-1.83 mbgs)*	• EC (1950 µS/cm) • SAR (15.2)
BH21-19	SS1 (0.91-1.52 mbgs)*	• 2- Methylnaphthalene (1.19 mg/kg) • 1&2- Methylnaphthalene (1.83 mg/kg) • EC (2380 µS/cm)
	SS3 (2.44-3.05 mbgs) *	• Vanadium (100 ug/g)
BH21-20	SS4 (3.05-3.66 mbgs) *	• Vanadium (92.1 ug/g)

Samples denoted with an asterisk in **Table i** indicate that the sample was collected in the native clay material at the RSC Property. Metals and inorganic parameters that exceeded their respective Table 3 Standards in these native samples include vanadium, barium, cobalt, SAR and EC. All of these parameters are known to have naturally high background levels associated with the Champlain Sea sediments. These elevated concentrations were consistent with concentrations reported in clays present throughout the Ottawa Valley area where Champlain Sea sediments occur (GeoOttawa, 2017). As such, the elevated levels of vanadium, barium, cobalt, SAR and EC present in clay materials underlying the RSC Property are not considered to be contaminants at the RSC Property per the Ontario *Environmental Protection Act*.

No BTEX, VOCs or energetics were detected in soil above Table 3 Standards at sampled locations.

Table ii – Summary of Contaminant Concentration Exceedances in Groundwater

Location	Exceeding Contaminant
MW19-01	• Chloride (3760 mg/L)

No metals, PHCs, BTEX, PAHs, VOCs, PFAS, energetics, nitrate or ammonium in groundwater were detected above Table 3 Standards at sampled locations.

Based on the location of this groundwater chloride exceedance, which was collected from a monitoring well located within a parking lot adjacent to Somerset Street West, this exceedance is likely a result of road salt application rather than historical activities. Chloride was sampled in groundwater to investigate APEC #1 (groundwater impacts related to fill materials); however, based on the analytical results at the RSC Property, this APEC does not appear to have contributed to this groundwater impact.

Concentrations of COCs in soil and groundwater at the RSC Property were found to exceed the Table 3 Standards for certain inorganic, metals, PAH and PHC parameters in soil, as well as chloride in groundwater. As such, an RSC cannot be filed based solely on the outcomes of this report.

1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by the City of Ottawa (the City) to conduct a Phase Two Environmental Site Assessment (ESA) in accordance with Ontario Regulation 153/04 (referenced herein as the Regulation) for the property located at 1010 Somerset Street West, Ottawa, Ontario (hereafter referred to as the "RSC Property"). **Figure 1** depicts the general site location and **Figure 2** presents the site plan.

Dillon understands that the Phase Two ESA was initiated as part of an application for a Record of Site Condition (RSC) under the Regulation, which is being completed in support of the future redevelopment of the RSC Property for residential land use. Dillon has also completed a Phase One ESA in accordance with the Regulation to support the filing of a RSC for the RSC Property, which has been submitted under separate cover.

1.1 Site Description

The Phase Two ESA was conducted for the RSC Property located at 1010 Somerset Street West, Ottawa Ontario. The RSC Property details are provided in **Table 1**.

Table 1 – RSC Property Details

Municipal Addresses	1010 Somerset Street West, Ottawa, Ontario
Property Identification Numbers (PIN)	04107-0030 (LT) 04107-0035 (LT) (partial) 04107-0289 (LT)
Roll Number	061406350116300
Legal Description	Plan 73, Lots 1-7 Blk B w/s Champagne Ave, Lots 1-5 Blk B e/s Loretta Ave, Pt Lot A Blk B n/s Oak St Pts 4-6 5R4993; Ottawa/Nepean Plan 73, Pt Champagne Ave Lying S of Somerset St & N of Pts 3&6, 4R207; Ottawa/Nepean Plan 73, Lots 2-5 Blk B s/s Somerset St; Lots 1-5 Blk B n/s Ash St; Lots 1-5 Blk B s/s Ash St; Lots 1-5 Blk B n/s Oak St; Pt Ash & Oak St; City of Ottawa
Approximate Area of Property	2.83 hectares
General Site Description	As shown on **Figure 2**, the RSC Property consists of a 2.83 hectare parcel (comprised of three different PINs) located at 1010 Somerset Street West in Ottawa, Ontario. The RSC Property was observed to consist of an office building (used by government staff prior to the Covid-19 pandemic), a few smaller sheds, storage lockers and sea cans, a paved parking area, landscaped areas and areas of overgrown vegetation. The RSC Property is surrounded by residential, parkland and commercial land use.
Owner	The Government of Canada (PINs 04107-0030 (LT) and 04107-0289 (LT)), the City of Ottawa (PIN 04107-0035 (LT))
Owner Representative and person requesting Phase Two ESA	**Name: Mr. Vahid Arasteh, City of Ottawa** **Address: 110 Laurier Avenue West, 5th Floor, Ottawa, Ontario, K1P 1J1** **Contact Information:** **Phone:** 613-580-2424 **Email:** vahid.arasteh@ottawa.ca

Figure 1 and **Figure 2** show the location and the extent of the RSC Property relative to surrounding features.

1.2 Property Ownership

At the time of the field investigation, the RSC Property was owned The Government of Canada (PINs 04107-0030 (LT) and 04107-0289 (LT)), and the City of Ottawa (PIN 04107-0035 (LT)). The Phase Two ESA was commissioned by Mr. Vahid Arasteh on behalf of the City of Ottawa. Mr. Arasteh's contact information is provided in **Table 2**.

Table 2 – Ownership Details

Owner	The Government of Canada (PINs 04107-0030 (LT) and 04107-0289 (LT)), the City of Ottawa (PIN 04107-0035 (LT))
Owner Representative and person requesting Phase Two ESA	**Name:** Mr. Vahid Arasteh **Address:** 110 Laurier Avenue West, 5th Floor, Ottawa, Ontario, K1P 1J1 **Contact Information:** **Phone:** 613-580-2424 **Email:** vahid.arasteh@ottawa.ca

1.3 Current and Proposed Future Uses

The RSC Property is located within a residential/commercial area in Ottawa, with community/parkland use to the east and west, commercial and residential land use to the north and vacant property to the south of the RSC Property.

At the time of the Phase One and Two ESAs, the RSC Property consisted of the following:

- An office building that was used by Federal government employees prior to the Covid-19 pandemic. The office building has two-storeys, with the second storey being smaller than the first, and has no basement. A hydraulic elevator was present near the entrance at the northern portion of the building, which provides access between floors for persons with physical disabilities. The building was heated/cooled by natural gas and electrical roof-mounted HVAC units. A commercial air compressor was observed in the 2nd floor maintenance room.
- Asphalt-paved access roadways and parking areas surround the office building. A hydro vault was present to the southeast of the office building, which provides electricity to the office building. Catch basins were observed in this area.
- A Public Works and Government Services Canada fenced/gated area was located at the back (southwest portion) of the RSC Property. This area was used to store miscellaneous maintenance equipment, including empty totes, wood, pylons, metal grates, a barbeque, a small generator, building equipment and plastic barriers. Three shed structures, two storage lockers and a sea can were located within this fenced-in area. These all appeared to be in good condition and were used to store road maintenance equipment including chain saws, small generators, graffiti removal chemicals, pressure washers, paint, ladders, shovels, etc. Within this area, the building footprint of one of the former inflatable dome storage structures was observed (the one reportedly removed in 2020).

- An asphalt-paved parking lot to the southwest of the office building. Catch basins were observed in this area. The northeastern portion of this parking lot slopes downward and becomes an underpass below Somerset Street West, connecting to City Centre Avenue to the northwest. A shed was observed in the northern portion of this parking area, which is used to store filters for the HVAC system. A monitoring well was observed adjacent to the shed, which was installed as part of Golder's 2020 Phase II ESA (confirmed by referencing the Site Plan from the 2020 report). The building footprints of a former inflatable dome storage structure (reportedly removed prior to 2015) and former standing building (reportedly removed in 2020) were observed in the southern portion of this area.
- A gravel area observed along the western property boundary. This area sloped slightly to the west, towards the neighbouring biking trail and former railway, which is at a lower elevation.
- A large paved area to the southeast of the office building. Catch basins were observed in this area. A monitoring well was observed in the southern portion of this area, which was installed as part of Golder's 2020 Phase II ESA (confirmed by referencing the Site Plan from the report). A pile of concrete rubble and a pile of concrete curb blocks were observed in the southwestern portion of this area.
- A grassed area located along the eastern property boundary. This area had some gravel-covered areas and was overgrown with low-lying vegetation. This portion of the property was observed to slope to the east towards the neighbouring recreation complex at 930 Somerset Street West. A monitoring well was observed adjacent to the shed, which was installed as part of Golder's 2020 Phase II ESA (confirmed by referencing the Site Plan from the report).

The RSC Property is intended to be redeveloped for residential use. Due to the anticipated change in land use, an RSC is required as per Section 168.3.1 of the *Environmental Protection Act*.

1.4 Applicable Site Condition Standard

The analytical results of the soil and groundwater samples collected as part of the Phase Two ESA were compared to the generic site condition standards in the Ministry of the Environment, Conservation and Parks' (MECP) "*Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, April 2011*". The following comments were considered in selecting the assessment criteria:

- There are no features either on or adjacent to the RSC Property that would meet the other conditions of an environmental sensitive site.
- The RSC Property is currently commercial, but will be redeveloped for residential land use.
- Properties within 250 m of the RSC Property are supplied by a municipal drinking water system.
- The proposed use of the RSC Property is not agricultural, or other use.
- The RSC Property is not located in an area designated in the municipal official plan as a well-head protection area or other area designated for the protection of groundwater.
- No wells are present at the RSC Property or properties surrounding the RSC Property for the purposes of human consumption or agricultural.
- The pH values of the soil samples analyzed were between 5 and 9 for surface soils and 5 to 11 for sub-surface soils.

Based on the above and for the purposes of the report, the following standards were considered to be suitable for the purpose of assessing the soil and groundwater quality for the RSC Property:

- 2011 MECP Table 3, Full Depth Generic Site Condition Standards (SCSs) in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use for Coarse-Grained Soils.

1.5 Disclaimer

This report was prepared by Dillon for the sole benefit of our client, The City of Ottawa. The material in this report reflects Dillon's judgement in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decision made or actions based on this report.

2.0 Background Information

2.1 Physical Setting

Based on topographic information obtained from ERIS mapping during the Phase One ESA, the RSC Property lies at an elevation of approximately 60 to 62 m above sea level (masl). The topography across the Study Area is generally flat.

The RSC Property is located in the Ottawa Valley Clay Plains physiographic region. The physiographic landform in the Study Area consists of Limestone Plains and Till Plains (Drumlinized).

The surficial geology in the vicinity of the Study Area is interpreted to be stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain. Previous intrusive investigations at the RSC Property have described overburden as fill overlying a sandy/silty clay, overlying glacial till in some areas, over limestone bedrock.

The bedrock within the Study Area consists of Middle Ordovician aged limestone, dolostone, shale, arkose and sandstone of the Ottawa Group, Simcoe Group and Shadow Lake Formation. Previous investigations at the RSC Property have indicated limestone bedrock was present at depths ranging from 2.5 to 6.0 mbgs.

Regional and local drainage is inferred to be towards the Ottawa River to the north. Local variations in groundwater flow directions are possible due to the permeability of soils at the RSC Property and potential influences from underground services. Additionally, the railway located to the west of the RSC Property (running northwest) was observed to be at a lower elevation and to have been blasted into bedrock, which likely diverts shallow groundwater flow in the vicinity of the RSC Property. Previous intrusive investigations at the RSC Property have indicated that groundwater within the overburden layer is interpreted to flow to the north/northeast, with a westerly component towards the railway.

Based on a review of historical aerial photographs and other records, fill materials may have been imported to the RSC Property as part of historical development and redevelopment of the property. The quality and origin of the fill material is unknown and represents a PCA.

No water bodies or areas of natural significance were identified on the RSC Property or Study Area based on a review of aerial photography, ERIS ANSI mapping and MNRF LIO mapping. Refer to **Figure 4** for woodlands and other natural features within the Study Area.

2.2 Historical Land Use

The first developed use at the RSC Property was prior to 1894, at which time the RSC Property was being used for lumber storage with railway sidings connecting to lumber piles throughout the RSC Property.

The eastern portion of the RSC Property (PIN 04107-0289 (LT)) was then used for commercial/industrial purposes starting between 1938 and 1945 when a large warehouse building was constructed. This warehouse building was used as an ammunition depot until at least 1965, with the northern portion of

the building burning down in 1958 and being replaced by an office building. The remainder of the warehouse building was removed in 2015, with the office building remaining on the RSC Property for use by government administrative staff. The office building was still present on the RSC Property at the time of the site reconnaissance; however, it was vacant.

Railway sidings were present on the adjacent RSC Property parcel (PIN 04107-0035 (LT)) running alongside the warehouse until approximately 1965.

The western portion of the RSC Property (PIN 04107-0030 (LT)) was used to varying extents for material storage from prior to 1945 until 2021, with two inflatable dome storage structures present on the RSC Property from 2005 until 2019 (one was removed in 2007).

The areas of historical use at the RSC Property, including former buildings, are presented in **Figure 2**.

2.3 Potentially Contaminating Activities

Based on the findings of the Phase One Environmental Site Assessment (ESA), thirty-seven (37) Potentially Contaminating Activities (PCAs) were identified for the RSC Property and Study Area and are presented in **Tables 3 and 4.**

Table 3 – Summary of On-Site PCAs

On-Site PCA #	Regulatory Description	Rationale	Potential Contaminants of Concern
1.	• #30– Importation of fill material of unknown quality	• Fill quality at the RSC Property was flagged as an issue in most of the previous environmental reports and is shown in borehole logs from the reports, and analytical testing has demonstrated this to be a PCA • Fill material identified in ERIS borehole record • Aerial photographs identified potential importation of fill material relative to development and redevelopment of the RSC Property • The RSC Property was observed to be slightly elevated relative to neighbouring properties to the east and west during the site reconnaissance.	• Sodium adsorption ratio (SAR) • Electrical conductivity (EC) • Cyanide • pH • Metals • BTEX • PHCs • PAHs
2.	• #20– Explosives and Ammunition Manufacturing, Production, and Bulk Storage	• Historical storage of explosives ordnance in the Oak St. Complex building noted in the previous environmental reports. • The FIPs from 1948 and 1965 identify the warehouse building as No. 26 Central Ordnance Depot. • The site contact indicated that former warehouse was used as an ammunition depot during the war.	• RDX • TNT • Perchlorate • Mercury • Ammonia • Nitrate • Metals

On-Site PCA #	Regulatory Description	Rationale	Potential Contaminants of Concern
3.	• #46– Railyards, tracks, and spurs	• The FIP from 1901 shows railway tracks that were present throughout the RSC Property, connecting to piles of lumber. FIPs from 1948 and 1965 show a spur that is present to the west of the former warehouse building. • Aerial photographs from approximately 1945 to 1965 show what appears to be a spur to the west of the former warehouse building.	• PHCs • Metals • PAHs
4.	• #59 – Wood treating and preservative facility and bulk storage of treated and preserve wood products	• The FIPs from 1895, 1901 and 1948 show lumber storage present on the RSC Property, which is assumed to be treated/preserved since associated with the railway.	• PHCs • Metals • VOCs
5.	• PCA Other – Fire	• Fire reported in previous environmental investigations and journal articles (1951), which destroyed the northern portion of the warehouse at the RSC property.	• PAHs • VOCs
6.	• PCA Other – Storage of maintenance equipment, fuel, and chemicals	• Aerial photographs from 1945 to 2019 show outdoor storage of equipment, materials and vehicles in the western portion of the RSC Property. • Previous environmental reports note the storage of various construction equipment and drums in the maintenance support yard. • The ERIS report identified wastes generated related to the PWGSC maintenance support service yard.	• PHCs • Metals • PAHs

Note:

(1) **SAR** = sodium adsorption ratio, **EC** = electrical conductivity, **PHCs** = petroleum hydrocarbons, **BTEX** = benzene, toluene, ethylbenzene and xylene, **PAHs** = polycyclic aromatic hydrocarbons, **VOCs** = volatile organic compounds, **RDX** = Royal Demolition Explosive, also known as cyclonite, hexogen, and hexahydro-1,3,5-trinitro-1,3,5-triazine, **TNT** = trinitrotoluene

Table 4 – Summary of Off-Site PCAs

Off-Site PCA #	Property Location	Regulatory Description	Rationale	Potential Contaminants of Concern
1.	• Adjacent property to the west of the RSC Property.	• #46 – Rail Yards, Tracks and Spurs	• FIPs and aerial photographs show that a railway was present from prior to 1895 to approximately 2019. • This railway was flagged as a PCA in previous environmental reports for the RSC Property.	• PHCs • Metals • PAHs
2.	• 933 Gladstone Avenue (formerly part	• #28 – Gasoline and associated products storage in fixed tanks	• The site contact indicated a diesel tank that used to fuel	• PHCs • BTEX

Off-Site PCA #	Property Location	Regulatory Description	Rationale	Potential Contaminants of Concern
	of 1010 Somserset Street West, southern part of former warehouse), south of the RSC Property		the boiler room for the warehouse. • Previous environmental reports show this former AST to the south of the RSC Property. • The ERIS report identified a furnace oil tank in 1992, which was confirmed by the site contact to be related to the former warehouse steam boilers	
		• PCA Other – Coal Storage	• Coal storage in boiler room of warehouse (off-site portion) identified in previous environmental reports	• PAHs
3.	• 933 Gladstone Avenue (formerly part of 1010 Somserset Street West), south of the RSC Property	• #20 – Explosives and Ammunition Manufacturing, Production and Bulk Storage	• Off-site portion of the former Central Ordnance Depot facility.	• RDX • TNT • Perchlorate • Mercury • Ammonia • Nitrate • Metals
4.	• 35 Laurel Street	• #28 – Gasoline and associated products storage in fixed tanks	• AST/USTs identified in HLUI report	• PHCs • BTEX
5.	• 111 Breezehill Avenue	• #28 – Gasoline and associated products storage in fixed tanks	• Service garage identified in the HLUI report	• PHCs • VOCs • Metals
6.	• 103 Breezehill Avenue	• #32 – Metal treatment, coating, plating and finishing	• Metal products manufacturing/coating of metal products identified in the HLUI report	• Metals • VOCs • PFAS
7.	• 73 Breezehill Avenue	• #32 – Metal treatment, coating, plating and finishing	• Metal products manufacturing/coating of metal products identified in the ERIS and HLUI reports	• Metals • VOCs • PFAS
		• #28 – Gasoline and associated products storage in fixed tanks	• Petroleum products wholesale identified in the HLUI report	• PHCs • BTEX
8.	• 53 Breezehill Avenue	• #49 – Salvage yard, including automobile wrecking	• Automobile wrecking facility identified in ERIS report	• PHCs • VOCs • Metals
		• #10 – Commercial Autobody Shops	• Service garage/autobody shops identified in the HLUI report	• VOCs • Metals • PHCs
		• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs and petroleum products wholesale identified in the HLUI report and auto repairs facility identified in the 1965 FIP.	• PHCs • VOCs • Metals

Off-Site PCA #	Property Location	Regulatory Description	Rationale	Potential Contaminants of Concern
9.	• 250 City Centre Avenue	• #43 – Plastics (including fiberglass) manufacturing and processing	• Potential plastic manufacturing identified in the HLUI report	• VOCs
		• #29 – Glass manufacturing	• Potential glass manufacturing identified in the HLUI report	• Metals • VOCs • PFAS
		• #37 – Operation of dry cleaning equipment (where chemicals are used)	• Dry cleaning facility identified in the ERIS and HLUI reports	• VOCs
		• #10 – Commercial Autobody Shops	• Autobody shop identified in the HLUI report	• PHCs • VOCs • Metals
		• #28 – Gasoline and associated products storage in fixed tanks	• Service garage, ASTs/USTs and petroleum products wholesale identified in the HLUI report, hydraulic oil spill identified in the ERIS report	• PHCs • VOCs • Metals
10.	• 1040 Somerset Street West	• #10 – Commercial Autobody Shops	• Service garage/autobody shops identified in the HLUI report	• VOCs • Metals • PHCs
		• #32 – Metal treatment, coating, plating and finishing	• Metal products manufacturing/coating of metal products identified in the ERIS and HLUI reports	• Metals • VOCs • PFAS
11.	• 10 Bayswater Avenue	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the ERIS report	• PHCs • BTEX
12.	• 930 Wellington Street West	• #28 – Gasoline and associated products storage in fixed tanks	• Service garage, ASTs/USTs and gasoline service stations identified in the HLUI report	• PHCs • VOCs • Metals
13.	• 1050 Somerset Street West	• #10 – Commercial Autobody Shops	• Service garage/autobody shops identified in the HLUI report	• VOCs • PHCs • Metals
		• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the HLUI report	• PHCs • BTEX
14.	• 161 Spruce Street West	• #28 – Gasoline and associated products storage in fixed tanks	• Service garage, ASTs/USTs and petroleum product wholesale identified in the HLUI report	• PHCs • VOCs • Metals
15.	• 145 Spruce Street	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the HLUI report	• PHCs • BTEX
		• #32 – Metal treatment, coating, plating and finishing	• Stamped, pressed and coated metal product industries identified in the HLUI report	• Metals • VOCs • PFAS
16.	• 886 Somerset Street West	• #37 – Operation of dry cleaning	• Potential dry cleaning facility identified in the HLUI report	• VOCs

Off-Site PCA #	Property Location	Regulatory Description	Rationale	Potential Contaminants of Concern
		equipment (where chemicals are used) • #28 – Gasoline and associated products storage in fixed tanks	• Gasoline service station identified in the HLUI report	• PHCs • BTEX
17.	• 890 Somerset Street West	• #28 – Gasoline and associated products storage in fixed tanks	• Service garage, ASTs/USTs and gasoline service station identified in the HLUI report	• PHCs • VOCs • Metals
18.	• 100 Preston Street	• #37 – Operation of dry cleaning equipment (where chemicals are used)	• Potential dry cleaning facility identified in the HLUI report	• VOCs
19.	• 193 Preston Street	• #28 – Gasoline and associated products storage in fixed tanks	• Gasoline service station identified in the HLUI report	• PHCs • BTEX • Metals
20.	• 215 Preston Street	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs and petroleum product wholesale identified in the HLUI report	• PHCs • BTEX
21.	• 225 Preston Street	• #28 – Gasoline and associated products storage in fixed tanks	• Service garage, ASTs/USTs and petroleum product wholesale identified in the HLUI report	• PHCs • VOCs • Metals
22.	• 951 Gladstone Avenue	• #28 – Gasoline and associated products storage in fixed tanks	• Service garage and ASTs/USTs identified in the ERIS report and gas station identified in the HLUI report	• PHCs • VOCs • Metals
		• #32 – Metal treatment, coating, plating and finishing	• Metal products manufacturing/coating of metal products identified in the ERIS report	• Metals • VOCs • PFAS
23.	• 241 Preston Street	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the ERIS report	• PHCs • BTEX
24.	• 15 Larch Street	• #32 – Metal treatment, coating, plating and finishing	• Metal products manufacturing/coating of metal products identified in the ERIS and HLUI reports	• Metals • VOCs • PFAS
25.	• Baywater Avenue and Wellington Street	• #58 – Waste disposal and waste management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	• Former landfill site (Landfill Ur-41) identified within 500m of the RSC Property in the HLUI report; reported operation prior to 1928	• PHCs • PAHs • Metals • Inorganics
26.	• Located between Ottawa Parkway (N), CP Railway	• #58 – Waste disposal and waste management, including thermal treatment, landfilling	• Former landfill site (Landfill Ur-06) identified within 500m of the RSC Property in the HLUI report; reported operation in 1960s	• PHCs • VOCs • PAHs • Metals • Inorganics

Off-Site PCA #	Property Location	Regulatory Description	Rationale	Potential Contaminants of Concern
	(W), Scott St. (S) and Lebreton Flats Aqueducts (E)	and transfer of waste, other than use of biosoils as soil conditioners		• PFAS
27.	• 930 Somerset Street West	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the HLUI report and in miscellaneous documents from the City of Ottawa	• PHCs • BTEX
28.	• 953 Somerset Street West	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the HLUI report	• PHCs • BTEX
29.	• 158 Spruce Street	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the HLUI report	• PHCs • BTEX
30.	• 152 Spruce Street	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the HLUI report	• PHCs • BTEX
31.	• 130 Anderson Street	• #28 – Gasoline and associated products storage in fixed tanks	• ASTs/USTs identified in the HLUI report	• PHCs • BTEX

Note:

(1) **SAR** = sodium adsorption ratio, **EC** = electrical conductivity, **PHCs** = petroleum hydrocarbons, **BTEX** = benzene, toluene, ethylbenzene and xylene, **VOCs** = volatile organic compounds, **PFAS** = per- and polyfluoroalkyl substances, **RDX** = Royal Demolition Explosive, also known as cyclonite, hexogen, and hexahydro-1,3,5-trinitro-1,3,5-triazine, **TNT** = Trinitrotoluene

On-site and off-site PCAs are shown on **Figure 3**.

2.4 Past Investigations

Environmental site investigations have taken place at the RSC Property dating back to 2001. The following previous environmental reports were provided to Dillon for review, and pertinent information from each report is summarized below.

Phase I Environmental Site Assessment, Plouffe Park (1010 Somerset St. W.), Ottawa, Ontario (Aqua Terre Solutions Inc., March 30, 2001)

Aqua Terre Solutions Inc. (Aqua Terre) completed this Phase I ESA to CSA standards in 2001 for Public Works and Government Services Canada (PWGSC) to identify potential sources of soil, surface water and/or groundwater contamination for the parcel of land located at 1010 Somerset Street West. No figures were provided for review, but based on the site description included in the report, the ESA was completed for the area occupied by the road allowances on the centre parcel of the RSC Property (PIN 04107-0035 (LT)), and did not include the buildings (Oak St. complex, municipal City of Ottawa building and PWGSC office building, all located to the east/northeast); however, they were still assessed as part of the Phase I ESA Study Area. The report also states that the portion of the property to the northwest was occupied by a paved parking lot and maintenance support area containing approximately 60 200L steel

drums. During the Phase I ESA, Aqua Terre identified the following PCAs and associated Contaminants of Potential Concern (COPCs) at the buildings/properties surrounding the site:

- Former coal storage in boiler room area (PAHs)
- Diesel AST in boiler room area (TPH)
- Storage of equipment and drums in maintenance support yard (TPH, VOCs, metals)
- Possible former UST southeast of the site (TPH, BTEX)
- Indoor air quality and designated substances issues, Oak St. Complex building (lead, mercury, asbestos)
- Historical storage of explosives ordinance, Oak St. Complex building (organic contaminants)
- Historical land use on surrounding properties (impacted fill - heavy metals)

The report recommended establishing a handling area for steel drums within the maintenance storage yard (fenced and roofed area with spill containment), and completing a Phase II ESA to investigate potential for heavy metals impacted fill resulting from historical surrounding land uses.

Phase I & II Environmental Site Assessment, Plouffe Park, 1010 Somerset Street W., Ottawa, Ontario (Trow Associates Inc., January 2005)

Trow Associates Inc. (Trow) was retained by PWGSC to complete a Phase I/II ESA in 2005 for the property located at 1010 Somerset Street West, which includes the two-storey office building and the entire Oak St. Complex warehouse building that was on the property at the time (this property has since been severed and the southern portion is now 933 Gladstone Avenue and not part of the RSC Property).
The Phase I/II ESA was completed to identify liabilities associated with various future redevelopment scenarios for the property from a contaminated sites perspective.

Historical information reviewed during the Phase I ESA suggested that the site had been occupied by the warehouse building since the 1940s and by the two-storey office building since the mid-1950s. The site had been used to store military equipment, house masonry shops, printing facilities, as office space and a transfer depot for PWGSC. The report states that a previous Phase II ESA (which was not provided to Dillon for review) had identified a PAH exceedance in the soil near the southwest part of the property, opposite the fence and within the City of Ottawa Champagne Avenue road allowance that transects the property. The location of these soil impacts was reviewed and interpreted to be south of the RSC Property. During the Phase I ESA, Trow identified the following PCAs and associated contaminants of concern (COCs) for the property:

- Former coal storage area and associated impacts within the City of Ottawa road allowance to the southwest of the warehouse building (PAHs, specifically benzo(a)pyrene which had the previous CCME exceedance)
- Fire at northern portion of property in the 1950s, portion of the building destroyed (PAHs, VOCs)
- Former fuel station to the southeast of the warehouse had detectable (but less than the Federal criteria applied at the time) benzene, TPH not analyzed (PHCs)
- Potential designated substances in building (asbestos, lead, PCBs, etc.)
- AST near boiler room combined with historical ASTs in same area (PHCs)
- Various construction equipment/materials (concrete, metals, fill materials) stored in the maintenance supply yard (metals, PAHs, VOCs)

- Former rail line bordering west of building (creosote, PAHs, metals)
- Anecdotal information of a potential fuel station near Gladstone Avenue (PHCs)
- General unknown/poor quality of the fill at the site (PAHs, metals, PHCs)

Of these PCAs, the former fire, maintenance yard, and unknown/poor quality fill appear to be located on the RSC property, with the additional PCAs identified on the southern portion of the property (now 933 Gladstone Avenue).

Following the Phase I ESA, Trow completed a Phase II ESA to assess for potential soil and groundwater impacts associated with these APECs. Twelve boreholes were drilled as part of this investigation in the vicinity of the APECs, seven of which were completed as monitoring wells. The following conclusions were drawn by Trow during the Phase II ESA:

- The overburden on site was reported to consist mainly of fill overlying a sandy/silty clay over limestone bedrock. The fill was characterized as sand and gravel with minor construction debris (i.e. concrete), and depth to bedrock ranged from 2.5 to 6 metres below ground surface (mbgs).
- Groundwater was encountered within both the overburden and bedrock aquifers, ranging from 1.66 to 7.25 mbgs. The overburden groundwater was interpreted to be flowing in a northeastern direction, whereas flow direction in the bedrock aquifer could not be assessed as only two wells were installed.
- Based on the assessment of the eight APECs (excluding the designated substances which were not assessed), the general fill quality was considered to be an environmental concern. Analytical results indicated that COCs were above the Ontario Background Standards (Table 1), but did not exceed the Federal or Provincial criteria for residential, commercial or industrial land use, It was stated that these Table 1 exceedances would only be an issue if additional fill is generated during redevelopment of the property, which would require disposal at a licensed landfill facility.
- The previously identified benzo(a)pyrene exceedance was determined to remain an issue (however as previously mentioned these impacts do not coincide with the current RSC property).
- Groundwater was not found to be impacted at the property.
- The National Classification System (NCS) score for the property was determined to be 24.4, which is categorized as Class N (no significant environmental impact or human health threat).

Environmental Review and Limited Investigation, Plouffe Park, 1010 Somerset Street West, Ottawa, Ontario (Levac Robichaud Leclerc Associates Ltd., October 21, 2008)

This Environmental Review and Limited Investigation was completed by Levac Rochbaud Leclerc Associates Ltd. (LRL) in 2008 in order to identify liabilities associated with the property and buildings. This assessment included a review of previous documents for the site, including the previously described Trow 2005 Phase I & II ESA, as well as the following three Designated Substances/Hazardous Materials Surveys that had been completed for the office building:

- Designated Substances and Hazardous Materials Survey, Plouffe Park Building, 1010 Somerset Street, Ottawa, Ontario, December 16, 1999, Jacques Whitford Environmental Ltd., Project No. 61163

- Asbestos Assessment to Meet Ontario Regulation 278/05, Plouffe Park, 1010 Somerset Street, Ottawa, Ontario, October 2007, Greenough Environmental Consulting Inc., Project No. 23696; and
- Annual Reassessment of Asbestos-Containing Materials, Plouffe Park Building and Warehouse, 1010 Somerset Street West, Ottawa, Ontario, September 2008, Greenough Environmental Consulting Inc., Project No. 241186

The review by LRL of previous Designated Substances/Hazardous Materials Surveys revealed that the following substances had been identified within the office building:

- Asbestos containing insulation, aircell and magblock on the straight runs of the domestic hot water pipe fittings and parging cement on fittings
- Mercury in fluorescent lamps and thermostats
- Silica in the concrete and building material
- Ozone depleting substances (ODS) in the refrigerators and air conditioning units
- PCBs in the fluorescent light ballasts

The reassessment by Greenough in 2008 revealed damaged asbestos containing materials (ACM) that required immediate attention.

Following this review, LRL conducted a site visit (which included the collection and analysis of limited number of samples) to determine if designated substances were present in the warehouse building and whether previously identified designated substances within the office building were still present. Based on their investigation, ACMs were confirmed to be present within the office building and warehouse in the vinyl flooring (warehouse only) and insulation on the pipe and pipe fittings. Lead-based paint was identified within the warehouse and was potentially present on building materials such as solder on pipes and drainpipe joint caulking, though this was not assessed. Mould was also identified within the warehouse. It is noted that the warehouse was subsequently demolished and is no longer present at the site.

Subsurface Soil and Groundwater Investigation Sampling, Plouffe Park – 1010 Somerset Street West, Ottawa, Ontario (DST Consulting Engineers Inc., September 2013)

DST Consulting Engineers (DST) was retained by PWGSC to conduct a Subsurface Soil and Groundwater Investigation at 1010 Somerset Street West in 2013. DST conducted a review of previous ESA reports for the property, including the previously described Trow 2005 Phase I & II ESA, as well as the following report:

- *Environmental Soil Management Screening Review, Plouffe Park* – 1010 Somerset Street West, Ottawa, Ontario, DST Consulting Engineers Inc., March 2011.

As part of their review, DST assessed the analytical soil and groundwater data collected during the previous investigations and compared them to the current Federal criteria and Provincial standards at the time. DST noted a number of exceedances of the updated applicable standards/guidelines that were not previously flagged as exceedances, including the following samples collected from the RSC property:

- A groundwater sample collected from BH7 in 2005 (investigating PAHs, VOCs, metals and TPH associated with former fire and general fill quality) had concentrations of aluminum and zinc exceeding the Federal Interim Ground Water Quality Guidelines (FIGWQGs).
- Soil samples collected from BH6-A1 and BH10-SS2 (investigating the maintenance supply yard and general fill quality) had concentrations of PAHs exceeding the Federal criteria (B[a]P TPE and IACR at BH6-A1 and IACR and BH10-SS2).
- A groundwater sample collected from BH11 (investigating the maintenance supply yard and general fill quality) had concentrations of aluminum and zinc exceeding the FIGWQGs.

Based on the findings of this review and the potential for fill quality issues at the property, DST prepared a soil and groundwater sampling program to assess these areas of concern. Twenty-three boreholes (including 10 within the warehouse) were advanced across the property, nine of which were instrumented with monitoring wells. Inferred groundwater flow direction was not provided in this report based on groundwater levels. A total of thirty-four soil samples and twelve groundwater samples (including samples from existing Trow wells) were collected and submitted for analyses of COPCs including PAHs and metals. Based on the results of this investigation and findings of the literature review and historical analytical data update, DST identified four Areas of Environmental Concern (AECs), all of which coincide with the current RSC Property:

- AEC 1 – Confirmed metals (cadmium) groundwater contamination within the northeastern portion of the warehouse and the site at DSTBHMW-7;
- AEC 2 – Confirmed metals (nickel and chromium) soil contamination within the northwestern portion of the site at BH3;
- AEC 3 – Confirmed PAH soil contamination within the northwestern corner of the site at BH11/BH6; and
- AEC 4 – Confirmed PAH soil contamination within the northwestern portion of the site at DSTBH-11.

Estimates of contaminated soil volume were completed for AECs 2 to 4 and were as follows: 1,553 m^3 (AEC 2), 346 m^3 (AEC 3) and 346 m^3 (AEC 4). The surface area extent of confirmed groundwater contamination for AEC 1 was estimated to be 774 m^2. Based on the assessment of fill quality at the site, three areas of impacts above the MECP Table 1 Standards were identified, including the following two areas on the current RSC Property:

- Northwestern corner of the site at BH11/BH6 for PAHs (approximately 432 m^3); and
- Northwestern portion of the site at DSTBH-11, DSTBH-22, DSTBH-23 and BH3 for PAHs and metals (approximately 2,409 m^3).

Phase II Environmental Site Assessment, 1010 Somerset Street, Ottawa, Ontario (Golder Associates Ltd., January 2020)

This Phase II ESA was completed by Golder Associates Ltd. (Golder) in 2020 for PSPC to assess for the absence or presence of COCs related to the APECs identified in their 2019 Phase I ESA (not provided to Dillon for review). Golder's previously identified APECs included the following:

- APEC #1 – Historical off-site USTs, ASTs, and various waste generators
- APEC #2 – Former lumber storage yard on the western portion of the site
- APEC #3 – On-site fill quality

Eleven boreholes were drilled within the vicinity of these APECs with soil sampling at regular depth intervals in order to investigate potential soil impacts. Four of these boreholes were completed as monitoring wells, which were then sampled in order to assess potential groundwater impacts. The following findings were reported with respect to each of the APECs:

- APEC #1: No soil COC impacts (PHCs, BTEX, VOCs, PAHs and metals) above the applicable Federal/Provincial criteria were identified for this APEC. Groundwater collected from 19-08 (western portion of the current RSC Property) had a selenium concentration exceeding the FIGQG, for which the exact source was reported to be unknown but possibly related to off-site impacts originating from the west of the site.
- APEC #2: No soil or groundwater impacts of COCs (PAHs and metals) related to APEC #2 were observed.
- APEC #3: PAH federal guideline exceedances were observed in shallow soil samples collected from four boreholes in the eastern portion of the RSC property (19-06, 19-07, 19-09 and 19-10) and one deeper sample (19-10). PHCs also exceeded federal and provincial criteria in 19-10.

Due to limited data and a lack in clear pattern in groundwater, groundwater contours were not generated. Inferred local groundwater flow direction was anticipated to have a westerly component, and that regional flow direction was expected to be northerly towards the Ottawa River. Based on the results of this investigation, Golder calculated and updated the NCSCS scoring for the property to 46.7, which falls under Class 3 – Low Priority for Action.

Remedial Options Cost Estimates, 1010 Somerset Street West, Ottawa, ON (Golder Associates Ltd., March 31, 2020)

Golder was retained by PSPC in 2020 to provide high-level cost estimates to remove and/or manage the metals, PAH and PHC impacts identified in the previously described 2020 Phase II ESA. Given the plans to transfer the property to the City of Ottawa for mixed property use, the soil and groundwater data obtained during Golder's 2020 Phase II ESA and Morrison Hershfield's 2019 Soil Sampling Memorandum was compared to MECP Table 3 Standards for Residential/Parkland/Institutional Land Use. Based on this screening, exceedances of Provincial guidelines were noted for the following parameters in soil: PAHs (benzo[a]pyrene, benzo[a]anthracene, fluoranthene, indeno[1,2,3-cd]pyrene, 1-&2-methylnaphthalene and dibenzo[a,h]anthracene), PHCs (fractions 3 and 4) and metals (mercury, chromium VI, arsenic and vanadium). These soil impacts were identified to be related to the fill material at the property, which was estimated to be between 0.55 m (western portion of the property) and 0.76 m (eastern portion of the property) thick. Remedial cost estimates were provided for the following three scenarios:

- Scenario A: Excavation and off-site disposal of all impacted soil – total costs of remediation
- Scenario B: Excavation and off-site disposal of all impacted soil – incremental costs of remediation (not including excavation planned as part of the property redevelopment by the buyer, irrespective of contamination)

- Scenario C: Excavation and off-site disposal of all impacted soil – incremental costs of remediation (not including excavation planned as part of the property redevelopment, combined with a Screening Level Risk Assessment)

2.5 Determination of Adequacy of Data

Analytical data provided in these above-mentioned previous environmental reports was reviewed to determine adequacy and usefulness of the data for this current assessment. While completing this review, considerations were given to methodology, age of data, sample locations relative to the current investigation, site operations and conditions at the time the data was collected to determine whether the data would be representative of current conditions at the RSC Property.

Based on this review, it was determined that the soil and groundwater data from Golder's 2020 Phase II ESA would be included for screening in this assessment as it was deemed to be representative of current site conditions. Spatial coverage of sample locations from this previous assessment was also determined to be useful to further characterize impacts. As such, historical data from Golder's Phase II ESA is included in the soil and groundwater tables presenting the maximum concentrations in soil and groundwater, **Table A5** and **Table A6**, respectively, and is discussed in **Section 5**.

Data from Trow's 2005 Phase II ESA and from DST's 2013 Subsurface Investigation were not included for screening purposes as the site conditions were quite different during this period (i.e., warehouse building still present on the RSC Property). It is assumed that surficial soil would have been displaced when the warehouse building was destroyed in 2015; therefore, shallow soil chemistry data before this time would not be representative of current conditions at the RSC Property. Additionally, adequate spatial coverage was achieved using the current and 2020 assessments, therefore this older data was not deemed to provide additional value from a delineation standpoint.

3.0 Scope of the Investigation

3.1 Overview of Site Investigation

The general objective of a Phase Two ESA is to determine the location and concentration of contaminants of concern (COC) in the land or water on, in or under the RSC Property. To meet this objective, the Phase Two ESA completed at the RSC Property consisted of the following:

- Preparation of a Sampling and Analysis Plan (**Appendix A**);
- Soil Investigation Program;
- Groundwater Investigation Program; and
- Data Compilation, Evaluation and Reporting.

An assessment of soil and groundwater conditions was conducted across the RSC Property (see **Figure 6** for sample locations) to delineate the lateral and vertical extent of COCs that were identified in the Dillon Phase One ESA. As indicated in the Sampling and Analysis Plan, the following activities were completed as part of the site assessment:

- **Borehole Drilling and Soil Sampling**: September 13 to 30, 2021; and
- **Groundwater Sampling**: October 26 to November 1, 2021 and November 18, 2021.

For this Phase Two ESA, the date of last work was **November 18, 2021**.

3.2 Media Investigated

An assessment of soil and groundwater was conducted across the RSC Property (see Sampling and Analysis Plan, **Appendix A**). The following overview of the soil and groundwater assessment relates to the activities completed as part of this Phase Two ESA. **Figure 6** illustrates the sample locations of the media investigated at the RSC Property.

No surface water or sediment sampling was completed as part of the Phase Two ESA as no surface water bodies or sediment sources were present at the RSC Property.

3.2.1 Soil

To assess potential impacts in soils, a subsurface borehole advancement and soil sampling program was conducted at the RSC Property. Twenty-four (24) boreholes were advanced to depths ranging from 2.26 to 30.48 mbgs at the RSC Property between September 13 and 30, 2021.

Soils collected during the borehole program were field examined and logged for grain size, structure, moisture content, colour, observations of contamination, etc. Borehole logs are presented in **Appendix B**.

Soil sampling locations were selected based on the Areas of Potential Concern (APECs) identified in the Phase One ESA. Based on the nature of the APECs and geology at the RSC Property, surficial soils, fill materials and underlying native materials were targeted for the soil sampling program.

The soil samples were screened in the field, and selected soil samples were placed in laboratory supplied containers. Collected soil samples were submitted to the laboratory for analysis that included: sodium adsorption ratio (SAR), electrical conductivity (EC), cyanide, pH, sodium, chloride, metals (including mercury and chromium VI), petroleum hydrocarbons (PHCs) F1 to F4, benzene, toluene, ethylbenzene, and xylene (BTEX), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), energetics, nitrate and ammonium. The samples chosen for analysis were selected based on field screening results, COCs identified in the Phase One ESA and RSC Property delineation objectives.

3.2.2 Groundwater

To assess potential impacts in groundwater, sixteen (16) boreholes were advanced using a drill rig operated by Aardvark Drilling Inc. (Aardvark), and completed as monitoring wells. Monitoring well locations are shown on **Figure 6**.

Groundwater was collected from thirteen (13) of the newly-installed monitoring wells using low-flow groundwater sampling techniques. Groundwater samples, using low-flow techniques, were also collected from two of Golder's previously installed wells (MW19-01 and MW19-11). Two of the newly installed wells were too deep to use low-flow sampling techniques; therefore after development, these wells were sampled using a bailer. The collected groundwater samples were placed in laboratory supplied containers and submitted to the laboratory for analyses that included: chloride, sodium, cyanide, pH, metals (including mercury and chromium VI), PHC F1 to F4, BTEX, VOCs and PAHs, energetics and per- and polyfluoroalkyl substances (PFAS).

3.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model (CSM) for the RSC Property is presented in the attached figures, including natural features and water wells (**Figure 4**), areas of environmental concern identified during the Phase One ESA (**Figure 5**), sample locations (**Figure 6**), inferred groundwater flow directions (**Figure 7A and 7B**), soil sample analytical results (**Figure 8)**, and groundwater sample analytical results (**Figure 9**).

Based on the available mapping and documentation, the soils the vicinity of the Phase One Study Area were determined to consist of predominantly sandy silt-textured till. Regional and local groundwater flow was interpreted to be north / northeast towards the Ottawa River. No water bodies or areas of natural significance were identified within 250 m of the RSC Property.

Based on the Phase Two ESA, the RSC Property generally consists of a layer of fill material overlying silty clay, underlain by till then limestone bedrock. The interpreted direction of local shallow groundwater flow is to the east and northeast; however, the western portion of the site has an interpreted groundwater flow direction to the west. Geological, hydrological and hydrogeological information gathered during the Phase Two ESA is provided in **Section 5**.

Underground utilities within the RSC Property include natural gas service, municipal water service and storm sewer and sanitary sewer connections. The RSC Property is also supplied with electricity through overhead power lines (feeds into the hydro vault). Bedding material, if present, along buried utilities can represent a preferential flow pathway for groundwater and soil vapours. Additionally, the railway located to the west of the RSC Property (running northwest) was observed to be at a lower elevation and to have

been blasted into bedrock, which likely diverts shallow groundwater flow in the vicinity of the RSC Property.

In summary, the source-pathway-receptor linkages that were derived from the areas of potential environmental concern (APECs) and COCs identified in the Phase One ESA, and that forms the basis of the CSM, are shown in **Table 5**:

Table 5 – Phase One Conceptual Site Model

Phase One Conceptual Site Model			
APEC	**COC**	**Exposure Pathway**	**Receptor**
APEC #1 Entire RSC Property (On-site PCA #1) • #30 – Importation of fill material of unknown quality	• SAR (S) • EC (S) • Sodium (S/GW) • Chloride (S/GW) • Cyanide (S/GW) • pH (S/GW) • Metals (S/GW) • PHCs (S/GW) • BTEX (S/GW) • PAHs (S/GW)	• Ingestion/dermal contact with soil • Inhalation of dusts in outdoor air • Inhalation of vapour in outdoor air • Inhalation of vapour in indoor air • Inadvertent groundwater dermal contact/ingestion	• Site users (residential) • Construction worker • Ecological receptors
APEC #2 Eastern Portion of RSC Property (On-site PCA #2 and Off-site PCA #3) • #20– Explosives and Ammunition storage, Production and Bulk Storage	• RDX (S/GW) • TNT (S/GW) • Perchlorate (S/GW) • Mercury (S/GW) • Ammonia (S/GW) • Nitrate (S/GW) • Metals (S/GW)	• Ingestion/dermal contact with soil • Inhalation of dusts in outdoor air • Inhalation of vapour in outdoor air • Inhalation of vapour in indoor air • Inadvertent groundwater dermal contact/ingestion	• Site users (residential) • Construction worker • Ecological receptors
APEC #3 Entire RSC Property (On-site PCA #3 and Off-site PCA 1) • #46 – Railyards, tracks and spurs	• PHCs (S) • Metals (S) • PAHs (S)	• Ingestion/dermal contact with soil • Inhalation of dusts in outdoor air • Inhalation of vapour in outdoor air • Inhalation of vapour in indoor air	• Site users (residential) • Construction worker • Ecological receptors
APEC #4 Entire RSC Property (On-site PCA #4) • #59 – wood treating and preservative facility and bulk storage of treated and preserved wood chemicals	• Metals (S) • PHCs (S) • PAHs (S)	• Ingestion/dermal contact with soil • Inhalation of dusts in outdoor air • Inhalation of vapour in outdoor air • Inhalation of vapour in indoor air	• Site users (residential) • Construction worker • Ecological receptors

Phase One Conceptual Site Model			
APEC #5 Northeastern portion of the RSC Property • On-Site PCA #5 PCA Other — Fire	• Metals (S) • PAHs (S)	• Ingestion/dermal contact with soil • Inhalation of dusts in outdoor air • Inhalation of vapour in outdoor air • Inhalation of vapour in indoor air	• Site users (residential) • Construction worker • Ecological receptors
APEC #6 Western portion of the RSC Property (On-Site PCA #6) • PCA Other — Storage of maintenance equipment, fuel and chemicals	• Metals (S/GW) • PHCs (S/GW) • VOCs (S/GW)	• Ingestion/dermal contact with soil • Inhalation of dusts in outdoor air • Inhalation of vapour in outdoor air • Inhalation of vapour in indoor air • Inadvertent groundwater dermal contact/ingestion	• Site users (residential) • Construction worker • Ecological receptors
APEC #7 South boundary of RSC Property (Off-Site PCA #2 and #22) • #28—Gasoline and associated products storage in fixed tanks • PCA Other — Coal Storage • #32 – Metal treatment, coating, plating and finishing	• Metals (GW) • VOCs (GW) • PHCs (GW) • PAHs (GW) • PFAS (GW)	• Inadvertent groundwater dermal contact/ingestion	• Site users (residential) • Construction worker • Ecological receptors
APEC #8 Western portion of the RSC Property (Off-Site PCA #4, #5, #6, and #7) • #28 — Gasoline and associated products storage in fixed tanks • #32 — Metal treatment, coating, plating and finishing	• PHCs (GW) • Metals (GW) • VOCs (GW) • PFAS (GW)	• Inadvertent groundwater dermal contact/ingestion	• Site users (residential) • Construction worker • Ecological receptors
APEC #9 Eastern portion of the RSC Property (Off-Site PCA #27) • #28 — Gasoline and associated products storage in fixed tanks	• PHCs (GW) • BTEX (GW)	• Inadvertent groundwater dermal contact/ingestion	• Site users (residential) • Construction worker • Ecological receptors

Notes:

(1) **S** = refers to COC in soil.

(2) **GW** = refers to COC in groundwater.

(3) **SAR** = sodium adsorption ratio, **EC** = electrical conductivity, **PHCs** = petroleum hydrocarbons, **BTEX** = benzene, toluene, ethylbenzene and xylene, **VOCs** = volatile organic compounds, **PAHs** = polycyclic aromatic hydrocarbons, **PFAS** = per- and polyfluoroalkyl substances

3.4 Deviation from Sampling and Analysis Plan

The Sampling and Analysis Plan (SAP) (**Appendix A**) was developed by Dillon prior to the commencement of the Phase Two ESA activities. The specific requirements outlined in the SAP for the initial portion of the field work, in addition to the Quality assurance and quality control (QA/QC) program and data quality objectives (**Section 4.11**) and standard environmental field procedures (**Appendix A**), were followed as described, with the following exceptions:

- The sampling locations originally identified on the figure provided within the Sampling and Analysis Plan were adjusted according to site conditions encountered during field work.
- Not all soil sample locations identified in the SAP to be analyzed for energetics were submitted for energetic analysis. The laboratory's courier misplaced the majority of the submitted energetics samples, which resulted in the recommended holding times being passed once the samples were recovered. As a result, Dillon instructed the laboratory to only run analyses on a subset of the energetics samples, with the intent to return to the RSC Property at a later date to retrieve additional energetics soil samples without QA/QC errors for comparison purposes.

3.5 Impediments

There were no physical impediments or denial of access to the RSC Property that precluded meeting the objectives of the Phase Two ESA. Reporting of identified impediments is required as per O.Reg. 153/04.

4.0 Investigation Method

4.1 General

An assessment of site media was conducted through borehole drilling (overburden and bedrock), soil sampling, monitoring well installation and groundwater sampling. Dillon's Standard Environmental Field Procedures (SEFPs) which outline the field methodologies are included with the Sampling and Analysis Plan (**Appendix A**). Dillon retained various sub-contractors to assist in completing the Phase Two ESA, as described below.

The following overview of the site assessment relates to the activities completed as part of this Phase Two ESA to verify or delineate previously identified APECs and COCs. Site sampling activities were conducted in accordance with the Dillon SEFPs and industry standards and are outlined in the sections below. Results of the investigation are discussed in **Section 5.**

4.2 Borehole Drilling

Twenty-four (24) boreholes were drilled at the RSC Property between September 13 and 30, 2021. The borehole locations were selected based on APECs identified during the Phase One ESA. The boreholes were advanced to depths ranging from 2.26 to 30.48 mbgs. The locations are illustrated on **Figure 6** and the associated borehole logs are provided in **Appendix B**. Additional information regarding the installation of boreholes at the RSC Property is summarized in **Table 6**.

Table 6 – Borehole Drilling Summary

Location	Contractor	Equipment	Sample Frequency	Mitigate Cross-Contamination
• MW21-01S, MW21-01D • MW21-02 • BH21-03 • MW21-04S, MW21-04D • BH21-05 • MW21-06 • BH21-07 • BH21-08 • BH21-09 • MW21-10S, MW21-10D • BH21-11 • MW21-12 • MW21-13 • MW21-14 • MW21-15 • BH21-16 • MW21-17 • MW21-18	• Aardvark Drilling Inc. (MECP License No. 7675)	• CME 55M Drill Rig with hollow-stem auguring and air hammering • Split spoon soil sampling system	• 0.61 m sampling interval	• Drilling equipment cleaned between each drilling location (detergent solution, pressure washer).

Location	Contractor	Equipment	Sample Frequency	Mitigate Cross-Contamination
• BH21-19 • MW21-20S, MW21-20D				

4.3 Soil Sampling

Dillon logged the soil lithology, made observations on potential impacts in soil, and collected soil samples for submission to the laboratory. Soil cores were collected from the boreholes at regular intervals using a 3.81 cm diameter split spoon system. Once advanced to the appropriate depth, the split spoons were retrieved from the borehole. The spoon was split open to permit access for soil characterization and sample collection. The split spoons were then advanced to the next interval and the process was repeated. Sampler lengths of 0.61 m were used during the sampling event.

The soil samples were collected during advancement of the boreholes in general accordance with the Regulation by using fresh nitrile gloves to fill laboratory-supplied containers with soil from within the split spoons. The sampling depth and intervals were variable based on soil recovery, type, moisture, visual and olfactory observations. The soil samples were selected for laboratory analysis based on these factors, and were submitted to the laboratory for analysis of the COCs. The remaining soil samples not selected for analysis were stored for potential future analysis.

Forty-three soil samples collected from the boreholes advanced between September 13 and 30, 2021, were submitted to the laboratory for analysis of SAR, electrical conductivity, sodium, chloride, cyanide, pH, metals (including Hg and Cr VI), PHCs, BTEX and PAHs. Of these soil samples, fourteen were also submitted for energetics, NO_3^-, and NH_4^+ (to assess APEC #2 - explosives) and fifteen were also submitted for VOCs (to assess APEC #6 – storage of fuels and chemicals). Four field duplicate samples were collected and submitted to the laboratory for analysis of one or more of these above-mentioned parameters.

4.4 Field Screening Measurements

A sub-sample of each soil sample was placed in new, sealable plastic bags and stored out of direct sunlight for field headspace screening. The bags were half-filled with soil to leave sufficient headspace above the soil and were sealed for hydrocarbon and volatile organic compound detection testing using a RKI Eagle 2 portable gas monitor. The sensor was calibrated according to manufacturer's instruction to 15% lower explosive limit (LEL) hexane and 100 parts per million (ppm) isobutylene prior to field use.

The bags of soil were gently shaken to enhance gas equilibration between the soil and headspace, and then the instrument probe was inserted into the soil bag, taking care not to contact solids, liquids or the side of the bag. The highest total vapour concentration was recorded. The headspace measurements were used to assist with the selection of soil samples for submission to the laboratory for chemical analysis. The headspace field screening procedure followed Dillon SEFP 08 – Field Headspace Screening, identified in the Sampling and Analysis Plan (**Appendix A**).

Headspace measurements provided data regarding the presence of potential volatile contamination at the soil sample locations. Samples with high headspace readings were submitted for analysis as an

indication of potential maximum contaminant concentration. Samples may also have been submitted above and below points of elevated headspace readings in order to achieve vertical delineation, dependent upon the COCs at that location and/or to capture a desired geological unit. Soil headspace measurements are included on the borehole logs in **Appendix B**.

The precision and accuracy of the sensor measurements are detailed in **Table 7.**

Table 7 – Combustible Gas Precision and Accuracy

	Combustible Gas (%LEL)	Combustible Gas (ppm)
Precision	• 0 - 100% LEL	• 0 – 50,000 parts per million (ppm) based on calibration
Accuracy	• The greater of ± 2% LEL or ± 5% of reading	• The greater of ± 50 ppm or ± 5% of reading

4.5 Groundwater: Monitoring Well Installation

Dillon retained Aardvark Drilling Inc. (Aardvark) of Carleton Place, Ontario, to conduct the borehole drilling and monitoring well installation activities from September 13 to 30, 2021. Aardvark is licensed under O.Reg. 903 (MECP License No. 7675).

Twelve (12) boreholes were instrumented with groundwater monitoring wells (MW21-01S, MW21-01D, MW21-02, MW21-04S, MW21-04D, MW21-06, MW21-10, MW21-12, MW21-13, MW21-14, MW21-15, MW21-17, MW21-18, MW21-20S, MW21-20D) constructed of 51 mm inside diameter (ID) polyvinyl chloride (PVC) well materials. The bottom of each monitoring well was constructed with a 3.05 m long slotted PVC well screen, with the exception of MW21-04D where a 6.1 m long screen was installed. The longer screen length for MW21-04D is considered a deviation from the O.Reg. 153/04 requirements, which states that monitoring well screens should not exceed 3.1 m in length, based on the saturated length of the screen. A longer screen was installed at this location as dry conditions were encountered during drilling and a longer screen would increase the chance of intercepting water-producing fractures in the bedrock, resulting in more groundwater in the monitoring well. As this well was observed to be dry during the groundwater sampling program (despite the longer screen length), this deviation from the regulatory requirements does not affect the overall interpretation of the results.

The PVC screen and riser pipe were flush-threaded and were equipped with O-rings to provide watertight joints. The bottom of the PVC well screens were capped with PVC slip caps and the top of the PVC risers were capped with lockable J-plugs. Silica sand was placed in the borehole annulus space around each well screen and extended 0.30 m above the well screen. A bentonite seal was then placed to within 0.3 m below ground surface. The monitoring wells were finished with flushmount protective steel casing, which were concreted in place. The monitoring wells were allowed to equilibrate for a minimum of 24 hours prior to development or purging of the wells. See SEFP 08 (Monitoring Well and Piezometer Installation) in **Appendix A** for further details.

Each of the monitoring wells were developed using dedicated 12 mm ID by 16 mm outer diameter (OD) low-density polyethylene (LDPE) tubing and an inertial lift foot valve. The wells were developed by removing water to remove sediment from the sand pack and bottom of the well. Each well was developed until dry on three occasions or by purging ten times the well volume, between September 15 and October 25, 2021.

4.6 Groundwater: Field Measurement of Water Quality Parameters

A Horiba U-52 Water Quality Checker (Horiba), equipped with a flow through cell was used to collect water quality readings prior to groundwater sampling.

Field water quality readings of temperature, conductivity, pH, oxidation reduction potential (ORP), dissolved oxygen (DO), and turbidity were measured using the Horiba instrument. The readings were recorded on field forms, and were used to determine if and when stabilization of water quality occurred for optimal sample collection conditions.

4.7 Groundwater: Sampling

Prior to purging the monitoring well for sample collection, groundwater levels were measured and recorded on field forms for calculation of the required purge volume from the well. For Dillon's water level reading procedure, see *SEFP-10 – Water level and LNAPL/DNAPL Measurement* in **Appendix A**.

Groundwater samples were collected between October 26 and November 1, 2021 from the newly installed and existing monitoring wells. Dillon returned to collect additional samples at select locations on November 18, 2021. Groundwater samples were generally recovered using a peristaltic pump fitted with 10 mm diameter silicon pump head tubing and dedicated 4 mm ID by 6 mm OD LDPE tubing at each well. Observations of the physical appearance of the purge water were noted along with measurements of field water quality from the Horiba instrument (as described in **Section 4.6**). Low flow sampling was completed, and groundwater samples were collected after field parameters stabilized, or after purging greater than ten well volumes. Samples collected for inorganics and metals were field filtered using a 5 micron filter. The sample depth interval was between the approximate mid-point of the monitoring well screen and the bottom of the monitoring well, based on the volume of water present during sampling (i.e., between approximately 1.3 m and 3.9 mbgs). For the two wells that were too deep to sample using a peristaltic pump (MW21-20D and MW21-01D), a bailer was used to recover these samples and to collect additional water for field parameters.

Groundwater samples were collected into laboratory-supplied containers containing appropriate preservatives as required. Sample bottles were labelled and stored in a sample cooler containing ice pending shipment and delivery to the analytical laboratory.

Groundwater samples were submitted for analysis of one or more of the following parameters: sodium, chloride, cyanide, pH, metals (including Hg and Cr VI), BTEX, PHCs, PAHs, VOCs, PFAS, energetics, nitrate, ammonia.

4.8 Analytical Testing

Paracel Laboratories Limited (Paracel) of Ottawa, Ontario, performed the analysis of soil and groundwater samples for the Phase Two ESA. Paracel is accredited by the Canadian Association for Laboratory Accreditation (CALA) for the analyses conducted. ALS Global (ALS) was subcontracted by Paracel to complete the analysis of energetics (soil and groundwater) for this assessment, and is certified by CALA for these analyses.

4.9 Residue Management Procedures

Following the completion of soil sampling, boreholes were back-filled with bentonite chips. Portions of the soil cores not submitted for analysis and excess soil cuttings were placed into 170 L (45 gallon) drums and are stored at the RSC Property for future disposal at an MECP-licensed facility. Twenty-eight (28) drums of soil cuttings were generated during the drilling event.

Development and purge water generated during the sampling event was placed in 170 L (45 gallon) drums and stored at the RSC Property for future disposal at an MECP-licensed facility. Six (6) drums of groundwater were generated during well development and purging.

4.10 Elevation Surveying

Dillon retained EXP to survey the locations of the boreholes and monitoring wells, as well as elevation of the ground surface and, where applicable, the monitoring well pipe on November 29, 2021. Results of the borehole and monitoring well survey are presented in **Appendix C**.

4.11 Quality Assurance and Quality Control Measures

Quality assurance and quality control (QA/QC) procedures were implemented in the field and laboratory to demonstrate that the data generated were of a level of quality suitable for their intended purposes.

Results of the laboratory data QA/QC are discussed in **Section 5.8**. QA/QC procedures followed Dillon SEFP 22 – Quality Assurance/Quality Control, as provided with the Sampling and Analysis Plan in **Appendix A**.

The laboratory sample container details are summarized in **Table 8**.

Table 8 – Laboratory Sample Container Details

Laboratory Sample Container Details						
Soil						
Analysis Suite	BTEX, PHCs F1 and VOCs	PHC F2 to F4	Metals, Inorganics (SAR, EC, cyanide, pH, Na, Cl)	PAHs	Energetics, NO_3^-, NH_4^+	
Container Type	• 1 x 40 mL glass vial • 120 mL glass jar also required to determine	• 1 x 120 mL glass jar, Teflon lined lid	• 1 x 250 mL glass jar, Teflon lined lid	• 1 x 120 mL glass jar, Teflon lined lid	• 2x 250 mL jar, Teflon lined lid	

Laboratory Sample Container Details						
	moisture content					
Preservative	• Methanol	• None	• None	• None	ne	
Groundwater						
Analysis Suite	BTEX, PHC F1 and VOCs	PHC F2 to F4	Metals and Inorganics (cyanide, pH, Na, Cl)	PAHs	Energetics, NO_3^-, NH_4^+	PFAS
Container Type	• 2 x 40 mL glass vial	• 1 x 500 mL amber glass bottle	• 1 x 500 mL plastic bottle • 1 x 125 mL plastic bottle • 1 x 100 mL glass bottle • 1 x 40 mL glass bottle • 1 x 125 mL plastic bottle	• 1 x 1 L amber glass bottle	• 1 x 1 L amber glass bottle	• 2 x 125 mL HDPE plastic bottle fitted with an unlined (Teflon-free) polypropylene screw cap
Preservative	• $NaHSO_4$	• $NaHSO_4$	• None • HNO_3 • HCl • NH_3-NaOH • NaOH	• None	• None	• None

Where possible, sample containers were combined to reduce waste (e.g., one 250 mL container is able to be analyzed for BTEX, PHCs, VOCs, PAHs and moisture in soil).

Environmental equipment that came in contact with soil or groundwater (e.g., split spoon samplers, augers, water level tape, etc.) was cleaned between each sampling location using a detergent solution and water rinse. Groundwater sampling equipment (e.g., tubing, filters, etc.) was dedicated to each location. Equipment cleaning was done according to the procedures outlined in Dillon SEFP 18 – Equipment Cleaning (**Appendix A**). To prevent cross-contamination, disposable gloves (i.e., nitrile) were worn during sampling activities and were changed between each location/sample.

Soil and groundwater samples were labeled prior to submission for analytical testing with sample identification relevant to the location they were collected and/or by the method of collection. In addition to sample identifications, sample labels also included the date and time of collection, the consultant name (Dillon) and Dillon's project number. Immediately following collection, samples were stored in coolers on ice and documented on the Chain of Custody forms. Chain of Custody forms completed by Dillon following each individual Certificate of Analysis are included in **Appendix D**.

Field duplicate samples were collected at a rate of approximately 10% (one in ten samples). Each duplicate sample was assigned a 'false' identification which was recorded in the field notes connecting the duplicate with the original sample. Where concentrations were measured at values 5x the reportable detection limit (RDL) or higher, the field duplicate concentrations were compared to the parent sample concentrations for relative percent difference (RPD) using the following equation:

$$\mathbf{RPD}\ (\%) = \frac{(\mathbf{C1} - \mathbf{C2})}{(\mathbf{C1} + \mathbf{C2})/\mathbf{2}} \mathbf{X}\ \mathbf{100}$$

Where: C1 = sample concentration
C2 = duplicate concentration

Trip and field blank samples were submitted for VOC (including BTEX) and PFAS analysis for QA/QC due diligence purposes and to assess the handling and packaging procedures throughout the sampling program. Blanks were stored with the samples collected and submitted to the laboratory following procedures outlined above.

Laboratory QA/QC procedures were implemented by Paracel, and included following internal protocols and analysis of laboratory replicates, blanks and reference standards. The data received from the laboratory were compiled and were reviewed to confirm that the data were of satisfactory quality. Laboratory data validation was conducted to document acceptable levels of precision, accuracy, representativeness, comparability and completeness ("PARCC" criteria, described in SEFP 22 in **Appendix A**). In addition, sample chain-of-custody, holding times, temperatures, dilution factors, surrogate recoveries, replicate analyses, analytical quantitation limits, and blank analyses were reviewed and compared to applicable QC acceptance criteria.

Field instruments (i.e., RKI Eagle, Horiba) were factory calibrated prior to use, as well as calibrated and checked in the field in accordance with Dillon SEFP 03 – Field Meters – Calibration and Operation (**Appendix A**) as suggested by the manufacturer.

4.11.1 PFAS Specific QA/QC

As PFAS compounds are found in a wide range of products used by consumers and industry, and PFAS laboratory detection limits are very low, extra precautions were taken to avoid cross-contamination during this portion of the field program. PFAS specific QA/QC procedures are described in this section.

During the drilling program, each drilling location was kept clean and free of potential PFAS-containing materials such as fast food wrappers, coffee cups, etc. Drilling equipment, including augers and split-spoon samplers, were thoroughly cleaned prior to the start of the program, and decontaminated between each drilling location using a pressure washer. Equipment was cleaned over the tub in order to contain the water, which was then transferred to drums for future disposal.

During the well installation process for each well, drillers wore a fresh pair of nitrile gloves when installing the wells into the open boreholes. Well backfilling materials (sand and bentonite) were slowly poured into the boreholes once the wells were in place, and depths were confirmed using a measuring tape.

During the groundwater investigation, precautions were taken by field staff to avoid cross-contamination of collected samples. Field staff refrained from wearing any water resistant clothing and fragrant personal hygiene and personal care products were not applied on the day of sampling. Groundwater was sampled using low-flow sampling procedures, with dedicated high density polyethylene (HDPE) tubing in each monitoring well, and by feeding dedicated low-flow silicon tubing through a peristaltic pump, and collecting the samples directly into laboratory-supplied containers. Fresh nitrile gloves were worn by field staff each time a sample was collected. The trip and field blanks collected during the groundwater sampling program was also submitted to the laboratory for analysis of PFAS. PFAS results from the blanks

indicated that nothing during sample shipping, storage or handling and environmental influences are not biasing the analytical results.

5.0 Review and Evaluation

5.1 Geology

Regional geological information regarding the RSC Property and surrounding area is summarized in **Table 9** below, and is based on information gathered during the Phase One ESA. Additional references are provided in **Section 5.1.1**.

Table 9 – Regional Geology Summary

Information Description	Source of Information	Summary of Information
Topography	• Ontario Base Mapping (OBM), 2010. Ontario Ministry of Natural Resources.	• The RSC Property and surrounding area are at an approximate elevation of 60 to 62 masl. The topography across the Phase One Study Area is generally flat.
Regional Physiography	• Chapman, L.J. and Putnam, D.F., 2007. Physiography of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 228 (Google Earth Layer).	• The RSC Property is located in the Ottawa Valley Clay Plains physiographic region. The physiographic landform in the vicinity of the RSC Property consists of Limestone Plains and Till Plains (Drumlinized).
Quaternary Geology	• Ontario Geological Survey, 2000. Quaternary geology, seamless coverage of the Province of Ontario; Ontario Geological Survey, Data Set 14—Revised.	• The quaternary geology in the vicinity of the RSC Property is interpreted to be till consisting of undifferentiated predominantly sandy silt to silt matrix, commonly rich in clasts, often high in total matrix carbonate content.
Surficial Geology	• Ontario Geological Survey 2010. Surficial geology of southern Ontario. Ontario Geological Survey, Miscellaneous Release, Data 128, Revised (Google Earth Layer)	• The surficial geology in the vicinity of the RSC Property is interpreted to be stone-poor, sandy silt to silty and sand-textured till on Paleozoic terrain. Previous intrusive investigations at the RSC Property have described overburden as fill overlying a sandy/silty clay, overlying glacial till in some area, over limestone bedrock.
Bedrock	• Ontario Geological Survey, 2011. 1:250 000 scale bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous Release---Data 126-Revision 1	• The bedrock within the vicinity of RSC Property consists of Middle Ordovician aged limestone, dolostone, shale, arkose, and sandstone of the Ottawa Group, Simcoe Group, and Shadow Lake Formation. Previous investigations at the RSC Property have indicated limestone bedrock was present at depths ranging from 2.5 to 6 mbgs.

5.1.1 Site Geology

During the Phase Two ESA, stratigraphy at the RSC Property was generally found to be comprised of a discontinuous layer of mixed fill material (sand, clay and/or gravel), underlain by native silt/clay (ranging from silt, silty clay, clayey silt and clay), and underlain by till then limestone bedrock. The main geologic units encountered during the borehole drilling program on the RSC Property are summarized in **Table 10**

below. Tops and bottoms of units were variable across the area of investigation. Borehole logs are presented in **Appendix B**.

Table 10 – Soil Stratigraphy Summary

Geologic Unit	Approximate Unit Thickness (m)	Approximate Top of Unit (masl)*	Approximate Bottom of Unit (masl)*	Specific Observations
• Mixed fill materials	• 0 m to 0.2-3.3 m	• 58.06-60.47	• 55.48-59.96	• Mix of sand, clay and gravel fill with cinders and bits of brick at some locations, dry, varying densities.
• Silt/Clay	• 0-3.3 m to 3.8-7.9 m	• 55.84-60.73	• 52.57-56.35	• Native material ranging from grey to brown silt, silty clay, clayey silt and clay with minor sand lenses and rust staining in some areas, varying in densities and degrees of saturation.
• Till	• 3.8-6.7 m to 7.6-10.1 m	• 52.57-56.35	• 50.41-52-42	• Grey medium-grained sandy and silty till with rocks, saturated.
• Limestone bedrock	• 7.6-10.1 m to 11.9-18.3 m	• 50.41-52-42	• N/A	• Grey fractured limestone bedrock.

*** The top and bottom of unit is relative to the average depth of the site investigation at location where unit was encountered.**

The purpose of the Phase Two ESA was to verify and delineate possible impacts for APECs identified during the Phase One ESA (**Figure 5**). Information available to Dillon at the time of the Phase One ESA revealed APECs associated with potentially contaminated fill and surficial sources of potential contamination. Thus, the focus of this assessment was to collect soil samples in the surface and subsurface soil layers where fill may have been imported to the RSC Property, and where surficial sources of potential contamination may be present. This assessment also sought to investigate vertical migration of contaminants, including leaching from soil to the overburden groundwater table and the underlying bedrock hydrogeological unit. As such, bedrock coring was completed in four locations, to a maximum depth of 18.3 mbgs. The geology of the RSC Property has not been assessed beyond that depth.

5.2 Groundwater: Elevations and Flow Direction

Monitoring wells were installed to investigate on-site APECs and to establish groundwater elevations. Monitoring wells were installed with 3.05 m long screen intervals to screen across the expected water table and refine the groundwater sampling interval. Monitoring well installation details are provided in borehole logs in **Appendix B**.

An interface probe was used during the water level measurement collection events to assess the presence/absence of free phase product in the monitoring wells. No free phase product was detected with the interface probe at the time of the water level events.

Groundwater level measurements were measured in metres below top of pipe and then converted to metres above sea level (masl) after the wells were surveyed. The groundwater elevations measured in on-

site monitoring wells from October 26 to 28, 2021 are summarized in **Table A2**, **Table 11** and shown on **Figures 7A** and **7B**. Additional groundwater measurements taken at the RSC Property are provided on **Table A2**.

Table 11 – Groundwater Elevations

Hydrogeological Unit	Monitoring Well	Groundwater Elevation (masl)
Overburden	MW 21-01S	54.28
Bedrock	MW21-01D	53.52
Overburden	MW21-02	55.04
Overburden	MW21-04S	54.69
Bedrock	MW21-04D	Dry
Overburden	MW21-06	58.46
Overburden	MW21-10S	53.41
Bedrock	MW21-10D	53.12
Overburden	MW21-12	54.95
Overburden	MW21-13	54.55
Overburden	MW21-14	55.06
Overburden	MW21-15	54.28
Bedrock	MW21-18	54.33
Overburden	MW21-20S	54.39
Bedrock	MW21-20D	44.99
Overburden	MW19-01	56.84
Overburden	MW19-11	54.12

The depth of groundwater measured in the overburden hydrogeological unit at the RSC Property ranges from 53.41 to 58.46 masl. The differences in overburden groundwater elevations can, in part, be attributed to monitoring wells screens being installed in different stratigraphy at the site (e.g., the monitoring well screens for MW21-01, MW21-02, and MW21-06 were installed in the fill and/or native clay, while the remaining overburden monitoring wells were installed in the underlying till). Generally speaking, the groundwater elevations measured suggest an easterly or north-easterly flow direction; however, groundwater flow in the western portion of the RSC Property appears to be to the west (toward the nearby railway).

The depth of the groundwater measured in the bedrock hydrogeological unit at the RSC Property ranges from 44.99 to 54.33 masl, and the depth of the groundwater level in bedrock at the Site ranges from 44.99 to 54.33 masl. The bedrock hydrogeological unit is within fractured limestone so the potential for temporal variability in groundwater flow direction is expected to be high. The bedrock groundwater elevations observed at the monitoring wells indicated that the groundwater table slopes to the northeast, in the direction of the Ottawa River. This interpretation is further guided by knowledge of the physiographic region, observed subsurface stratigraphy (i.e., fine-grained silt/clay soils) and regional hydrogeology as described in **Section 2** and the Phase One ESA.

5.3 Groundwater: Hydraulic Gradients

The horizontal hydraulic gradients were estimated for the groundwater table of the overburden and bedrock hydrogeological unit based on the October 26 to 28, 2021 groundwater elevations.

The horizontal hydraulic gradient is calculated using the following equation: $i = \Delta h/\Delta s$
Where,
i = horizontal hydraulic gradient
Δh (m) = groundwater elevation difference; and,
Δs (m) = separation distance.

For the overburden hydrogeological unit, only those monitoring wells where groundwater was in the screened till layer (not the heterogeneous fill and/or clay layers) were used to calculate the horizontal hydraulic gradients. The horizontal hydraulic gradients were calculated based on three (3) sets of monitoring wells, using data measured October 26 to 28, 2021, summarized below:

- 0.0199 m/m [MW21-12 to MW21-10S] (northeast)
- 0.0161 m/m [MW21-14 to MW21-15] (east)
- 0.0060 m/m [MW21-12 to MW21-01S] (west)

The average horizontal hydraulic gradient is approximately 0.0140 m/m. These hydraulic gradient values indicate that the groundwater in the overburden generally flows in a northeasterly direction.

For the bedrock hydrogeological unit, the horizontal hydraulic gradients were calculated based on one (1) set of monitoring well records, using data measured October 26 to 28, 2021, summarized below:

- 0.0078 m/m [MW21-18 to MW21-10D] (north-northeast)

This hydraulic gradient value indicates that the groundwater in the bedrock generally flows in a north-northeasterly direction.

Vertical hydraulic gradients were calculated based on three (3) sets of nested monitoring well locations with both bedrock and overburden wells, using data measured October 26 to 28, 2021, summarized below:

- 0.0984 m/m [MW21-01D and MW21-01S]
- 0.0859 m/m [MW21-10D and MW21-10S]
- 0.9326 m/m [MW21-20D and MW21-20S]

Based on the documented properties of silty clay / clay soil and supported by the slow rate of recovery observed in groundwater monitoring wells, the hydraulic conductivity of the native silty clay / clay at the RSC Property was estimated to be between $1x10^{-6}$ to $1x10^{-9}$ cm/s (C.D. Shackelford, 2013). On a local scale, groundwater velocities will vary considerably based upon variation in hydraulic gradient and grain size and lateral continuity of the various strata.

5.4 Soil Texture

The native soils at the RSC Property were determined to be fine-textured (i.e., silt/clay), however a layer of medium/coarse-grained fill material varying in thickness was found to be present across the majority of the RSC Property. The Regulation states that medium to fine textured soil standards may be applied if at least two thirds of the soil at the property, measured by volume, consists of medium to fine textured soil. Medium to fine textured soil is defined by the Regulation as soil that contains 50% or more by mass of particles that are smaller than 75 µm in mean diameter. For the purposes of this evaluation, coarse-grained soil texture was conservatively applied to the RSC Property.

5.5 Soil Field Screening

An RKI Eagle 2 portable gas monitor with an infrared hydrocarbon sensor was used to perform hydrocarbon and volatile organic carbon soil vapour screening of the selected soil samples. The soil field screening results are included in the borehole logs presented in **Appendix B**. Overall, the headspace readings for screened soil samples ranged from non-detect (i.e., below the detection limit of the device) to 200 ppm and 0 to 11 %LEL for volatile organic compounds.

5.6 Soil Quality

The APECs identified in the Phase One CSM were investigated through soil samples collected during borehole advancement. Historical soil data collected by Golder in 2020 was also used to further investigate these APECs. The results of the soil laboratory analysis screened against the MECP Table 3 Site Condition Standards are shown graphically on **Figures 8** (plan view) and **Figures 11A to 11H** (cross section views). The depths of the samples are indicated on the borehole logs provided in **Appendix B** and in **Table A3**. Laboratory Certificates of Analysis are presented in **Appendix D**.

The soil COCs were identified as those parameters having measured concentrations that exceeded the applicable Table 3 Standards.

Metals concentrations exceeded applicable Table 3 Standards at eleven (11) sample locations at the RSC Property as shown in **Table 12**.

Table 12 – Summary of Metal Concentration Exceedances in Soil

Location	Sample Interval	Contaminant
19-11	SA4 (2.29-3.05 mbgs) *	• Vanadium (92 ug/g)
BH21-02	SS1 (0.91-1.37 mbgs) *	• Barium (403 ug/g) • Cobalt (24.8 ug/g) • Vanadium (113 ug/g)
BH21-03	SS1 (0-0.61 mbgs)	• Cadmium (1.5 ug/g)
BH21-04	SS5 (4.72-5.33 mbgs) *	• Vanadium (92.5/86.6 ug/g)
BH21-06	SS1 (0.76-1.37 mbgs) *	• Vanadium (96.9 ug/g)

Location	Sample Interval	Contaminant
BH21-07	SS5 (2.67-2.9 mbgs) *	• Vanadium (107 ug/g)
BH21-08	DUP 3 (2.9-3.51 mbgs)*	• Vanadium (91.2 ug/g)
BH21-11	SS6 (3.05-3.66 mbgs) *	• Vanadium (101 ug/g)
BH21-14	SS3 (2.29-2.9 mbgs) *	• Vanadium (99.6 ug/g)
BH21-15	SS5 (3.81-4.42 mbgs) *	• Vanadium (94.7 ug/g)
BH21-16	SS2 (1.22-1.83 mbgs)	• Cobalt (22.8 ug/g) • Vanadium (99.8 ug/g)
	DUP 4 (1.22-1.83 mbgs)	• Cobalt (24.3 ug/g) • Vanadium (108 ug/g)
BH21-19	SS3 (2.44-3.05 mbgs) *	• Vanadium (100 ug/g)
BH21-20	SS4 (3.05-3.66 mbgs) *	• Vanadium (92.1 ug/g)

Locations denoted with an asterisk in the **Table 12** indicate that the sample was collected in the native clay material at the RSC Property. Metals parameters that exceeded their respective Table 3 Standards in these native samples include vanadium, barium and cobalt. All of these parameters are known to have naturally high background levels associated with the Champlain Sea sediments. These elevated concentrations were consistent with concentrations reported in clays present throughout the Ottawa Valley area where Champlain Sea sediments occur (GeoOttawa, 2017). As such, the elevated levels of vanadium, barium and cobalt present in clay materials underlying the RSC Property are not considered to be contaminants at the RSC Property per the Ontario *Environmental Protection Act*.

PAH concentrations exceeded applicable Table 3 Standards in six (6) sample locations at the RSC Property as shown in **Table 13**.

Table 13 – Summary of PAH Concentration Exceedances in Soil

Location	Sample Interval	Contaminant
19-06	SA1 (0 - 0.76 mbgs)	• Benzo(a)anthracene (0.71 mg/kg) • Benzo(a)pyrene (0.57 mg/kg) • Benzo(b)fluoranthene (0.83 mg/kg) • Fluoranthene (2.1 mg/kg) • Indeno(1,2,3-cd)pyrene (0.41 mg/kg)
19-09	SA1 (0-0.76 mbgs)	• 1&2- Methylnaphthalene (1.7 mg/kg) • Benzo(a)anthracene (0.81 mg/kg) • Benzo(b)fluoranthene (0.95 mg/kg) • Benzo(a)pyrene (0.647 mg/kg) • Dibenzo(a,h)anthracene (0.11 mg/kg) • Fluoranthene (2.4 mg/kg) • Indeno(1,2,3-cd)pyrene (0.48 mg/kg)
BH21-07	SS1 (0.46-0.76 mbgs)	• Acenaphthylene (0.25 mg/kg) • Benzo(a)anthracene (0.68 mg/kg) • Benzo(a)pyrene (0.85 mg/kg) • Benzo(b)fluoranthene (1.05 mg/kg)

Location	Sample Interval	Contaminant
		• Dibenzo(a,h)anthracene (0.15 mg/kg) • Fluoranthene (1.22 mg/kg) • Indeno(1,2,3-cd)pyrene (0.53 mg/kg)
BH21-09	SS1 (0.15-0.61 mbgs)	• Benzo(a)pyrene (0.46 mg/kg) • Fluoranthene (1.00 mg/kg)
BH21-11	SS2 (0.76-1.37 mbgs)	• Acenaphthylene (0.24 mg/kg) • Benzo(a)anthracene (0.58 mg/kg) • Benzo(a)pyrene (0.52 mg/kg) • Fluoranthene (1.18 mg/kg)
BH21-14	SS1 (0.76-1.37 mbgs)	• 1&2- Methylnaphthalene (1.52 mg/kg) • Benzo(a)anthracene (1.09 mg/kg) • Benzo(a)pyrene (0.87 mg/kg) • Benzo(b)fluoranthene (1.13 mg/kg) • Dibenzo(a,h)anthracene (0.15 mg/kg) • Fluoranthene (3.58 mg/kg) • Indeno(1,2,3-cd)pyrene (0.50 mg/kg)
BH21-17	SS1 (0.15-0.61 mbgs)	• Acenaphthylene (<0.4 mg/kg) • Benzo(a)anthracene (0.54 mg/kg) • Benzo(a)pyrene (0.51 mg/kg) • Dibenzo(a,h)anthracene (<0.4 mg/kg) • Fluoranthene (0.91 mg/kg) • Indeno(1,2,3-cd)pyrene (<0.4 mg/kg)
BH21-19	SS1 (0.91-1.52 mbgs)	• 2- Methylnaphthalene (1.19 mg/kg) • 1&2- Methylnaphthalene (1.83 mg/kg)

Inorganics (SAR, EC, chloride, cyanide, ammonia, nitrate and pH) exceeded the applicable Table 3 Standards in twelve (12) locations at the RSC Property as shown in **Table 14**.

Table 14 – Summary of Inorganic Concentration Exceedances in Soil

Location	Sample Interval	Contaminant
BH21-02	SS1 (0.91-1.37 mbgs)*	• EC (1240 µS/cm) • SAR (9)
	SS4 (3.35-3.66 mbgs)*	• EC (744 µS/cm)
BH21-03	SS3 (1.83-2.13 mbgs)*	• EC (803 µS/cm) • SAR (6.03)
BH21-05	SS4 (2.29-2.74 mbgs)*	• EC (1370 µS/cm)
BH21-06	SS1 (0.76-1.37 mbgs)*	• EC (1790 µS/cm) • SAR (14.8)
	SS5 (4.11-4.42 mbgs)*	• EC (970 µS/cm)
BH21-07	SS1 (0.46-0.76 mbgs)	• EC (1820 µS/cm) • SAR (12.9)
	SS5 (2.67-2.9 mbgs)*	• EC (5570 µS/cm) • SAR (19.6)

Location	Sample Interval	Contaminant
BH21-08	SS1 (0.15-0.46 mbgs)	• EC (1560 µS/cm) • SAR (10.3)
	SS5 (2.9-3.51 mbgs)*	• EC (1740 µS/cm) • SAR (16.5)
	DUP 3(2.9-3.51 mbgs)*	• EC (1830 µS/cm) SAR (16.3)
BH21-09	SS1 (0.15-0.61 mbgs)	• EC (2360 µS/cm) • SAR (14.8)
	SS3 (1.52-2.13 mbgs)	• EC (1050 µS/cm) • SAR (8.04)
BH21-11	SS2 (0.76-1.37 mbgs)*	• EC (1870 µS/cm) • SAR (12.2)
	SS6 (3.05-3.66 mbgs)*	• EC (1390 µS/cm) • SAR (6.7)
BH21-12	SS1 (0.15-0.76 mbgs)	• EC (1510 µS/cm) • SAR (5.68)
	SS3 (2.44-3.05 mbgs)*	• EC (767 µS/cm)
BH21-14	SS1 (0.76-1.37 mbgs)	• EC (1240 µS/cm)
	SS3 (2.29-2.9 mbgs)*	• EC (1490 µS/cm) • SAR (9.09)
BH21-17	SS3 (1.52-1.83 mbgs)*	• EC (1950 µS/cm) • SAR (15.2)
BH21-19	SS1 (0.91-1.52 mbgs)*	• EC (2380 µS/cm)

Locations denoted with an asterisk in the **Table 14** indicate that the sample was collected in the native clay material at the RSC Property. SAR and EC are known to have naturally high background levels associated with the Champlain Sea sediments. These elevated concentrations were consistent with concentrations reported in clays present throughout the Ottawa Valley area where Champlain Sea sediments occur. As such, the elevated levels of SAR and EC present in clay materials underlying the RSC Property are not considered to be contaminants at the RSC Property per the Ontario *Environmental Protection Act*.

PHCs exceeded the applicable Table 3 Standards in one location at the RSC Property as shown in **Table 15**.

Table 15 – Summary of PHC Concentration Exceedances in Soil

Location	Sample Interval	Contaminant
19-10	SA1 (0-0.76 mbgs)	• PHC F3 (1100 µg/g)

No BTEX, VOCs or energetics were detected above Table 3 Standards at sampled locations.

In summary, exceedances of Table 3 Standards were measured at sample locations related to **APECs 1, 3, 4** and/or **5**, which is further discussed in **Section 5.9.4**.

5.7 Groundwater Quality

Groundwater samples were collected from the newly installed and existing monitoring wells between October 26 and November 18, 2021. Historical groundwater data collected by Golder in 2020 was also used to further investigate potential impacts at the RSC Property. The results of the groundwater laboratory analysis screened against the Table 3 Standards are shown graphically on **Figures 9** and on **Table A4**. Laboratory Certificates of Analysis are presented in **Appendix D**.

The groundwater COCs were identified as those parameters having measured concentrations that exceeded the applicable Table 3 Standards.

Chloride concentrations exceeded applicable Table 3 Standards at only one sample location at the RSC Property as shown in **Table 16**.

Table 16 – Summary of Chloride Concentration Exceedances in Groundwater

Location	Contaminant
MW19-01	• Chloride (3760 mg/L)

No metals, PHCs, BTEX, PAHs, VOCs, PFAS, energetics, nitrate or ammonium were detected above Table 3 Standards at sampled locations.

Based on the location of this groundwater chloride exceedance, which was collected from a monitoring well located within a parking lot adjacent to Somerset Street West, this exceedance is likely a result of road salt application rather than historical activities. Chloride was sampled in groundwater to investigate **APEC #1** (groundwater impacts related to fill materials); however, based on the analytical results at the RSC Property, this APEC does not appear to have contributed to this groundwater impact. Sources of impacts is further discussed in **Section 5.9.4**.

5.8 Quality Assurance and Quality Control Results

A QA/QC program was implemented throughout the field program and consisted of the following:

- Collection of samples using protocols consistent with Dillon Standard Environmental Field Procedures (SEFPs) and/or industry standards;
- Use of dedicated sampling equipment and/or adherence to established equipment cleaning protocols, where applicable;
- Use of laboratory supplied container;
- Collection of field duplicates, trip blanks and field blanks; and
- Implementation of laboratory QA/QC procedures including analysis of reference standards, laboratory blanks and replicates.

A summary of QA/QC samples collected during the Phase Two ESA is provided on **Table 17** below:

Table 17 – QA/QC Summary

QA/QC Summary				
Parent Sample ID	**Duplicate ID**	**Date**	**Type**	**Parameter(s)**
Soil				
BH21-04 SS5	DUP2	Sep 20, 2021	Field Duplicate	• Inorganics, metals, PHCs, BTEX, PAHs, VOCs
BH21-08 SS5	DUP3	Sep 23, 2021	Field Duplicate	• Inorganics, metals, PHCs, BTEX, PAHs
BH21-16 SS2	DUP4	Sep 30, 2021	Field Duplicate	• Inorganics, metals, BTEX, PHCs, PAHs
BH21-20 SS6	DUP5	Sep 30, 2021	Field Duplicate	• Inorganics, metals, BTEX, PHCs, PAHs
Groundwater				
MW19-11	DUP1	Oct 28, 2021	Field Duplicate	• Inorganics, metals, PHCs, BTEX, PAHs, PFAS
MW21-01D	DUP2	Nov 1, 2021	Field Duplicate	• Inorganics, metals, PHCs, BTEX, PAHs, VOCs, PFAS
FB	N/A	Oct 28, 2021	Field Blank	• VOCs (including BTEX), PFAS
TB	N/A	Oct 23, 2021	Trip Blank	• VOCs (including BTEX), PFAS

Validation criteria were established that required the analytical data to have an acceptable and documented level of precision, accuracy, representativeness, comparability and completeness (the PARCC criteria). The precision of the data for the samples collected was evaluated by calculating the RPD between the parent sample and its duplicate when the samples had concentrations greater than 5x the laboratory RDL. In accordance with industry-accepted standards, acceptable RPD values for soil samples submitted were determined as less than 50%. Acceptable RPD values for groundwater samples submitted were determined as less than 30%.

Field duplicate samples were collected during the soil and groundwater sampling programs to determine the precision of the field sampling methods. The analytical results of the duplicate samples collected throughout the field program are presented in **Table A3** and **Table A4**.

The frequency of duplicate samples collected in the field was targeted at a minimum of 10%. A summary of the duplicate samples is presented in **Table 18**.

Table 18 – Duplicate Sample Summary

Duplicate Summary			
	Number of Samples Analyzed (excluding duplicates)	**Number of Duplicates Analyzed**	**Frequency of Duplicates (%)**

Duplicate Summary			
Soil			
Sodium, chloride, cyanide, EC, pH, SAR	42	4	10
Metals	42	4	10
PHCs	42	4	10
BTEX	42	4	10
PAHs	42	4	10
VOCs	15	1	7
Energetics	14	0	0
Nitrate, ammonia	22	3	14
Groundwater			
Cyanide, pH, chloride, sodium	16	2	13
Metals	16	2	13
PHCs	16	2	13
BTEX	16	2	13
VOCs	7	1	14
PAHs	16	2	13
Energetics	11	1	9
PFAS	6	2	33

Overall, the data collected during the investigations met QA/QC acceptance requirements. It should be noted that soil recovery limited how many duplicate samples could be collected for energetics as this analysis requires 2 x 250 mL jars to be filled, on top of jars for remaining parameters. Four field duplicates were completed for soil samples; and two field duplicates, one trip blank and one field blank were completed for groundwater samples. The Relative Percent Difference (RPD) was calculated for each duplicate sample where the chemical constituents were detected in excess of 5 times the laboratory's reportable detection limit (RDL). The acceptance criteria for RPD is less than a 50% difference for soil, and less than a 30% difference for groundwater.

The calculable RPDs for soil samples are summarized as follows:

- RPDs for inorganics ranged between 0% and 73.5%.
- RPDs for metals ranged between 0% and 48.35%.
- RPDs were not calculable for PHCs, BTEX, VOCs and PAHs since the reported analytical results were below the RDLs.

The RPDs generally fell within the acceptable criteria of less than 50% difference for soil, with the exception of SAR concentrations between parent and duplicate samples at BH21-16, which had an RPD of 73.5%. Measured soil concentrations of SAR in this parent and duplicate sample were below the applicable criteria, therefore the interpretation of soil data is considered valid for its intended purpose.

The calculable RPDs for groundwater samples are summarized as follows:

- RPDs for inorganics ranged between 0% and 20.1%.
- RPDs for metals ranged between 0% and 10.1%.
- RPDs were not calculable for PHCs, BTEX, VOCs, PAHs, Energetics and PFAS since the reported analytical results were below the RDLs.

The RPDs fell within the acceptable criteria of less than 30% difference for groundwater, therefore the groundwater data is considered valid for its intended purpose.

Dillon SEFP 22 – Quality Assurance/Quality Control, as provided with the Sampling and Analysis Plan in **Appendix A** describes the data validation process, including the assessment of data accuracy, precision, representativeness, comparability and completeness.

Trip and field blank samples for groundwater were also submitted to the laboratory for analysis of VOCs (including BTEX and PHC F1) and PFAS on October 29, 2021. No VOCs of PFAS were detected above the RDL. Schedule E, Part II, Section 3(3)2 requires that one trip blank sample shall be included with each submission where groundwater samples are to be analyzed for VOCs. Additional blank samples were collected to provide further reliability of data.

Samples submitted to Paracel for analysis complied with the Analytical Protocol and there are no discrepancies to report in regards to sample holding time, preservation method, storage requirements or container type, unless otherwise noted in the table below. The submitted samples arrived at the laboratory at the acceptable temperature of less than 10° C, unless otherwise noted.

Accuracy of the data was assessed by reviewing quality control data provided by Paracel, including reported laboratory surrogate recoveries and spike samples. The accuracy of the data is of sufficient quality to pass this evaluation. Data that were qualified by the laboratory across the Site are summarised in **Table 19.**

Table 19 – Laboratory Certificate of Analysis Remarks

Laboratory Certificate of Analysis Remarks			
Laboratory Job No.	**Laboratory Remark**	**Sample/Parameters Affected**	**Implications**
Soil			
2140497	• Holding time had been exceeded upon receipt of the sample at the laboratory	• Samples BH21-13 SS6, BH21-15 SS5, BH21-16 SS5; ammonia, PHCs, BTEX, cyanide, energetics.	• The batch was accepted based on other acceptable QC. Additionally, all parameters analyzed were well below the Table 3 Standards, which is consistent with other analytical

Laboratory Certificate of Analysis Remarks			
			results received during the Phase Two ESA. The results are considered valid for comparison.
2140666	• Elevated reporting limit due to matrix interference • Elevated detection limits due to the nature of the sample matrix • Holding time had been exceeded upon receipt of the sample at the laboratory • GC-FID signal did not return to baseline by C50	• Sample BH21-10 SS2; chromium (VI) • Sample BH21-17 SS1; PAHs • Samples BH21-11 SS2, BH 21-11 SS6, BH21-12 SS1, BH21-12 SS3, BH21-12 SS9, BH21-08 SS2, BH21-08 SS5, Dup 3, BH21-14 SS3, BH21-09 SS3, BH21-17 SS3, BH21-19 SS1, BH21-19 SS3; ammonia, BH21-07 SS1; cyanide, BH21-15 SS1, BH21-20 SS2, BH21-20 SS4, BH21-10 SS6, BH21-11 SS2, BH21-11 SS6, BH21-12 SS1, BH21-12 SS3, BH21-08 SS2, BH21-08 SS5, BH21-17 SS3; energetics. • Samples BH21-03 SS1, BH21-03 SS3 and BH21-17 SS1; PHC F4	• Raised detection limit did not exceed the Table 3 Standard for chromium (VI), therefore does not affect the overall interpretation of results. • Raised detection limits did not exceed the applicable Table 3 Standards, with the exception of acenaphthylene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene. As such, conclusions could not be drawn for these three parameters; however, as three additional PAH parameters exceeded the Table 3 Standards in this soil sample, this does not affect the overall interpretation and delineation of results. • The batch was accepted based on other acceptable QC. Additionally, all parameters analyzed were well below the Table 3 Standards, which is consistent with other analytical results received during the Phase Two ESA. The results are considered valid for comparison. • The batch was accepted based on other acceptable QC. Additionally, parameters analyzed were well below the Table 3 Standards, which is consistent with other analytical results received during the Phase Two ESA. The results are considered valid for comparison.
Groundwater			
2144627	• Samples received submerged in water, possibly melted ice. This condition can compromise sample integrity. • Sample exceeded recommended hold time prior to analysis.	• FB, TB, MW21-13, MW21-10S, MW21-20S, MW21-10D, MW21-02, MW21-18, MW19-11, DUP1, MW19-01, MW21-04S, MW21-01S; all parameters. • MW21-13, MW21-10S, MW21-10S, MW21-10D, MW21-18, MW19-11, DUP1; energetics.	• All sample bottles were properly sealed in cooler and the batch was accepted based on other acceptable QC. Additionally, results were compared and found to be consistent with other analytical results received during the Phase Two ESA. • The batch was accepted based on other acceptable QC. Additionally, all parameters analyzed were well below the Table 3 Standards, which is consistent with other analytical results received during the Phase Two ESA. The results are considered valid for comparison.

Laboratory Certificate of Analysis Remarks			
2145243	• Spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC. • Detection limit adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).	• QM-07; boron. • MW21-10D; 2-nitrotoluene, 4-nitrotoluene.	• Analysis batch accepted based on other QC included in the batch. Additionally, all boron results were below the Table 3 Standards, which is consistent with other analytical results received during the Phase Two ESA. The results are considered valid for comparison. • Detection limits for these parameters only raised slightly (0.25 ug/L to 0.28 and 0.29 ug/L, respectively). Additionally, results were compared and found to be consistent with other analytical results received during the Phase Two ESA. . The results are considered valid for comparison.
2147476	• Spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.	• QM-07; sodium.	• Analysis batch accepted based on other QC included in the batch. Additionally, all sodium results were below the Table 3 Standards, which is consistent with other analytical results received during the Phase Two ESA. The results are considered valid for comparison.

The field data from this Phase Two ESA assessment generally meet the data quality objectives outlined in the SAP (see **Appendix A**). As described in Section 3.4, QA/QC issues related to exceeded holding times for energetics samples resulted in slight deviations from the SAP. As a result, Dillon plans on returning to the RSC Property at a later date to retrieve additional energetics soil samples without QA/QC errors for comparison purposes.

The Certificates of Analysis comply with the Regulation (ss.47(3)). Each sample submitted to a laboratory appears on a Certificate of Analysis included in full in **Appendix D**. The QA/QC analysis indicated that the data are of sufficient quality for their intended use of determining whether the Phase Two ESA property meets the Table 3 Standards.

The decision making and results of this assessment are not compromised by the field data and the overall objectives of this assessment were met.

In addition to Dillon's QA/QC program, QA/QC measures taken by Golder during their Phase II ESA (Golder 2020) were also reviewed to ensure validity of the analytical data collected in 2019 and used as part of this assessment. Golder's QA/QC program included collection of field duplicate samples for soil (15%) and groundwater (33%), decontamination of any reused sampling equipment and using fresh nitrile gloves when collecting samples, in addition to following proper sample handling procedures. Calculated RPDs for Golder's parent and duplicate samples ranged from 0-30.3% for soil and 0-1.8% for groundwater, which fall within the acceptable ranges and are therefore considered reliable for their intended purposes.

5.9 Phase Two Conceptual Site Model

Based upon the maximum concentrations of the COCs identified at the RSC Property, the Phase One CSM has been updated for the Phase Two CSM.

The on-site and off-site PCAs for the RSC Property are shown on **Figure 3**, while the associated APECs are shown on **Figure 5**. The location of current and former buildings at the RSC Property is presented on **Figure 6**. The updated Phase Two CSM is discussed below. The CSM incorporates the findings of the Phase Two ESA, including information presented in the provided figures, and as described below, to conceptualize the COC-receptor linkages at the RSC Property.

The APECs identified in the Phase One ESA are presented in Phase Two CSM table (**Table 20**) below.

Table 20 – Phase Two CSM: Phase One ESA APECs

APEC #	Location of APEC on Phase One Property	PCA	Location of PCA (on-site or off-site)	Potential Contaminants of Concern	Media Potentially Impacted
1.	Entire RSC Property	On-Site PCA #1 • #30 – Importation of fill material of unknown quality	On-site	• Sodium adsorption ratio • Electrical conductivity • Sodium • Chloride • Cyanide • pH • Metals • BTEX • PHCs • PAHs	Soil / Groundwater
2.	Eastern Portion of RSC Property	On-Site PCA #2 and Off-Site PCA #3 • #20 – Explosives and Ammunition storage, Production and Bulk Storage	On-site	• RDX • TNT • Perchlorate • Mercury • Ammonia • Nitrate • Metals	Soil / Groundwater
3.	Entire RSC Property	On-Site PCA #3 and Off-Site PCA #1 • #46 – Railyards, tracks and spurs	On-site	• PHCs • Metals • PAHs	Soil
4.	Entire RSC Property	On-Site PCA #4 • #59 – Wood treating and preservative facility and bulk storage of treated and preserved wood products	On-site	• PHCs • Metals • PAHs	Soil
5.	Northeastern portion of the RSC Property	On-Site PCA #5 PCA Other – Fire	On-site	• PAHs • Metals	Soil
6.	Western portion of the RSC Property	On-Site PCA #6 • PCA Other – Storage of maintenance equipment, fuel and chemicals	On-site	• Metals • PHCs • VOCs	Soil

APEC #	Location of APEC on Phase One Property	PCA	Location of PCA (on-site or off-site)	Potential Contaminants of Concern	Media Potentially Impacted
7.	South boundary of the RSC Property	Off-Site PCA #2 and #22 • #28 – Gasoline and associated products storage in fixed tanks • PCA Other – Coal Storage Off-Site PCA #22 • #32 – Metal treatment, coating, plating and finishing	Off-site	• Metals • VOCs • PHCs • PAHs • PFAS	Groundwater
8.	Western portion of the RSC Property	Off-Site PCA #4, #5, #6 and #7 • #28 – Gasoline and associated products storage in fixed tanks • #32 – Metal treatment, coating, plating and finishing	Off-site	• PHCs • Metals • VOCs • PFAS	Groundwater
9.	Eastern portion of the RSC Property	Off-Site PCA #27 • #28 – Gasoline and associated products storage in fixed tanks	Off-site	• PHCs • BTEX	Groundwater

Notes:

(1) **SAR** = sodium adsorption ratio, **EC** = electrical conductivity, **PHCs** = petroleum hydrocarbons, **BTEX** = benzene, toluene, ethylbenzene and xylene, **PAHs** = polycyclic aromatic hydrocarbons, **VOCs** = volatile organic compounds, **PFAS** = per- and polyfluoroalkylated substances.

Figure 5 presents the APECs identified during the Phase One ESA and the sampling locations used to assess the potential contaminants of concern identified for the APECs. The APECs identified in the Phase One CSM were investigated with soil samples from boreholes, and groundwater samples from monitoring wells, as well as historical chemistry results from Golder's Phase II ESA (Golder, 2020). Parameters selected for analysis in each APEC were generally based on those identified in the Phase One ESA APEC table, as presented in Phase Two CSM table above.

A summary of Phase Two ESA findings is provided in **Table 21**.

Table 21 – Summary of Phase Two ESA Findings

APEC	Contaminants of Potential Concern	Sample Location IDs within/near the APEC	Parameters Analyzed	COCs Identified in Soil	COCs Identified in Groundwater
APEC #1 Entire RSC Property	• SAR (S) • EC (S) • Sodium (S/GW) • Chloride (S/GW) • Cyanide (S/GW) • pH (S/GW) • Metals (S/GW) • BTEX (S/GW) • PHCs (S/GW) • PAHs (S/GW)	**Soil** • 19-01, 19-02, 19-03, 19-04, 19-05, 19-06, 19-07, 19-08, 19-09, 19-10, 19-11, BH21-01, BH21-02, BH21-03, BH21-04, BH21-05, BH21-06, BH21-07, BH21-08, BH21-09, BH21-10, BH21-11, BH21-12, BH21-13, BH21-14, BH21-15, BH21-16, BH21-17, BH21-19, BH21-20	• SAR (S) • EC (S) • Sodium (S/GW) • Chloride (S/GW) • Cyanide (S/GW) • pH (S/GW) • Metals (S/GW) • BTEX (S/GW) • PHCs (S/GW)	• Metals • SAR • EC • PAHs • PHCs	• None

APEC	Contaminants of Potential Concern	Sample Location IDs within/near the APEC	Parameters Analyzed	COCs Identified in Soil	COCs Identified in Groundwater
		Groundwater • MW19-01, MW19-04, MW19-08, MW19-11, MW21-01S, MW21-01D, MW21-02, MW21-04S, MW21-06, MW21-10S, MW21-10D, MW21-12, MW21-13, MW21-14, MW21-15, MW21-18, MW21-20S, MW21-20D	• PAHs (S/GW)		
APEC #2 Eastern Portion of RSC Property	• RDX (S/GW) • TNT (S/GW) • Perchlorate (S/GW) • Mercury (S/GW) • Ammonia (S/GW) • Nitrate (S/GW) • Metals (S/GW)	**Soil** • 19-06, 19-07, 19-08, 19-09, 19-10, 19-11, BH21-08, BH21-09, BH21-10, BH21-11, BH21-12, BH21-13, BH21-14, BH21-15, BH21-16, BH21-17, BH21-19, BH21-20 **Groundwater** • MW19-08, MW19-11, MW21-10S, MW21-10D, MW21-12, MW21-13, MW21-14, MW21-15, MW21-18, MW21-20S, MW21-20D	• RDX (S/GW) • TNT (S/GW) • Perchlorate (S/GW) • Mercury (S/GW) • Ammonia (S/GW) • Nitrate (S/GW) • Metals (S/GW)	• Metals[1]	• None
APEC #3 Entire RSC Property	• PHCs (S) • Metals (S) • PAHs (S)	**Soil** • 19-01, 19-02, 19-03, 19-04, 19-05, 19-06, 19-07, 19-08, 19-09, 19-10, 19-11, BH21-01, BH21-02, BH21-03, BH21-04, BH21-05, BH21-06, BH21-07, BH21-08, BH21-09, BH21-10, BH21-11, BH21-12, BH21-13, BH21-14, BH21-15, BH21-16, BH21-17, BH21-19, BH21-20	• PHCs (S) • Metals (S) • PAHs (S)	• PAHs • PHCs • Metals[1]	• N/A
APEC #4 Entire RSC Property	• PHCs (S) • Metals (S) • PAHs (S)	**Soil** • 19-01, 19-02, 19-03, 19-04, 19-05, 19-06, 19-07, 19-08, 19-09, 19-10, 19-11, BH21-01, BH21-02, BH21-03, BH21-04, BH21-05, BH21-06, BH21-07, BH21-08, BH21-09, BH21-10, BH21-11, BH21-12, BH21-13, BH21-14, BH21-15, BH21-16, BH21-17, BH21-19, BH21-20	• PHCs (S) • Metals (S) • PAHs (S)	• PAHs • PHCs • Metals[1]	• N/A
APEC #5 Northeastern portion of	• PAHs (S) • Metals (S)	**Soil** • 19-06, BH21-08, BH21-09, BH21-10, BH21-11, BH21-12	• PAHs (S) • Metals (S)	• PAHs • Metals[1]	• N/A

[1] Based on distribution of metals and specific parameters observed to exceed the Table 3 Standards, metals impacts are attributed to APEC #1 rather than APECs #2, 3, 4, 5 and 6.

APEC	Contaminants of Potential Concern	Sample Location IDs within/near the APEC	Parameters Analyzed	COCs Identified in Soil	COCs Identified in Groundwater
the RSC Property					
APEC #6 Western portion of the RSC Property	• Metals (S/GW) • PHCs (S/GW) • VOCs (S/GW)	**Soil** • 19-01, 19-02, 19-03, 19-04, 19-05, BH21-01, BH21-02, BH21-03, BH21-04, BH21-05, BH21-06, BH21-07 **Groundwater** • MW19-01, MW19-04, MW21-01S, MW21-01D, MW21-02, MW21-04S, MW21-06	• Metals (S/GW) • PHCs (S/GW) • VOCs (S/GW)	• Metals[1]	• None
APEC #7 South boundary of the RSC Property	• Metals (GW) • VOCs (GW) • PHCs (GW) • PAHs (GW) • PFAS (GW)	**Groundwater** • MW19-11, MW21-04S, MW21-18, MW21-20S, MW21-20D	• Metals (GW) • VOCs (GW) • PHCs (GW) • PAHs (GW) • PFAS (GW)	• N/A	• None
APEC #8 Western portion of the RSC Property	• PHCs (GW) • Metals (GW) • VOCs (GW) • PFAS (GW)	**Groundwater** • MW19-04, MW21-01S, MW21-01D, MW21-02, MW21-04S	• PHCs (GW) • Metals (GW) • VOCs (GW) • PFAS (GW)	• N/A	• None
APEC #9 Eastern portion of the RSC Property	• PHCs (GW) • BTEX (GW)	**Groundwater** • MW19-08, MW21-13	• PHCs (GW) • BTEX (GW)	• N/A	• None

Notes:

(1) **S** = soil sample, **GW** = groundwater sample.

(2) **SAR** = sodium adsorption ratio, **EC** = electrical conductivity, **PHCs** = petroleum hydrocarbons, **BTEX** = benzene, toluene, ethylbenzene and xylene, **PAHs** = polycyclic aromatic hydrocarbons, **VOCs** = volatile organic compounds, **PFAS** = per- and polyfluoroalkylated substances.

As identified on **Figures 8A-8D**, exceedances of the Table 3 soil Standards were measured at the RSC Property at sample locations related to **APECs 1, 3, 4** and/or **5**. The exceedance of the Table 3 Standards for groundwater (chloride) was not considered to be related to the APECs identified, which is further discussed in **Section 5.9.4**.

5.9.1 Underground Utilities

Underground utilities within the RSC Property include natural gas service, municipal water service, and storm sewer and sanitary sewer connections. The RSC Property is also supplied with electricity through overhead power lines (feeds into the hydro vault). Bedding material, if present, along buried utilities can represent a preferential flow pathway for groundwater and soil vapours, and could contribute to the migration of contaminants across the RSC Property or off-site.

5.9.2 Physical Stratigraphy

The physical stratigraphy encountered during the Phase Two ESA is provided on the boreholes logs in **Appendix B** and the cross sections on **Figures 11A to 16H**. The plan view of the cross sections is provided on **Figure 10**. Stratigraphy was generally found to generally comprise of a layer of fill material overlying silty clay, underlain by till and limestone bedrock. Asphalt was found at the surface of the majority of the borehole locations located within parking areas or access roads. Four borehole locations in the eastern portion of the RSC Property (MW21-10, MW21-13, BH21-16 and MW21-20) were located within grassed areas. Gravel (granular 'A') was found at the surface of borehole locations within the western portion of the RSC Property (MW21-01, MW21-02, BH21-03 and MW21-04). Gravel in this area of the RSC Property is expected to be related to the former use of this area for equipment and material storage.

Groundwater in the overburden was found between 1.39 and 6.45 mbgs (58.46 and 54.69 masl); these levels corresponded with groundwater in the shallow fill / silty clay, and the deeper till unit, respectively. Groundwater in the bedrock was found between 5.88 and 14.95 mbgs (54.33 and 44.99 masl). The variability in bedrock water levels can likely be attributed to fractures in the rock, with limited connectivity between them. It should also be noted that the bedrock monitoring well MW21-04D was installed to a depth of 18.3 mbgs, with no water measured to be present. Water levels measured during the course of the Phase Two ESA can be found in **Table A1**.

Groundwater level elevations in the monitoring wells, and the inferred groundwater flow directions are shown on **Figures 7A and 7B**. The observed overburden groundwater elevations observed at the monitoring wells screened in the till layer suggest that the groundwater table slopes to the east / northeast with a westerly component measured on the western portion of the site (flowing towards the adjacent railway). The observed bedrock groundwater elevations suggest that the bedrock groundwater table slopes to the northeast. This interpretation is further guided by knowledge of the physiographic region, observed subsurface stratigraphy (i.e., fine-grained silty clay to clay soils) and regional hydrogeology as described in **Section 2** and the Phase One ESA.

The Phase Two ESA included the investigation of two hydrogeologic units; the till and bedrock, to investigate potential migration of COCs in groundwater at the RSC Property and from off-site sources.

For monitoring wells screened within the unconfined fill and/or clay layer(s), groundwater levels were generally within the screened interval in the monitoring wells. Monitoring wells screened within the confined till layer (i.e., beneath the clay) are likely to be under the influence of head pressure. There was no dense non-aqueous phase liquids (DNAPL) or light non-aqueous phase liquids (LNAPL) observed during monitoring.

No surface water features were observed at the RSC Property or within the vicinity of the RSC Property (**Figure 4**). The Ottawa River is located approximately 700 m to the north of the RSC Property.

The railway located to the west of the RSC Property (running northwest) was observed to be at a lower elevations than the RSC Property and to have been blasted into the bedrock, which likely diverts shallow overburden groundwater flow in the vicinity of the RSC Property.

No areas of natural significance were identified in the vicinity of the RSC Property (**Figure 4**).

The standards used for the identification of COCs were Table 3 Standards for use in a non-potable groundwater condition, residential/parkland/institutional and coarse textured soils.

5.9.3 Contaminants at the RSC Property

As detailed in **Table 21** above, soils at the RSC Property were sampled for: inorganics (SAR, EC, cyanide, pH, chloride), metals, BTEX, PHCs, VOCs, PAH, energetics, nitrate and ammonia, while groundwater was sampled for: inorganics (chloride, cyanide, pH), metals, BTEX, PHCs, VOCs, PAHs, energetics, nitrate, ammonia and PFAS. Exceedances of the Table 3 Standards for soil were detected in the locations presented in **Table 22**, and exceedances for groundwater are presented in **Table 23**.

Table 22 – Soil Contaminants Identified at the RSC Property

COC	Location	Sample Interval
Metals	• 19-11	• 2.29-3.05 mbgs
	• BH21-02	• 0.91-1.37 mbgs
	• BH21-03	• 0-0.61 mbgs
	• BH21-04	• 4.72-5.33 mbgs
	• BH21-06	• 0.76-1.37 mbgs
	• BH21-07	• 2.67-2.9 mbgs
	• BH21-08 (DUP 3)	• 2.9-3.51 mbgs
	• BH21-11	• 3.05-3.66 mbgs
	• BH21-14	• 2.29-2.9 mbgs
	• BH21-15	• 3.81-4.42 mbgs
	• BH21-16	• 1.22-1.83 mbgs
	• BH21-19	• 2.44-3.05 mbgs
	• BH21-20	• 3.05-3.66 mbgs
Inorganics (EC&SAR)	• BH21-02	• 0.91-1.37 mbgs, 3.35-3.66 mbgs
	• BH21-03	• 1.83-2.13 mbgs
	• BH21-05	• 2.29-2.74 mbgs
	• BH21-06	• 0.76-1.37 mbgs, 4.11-4.42 mbgs
	• BH21-07	• 0.46-0.76 mbgs, 2.67-2.9 mbgs
	• BH21-08	• 0.15-0.46 mbgs, 2.9-3.51 mbgs
	• BH21-09	• 0.15-0.61 mbgs, 1.52-2.13 mbgs
	• BH21-11	• 0.76-1.37 mbgs, 3.05-3.66 mbgs
	• BH21-12	• 0.15-0.76 mbgs, 2.44-3.05 mbgs
	• BH21-14	• 0.76-1.37 mbgs, 2.29-2.9 mbgs
	• BH21-17	• 1.52-1.83 mbgs
	• BH21-19	• 0.91-1.52 mbgs

COC	Location	Sample Interval
PAHs	• 19-06 • 19-09 • BH21-07 • BH21-09 • BH21-11 • BH21-14 • BH21-17 • BH21-19	• 0-0.76 mbgs • 0-0.76 mbgs • 0.46-0.76 mbgs • 0.15-0.61 mbgs • 0.76-1.37 mbgs • 0.76-1.37 mbgs • 0.15-0.61 mbgs • 0.91-1.52 mbgs
PHCs	• 19-10	• 0-0.76 mbgs

Table 23 – Groundwater Contaminants Identified at the RSC Property

COC	Location
Chloride	• MW19-01

The identified COCs, including the maximum measured concentrations and the applicable Table 3 Standards are presented in **Table 24**.

Table 24 – Phase Two CSM: Contaminants of Concern

Phase Two CSM: Contaminants of Concern				
Soil COCs	**Maximum Concentration (µg/g)**	**Location**	**Sample Depth (mbgs)**	**Table 3 Standard**
Barium	403	BH21-02	0.91-1.37 *	390
Cadmium	1.5	BH21-03	0-0.61	1.2
Cobalt	24.8	BH21-02 BH21-16	0.91-1.37 * 1.22-1.83	22
Vanadium	113	19-11 BH21-02 BH21-04 BH21-06 BH21-07 BH21-08 BH21-11 BH21-14 BH21-15 BH21-16 BH21-19	2.29-3.05 * 0.91-1.37 * 4.72-5.33 * 0.76-1.37 * 2.67-2.9 * 2.9-3.51* 3.05-3.66 * 2.29-2.9 * 3.81-4.42 * 1.22-1.83 2.44-3.05 *	86

		BH21-20	3.05-3.66 *	
EC	5570	BH21-02 BH21-03 BH21-05 BH21-06 BH21-07 BH21-08 BH21-09 BH21-11 BH21-12 BH21-14 BH21-17 BH21-19	0.91-1.37, 3.35-3.66 1.83-2.13 2.29-2.74 0.76-1.37, 4.11-4.42 0.46-0.76, 2.67-2.9 0.15-0.46, 2.9-3.51 0.15-0.61, 1.52-2.13 0.76-1.37, 3.05-3.66 0.15-0.76, 2.44-3.05 0.76-1.37, 2.29-2.9 1.52-1.83 0.91-1.52	700
SAR	19.6	BH21-02 BH21-03 BH21-06 BH21-07 BH21-08 BH21-09 BH21-11 BH21-12 BH21-14 BH21-17	0.91-1.37 1.83-2.13 0.76-1.37 0.46-0.76, 2.67-2.9 0.15-0.46, 2.9-3.51 0.15-0.61, 1.52-2.13 0.76-1.37, 3.05-3.66 0.15-0.76 2.29-2.9 1.52-1.83	5
1&2- Methylnaphthalene	1.83	19-09 BH21-14 BH21-19	0-0.76 0.76-1.37 0.91-1.52	0.99
Acenaphthlylene	0.25/<0.4*	BH21-07 BH21-11 BH21-17	0.46-0.76 0.76-1.37 0.15-0.61	0.15
Benzo(a)anthracene	1.09	19-06 19-09 BH21-07 BH21-11 BH21-14 BH21-17	0-0.76 0-0.76 0.46-0.76 0.76-1.37 0.76-1.37 0.15-0.61	0.5
Benzo(a)pyrene	0.87	19-06 19-09 BH21-07 BH21-09 BH21-11 BH21-14 BH21-17	0-0.76 0-0.76 0.46-0.76 0.15-0.61 0.76-1.37 0.76-1.37 0.15-0.61	0.3

Benzo(b)fluoranthene	1.13	BH21-07 BH21-14	0.46-0.76 0.76-1.37	0.78
Dibenzo(a,h)anthracene	0.15/<0.4*	19-09 BH21-07 BH21-14 BH21-17	0-0.76 0.46-0.76 0.76-1.37 0.15-0.61	0.1
Fluoranthene	3.58	19-06 19-09 BH21-07 BH21-09 BH21-11 BH21-14 BH21-17	0-0.76 0-0.76 0.46-0.76 0.15-0.61 0.76-1.37 0.76-1.37 0.15-0.61	0.69
Indeno(1,2,3-c,d)pyrene	0.53	19-06 19-09 BH21-07 BH21-14 BH21-17	0-0.76 0-0.76 0.46-0.76 0.76-1.37 0.15-0.61	0.38
PHC F3 (>C16-C34)	300	19-10	0-0.76	1100
Groundwater COCs	**Maximum Concentration (mg/L)**	**Location**	**Hydrogeological Unit**	**Table 3 Standard**
Chloride	3760	MW19-01	Overburden	2300

Notes:
* Due to raised detection limits exceeding the Table 3 Standards, maximum detect and non-detect concentrations provided in table

Locations denoted with an asterisk in the **Table 24** indicate that the sample was collected in the native clay material at the RSC Property. As previously described in **Section 5.6**, the elevated levels of vanadium, barium and cobalt present in clay materials underlying the RSC Property are indicative of naturally high background levels associated with the Champlain Sea sediments and are not considered to be contaminants at the RSC Property (GeoOttawa, 2017). Remaining metals impacts identified in the fill material have been considered to be a result of historical activity at the RSC Property and therefore carried forward as COCs. While these elevated metals concentrations may also be attributable to native Champlain Sea clays (i.e., native clay mixed in with fill material), it is difficult to distinguish from an anthropogenic source.

Metals present in soil can be associated with several reactive components such as clay minerals, insoluble soil organic matter, oxides, or be taken up by plants and soil organisms. Metals generally have varying solubility in water, with solubility depending on the type of metal, type of soils and pH level. Based on the metal COCs identified at the RSC Property (cadmium, cobalt and vanadium), the depth of impacts (0-1.83 m), the depth of water table in the overburden (generally between 4.54 and 6.45 mbgs), and the presence of soils with limited permeability (silt/clay), the potential for on-site/off-site contamination migration is

considered to be low. This opinion is also supported by the groundwater sampling results at the RSC Property, where no metals concentrations exceeding Table 3 Standards were noted.

PAHs are high molecular weight, multi-ring, aromatic hydrocarbon compounds. Thus they are characterized by a strong non-polar/hydrophobic character and will have a strong association with organic matter. Due to their non-polar character, PAHs have limited solubility in water. The PAH COCs, due to their strong hydrophobic character and limited solubility in water, and based on the analytical results, have not dissolved into groundwater. This is supported by groundwater analytical data for the RSC Property, which had no Table 3 Standard exceedances and generally demonstrated PAH concentrations below the laboratory detection limits.

Sodium Adsorption ration (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) and EC, or electrical conductivity, found at levels exceeding the Table 3 Standards are assumed to be from the native clays that underlay the RSC Property and from salting operations impacting the fill layer throughout the RSC Property.

Given that the soil impacts (where present) are generally limited to shallow surficial soils and that groundwater impacts were not identified (with the exception of chloride in 19-01), any minor temporal groundwater fluctuations are expected to have a minimal effect on contamination distribution throughout the RSC Property. As such, it is the Qualified Person's opinion that meteorological or climatic conditions have not influenced the distribution or migration of contaminants at the RSC Property.

5.9.4 Source of Impacts

The identified inorganic (SAR and EC) impacts in soil are believed to be associated with APEC #1 (surficial soil impacts related to fill materials and infiltration to subsurface soil). Based on the quality of surficial soils located across the RSC Property, it is assumed that fill materials were imported during the development and redevelopment of this former commercial/industrial property. The origin of the fill material is not known. No other potential sources of SAR and EC have been identified at the RSC Property from on-site operations.

The elevated levels of vanadium, barium and cobalt present in clay materials underlying the RSC Property are indicative of naturally high background levels associated with the Champlain Sea sediments and are not considered to be contaminants at the RSC Property. Remaining metals (cadmium, cobalt and vanadium) impacts were identified in the fill material at two borehole locations (BH21-03 and BH21-16), which may be a result of fill sourced from native re-worked material. As a result, these exceedances may also be attributed to background conditions, however as they were identified within the fill material it cannot rule out that they are not a result of poor fill quality, and therefore are carried forward as COCs. Based on which metals parameters were found to exceed the Table 3 Standards at these two locations, it appears that these impacts are related to APEC #1 (surficial soil impacts related to fill materials) and not to remaining APECs with metals listed as COCs (APECs #2, #3, #4, #5 and #6).

The identified PAH impacts in soil are present in sampling locations associated with APECs #1 (fill materials), #3 (railyards), #4 (wood treating and storage) and/or #5 (former fire). All PAH impacts were observed to be located near the surface and were vertically delineated with a clean sample collected from the underlying native material. Surficial PAH impacts could be attributed to poor fill quality, the former

presence of a railyard on the RSC Property, historical use of the RSC Property for storage of treated wood, the historical fire in the northern portion of the RSC Property, or a combination of these APECs. Based on the nature of the COC, depth of contamination (limited to 1.52 m below grade) and depth of groundwater in the area, temporal variations in groundwater are unlikely to have affected PAH migration.

The soil PHC impact (PHC F3) identified in Golder's 2019 analytical results could be related to any of the following APECs: APEC #1 (fill materials), APEC #3 (railyards) or APEC #4 (wood treating and storage). This impact appears to be localized and limited to surficial soil. Based on the nature of this COC, depth of contamination (limited to 0.76 m below grade) and depth of groundwater in the area, temporal variations in groundwater are unlikely to have affected contaminant migration.

The chloride exceedance in groundwater was collected from monitoring well 19-01, which is located within a parking lot adjacent to Somerset Street West. Chloride was sampled in groundwater to investigate APEC #1 (groundwater impacts related to fill materials), however based on the analytical results at the RSC Property (i.e. no additional impacts in groundwater) and location of this chloride exceedance, this APEC does not appear to have contributed to this groundwater impact. Alternatively, this elevated chloride concentration is likely a result of road salt application within the vicinity of this monitoring well.

5.9.5 Vertical and Lateral Delineation of Impacts

The areas of the RSC Property impacted by COCs in soil are presented on **Figures 8A-8F**. The areas of the RSC Property impacted by COCs in groundwater are presented on **Figures 9A-9E**. Cross sections identifying the vertical distribution of the COCs at the RSC Property (i.e., those with concentrations greater than the Table 3 Standards) are presented in **Figures 11A-16H**.

The location of cross sections (in plan view) is shown in **Figure 10**. The lateral and vertical delineation of the COCs at the RSC Property are shown in **Figures 11A** to **16H**.

As previously described, concentrations of metals (vanadium, barium and cobalt), SAR and EC exceeding the Table 3 Standards within the native material at the RSC Property have been attributed to naturally high background levels associated with the Champlain Sea sediments and h not been considered to be contaminants at the RSC Property. As such, remaining impacts (metals, EC, SAR, PAHs and PHCs) are limited to the surficial fill layer at the RSC Property, with deeper confirmatory samples collected beneath these impacts providing vertical delineation.

5.9.6 Receptor-Pathway Linkages

The receptors and pathways identified for COCs in soil (i.e., metals, PAHs, PHCs, EC and SAR) during the Phase Two CSM are presented in **Figure 17**. The soil exposure pathways are based on the soil component values derived for the Table 3 Standards in the MECP document entitled "*Rationale for the Development of Soil and Ground Water Standards for use at Contaminated Sites in Ontario*" (MECP, 2011).

- The Table 3 Standard for barium is based on the birds and mammals component value, which was considered to be the only complete pathway for barium at the RSC Property.

- The Table 3 Standard for cadmium is based on the soil ingestion and dermal contact component value, which was considered to be the only complete pathway for cadmium at the RSC Property.
- The Table 3 Standard for cobalt is based on the soil ingestion and dermal contact component value, which was considered to be the only complete pathway for cobalt at the RSC Property.
- The Table 3 Standard for vanadium is based on the birds and mammals component value. Receptor pathways for ecological receptors and human health (soil ingestion and dermal contact) were identified for vanadium at the RSC Property.
- The Table 3 Standard for electrical conductivity is based on the plant and soil organism component, which was considered to be the only complete pathway at the RSC Property for electrical conductivity.
- The Table 3 Standard for sodium absorption ratio is based on the plant and soil organism component, which was considered to be the only complete pathway at the RSC Property for sodium absorption ratio.
- The Table 3 Standard for 1&2-methylnaphthalene is based on the soil odour component, which is a complete pathway at the RSC Property. The soil to indoor air pathway is also considered a complete pathway at the RSC Property for 1&2-methylnaphthalene, however the rationale document lacks a component value for this contaminant pathway.
- The Table 3 Standard for acenaphthylene is based on the leaching from soil to groundwater then to surface water component value, which was not considered to be a complete pathway, since there are no aquatic receptors present at the RSC Property.
- The Table 3 Standard for benz(a)anthracene is based on the plant and soil organism component value. Receptor pathways for ecological receptors and human health (soil ingestion and dermal contact) were identified for benz(a)anthracene at the RSC Property.
- The Table 3 Standard for benzo(a)pyrene is based on the soil ingestion and dermal contact component value, which was considered to be the only complete pathway at the RSC Property for benzo(a)pyrene.
- The Table 3 Standard for benzo(b)fluoranthene is based on the soil ingestion and dermal contact component value, which was considered to be the only complete pathway at the RSC Property benzo(b)fluoranthene.
- The Table 3 Standard for dibenzo(a,h)anthracene is based on the soil ingestion and dermal contact component value, which was considered to be the only complete pathway at the RSC Property for dibenzo(a,h)anthracene.
- The Table 3 Standard for fluoranthene is based on the birds and mammals component value, which was considered to be the only complete pathway at the RSC Property for fluoranthene.
- The Table 3 Standard for indeno(1,2,3-c,d)pyrene is based on the plant and soil organism component value, which was considered to be the only complete pathway at the RSC Property for indeno(1,2,3-c,d)pyrene.
- The Table 3 Standard for PHC F3 is based on the plant and soil organism component, which was considered to be the only complete pathway at the RSC Property for PHC F3.

The receptors and pathways identified for COCs in groundwater (i.e., chloride) during the Phase Two CSM are presented in **Figure 17**. The groundwater exposure pathways are based on the groundwater component values derived for the Table 3 Standards in the MECP document entitled “Rationale for the Development of Soil and Ground Water Standards for use at Contaminated Sites in Ontario” (MECP, 2011).

- The Table 3 Standard for chloride is based on the groundwater to surface water component value, which was not considered to be a complete pathway, since there are no aquatic receptors present at the RSC Property.

Receptor pathways for human health and ecological receptors were identified for COCs at the RSC Property, including direct contact of soil (e.g., dermal contact and ingestion), terrestrial/ecological uptake (e.g., plants, soil organisms, mammals and birds) and inhalation of soil odour.

6.0 Conclusions

6.1 Summary

Concentrations of COCs in soil and groundwater at the RSC Property were found to exceed the Table 3 Standards for certain inorganic, metal, PAH and PHC parameters in soil, as well as chloride in groundwater. As such, an RSC cannot be filed based solely on the outcomes of this report.

6.2 Signatures

The data review and report compilation for this Phase Two ESA was undertaken by Ms. Elsa Hergel, B.Sc. and Mr. Matthew McCurdy, P.Geo., $QP_{ESA.}$ The final report was prepared by Ms. Hergel, and reviewed by Mr. Brent Loney, P.Geo., QP_{ESA}, QP_{RA} .

Mr. McCurdy and Mr. Loney are registered with the MECP as Qualified Persons (QP) for Phase One and Phase Two Environmental Site Assessments in accordance with the Regulation.

The signature of the Qualified Person for this Phase Two ESA is presented in **Section 7**. By signing the report, the Qualified Person confirms that the relevant findings and conclusions of the Phase Two ESA are included in the report.

7.0 Limitations

This report was prepared exclusively for the purposes, project and site location(s) outlined in the report. The report is based on information provided to, or obtained by Dillon as indicated in the report, and applies solely to site conditions existing at the time of the site investigation(s). Although a reasonable investigation was conducted by Dillon, Dillon's investigation was by no means exhaustive and cannot be construed as a certification of the absence of any contaminants from the site(s). Rather, Dillon's report represents a reasonable review of available information within an agreed work scope, schedule and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site(s), and that the levels of contamination or hazardous materials may vary across the site(s). Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.

This report was prepared by Dillon for the sole benefit of the City of Ottawa. The material in it reflects Dillon's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

DILLON CONSULTING LIMITED
Ottawa, ONTARIO

Matthew McCurdy, P. Geo., QP_{ESA}
Project Manager

Brent Loney, M.Sc., P. Geo., QP_{ESA}, QP_{RA}
Senior Reviewer

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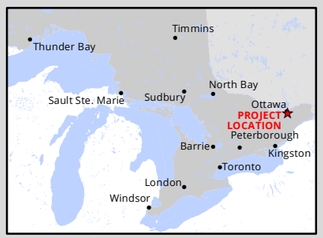
Figures

CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 1
PROJECT LOCATION

Subject Property
Study Area (250 m Setback)
Railway



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MAP DRAWING INFORMATION:
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MAP CREATED BY: GM
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MAP PROJECTION: NAD 1983 UTM Zone 18N

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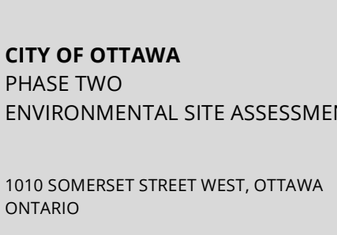
FILE LOCATION: I:\GIS\212419 - 1010 Somerset Phase 2 ESA\Product\Client\Phase II\Figure 1 Site Location.mxd

CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 2
SITE PLAN

Building
RSC Property
Railway
Former Building/Structure
Current and Historical Land Uses



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CITY OF OTTAWA
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 3
POTENTIALLY CONTAMINATING ACTIVITIES



On-Site PCAs

PCA #	PCA Description
1	#30 – Importation of fill material of unknown quality
2	#20 – Explosives and Ammunition Manufacturing, Production and Bulk Storage
3	#46 – Railyards, tracks and spurs
4	#59 – Wood treating and preservative facility and bulk storage of treated and preserved wood products
5	PCA Other - Fire
6	PCA Other – Storage of maintenance equipment, fuel, and chemicals

Off-Site PCAs

PCA#	PCA Description
1	#46 – Rail Yards, Tracks and Spurs
2	#59 – Wood treating and preservative facility and bulk storage of treated and preserved wood products. PCA Other - Fire
3	#20 – Explosives and Ammunition Manufacturing, Production and Bulk Storage
4	#28 – Gasoline and associated products storage in fixed tanks
5	#28 – Gasoline and associated products storage in fixed tanks
6	#32 – Metal treatment, coating, plating and finishing
7	#32 – Metal treatment, coating, plating and finishing. #28 – Gasoline and associated products storage in fixed tanks
8	#49 – Salvage yard, including automobile wrecking. #10 – Commercial Autobody Shops. #28 – Gasoline and associated products storage in fixed tanks
9	#43 – Plastics (including fiberglass) manufacturing and processing. #29 – Glass manufacturing. #37 – Operation of dry cleaning equipment (where chemicals are used). #10 – Commercial Autobody Shops. #28 – Gasoline and associated products storage in fixed tanks
10	#10 – Commercial Autobody Shops. #32 – Metal treatment, coating, plating and finishing
11	#28 – Gasoline and associated products storage in fixed tanks
12	#28 – Gasoline and associated products storage in fixed tanks
13	.#10 – Commercial Autobody Shops. #28 – Gasoline and associated products storage in fixed tanks

Off-Site PCAs

PCA#	PCA Description
14	#28 – Gasoline and associated products storage in fixed tanks
15	#28 – Gasoline and associated products storage in fixed tanks. #32 – Metal treatment, coating, plating and finishing
16	#37 – Operation of dry cleaning equipment (where chemicals are used). #28 – Gasoline and associated products storage in fixed tanks
17	#28 – Gasoline and associated products storage in fixed tanks
18	#37 – Operation of dry cleaning equipment (where chemicals are used)
19	#28 – Gasoline and associated products storage in fixed tanks
20	#28 – Gasoline and associated products storage in fixed tanks
21	#28 – Gasoline and associated products storage in fixed tanks
22	#28 – Gasoline and associated products storage in fixed tanks. #32 – Metal treatment, coating, plating and finishing
23	#28 – Gasoline and associated products storage in fixed tanks
24	#32 – Metal treatment, coating, plating and finishing
25	#58 – Waste disposal and waste management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
26	#58 – Waste disposal and waste management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
27-31	#28 – Gasoline and associated products storage in fixed tanks

PCAs

- On-Site PCAs
- Off-Site PCAs
- RSC Property
- Study Area
- Arterial Roads
- Collector Roads
- Local Roads
- Railway

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N W E S

MAP DRAWING INFORMATION:

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CITY OF OTTAWA
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 4
NATURAL FEATURES AND WATER WELLS

- RSC Property Phase One
- Study Area
- MECP Water Well Record
- Arterial Roads
- Collector Roads
- Local Roads
- Railway
- Wooded Area

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N W E S

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CITY OF OTTAWA
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 5
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

APECs

APEC #	Location	APEC Description
1	Entire RSC Property	On-Site PCA #1. #30 – Importation of fill material of unknown quality
2	Eastern Portion of RSC Property	On-Site PCA #2 and Off-Site PCA #3. #20 – Explosives and Ammunition Manufacturing, Production and Bulk Storage
3	Entire RSC Property	On-Site PCA #3 and Off-Site PCA #1. #46 - Railyards, tracks and spurs
4	Entire RSC Property	On-Site PCA #4. #59 – Wood treating and preservative facility and bulk storage of treated and preserved wood products
5	Northeastern portion of the RSC Property	On-Site PCA #5. PCA Other – Fire
6	Western portion of the RSC Property	On-Site PCA #6. PCA Other – Storage of maintenance equipment, fuel and chemicals
7	South boundary of the RSC Property	Off-Site PCA #2 and #22. #28 – Gasoline and associated products storage in fixed tanks. PCA Other – Coal Storage. #32 – Metal treatment, coating, plating and finishing
8	Western portion of RSC Property	Off-Site PCA #4, #5, #6 and #7. #28 – Gasoline and associated products storage in fixed tanks. #32 – Metal treatment, coating, plating and finishing
9	Northeastern portion of the RSC Property	Off-Site PCA #27 and #28 – Gasoline and associated products storage in fixed tanks.

APECs
- 1,3 & 4
- 2
- 5
- 6
- 7
- 8
- 9
- RSC Property
- Study Area
- Arterial Roads
- Collector Roads
- Local Roads
- Railway

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CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

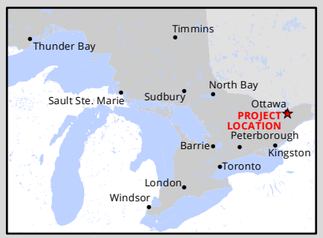
1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 6
SAMPLE LOCATIONS

- Borehole (Dillon, 2021)
- Monitoring Well (Dillon, 2021)
- Borehole, (Golder, 2019)
- Monitoring Well, (Golder, 2019)
- Monitoring Well - Lost/Dry, (Golder, 2019)
- Subject Property
- Railway

APECs

- 1,3 & 4
- 2
- 5
- 6
- 7
- 8
- 9



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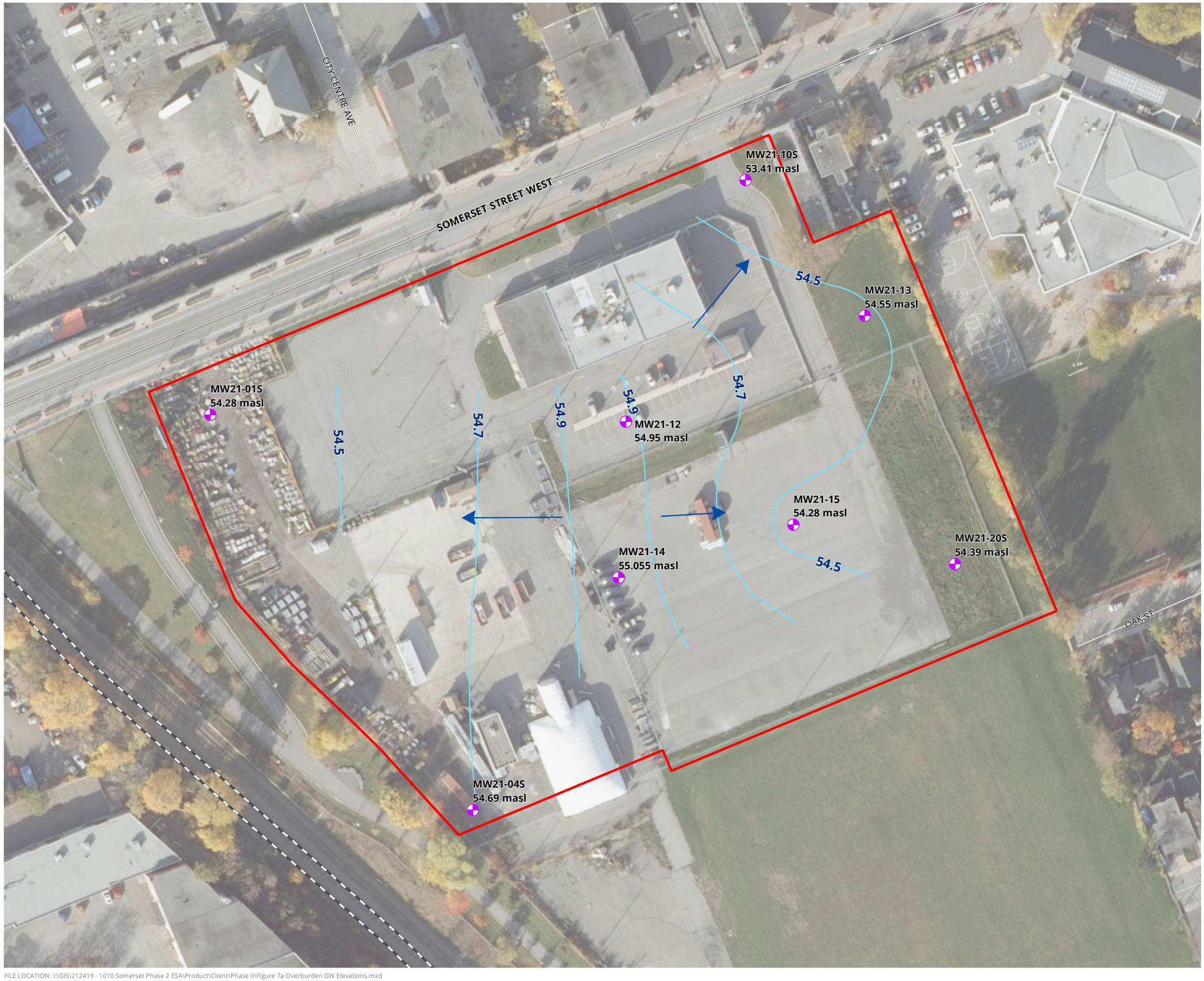

CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 7A
INFERRED GROUNDWATER FLOW DIRECTION - OVERBURDEN GW ELEVATIONS

- Monitoring Well (Dillon, 2021)
- Groundwater Flow Direction
- Overburden Groundwater Elevation Contour
- Subject Property
- Railway

Only groundwater elevations used where MW was screened solely in the till layer and top of groundwater table was measured within this screened area.



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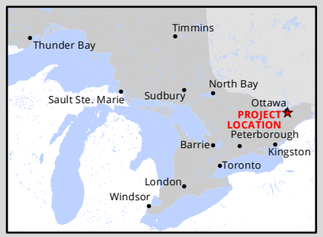
CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 7B
INFERRED GROUNDWATER FLOW DIRECTION - BEDROCK GW ELEVATIONS

- Monitoring Well (Dillon, 2021)
- Groundwater Flow Direction
- Overburden Groundwater Elevation Contour
- Subject Property
- Railway



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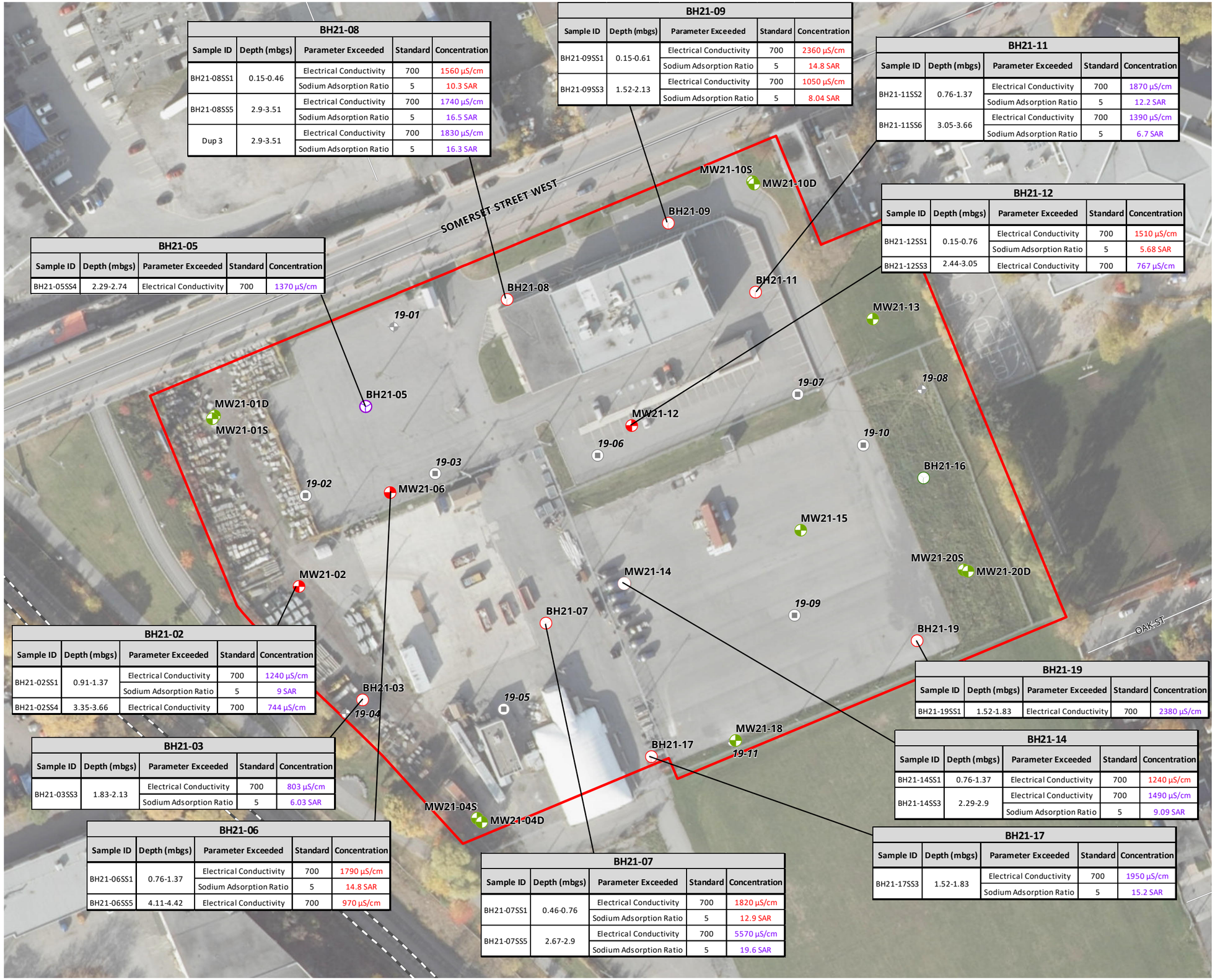

BH21-08

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-08SS1	0.15-0.46	Electrical Conductivity	700	1560 µS/cm
		Sodium Adsorption Ratio	5	10.3 SAR
BH21-08SS5	2.9-3.51	Electrical Conductivity	700	1740 µS/cm
		Sodium Adsorption Ratio	5	16.5 SAR
Dup 3	2.9-3.51	Electrical Conductivity	700	1830 µS/cm
		Sodium Adsorption Ratio	5	16.3 SAR

BH21-09

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-09SS1	0.15-0.61	Electrical Conductivity	700	2360 µS/cm
		Sodium Adsorption Ratio	5	14.8 SAR
BH21-09SS3	1.52-2.13	Electrical Conductivity	700	1050 µS/cm
		Sodium Adsorption Ratio	5	8.04 SAR

BH21-11

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-11SS2	0.76-1.37	Electrical Conductivity	700	1870 µS/cm
		Sodium Adsorption Ratio	5	12.2 SAR
BH21-11SS6	3.05-3.66	Electrical Conductivity	700	1390 µS/cm
		Sodium Adsorption Ratio	5	6.7 SAR

BH21-12

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-12SS1	0.15-0.76	Electrical Conductivity	700	1510 µS/cm
		Sodium Adsorption Ratio	5	5.68 SAR
BH21-12SS3	2.44-3.05	Electrical Conductivity	700	767 µS/cm

BH21-05

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-05SS4	2.29-2.74	Electrical Conductivity	700	1370 µS/cm

BH21-02

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-02SS1	0.91-1.37	Electrical Conductivity	700	1240 µS/cm
		Sodium Adsorption Ratio	5	9 SAR
BH21-02SS4	3.35-3.66	Electrical Conductivity	700	744 µS/cm

BH21-03

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-03SS3	1.83-2.13	Electrical Conductivity	700	803 µS/cm
		Sodium Adsorption Ratio	5	6.03 SAR

BH21-06

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-06SS1	0.76-1.37	Electrical Conductivity	700	1790 µS/cm
		Sodium Adsorption Ratio	5	14.8 SAR
BH21-06SS5	4.11-4.42	Electrical Conductivity	700	970 µS/cm

BH21-07

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-07SS1	0.46-0.76	Electrical Conductivity	700	1820 µS/cm
		Sodium Adsorption Ratio	5	12.9 SAR
BH21-07SS5	2.67-2.9	Electrical Conductivity	700	5570 µS/cm
		Sodium Adsorption Ratio	5	19.6 SAR

BH21-19

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-19SS1	1.52-1.83	Electrical Conductivity	700	2380 µS/cm

BH21-14

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-14SS1	0.76-1.37	Electrical Conductivity	700	1240 µS/cm
BH21-14SS3	2.29-2.9	Electrical Conductivity	700	1490 µS/cm
		Sodium Adsorption Ratio	5	9.09 SAR

BH21-17

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-17SS3	1.52-1.83	Electrical Conductivity	700	1950 µS/cm
		Sodium Adsorption Ratio	5	15.2 SAR

CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 8A
SOIL SAMPLING RESULTS -
SAR, EC, CYANIDE, PH, SODIUM, AND CHLORIDE

- Borehole - Analysed Concentrations Above Referenced Guidelines
- Borehole - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well - Analysed Concentrations Above Referenced Guidelines
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Borehole (Golder) - Not
- Monitoring Well (Golder) - Not Sampled
- Subject Property
- Railway

2380: Concentration exceeding the Table 3 Standards in the fill material

94.7: Concentration exceeding the Table 3 Standards indicative of elevated background levels of metal parameter in the native clay material



1:1,000
0 10 20 40 m

MAP DRAWING INFORMATION:
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MAP CREATED BY: GM
MAP CHECKED BY: EH
MAP PROJECTION: NAD 1983 UTM Zone 18N

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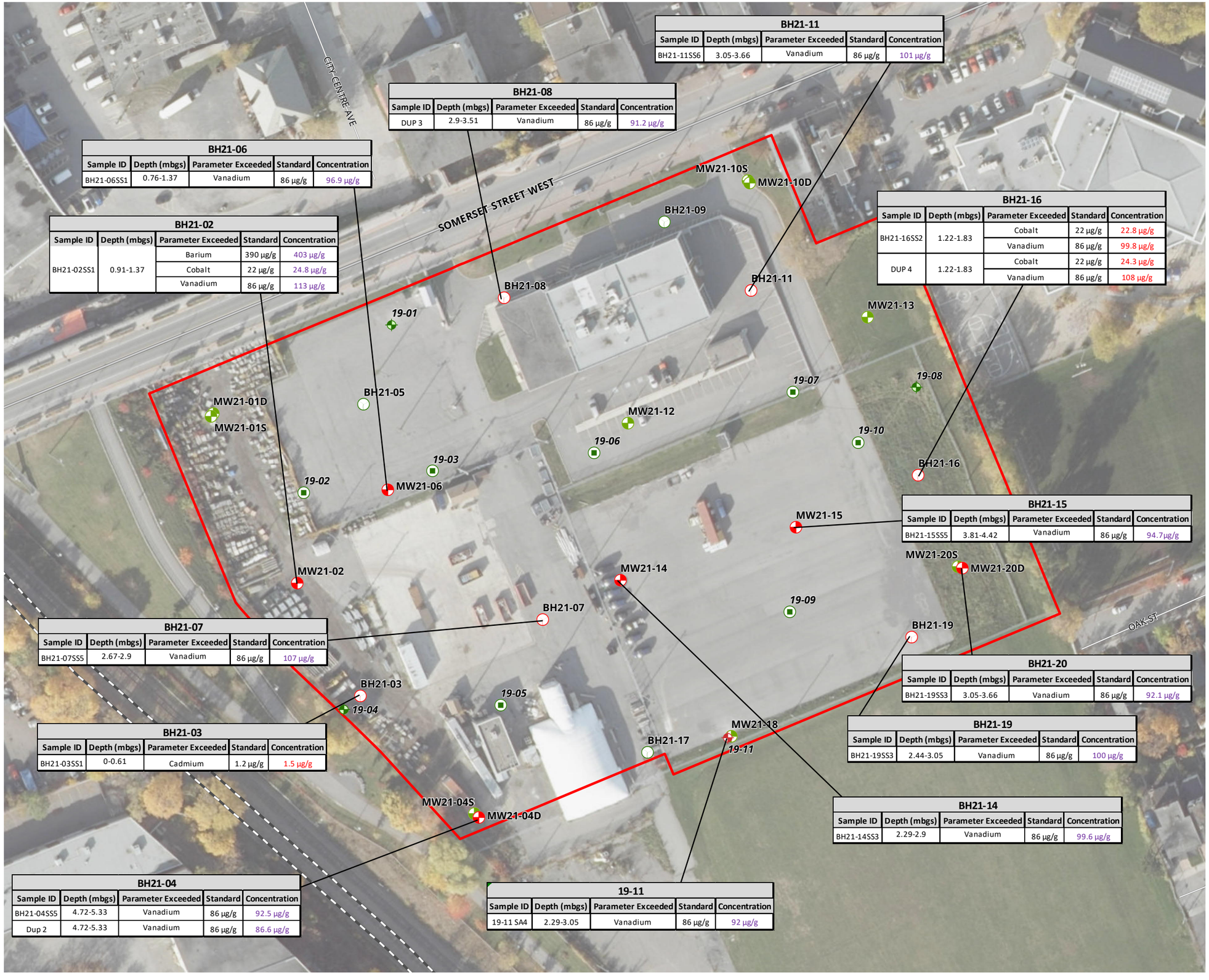
PROJECT: 212419
STATUS: DRAFT
DATE: 2021-12-16

FILE LOCATION: I:\GIS\212419 - 1010 Somerset Phase 2 ESA\Product\Client\Phase II\Figure 8a Soil Sampling Results - SAR, EC, Cyanide, pH, Sodium, and Chloride.mxd



BH21-11				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-11SS6	3.05-3.66	Vanadium	86 µg/g	101 µg/g

BH21-08				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
DUP 3	2.9-3.51	Vanadium	86 µg/g	91.2 µg/g

BH21-06				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-06SS1	0.76-1.37	Vanadium	86 µg/g	96.9 µg/g

BH21-16				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-16SS2	1.22-1.83	Cobalt	22 µg/g	22.8 µg/g
		Vanadium	86 µg/g	99.8 µg/g
DUP 4	1.22-1.83	Cobalt	22 µg/g	24.3 µg/g
		Vanadium	86 µg/g	108 µg/g

BH21-02				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-02SS1	0.91-1.37	Barium	390 µg/g	403 µg/g
		Cobalt	22 µg/g	24.8 µg/g
		Vanadium	86 µg/g	113 µg/g

BH21-15				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-15SS5	3.81-4.42	Vanadium	86 µg/g	94.7 µg/g

BH21-20				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-19SS3	3.05-3.66	Vanadium	86 µg/g	92.1 µg/g

BH21-07				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-07SS5	2.67-2.9	Vanadium	86 µg/g	107 µg/g

BH21-19				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-19SS3	2.44-3.05	Vanadium	86 µg/g	100 µg/g

BH21-03				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-03SS1	0-0.61	Cadmium	1.2 µg/g	1.5 µg/g

BH21-14				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-14SS3	2.29-2.9	Vanadium	86 µg/g	99.6 µg/g

BH21-04				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-04SS5	4.72-5.33	Vanadium	86 µg/g	92.5 µg/g
Dup 2	4.72-5.33	Vanadium	86 µg/g	86.6 µg/g

19-11				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
19-11 SA4	2.29-3.05	Vanadium	86 µg/g	92 µg/g

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PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 8B
SOIL SAMPLING RESULTS - METALS

- Borehole - Analysed Concentrations Above Referenced Guidelines
- Borehole - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well - Analysed Concentrations Above Referenced Guidelines
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Borehole (Golder) - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well (Golder) - Analysed Concentrations Above Referenced Guidelines
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway

2380: Concentration exceeding the Table 3 Standards in the fill material

94.7: Concentration exceeding the Table 3 Standards indicative of elevated background levels of metal parameter in the native clay material

1:1,000
0 10 20 40 m

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DATE: 2021-12-16



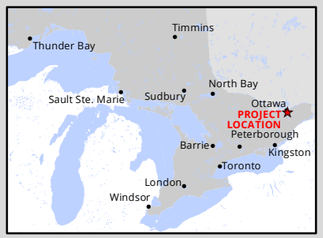
19-10				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
19-10 SA1	0-0.76	PHC F3 (>C16-C34)	300 µg/g	1100 µg/g

CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 8C
SOIL SAMPLING RESULTS -
PHCS AND BTEX

- Borehole - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Borehole (Golder) - Analysed Concentrations Above Referenced Guidelines
- Borehole (Golder) - Analysed Concentrations Below Referenced Guidelines
- Borehole (Golder) - Not Sampled
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway



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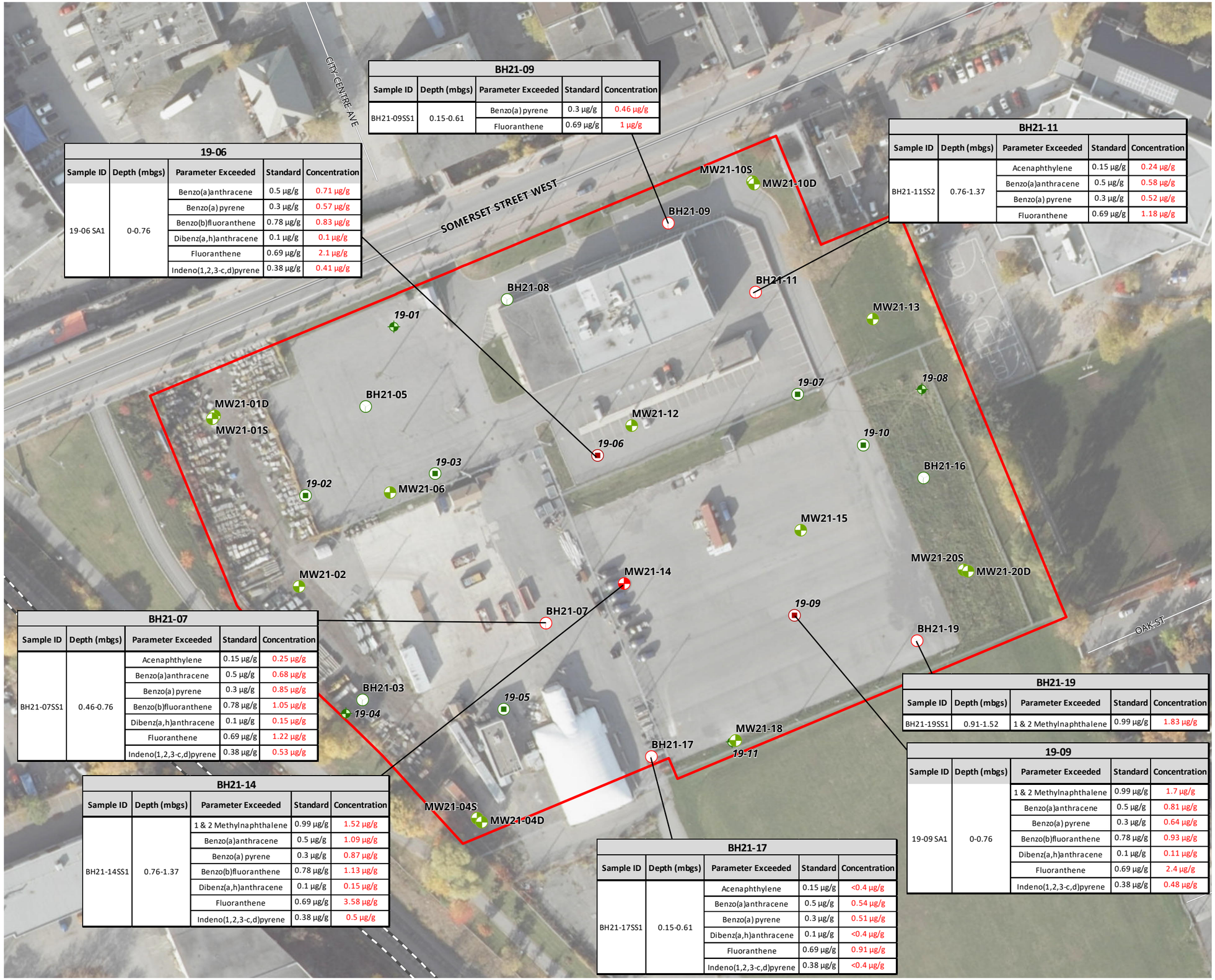
PROJECT: 212419
STATUS: DRAFT
DATE: 2021-12-16

FILE LOCATION: I:\GIS\212419 - 1010 Somerset Phase 2 ESA\Product\Client\Phase II\Figure 8c Soil Sampling Results - PHCs and BTEX.mxd



19-06

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
19-06 SA1	0-0.76	Benzo(a)anthracene	0.5 µg/g	0.71 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.57 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	0.83 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.1 µg/g
		Fluoranthene	0.69 µg/g	2.1 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.41 µg/g

BH21-09

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-09SS1	0.15-0.61	Benzo(a) pyrene	0.3 µg/g	0.46 µg/g
		Fluoranthene	0.69 µg/g	1 µg/g

BH21-11

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-11SS2	0.76-1.37	Acenaphthylene	0.15 µg/g	0.24 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.58 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.52 µg/g
		Fluoranthene	0.69 µg/g	1.18 µg/g

BH21-07

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-07SS1	0.46-0.76	Acenaphthylene	0.15 µg/g	0.25 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.68 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.85 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	1.05 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.15 µg/g
		Fluoranthene	0.69 µg/g	1.22 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.53 µg/g

BH21-14

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-14SS1	0.76-1.37	1 & 2 Methylnaphthalene	0.99 µg/g	1.52 µg/g
		Benzo(a)anthracene	0.5 µg/g	1.09 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.87 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	1.13 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.15 µg/g
		Fluoranthene	0.69 µg/g	3.58 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.5 µg/g

BH21-17

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-17SS1	0.15-0.61	Acenaphthylene	0.15 µg/g	<0.4 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.54 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.51 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	<0.4 µg/g
		Fluoranthene	0.69 µg/g	0.91 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	<0.4 µg/g

BH21-19

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-19SS1	0.91-1.52	1 & 2 Methylnaphthalene	0.99 µg/g	1.83 µg/g

19-09

Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
19-09 SA1	0-0.76	1 & 2 Methylnaphthalene	0.99 µg/g	1.7 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.81 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.64 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	0.93 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.11 µg/g
		Fluoranthene	0.69 µg/g	2.4 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.48 µg/g

CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 8D
SOIL SAMPLING RESULTS - PAHS

- Borehole - Analysed Concentrations Above Referenced Guidelines
- Borehole - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well - Analysed Concentrations Above Referenced Guidelines
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Borehole (Golder) - Analysed Concentrations Above Referenced Guidelines
- Borehole (Golder) - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway

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DATE: 2021-12-16

FILE LOCATION: I:\GIS\212419 - 1010 Somerset Phase 2 ESA\Product\Client\Phase II\Figure 8d Soil Sampling Results - PAHs.mxd



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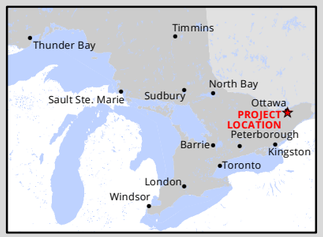
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 8E
SOIL SAMPLING RESULTS - VOCS

- Borehole - Not Sampled
- Monitoring Well - Not Sampled
- Borehole (Golder) - Not Sampled
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway
- Borehole - Analyzed Concentrations Below Referenced Guidelines
- Monitoring Well - Analyzed Concentration Below Referenced Guidelines



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PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
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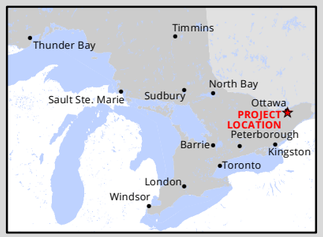
FIGURE 8F
SOIL SAMPLING RESULTS - ENERGETICS, NITRATE AND AMMONIA

- Borehole - Not Sampled
- Borehole - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well - Not Sampled
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Borehole (Golder) - Not Sampled
- Monitoring Well (Golder) - Not Sampled
- Subject Property
- Railway



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0 10 20 40 m

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DATE: 2021-12-16



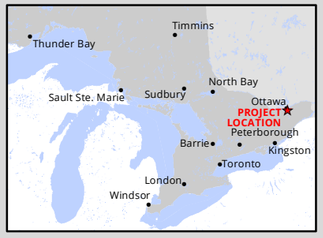
CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 9A
GROUNDWATER SAMPLING RESULTS - CYANIDE, PH, SODIUM AND CHLORIDE

- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well (Golder) - Analysed Concentrations Above Referenced Guidelines
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway

2380: Concentration exceeding the Table 3 Standards in the fill material



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MAP DRAWING INFORMATION:
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DATE: 2021-12-16



CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 9B
GROUNDWATER SAMPLING RESULTS - METALS, PHCS, BTEX AND PAHS

- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway



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0 10 20 40 m

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF OTTAWA

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CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
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FIGURE 9C
GROUNDWATER SAMPLING RESULTS - VOCS

- Monitoring Well - Not Sampled
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well (Golder) - Not Sampled
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway



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N W E S

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MAP PROJECTION: NAD 1983 UTM Zone 18N

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PROJECT: 212419
STATUS: DRAFT
DATE: 2021-12-16



CITY OF OTTAWA
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 9D
GROUNDWATER SAMPLING RESULTS - ENERGETICS

- Monitoring Well - Not Sampled
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well (Golder) - Not Sampled
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway



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PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
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FIGURE 9E
GROUNDWATER SAMPLING RESULTS - PFAS

- Monitoring Well - Not Sampled
- Monitoring Well - Analysed Concentrations Below Referenced Guidelines
- Monitoring Well (Golder) - Not Sampled
- Monitoring Well (Golder) - Analysed Concentrations Below Referenced Guidelines
- Subject Property
- Railway



1:1,000
0 10 20 40 m

N W E S

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PROJECT: 212419
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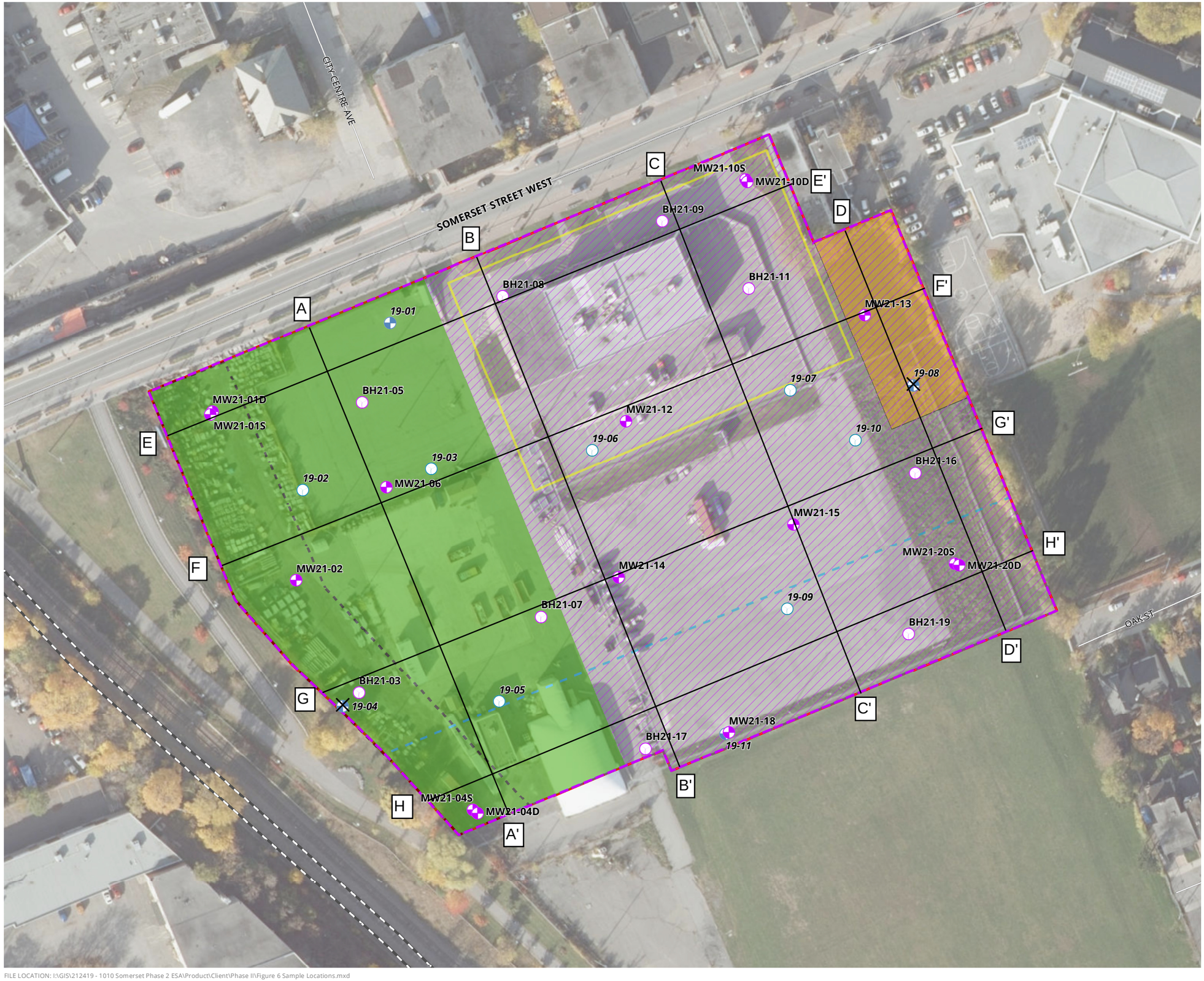

CITY OF OTTAWA
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 10
CROSS SECTION LOCATIONS

- Borehole (Dillon, 2021)
- Monitoring Well (Dillon, 2021)
- Borehole, (Golder, 2019)
- Monitoring Well, (Golder, 2019)
- Monitoring Well - Lost/Dry, (Golder, 2019)
- Subject Property
- Railway

APECs

- 1,3 & 4
- 2
- 5
- 6
- 7
- 8
- 9



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0 10 20 40 m

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PROJECT: 212419
STATUS: DRAFT
DATE: 2021-12-14

FILE LOCATION: I:\GIS\212419 - 1010 Somerset Phase 2 ESA\Product\Client\Phase II\Figure 6 Sample Locations.mxd

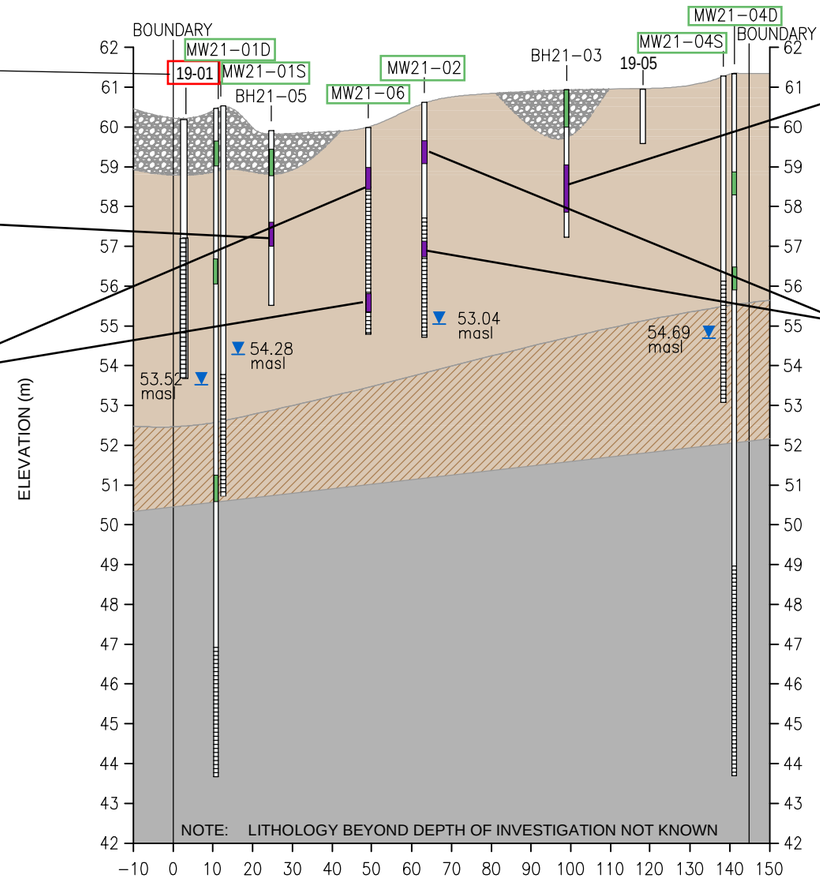
CROSS SECTION A-A'

A NORTH — **A'** SOUTH

19-01			
Sample ID	**Parameter Exceeded**	**Standard**	**Concentration**
19-01	Chloride	2300 mg/L	3760 mg/L

BH21-05				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-05SS4	2.29-2.74	Electrical Conductivity	700	1370 µS/cm

BH21-06				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-06SS1	0.76-1.37	Electrical Conductivity	700	1790 µS/cm
		Sodium Adsorption Ratio	5	14.8 SAR
BH21-06SS5	4.11-4.42	Electrical Conductivity	700	970 µS/cm



BH21-03				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-03SS3	1.83-2.13	Electrical Conductivity	700	803 µS/cm
		Sodium Adsorption Ratio	5	6.03 SAR

BH21-02				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-02SS1	0.91-1.37	Electrical Conductivity	700	1240 µS/cm
		Sodium Adsorption Ratio	5	9 SAR
BH21-02SS4	3.35-3.66	Electrical Conductivity	700	744 µS/cm

Ground level elevation for BW21-03 assumed with respect to MW21-02 and MW21-04S.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11A - Cross Section A-A' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW-000 — Groundwater Sample Meets the Applicable MECP Table 3 Groundwater Standards for All Types of Property Use
MW-000 — Groundwater Sample Exceeds the Applicable MECP Table 3 Groundwater Standard
BH21-05 — Bore Hole
MW21-02 — Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

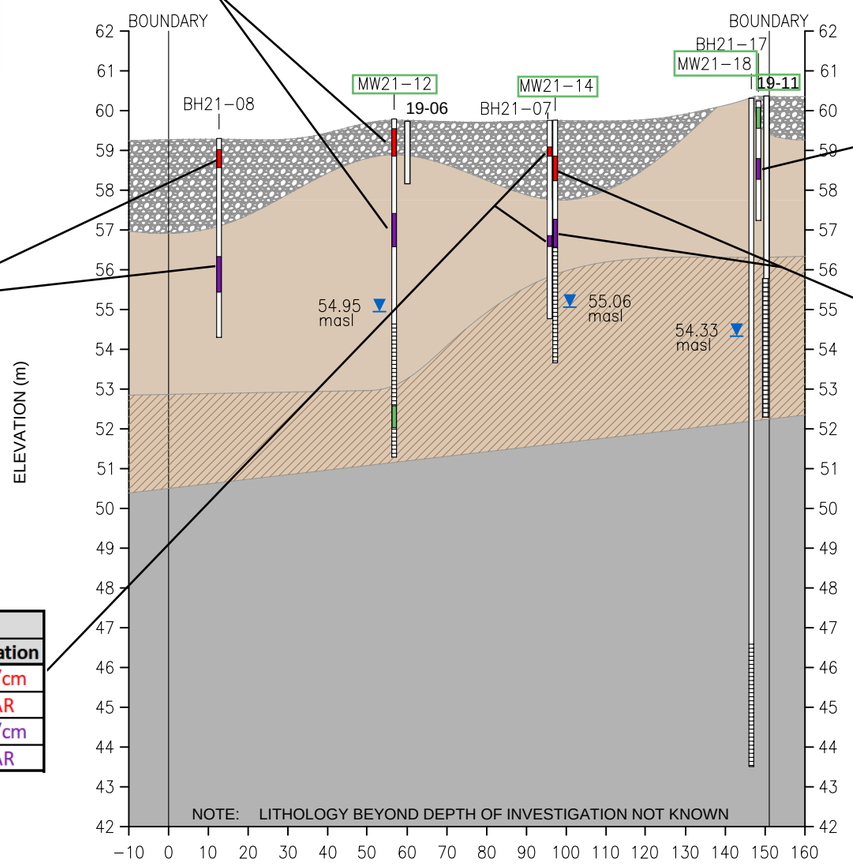
CROSS SECTION B-B'

B NORTH — **B'** SOUTH

BH21-12				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-12SS1	0.15-0.76	Electrical Conductivity	700	1510 µS/cm
		Sodium Adsorption Ratio	5	5.68 SAR
BH21-12SS3	2.44-3.05	Electrical Conductivity	700	767 µS/cm

BH21-08				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-08SS1	0.15-0.46	Electrical Conductivity	700	1560 µS/cm
		Sodium Adsorption Ratio	5	10.3 SAR
BH21-08SS5	2.9-3.51	Electrical Conductivity	700	1740 µS/cm
		Sodium Adsorption Ratio	5	16.5 SAR
Dup 3	2.9-3.51	Electrical Conductivity	700	1830 µS/cm
		Sodium Adsorption Ratio	5	16.3 SAR

BH21-07				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-07SS1	0.46-0.76	Electrical Conductivity	700	1820 µS/cm
		Sodium Adsorption Ratio	5	12.9 SAR
BH21-07SS5	2.67-2.9	Electrical Conductivity	700	5570 µS/cm
		Sodium Adsorption Ratio	5	19.6 SAR



BH21-17				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-17SS3	1.52-1.83	Electrical Conductivity	700	1950 µS/cm
		Sodium Adsorption Ratio	5	15.2 SAR

BH21-14				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-14SS1	0.76-1.37	Electrical Conductivity	700	1240 µS/cm
BH21-14SS3	2.29-2.9	Electrical Conductivity	700	1490 µS/cm
		Sodium Adsorption Ratio	5	9.09 SAR

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11B - Cross Section B-B' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

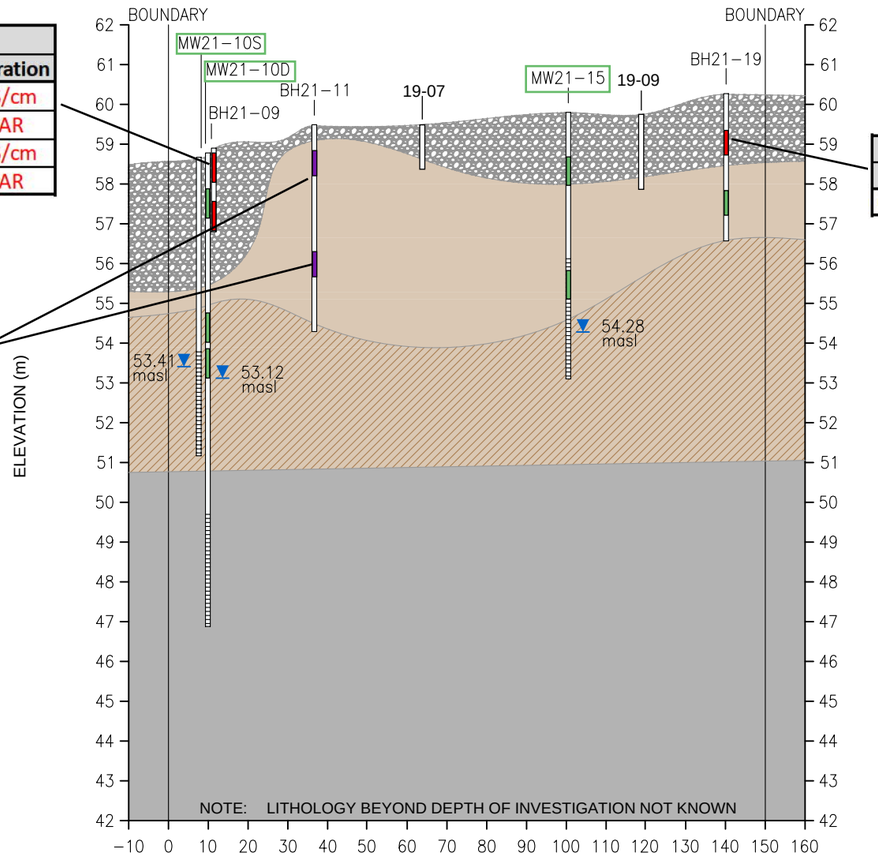
CROSS SECTION C-C'

C NORTH — **C'** SOUTH

BH21-09				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-09SS1	0.15-0.61	Electrical Conductivity	700	2360 µS/cm
		Sodium Adsorption Ratio	5	14.8 SAR
BH21-09SS3	1.52-2.13	Electrical Conductivity	700	1050 µS/cm
		Sodium Adsorption Ratio	5	8.04 SAR

BH21-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-11SS2	0.76-1.37	Electrical Conductivity	700	1870 µS/cm
		Sodium Adsorption Ratio	5	12.2 SAR
BH21-11SS6	3.05-3.66	Electrical Conductivity	700	1390 µS/cm
		Sodium Adsorption Ratio	5	6.7 SAR

BH21-19				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-19SS1	1.52-1.83	Electrical Conductivity	700	2380 µS/cm



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11C - Cross Section C-C' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m50m

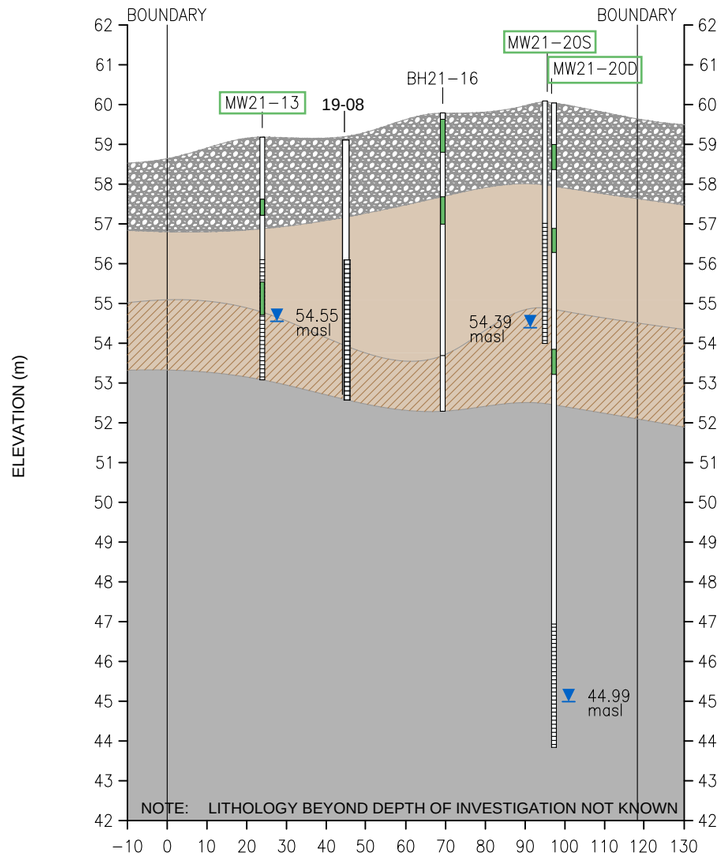
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION D-D'

D
NORTH

D'
SOUTH



DISTANCE (m)

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11D - Cross Section D-D' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

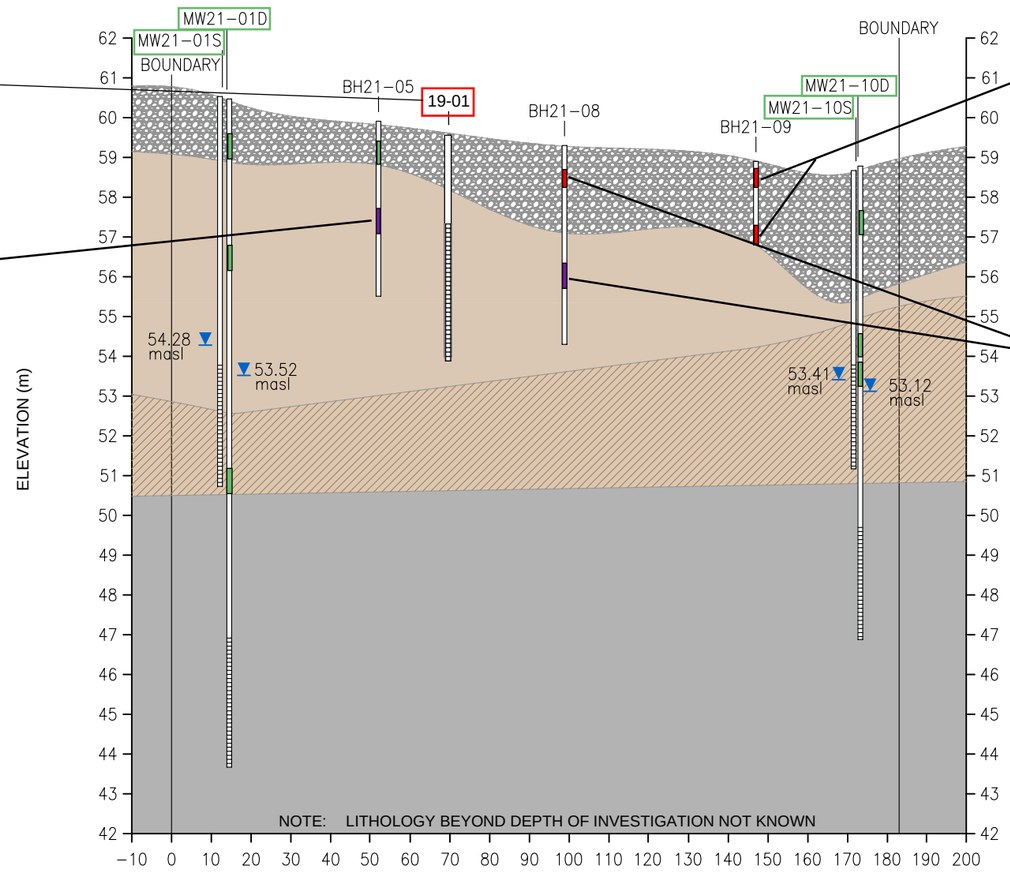
VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION E-E'

E WEST — **E'** EAST



19-01			
Sample ID	**Parameter Exceeded**	**Standard**	**Concentration**
19-01	Chloride	2300 mg/L	3760 mg/L

BH21-05				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-05SS4	2.29-2.74	Electrical Conductivity	700	1370 µS/cm

BH21-09				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-09SS1	0.15-0.61	Electrical Conductivity	700	2360 µS/cm
		Sodium Adsorption Ratio	5	14.8 SAR
BH21-09SS3	1.52-2.13	Electrical Conductivity	700	1050 µS/cm
		Sodium Adsorption Ratio	5	8.04 SAR

BH21-08				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-08SS1	0.15-0.46	Electrical Conductivity	700	1560 µS/cm
		Sodium Adsorption Ratio	5	10.3 SAR
BH21-08SS5	2.9-3.51	Electrical Conductivity	700	1740 µS/cm
		Sodium Adsorption Ratio	5	16.5 SAR
Dup 3	2.9-3.51	Electrical Conductivity	700	1830 µS/cm
		Sodium Adsorption Ratio	5	16.3 SAR

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11E - Cross Section E-E' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

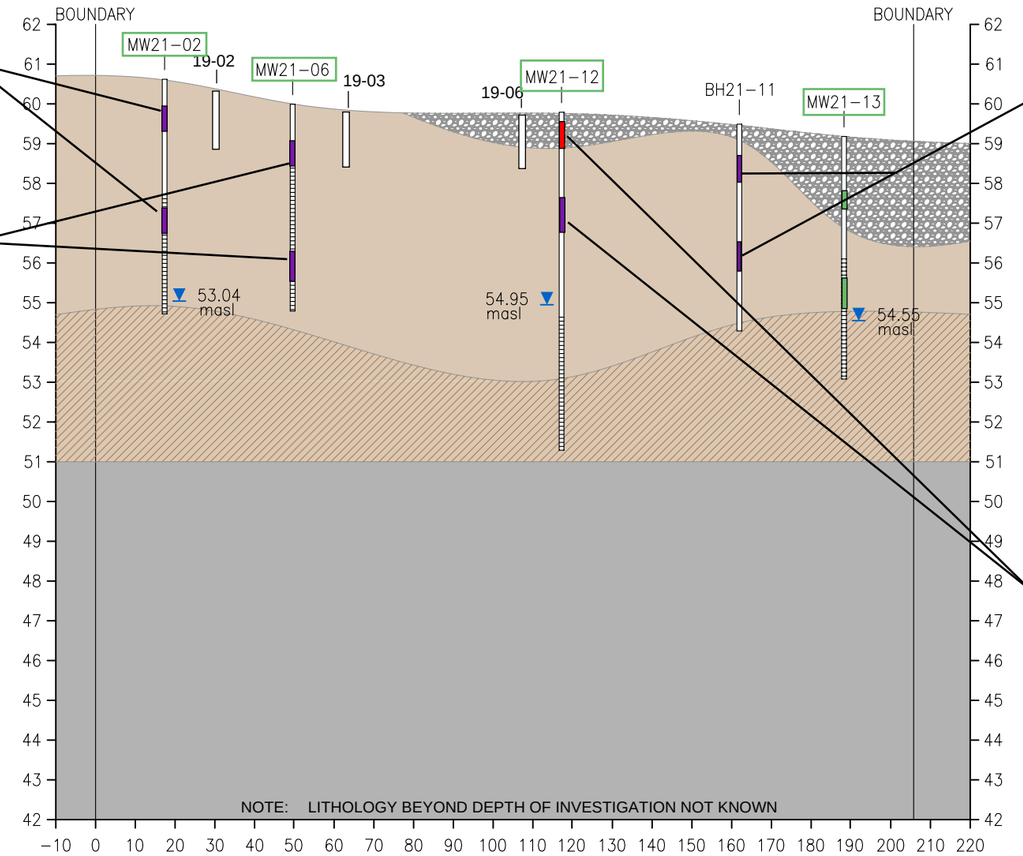
CROSS SECTION F-F'

F
WEST

F'
EAST

BH21-02				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-02SS1	0.91-1.37	Electrical Conductivity	700	1240 µS/cm
		Sodium Adsorption Ratio	5	9 SAR
BH21-02SS4	3.35-3.66	Electrical Conductivity	700	744 µS/cm

BH21-06				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-06SS1	0.76-1.37	Electrical Conductivity	700	1790 µS/cm
		Sodium Adsorption Ratio	5	14.8 SAR
BH21-06SS5	4.11-4.42	Electrical Conductivity	700	970 µS/cm



BH21-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-11SS2	0.76-1.37	Electrical Conductivity	700	1870 µS/cm
		Sodium Adsorption Ratio	5	12.2 SAR
BH21-11SS6	3.05-3.66	Electrical Conductivity	700	1390 µS/cm
		Sodium Adsorption Ratio	5	6.7 SAR

BH21-12				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-12SS1	0.15-0.76	Electrical Conductivity	700	1510 µS/cm
		Sodium Adsorption Ratio	5	5.68 SAR
BH21-12SS3	2.44-3.05	Electrical Conductivity	700	767 µS/cm

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11F - Cross Section F-F' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

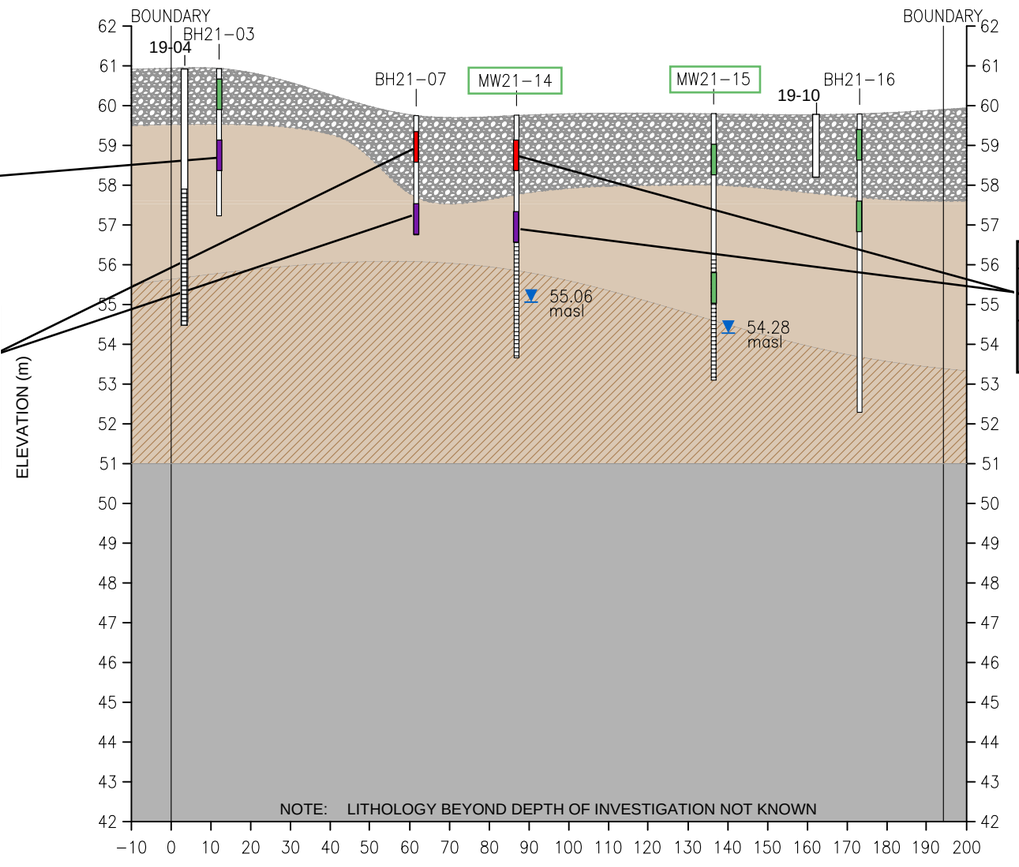
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION G-G'

G
WEST

G'
EAST



BH21-03				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-03SS3	1.83-2.13	Electrical Conductivity	700	803 µS/cm
		Sodium Adsorption Ratio	5	6.03 SAR

BH21-07				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-07SS1	0.46-0.76	Electrical Conductivity	700	1820 µS/cm
		Sodium Adsorption Ratio	5	12.9 SAR
BH21-07SS5	2.67-2.9	Electrical Conductivity	700	5570 µS/cm
		Sodium Adsorption Ratio	5	19.6 SAR

BH21-14				
Sample ID	Depth (mbgs)	Parameter Exceeded	Standard	Concentration
BH21-14SS1	0.76-1.37	Electrical Conductivity	700	1240 µS/cm
BH21-14SS3	2.29-2.9	Electrical Conductivity	700	1490 µS/cm
		Sodium Adsorption Ratio	5	9.09 SAR

Ground level elevation for BH21-03 and BH21-07 assumed with respect to West Boundary and MW21-14.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11G - Cross Section G-G' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

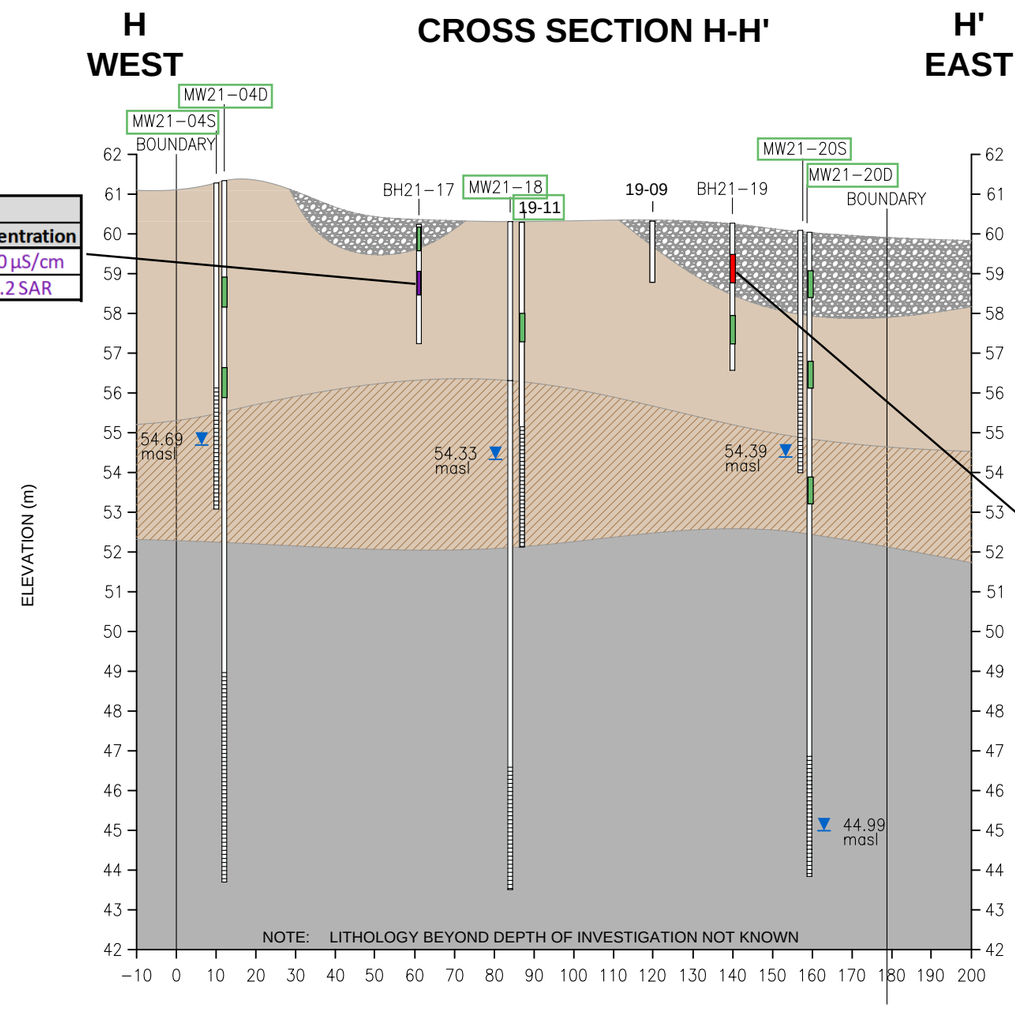
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION H-H'

H
WEST

H'
EAST



BH21-17				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-17SS3	1.52-1.83	Electrical Conductivity	700	1950 µS/cm
		Sodium Adsorption Ratio	5	15.2 SAR

BH21-19				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-19SS1	1.52-1.83	Electrical Conductivity	700	2380 µS/cm

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 11H - Cross Section H-H' - SAR, EC, Cyanide, pH, Sodium, Chloride

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION A-A'

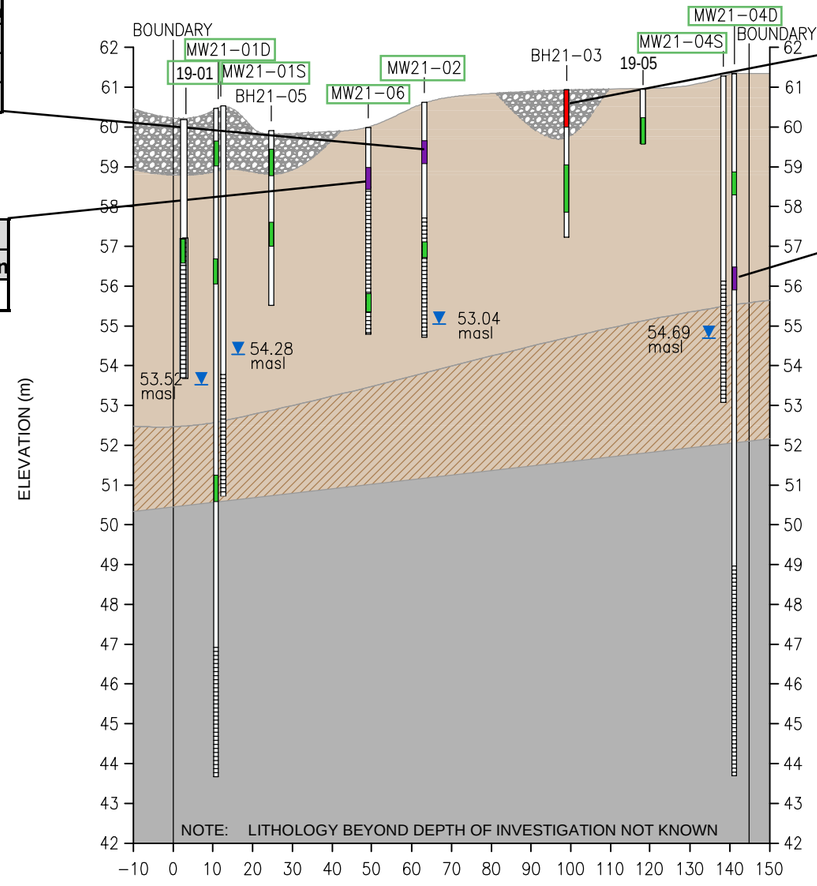
A NORTH — **A'** SOUTH

BH21-02				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-02SS1	0.91-1.37	Barium	390 µg/g	403 µg/g
		Cobalt	22 µg/g	24.8 µg/g
		Vanadium	86 µg/g	113 µg/g

BH21-06				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-06SS1	0.76-1.37	Vanadium	86 µg/g	96.9 µg/g

BH21-03				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-03SS1	0-0.61	Cadmium	1.2 µg/g	1.5 µg/g

BH21-04				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-04SS5	4.72-5.33	Vanadium	86 µg/g	92.5 µg/g
Dup 2	4.72-5.33	Vanadium	86 µg/g	86.6 µg/g



Ground level elevation for BW21-03 assumed with respect to MW21-02 and MW21-04S.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12A - Cross Section A-A' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW-000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21-05 Bore Hole
MW21-02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

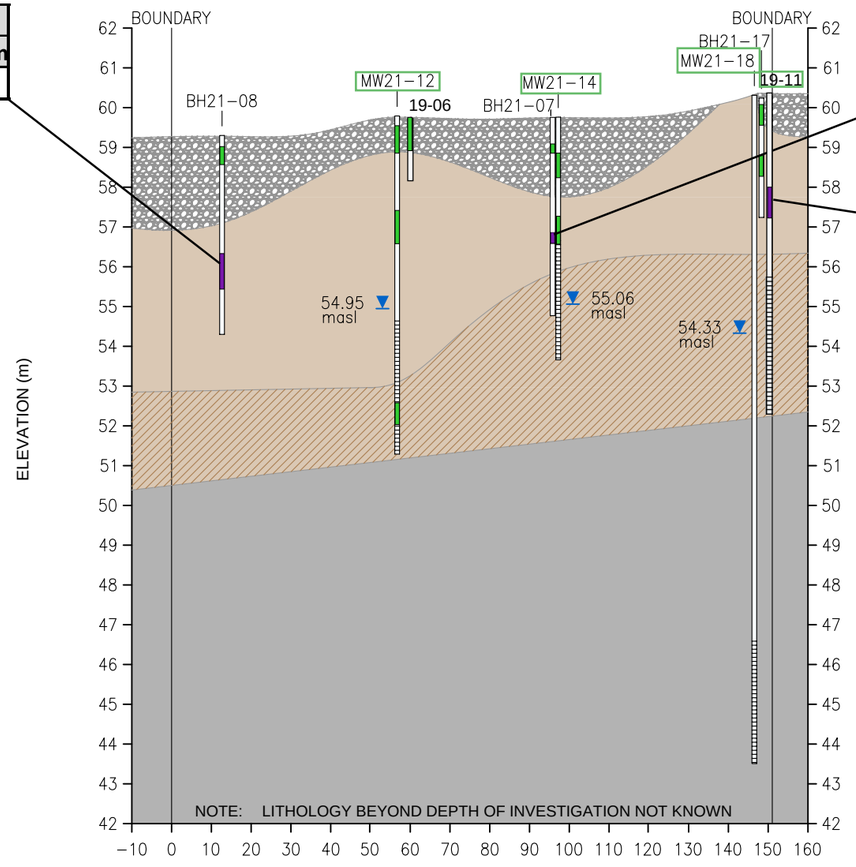
CROSS SECTION B-B'

B NORTH — **B'** SOUTH

BH21-08				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
DUP 3	2.9-3.51	Vanadium	86 µg/g	91.2 µg/g

BH21-07				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-07SS5	2.67-2.9	Vanadium	86 µg/g	107 µg/g

19-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
19-11 SA4	2.29-3.05	Vanadium	86 µg/g	92 µg/g



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12B - Cross Section B-B' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

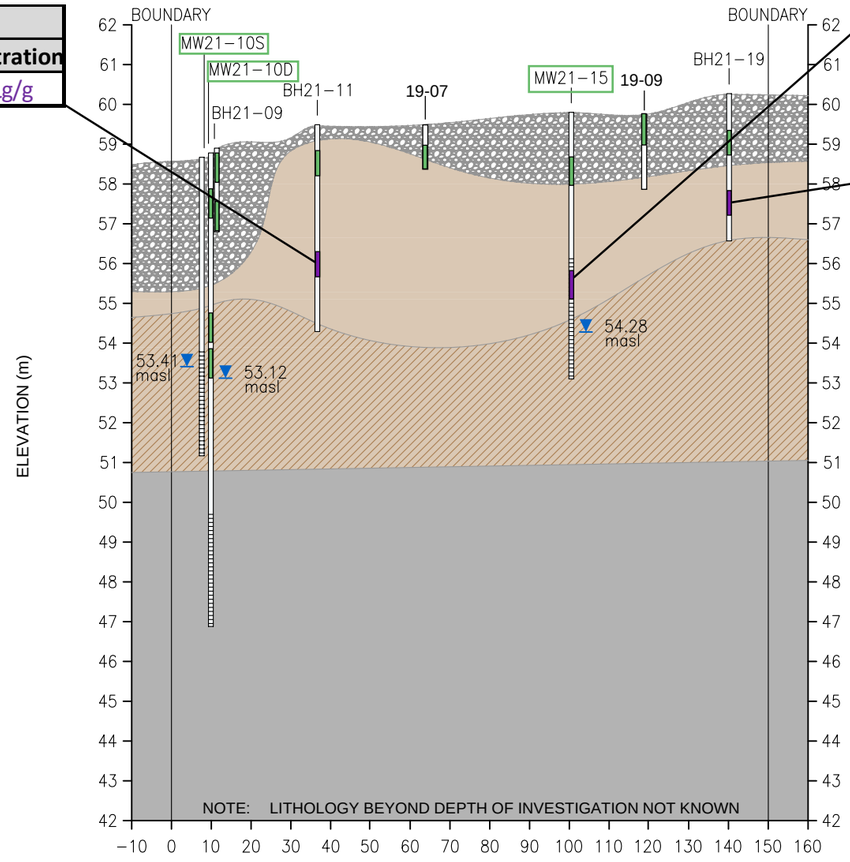
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION C-C'

C NORTH — **C'** SOUTH

BH21-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-11SS6	3.05-3.66	Vanadium	86 µg/g	101 µg/g



BH21-15				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-15SS5	3.81-4.42	Vanadium	86 µg/g	94.7µg/g

BH21-19				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-19SS3	2.44-3.05	Vanadium	86 µg/g	100 µg/g

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12C - Cross Section C-C' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

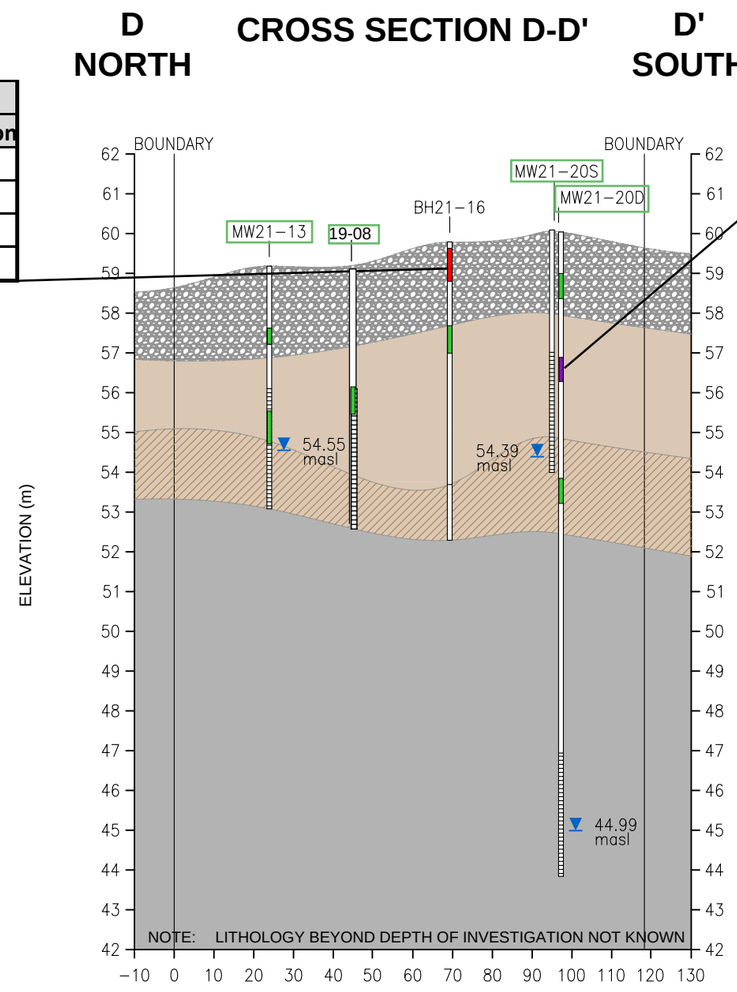
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION D-D'

BH21-16				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-16SS2	1.22-1.83	Cobalt	22 µg/g	22.8 µg/g
		Vanadium	86 µg/g	99.8 µg/g
DUP 4	1.22-1.83	Cobalt	22 µg/g	24.3 µg/g
		Vanadium	86 µg/g	108 µg/g

BH21-20				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-19SS3	3.05-3.66	Vanadium	86 µg/g	92.1 µg/g



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12D - Cross Section D-D' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

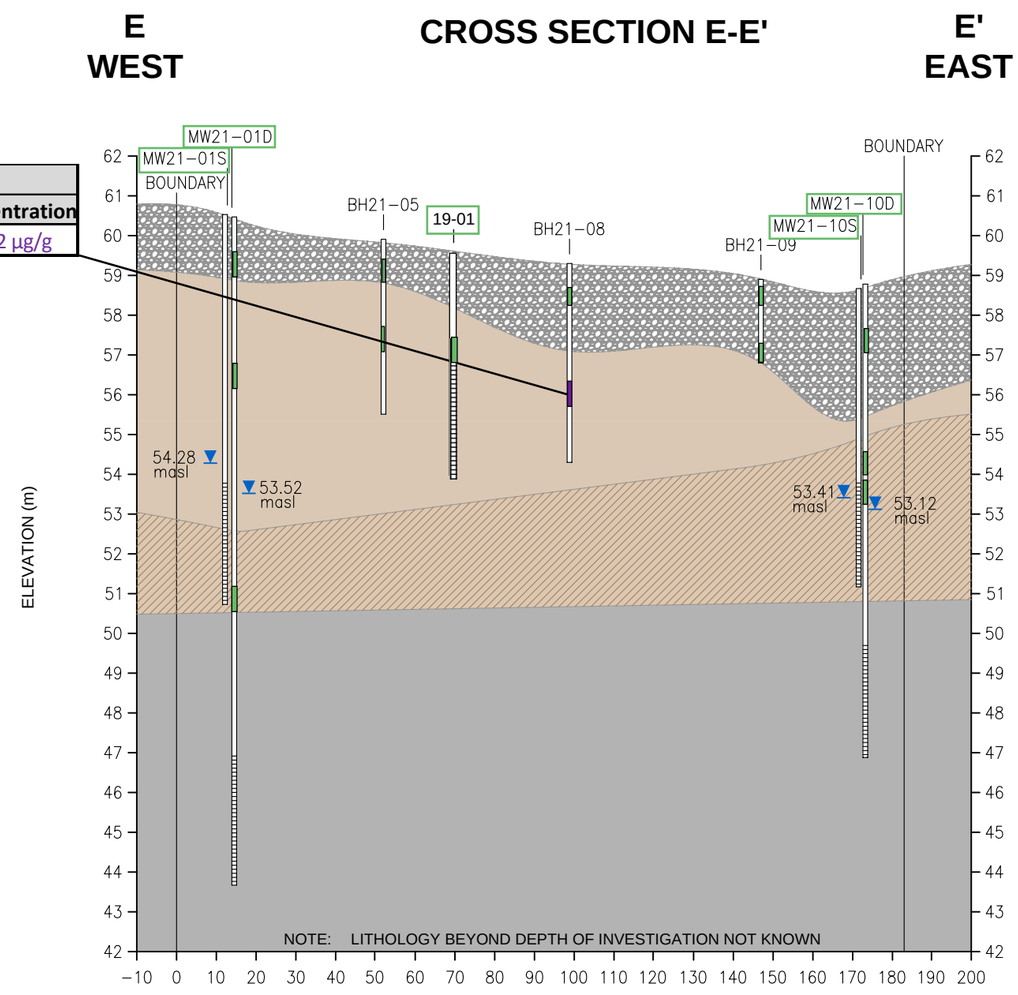
VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

BH21-08				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
DUP 3	2.9-3.51	Vanadium	86 µg/g	91.2 µg/g

CROSS SECTION E-E'



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12E - Cross Section E-E' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION F-F'

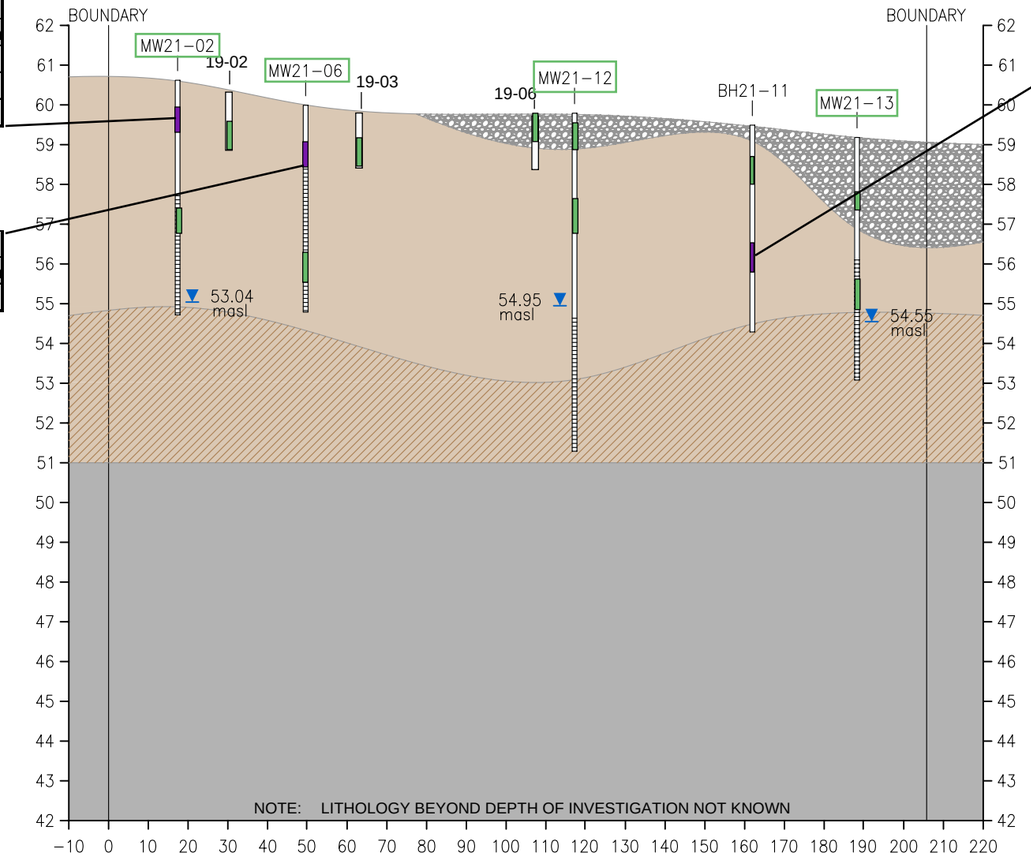
F
WEST

F'
EAST

BH21-02				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-02SS1	0.91-1.37	Barium	390 µg/g	403 µg/g
		Cobalt	22 µg/g	24.8 µg/g
		Vanadium	86 µg/g	113 µg/g

BH21-06				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-06SS1	0.76-1.37	Vanadium	86 µg/g	96.9 µg/g

BH21-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-11SS6	3.05-3.66	Vanadium	86 µg/g	101 µg/g



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12F - Cross Section F-F' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW-000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION G-G'

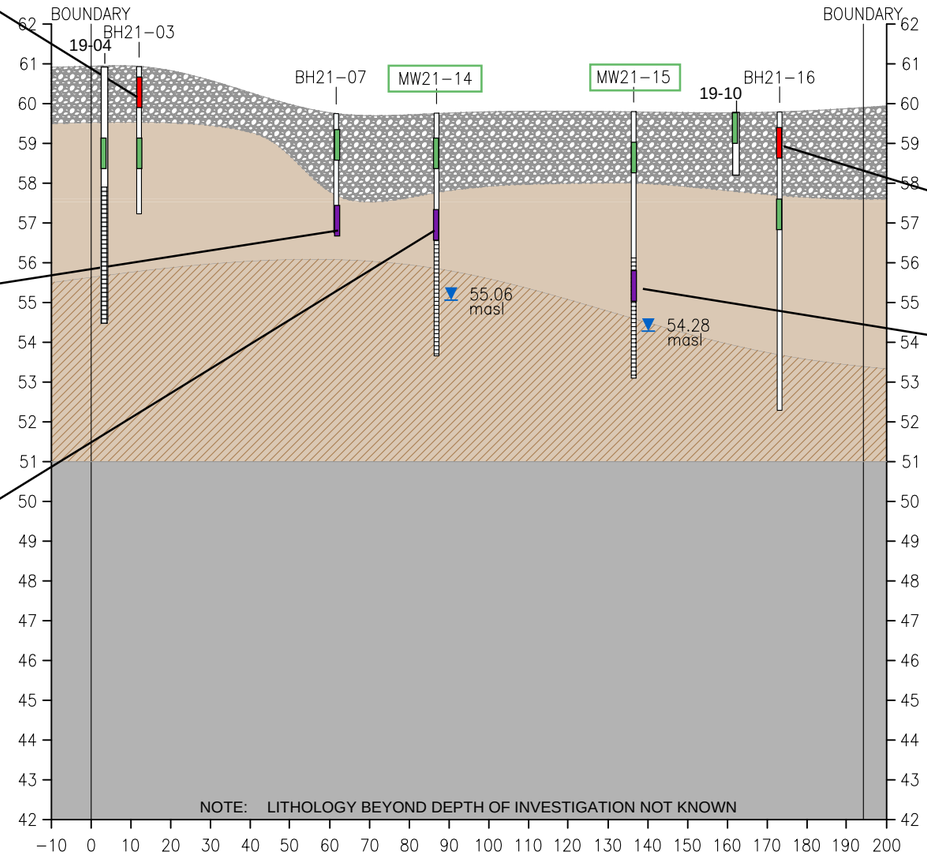
G
WEST

G'
EAST

BH21-03				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-03SS1	0-0.61	Cadmium	1.2 µg/g	1.5 µg/g

BH21-07				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-07SS5	2.67-2.9	Vanadium	86 µg/g	107 µg/g

BH21-14				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-14SS3	2.29-2.9	Vanadium	86 µg/g	99.6 µg/g



BH21-16				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-16SS2	1.22-1.83	Cobalt	22 µg/g	22.8 µg/g
		Vanadium	86 µg/g	99.8 µg/g
DUP 4	1.22-1.83	Cobalt	22 µg/g	24.3 µg/g
		Vanadium	86 µg/g	108 µg/g

BH21-15				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-15SS5	3.81-4.42	Vanadium	86 µg/g	94.7µg/g

Ground level elevation for BW21-03 and MW21-07 assumed with respect to West Boundary and MW21-14.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12G - Cross Section G-G' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW−000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21−05 Bore Hole
MW21−02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

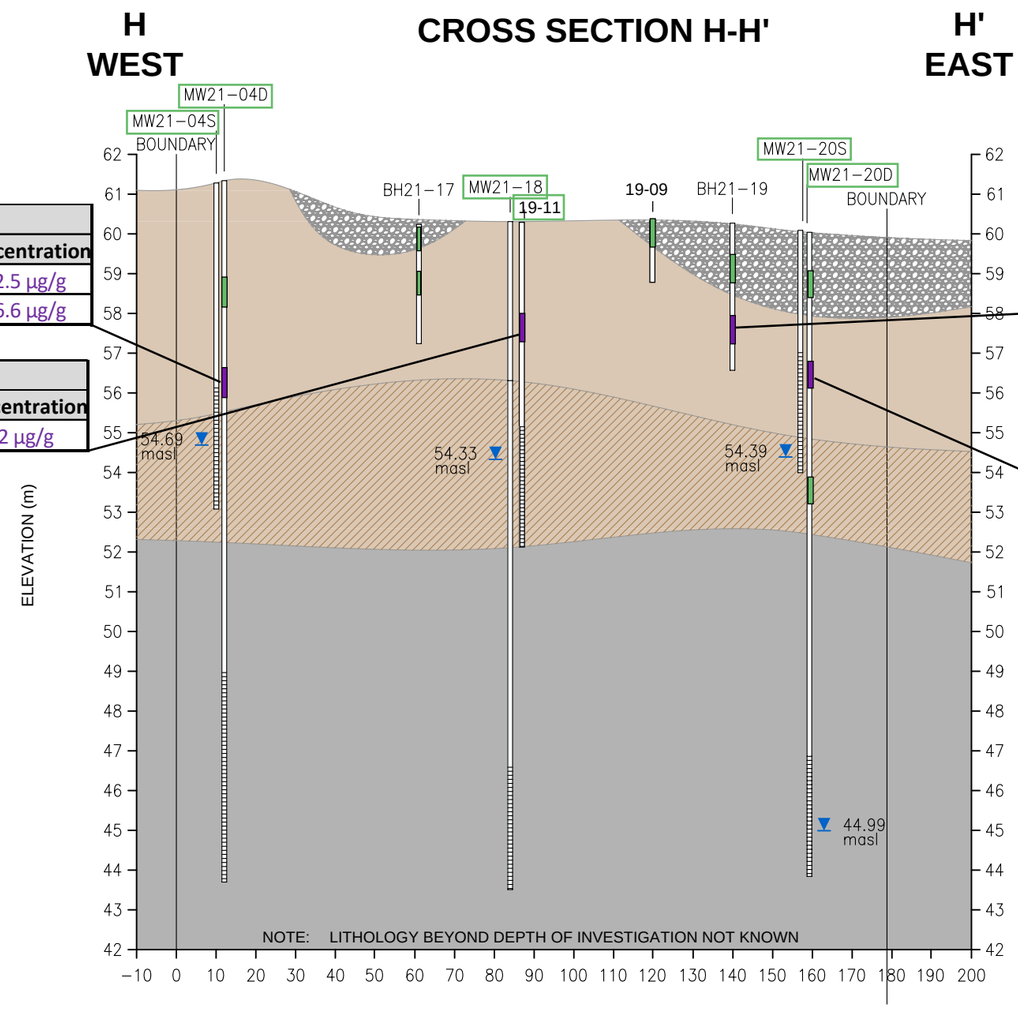
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION H-H'

H
WEST

H'
EAST



BH21-04				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-04SS5	4.72-5.33	Vanadium	86 µg/g	92.5 µg/g
Dup 2	4.72-5.33	Vanadium	86 µg/g	86.6 µg/g

19-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
19-11 SA4	2.29-3.05	Vanadium	86 µg/g	92 µg/g

BH21-19				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-19SS3	2.44-3.05	Vanadium	86 µg/g	100 µg/g

BH21-20				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-20SS4	3.05-3.66	Vanadium	86 µg/g	92.1 µg/g

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 12H - Cross Section H-H' - Metals

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil, however is attributed to background conditions in the native marine clay
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

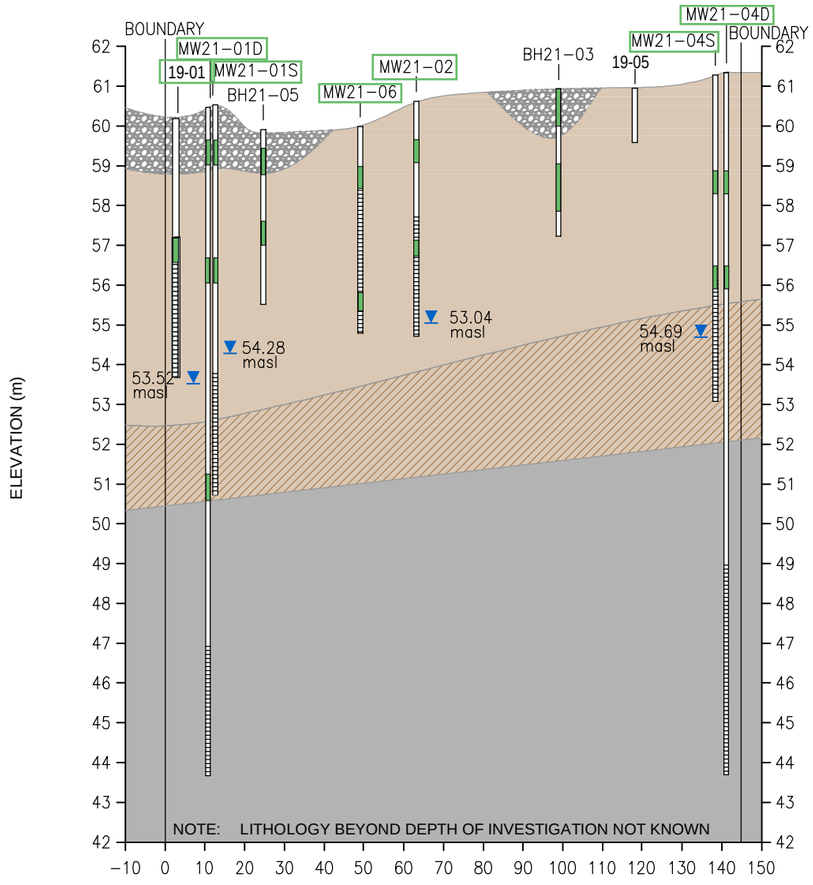
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION A-A'

A
NORTH

A'
SOUTH



Ground level elevation for BW21-03 assumed with respect to MW21-02 and MW21-04S.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13A - Cross Section A-A' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

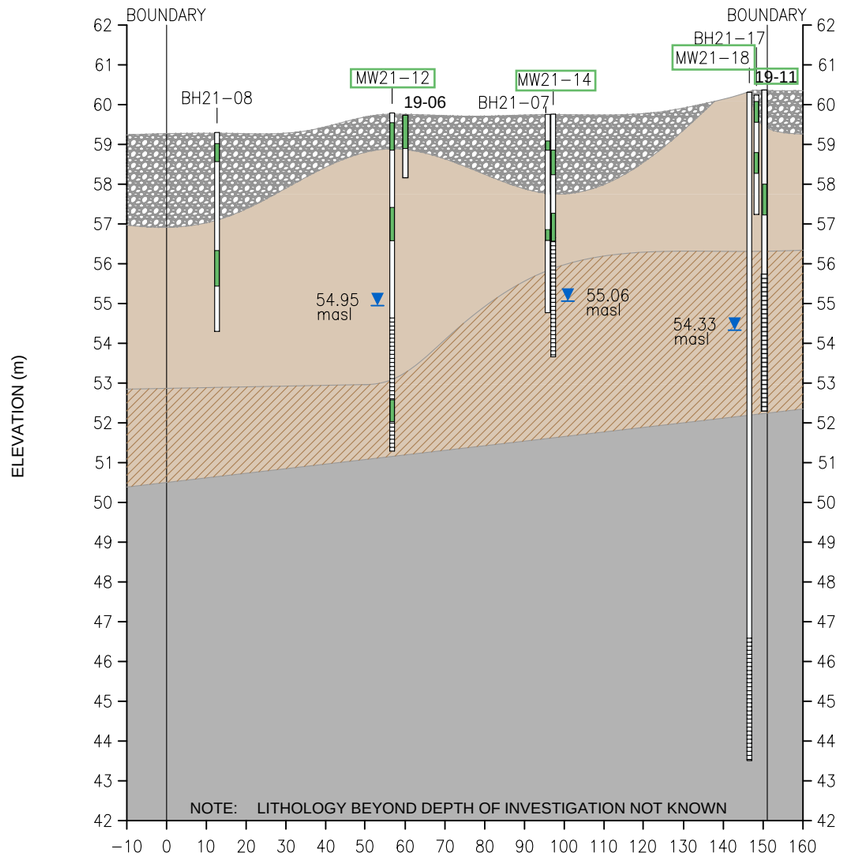
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION B-B'

B
NORTH

B'
SOUTH



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13B - Cross Section B-B' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

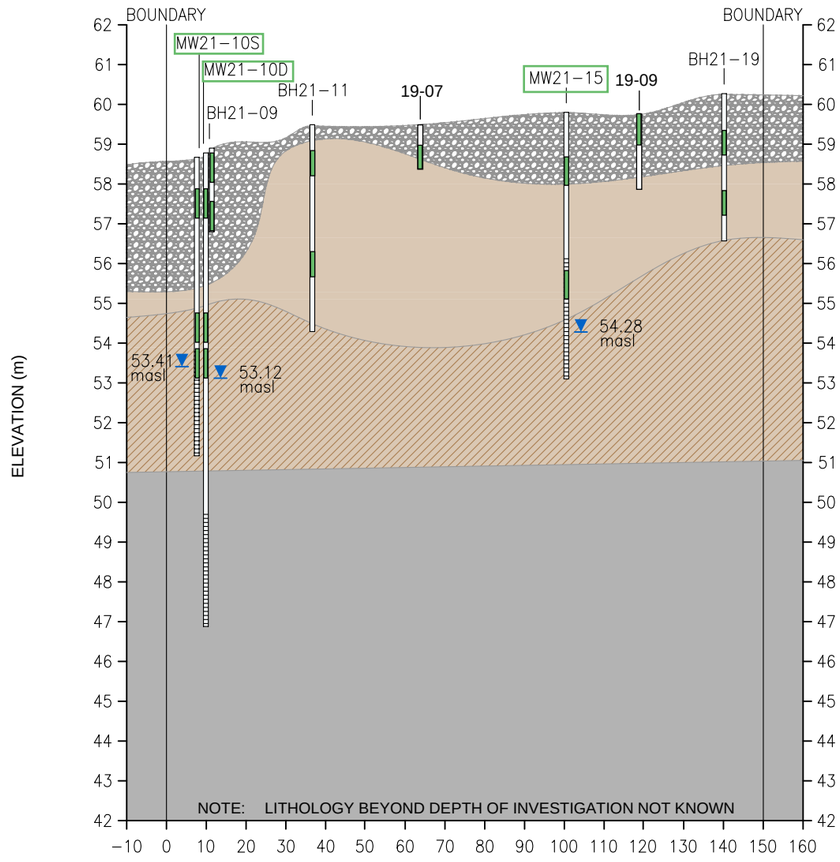
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION C-C'

C
NORTH

C'
SOUTH



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13C - Cross Section C-C' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

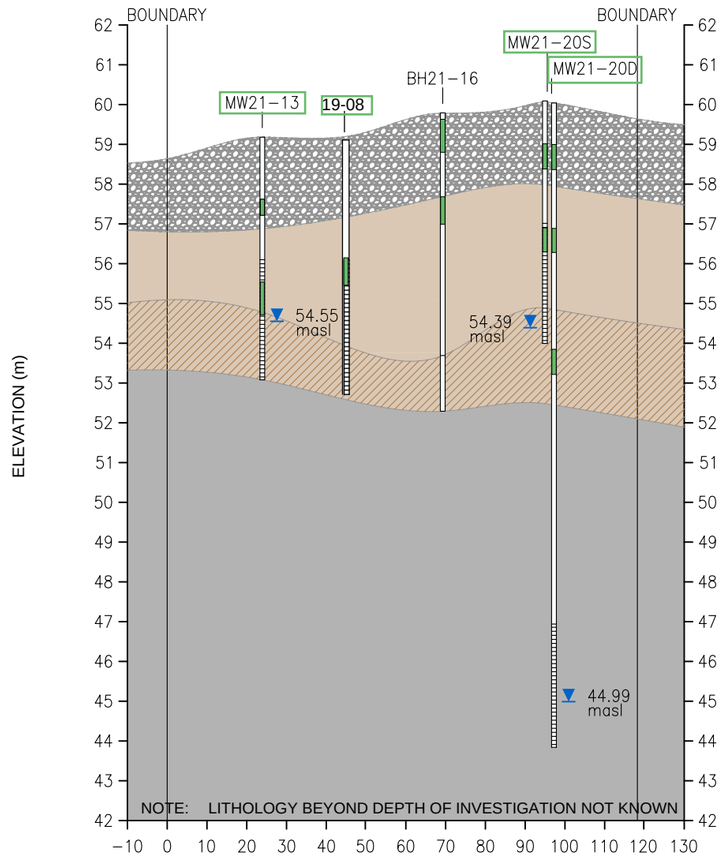
VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION D-D'

D **NORTH** — **D'** **SOUTH**



DISTANCE (m)

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13D - Cross Section D-D' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

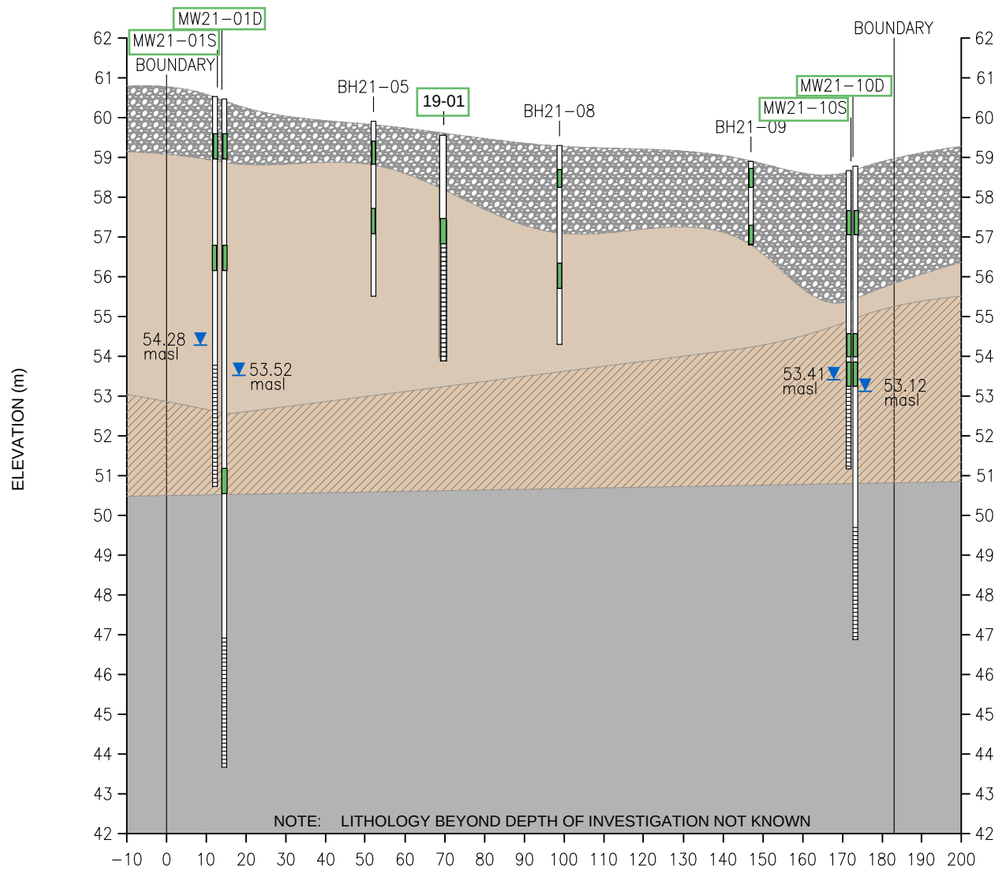
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION E-E'

E
WEST

E'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13E - Cross Section E-E' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

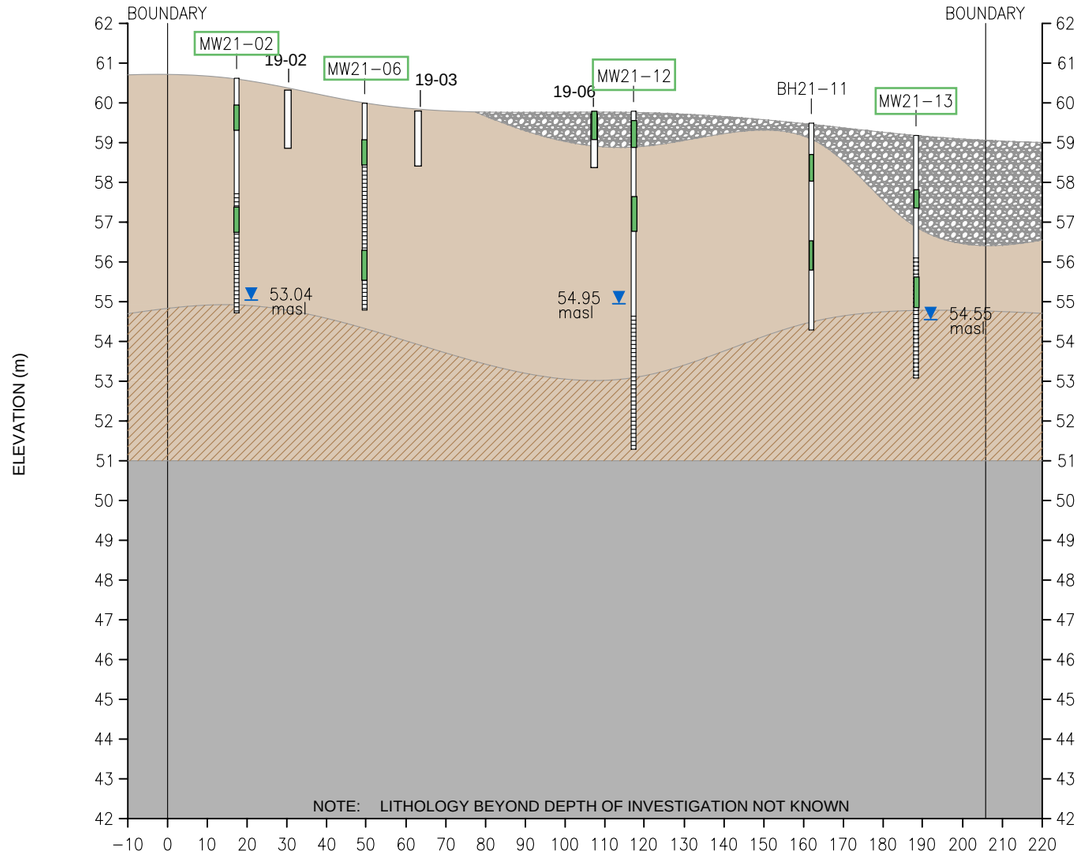
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION F-F'

F
WEST

F'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13F - Cross Section F-F' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

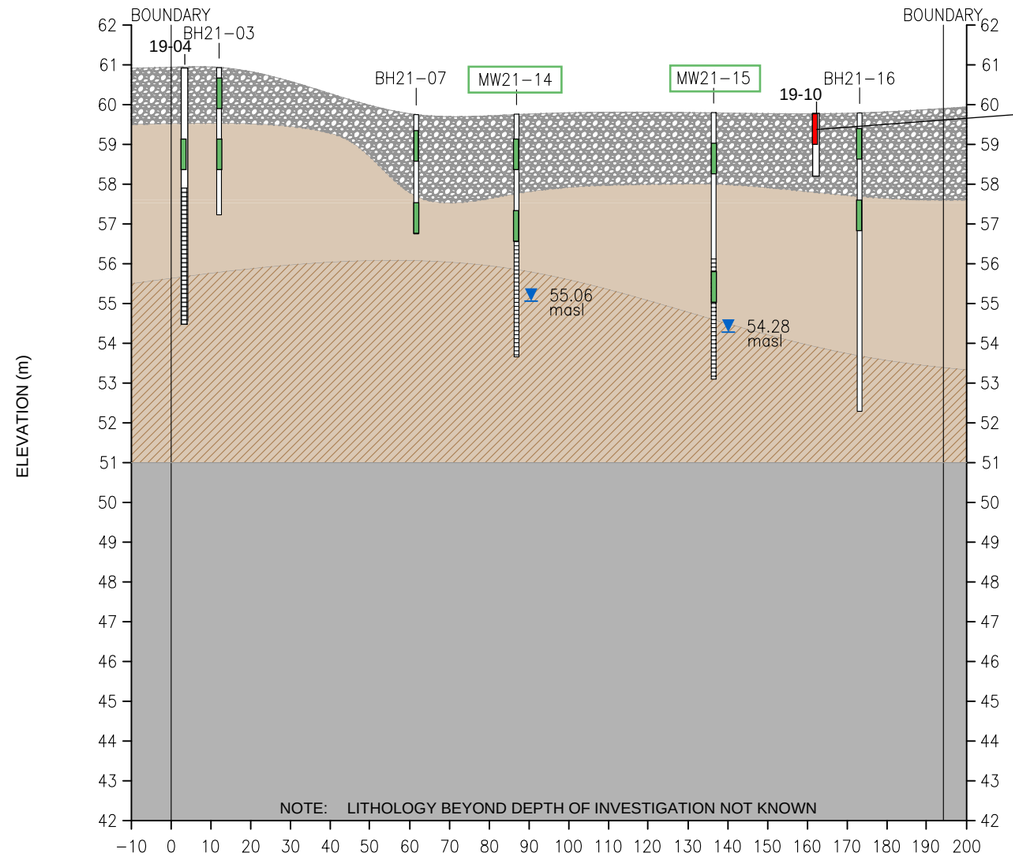
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION G-G'

G
WEST

G'
EAST



19-10				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
19-10 SA1	0-0.76	PHC F3 (>C16-C34)	300 µg/g	1100 µg/g

Ground level elevation for BH21-03 and BH21-07 assumed with respect to West Boundary and MW21-14.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13G - Cross Section G-G' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

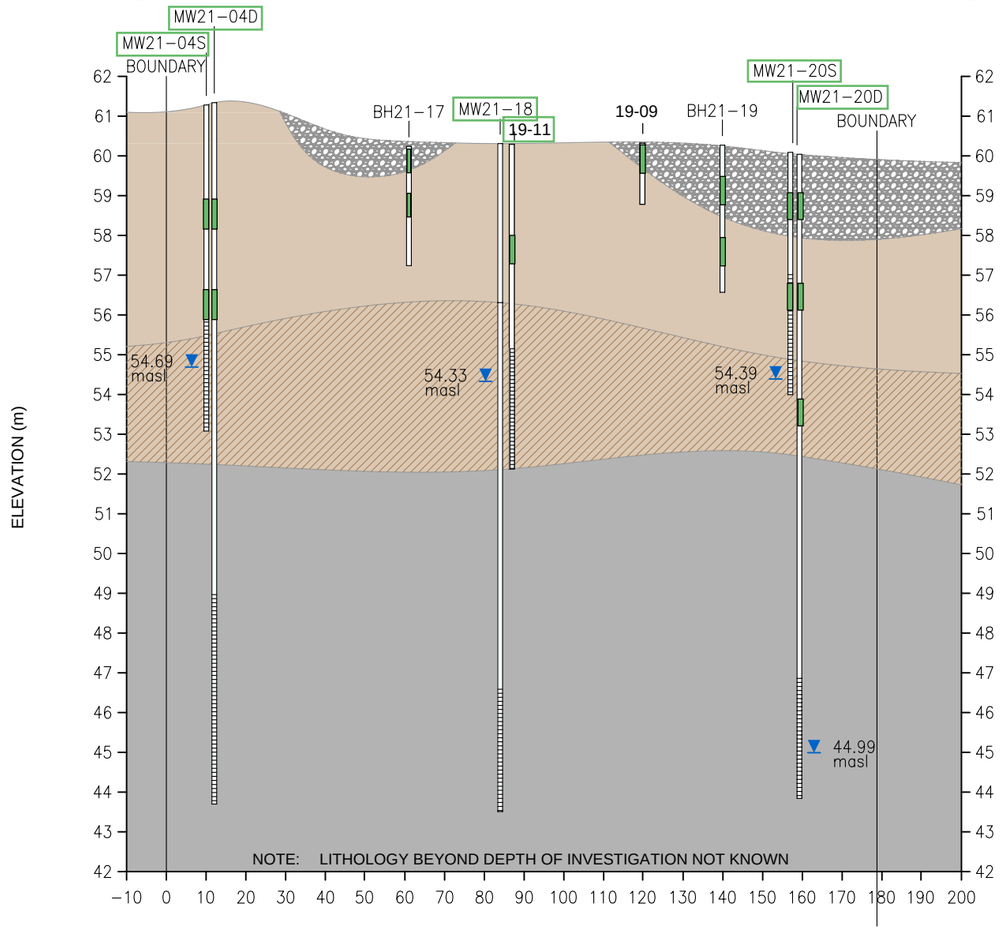
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION H-H'

H
WEST

H'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 13H - Cross Section H-H' - PHCs & BTEX

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

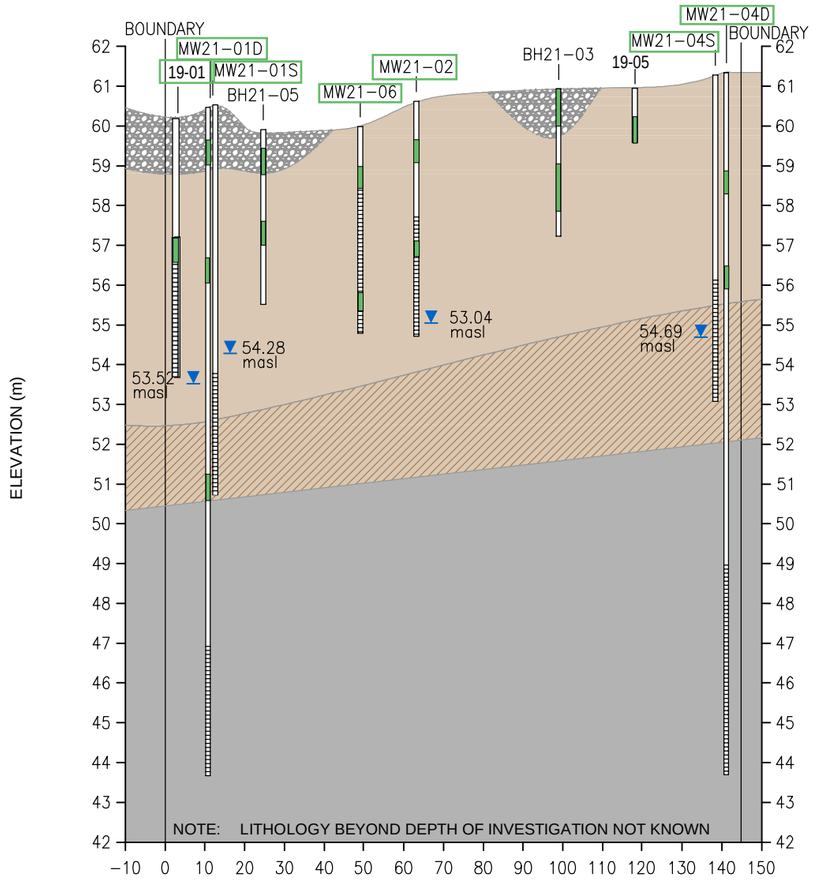
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION A-A'

A
NORTH

A'
SOUTH



Ground level elevation for BW21-03 assumed with respect to MW21-02 and MW21-04S.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14A - Cross Section A-A' - PAHs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

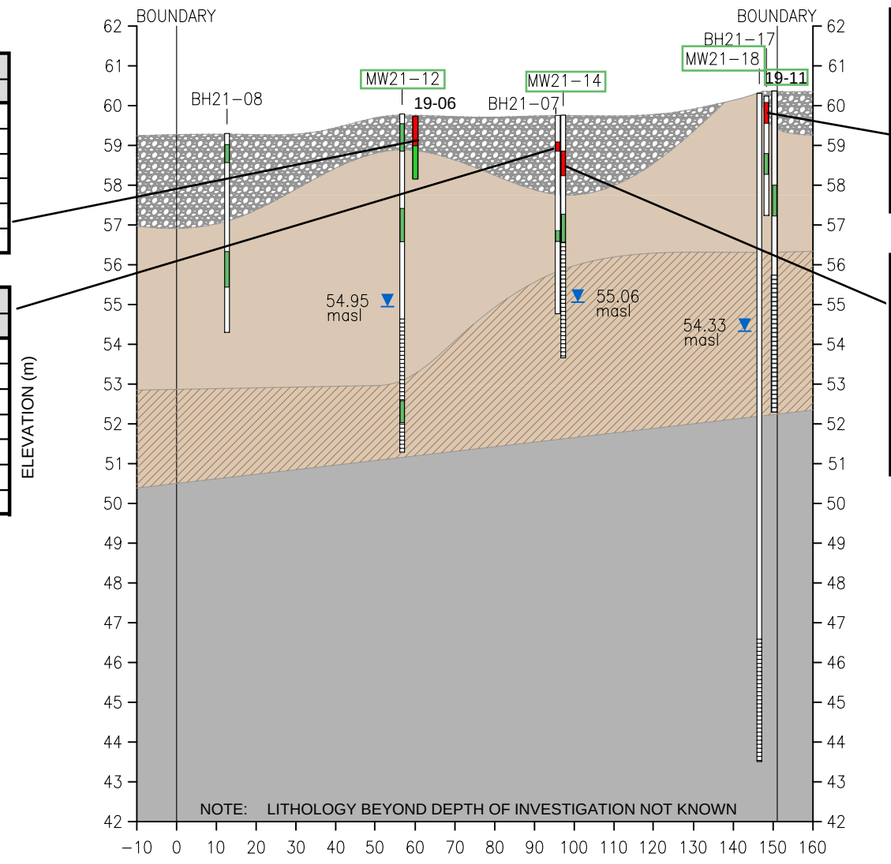
CROSS SECTION B-B'

B
NORTH

B'
SOUTH

19-06				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
19-06 SA1	0-0.76	Benzo(a)anthracene	0.5 µg/g	0.71 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.57 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	0.83 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.1 µg/g
		Fluoranthene	0.69 µg/g	2.1 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.41 µg/g

BH21-07				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-07SS1	0.46-0.76	Acenaphthylene	0.15 µg/g	0.25 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.68 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.85 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	1.05 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.15 µg/g
		Fluoranthene	0.69 µg/g	1.22 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.53 µg/g



BH21-17				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-17SS1	0.15-0.61	Acenaphthylene	0.15 µg/g	<0.4 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.54 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.51 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	<0.4 µg/g
		Fluoranthene	0.69 µg/g	0.91 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	<0.4 µg/g

BH21-14				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-14SS1	0.76-1.37	1 & 2 Methylnaphthalene	0.99 µg/g	1.52 µg/g
		Benzo(a)anthracene	0.5 µg/g	1.09 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.87 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	1.13 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.15 µg/g
		Fluoranthene	0.69 µg/g	3.58 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.5 µg/g

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14B - Cross Section B-B' - PAHs

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

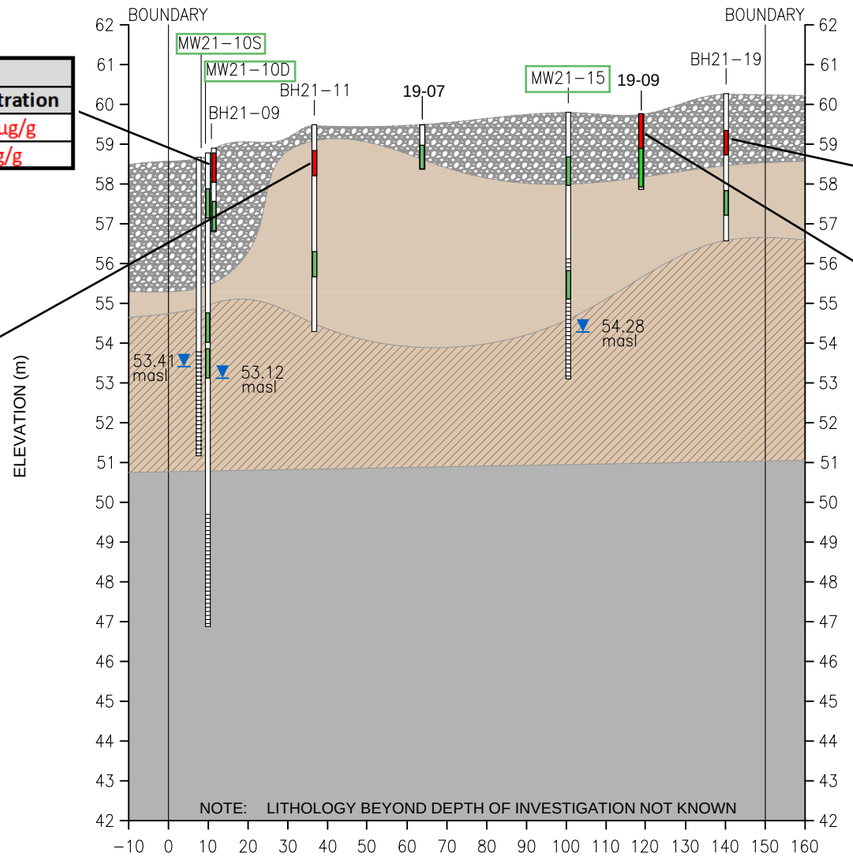
This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION C-C'

C NORTH — **C'** SOUTH

BH21-09				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-09SS1	0.15-0.61	Benzo(a) pyrene	0.3 µg/g	0.46 µg/g
		Fluoranthene	0.69 µg/g	1 µg/g

BH21-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-11SS2	0.76-1.37	Acenaphthylene	0.15 µg/g	0.24 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.58 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.52 µg/g
		Fluoranthene	0.69 µg/g	1.18 µg/g



BH21-19				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-19SS1	0.91-1.52	1 & 2 Methylnaphthalene	0.99 µg/g	1.83 µg/g

19-09				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
19-09 SA1	0-0.76	1 & 2 Methylnaphthalene	0.99 µg/g	1.7 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.81 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.64 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	0.93 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.11 µg/g
		Fluoranthene	0.69 µg/g	2.4 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.48 µg/g

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14C - Cross Section C-C' - PAHs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

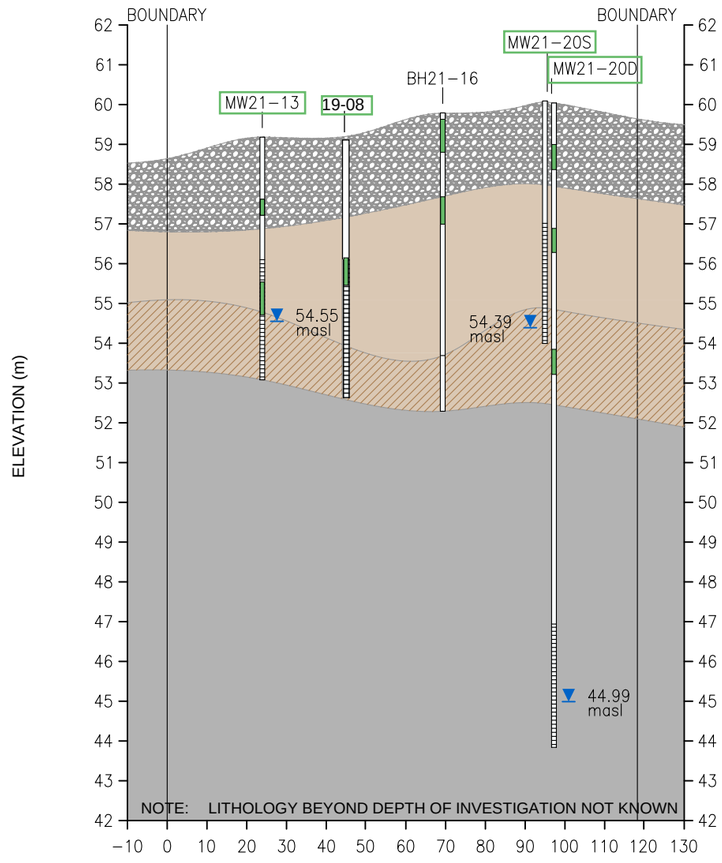
VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION D-D'

D **NORTH** — **D'** **SOUTH**



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14D - Cross Section D-D' - PAHs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

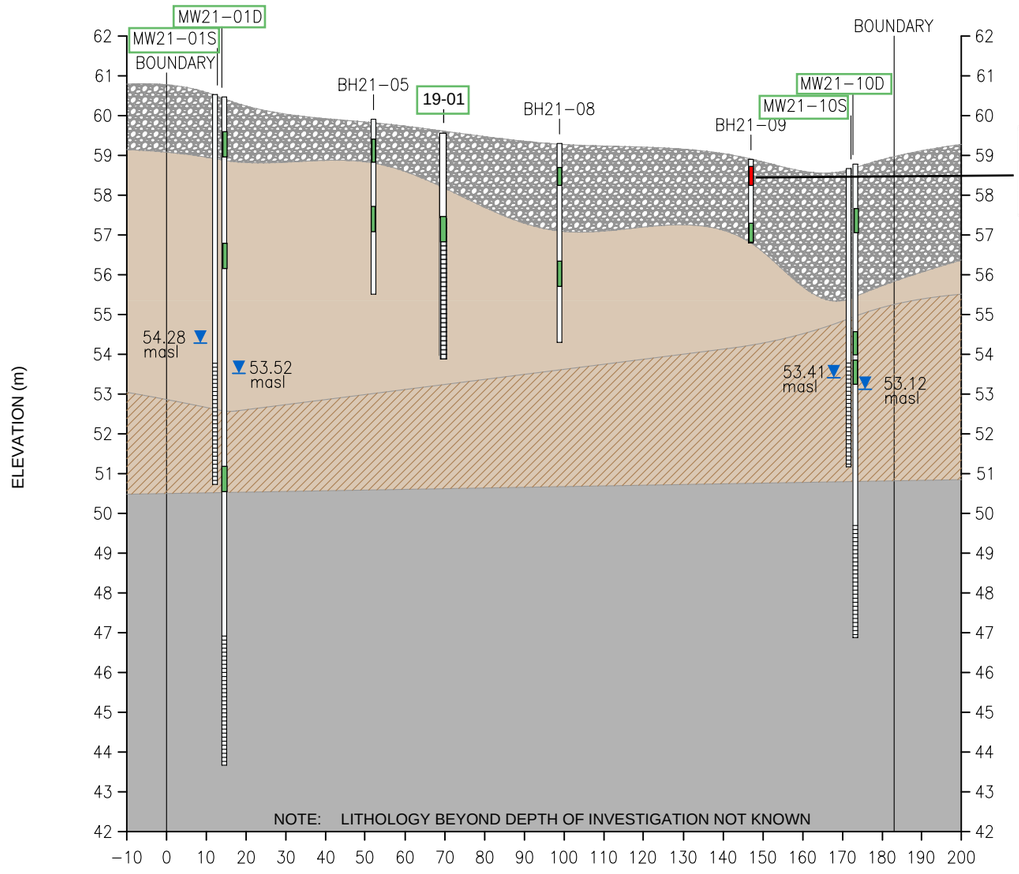
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION E-E'

E
WEST

E'
EAST



BH21-09				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-09SS1	0.15-0.61	Benzo(a) pyrene	0.3 µg/g	0.46 µg/g
		Fluoranthene	0.69 µg/g	1 µg/g

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14E - Cross Section E-E' - PAHs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW-000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

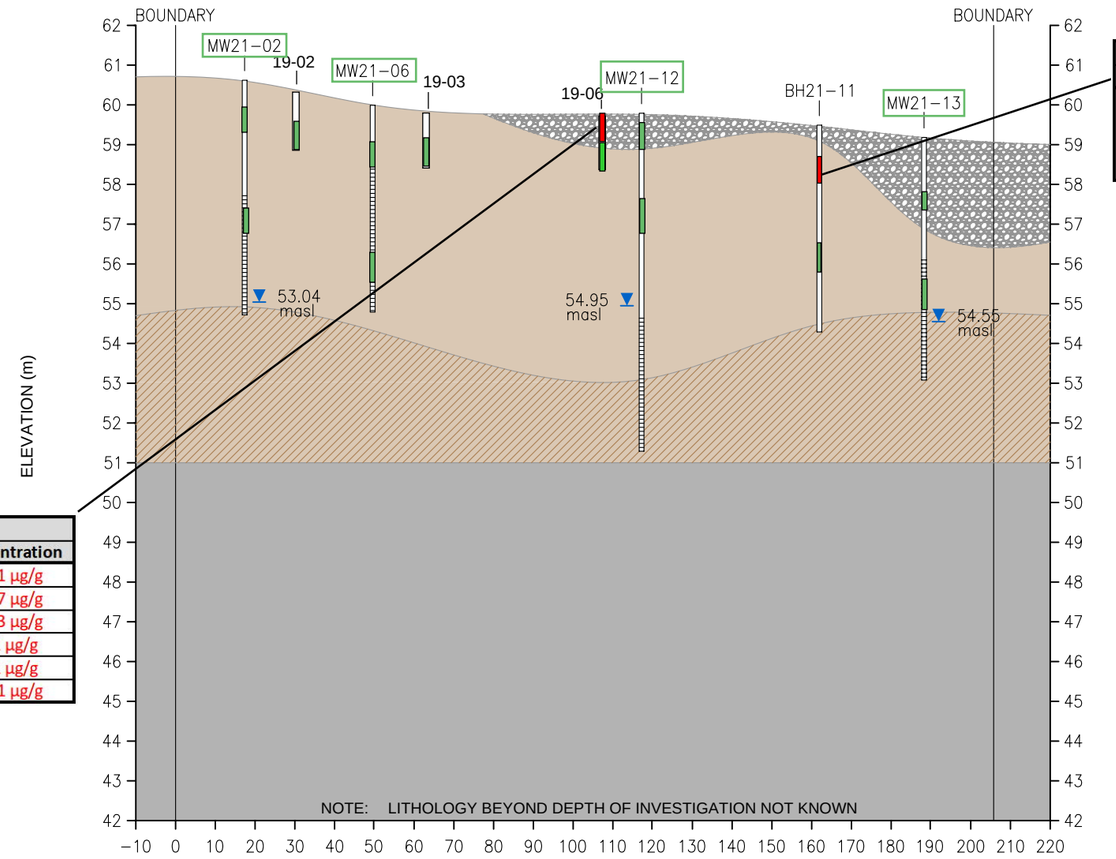
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION F-F'

F
WEST

F'
EAST



19-06				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
19-06 SA1	0-0.76	Benzo(a)anthracene	0.5 µg/g	0.71 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.57 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	0.83 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.1 µg/g
		Fluoranthene	0.69 µg/g	2.1 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.41 µg/g

BH21-11				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-11SS2	0.76-1.37	Acenaphthylene	0.15 µg/g	0.24 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.58 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.52 µg/g
		Fluoranthene	0.69 µg/g	1.18 µg/g

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14F - Cross Section F-F' - PAHs

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

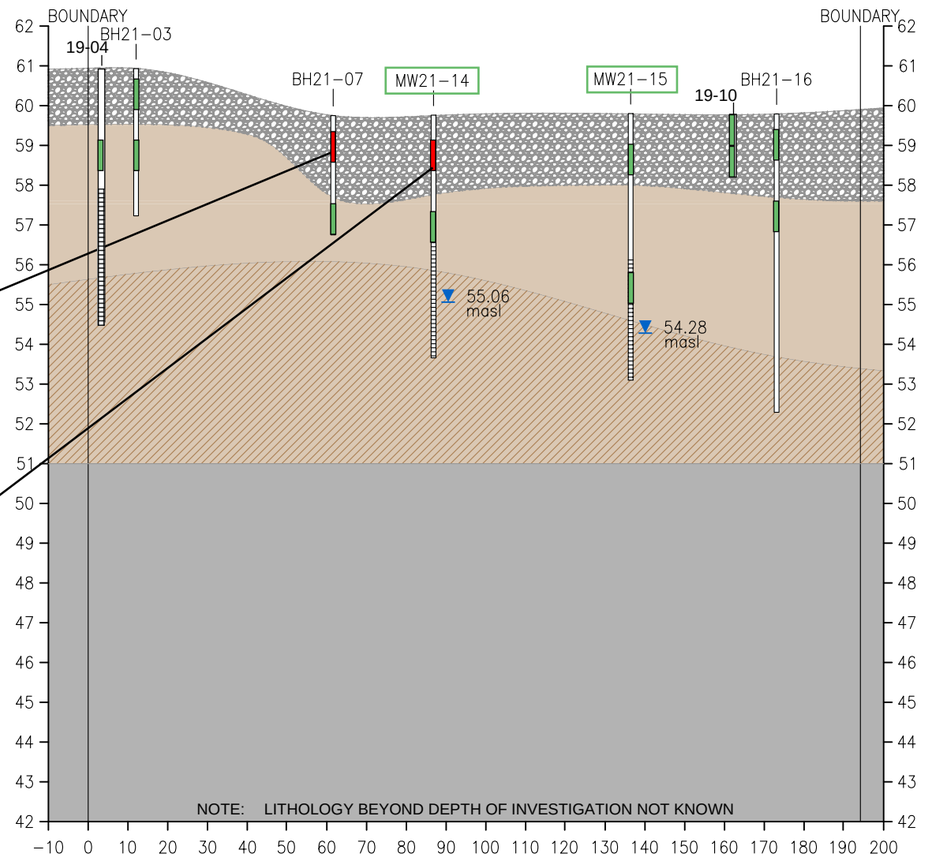
CROSS SECTION G-G'

G
WEST

G'
EAST

BH21-07				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-07SS1	0.46-0.76	Acenaphthylene	0.15 µg/g	0.25 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.68 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.85 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	1.05 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.15 µg/g
		Fluoranthene	0.69 µg/g	1.22 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.53 µg/g

BH21-14				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-14SS1	0.76-1.37	1 & 2 Methylnaphthalene	0.99 µg/g	1.52 µg/g
		Benzo(a)anthracene	0.5 µg/g	1.09 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.87 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	1.13 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.15 µg/g
		Fluoranthene	0.69 µg/g	3.58 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.5 µg/g



Ground level elevation for BH21-03 and BH21-07 assumed with respect to West Boundary and MW21-14.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14G - Cross Section G-G' - PAHs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

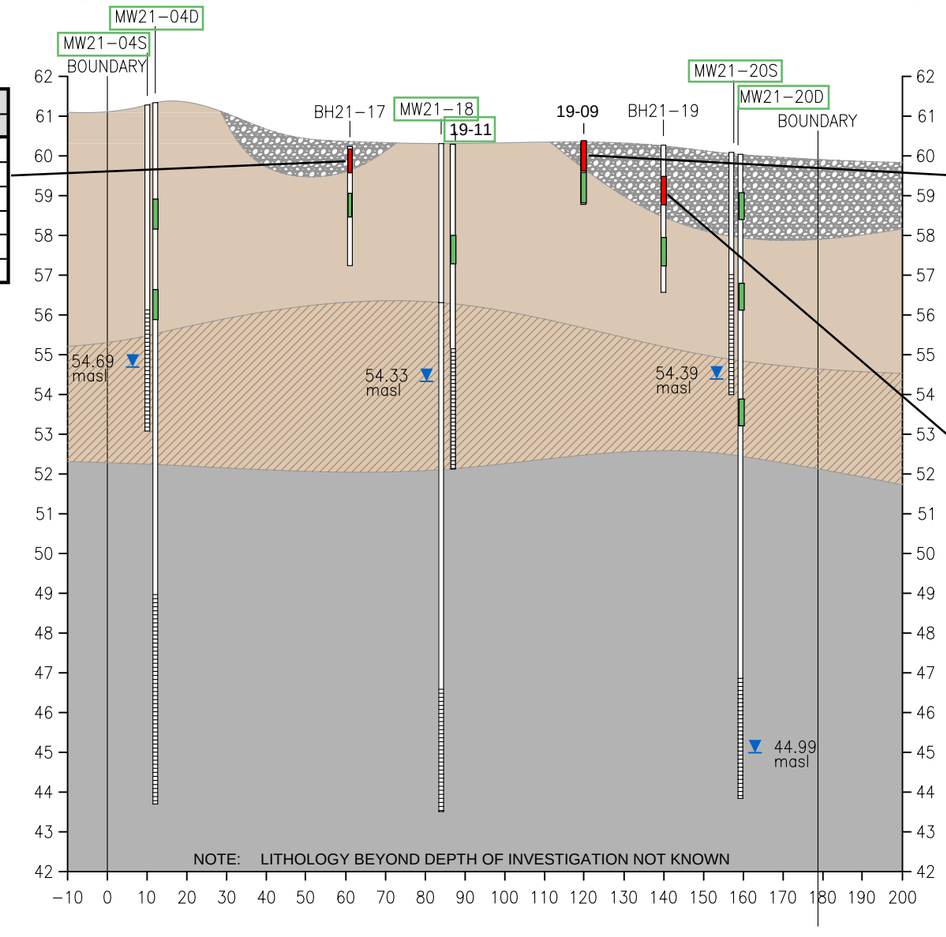
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION H-H'

H
WEST

H'
EAST



BH21-17				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-17SS1	0.15-0.61	Acenaphthylene	0.15 µg/g	<0.4 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.54 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.51 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	<0.4 µg/g
		Fluoranthene	0.69 µg/g	0.91 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	<0.4 µg/g

19-09				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
19-09 SA1	0-0.76	1 & 2 Methylnaphthalene	0.99 µg/g	1.7 µg/g
		Benzo(a)anthracene	0.5 µg/g	0.81 µg/g
		Benzo(a) pyrene	0.3 µg/g	0.64 µg/g
		Benzo(b)fluoranthene	0.78 µg/g	0.93 µg/g
		Dibenz(a,h)anthracene	0.1 µg/g	0.11 µg/g
		Fluoranthene	0.69 µg/g	2.4 µg/g
		Indeno(1,2,3-c,d)pyrene	0.38 µg/g	0.48 µg/g

BH21-19				
Sample ID	**Depth (mbgs)**	**Parameter Exceeded**	**Standard**	**Concentration**
BH21-19SS1	0.91-1.52	1 & 2 Methylnaphthalene	0.99 µg/g	1.83 µg/g

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 14H - Cross Section H-H' - PAHs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

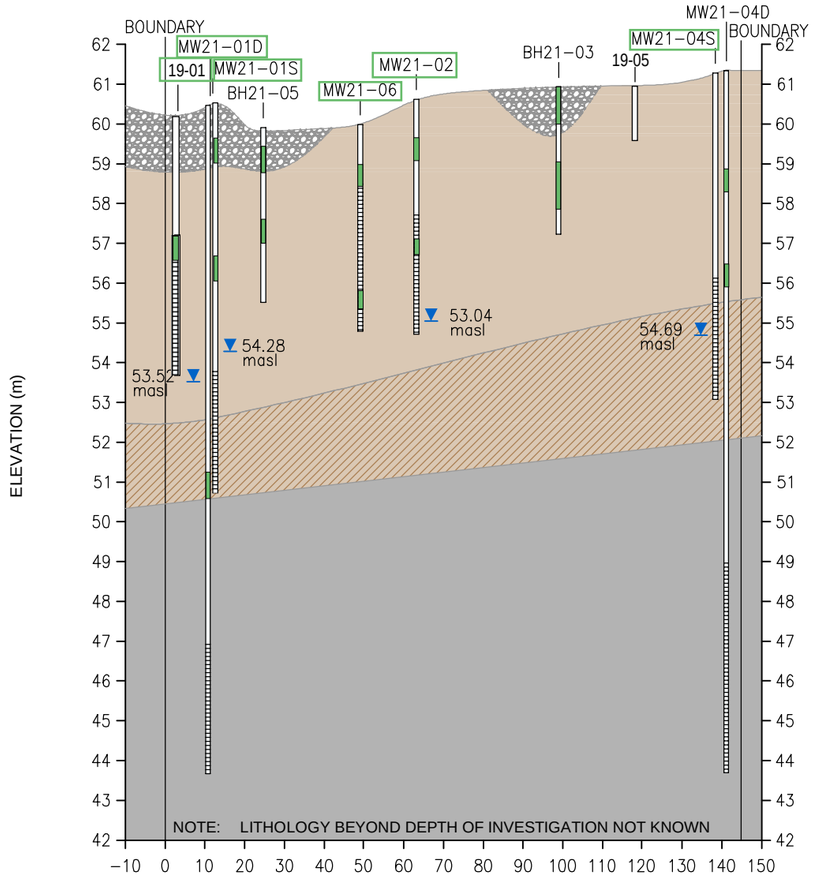
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION A-A'

A
NORTH

A'
SOUTH



DISTANCE (m)

Ground level elevation for BW21-03 assumed with respect to MW21-02 and MW21-04S.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15A - Cross Section A-A' - VOCs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

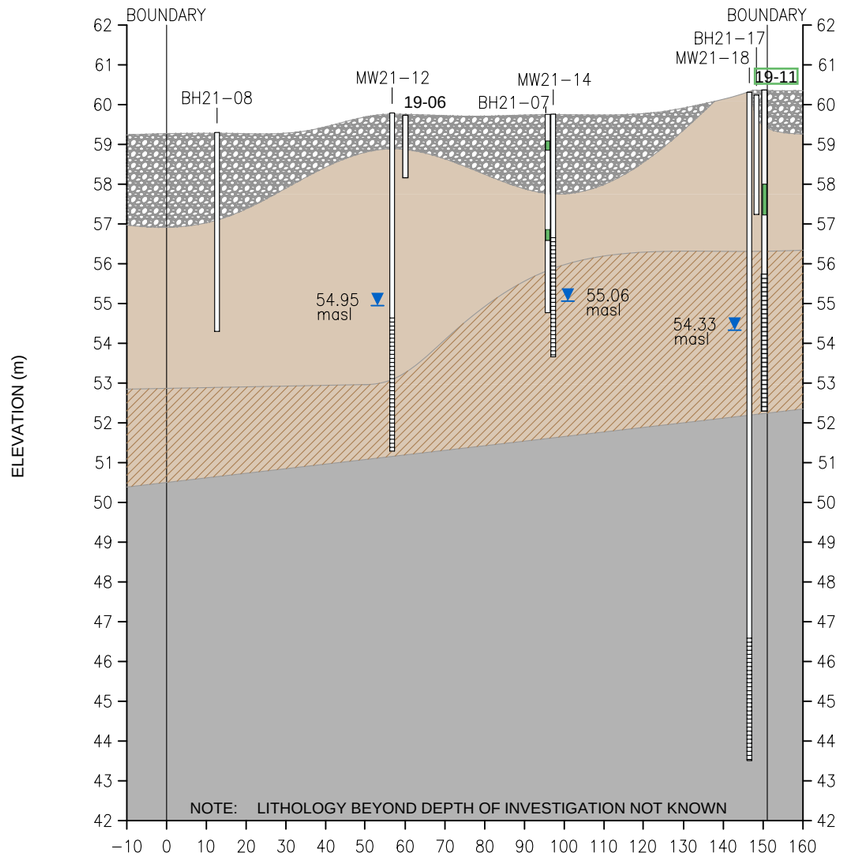
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION B-B'

B
NORTH

B'
SOUTH



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15B - Cross Section B-B' - VOCs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

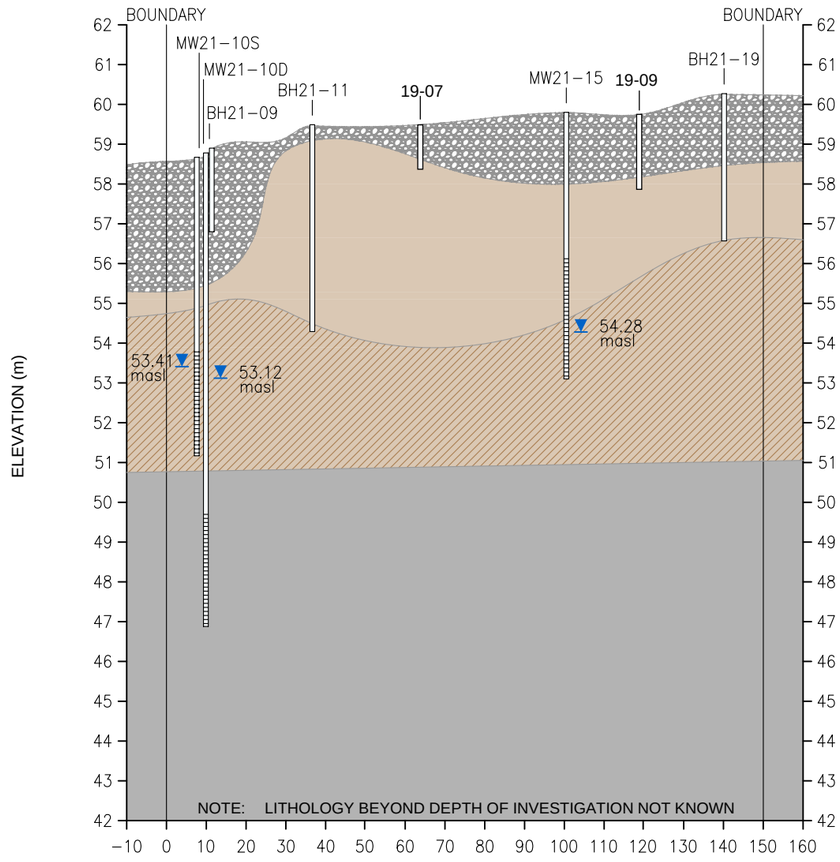
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION C-C'

C
NORTH

C'
SOUTH



Silty Clay

Till

Limestone Bedrock

Mixed Fill

Groundwater elevation (Measured on October 26-28, 2021)

Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil

Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil

MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use

BH21–05 Bore Hole

MW21–02 Monitoring Well

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15C - Cross Section C-C' - VOCs

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

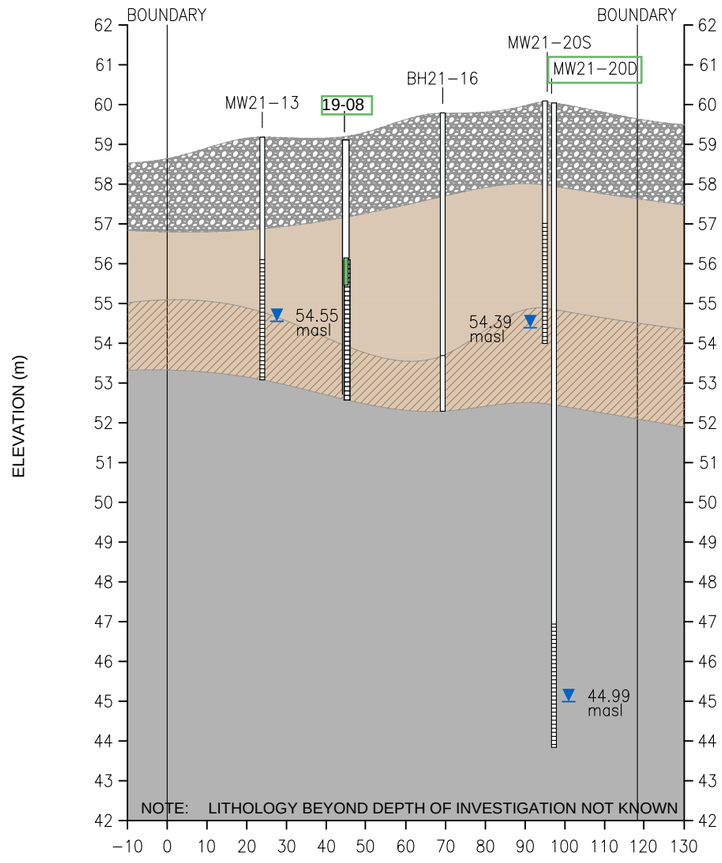
VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION D-D'

D **NORTH** — **D'** **SOUTH**



DISTANCE (m)

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15D - Cross Section D-D' - VOCs

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
MW–000 Groundwater Sample Meets the Applicable MECP Table 3 Grounwater Standards for All Types of Property Use
BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

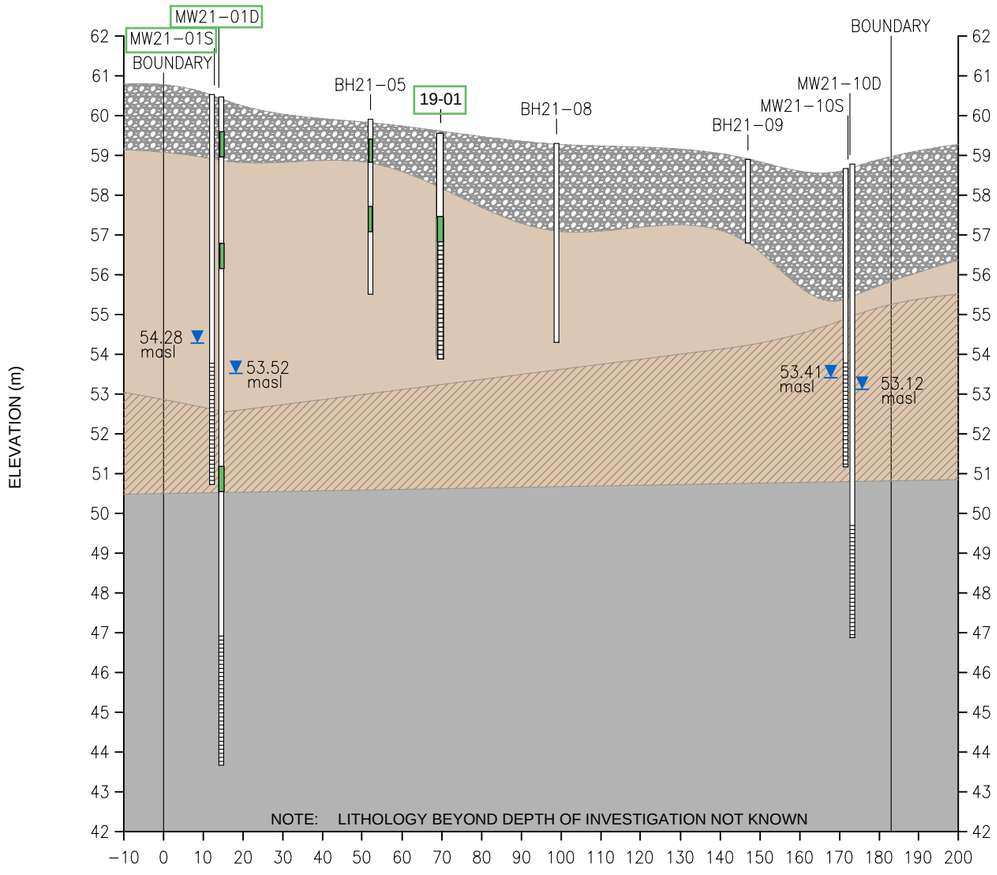
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION E-E'

E
WEST

E'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15E - Cross Section E-E' - VOCs

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HORIZONTAL SCALE 1:1500
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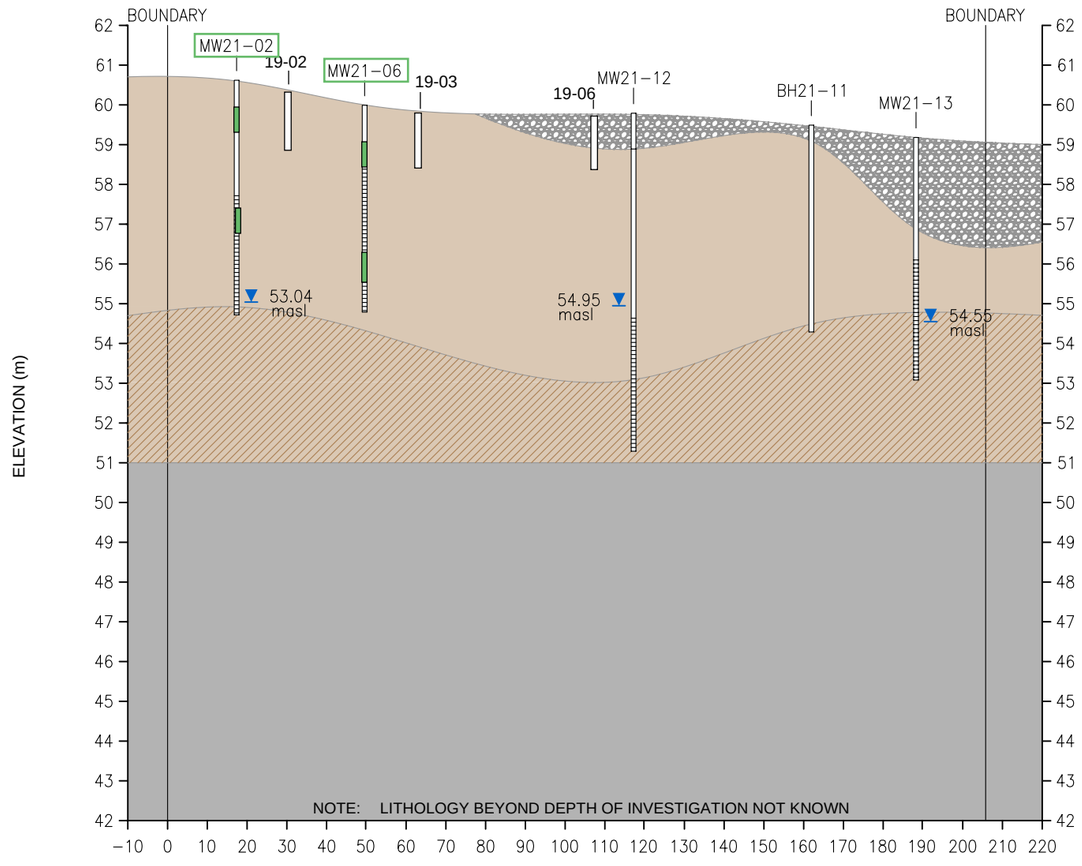
CROSS SECTION F-F'

F
WEST

F'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15F - Cross Section F-F' - VOCs

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MW21–02 Monitoring Well

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21-2419
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0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

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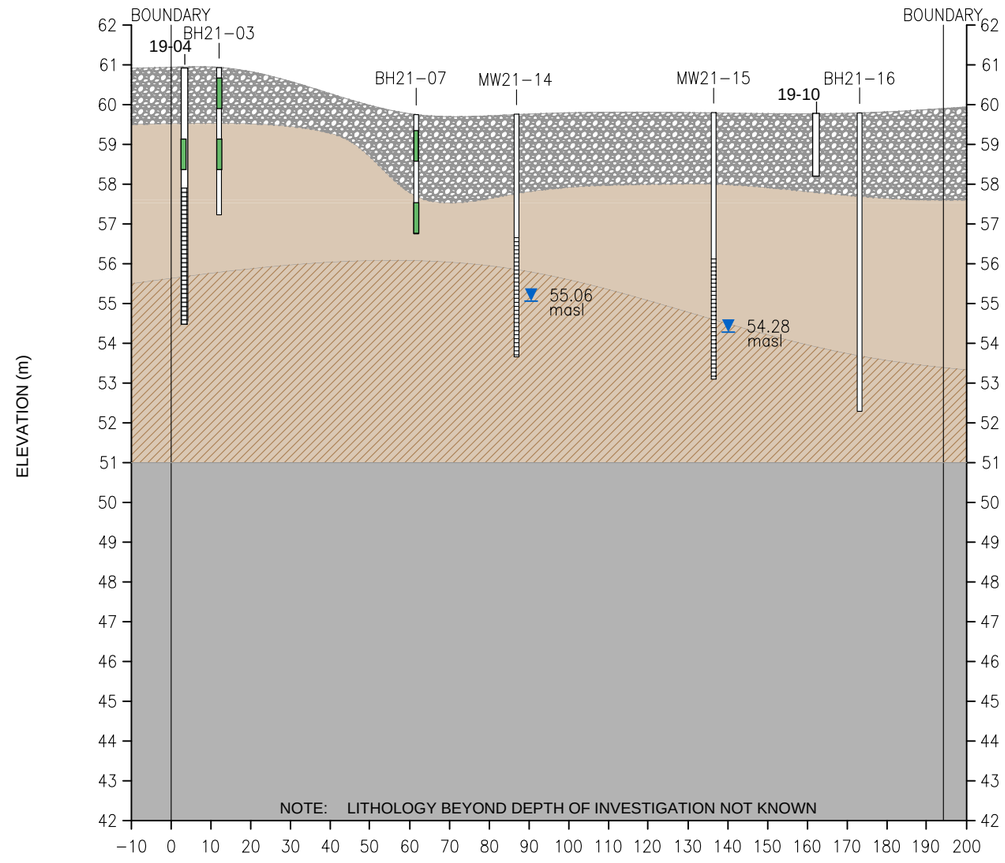
CROSS SECTION G-G'

G
WEST

G'
EAST



Ground level elevation for BH21-03 and BH21-07 assumed with respect to West Boundary and MW21-14.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15G - Cross Section G-G' - VOCs

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Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
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BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
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21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

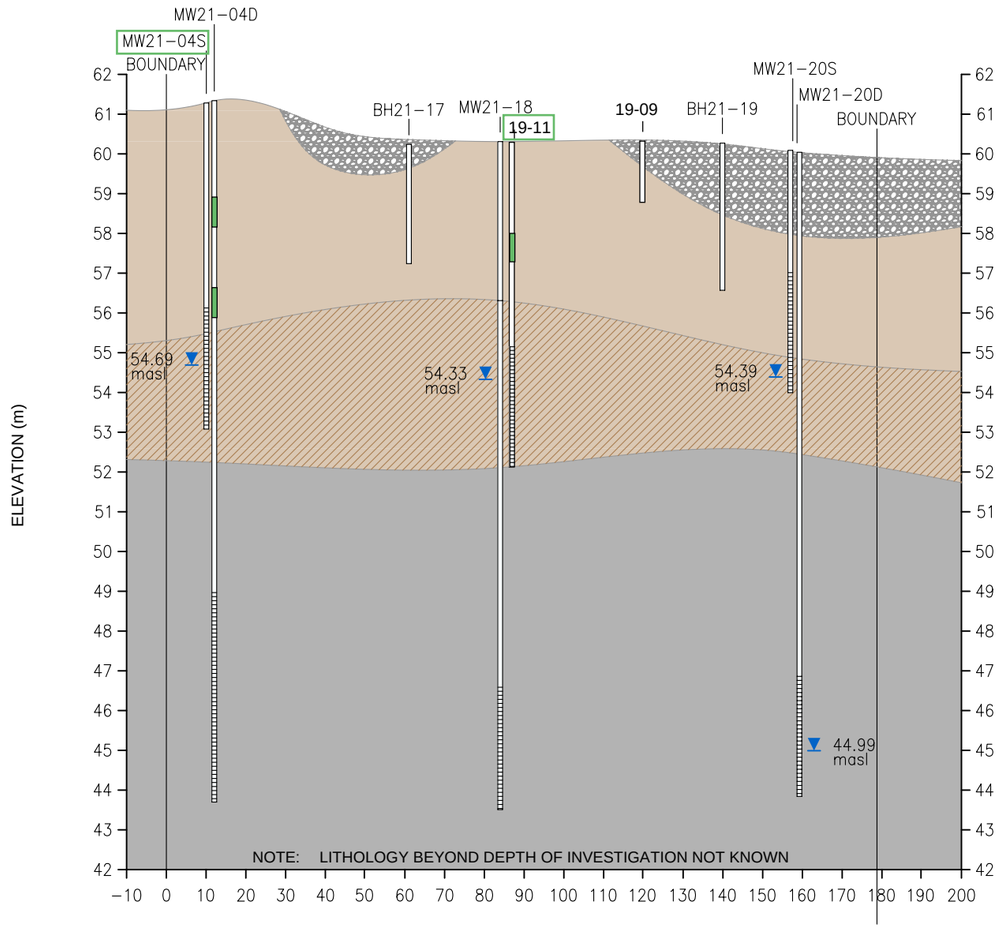
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION H-H'

H
WEST

H'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 15H - Cross Section H-H' - VOCs

Silty Clay
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Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
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BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

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21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

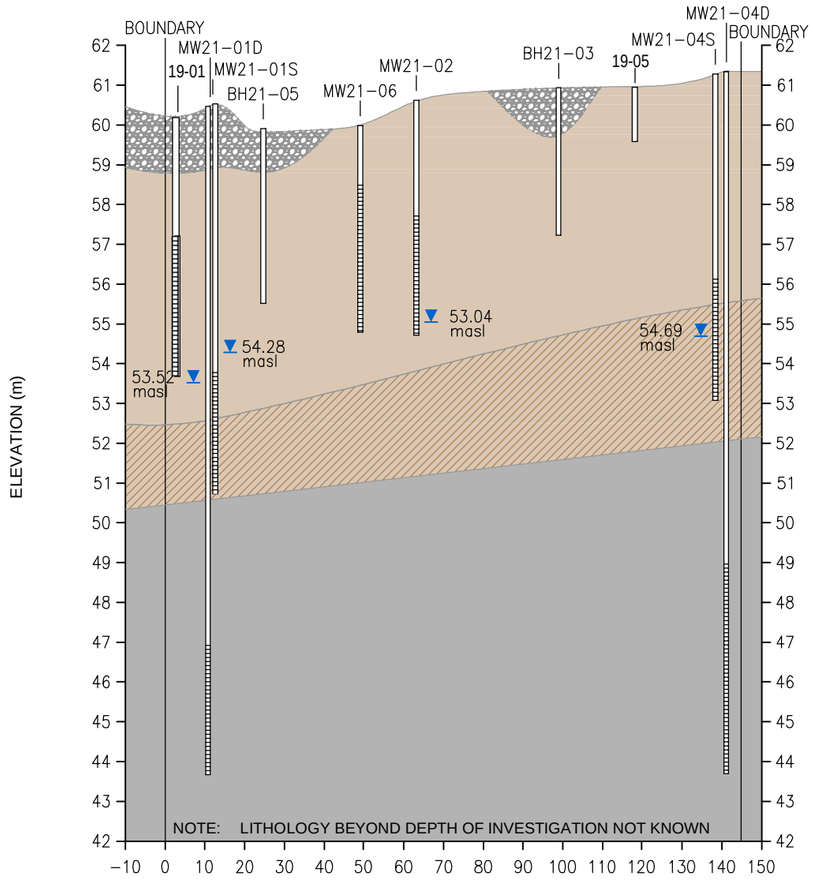
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION A-A'

A
NORTH

A'
SOUTH



Ground level elevation for BW21-03 assumed with respect to MW21-02 and MW21-04S.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 16A - Cross Section A-A' - Energetics

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
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BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
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21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

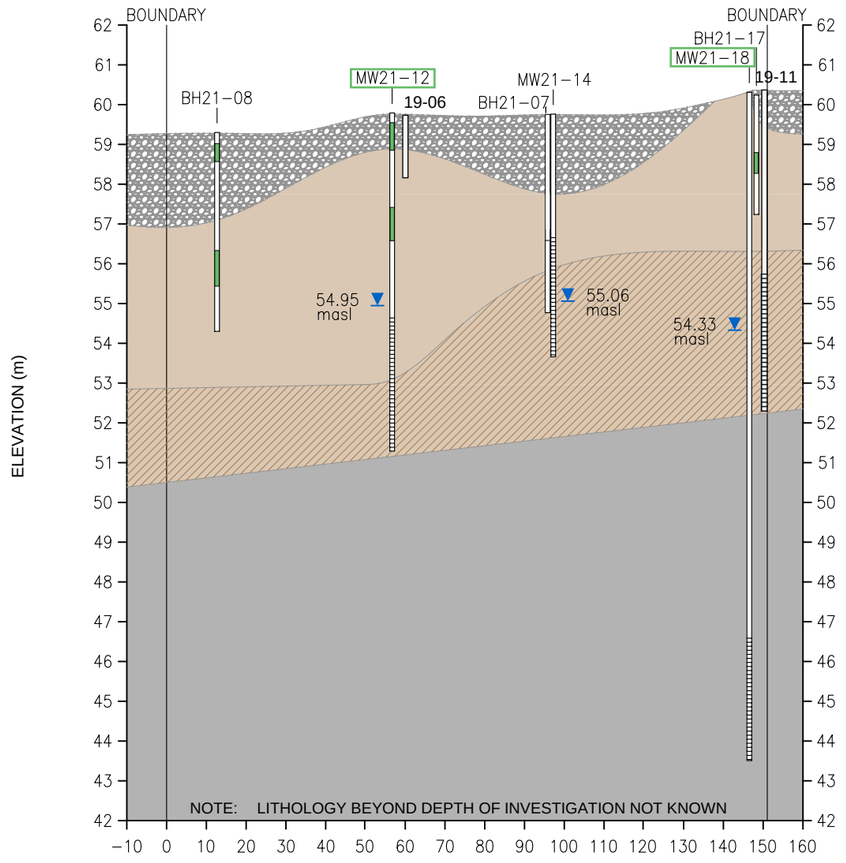
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION B-B'

B
NORTH

B'
SOUTH



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 16B - Cross Section B-B' - Energetics

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
Soil Borehole/Grab Sample Exceeds the Applicable MECP Table 3 RPI Standards for Parameters in Soil
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BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

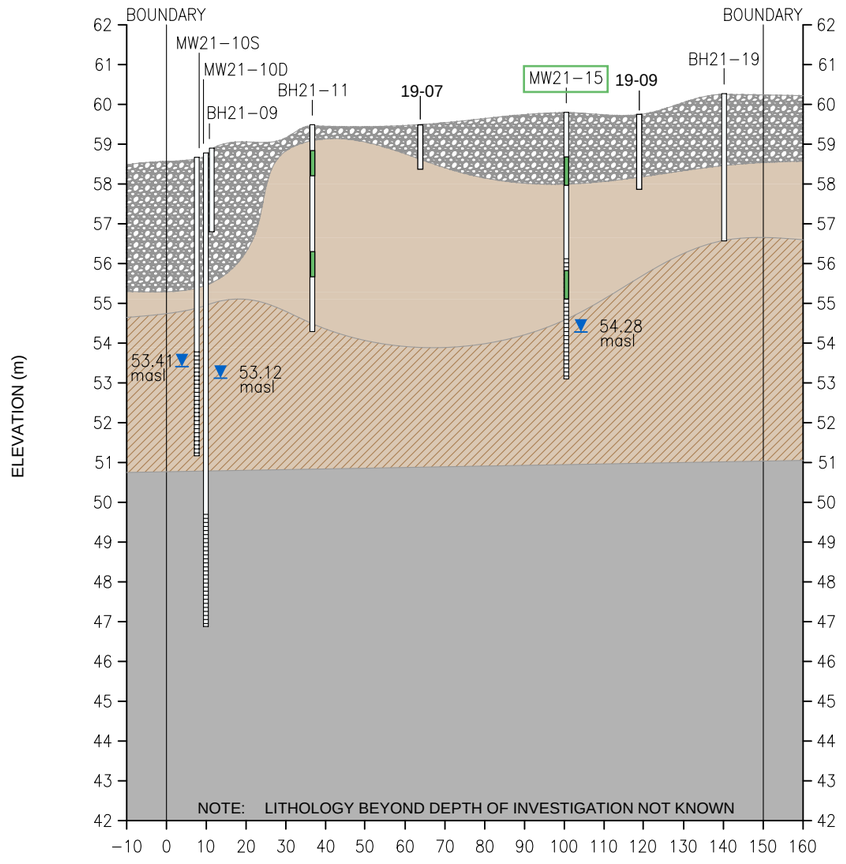
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION C-C'

C
NORTH

C'
SOUTH



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 16C - Cross Section C-C' - Energetics

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
Soil Borehole/Grab Sample Meets the Applicable MECP Table 3 RPI Standards for Parameters in Soil
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BH21–05 Bore Hole
MW21–02 Monitoring Well

DILLON CONSULTING

MAP/DRAWING INFORMATION:

CREATED BY: RLL
CHECKED BY: SD

21-2419
December 2021

VERTICAL SCALE 1:150
0 1m 2m 3m 4m 5m

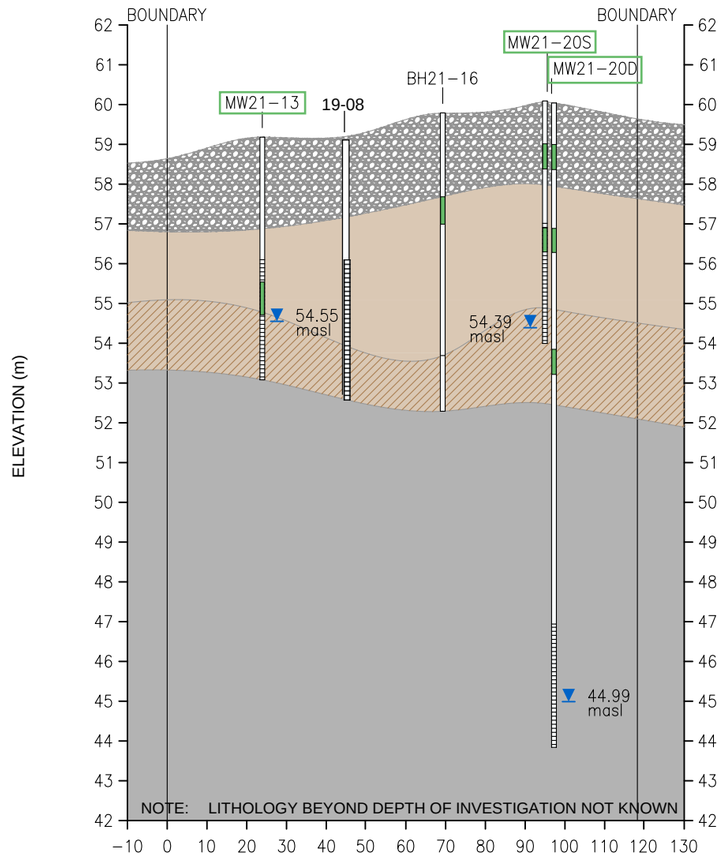
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION D-D'

D
NORTH

D'
SOUTH



DISTANCE (m)

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 16D - Cross Section D-D' - Energetics

Silty Clay
Till
Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
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MW21–02 Monitoring Well

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CHECKED BY: SD

21-2419
December 2021

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0 1m 2m 3m 4m 5m

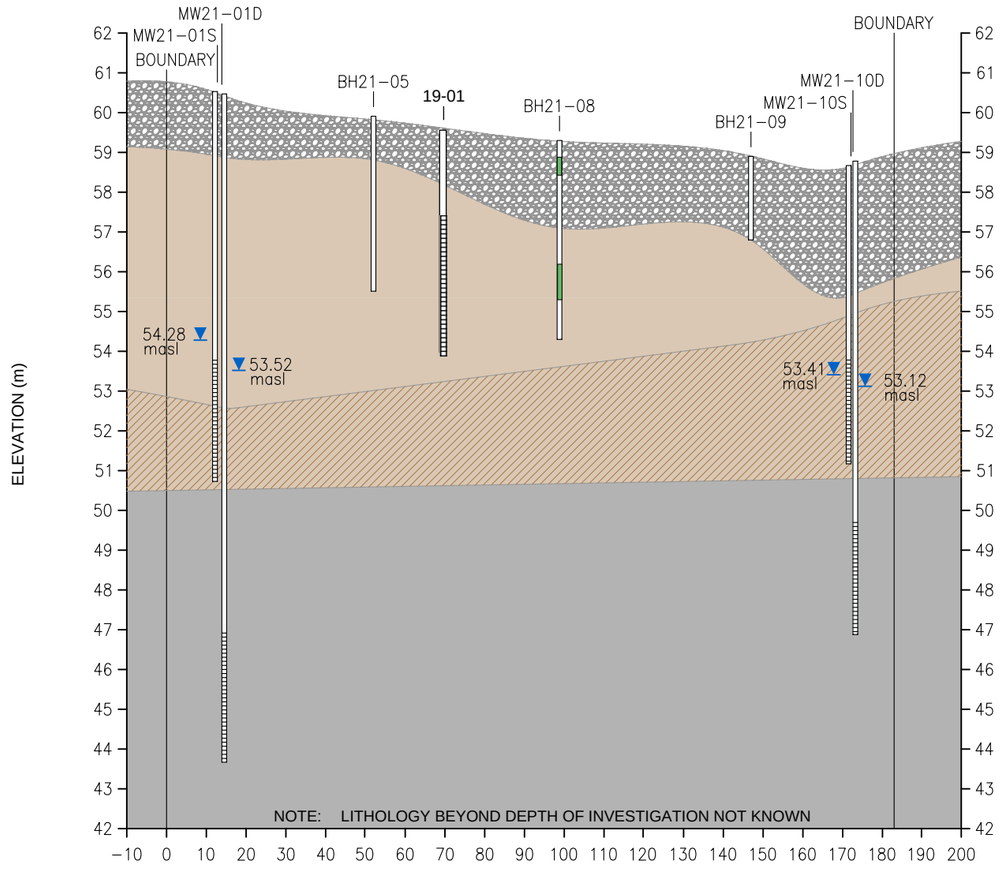
HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

This figure is to be referenced in conjunction with the report titled "Phase Two Environmental Site Assessment, 1010 Somerset Street West, Ottawa, Ontario"

CROSS SECTION E-E'

E
WEST

E'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 16E - Cross Section E-E' - Energetics

Silty Clay
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Limestone Bedrock
Mixed Fill
Groundwater elevation (Measured on October 26-28, 2021)
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21-2419
December 2021

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0 1m 2m 3m 4m 5m

HORIZONTAL SCALE 1:1500
0 10m 20m 30m 40m 50m

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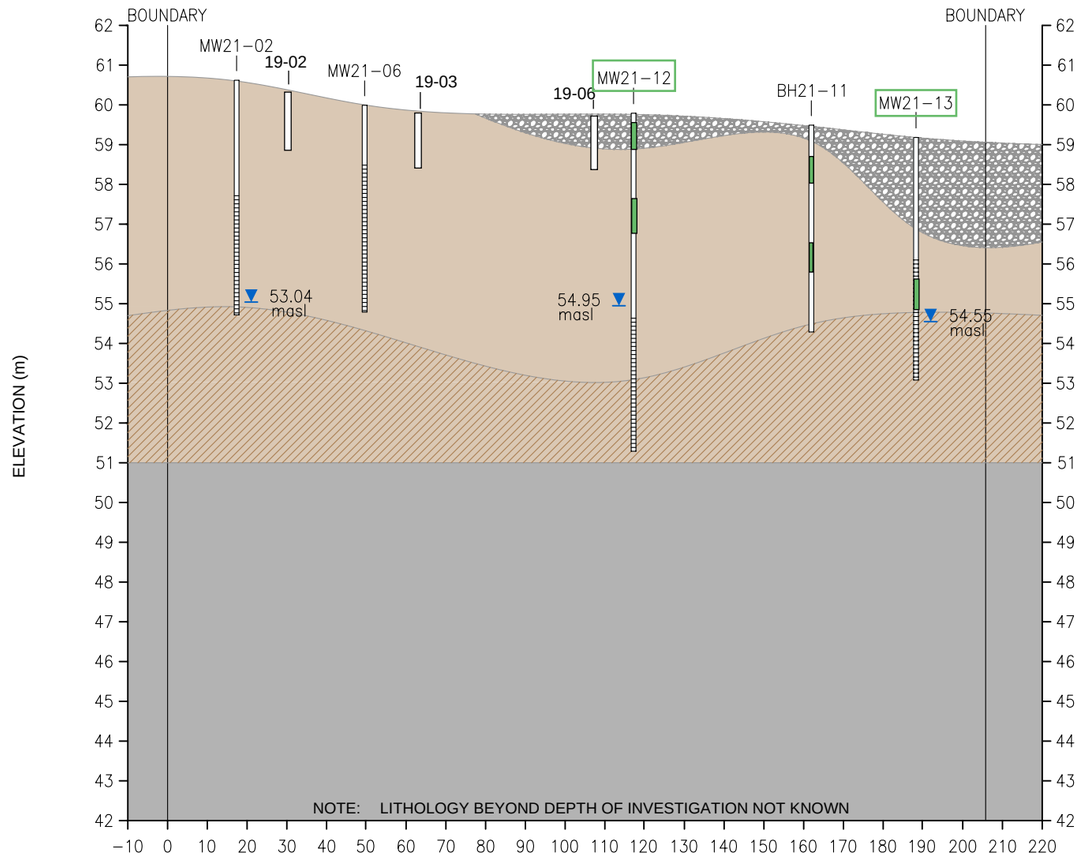
CROSS SECTION F-F'

F
WEST

F'
EAST



CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
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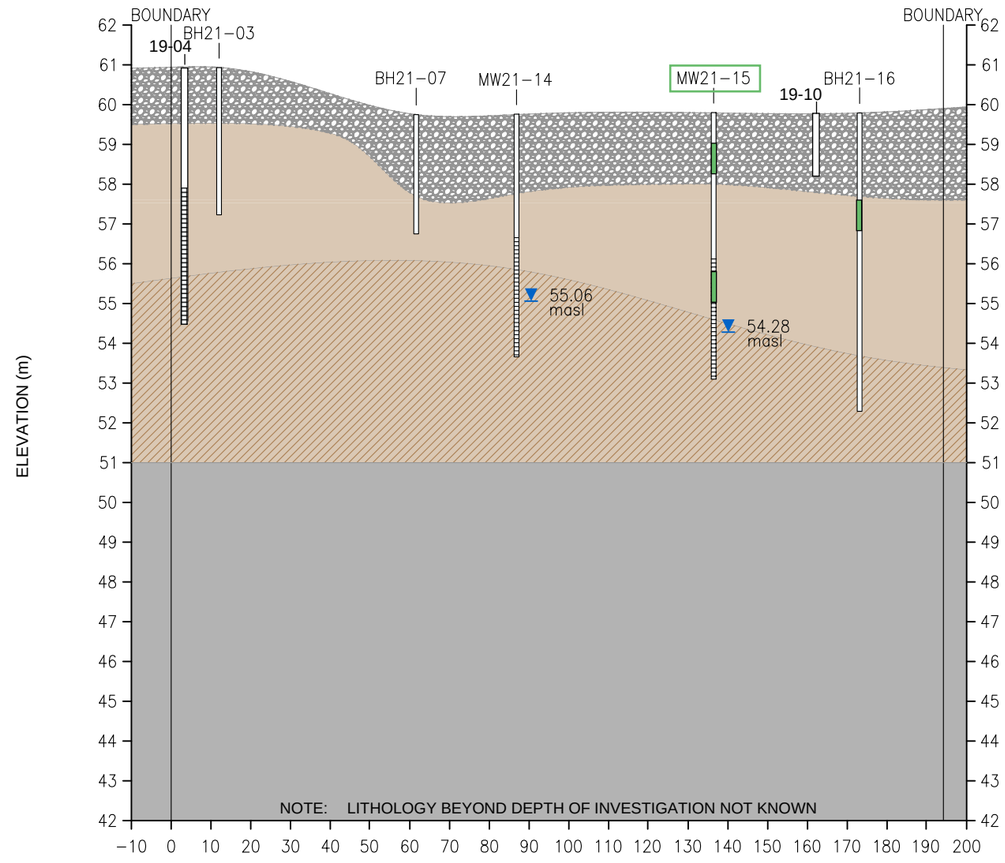
CROSS SECTION G-G'

G
WEST

G'
EAST



Ground level elevation for BH21-03 and BH21-07 assumed with respect to West Boundary and MW21-14.

CITY OF OTTAWA
1010 SOMERSET STREET WEST, OTTAWA, ON

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
FIGURE 16G - Cross Section G-G' - Energetics

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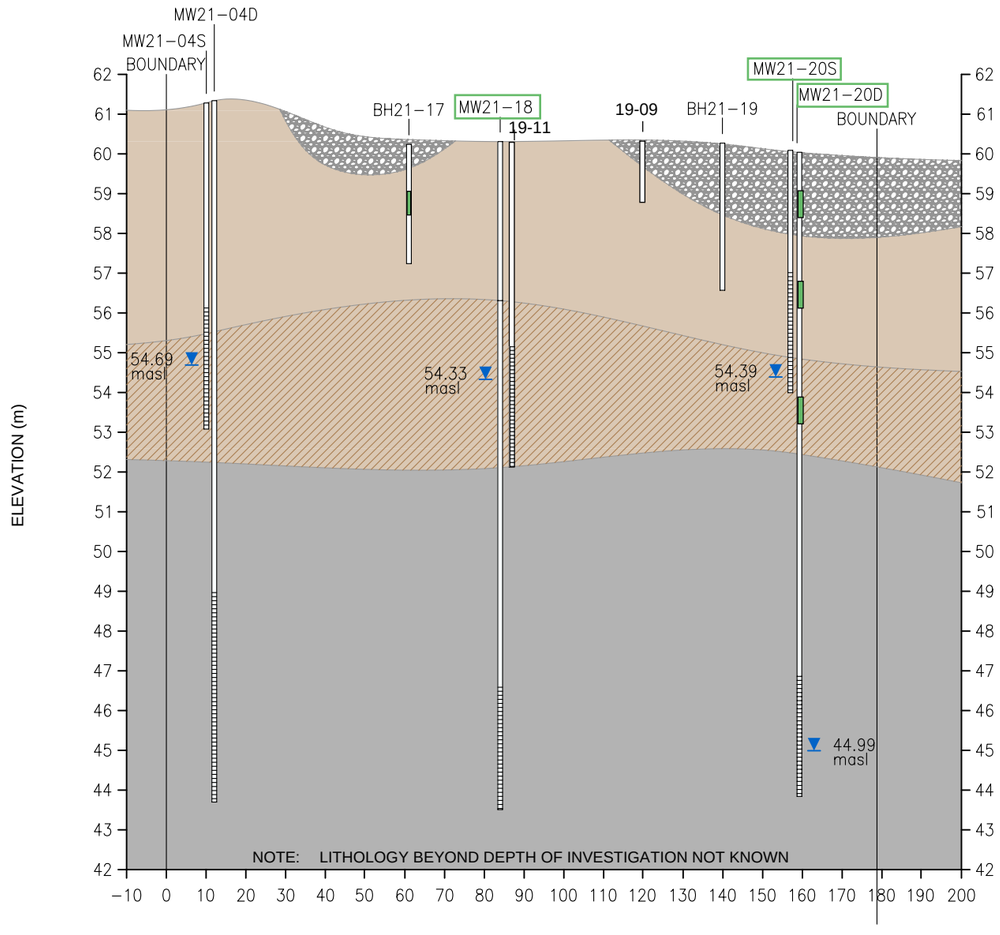
CROSS SECTION H-H'

H
WEST

H'
EAST



CITY OF OTTAWA
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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

SOIL AND GROUNDWATER RESULTS
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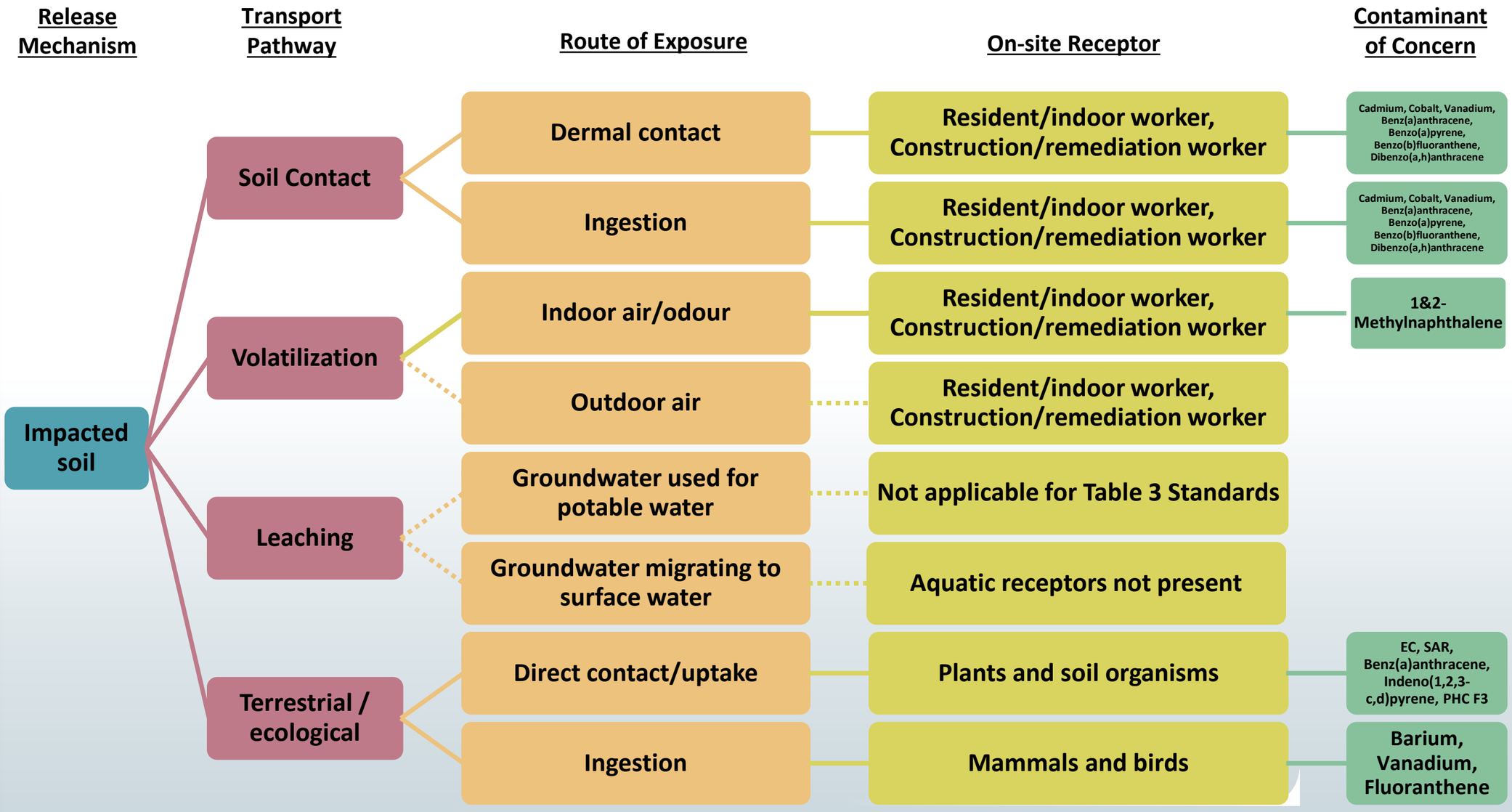

1010 SOMERSET STREET W, OTTAWA, ON
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE 17
RECEPTORS AND PATHWAYS FOR COCs IN SOIL

Note:
▪▪▪ A dashed line indicates an incomplete pathway

Soil exposure pathways are based on the soil components for Table 3 full depth, non-potable water scenario, residential/parkland/institutional land use for coarse textured soils as outlined in the MECP document entitled *Rationale for the Development of Soil and Ground Water Standards for use at Contaminated Sites in Ontario*, April 15, 2011. Pathways to off-site receptors were considered incomplete.

DILLON CONSULTING

Tables

Table A1 - Groundwater Levels
1010 Somerset St W, Ottawa
21-2419

Hydrogeological Unit	Well ID	Date	Static WL (m bTOC)	TOC Elevation	GW Elevation
Overburden	MW19-01	2021-10-28	2.78	59.62	56.84
Overburden	MW19-11	2021-10-27	6.09	60.21	54.12
Bedrock	MW21-01D	2021-10-28	6.85	60.37	53.52
Overburden	MW21-01S	2021-10-28	6.16	60.44	54.28
Overburden	MW21-02	2021-10-27	5.47	60.51	55.04
Overburden	MW21-04S	2021-10-28	6.45	61.14	54.69
Bedrock	MW21-04D	2021-10-28	Dry	61.26	Dry
Overburden	MW21-06	2021-10-26	1.39	59.85	58.46
Bedrock	MW21-10D	2021-10-27	5.55	58.67	53.12
Overburden	MW21-10S	2021-10-28	5.16	58.57	53.41
Overburden	MW21-12	2021-10-26	4.71	59.66	54.95
Overburden	MW21-13	2021-10-27	4.54	59.09	54.55
Overburden	MW21-14	2021-10-26	4.575	59.63	55.055
Overburden	MW21-15	2021-10-26	5.39	59.67	54.28
Bedrock	MW21-18	2021-10-27	5.88	60.21	54.33
Bedrock	MW21-20D	2021-10-28	14.95	59.94	44.99
Overburden	MW21-20S	2021-10-27	5.57	59.96	54.39

Table A2 - Soil Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon
			Location	BH21-01			BH21-02		BH21-03		BH21-04			BH21-05		BH21-06		BH21-07		BH21-08			
			Sample ID	BH21-01 S11	BH21-01 S2	BH21-01 S6	BH21-02 SS1	BH21-02 SS4	BH21-03 SS1	BH21-03 SS3	BH21-04 SS2	BH21-04 SS5	DUP 2	BH21-05 SS2	BH21-05 SS4	BH21-06 SS1	BH21-06 SS5	BH21-07 SS1	BH21-07 SS5	BH21-08 SS1	BH21-08 SS2	BH21-08 SS5	DUP 3
			Sample Date	2021-09-28	2021-09-24	2021-09-24	2021-09-21	2021-09-21	2021-09-22	2021-09-22	2021-09-20	2021-09-20	2021-09-20	2021-09-21	2021-09-21	2021-09-21	2021-09-21	2021-09-22	2021-09-22	2021-09-23	2021-09-23	2021-09-23	2021-09-23
			Sample Depth Range (m)	9.14-9.75	0.76-1.37	3.81-4.42	0.91-1.37	3.35-3.66	0-0.61	1.83-2.13	2.44-3.05	4.72-5.33	4.72-5.33	0.76-1.37	2.29-2.74	0.76-1.37	4.11-4.42	0.46-0.76	2.67-2.9	0.15-0.46	0.61-1.22	2.9-3.51	2.9-3.51
			Lab Report Number	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666
Parameter	**Units**	**RDL**	**MECP Table 3**																				
General Chemistry																							
pH (Lab)	pH Units	0.05	**n/v**	8.03	8.4	7.87	7.61	7.78	7.88	7.63	7.66	7.8	7.73	7.98	7.8	7.88	7.9	8.17	7.69	7.79	-	7.7	7.69
Ammonia as N	µg/g	1	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	3	3
Cyanide, free	µg/g	0.03	**0.051**	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03
Electrical Conductivity (Lab)	µS/cm	5	**700**	169	124	518	**1240**	**744**	187	**803**	344	592	636	422	**1370**	**1790**	**970**	**1820**	**5570**	**1560**	-	**1740**	**1830**
Nitrate (as N)	µg/g	1	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1
Sodium Adsorption Ratio (SAR)	SAR	0.01	**5**	0.1	0.1	0.25	**9**	1.16	0.1	**6.03**	0.21	0.25	0.23	2.62	2.04	**14.8**	0.21	**12.9**	**19.6**	**10.3**	-	**16.5**	**16.3**
Chloride	µg/g	5	**n/v**	6	11	27	655	282	18	192	139	15	14	85	691	1120	310	611	3800	739	-	1130	1120
Sodium	µg/g	200	**n/v**	291	230	1240	2530	1390	<200	1840	497	1620	1550	555	1040	2570	1330	5010	5050	1950	-	2150	2620
BTEX																							
Benzene	µg/g	0.02	**0.21**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02
Toluene	µg/g	0.05	**2.3**	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	-	<0.05	<0.05
Ethylbenzene	µg/g	0.05	**2**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Xylene (m & p)	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.09	-	<0.05	<0.05
Xylene (o)	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Xylene Total	µg/g	0.05	**3.1**	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.09	-	<0.05	<0.05
Petroleum Hydrocarbons (PHCs)																							
PHC F1 (C6-C10)	µg/g	7	**55**	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	-	<7	<7
PHC F2 (>C10-C16)	µg/g	4	**98**	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	-	<4	<4
PHC F3 (>C16-C34)	µg/g	8	**300**	<8	<8	<8	<8	<8	112	92	<8	<8	<8	<8	<8	31	<8	18	32	<8	-	<8	<8
PHC F4 (>C34-C50)	µg/g	6	**2800**	<6	<6	<6	<6	<6	308	173	<6	<6	<6	<6	<6	79	<6	7	8	<6	-	<6	<6
F4G-SG (GHH-Silica)	µg/g	50	**n/v**	-	-	-	-	-	209	105	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																							
Antimony	µg/g	1	**7.5**	<1	<1	<1	<1	<1	1.2	1.5	<1	<1	<1	<1	<1	<1	<1	1.4	<1	<1	-	<1	<1
Arsenic	µg/g	1	**18**	1.7	2.3	5	3.4	6	2.5	4.3	3.2	3.2	2.8	1.8	4.2	3.1	3.3	15.3	4.2	9.2	-	4.8	5.6
Barium	µg/g	1	**390**	63.4	46.4	192	**403**	216	76	248	106	311	293	45.3	182	388	244	291	374	120	-	246	316
Beryllium	µg/g	0.5	**4**	<0.5	<0.5	0.7	0.8	0.7	<0.5	0.8	<0.5	0.8	0.8	<0.5	0.6	0.7	0.6	1	0.9	1.2	-	0.8	1
Boron	µg/g	5	**120**	<5	<5	<5	<5	9.4	<5	<5	<5	6.9	6.7	8.9	7.1	<5	8	7.1	<5	13.3	-	<5	7.1
Cadmium	µg/g	0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	**1.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Chromium (Hexavalent)	µg/g	0.2	**8**	<0.2	<0.2	<0.2	0.5	<0.2	0.6	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	<0.2	<0.2	0.7	0.4	-	0.2	0.3
Chromium (Total, III+VI)	µg/g	5	**160**	12	16.5	47.3	118	53.4	16.4	76.3	24.3	72	65.5	21.7	39.1	93.7	64.7	67.7	84.1	39.1	-	65.5	69.1
Cobalt	µg/g	1	**22**	4.5	6.3	13.6	**24.8**	14.9	3.5	17.1	7.8	18.7	17.7	6.6	11.7	21.5	16.6	19.1	21.6	13	-	16	20.3
Copper	µg/g	5	**140**	7.8	13.9	25.1	58.1	28.7	13.7	60.7	15.2	37.5	34.7	13.7	22	51.7	31.6	81.1	49.3	21.1	-	32.6	38.5
Lead	µg/g	1	**120**	2.6	3.1	5	5.8	6.2	96.8	9.8	3.6	6.3	6.1	4.1	5.1	6.7	5.3	58.5	6.3	16	-	6.2	7.8
Mercury	µg/g	0.1	**0.27**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Molybdenum	µg/g	1	**6.9**	<1	<1	<1	<1	1.2	1.1	<1	<1	1.5	2	<1	<1	<1	<1	1.4	<1	1.6	-	<1	<1
Nickel	µg/g	5	**100**	7.5	11.3	27.5	65.8		8.3	42	14.9	40.9	37.9	13.8	24	54.2	36.7	43	47.5	25.4	-	33.6	41.5
Selenium	µg/g	1	**2.4**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.3	<1	<1	-	<1	<1
Silver	µg/g	0.3	**20**	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3
Thallium	µg/g	1	**1**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
Uranium	µg/g	1	**23**	<1	<1	<1	<1	1.1	<1	<1	<1	1.2	1.4	<1	<1	<1	1.1	<1	<1	1.3	-	<1	<1
Vanadium	µg/g	10	**86**	22.2	45.4	67.1	**113**	75.5	18.2	80.6	41.5	**92.5**	**86.6**	40.7	57	**96.9**	81.5	81.6	**107**	68.8	-	77.7	**91.2**
Zinc	µg/g	20	**340**	<20	23.8	71.2	128	89.8	94.8	99.4	41	112	105	28.9	63.8	114	94.6	120	125	65.2	-	86.3	109
Polycyclic Aromatic Hydrocarbons (PAHs)																							
1-Methylnaphthalene	µg/g	0.02	**0.99**	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	-	<0.02	<0.02
2-Methylnaphthalene	µg/g	0.02	**0.99**	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	<0.02	-	<0.02	<0.02
1 & 2 Methylnaphthalene	µg/g	0.04	**0.99**	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	0.12	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.21	<0.04	<0.04	-	<0.04	<0.04
Acenaphthene	µg/g	0.02	**7.9**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	-	<0.02	<0.02
Acenaphthylene	µg/g	0.02	**0.15**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.25**	<0.02	<0.02	-	<0.02	<0.02
Acridine	µg/g	0.01	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/g	0.02	**0.67**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.22	<0.02	<0.02	-	<0.02	<0.02
Benz(a)anthracene	µg/g	0.02	**0.5**	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.68**	<0.02	<0.02	-	<0.02	<0.02
Benzo(a) pyrene	µg/g	0.02	**0.3**	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.85**	<0.02	<0.02	-	<0.02	<0.02
Benzo(b)fluoranthene	µg/g	0.02	**0.78**	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**1.05**	<0.02	<0.02	-	<0.02	<0.02
Benzo(g,h,i)perylene	µg/g	0.02	**6.6**	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.54	<0.02	<0.02	-	<0.02	<0.02
Benzo(k)fluoranthene	µg/g	0.02	**0.78**	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.55	<0.02	<0.02	-	<0.02	<0.02
Chrysene	µg/g	0.02	**7**	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.7	<0.02	<0.02	-	<0.02	<0.02
Dibenz(a,h)anthracene	µg/g	0.02	**0.1**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.15**	<0.02	<0.02	-	<0.02	<0.02
Fluoranthene	µg/g	0.02	**0.69**	<0.02	<0.02	<0.02	<0.02	<0.02	0.13	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**1.22**	<0.02	<0.02	-	<0.02	<0.02
Fluorene	µg/g	0.02	**62**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	-	<0.02	<0.02
Indeno(1,2,3-c,d)pyrene	µg/g	0.02	**0.38**	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.53**	<0.02	<0.02	-	<0.02	<0.02
Naphthalene	µg/g	0.01	**0.6**	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	<0.01	<0.01	-	<0.01	<0.01
Phenanthrene	µg/g	0.02	**6.2**	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.55	<0.02	<0.02	-	<0.02	<0.02
Pyrene	µg/g	0.02	**78**	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	1.04	<0.02	<0.02	-	<0.02	<0.02

Table A2 - Soil Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon
			Location	BH21-09		BH21-10			BH21-11		BH21-12			BH21-13		BH21-14		BH21-15		BH21-16			BH21-17		BH21-19	
			Sample ID	BH21-09 SS1	BH21-09 SS3	BH21-10 SS2	BH21-10 SS7	BH21-10 SS8	BH21-11 SS2	BH21-11 SS6	BH21-12 SS1	BH21-12 SS3	BH21-12 SS9	BH21-13 SS3	BH21-13 SS6	BH21-14 SS1	BH21-14 SS3	BH21-15 SS1	BH21-15 SS5	BH21-16 SS2	DUP 4	BH21-16 SS5	BH21-17 SS1	BH21-17 SS3	BH21-19 SS1	BH21-19 SS3
			Sample Date	2021-09-23	2021-09-23	2021-09-29	2021-09-29	2021-09-29	2021-09-21	2021-09-22	2021-09-22	2021-09-22	2021-09-22	2021-09-30	2021-09-13	2021-09-24	2021-09-24	2021-09-30	2021-09-13	2021-09-30	2021-09-30	2021-09-13	2021-09-23	2021-09-24	2021-09-23	2021-09-23
			Sample Depth Range (m)	0.15-0.61	1.52-2.13	0.76-1.37	3.81-4.42	4.57-5.18	0.76-1.37	3.05-3.66	0.15-0.76	2.44-3.05	7.01-7.62	1.52-1.77	3.81-4.42	0.76-1.37	2.29-2.9	1.22-1.83	3.81-4.42	1.22-1.83	1.22-1.83	3.05-3.66	0.15-0.61	1.52-1.83	0.91-1.52	2.44-3.05
			Lab Report Number	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140497	2140666	2140666	2140666	2140497	2140666	2140666	2140497	2140666	2140666	2140666	2140666
Parameter	**Units**	**RDL**	**MECP Table 3**																								
General Chemistry																											
pH (Lab)	pH Units	0.05	**n/v**	7.76	7.83	7.71	7.92	7.81	7.95	7.65	9.41	7.46	7.77	7.45	7.43	11.78	7.73	10.32	7.57	7.5	7.57	7.52	10.54	7.53	9.93	7.19
Ammonia as N	µg/g	1	**n/v**	-	<1	-	-	1	3	1	<1	2	3	5	2	-	3	6	4	6	4	3	-	5	3	2
Cyanide, free	µg/g	0.03	**0.051**	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Electrical Conductivity (Lab)	µS/cm	5	**700**	**2360**	**1050**	279	473	397	**1870**	**1390**	**1510**	**767**	240	303	429	**1240**	**1490**	632	406	538	605	576	469	**1950**	**2380**	311
Nitrate (as N)	µg/g	1	**n/v**	-	3	-	-	<1	2	5	3	1	<1	<1	7	-	<1	4	<1	<1	<1	1	-	<1	5	16
Sodium Adsorption Ratio (SAR)	SAR	0.01	**5**	**14.8**	**8.04**	1.16	4.11	2.87	**12.2**	**6.7**	**5.68**	1.3	0.14	0.51	1.58	1.25	**9.09**	1.05	0.39	0.68	1.47	2.14	3.71	**15.2**	3.95	0.8
Chloride	µg/g	5	**n/v**	1050	527	33	319	170	828	770	362	510	10	17	199	219	784	136	128	186	300	373	39	968	303	34
Sodium	µg/g	200	**n/v**	1420	885	432	638	394	2290	2130	405	1350	379	529	1100	488	2690	1180	2030	1150	1170	1480	1060	1980	690	1340
BTEX																											
Benzene	µg/g	0.02	**0.21**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.05	**2.3**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	**2**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene (m & p)	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene (o)	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Total	µg/g	0.05	**3.1**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Petroleum Hydrocarbons (PHCs)																											
PHC F1 (C6-C10)	µg/g	7	**55**	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
PHC F2 (>C10-C16)	µg/g	4	**98**	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
PHC F3 (>C16-C34)	µg/g	8	**300**	113	<8	58	<8	<8	<8	<8	<8	40	<8	<8	<8	<8	<8	17	<8	<8	<8	<8	39	<8	133	<8
PHC F4 (>C34-C50)	µg/g	6	**2800**	93	<6	49	<6	<6	<6	<6	<6	47	<6	<6	<6	<6	<6	15	<6	<6	<6	<6	<6	171	<6	214	<6
F4G-SG (GHH-Silica)	µg/g	50	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	613	-	-	-	-
Metals																											
Antimony	µg/g	1	**7.5**	1.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Arsenic	µg/g	1	**18**	2.3	3.3	3.4	2.7	2.2	3.7	3.6	1.9	5.4	1.8	3.7	2.2	2.4	3.7	4	3.1	4.2	4.4	4	5.2	5.6	1.9	4
Barium	µg/g	1	**390**	81.6	260	88.3	89.5	83	195	381	150	209	71.7	129	147	205	334	233	342	295	309	268	129	224	87.6	369
Beryllium	µg/g	0.5	**4**	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.8	<0.5	0.8	<0.5	0.6	<0.5	<0.5	0.9	0.8	0.8	1	0.9	0.7	0.5	0.7	<0.5	0.9
Boron	µg/g	5	**120**	5.5	7.6	<5	<5	5.6	5.3	<5	19.9	<5	<5	5.8	<5	20	<5	8	5.9	7.4	7.1	5.5	<5	<5	7.4	<5
Cadmium	µg/g	0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (Hexavalent)	µg/g	0.2	**8**	<0.2	<0.2	<0.8	<0.2	<0.2	<0.2	0.3	<0.2	0.3	<0.2	<0.2	0.2	1.9	0.4	0.4	<0.2	0.4	0.5	0.3	<0.2	<0.2	0.9	0.3
Chromium (Total, III+VI)	µg/g	5	**160**	18.6	20.8	18.9	20.3	14.9	40.1	90.8	13.9	53.8	15.3	34.2	36.6	18.9	76.6	85.3	74.4	118	126	63.1	40.1	51.1	16.7	79.9
Cobalt	µg/g	1	**22**	4.3	6.3	6.7	7.3	5.3	11.2	21.9	4.6	15.7	5.1	9.5	10.7	6	21	16.7	18.8	**22.8**	**24.3**	17.7	11.5	14.7	4.8	21.2
Copper	µg/g	5	**140**	16.6	18.8	20.7	17.4	12.7	28.9	39.6	11.1	31.5	10.4	33	20.2	15.2	39.7	39.9	36.7	56.1	56.5	38.8	30.4	29.6	11.2	42
Lead	µg/g	1	**120**	42	6.1	10.8	4.5	3.2	15.6	6.1	6.9	6	3.2	19	4.3	24	6.6	49.3	6.4	13.4	12.6	6.3	22.3	5.7	13.6	6.4
Mercury	µg/g	0.1	**0.27**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/g	1	**6.9**	<1	<1	1.2	<1	<1	<1	<1	<1	<1	<1	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	<1
Nickel	µg/g	5	**100**	9.7	12.8	12.8	12.8	10.7	23.1	49.8	8.4	31.6	9.5	22.2	19.5	10.8	45.8	44.6	43.1	65.7	68.2	36	24.9	30.4	9.9	46.1
Selenium	µg/g	1	**2.4**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver	µg/g	0.3	**20**	0.7	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Thallium	µg/g	1	**1**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Uranium	µg/g	1	**23**	<1	<1	<1	1.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.9	<1	<1	<1	<1	<1	1.1	<1	<1
Vanadium	µg/g	10	**86**	16	39.5	28.9	33.1	24.9	57.9	**101**	17.4	79.6	24.5	44.8	56.3	22.5	**99.6**	72.9	**94.7**	**99.8**	**108**	75.2	52.3	74.6	19.9	**100**
Zinc	µg/g	20	**340**	30.2	20.5	116	22.4	<20	65.6	118	55.6	81.8	<20	70.1	54.9	116	115	97.5	111	120	130	98.7	59.4	77.4	20.8	116
Polycyclic Aromatic Hydrocarbons (PAHs)																											
1-Methylnaphthalene	µg/g	0.02	**0.99**	0.03	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.57	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	0.65	<0.02
2-Methylnaphthalene	µg/g	0.02	**0.99**	0.04	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.95	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	**1.19**	<0.02
1 & 2 Methylnaphthalene	µg/g	0.04	**0.99**	0.08	<0.04	<0.04	<0.04	<0.04	0.07	<0.04	<0.04	<0.04	<0.04	0.07	<0.04	**1.52**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.8	<0.04	**1.83**	<0.04
Acenaphthene	µg/g	0.02	**7.9**	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	0.02	<0.02
Acenaphthylene	µg/g	0.02	**0.15**	<0.02	<0.02	0.07	<0.02	<0.02	**0.24**	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**<0.4**	<0.02	<0.02	<0.02
Acridine	µg/g	0.01	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/g	0.02	**0.67**	0.17	<0.02	0.06	<0.02	<0.02	0.26	<0.02	0.04	<0.02	<0.02	0.03	<0.02	0.45	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	0.03	<0.02
Benz(a)anthracene	µg/g	0.02	**0.5**	0.5	<0.02	0.16	<0.02	<0.02	**0.58**	<0.02	0.12	<0.02	<0.02	0.06	<0.02	**1.09**	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	**0.54**	<0.02	0.06	<0.02
Benzo(a) pyrene	µg/g	0.02	**0.3**	**0.46**	<0.02	0.21	<0.02	<0.02	**0.52**	<0.02	0.13	<0.02	<0.02	0.07	<0.02	**0.87**	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	**0.51**	<0.02	0.05	<0.02
Benzo(b)fluoranthene	µg/g	0.02	**0.78**	0.51	<0.02	0.24	<0.02	<0.02	0.52	<0.02	0.16	<0.02	<0.02	0.13	<0.02	**1.13**	<0.02	0.08	<0.02	<0.02	<0.02	<0.02	0.6	<0.02	0.09	<0.02
Benzo(g,h,i)perylene	µg/g	0.02	**6.6**	0.28	<0.02	0.14	<0.02	<0.02	0.23	<0.02	0.08	<0.02	<0.02	0.06	<0.02	0.51	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	0.05	<0.02
Benzo(k)fluoranthene	µg/g	0.02	**0.78**	0.27	<0.02	0.12	<0.02	<0.02	0.33	<0.02	0.08	<0.02	<0.02	0.05	<0.02	0.57	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	0.04	<0.02
Chrysene	µg/g	0.02	**7**	0.43	<0.02	0.16	<0.02	<0.02	0.55	<0.02	0.14	<0.02	<0.02	0.08	<0.02	1.12	<0.02	0.08	<0.02	<0.02	<0.02	<0.02	0.49	<0.02	0.07	<0.02
Dibenz(a,h)anthracene	µg/g	0.02	**0.1**	0.09	<0.02	0.04	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	**0.15**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**<0.4**	<0.02	<0.02	<0.02
Fluoranthene	µg/g	0.02	**0.69**	**1**	<0.02	0.25	<0.02	<0.02	**1.18**	<0.02	0.27	<0.02	<0.02	0.12	<0.02	**3.58**	<0.02	0.15	<0.02	<0.02	<0.02	<0.02	**0.91**	<0.02	0.16	<0.02
Fluorene	µg/g	0.02	**62**	0.05	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	<0.02	<0.02
Indeno(1,2,3-c,d)pyrene	µg/g	0.02	**0.38**	0.28	<0.02	0.13	<0.02	<0.02	0.24	<0.02	0.07	<0.02	<0.02	0.06	<0.02	**0.5**	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	**<0.4**	<0.02	0.04	<0.02
Naphthalene	µg/g	0.01	**0.6**	0.1	<0.01	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	0.24	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	0.27	<0.01
Phenanthrene	µg/g	0.02	**6.2**	0.64	<0.02	0.11	<0.02	<0.02	0.9	<0.02	0.19	<0.02	<0.02	0.07	<0.02	3.02	<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.4	<0.02	0.23	<0.02
Pyrene	µg/g	0.02	**78**	0.78	<0.02	0.23	<0.02	<0.02	0.94	<0.02	0.21	<0.02	<0.02	0.09	<0.02	2.48	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	0.76	<0.02	0.12	<0.02

Table A2 - Soil Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
			Location	BH21-20				19-01	19-02	19-03		19-04		19-05	19-06		19-07	19-08	19-09		19-10		19-11
			Sample ID	BH21-20 SS2	BH21-20 SS4	BH21-20 SS6	DUP 5	19-01 SA3	19-02 SA2	19-03 SA2	DUP-3	19-04 SA3	DUP-1	19-05 SA2	19-06 SA1	19-06 SA2	19-07 SA2	19-08- SA5	19-09 SA1	19-09 SA2	19-10 SA1	19-10 SA2	19-11 SA4
			Sample Date	2021-09-30	2021-09-30	2021-09-30	2021-09-30	2019-10-17	2019-10-08	2019-10-17	2019-10-17	2019-10-17	2019-10-17	2019-10-08				2019-10-16					2019-10-16
			Sample Depth Range (m)	0.76-1.37	3.05-3.66	6.1-6.71	6.1-6.71	3.05 - 3.73	0.76 - 1.52	0.61 - 1.52	0.61 - 1.52	1.52 - 2.29	1.52 - 2.29	0.76 - 1.52	0 - 0.76	0.76 - 1.52	0.76 - 1.52	3.05 - 3.81	0 - 0.76	0.76 - 1.52	0 - 0.76	0.76 - 1.52	2.29 - 3.05
			Lab Report Number	2140666	2140666	2140666	2140666	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826
Parameter	**Units**	**RDL**	**MECP Table 3**																				
General Chemistry																							
pH (Lab)	pH Units	0.05	**n/v**	7.5	7.75	7.9	8.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia as N	µg/g	1	**n/v**	4	4	1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, free	µg/g	0.03	**0.051**	<0.03	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity (Lab)	µS/cm	5	**700**	387	467	106	163	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	µg/g	1	**n/v**	<1	10	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (SAR)	SAR	0.01	**5**	1.93	1.84	0.04	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/g	5	**n/v**	80	153	12	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	µg/g	200	**n/v**	1000	1560	<200	<200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX																							
Benzene	µg/g	0.02	**0.21**	<0.02	<0.02	<0.02	<0.02	<0.0060	-	-	-	<0.0060	<0.0060	-	<0.020	-	<0.020	<0.0060	<0.020	-	<0.020	-	<0.0060
Toluene	µg/g	0.05	**2.3**	<0.05	<0.05	<0.05	<0.05	<0.020	-	-	-	<0.020	<0.020	-	<0.020	-	<0.020	<0.020	0.054	-	<0.020	-	<0.020
Ethylbenzene	µg/g	0.05	**2**	<0.05	<0.05	<0.05	<0.05	<0.010	-	-	-	<0.010	<0.010	-	<0.020	-	<0.020	<0.010	<0.020	-	<0.020	-	<0.010
Xylene (m & p)	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.020	-	-	-	<0.020	<0.020	-	<0.040	-	<0.040	<0.020	<0.040	-	<0.040	-	<0.020
Xylene (o)	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.020	-	-	-	<0.020	<0.020	-	0.058	-	<0.020	<0.020	<0.020	-	<0.020	-	<0.020
Xylene Total	µg/g	0.05	**3.1**	<0.05	<0.05	<0.05	<0.05	<0.020	-	-	-	<0.020	<0.020	-	0.058	-	<0.040	<0.020	<0.040	-	<0.040	-	<0.020
Petroleum Hydrocarbons (PHCs)																							
PHC F1 (C6-C10)	µg/g	7	**55**	<7	<7	<7	<7	<10	-	-	-	<10	<10	-	<10	-	<10	<10	<10	-	<10	-	<10
PHC F2 (>C10-C16)	µg/g	4	**98**	<4	<4	<4	<4	<10	-	-	-	<10	<10	-	<10	-	<10	<10	16	-	20	-	<10
PHC F3 (>C16-C34)	µg/g	8	**300**	<8	<8	<8	<8	<50	-	-	-	<50	<50	-	140	-	140	<50	300	-	**1100**	-	<50
PHC F4 (>C34-C50)	µg/g	6	**2800**	<6	<6	<6	<6	<50	-	-	-	<50	<50	-	290	-	310	<50	400	-	1400	-	<50
F4G-SG (GHH-Silica)	µg/g	50	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																							
Antimony	µg/g	1	**7.5**	<1	<1	<1	<1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-	0.26	<0.20	<0.20	-	<0.20	-	<0.20
Arsenic	µg/g	1	**18**	4.5	3.6	1.5	1.5	1.8	1.5	1.2	<1.0	1.8	2.1	<1.0	1.8	-	3.9	2	2.6	-	2.3	-	<1.0
Barium	µg/g	1	**390**	208	345	35.6	58.3	200	170	150	120	180	220	130	130	-	180	310	120	-	140	-	300
Beryllium	µg/g	0.5	**4**	2.5	0.9	<0.5	<0.5	0.56	0.4	0.39	0.33	0.6	0.65	0.41	0.3	-	0.51	0.81	0.27	-	0.31	-	0.79
Boron	µg/g	5	**120**	7.6	5.9	<5	5.9	7.1	<5.0	<5.0	<5.0	6.9	7.7	<5.0	8.5	-	11	5.9	17	-	18	-	6.1
Cadmium	µg/g	0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	0.11	0.11	<0.10	-	<0.10	-	0.11
Chromium (Hexavalent)	µg/g	0.2	**8**	0.2	0.3	<0.2	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Total, III+VI)	µg/g	5	**160**	56.9	72.6	7.7	9.9	41	39	32	24	43	45	33	22	-	59	70	14	-	16	-	71
Cobalt	µg/g	1	**22**	15	19.6	3.4	4.1	12	10	9.2	7	13	13	9.2	6.4	-	14	18	6.8	-	6.7	-	18
Copper	µg/g	5	**140**	33.5	38.9	8.7	7.6	22	22	17	14	24	25	19	14	-	31	36	12	-	14	-	34
Lead	µg/g	1	**120**	18.8	7.2	1.9	2.6	6	4.8	4.2	3.4	5.8	6	4.4	5.6	-	24	12	13	-	16	-	6.5
Mercury	µg/g	0.1	**0.27**	<0.1	<0.1	<0.1	<0.1	<0.050	-	<0.050	<0.050	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Molybdenum	µg/g	1	**6.9**	<1	<1	<1	<1	1	0.98	<0.50	<0.50	<0.50	<0.50	<0.50	0.69	-	3	<0.50	2.2	-	1.4	-	<0.50
Nickel	µg/g	5	**100**	33.5	43.7	5.4	6.6	23	23	19	14	25	27	20	13	-	37	40	13	-	14	-	41
Selenium	µg/g	1	**2.4**	2	<1	<1	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	<0.50	-	<0.50
Silver	µg/g	0.3	**20**	<0.3	<0.3	<0.3	<0.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	-	<0.20	-	<0.20
Thallium	µg/g	1	**1**	<1	<1	<1	<1	0.21	0.18	0.18	0.14	0.24	0.26	0.16	0.14	-	0.31	0.35	0.15	-	0.14	-	0.41
Uranium	µg/g	1	**23**	<1	<1	<1	<1	0.71	0.61	0.6	0.59	0.58	0.63	0.62	0.51	-	0.63	0.79	0.46	-	0.49	-	0.95
Vanadium	µg/g	10	**86**	73	**92.1**	17	20	58	59	49	41	61	64	49	46	-	53	85	17	-	21	-	**92**
Zinc	µg/g	20	**340**	94.4	117	<20	<20	62	55	47	38	69	75	51	60	-	63	100	42	-	40	-	110
Polycyclic Aromatic Hydrocarbons (PAHs)																							
1-Methylnaphthalene	µg/g	0.02	**0.99**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.050	<0.0050	<0.050	<0.0050	0.68	0.021	<0.050	0.084	0.0061
2-Methylnaphthalene	µg/g	0.02	**0.99**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.050	<0.0050	<0.050	<0.0050	**1**	0.032	<0.050	0.11	0.01
1 & 2 Methylnaphthalene	µg/g	0.04	**0.99**	<0.04	<0.04	<0.04	<0.04	-	<0.071	-	-	-	-	<0.071	<0.071	-	<0.071	-	**1.7**	-	<0.071	-	-
Acenaphthene	µg/g	0.02	**7.9**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	0.15	<0.0050	<0.050	<0.0050	0.11	<0.0050	<0.050	<0.0050	<0.0050
Acenaphthylene	µg/g	0.02	**0.15**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.050	<0.0050	<0.050	0.023	<0.050	<0.0050	<0.050	0.02	<0.0050
Acridine	µg/g	0.01	**n/v**	-	-	-	-	<0.010	-	<0.010	<0.010	<0.010	<0.010	-	-	<0.010	-	<0.010	-	<0.010	-	<0.010	<0.010
Anthracene	µg/g	0.02	**0.67**	<0.02	<0.02	<0.02	<0.02	<0.0040	<0.050	<0.0040	<0.0040	<0.0040	<0.0040	<0.050	0.29	<0.0040	<0.050	0.016	0.37	<0.0040	<0.050	0.021	0.011
Benz(a)anthracene	µg/g	0.02	**0.5**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	**0.71**	0.0066	0.11	0.042	**0.81**	<0.0050	0.082	0.076	0.022
Benzo(a) pyrene	µg/g	0.02	**0.3**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	**0.57**	0.0063	0.093	0.057	**0.64**	<0.0050	0.098	0.083	0.024
Benzo(b)fluoranthene	µg/g	0.02	**0.78**	0.03	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	**0.83**	0.0087	0.13	0.083	**0.93**	0.0092	0.13	0.13	0.03
Benzo(g,h,i)perylene	µg/g	0.02	**6.6**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	0.37	<0.0050	0.067	0.044	0.44	<0.0050	0.099	0.067	0.018
Benzo(k)fluoranthene	µg/g	0.02	**0.78**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	0.31	<0.0050	<0.050	0.026	0.35	<0.0050	<0.050	0.045	0.01
Chrysene	µg/g	0.02	**7**	0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	0.57	0.0064	0.099	0.042	0.7	0.0063	0.084	0.093	0.027
Dibenz(a,h)anthracene	µg/g	0.02	**0.1**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	0.1	<0.0050	<0.050	0.0078	**0.11**	<0.0050	<0.050	0.017	<0.0050
Fluoranthene	µg/g	0.02	**0.69**	0.04	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	**2.1**	0.019	0.29	0.066	**2.4**	0.018	0.14	0.17	0.047
Fluorene	µg/g	0.02	**62**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	0.1	<0.0050	<0.050	<0.0050	0.083	<0.0050	<0.050	<0.0050	<0.0050
Indeno(1,2,3-c,d)pyrene	µg/g	0.02	**0.38**	<0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	**0.41**	<0.0050	0.069	0.049	**0.48**	<0.0050	0.081	0.073	0.016
Naphthalene	µg/g	0.01	**0.6**	0.02	<0.01	<0.01	<0.01	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.050	<0.0050	<0.050	<0.0050	0.26	0.007	<0.050	0.055	0.0051
Phenanthrene	µg/g	0.02	**6.2**	0.02	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	1.8	0.021	0.28	0.022	2.5	0.019	0.093	0.13	0.046
Pyrene	µg/g	0.02	**78**	0.03	<0.02	<0.02	<0.02	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	1.4	0.014	0.21	0.058	1.7	0.013	0.15	0.14	0.042

Table A2 - Soil Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon
			Location	BH21-01			BH21-02		BH21-03			BH21-04		BH21-05		BH21-06		BH21-07		BH21-08			
			Sample ID	BH21-01 S11	BH21-01 S2	BH21-01 S6	BH21-02 SS1	BH21-02 SS4	BH21-03 SS1	BH21-03 SS3	BH21-04 SS2	BH21-04 SS5	DUP 2	BH21-05 SS2	BH21-05 SS4	BH21-06 SS1	BH21-06 SS5	BH21-07 SS1	BH21-07 SS5	BH21-08 SS1	BH21-08 SS2	BH21-08 SS5	DUP 3
			Sample Date	2021-09-28	2021-09-24	2021-09-24	2021-09-21	2021-09-21	2021-09-22	2021-09-22	2021-09-20	2021-09-20	2021-09-20	2021-09-21	2021-09-21	2021-09-21	2021-09-21	2021-09-22	2021-09-22	2021-09-23	2021-09-23	2021-09-23	2021-09-23
			Sample Depth Range (m)	9.14-9.75	0.76-1.37	3.81-4.42	0.91-1.37	3.35-3.66	0-0.61	1.83-2.13	2.44-3.05	4.72-5.33	4.72-5.33	0.76-1.37	2.29-2.74	0.76-1.37	4.11-4.42	0.46-0.76	2.67-2.9	0.15-0.46	0.61-1.22	2.9-3.51	2.9-3.51
			Lab Report Number	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666
Parameter	**Units**	**RDL**	**MECP Table 3**																				
Volatile Organic Compounds (VOCs)																							
Acetone	µg/g	0.5	**16**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-
Bromodichloromethane	µg/g	0.05	**13**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Bromoform	µg/g	0.05	**0.27**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Bromomethane	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Carbon tetrachloride	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Chlorobenzene	µg/g	0.05	**2.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Chlorodibromomethane	µg/g	0.05	**9.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Chloroform	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Dichlorodifluoromethane	µg/g	0.05	**16**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,2-Dichlorobenzene	µg/g	0.05	**3.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,3-Dichlorobenzene	µg/g	0.05	**4.8**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,4-Dichlorobenzene	µg/g	0.05	**0.083**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,1-Dichloroethane	µg/g	0.05	**3.5**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,1-Dichloroethene	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
cis-1,2-Dichloroethene	µg/g	0.05	**3.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
trans-1,2-Dichloroethene	µg/g	0.05	**0.084**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,2-Dibromoethane	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,2-Dichloroethane	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,2-Dichloropropane	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,3-Dichloropropene	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
cis-1,3-Dichloropropene	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
trans-1,3-Dichloropropene	µg/g	0.05	**n/v**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Dichloromethane	µg/g	0.05	**0.1**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Hexane	µg/g	0.05	**2.8**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Methyl Ethyl Ketone (MEK)	µg/g	0.5	**16**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-
Methyl Isobutyl Ketone (MIK)	µg/g	0.5	**1.7**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-
Methyl tert-Butyl Ether (MTBE)	µg/g	0.05	**0.75**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Styrene	µg/g	0.05	**0.7**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/g	0.05	**0.058**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,1,1-Trichloroethane	µg/g	0.05	**0.38**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
1,1,2-Trichloroethane	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Tetrachloroethene	µg/g	0.05	**0.28**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Trichloroethene	µg/g	0.05	**0.061**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Trichlorofluoromethane	µg/g	0.05	**4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Vinyl chloride	µg/g	0.02	**0.02**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-	-
Explosives																							
Cyclonite (RDX)	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
4-Amino-2,6-Dinitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
2-Amino-4,6-dinitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
3,5-Dinitroaniline	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
1,3-Dinitrobenzene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
2,4-Dinitrotoluene	µg/g	0.05	**0.92**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
2,6-Dinitrotoluene	µg/g	0.05	**0.92**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
Nitrobenzene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
Nitroglycerin	µg/g	0.1	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	-	
2-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
3-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
4-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
Octogen (HMX)	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
Pentaerythritol tetranitrate (PETN)	µg/g	0.1	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	-	
Tetryl	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
1,3,5-Trinitrobenzene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	
2,4,6-Trinitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-	

Notes
RDL — Reportable detection limit
n/v — No appicable guideline value
- — Analysis not performed
MECP Table 3 — Ministry of Environment Conservation and Parks O. Reg 152 (2011) Table Standards for Residential, Parkland and Institutional Property Use for course textured soil in full depth generic site condition in a non-potable groundwater condition
100 — Value exceeds guideline

Table A2 - Soil Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon
			Location	BH21-09		BH21-10			BH21-11		BH21-12			BH21-13		BH21-14		BH21-15		BH21-16			BH21-17		BH21-19	
			Sample ID	BH21-09 SS1	BH21-09 SS3	BH21-10 SS2	BH21-10 SS7	BH21-10 SS8	BH21-11 SS2	BH21-11 SS6	BH21-12 SS1	BH21-12 SS3	BH21-12 SS9	BH21-13 SS3	BH21-13 SS6	BH21-14 SS1	BH21-14 SS3	BH21-15 SS1	BH21-15 SS5	BH21-16 SS2	DUP 4	BH21-16 SS5	BH21-17 SS1	BH21-17 SS3	BH21-19 SS1	BH21-19 SS3
			Sample Date	2021-09-23	2021-09-23	2021-09-29	2021-09-29	2021-09-29	2021-09-21	2021-09-22	2021-09-22	2021-09-22	2021-09-22	2021-09-30	2021-09-13	2021-09-24	2021-09-24	2021-09-30	2021-09-13	2021-09-30	2021-09-30	2021-09-13	2021-09-23	2021-09-24	2021-09-23	2021-09-23
			Sample Depth Range (m)	0.15-0.61	1.52-2.13	0.76-1.37	3.81-4.42	4.57-5.18	0.76-1.37	3.05-3.66	0.15-0.76	2.44-3.05	7.01-7.62	1.52-1.77	3.81-4.42	0.76-1.37	2.29-2.9	1.22-1.83	3.81-4.42	1.22-1.83	1.22-1.83	3.05-3.66	0.15-0.61	1.52-1.83	0.91-1.52	2.44-3.05
			Lab Report Number	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140666	2140497	2140666	2140666	2140666	2140497	2140666	2140666	2140497	2140666	2140666	2140666	2140666
Parameter	**Units**	**RDL**	**MECP Table 3**																							
Volatile Organic Compounds (VOCs)																										
Acetone	µg/g	0.5	**16**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/g	0.05	**13**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	µg/g	0.05	**0.27**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	µg/g	0.05	**2.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorodibromomethane	µg/g	0.05	**9.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	µg/g	0.05	**16**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/g	0.05	**3.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	µg/g	0.05	**4.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/g	0.05	**0.083**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	µg/g	0.05	**3.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	µg/g	0.05	**3.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	µg/g	0.05	**0.084**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropene	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	µg/g	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichloromethane	µg/g	0.05	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexane	µg/g	0.05	**2.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone (MEK)	µg/g	0.5	**16**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone (MIK)	µg/g	0.5	**1.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl tert-Butyl Ether (MTBE)	µg/g	0.05	**0.75**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	µg/g	0.05	**0.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/g	0.05	**0.058**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	µg/g	0.05	**0.38**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/g	0.05	**0.28**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	µg/g	0.05	**0.061**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	µg/g	0.05	**4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	µg/g	0.02	**0.02**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Explosives																										
Cyclonite (RDX)	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
4-Amino-2,6-Dinitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
2-Amino-4,6-dinitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
3,5-Dinitroaniline	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
1,3-Dinitrobenzene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
2,4-Dinitrotoluene	µg/g	0.05	**0.92**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
2,6-Dinitrotoluene	µg/g	0.05	**0.92**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
Nitrobenzene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
Nitroglycerin	µg/g	0.1	**n/v**	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	<0.10	-	-
2-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
3-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
4-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
Octogen (HMX)	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
Pentaerythritol tetranitrate (PETN)	µg/g	0.1	**n/v**	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	-	-	<0.10	<0.10	-	-	<0.10	-	<0.10	-	-
Tetryl	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
1,3,5-Trinitrobenzene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-
2,4,6-Trinitrotoluene	µg/g	0.05	**n/v**	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-

Notes
RDL — Reportable detection limit
n/v — No appicable guideline value
- — Analysis not performed
MECP Table 3
100 — Value exceeds guideline

2021-12-21

Table A2 - Soil Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
			Location	BH21-20				19-01	19-02	19-03		19-04		19-05	19-06		19-07	19-08	19-09		19-10		19-11
			Sample ID	BH21-20 SS2	BH21-20 SS4	BH21-20 SS6	DUP 5	19-01 SA3	19-02 SA2	19-03 SA2	DUP-3	19-04 SA3	DUP-1	19-05 SA2	19-06 SA1	19-06 SA2	19-07 SA2	19-08- SA5	19-09 SA1	19-09 SA2	19-10 SA1	19-10 SA2	19-11 SA4
			Sample Date	2021-09-30	2021-09-30	2021-09-30	2021-09-30	2019-10-17	2019-10-08	2019-10-17	2019-10-17	2019-10-17	2019-10-17	2019-10-08				2019-10-16					2019-10-16
			Sample Depth Range (m)	0.76-1.37	3.05-3.66	6.1-6.71	6.1-6.71	3.05 - 3.73	0.76 - 1.52	0.61 - 1.52	0.61 - 1.52	1.52 - 2.29	1.52 - 2.29	0.76 - 1.52	0 - 0.76	0.76 - 1.52	0.76 - 1.52	3.05 - 3.81	0 - 0.76	0.76 - 1.52	0 - 0.76	0.76 - 1.52	2.29 - 3.05
			Lab Report Number	2140666	2140666	2140666	2140666	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826	R5961826
Parameter	**Units**	**RDL**	**MECP Table 3**																				
Volatile Organic Compounds (VOCs)																							
Acetone	µg/g	0.5	**16**	-	-	-	-	<0.50	-	-	-	<0.50	<0.50	-	-	-	-	<0.50	-	-	-	-	<0.50
Bromodichloromethane	µg/g	0.05	**13**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Bromoform	µg/g	0.05	**0.27**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Bromomethane	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Carbon tetrachloride	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Chlorobenzene	µg/g	0.05	**2.4**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Chlorodibromomethane	µg/g	0.05	**9.4**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Chloroform	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Dichlorodifluoromethane	µg/g	0.05	**16**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,2-Dichlorobenzene	µg/g	0.05	**3.4**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,3-Dichlorobenzene	µg/g	0.05	**4.8**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,4-Dichlorobenzene	µg/g	0.05	**0.083**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,1-Dichloroethane	µg/g	0.05	**3.5**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,1-Dichloroethene	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
cis-1,2-Dichloroethene	µg/g	0.05	**3.4**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
trans-1,2-Dichloroethene	µg/g	0.05	**0.084**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,2-Dibromoethane	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,2-Dichloroethane	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,2-Dichloropropane	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,3-Dichloropropene	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
cis-1,3-Dichloropropene	µg/g	0.05	**n/v**	-	-	-	-	<0.030	-	-	-	<0.030	<0.030	-	-	-	-	<0.030	-	-	-	-	<0.030
trans-1,3-Dichloropropene	µg/g	0.05	**n/v**	-	-	-	-	<0.040	-	-	-	<0.040	<0.040	-	-	-	-	<0.040	-	-	-	-	<0.040
Dichloromethane	µg/g	0.05	**0.1**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Hexane	µg/g	0.05	**2.8**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Methyl Ethyl Ketone (MEK)	µg/g	0.5	**16**	-	-	-	-	<0.50	-	-	-	<0.50	<0.50	-	-	-	-	<0.50	-	-	-	-	<0.50
Methyl Isobutyl Ketone (MIK)	µg/g	0.5	**1.7**	-	-	-	-	<0.50	-	-	-	<0.50	<0.50	-	-	-	-	<0.50	-	-	-	-	<0.50
Methyl tert-Butyl Ether (MTBE)	µg/g	0.05	**0.75**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Styrene	µg/g	0.05	**0.7**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,1,1,2-Tetrachloroethane	µg/g	0.05	**0.058**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,1,2,2-Tetrachloroethane	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,1,1-Trichloroethane	µg/g	0.05	**0.38**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
1,1,2-Trichloroethane	µg/g	0.05	**0.05**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Tetrachloroethene	µg/g	0.05	**0.28**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Trichloroethene	µg/g	0.05	**0.061**	-	-	-	-	<0.010	-	-	-	<0.010	<0.010	-	-	-	-	<0.010	-	-	-	-	<0.010
Trichlorofluoromethane	µg/g	0.05	**4**	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	-	-	<0.050
Vinyl chloride	µg/g	0.02	**0.02**	-	-	-	-	<0.020	-	-	-	<0.020	<0.020	-	-	-	-	<0.020	-	-	-	-	<0.020
Explosives																							
Cyclonite (RDX)	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Amino-2,6-Dinitrotoluene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Amino-4,6-dinitrotoluene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,5-Dinitroaniline	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dinitrobenzene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	µg/g	0.05	**0.92**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	µg/g	0.05	**0.92**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitroglycerin	µg/g	0.1	**n/v**	<0.10	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrotoluene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitrotoluene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrotoluene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Octogen (HMX)	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentaerythritol tetranitrate (PETN)	µg/g	0.1	**n/v**	<0.10	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetryl	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trinitrobenzene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trinitrotoluene	µg/g	0.05	**n/v**	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes
RDL — Reportable detection limit
n/v — No appicable guideline value
- — Analysis not performed
MECP Table 3
100 — Value exceeds guideline

2021-12-21

Table A3 - Groundwater Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon
			Location	MW19-01	MW19-11		MW21-01D		MW21-01S	MW21-02		MW21-04S	MW21-06	MW21-10S	MW21-10D	MW21-12
			Sample ID	MW19-01	MW19-11	DUP1	MW21-01D	DUP2	MW21-01S	MW21-02	MW21-02	MW21-04S	MW21-06	MW21-10S	MW21-10D	MW21-12
			Sample Date	2021-10-28	2021-10-28	2021-10-28	2021-11-01	2021-11-01	2021-10-28	2021-10-27	2021-11-18	2021-10-28	2021-10-26	2021-10-28	2021-10-27	2021-10-26
			Lab Report Number	2144627	2144627	2144627	2145243	2145243	2144627	2144627	2147476	2144627	2144303	2144627	2144627	2144303
Parameter	**Units**	**RDL**	**MECP Table 3**													
General Chemistry																
Hardness	mg/L	0.5	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (Lab)	pH Units	0.1	**n/v**	7.4	7.4	7.4	8.2	8.2	7.7	7.3	-	7.5	7.6	7.2	7.2	8.1
Ammonia as N	µg/L	10	**n/v**	-	490	600	-	-	-	-	-	-	-	330	830	190
Cyanide, free	µg/L	2	**66**	17	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2
Chloride	mg/L	1	**2300**	**3760**	249	249	141	140	67	297	-	82	651	495	701	55
Nitrate (as N)	µg/L	100	**n/v**	-	<100	<100	-	-	-	-	-	-	-	<100	<100	<100
Turbidity	NTU	0.1	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX																
Benzene	µg/L	0.5	**44**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	**18000**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	3.8	<0.5
Ethylbenzene	µg/L	0.5	**2300**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	µg/L	0.5	**n/v**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.7	<0.5
Xylene (o)	µg/L	0.5	**n/v**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	µg/L	0.5	**4200**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.7	<0.5
Petroleum Hydrocarbons (PHCs)																
PHC F1 (C6-C10)	µg/L	25	**750**	<25	<25	<25	<25	<25	<25	<25	-	<25	<25	<25	<25	<25
PHC F2 (>C10-C16)	µg/L	100	**150**	<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100
PHC F3 (>C16-C34)	µg/L	100	**500**	<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100
PHC F4 (>C34-C50)	µg/L	100	**500**	<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100
Metals (Dissolved)																
Aluminum	µg/L	6	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	µg/L	0.5	**20000**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	1	**1900**	<1	<1	<1	2	2	1	<1	-	<1	<1	<1	<1	2
Barium	µg/L	1	**29000**	205	91	89	1060	958	483	195	-	160	121	904	825	236
Beryllium	µg/L	0.5	**67**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Bismuth	µg/L	5	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	10	**45000**	59	123	119	259	255	170	38	-	94	68	50	89	125
Cadmium	µg/L	0.1	**2.7**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	mg/L	0.25	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Hexavalent)	µg/L	10	**140**	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10
Chromium (Total, III+VI)	µg/L	1	**810**	2	<1	<1	<1	<1	<1	<1	-	<1	2	<1	<1	<1
Cobalt	µg/L	0.5	**66**	<0.5	<0.5	<0.5	0.7	0.7	<0.5	0.9	-	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	0.5	**87**	4.4	<0.5	<0.5	1.4	0.7	0.5	1.5	-	0.7	1.7	0.7	<0.5	1.6
Iron	µg/L	10	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	µg/L	0.1	**25**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Lithium	µg/L	29	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.25	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	µg/L	5	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	µg/L	0.1	**0.29**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.5	**9200**	3.9	5.8	5.7	5.6	5.2	0.9	10	-	4.6	5.8	3.7	3.7	9.8
Nickel	µg/L	1	**490**	2	2	2	4	4	1	3	-	<1	1	1	<1	1
Potassium	mg/L	0.1	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	1	**63**	<1	<1	<1	<1	<1	<1	<1	-	<1	1	<1	<1	<1
Silicon	µg/L	500	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	0.1	**1.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	mg/L	0.2	**2300**	1890	53.3	53.8	52	51.1	27.1	23.5	-	18.8	423	165	259	27.7
Strongtium	µg/L	2	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur	mg/L	6	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	0.1	**510**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	10	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	10	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	0.1	**420**	3.9	0.1	0.1	0.5	0.5	0.5	4.7	-	3.3	3.8	1.3	3.4	2.2
Vanadium	µg/L	0.5	**250**	1.8	<0.5	<0.5	1.3	1.3	1.1	1.4	-	1.4	3.5	<0.5	<0.5	1.7
Zinc	µg/L	5	**1100**	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	6
Zirconium	µg/L	0.2	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A3 - Groundwater Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Golder	Golder	Golder	Golder
			Location	MW21-13		MW21-14	MW21-15	MW21-18	MW21-20S	MW21-20D		MW19-01	MW19-08		MW19-11
			Sample ID	MW21-13	MW21-13	MW21-14	MW21-15	MW21-18	MW21-20S	MW21-20D	MW21-20D	19-01	19-08	DUP-1	19-11
			Sample Date	2021-10-27	2021-11-18	2021-10-26	2021-10-26	2021-10-27	2021-10-27	2021-11-01	2021-11-18	2019-10-23	2019-10-23	2019-10-23	2019-10-23
			Lab Report Number	2144627	2147476	2144303	2144303	2144627	2144627	2145243	2147476	R5961813	R5961813	R5961813	R5961813
Parameter	**Units**	**RDL**	**MECP Table 3**												
General Chemistry															
Hardness	mg/L	0.5	**n/v**	-	-	-	-	-	-	-	-	725000	957000	954000	519000
pH (Lab)	pH Units	0.1	**n/v**	7.2	-	7.8	7.8	7.5	7.4	8	-	-	-	-	-
Ammonia as N	µg/L	10	**n/v**	-	50	30	<10	550	60	460	-	-	-	-	-
Cyanide, free	µg/L	2	**66**	<2	-	<2	<2	<2	<2	<2	-	-	-	-	-
Chloride	mg/L	1	**2300**	398	-	1100	383	104	67	418	-	-	-	-	-
Nitrate (as N)	µg/L	100	**n/v**	8300	-	<100	3200	<100	400	-	-	-	-	-	-
Turbidity	NTU	0.1	**n/v**	-	-	-	-	-	-	334	-	-	-	-	-
BTEX															
Benzene	µg/L	0.5	**44**	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.5	**18000**	<0.5	-	<0.5	<0.5	<0.5	<0.5	1.2	-	0.23	<0.20	<0.20	0.32
Ethylbenzene	µg/L	0.5	**2300**	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.20	<0.20	<0.20	<0.20
Xylene (m & p)	µg/L	0.5	**n/v**	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.20	<0.20	<0.20	<0.20
Xylene (o)	µg/L	0.5	**n/v**	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.20	<0.20	<0.20	<0.20
Xylene Total	µg/L	0.5	**4200**	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.20	<0.20	<0.20	<0.20
Petroleum Hydrocarbons (PHCs)															
PHC F1 (C6-C10)	µg/L	25	**750**	<25	-	<25	<25	<25	<25	<25	-	<25	<25	<25	<25
PHC F2 (>C10-C16)	µg/L	100	**150**	<100	-	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
PHC F3 (>C16-C34)	µg/L	100	**500**	<100	-	<100	<100	<100	<100	<100	-	<200	<200	<200	<200
PHC F4 (>C34-C50)	µg/L	100	**500**	<100	-	<100	<100	<100	<100	<100	-	<200	<200	<200	<200
Metals (Dissolved)															
Aluminum	µg/L	6	**n/v**	-	-	-	-	-	-	-	-	<15	<6	<6	<15
Antimony	µg/L	0.5	**20000**	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	0.9	<2.5	<1.0	<1.0	<2.5
Arsenic	µg/L	1	**1900**	<1	-	<1	<1	<1	<1	-	2	1.30	<0.20	<0.20	1.82
Barium	µg/L	1	**29000**	126	-	189	174	194	111	-	105	328	122	122	112
Beryllium	µg/L	0.5	**67**	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.50	<0.20	<0.20	<0.50
Bismuth	µg/L	5	**n/v**	-	-	-	-	-	-	-	-	<5.0	<2.0	<2.0	<5.0
Boron	µg/L	10	**45000**	34	-	74	56	131	38	-	537	258	<100	<100	<250
Cadmium	µg/L	0.1	**2.7**	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.050	0.034	0.033	<0.050
Calcium	mg/L	0.25	**n/v**	-	-	-	-	-	-	-	-	167	288	289	634
Chromium (Hexavalent)	µg/L	10	**140**	<10	-	<10	<10	<10	<10	-	<10	-	-	-	-
Chromium (Total, III+VI)	µg/L	1	**810**	2	-	<1	<1	<1	<1	-	<1	<5.0	2.4	2.6	<5.0
Cobalt	µg/L	0.5	**66**	0.6	-	2.3	1.5	<0.5	<0.5	-	<0.5	1.7	0.48	0.48	<1.0
Copper	µg/L	0.5	**87**	0.7	-	3.3	2	<0.5	<0.5	-	0.5	3.6	1.03	0.86	1.4
Iron	µg/L	10	**n/v**	-	-	-	-	-	-	-	-	<25	<10	<10	68.0
Lead	µg/L	0.1	**25**	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	<1.0	<0.40	<0.40	<1.0
Lithium	µg/L	29	**n/v**	-	-	-	-	-	-	-	-	29	5.3	5.3	36
Magnesium	mg/L	0.25	**n/v**	-	-	-	-	-	-	-	-	74.7	57.5	56.5	87.7
Manganese	µg/L	5	**n/v**	-	-	-	-	-	-	-	-	472	2.5	2.3	22.4
Mercury	µg/L	0.1	**0.29**	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	-	-
Molybdenum	µg/L	0.5	**9200**	2	-	6.8	10.3	1.3	6	-	10.3	15.3	<2.0	<2.0	5.5
Nickel	µg/L	1	**490**	2	-	6	5	<1	1	-	1	7.9	<2.0	<2.0	7.0
Potassium	mg/L	0.1	**n/v**	-	-	-	-	-	-	-	-	37.5	4.93	5.01	17.4
Selenium	µg/L	1	**63**	1	-	<1	<1	<1	<1	-	<1	0.75	2.76	2.77	<0.50
Silicon	µg/L	500	**n/v**	-	-	-	-	-	-	-	-	8720	6070	6120	19000
Silver	µg/L	0.1	**1.5**	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.10	<0.040	<0.040	<0.10
Sodium	mg/L	0.2	**2300**	172	-	576	133	35.7	23.6	380	503	1460	116	117	46.1
Strongtium	µg/L	2	**n/v**	-	-	-	-	-	-	-	-	3480	843	851	18500.0
Sulphur	mg/L	6	**n/v**	-	-	-	-	-	-	-	-	76.0	30.5	30.3	33.0
Thallium	µg/L	0.1	**510**	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.068	<0.020	<0.020	<0.050
Tin	µg/L	10	**n/v**	-	-	-	-	-	-	-	-	<25	<10	<10	<25
Titanium	µg/L	10	**n/v**	-	-	-	-	-	-	-	-	<0.025	<0.01	<10	<0.025
Uranium	µg/L	0.1	**420**	3.3	-	1.6	6.2	0.2	0.5	-	7.1	5.52	2.50	2.47	1.88
Vanadium	µg/L	0.5	**250**	1.8	-	1.8	1.9	<0.5	<0.5	-	1.5	<25	<10	<10	<25
Zinc	µg/L	5	**1100**	<5	-	<5	<5	<5	<5	-	<5	<25	<10	<10	<25
Zirconium	µg/L	0.2	**n/v**	-	-	-	-	-	-	-	-	<0.50	<0.20	<0.20	<0.50

Table A3 - Groundwater Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon
			Location	MW19-01	MW19-11		MW21-01D		MW21-01S	MW21-02		MW21-04S	MW21-06	MW21-10S	MW21-10D	MW21-12
			Sample ID	MW19-01	MW19-11	DUP1	MW21-01D	DUP2	MW21-01S	MW21-02	MW21-02	MW21-04S	MW21-06	MW21-10S	MW21-10D	MW21-12
			Sample Date	2021-10-28	2021-10-28	2021-10-28	2021-11-01	2021-11-01	2021-10-28	2021-10-27	2021-11-18	2021-10-28	2021-10-26	2021-10-28	2021-10-27	2021-10-26
			Lab Report Number	2144627	2144627	2144627	2145243	2145243	2144627	2144627	2147476	2144627	2144303	2144627	2144627	2144303
Parameter	**Units**	**RDL**	**MECP Table 3**													
Polycyclic Aromatic Hydrocarbons (PAHs)																
1-Methylnaphthalene	µg/L	0.05	**1800**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/L	0.05	**1800**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1 & 2 Methylnaphthalene	µg/L	0.1	**1800**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.05	**600**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/L	0.05	**1.8**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acidine	µg/L	0.04	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/L	0.01	**2.4**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benz(a)anthracene	µg/L	0.01	**4.7**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a) pyrene	µg/L	0.01	**0.81**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05	**0.75**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(c)phenanthrene	µg/L	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(e)pyrene	µg/L	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/L	0.05	**0.2**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05	**0.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/L	0.05	**1**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/L	0.05	**0.52**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/L	0.01	**130**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	µg/L	0.05	**400**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	µg/L	0.05	**0.2**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/L	0.05	**1400**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perylene	µg/L	0.05	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/L	0.05	**580**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/L	0.01	**68**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Quinoline	µg/L	0.2	**n/v**	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	µg/L	0.5	**1300**	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																
Acetone	µg/L	5	**130000**	<5	-	-	<5	<5	<5	<5	-	<5	<5	-	-	-
Bromodichloromethane	µg/L	0.5	**85000**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Bromoform	µg/L	0.5	**380**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Bromomethane	µg/L	0.5	**5.6**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Carbon tetrachloride	µg/L	0.2	**0.79**	<0.2	-	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	-	-
Chlorobenzene	µg/L	0.5	**630**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Chlorodibromomethane	µg/L	0.5	**82000**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Chloroform	µg/L	0.5	**2.4**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Dichlorodifluoromethane	µg/L	1	**4400**	<1	-	-	<1	<1	<1	<1	-	<1	<1	-	-	-
1,2-Dichlorobenzene	µg/L	0.5	**4600**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,3-Dichlorobenzene	µg/L	0.5	**9600**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,4-Dichlorobenzene	µg/L	0.5	**8**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,1-Dichloroethane	µg/L	0.5	**320**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,1-Dichloroethene	µg/L	0.5	**1.6**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
cis-1,2-Dichloroethene	µg/L	0.5	**1.6**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
trans-1,2-Dichloroethene	µg/L	0.5	**1.6**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,2-Dibromoethane	µg/L	0.2	**0.25**	<0.2	-	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	-	-
1,2-Dichloroethane	µg/L	0.5	**1.6**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,2-Dichloropropane	µg/L	0.5	**16**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,3-Dichloropropene	µg/L	0.5	**5.2**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
cis-1,3-Dichloropropene	µg/L	0.5	**n/v**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
trans-1,3-Dichloropropene	µg/L	0.5	**n/v**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Dichloromethane	µg/L	5	**610**	<5	-	-	<5	<5	<5	<5	-	<5	<5	-	-	-
Hexane	µg/L	1	**51**	<1	-	-	<1	<1	<1	<1	-	<1	<1	-	-	-
Methyl Ethyl Ketone (MEK)	µg/L	5	**470000**	<5	-	-	<5	<5	<5	<5	-	<5	<5	-	-	-
Methyl Isobutyl Ketone (MIK)	µg/L	5	**140000**	<5	-	-	<5	<5	<5	<5	-	<5	<5	-	-	-
Methyl tert-Butyl Ether (MTBE)	µg/L	2	**190**	<2	-	-	<2	<2	<2	<2	-	<2	<2	-	-	-
Styrene	µg/L	0.5	**1300**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	µg/L	0.5	**3.3**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	0.5	**3.2**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,1,1-Trichloroethane	µg/L	0.5	**640**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
1,1,2-Trichloroethane	µg/L	0.5	**4.7**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Tetrachloroethene	µg/L	0.5	**1.6**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Trichloroethene	µg/L	0.5	**1.6**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-
Trichlorofluoromethane	µg/L	1	**2500**	<1	-	-	<1	<1	<1	<1	-	<1	<1	-	-	-
Vinyl chloride	µg/L	0.5	**0.5**	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	-

Table A3 - Groundwater Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Golder	Golder	Golder	Golder
			Location	MW21-13		MW21-14	MW21-15	MW21-18	MW21-20S	MW21-20D		MW19-01	MW19-08		MW19-11
			Sample ID	MW21-13	MW21-13	MW21-14	MW21-15	MW21-18	MW21-20S	MW21-20D	MW21-20D	19-01	19-08	DUP-1	19-11
			Sample Date	2021-10-27	2021-11-18	2021-10-26	2021-10-26	2021-10-27	2021-10-27	2021-11-01	2021-11-18	2019-10-23	2019-10-23	2019-10-23	2019-10-23
			Lab Report Number	2144627	2147476	2144303	2144303	2144627	2144627	2145243	2147476	R5961813	R5961813	R5961813	R5961813
Parameter	**Units**	**RDL**	**MECP Table 3**												
Polycyclic Aromatic Hydrocarbons (PAHs)															
1-Methylnaphthalene	µg/L	0.05	**1800**	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.09	-	<0.10	<0.10	<0.10	<0.10
2-Methylnaphthalene	µg/L	0.05	**1800**	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.39	-	<0.10	<0.10	<0.10	<0.10
1 & 2 Methylnaphthalene	µg/L	0.1	**1800**	<0.1	-	<0.1	<0.1	<0.1	<0.1	0.49	-	-	-	-	-
Acenaphthene	µg/L	0.05	**600**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	µg/L	0.05	**1.8**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.10	<0.10	<0.10	<0.10
Acidine	µg/L	0.04	**n/v**	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.04	<0.04
Anthracene	µg/L	0.01	**2.4**	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.010	<0.010	<0.010	<0.010
Benz(a)anthracene	µg/L	0.01	**4.7**	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.0085	<0.0085	<0.0085	<0.0085
Benzo(a) pyrene	µg/L	0.01	**0.81**	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.0075	<0.0075	<0.0075	<0.0075
Benzo(b)fluoranthene	µg/L	0.05	**0.75**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.0085	<0.0085	<0.0085	<0.0085
Benzo(c)phenanthrene	µg/L	0.05	**n/v**	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050
Benzo(e)pyrene	µg/L	0.05	**n/v**	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	µg/L	0.05	**0.2**	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.08	-	<0.0085	<0.0085	<0.0085	<0.0085
Benzo(k)fluoranthene	µg/L	0.05	**0.4**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.0085	<0.0085	<0.0085	<0.0085
Chrysene	µg/L	0.05	**1**	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.05	-	<0.0085	<0.0085	<0.0085	<0.0085
Dibenz(a,h)anthracene	µg/L	0.05	**0.52**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.0075	<0.0075	<0.0075	<0.0075
Fluoranthene	µg/L	0.01	**130**	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.05	-	<0.010	<0.010	<0.010	<0.010
Fluorene	µg/L	0.05	**400**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	µg/L	0.05	**0.2**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.0085	<0.0085	<0.0085	<0.0085
Naphthalene	µg/L	0.05	**1400**	<0.05	-	<0.05	<0.05	<0.05	<0.05	1.95	-	<0.10	<0.10	<0.10	<0.10
Perylene	µg/L	0.05	**n/v**	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050
Phenanthrene	µg/L	0.05	**580**	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.050	<0.050	<0.050	<0.050
Pyrene	µg/L	0.01	**68**	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.05	-	<0.020	<0.020	<0.020	<0.020
Quinoline	µg/L	0.2	**n/v**	-	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2
Styrene	µg/L	0.5	**1300**	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5
Volatile Organic Compounds (VOCs)															
Acetone	µg/L	5	**130000**	-	-	-	-	-	-	<5	-	<10	<10	<10	<10
Bromodichloromethane	µg/L	0.5	**85000**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	0.5	**380**	-	-	-	-	-	-	<0.5	-	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	0.5	**5.6**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	µg/L	0.2	**0.79**	-	-	-	-	-	-	<0.2	-	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	0.5	**630**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20
Chlorodibromomethane	µg/L	0.5	**82000**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	0.5	**2.4**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20
Dichlorodifluoromethane	µg/L	1	**4400**	-	-	-	-	-	-	<1	-	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	µg/L	0.5	**4600**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	0.5	**9600**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	0.5	**8**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	0.5	**320**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethene	µg/L	0.5	**1.6**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethene	µg/L	0.5	**1.6**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	µg/L	0.5	**1.6**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	µg/L	0.2	**0.25**	-	-	-	-	-	-	<0.2	-	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	0.5	**1.6**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	µg/L	0.5	**16**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20
1,3-Dichloropropene	µg/L	0.5	**5.2**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	0.5	**n/v**	-	-	-	-	-	-	<0.5	-	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	0.5	**n/v**	-	-	-	-	-	-	<0.5	-	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	5	**610**	-	-	-	-	-	-	<5	-	<2.0	<2.0	<2.0	<2.0
Hexane	µg/L	1	**51**	-	-	-	-	-	-	<1	-	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK)	µg/L	5	**470000**	-	-	-	-	-	-	<5	-	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIK)	µg/L	5	**140000**	-	-	-	-	-	-	<5	-	<5	<5	<5	<5
Methyl tert-Butyl Ether (MTBE)	µg/L	2	**190**	-	-	-	-	-	-	<2	-	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	0.5	**1300**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	0.5	**3.3**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	0.5	**3.2**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	µg/L	0.5	**640**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	µg/L	0.5	**4.7**	-	-	-	-	-	-	<0.5	-	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	0.5	**1.6**	-	-	-	-	-	-	<0.5	-	-	-	-	-
Trichloroethene	µg/L	0.5	**1.6**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	1	**2500**	-	-	-	-	-	-	<1	-	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	µg/L	0.5	**0.5**	-	-	-	-	-	-	<0.5	-	<0.20	<0.20	<0.20	<0.20

Table A3 - Groundwater Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon
			Location	MW19-01	MW19-11		MW21-01D		MW21-01S	MW21-02		MW21-04S	MW21-06	MW21-10S	MW21-10D	MW21-12
			Sample ID	MW19-01	MW19-11	DUP1	MW21-01D	DUP2	MW21-01S	MW21-02	MW21-02	MW21-04S	MW21-06	MW21-10S	MW21-10D	MW21-12
			Sample Date	2021-10-28	2021-10-28	2021-10-28	2021-11-01	2021-11-01	2021-10-28	2021-10-27	2021-11-18	2021-10-28	2021-10-26	2021-10-28	2021-10-27	2021-10-26
			Lab Report Number	2144627	2144627	2144627	2145243	2145243	2144627	2144627	2147476	2144627	2144303	2144627	2144627	2144303
Parameter	**Units**	**RDL**	**MECP Table 3**													
Perfluoroalkyl Substances (PFAS)																
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.04	**n/v**	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	µg/L	0.02	**n/v**	-	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.03	**n/v**	-	<0.03	<0.03	<0.03	<0.03	-	<0.03	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	µg/L	0.04	**n/v**	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	µg/L	0.03	**n/v**	-	<0.03	<0.03	<0.03	<0.03	-	<0.03	-	-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.04	**n/v**	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.05	**n/v**	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	-	-	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.08	**n/v**	-	<0.08	<0.08	<0.08	<0.08	-	<0.08	-	-	-	-	-	-
Perfluorononanoic acid (PFNA)	µg/L	0.04	**n/v**	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	**n/v**	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.02	**n/v**	-	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.05	**n/v**	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	-	-	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.03	**n/v**	-	<0.03	<0.03	<0.03	<0.03	-	<0.03	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.04	**n/v**	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	-	-	-	-	-	-
Energetics																
1,3,5-Trinitrobenzene	µg/L	0.4	**n/v**	-	<0.40	<0.40	-	-	-	<0.4	-	-	-	<0.4	<0.4	<0.40
1,3-Dinitrobenzene	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
2,4,6-Trinitrotoluene (TNT)	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
2,4-Dinitrotoluene	µg/L	0.25	**2900**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
2,6-Dinitrotoluene	µg/L	0.25	**2900**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
2-Amino-4,6-Dinitrotoluene	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
2-Nitrotoluene	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
4-Amino-2,6-Dinitrotoluene	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
4-Nitrotoluene	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
HMX	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
m-Nitrotoluene	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
Nitrobenzene	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
Nitroglycerine	µg/L	0.5	**n/v**	-	<0.50	<0.50	-	-	-	<0.5	-	-	-	<0.5	<0.5	<0.50
PETN	µg/L	0.5	**n/v**	-	<0.50	<0.50	-	-	-	<0.5	-	-	-	<0.5	<0.5	<0.50
RDX	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
Tetryl	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
3,5-Dinitroaniline	µg/L	0.25	**n/v**	-	<0.25	<0.25	-	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25

Notes:

RDL	Reportable detection limit
n/v	No appicable guideline value
-	Analysis not performed
100	Value exceeds guideline
MECP Table 3	Ministry of Environment Conservation and Parks O. Reg 152 (2011) Table Standards for all type of property use for groundwater in coarse textured soil in full depth generic site condition in a non-potable ground water condition

2021-12-21

Table A3 - Groundwater Quality Results
1010 Somerset St W, Ottawa
21-2419

			Consultant	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Dillon	Golder	Golder	Golder	Golder
			Location	MW21-13		MW21-14	MW21-15	MW21-18	MW21-20S	MW21-20D		MW19-01	MW19-08		MW19-11
			Sample ID	MW21-13	MW21-13	MW21-14	MW21-15	MW21-18	MW21-20S	MW21-20D	MW21-20D	19-01	19-08	DUP-1	19-11
			Sample Date	2021-10-27	2021-11-18	2021-10-26	2021-10-26	2021-10-27	2021-10-27	2021-11-01	2021-11-18	2019-10-23	2019-10-23	2019-10-23	2019-10-23
			Lab Report Number	2144627	2147476	2144303	2144303	2144627	2144627	2145243	2147476	R5961813	R5961813	R5961813	R5961813
Parameter	**Units**	**RDL**	**MECP Table 3**												
Perfluoroalkyl Substances (PFAS)															
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.04	**n/v**	-	-	-	-	<0.04	<0.04	<0.04	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	µg/L	0.02	**n/v**	-	-	-	-	<0.02	<0.02	<0.02	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.03	**n/v**	-	-	-	-	<0.03	<0.03	<0.03	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	µg/L	0.04	**n/v**	-	-	-	-	<0.04	<0.04	<0.04	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	µg/L	0.03	**n/v**	-	-	-	-	<0.03	<0.03	<0.03	-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.04	**n/v**	-	-	-	-	<0.04	<0.04	<0.04	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.05	**n/v**	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.08	**n/v**	-	-	-	-	<0.08	<0.08	<0.08	-	-	-	-	-
Perfluorononanoic acid (PFNA)	µg/L	0.04	**n/v**	-	-	-	-	<0.04	<0.04	<0.04	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	**n/v**	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.02	**n/v**	-	-	-	-	<0.02	<0.02	<0.02	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.05	**n/v**	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.03	**n/v**	-	-	-	-	<0.03	<0.03	<0.03	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.04	**n/v**	-	-	-	-	<0.04	<0.04	<0.04	-	-	-	-	-
Energetics															
1,3,5-Trinitrobenzene	µg/L	0.4	**n/v**	<0.4	-	<0.40	<0.40	<0.40	<0.4	<0.4	-	-	-	-	-
1,3-Dinitrobenzene	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
2,4,6-Trinitrotoluene (TNT)	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
2,4-Dinitrotoluene	µg/L	0.25	**2900**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
2,6-Dinitrotoluene	µg/L	0.25	**2900**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
2-Amino-4,6-Dinitrotoluene	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
2-Nitrotoluene	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.29	-	-	-	-	-
4-Amino-2,6-Dinitrotoluene	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
4-Nitrotoluene	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.28	-	-	-	-	-
HMX	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
m-Nitrotoluene	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
Nitrobenzene	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
Nitroglycerine	µg/L	0.5	**n/v**	<0.5	-	<0.50	<0.50	<0.50	<0.5	<0.5	-	-	-	-	-
PETN	µg/L	0.5	**n/v**	<0.5	-	<0.50	<0.50	<0.50	<0.5	<0.5	-	-	-	-	-
RDX	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
Tetryl	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-
3,5-Dinitroaniline	µg/L	0.25	**n/v**	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-	-

Notes:

RDL	Reportable detection limit
n/v	No appicable guideline value
-	Analysis not performed
100	Value exceeds guideline
MECP Table 3	Ministry of Environment Conservation and Parks O. Reg 152 (2011) Table Standards for all type of property use for groundwater in coarse textured soil in full depth generic site condition in a non-potable ground water condition

Table A4 - Soil QA/QC Data
1010 Somerset Street West
21-2419

			Location	BH21-04			BH21-08			BH21-16			BH21-20		
			Sample ID	BH21-04 SS5	DUP 2		BH21-08 SS5	DUP 3		BH21-16 SS2	DUP 4		BH21-20 SS6	DUP 5	
			Sample Date	2021-09-20	2021-09-20	RPD %	2021-09-23	2021-09-23	RPD %	2021-09-30	2021-09-30	RPD %	2021-09-30	2021-09-30	RPD %
			Sample Depth Range (m)	4.72-5.33	4.72-5.33		2.9-3.51	2.9-3.51		1.22-1.83	1.22-1.83		6.1-6.71	6.1-6.71	
			Lab Report Number	2140666	2140666		2140666	2140666		2140666	2140666		2140666	2140666	
Parameter	**Units**	**RDL**	**MECP Table 3**												
General Chemistry															
pH (Lab)	pH Units	0.05	**n/v**	7.8	7.73	0.90	7.7	7.69	0.13	7.5	7.57	0.93	7.9	8.01	1.38
Ammonia as N	µg/g	1	**n/v**	-	-	-	3	3	NC	6	4	NC	1	<1	NC
Cyanide, free	µg/g	0.03	**0.051**	<0.03	<0.03	NC	<0.03	<0.03	NC	<0.03	<0.03	NC	<0.03	<0.03	NC
Electrical Conductivity (Lab)	µS/cm	5	**700**	592	636	7.17	**1740**	**1830**	5.04	538	605	11.72	106	163	42.38
Nitrate (as N)	µg/g	1	**n/v**	-	-	-	<1	<1	NC	<1	<1	NC	<1	<1	NC
Sodium Adsorption Ratio (SAR)	SAR	0.01	**5**	0.25	0.23	8.33	**16.5**	**16.3**	1.22	0.68	1.47	73.49	0.04	0.03	NC
Chloride	µg/g	5	**n/v**	15	14	NC	1130	1120	0.89	186	300	46.91	12	15	NC
Sodium	µg/g	200	**n/v**	1620	1550	4.42	2150	2620	19.71	1150	1170	1.72	<200	<200	NC
BTEX															
Benzene	µg/g	0.02	**0.21**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Toluene	µg/g	0.05	**2.3**	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC
Ethylbenzene	µg/g	0.05	**2**	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC
Xylene (m & p)	µg/g	0.05	**n/v**	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC
Xylene (o)	µg/g	0.05	**n/v**	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC
Xylene Total	µg/g	0.05	**3.1**	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05	NC
Petroleum Hydrocarbons (PHCs)															
PHC F1 (C6-C10)	µg/g	7	**55**	<7	<7	NC	<7	<7	NC	<7	<7	NC	<7	<7	NC
PHC F2 (>C10-C16)	µg/g	4	**98**	<4	<4	NC	<4	<4	NC	<4	<4	NC	<4	<4	NC
PHC F3 (>C16-C34)	µg/g	8	**300**	<8	<8	NC	<8	<8	NC	<8	<8	NC	<8	<8	NC
PHC F4 (>C34-C50)	µg/g	6	**2800**	<6	<6	NC	<6	<6	NC	<6	<6	NC	<6	<6	NC
Metals															
Antimony	µg/g	1	**7.5**	<1	<1	NC	<1	<1	NC	<1	<1	NC	<1	<1	NC
Arsenic	µg/g	1	**18**	3.2	2.8	NC	4.8	5.6	NC	4.2	4.4	NC	1.5	1.5	NC
Barium	µg/g	1	**390**	311	293	5.96	246	316	24.91	295	309	4.64	35.6	58.3	48.35
Beryllium	µg/g	0.5	**4**	0.8	0.8	NC	0.8	1	NC	1	0.9	NC	<0.5	<0.5	NC
Boron	µg/g	5	**120**	6.9	6.7	NC	<5	7.1	NC	7.4	7.1	NC	<5	5.9	NC
Cadmium	µg/g	0.5	**1.2**	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5	NC
Chromium (Hexavalent)	µg/g	0.2	**8**	<0.2	<0.2	NC	0.2	0.3	NC	0.4	0.5	NC	<0.2	<0.2	NC
Chromium (Total, III+VI)	µg/g	5	**160**	72	65.5	9.45	65.5	69.1	5.35	118	126	6.56	7.7	9.9	NC
Cobalt	µg/g	1	**22**	18.7	17.7	5.49	16	20.3	23.69	**22.8**	**24.3**	6.37	3.4	4.1	NC
Copper	µg/g	5	**140**	37.5	34.7	7.76	32.6	38.5	16.60	56.1	56.5	0.71	8.7	7.6	NC
Lead	µg/g	1	**120**	6.3	6.1	3.23	6.2	7.8	22.86	13.4	12.6	6.15	1.9	2.6	NC
Mercury	µg/g	0.1	**0.27**	<0.1	<0.1	NC	<0.1	<0.1	NC	<0.1	<0.1	NC	<0.1	<0.1	NC
Molybdenum	µg/g	1	**6.9**	1.5	2	NC	<1	<1	NC	<1	<1	NC	<1	<1	NC
Nickel	µg/g	5	**100**	40.9	37.9	7.61	33.6	41.5	21.04	65.7	68.2	3.73	5.4	6.6	NC
Selenium	µg/g	1	**2.4**	<1	<1	NC	<1	<1	NC	<1	<1	NC	<1	<1	NC
Silver	µg/g	0.3	**20**	<0.3	<0.3	NC	<0.3	<0.3	NC	<0.3	<0.3	NC	<0.3	<0.3	NC
Thallium	µg/g	1	**1**	<1	<1	NC	<1	<1	NC	<1	<1	NC	<1	<1	NC
Uranium	µg/g	1	**23**	1.2	1.4	NC	<1	<1	NC	<1	<1	NC	<1	<1	NC
Vanadium	µg/g	10	**86**	**92.5**	**86.6**	6.59	77.7	**91.2**	15.99	**99.8**	**108**	7.89	17	20	NC
Zinc	µg/g	20	**340**	112	105	6.45	86.3	109	NC	120	130	8.00	<20	<20	NC
Polycyclic Aromatic Hydrocarbons (PAHs)															
1-Methylnaphthalene	µg/g	0.02	**0.99**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
2-Methylnaphthalene	µg/g	0.02	**0.99**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
1 & 2 Methylnaphthalene	µg/g	0.04	**0.99**	<0.04	<0.04	NC	<0.04	<0.04	NC	<0.04	<0.04	NC	<0.04	<0.04	NC
Acenaphthene	µg/g	0.02	**7.9**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Acenaphthylene	µg/g	0.02	**0.15**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Anthracene	µg/g	0.02	**0.67**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Benz(a)anthracene	µg/g	0.02	**0.5**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Benzo(a) pyrene	µg/g	0.02	**0.3**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Benzo(b)fluoranthene	µg/g	0.02	**0.78**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Benzo(g,h,i)perylene	µg/g	0.02	**6.6**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Benzo(k)fluoranthene	µg/g	0.02	**0.78**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Chrysene	µg/g	0.02	**7**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Dibenz(a,h)anthracene	µg/g	0.02	**0.1**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Fluoranthene	µg/g	0.02	**0.69**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Fluorene	µg/g	0.02	**62**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Indeno(1,2,3-c,d)pyrene	µg/g	0.02	**0.38**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Naphthalene	µg/g	0.01	**0.6**	<0.01	<0.01	NC	<0.01	<0.01	NC	<0.01	<0.01	NC	<0.01	<0.01	NC
Phenanthrene	µg/g	0.02	**6.2**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Pyrene	µg/g	0.02	**78**	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02	NC
Volatile Organic Compounds (VOCs)															
Acetone	µg/g	0.5	**16**	<0.5	<0.5	NC	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/g	0.05	**13**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Bromoform	µg/g	0.05	**0.27**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Bromomethane	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Chlorobenzene	µg/g	0.05	**2.4**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Chlorodibromomethane	µg/g	0.05	**9.4**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Chloroform	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	µg/g	0.05	**16**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/g	0.05	**3.4**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	µg/g	0.05	**4.8**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/g	0.05	**0.083**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	µg/g	0.05	**3.5**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	µg/g	0.05	**3.4**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	µg/g	0.05	**0.084**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,3-Dichloropropene	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	µg/g	0.05	**n/v**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	µg/g	0.05	**n/v**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Dichloromethane	µg/g	0.05	**0.1**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Hexane	µg/g	0.05	**2.8**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone (MEK)	µg/g	0.5	**16**	<0.5	<0.5	NC	-	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone (MIK)	µg/g	0.5	**1.7**	<0.5	<0.5	NC	-	-	-	-	-	-	-	-	-
Methyl tert-Butyl Ether (MTBE)	µg/g	0.05	**0.75**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Styrene	µg/g	0.05	**0.7**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/g	0.05	**0.058**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	µg/g	0.05	**0.38**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	µg/g	0.05	**0.05**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/g	0.05	**0.28**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Trichloroethene	µg/g	0.05	**0.061**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	µg/g	0.05	**4**	<0.05	<0.05	NC	-	-	-	-	-	-	-	-	-
Vinyl chloride	µg/g	0.02	**0.02**	<0.02	<0.02	NC	-	-	-	-	-	-	-	-	-
Explosives															
Cyclonite (RDX)	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
4-Amino-2,6-Dinitrotoluene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
2-Amino-4,6-dinitrotoluene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
3,5-Dinitroaniline	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
1,3-Dinitrobenzene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
2,4-Dinitrotoluene	µg/g	0.05	**0.92**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
2,6-Dinitrotoluene	µg/g	0.05	**0.92**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
Nitrobenzene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
Nitroglycerin	µg/g	0.1	**n/v**	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-
2-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
3-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
4-Nitrotoluene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
Octogen (HMX)	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
Pentaerythritol tetranitrate (PETN)	µg/g	0.1	**n/v**	-	-	-	<0.10	-	-	-	-	-	<0.10	-	-
Tetryl	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
1,3,5-Trinitrobenzene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
2,4,6-Trinitrotoluene	µg/g	0.05	**n/v**	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-

Notes

RDL	Reportable detection limit
n/v	No appicable guideline value
-	Analysis not performed
MECP Table 3	Ministry of Environment Conservation and Parks O. Reg 152 (2011) Table Standards for Residential, Parkland and Institutional Property Use for course textured soil in full depth generic site condition in a non-potable groundwater condition
100	Value exceeds guideline

Table A5 - Groundwater QA/QC Data
1010 Somerset St W, Ottawa
21-2419

	Location	MW19-11			MW21-01D			QA/QC	
	Sample ID	MW19-11	DUP1	RPD %	MW21-01D	DUP2	RPD %	FB	TB
	Sample Type	Parent	Field Duplicate		Parent	Field Duplicate		Field Blank	Trip Blank
	Sample Date	2021-10-28	2021-10-28		2021-11-01	2021-11-01		2021-10-28	2021-10-23
	Lab Report Number	2144627	2144627		2145243	2145243		2144627	2144627
Parameter	**Units**	**RDL**							
General Chemistry									
pH (Lab)	pH Units	0.1	7.4	7.4	0.00	8.2	8.2	0.00	-	-
Ammonia as N	µg/L	10	490	600	20.18	-	-	-	-	-
Cyanide, free	µg/L	2	<2	<2	NC	<2	<2	NC	-	-
Chloride	mg/L	1	249	249	0.00	141	140	0.71	-	-
Nitrate (as N)	µg/L	100	<100	<100	NC	-	-	-	-	-
BTEX										
Benzene	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5
Xylene (m & p)	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5
Xylene (o)	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5
Xylene Total	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5
Petroleum Hydrocarbons (PHCs)										
PHC F1 (C6-C10)	µg/L	25	<25	<25	NC	<25	<25	NC	-	-
PHC F2 (>C10-C16)	µg/L	100	<100	<100	NC	<100	<100	NC	-	-
PHC F3 (>C16-C34)	µg/L	100	<100	<100	NC	<100	<100	NC	-	-
PHC F4 (>C34-C50)	µg/L	100	<100	<100	NC	<100	<100	NC	-	-
Metals (Dissolved)										
Antimony	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	-	-
Arsenic	µg/L	1	<1	<1	NC	2	2	NC	-	-
Barium	µg/L	1	91	89	2.22	1060	958	10.11	-	-
Beryllium	µg/L	0.5	<0.5	<0.5	NC	<0.5	<0.5	NC	-	-
Boron	µg/L	10	123	119	3.31	259	255	1.56	-	-
Cadmium	µg/L	0.1	<0.1	<0.1	NC	<0.1	<0.1	NC	-	-
Chromium (Hexavalent)	µg/L	10	<10	<10	NC	<10	<10	NC	-	-
Chromium (Total, III+VI)	µg/L	1	<1	<1	NC	<1	<1	NC	-	-
Cobalt	µg/L	0.5	<0.5	<0.5	NC	0.7	0.7	NC	-	-
Copper	µg/L	0.5	<0.5	<0.5	NC	1.4	0.7	NC	-	-
Lead	µg/L	0.1	<0.1	<0.1	NC	<0.1	<0.1	NC	-	-
Mercury	µg/L	0.1	<0.1	<0.1	NC	<0.1	<0.1	NC	-	-
Molybdenum	µg/L	0.5	5.8	5.7	1.74	5.6	5.2	7.41	-	-
Nickel	µg/L	1	2	2	NC	4	4	NC	-	-
Selenium	µg/L	1	<1	<1	NC	<1	<1	NC	-	-
Silver	µg/L	0.1	<0.1	<0.1	NC	<0.1	<0.1	NC	-	-
Sodium	mg/L	0.2	53.3	53.8	0.93	52	51.1	1.75	-	-
Thallium	µg/L	0.1	<0.1	<0.1	NC	<0.1	<0.1	NC	-	-
Uranium	µg/L	0.1	0.1	0.1	NC	0.5	0.5	0.00	-	-
Vanadium	µg/L	0.5	<0.5	<0.5	NC	1.3	1.3	0.00	-	-
Zinc	µg/L	5	<5	<5	NC	<5	<5	NC	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)										
1-Methylnaphthalene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
2-Methylnaphthalene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
1 & 2 Methylnaphthalene	µg/L	0.1	<0.1	<0.1	NC	<0.1	<0.1	NC	-	-
Acenaphthene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Acenaphthylene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Anthracene	µg/L	0.01	<0.01	<0.01	NC	<0.01	<0.01	NC	-	-
Benz(a)anthracene	µg/L	0.01	<0.01	<0.01	NC	<0.01	<0.01	NC	-	-
Benzo(a) pyrene	µg/L	0.01	<0.01	<0.01	NC	<0.01	<0.01	NC	-	-
Benzo(b)fluoranthene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Benzo(g,h,i)perylene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Benzo(k)fluoranthene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Chrysene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Dibenz(a,h)anthracene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Fluoranthene	µg/L	0.01	<0.01	<0.01	NC	<0.01	<0.01	NC	-	-
Fluorene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Naphthalene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Phenanthrene	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	-	-
Pyrene	µg/L	0.01	<0.01	<0.01	NC	<0.01	<0.01	NC	-	-
Volatile Organic Compounds (VOCs)										
Acetone	µg/L	5	-	-	-	<5	<5	NC	<5	<5
Bromodichloromethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Bromoform	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Bromomethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Carbon tetrachloride	µg/L	0.2	-	-	-	<0.2	<0.2	NC	<0.2	<0.2
Chlorobenzene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Chlorodibromomethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Chloroform	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Dichlorodifluoromethane	µg/L	1	-	-	-	<1	<1	NC	<1	<1
1,2-Dichlorobenzene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,1-Dichloroethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,1-Dichloroethene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
cis-1,2-Dichloroethene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
trans-1,2-Dichloroethene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,2-Dibromoethane	µg/L	0.2	-	-	-	<0.2	<0.2	NC	<0.2	<0.2
1,2-Dichloroethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,2-Dichloropropane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,3-Dichloropropene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
cis-1,3-Dichloropropene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
trans-1,3-Dichloropropene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Dichloromethane	µg/L	5	-	-	-	<5	<5	NC	<5	<5
Hexane	µg/L	1	-	-	-	<1	<1	NC	<1	<1
Methyl Ethyl Ketone (MEK)	µg/L	5	-	-	-	<5	<5	NC	<5	<5
Methyl Isobutyl Ketone (MIK)	µg/L	5	-	-	-	<5	<5	NC	<5	<5
Methyl tert-Butyl Ether (MTBE)	µg/L	2	-	-	-	<2	<2	NC	<2	<2
Styrene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,1,1-Trichloroethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
1,1,2-Trichloroethane	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Tetrachloroethene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Trichloroethene	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Trichlorofluoromethane	µg/L	1	-	-	-	<1	<1	NC	<1	<1
Vinyl chloride	µg/L	0.5	-	-	-	<0.5	<0.5	NC	<0.5	<0.5
Perfluoroalkyl Substances (PFAS)										
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.04	<0.04	<0.04	NC	<0.04	<0.04	NC	<0.04	<0.04
Perfluorobutanoic acid (PFBA)	µg/L	0.02	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.03	<0.03	<0.03	NC	<0.03	<0.03	NC	<0.03	<0.03
Perfluorodecanoic acid (PFDA)	µg/L	0.04	<0.04	<0.04	NC	<0.04	<0.04	NC	<0.04	<0.04
Perfluorododecanoic acid (PFDoDA)	µg/L	0.03	<0.03	<0.03	NC	<0.03	<0.03	NC	<0.03	<0.03
Perfluoroheptanoic acid (PFHpA)	µg/L	0.04	<0.04	<0.04	NC	<0.04	<0.04	NC	<0.04	<0.04
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05
Perfluorohexanoic acid (PFHxA)	µg/L	0.08	<0.08	<0.08	NC	<0.08	<0.08	NC	<0.08	<0.08
Perfluorononanoic acid (PFNA)	µg/L	0.04	<0.04	<0.04	NC	<0.04	<0.04	NC	<0.04	<0.04
Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	<0.01	<0.01	NC	<0.01	<0.01	NC	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.02	<0.02	<0.02	NC	<0.02	<0.02	NC	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.05	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.05
Perfluoropentanoic acid (PFPeA)	µg/L	0.03	<0.03	<0.03	NC	<0.03	<0.03	NC	<0.03	<0.03
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.04	<0.04	<0.04	NC	<0.04	<0.04	NC	<0.04	<0.04
Energetics										
1,3,5-Trinitrobenzene	µg/L	0.4	<0.40	<0.40	NC	-	-	-	<0.4	<0.4
1,3-Dinitrobenzene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
2,4,6-Trinitrotoluene (TNT)	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
2,4-Dinitrotoluene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
2,6-Dinitrotoluene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
2-Amino-4,6-Dinitrotoluene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
2-Nitrotoluene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
4-Amino-2,6-Dinitrotoluene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
4-Nitrotoluene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
HMX	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
m-Nitrotoluene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
Nitrobenzene	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
Nitroglycerine	µg/L	0.5	<0.50	<0.50	NC	-	-	-	<0.5	<0.5
PETN	µg/L	0.5	<0.50	<0.50	NC	-	-	-	<0.5	<0.5
RDX	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
Tetryl	µg/L	0.25	<0.25	<0.25	NC	-	-	-	<0.25	<0.25
3,5-Dinitroaniline	µg/L	0.25	<0.25	<0.25	nC	-	-	-	<0.25	<0.25

Notes:

RDL	Reportable detection limit
RPD	Relative Percent Difference
NC	Not calculable. RPDs no calculated where the result is than the RDL or if a measured concentration is less than 5 times the RDL

Appendix A

Sampling and Analysis Plan

Table 1: Sampling and Analysis Plan

Location	Type	APEC 1 (FILL)	APEC 2 (Explosives)	APEC 3 (Rail)	APEC 4 (Wood treatment)	APEC 5 (fire)	APEC 6 (Maintenance & Storage)	APEC 7 (Fuel/Coal/ Metal Plating)	APEC 8 (Fuel / Metal Plating)	APEC 9 (Fuel Storage)	Comments	Soil Analysis (2 samples min – 1 fill, 1 native)	Groundwater analysis
21-01	MW	✓		✓	✓		✓		✓		Overburden and bedrock well with soil sampling	Base suite + VOCs.	Base suite + VOCs, PFAS (bedrock only)
21-02	MW	✓		✓	✓		✓		✓		Overburden and bedrock well with no soil sampling.	Base suite + VOCs.	Base suite + VOCs, PFAS
21-03	BH	✓		✓	✓		✓		✓		Soil sampling only.	Base suite + VOCs.	Base suite + VOCs, PFAS (bedrock only)
21-04	MW	✓		✓	✓		✓	✓	✓		Overburden and bedrock well with soil sampling	Base suite + VOCs.	Base suite + VOCs, PFAS (bedrock only)
21-05	BH	✓		✓	✓		✓				Soil sampling only	Base suite + VOCs.	NA
21-06	MW	✓		✓	✓		✓				Overburden well with soil sampling	Base suite + VOCs.	Base suite + VOCs.
21-07	BH	✓		✓	✓		✓				Soil sampling only	Base suite + VOCs.	NA
21-08	BH	✓	✓	✓	✓	✓					Soil sampling only	Base suite + Energetics, NO3, NH4	NA
21-09	BH	✓	✓	✓	✓	✓					Soil sampling only	Base suite + Energetics, NO3, NH4	NA
21-10	MW	✓	✓	✓	✓	✓					Overburden and bedrock well with soil sampling	Base suite + Energetics, NO3, NH4	Base suite + Energetics, NO3, NH4
21-11	BH	✓	✓	✓	✓	✓					Soil sampling only	Base suite + Energetics, NO3, NH4	NA
21-12	MW	✓	✓	✓	✓	✓					Overburden well with soil sampling	Base suite + Energetics, NO3, NH4	Base suite + Energetics, NO3, NH4
21-13	MW	✓	✓	✓	✓					✓	Overburden well with soil sampling	Base suite + Energetics, NO3, NH4	Base suite + Energetics, NO3, NH4
21-14	MW	✓	✓	✓	✓						Overburden well with soil sampling	Base suite + Energetics, NO3, NH4	Base suite + Energetics, NO3, NH4
21-15	MW	✓	✓	✓	✓						Overburden well with soil sampling	Base suite + Energetics, NO3, NH4	Base suite + Energetics, NO3, NH4
21-16	BH	✓	✓	✓	✓						Soil sampling only	Base suite + Energetics, NO3, NH4	NA
21-17	MW	✓	✓	✓	✓			✓			Soil sampling only	Base suite + Energetics, NO3, NH4	Base suite + Energetics, NO3, NH4, PFAS
21-18	MW	✓	✓	✓	✓			✓			Bedrock well only with no soil sampling	NA	Base suite + Energetics, NO3, NH4, PFAS
21-19	BH	✓	✓	✓	✓			✓			Soil sampling only	Base suite + Energetics, NO3, NH4	NA
21-20	MW	✓	✓	✓	✓			✓			Overburden and bedrock well with soil sampling	Base suite + Energetics, NO3, NH4	Base suite + Energetics, NO3, NH4, PFAS
19-01	MW	✓		✓	✓		✓				Existing well	NA	Base suite + VOCs
19-04	MW	✓		✓	✓				✓		Existing well; previously dry.	NA	Base suite + VOC.
19-08	MW	✓	✓	✓	✓					✓	Existing well	NA	Base suite + Energetics, NO3, NH4
19-11	MW	✓	✓	✓	✓			✓			Existing well	NA	Base suite + Energetics, NO3, NH4, PFAS

Base suite soil - SAR/EC, Na, Cl, CN, pH, metals (including Hg, Cr VI), BTEX/PHCs, PAHs
Base suite GW - Na, Cl, CN, pH, metals (including Hg, Cr VI), BTEX/PHCs, PAHs

APECs		
APEC #	**Location**	**APEC Description**
1	Entire RSC Property	On-Site PCA #1. #30 – Importation of fill material of unknown quality
2	Eastern Portion of RSC Property	On-Site PCA #2 and Off-Site PCA #3. #20 – Explosives and Ammunition Manufacturing, Production and Bulk Storage
3	Entire RSC Property	On-Site PCA #3 and Off-Site PCA #1. #46 -Railyards, tracks and spurs
4	Entire RSC Property	On-Site PCA #4. #59 – Wood treating and preservative facility and bulk storage of treated and preserved wood products
5	Northeastern portion of the RSC Property	On-Site PCA #5. PCA Other – Fire
6	Western portion of the RSC Property	On-Site PCA #6. PCA Other – Storage of maintenance equipment, fuel and chemicals
7	South boundary of the RSC Property	Off-Site PCA #2 and #22. #28 – Gasoline and associated products storage in fixed tanks. PCA Other – Coal Storage. #32 – Metal treatment, coating, plating and finishing
8	Western portion of RSC Property	Off-Site PCA #4, #5, #6 and #7. #28 – Gasoline and associated products storage in fixed tanks. #32 – Metal treatment, coating, plating and finishing
9	Eastern portion of RSC Property	Off-Site PCA #23. #28 – Gasoline and associated products storage in fixed tanks



CITY OF OTTAWA
PHASE I ENVIRONMENTAL SITE ASSESSMENT

1010 SOMERSET STREET WEST, OTTAWA
ONTARIO

FIGURE 1
PROPOSED INVESTIGATION LOCATIONS

Proposed Locations
- BH
- MW

Previous Locations
- Borehole (DST, 2013)
- Borehole, (GOLDER, 2019)
- Monitoring Well - Lost (DST, 2013)
- Monitoring Well, (GOLDER, 2019)
- Monitoring Well - Lost/Dry, (GOLDER, 2019)

APECs
- 1,3 & 4
- 2
- 5
- 6
- 7
- 8
- 9
- Phase One Property
- Phase One Study Area
- Arterial Roads
- Collector Roads
- Local Roads
- Railway

1:1,000

0 12.5 25 50 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY CITY OF OTTAWA, ESRI, MNRF & DILLON CONSULTING

MAP CREATED BY 30SHA
MAP CHECKED BY EH

MAP PROJECTION: NAD 1983 MTM 9

DILLON CONSULTING

PROJECT: 211685

STATUS: DRAFT

DATE: 2021-07-02

FILE LOCATION: C:\Users\30SHA\Desktop\Somerset\1010\GIS\Product\Client\1010 Somerset Phase One\Working_SAP.mxd

Appendix B

Borehole Logs

MW21-01D

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-20 Date Completed: 2021-09-20

Surface Elevation (masl): 60.47

Fill
Dark brown gravelly sand, transitioning to light brown at 0.4m, some pieces of red brick, cinders between 0.15m to 0.4m

Gravelly Sandy Clay — 2.43
Transition between fill and brown grey gravelly sandy clay, damp — 3.1

Silty Clay
Grey silty clay, soft, wet, small pieces of shell (<1mm) from 3.81m to 5.33m

Till — 7.9
Sandy silty till, gravel (2-5cm) throughout

Bedrock - Limestone — 10.06

End of borehole — 16.76

Top of casing (masl): 60.37

Well Construction:
- Flushmount casing and solid 0.05m PVC through cement
- Solid 0.05m PVC through bentonite
- Slotted 0.05m PVC through sand pack

Depth Scale (m)	Method	Number	PID	Rec %
1.0		SS1	---	81
		SS2*	---	65
2.0		SS3	---	21
		SS4	---	69
3.0		SS5	85/3	100
4.0		SS6*	10/1	100
5.0		SS7	0/0	100
6.0		SS8	0/1	100
		SS9	30/3	100
7.0				
8.0		SS10	---	100
9.0		SS11*	35/1	65
10.0				
11.0				
12.0				
13.0				
14.0				
15.0				
16.0				

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Fill (made ground); Silt / Clay; Bedrock; Silty Sand and Gravel; Glacial Till

SAMPLE TYPE: Split Spoon; Air Rotary Drill

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

MW21-01S

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-20 Date Completed: 2021-09-20

Surface Elevation (masl): 60.53

Top of casing (masl): 60.44

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %
0	**Fill** Dark brown gravelly sand, transitioning to light brown at 0.4m, some pieces of red brick, cinders between 0.15m to 0.4m		Flushmount casing and solid 0.05m PVC through cement		SS1	---	81
1.0					SS2*	---	65
2.0					SS3	---	21
					SS4	---	69
2.5	**Gravelly Sandy Clay** Transition between fill and brown grey gravelly sandy clay, damp	2.43					
3.0	**Silty Clay** Grey silty clay, soft, wet, small pieces of shell (<1mm) from 3.81m to 5.33m	3.1			SS5	85/3	100
4.0			Solid 0.05m PVC through bentonite		SS6*	10/1	100
5.0					SS7	0/0	100
					SS8	0/1	100
6.0					SS9	30/3	100
7.0			Slotted 0.05m PVC through sand pack				
8.0	**Till** Sandy silty till, gravel (2-5cm) throughout	7.9			SS10	---	100
9.0					SS11*	35/1	65
10.0	End of borehole	10.06					

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Fill (made ground); Silt / Clay; Silty Sand and Gravel; Glacial Till

SAMPLE TYPE: Split Spoon

MW21-02

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-21 Date Completed: 2021-09-21

Surface Elevation (masl): 60.62

Top of casing (masl): 60.51

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Asphalt Gravel fill		Flushmount casing and solid 0.05m PVC through cement					
1.0	**Clay** Dark brown grey clay, compact, dry, hard. Sand lenses and orange mottling between 1.5m to 2.1m. Dry at 0.76m transitioning to damp at 1.5m	0.76	Solid 0.05m PVC through bentonite		SS1*	50/7	79	1.0
2.0					SS2	35/7	100	2.0
	Silt Brown grey silt, damp, small shells (<1cm)	2.13			SS3	30/8	100	
3.0	**Sandy silt** Grey silty sand, damp transitioning to saturated	2.9			SS4*	0/6	100	3.0
	Clayey silt Grey clayey silt, shells, saturated	3.66			SS5	15/7	100	
4.0			Slotted 0.05m PVC through sand pack					4.0
5.0					SS6	35/6	100	5.0
	Till Grey, silty, sandy till, fine gravel (<2cm)	5.66			SS7	25/7	100	
	End of borehole	5.94						

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt, Silt, Silt / Clay, Clay, Sandy Silt, Glacial Till

SAMPLE TYPE: Split Spoon

BH21-03

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-22 Date Completed: 2021-09-22

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Asphalt								
	Fill Light and dark brown sand, fine gravel (~2cm)		0.15			SS1*	---	33	
1.0	**Sandy gravelly clay** Transition from sandy gravelly fill to clay. Some orange mottling		0.61			SS2	55/5	71	1.0
2.0	**Clay** Brown grey clay, fine gravel, orange mottling, sandy gravel 3.33m to 3.35m		1.37			SS3*	20/4	65	2.0
						SS4	0/5	50	
3.0						SS5	---	50	3.0
	End of borehole		3.66						

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Fill (made ground); Silty Sand and Gravel; Clay

SAMPLE TYPE: Split Spoon

MW21-04D

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-21 Date Completed: 2021-09-21

Surface Elevation (masl): 61.34

Top of casing (masl): 61.26

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %
0	**Asphalt**		Flushmount casing and solid 0.05m PVC through cement				
1.0	**Clay** Brown grey clay, dry transitioning to damp at 1.65m, orange mottling	0.61					
2.0					SS1	150/0	81
3.0	**Silt** Grey brown silt, soft, damp transitioning to saturated at 3.9m , colour transitioning to more grey at 3.2m, sand lenses observed between 3.2m to 3.8m	2.44			SS2*	35/0	100
4.0					SS3	55/0	100
					SS4	---	100
5.0					SS5* DUP2*	30/1	100
6.0	**Silty sand** Transition from silt to till	5.77			SS6	---	100
		5.87			SS7	45/2	88
7.0	**Till** Silty, gravelly sand, saturated, soft, coarse gravel observed between 7m to 7.1m		Solid 0.05m PVC through bentonite				
8.0							
9.0	**Bedrock - Limestone**	9.14					
10.0							
11.0							
12.0							
13.0							
14.0			Slotted 0.05m PVC through sand pack				
15.0							
16.0							
17.0							
18.0	End of borehole	18.29					

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt, Clay, Silt, Sandy Silt, Glacial Till, Bedrock

SAMPLE TYPE: Split Spoon, Air Rotary Drill

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

MW21-04S

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-21 Date Completed: 2021-09-21

Surface Elevation (masl): 61.28

Top of casing (masl): 61.14

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %
0	**Asphalt**		Flushmount casing and solid 0.05m PVC through cement				
	Clay Brown grey clay, dry transitioning to damp at 1.65m, orange mottling	0.61					
1.0							
2.0					SS1	150/0	81
	Silt Grey brown silt, soft, damp transitioning to saturated at 3.9m , colour transitioning to more grey at 3.2m, sand lenses observed between 3.2 m to 3.8m	2.44	Solid 0.05m PVC through bentonite		SS2*	35/0	100
3.0							
					SS3	55/0	100
4.0					SS4	---	100
5.0					SS5* DUP2*	30/1	100
	Silty sand Transition from silt to till	5.77	Slotted 0.05m PVC through sand pack				
6.0	**TILL** Silty, gravelly sand, saturated, soft, coarse gravel observed between 7m to 7.1m	5.87			SS6	---	100
					SS7	45/2	88
7.0							
8.0							
9.0	End of borehole	9.14					

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt, Clay, Silt, Sandy Silt, Glacial Till

SAMPLE TYPE: Split Spoon

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

BH21-05

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-21 Date Completed: 2021-09-21

Surface Elevation (masl): 59.91

Depth Scale (m)	Stratigraphic Description	Depth (m)	Sample Method	Sample Number	Sample PID	Sample Rec %
	Asphalt	0.1				
	Fill Gravel	0.2				
	Fill Light-dark brown sand, dry, granite/feldspar pieces (~4cm) starting at 0.75m			SS1	0/2	69
				SS2*	---	58
1.0	**Clay** Brown-grey clay, orange mottling, dry, transition to damp at 3.0m, some sand at 3.0m	1.04				
				SS3	60/0	100
	Silty clay Dark grey silty clay, damp transition to wet at 2.3m and saturated at 3.0m. Small shells (1 cm) observed at 3.8m	1.8				
2.0				SS4*	30/0	100
3.0				SS5	80/7	100
4.0				SS6	40/4	100
	End of borehole	4.32				

Well Construction

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Clay; Fill (made ground); Silt / Clay

SAMPLE TYPE: Split Spoon

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

MW21-06

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-21 Date Completed: 2021-09-21

Surface Elevation (masl): 59.99

Top of casing (masl): 59.85

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Silty clay Soft, moist, some orange sand		Flushmount casing and solid 0.05m PVC through cement Solid 0.05m PVC through bentonite					
1.0					SS1*	---	42	1.0
	Silt Brown silt, soft, damp, orange coloured sand, small shells, transition to grey and wet at 2.3m	1.37						
2.0					SS2	90/0	100	2.0
					SS3	45/0	100	
3.0	**Silty clay** Grey, soft, saturated, small pieces of shell (~1mm)	3.05	Slotted 0.05m PVC through sand pack					3.0
					SS4	45/1	100	
4.0					SS5*	55/1	100	4.0
	Clayey silt Grey, soft, no pieces of shell	4.57			SS6	25/0	100	
5.0								5.0
	End of borehole	5.18						

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Silt / Clay; Silt

SAMPLE TYPE: Split Spoon

BH21-07

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-22 Date Completed: 2021-09-22

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Asphalt								
	Fill Gravelly black sand, brick, black silt (minor), dry, loose		0.15			SS1*	0/5	58	
	Clay Grey brown, dry, dense		0.46			SS2	0/5	100	1.0
	Silty sand Grey brown silty sand, dry, medium dense, some orange coloured sand		1.07			SS3	0/4	100	
	Sandy clay Fine grained, grey brown sandy clay, dry, dense, some orange mottling, shells		1.68			SS4	0/4	100	2.0
	Clayey silt Grey brown clayey silt, dense, damp		2.44			SS5*	3/1	100	
	End of borehole		3.05						3.0

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Clay; Sandy Clay; Fill (made ground); Sandy Silt; Silt / Clay

SAMPLE TYPE: Split Spoon

BH21-08

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-23 Date Completed: 2021-09-23

Surface Elevation (masl): 59.30

Depth Scale (m)	Stratigraphic Description	Depth (m)	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Asphalt						
	Fill Dark brown clayey sand, red brick pieces, gravel (~3cm)	0.1		SS1*	---	46	
	Fill Light brown sand, red brick pieces, gravel (~3cm), dark brown/black cinder pieces observed between 0.9m to 0.95m	0.61		SS2*	---	54	
1.0							1.0
				SS3	---	48	
2.0							2.0
	Clay Brown-grey clay, dry, dense, orange mottling and sand pockets observed from 2.9m to 3.5m	2.25		SS4	---	71	
3.0				SS5* DUP3*	---	100	3.0
	Silt Grey silt, damp to saturated at 4.4m, soft	3.51		SS6	---	100	
4.0							4.0
				SS7	---	100	
5.0	End of borehole	5.03					5.0

Well Construction

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Clay; Fill (made ground); Silt

SAMPLE TYPE: Split Spoon

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

BH21-09

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-23 Date Completed: 2021-09-23

Surface Elevation (masl): 58.90

Depth Scale (m)	Stratigraphic Description	Depth (m)	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Asphalt						
	Fill Sandy gravel, large gravel and brick pieces	0.15		SS1*	---	54	
	Sandy gravelly clay Grey, dry	0.76		SS2	---	50	
	Gravel Light grey coarse gravel, dry	0.91					
1.0	**Gravelly sand**	0.99					1.0
				SS3*	---	58	
2.0							2.0
	End of borehole	2.26					

Well Construction

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Fill (made ground); Silty Sand and Gravel; Gravel; Sandy Gravel

SAMPLE TYPE: Split Spoon

MW21-10D

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-24 Date Completed: 2021-09-24

Surface Elevation (masl): 58.78

Depth Scale (m)	Stratigraphic Description	Depth (m)
0	**Topsoil** Topsoil, loose 0 - 0.1m, compact 0.1m to 0.25m, roots, some gravel below 0.1m	0.24
1.0	**Fill** Brown grey gravelly clay, soft	0.86
	Fill Light brown, fine grained sand, grey clay pockets	1.37
2.0		1.7 1.8
	Fill Dark grey to black sand, granite pieces (<1mm)	
3.0		3.05
	Fill Light to dark brown clay, cinders	3.3
4.0	**Fill** Light to dark brown clay, cinders, fine grained sand between 2.3m and 3m	3.86
	Fill Light brown sand, gravel (4cm - <1mm)	
5.0	**Clay** Brown grey, dry, dense Becomes grey and saturated at 3.8 mbgs	
6.0	**Till** Silty, gravelly, sand, coarse gravel between 4.8m to 4.9m	6.1
7.0	**Clayey sand** Grey, coarse sand 6.1m to 6.4m and 6.6m to 7.9m, fine 6.4m to 6.6m, damp	
8.0	**Bedrock - Limestone**	7.92
9.0		
10.0		
11.0		
12.0	End of borehole	12.19

Top of casing (masl): 58.67

Well Construction:
- Flushmount casing and solid 0.05m PVC through cement
- Solid 0.05m PVC through bentonite
- Slotted 0.05m PVC through sand pack

Sample Method	Number	PID	Rec %
	SS1	---	40
	SS2*	---	27
	SS3	---	58
	SS4	---	21
	SS5	125/1	65
	SS6	---	65
	SS7*	---	56
	SS8*	---	63
	SS9	---	100
	SS10	---	100

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Organics, Clay, Clayey Sand, Fill (made ground), Glacial Till, Bedrock

SAMPLE TYPE: Split Spoon, Air Rotary Drill

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

MW21-10S

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-24 Date Completed: 2021-09-24

Surface Elevation (masl): 58.67

Top of casing (masl): 58.53

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %
	Topsoil Topsoil, loose 0 - 0.1m, compact 0.1m to 0.25m, roots, some gravel below 0.1m	0.24	Flushmount casing and solid 0.05m PVC through cement		SS1	---	40
	Fill Brown grey gravelly clay, soft	0.86			SS2*	---	27
1.0	**Fill** Light brown, fine grained sand, grey clay pockets	1.37			SS3	---	58
	Fill Dark grey to black sand, granite pieces (<1mm)	1.7 1.8					
2.0	**Fill** Light to dark brown clay, cinders		Solid 0.05m PVC through bentonite		SS4	---	21
	Fill Light to dark brown clay, cinders, fine grained sand between 2.3m and 3m						
3.0	**Fill** Light brown sand, gravel (4cm - <1mm)	3.05 3.3			SS5	125/1	65
					SS6	---	65
	Clay Brown grey, dry, dense Becomes grey and saturated at 3.8 mbgs	3.86			SS7*	---	56
4.0	**Till** Silty, gravelly, sand, coarse gravel between 4.8m to 4.9m						
					SS8*	---	63
5.0			Slotted 0.05m PVC through sand pack				
6.0	**Clayey sand** Grey, coarse sand 6.1m to 6.4m and 6.6m to 7.9m, fine 6.4m to 6.6m, damp	6.1			SS9	---	100
7.0							
					SS10	---	100
	Bedrock - Limestone End of Borehole	7.92					

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Organics; Clay; Clayey Sand; Fill (made ground); Glacial Till

SAMPLE TYPE: Split Spoon

BH21-11

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-22 Date Completed: 2021-09-22

Surface Elevation (masl): 59.49

Depth Scale (m)	Stratigraphic Description	Depth (m)	Sample Method	Sample Number	Sample PID	Sample Rec %
	Asphalt					
	Fill Grey gravelly sand, dry	0.15		SS1	---	71
	Sandy clay Grey brown sandy clay, dry transitioning to damp at 0.75m	0.38				
1.0				SS2*	15/6	88
				SS3	---	88
2.0	**Gravelly clay** Dark brown gravelly clay, some clay, damp	1.88		SS4	---	88
				SS5	---	79
	Clay Brown grey clay, damp transitioning to wet at 3.0m	2.41				
3.0				SS6*	5/5	100
4.0				SS7	0/2	100
				SS8	---	100
5.0	**Till** Grey sandy gravelly silt	4.98				
	End of borehole	5.18				

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Fill (made ground); Sandy Clay; Clayey Gravel; Clay; Glacial Till

SAMPLE TYPE: Split Spoon

MW21-12

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-22 Date Completed: 2021-09-22

Surface Elevation (masl): 59.79

Depth Scale (m)	Stratigraphic Description	Depth (m)
	Asphalt	0.13
	Fill Dark grey gravelly sand, transition to light grey at 0.5m	0.76
1.0	**Sandy silt** Grey brown sandy silt, damp, some gravel	1.68
2.0	**Silt** Brown grey silt, damp, some orange mottling	
3.0		3.18
	Silty clay Minor sand lenses, some orange mottling, damp	3.96
4.0	**Silt** Grey silt, damp to wet, shells, orange mottling	
5.0		
6.0		6.65
	Silty clay Grey	6.81
7.0	**Till** Silty sandy gravel, rocks	
8.0		8.53
	Bedrock - Limestone End of Borehole	

Top of casing (masl): 59.66

Well Construction:
- Flushmount casing and solid 0.05m PVC through cement
- Solid 0.05m PVC through bentonite
- Slotted 0.05m PVC through sand pack

Sample Method	Number	PID	Rec %
	SS1*	---	67
	SS2	0/6	100
	SS3*	15/5	100
	SS4	5/7	100
	SS5	0/6	100
	SS6	0/6	100
	SS7	0/6	100
	SS8	---	100
	SS9*	0/5	100

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Fill (made ground); Sandy Silt; Silt; Silt / Clay; Glacial Till

SAMPLE TYPE: Split Spoon

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

MW21-13

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-13 Date Completed: 2021-09-13

Surface Elevation (masl): 59.18

Depth Scale (m)	Stratigraphic Description	Depth (m)
	Topsoil Brown, organics (roots)	0.2
	Sandy gravel	
1.0		
	Fill Sandy clay, dry, some organics (roots)	1.12
	Fill Grey clay, some rocks, dry, dense, bits of cinder	1.37
2.0		
	Fill Red brown gravelly sand, dry, loose	2.39
	Clay Grey brown clay, dry transitioning to moist at 3.8m to saturated at 4.25m, dense	2.43
3.0		
4.0		
	Till Sandy gravelly grey clay, saturated	4.42
5.0		
	Till Silty clay till	5.33
	TILL Sandy silt and gravel	5.46
6.0		
	End of borehole	6.1

Top of casing (masl): 59.03

Well Construction:
- Flushmount casing and solid 0.05m PVC through cement
- Solid 0.05m PVC through bentonite
- Slotted 0.05m PVC through sand pack

Sample Method	Number	PID	Rec %
SS2	45/8	85	
SS3*	65/10	58	
SS4	---	23	
SS5	45/2	79	
SS6*	60/6	100	
SS7	75/11	94	
SS8	---	42	

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Organics; Fill (made ground); Glacial Till; Sandy Gravel; Clay

SAMPLE TYPE: Split Spoon

MW21-14

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-24 Date Completed: 2021-09-24

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Surface Elevation (masl): 59.76		Top of casing (masl): 59.63					
	Asphalt		Flushmount casing and solid 0.05m PVC through cement					
	Fill Sand, small pieces of red brick and gravel, damp	0.76			SS1*	---	75	
1.0		0.99	Solid 0.05m PVC through bentonite					1.0
	Clay Brown grey clay with orange mottling, dry transitioning to damp at 1.5m, small shells between 2.3m and 2.9m				SS2	0/5	100	
2.0								2.0
					SS3*	15/6	100	
3.0	**Silty clay** Grey, very soft, damp to wet	2.9			SS4	15/4	100	3.0
4.0	**Till** Dark grey silty sand, gravel (1-5cm), wet to saturated, soft	3.91			SS5	---	100	4.0
			Slotted 0.05m PVC through sand pack		SS6	---	69	
5.0								5.0
					SS7	---	58	
6.0	End of borehole	6.1						6.0

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Clay; Glacial Till; Fill (made ground); Silt / Clay

SAMPLE TYPE: Split Spoon

MW21-15

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-13 Date Completed: 2021-09-14

Surface Elevation (masl): 59.80

Top of casing (masl): 59.67

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %
	Asphalt	0.03	Flushmount casing and solid 0.05m PVC through cement				
	Fill Light grey gravelly sand, dry	0.15					
	Asphalt						
1.0							
	Fill Clayey sand, red brick pieces, some small gravel at 1.5m, compact	1.22	Solid 0.05m PVC through bentonite		SS1*	5/5	73
					SS2	---	54
2.0							
	Clay Dry, compact	2.29			SS3	---	85
3.0							
	Silty clay Less compact	3.52			SS4	40/7	100
	Silt Grey, soft, damp transition to wet at 4.8m	3.81			SS5*	70/7	100
4.0							
					SS6	---	100
5.0	**Sandy silt** Wet, some rocks observed at 5.3m	4.98	Slotted 0.05m PVC through sand pack				
					SS7	55/5	100
6.0							
					SS8	50/0	75
	End of borehole	6.71					

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Clay; Silt; Fill (made ground); Silt / Clay; Sandy Silt

SAMPLE TYPE: Split Spoon

BH21-16

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-13 Date Completed: 2021-09-13

Surface Elevation (masl): 59.79

Depth Scale (m)	Stratigraphic Description	Depth (m)	Sample Method	Sample Number	Sample PID	Sample Rec %
	Topsoil Brown, some gravel, dense, organics (roots)			SS1	-	0
	Fill Gravel, debris, red brick pieces	0.61				
1.0	**Fill** Gravelly clay, black sand, compact transition to loose at 1.5m, cinders observed at 1.5m	1.22		SS2*	-	52
2.0	**Gravelly clay** Compact	1.8		SS3	55/3	54
	Clay Compact transition to less compact at 3.8m, dry transition to damp at 3.8m to saturated at 4.9m	2.29		SS4	55/2	33
3.0				SS5*	70/1	100
4.0				SS6	-	40
5.0				SS7	65/7	54
				SS8	-	54
6.0	**TILL** Grey sandy silt, some gravel present	6.1		SS9	-	100
7.0	End of borehole	7.47				

Well Construction

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-15

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Organics; Fill (made ground); Silty Clay and Gravel; Clay; Glacial Till

SAMPLE TYPE: Split Spoon

BH21-17

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-23 Date Completed: 2021-09-23

Surface Elevation (masl): 60.24

Depth Scale (m)	Stratigraphic Description	Depth (m)	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Asphalt	0.08					
	Fill Gravelly sand	0.28		SS1*	---	46	
	Silt Brown grey silt transition to grey silt, damp transition to wet at 1.5						
1.0				SS2	35/0	83	1.0
				SS3*	---	100	
2.0							2.0
				SS4	---	100	
3.0	End of borehole	3.05					3.0

Well Construction

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Fill (made ground); Silt

SAMPLE TYPE: Split Spoon

MW21-18

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-14 Date Completed: 2021-09-14

Surface Elevation (masl): 60.31

Top of casing (masl): 60.21

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %
0.0	**Asphalt**		Flushmount casing and solid 0.05m PVC through cement				
1.0	**Silt** Brown grey silt, dry, compact, orange mottling	0.91			SS1	45/4	100
2.0	Sand lens	1.8			SS2	60/5	100
3.0	**Silt** Brown grey, dry transition to moist at 2.4m to saturated at 3.2m , compact, some white shells between 2.4m to 3.2m				SS3	50/5	100
4.0					SS4	45/3	100
5.0	**Till** Grey silty sand, some rocks, saturated, more sand at 5.0m, pebbles to cobble sized rocks at 5.5m, less rocks and more sand at 6.4m	3.96			SS5	40/1	100
6.0					SS6	55/3	79
7.0					SS7	65/3	75
8.0					SS8	65/3	71
9.0	**Bedrock** Limestone	8.23	Solid 0.05m PVC through bentonite		SS9	---	73
10.0					SS10	---	42
11.0	Hydrocarbon odour						
12.0							
13.0			Slotted 0.05m PVC through sand pack				
14.0					SS11	200/6	100
15.0							
16.0	End of borehole	16.76					

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt; Glacial Till; Silt; Bedrock

SAMPLE TYPE: Split Spoon; Air Rotary Drill

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

BH21-19

DILLON CONSULTING

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-23 Date Completed: 2021-09-23

Surface Elevation (masl): 60.27

Depth Scale (m)	Stratigraphic Description	Depth (m)	Sample Method	Sample Number	Sample PID	Sample Rec %	Depth Scale (m)
	Asphalt						
	Clay Some pieces of cinder	0.1		SS1*	-	58	
	Sand Fill, medium grained, trace gravel	0.45					
1.0	**Silt** Brown to grey, dry, compact	0.73					1.0
2.0				SS2	25/0	67	2.0
3.0				SS3*	15/1	100	3.0
	Clay Brown to grey, damp	3.05		SS4	0/0	100	
	End of borehole	3.65					

Well Construction

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Asphalt, Clay, Sand, Silt

SAMPLE TYPE: Split Spoon

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

MW21-20D

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-15 Date Completed: 2021-09-15

Surface Elevation (masl): 60.04

Top of casing (masl): 59.94

Depth (m)	Stratigraphic Description
0.08	**Topsoil** Organics (roots)
0.15	**Fill** Dark brown clay fill
0.32	**Fill** sand and gravel fill
1.57	**Fill** Clay fill, red brick fragments, cinder, orange mottling
1.68	**Fill** Sand fill
5.33	**Clay** Transition from compact and dry to damp, less compact at 3.8m, to saturated at 4.5m
7.62	**Till** Grey gravelly sand, saturated, coarse gravel, mica, and feldspar pieces observed 6.8m to 7.6m
	Bedrock - Limestone Grey
30.48	End of borehole

Well Construction:
- Flushmount casing and solid 0.05m PVC through cement
- Solid 0.05m PVC through bentonite
- Slotted 0.05m PVC through sand pack
- Back filled with holeplug

Sample Method	Number	PID	Rec %
	SS1	---	52
	SS2*	---	63
	SS3	95/1	100
	SS4*	25/2	100
	SS5	25/4	100
	SS6*	55/7	100
	DUP5*		

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Organics; Clay; Bedrock; Fill (made ground); Glacial Till

SAMPLE TYPE: Split Spoon; Air Rotary Drill

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

MW21-20S

Client: City of Ottawa
Project No.: 21-2419
Drilling Co.: Aardvark
Supervised by: EB

Project: 1010 Somerset Street West
Location: Ottawa, Ontario
Drilling Method: Auger/ Air Hammer
Date Started: 2021-09-15 Date Completed: 2021-09-15

Surface Elevation (masl): 60.09

Top of casing (masl): 59.96

Depth Scale (m)	Stratigraphic Description	Depth (m)	Well Construction	Sample Method	Sample Number	Sample PID	Sample Rec %
0	**Topsoil** Organics (roots)	0.08	Flushmount casing and solid 0.05m PVC through cement				
		0.15			SS1	---	52
	Fill Dark brown clay fill	0.32					
	Fill sand and gravel fill						
1.0	**Fill** Clay fill, red brick fragments, cinder, orange mottling				SS2*	---	63
			Solid 0.05m PVC through bentonite				
	Fill Sand fill	1.57			---	---	33
		1.68					
2.0	**Clay** Transition from compact and dry to damp, less compact at 3.8m, to saturated at 4.5m						
					SS3	95/1	100
3.0							
					SS4*	25/2	100
4.0					SS5	25/4	100
			Slotted 0.05m PVC through sand pack				
5.0					---	---	13
	Till Grey gravelly sand, saturated, coarse gravel, mica, and feldspar pieces observed 6.8m to 7.6m	5.33			---	---	13
6.0	End of borehole	6.09					

m bgs - meters below ground surface
m asl - meters above sea level
* Indicates sample submitted for analysis

LITHOLOGY SYMBOLS: Organics; Clay; Fill (made ground); Glacial Till

SAMPLE TYPE: Split Spoon

DILLON MW 212419 - 1010 SOMERSET_REV2.GPJ DILLON_MAY13_05.GDT 21-12-13

Appendix C

Site Survey

1010 Somerset Street West

MW 21-10S 58.67
MW 21-10D 58.78
BH 21-09 58.90
BH 21-08 59.30
MW 19-01 59.70
BH 21-11 59.49
MW 21-13 59.18
MW 21-01D 60.47
MW 21-01S 60.53
BH 21-05 59.91
MW 21-12 59.79
MW 21-06 59.99
BH 21-16 59.79
MW 21-15 59.80
MW 21-02 60.62
MW 21-14 59.76
MW 21-20S 60.09
MW 21-20D 60.04
BH 21-19 60.27
MW 21-18 60.31
MW 19-11 60.30
BH 21-17 60.24
MW 21-04S 61.28
MW 21-04D 61.34

Appendix D

Laboratory Certificates of Analysis

PARACEL LABORATORIES LTD.

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Certificate of Analysis

Dillon Consulting Ltd. (Ottawa)

177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Elsa Hergel

Client PO:
Project: 21-2419/1010 Somerset St
Custody: 133746

Report Date: 8-Oct-2021
Order Date: 30-Sep-2021

Order #: 2140497

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

Paracel ID	Client ID
2140497-01	BH21-13 SS6
2140497-02	BH21-15 SS5
2140497-03	BH21-16 SS5

Approved By:



Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Report Date: 08-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 30-Sep-2021

Client PO:

Project Description: 21-2419/1010 Somerset St

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Ammonia, as N	EPA 351.2 - Auto Colour	4-Oct-21	6-Oct-21
Anions	EPA 300.1 - IC, water extraction	4-Oct-21	4-Oct-21
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	1-Oct-21	2-Oct-21
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	30-Sep-21	4-Oct-21
Conductivity	MOE E3138 - probe @25 °C, water ext	2-Oct-21	2-Oct-21
Cyanide, free	MOE E3015 - Auto Colour, water extraction	30-Sep-21	6-Oct-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	5-Oct-21	5-Oct-21
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	7-Oct-21	7-Oct-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	30-Sep-21	1-Oct-21
PHC F1	CWS Tier 1 - P&T GC-FID	1-Oct-21	2-Oct-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	30-Sep-21	2-Oct-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	4-Oct-21	4-Oct-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	5-Oct-21	6-Oct-21
SAR	Calculated	4-Oct-21	4-Oct-21
Solids, %	Gravimetric, calculation	1-Oct-21	4-Oct-21

Certificate of Analysis

Report Date: 08-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 30-Sep-2021

Client PO:

Project Description: 21-2419/1010 Somerset St

	Client ID:	BH21-13 SS6	BH21-15 SS5	BH21-16 SS5	-
	Sample Date:	13-Sep-21 10:15	13-Sep-21 15:30	13-Sep-21 15:30	-
	Sample ID:	2140497-01	2140497-02	2140497-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	72.6	65.4	75.0	-
General Inorganics					
Ammonia as N	1 ug/g dry	2 [1]	4 [1]	3 [1]	-
SAR	0.01 N/A	1.58	0.39	2.14	-
Conductivity	5 uS/cm	429	406	576	-
Cyanide, free	0.03 ug/g dry	<0.03 [2]	<0.03 [2]	<0.03 [2]	-
pH	0.05 pH Units	7.43	7.57	7.52	-
Anions					
Chloride	5 ug/g dry	199	128	373	-
Nitrate as N	1 ug/g dry	7	<1	1	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	2.2	3.1	4.0	-
Barium	1.0 ug/g dry	147	342	268	-
Beryllium	0.5 ug/g dry	<0.5	0.8	0.7	-
Boron	5.0 ug/g dry	<5.0	5.9	5.5	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	5.0 ug/g dry	36.6	74.4	63.1	-
Chromium (VI)	0.2 ug/g dry	0.2	<0.2	0.3	-
Cobalt	1.0 ug/g dry	10.7	18.8	17.7	-
Copper	5.0 ug/g dry	20.2	36.7	38.8	-
Lead	1.0 ug/g dry	4.3	6.4	6.3	-
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Nickel	5.0 ug/g dry	19.5	43.1	36.0	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Sodium	200 ug/g dry	1100	2030	1480	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	<1.0	1.9	<1.0	-
Vanadium	10.0 ug/g dry	56.3	94.7	75.2	-
Zinc	20.0 ug/g dry	54.9	111	98.7	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02 [1]	<0.02 [1]	<0.02 [1]	-
Ethylbenzene	0.05 ug/g dry	<0.05 [1]	<0.05 [1]	<0.05 [1]	-

Certificate of Analysis

Report Date: 08-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 30-Sep-2021

Client PO:

Project Description: 21-2419/1010 Somerset St

	Client ID:	BH21-13 SS6	BH21-15 SS5	BH21-16 SS5	-
	Sample Date:	13-Sep-21 10:15	13-Sep-21 15:30	13-Sep-21 15:30	-
	Sample ID:	2140497-01	2140497-02	2140497-03	-
	MDL/Units	Soil	Soil	Soil	-
Toluene	0.05 ug/g dry	<0.05 [1]	<0.05 [1]	<0.05 [1]	-
m,p-Xylenes	0.05 ug/g dry	<0.05 [1]	<0.05 [1]	<0.05 [1]	-
o-Xylene	0.05 ug/g dry	<0.05 [1]	<0.05 [1]	<0.05 [1]	-
Xylenes, total	0.05 ug/g dry	<0.05 [1]	<0.05 [1]	<0.05 [1]	-
Toluene-d8	Surrogate	125% [1]	109% [1]	114% [1]	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7 [1]	<7 [1]	<7 [1]	-
F2 PHCs (C10-C16)	4 ug/g dry	<4 [1]	<4 [1]	<4 [1]	-
F3 PHCs (C16-C34)	8 ug/g dry	<8 [1]	<8 [1]	<8 [1]	-
F4 PHCs (C34-C50)	6 ug/g dry	<6 [1]	<6 [1]	<6 [1]	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Fluorobiphenyl	Surrogate	67.5%	60.3%	59.3%	-
Terphenyl-d14	Surrogate	67.9%	52.3%	73.7%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	5	ug/g						
Nitrate as N	ND	1	ug/g						
General Inorganics									
Ammonia as N	ND	1	ug/g						
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Sodium	ND	200	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.08*		*ug/g*		*80.7*	*50-140*			
Surrogate: Terphenyl-d14	*1.25*		*ug/g*		*94.0*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*3.32*		*ug/g*		*104*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	31.2	5	ug/g dry	27.9			10.9	20	
Nitrate as N	ND	1	ug/g dry	ND			NC	20	
General Inorganics									
Ammonia as N	1.1	1	ug/g dry	1.2			10.8	35	
SAR	5.91	0.01	N/A	5.83			1.4	30	
Conductivity	428	5	uS/cm	429			0.2	5	
Cyanide, free	ND	0.03	ug/g dry	ND			NC	35	
pH	6.66	0.05	pH Units	6.63			0.5	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	6.9	1.0	ug/g dry	6.0			13.1	30	
Barium	94.9	1.0	ug/g dry	81.1			15.6	30	
Beryllium	1.4	0.5	ug/g dry	1.0			28.6	30	
Boron	18.5	5.0	ug/g dry	17.6			4.8	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	33.1	5.0	ug/g dry	29.5			11.3	30	
Cobalt	10.5	1.0	ug/g dry	9.0			14.8	30	
Copper	39.9	5.0	ug/g dry	34.7			14.0	30	
Lead	15.9	1.0	ug/g dry	13.9			13.6	30	
Mercury	0.274	0.1	ug/g dry	0.259			5.5	30	
Molybdenum	1.9	1.0	ug/g dry	1.6			15.3	30	
Nickel	28.0	5.0	ug/g dry	24.3			14.0	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Sodium	ND	200	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	1.4	1.0	ug/g dry	1.2			14.8	30	
Vanadium	34.7	10.0	ug/g dry	30.8			11.6	30	
Zinc	36.5	20.0	ug/g dry	32.4			11.8	30	
Physical Characteristics									
% Solids	79.5	0.1	% by Wt.	80.0			0.6	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Chrysene	ND	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Fluorene	ND	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
Naphthalene	ND	0.01	ug/g dry	ND			NC	40	
Phenanthrene	ND	0.02	ug/g dry	ND			NC	40	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Pyrene	ND	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.04*		*ug/g dry*		*56.5*	*50-140*			
Surrogate: Terphenyl-d14	*0.976*		*ug/g dry*		*53.2*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: Toluene-d8	*4.16*		*ug/g dry*		*105*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	138	5	ug/g	27.9	110	82-118			
Nitrate as N	10.7	1	ug/g	ND	107	68-132			
General Inorganics									
Ammonia as N	2.4	1	ug/g	ND	96.3	57-124			
Cyanide, free	0.308	0.03	ug/g	ND	103	70-130			
Hydrocarbons									
F1 PHCs (C6-C10)	165	7	ug/g	ND	82.4	80-120			
F2 PHCs (C10-C16)	92	4	ug/g	ND	93.8	60-140			
F3 PHCs (C16-C34)	248	8	ug/g	ND	103	60-140			
F4 PHCs (C34-C50)	167	6	ug/g	ND	110	60-140			
Metals									
Antimony	47.9	1.0	ug/g	ND	95.1	70-130			
Arsenic	52.1	1.0	ug/g	2.4	99.3	70-130			
Barium	81.6	1.0	ug/g	32.5	98.3	70-130			
Beryllium	48.9	0.5	ug/g	ND	97.0	70-130			
Boron	50.7	5.0	ug/g	7.1	87.3	70-130			
Cadmium	47.2	0.5	ug/g	ND	94.2	70-130			
Chromium (VI)	4.3	0.2	ug/g	ND	85.5	70-130			
Chromium	61.6	5.0	ug/g	11.8	99.5	70-130			
Cobalt	52.8	1.0	ug/g	3.6	98.4	70-130			
Copper	61.4	5.0	ug/g	13.9	95.0	70-130			
Lead	51.6	1.0	ug/g	5.6	92.1	70-130			
Mercury	1.61	0.1	ug/g	0.259	89.8	70-130			
Molybdenum	47.6	1.0	ug/g	ND	93.9	70-130			
Nickel	57.8	5.0	ug/g	9.7	96.1	70-130			
Selenium	47.5	1.0	ug/g	ND	94.5	70-130			
Silver	45.1	0.3	ug/g	ND	90.0	70-130			
Sodium	9020	200	ug/g	ND	89.6	70-130			
Thallium	49.2	1.0	ug/g	ND	98.0	70-130			
Uranium	50.3	1.0	ug/g	ND	99.6	70-130			
Vanadium	63.0	10.0	ug/g	12.3	101	70-130			
Zinc	59.8	20.0	ug/g	ND	93.6	70-130			
Semi-Volatiles									
Acenaphthene	0.150	0.02	ug/g	ND	65.3	50-140			
Acenaphthylene	0.129	0.02	ug/g	ND	56.3	50-140			
Anthracene	0.155	0.02	ug/g	ND	67.7	50-140			
Benzo [a] anthracene	0.131	0.02	ug/g	ND	57.1	50-140			
Benzo [a] pyrene	0.148	0.02	ug/g	ND	64.5	50-140			
Benzo [b] fluoranthene	0.172	0.02	ug/g	ND	75.1	50-140			
Benzo [g,h,i] perylene	0.152	0.02	ug/g	ND	66.1	50-140			
Benzo [k] fluoranthene	0.160	0.02	ug/g	ND	69.6	50-140			
Chrysene	0.172	0.02	ug/g	ND	75.0	50-140			
Dibenzo [a,h] anthracene	0.138	0.02	ug/g	ND	60.0	50-140			
Fluoranthene	0.139	0.02	ug/g	ND	60.6	50-140			
Fluorene	0.145	0.02	ug/g	ND	63.1	50-140			
Indeno [1,2,3-cd] pyrene	0.141	0.02	ug/g	ND	61.3	50-140			
1-Methylnaphthalene	0.158	0.02	ug/g	ND	68.6	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
2-Methylnaphthalene	0.171	0.02	ug/g	ND	74.4	50-140			
Naphthalene	0.159	0.01	ug/g	ND	69.5	50-140			
Phenanthrene	0.158	0.02	ug/g	ND	69.0	50-140			
Pyrene	0.147	0.02	ug/g	ND	64.2	50-140			
Surrogate: 2-Fluorobiphenyl	*1.26*		*ug/g*		*68.6*	*50-140*			
Surrogate: Terphenyl-d14	*1.40*		*ug/g*		*76.1*	*50-140*			
Volatiles									
Benzene	3.89	0.02	ug/g	ND	97.1	60-130			
Ethylbenzene	3.14	0.05	ug/g	ND	78.4	60-130			
Toluene	2.98	0.05	ug/g	ND	74.5	60-130			
m,p-Xylenes	6.26	0.05	ug/g	ND	78.3	60-130			
o-Xylene	2.75	0.05	ug/g	ND	68.8	60-130			
Surrogate: Toluene-d8	*2.72*		*ug/g*		*85.1*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Sample - One or more parameter received past hold time - PHC F1-F4, BTEX, Cyanide, Energetics

Applies to samples: BH21-13 SS6, BH21-15 SS5, BH21-16 SS5

Sample Qualifiers :

1 : Holding time had been exceeded upon receipt of the sample at the laboratory.

2 : This analysis was conducted after the accepted holding time had been exceeded.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

PARACE LABORATORIES L

Paracel ID: 2140497

Blvd. 4J8

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2140497	№ 133746

Client Name: Dillon Consulting	Project Ref: 21-2419	Page 1 of 1
Contact Name: Elsa Hergel	Quote #: City of Ottawa - 1010 Somerset St	Turnaround Time
Address: 177 Colonnade Rd. S., Suite 101, Ottawa	PO #:	☐ 1 day ☐ 3 day
	E-mail: ehergel@dillon.ca, mmcurdy@dillon.ca	☐ 2 day ☑ Regular
Telephone: 613-745-2213		Date Required:

☒ REG 153/04 ☐ REG 406/19

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

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

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

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	SAR/EC	Na	Cl	CN	pH	Energetics, NO3, NH4
1	BH21-13 SS6	S		4	21/09/13	10:15	X		X	X	X	X		X	X	X	X	X	X
2	BH21-15 SS5	S		4	21/09/13	15:30	X		X	X	X	X		X	X	X	X	X	X
3	BH21-16 SS5	S		4	21/09/13	12:42	X		X	X	X	X		X	X	X	X	X	X
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Elsa Hergel	Received By Driver/Depot:	Received at Lab: DG	Verified By: DG
Relinquished By (Print): Elsa Hergel	Date/Time:	Date/Time: Sep 29 2021 16:27	Date/Time: Sep 30 2021
Date/Time: Sept. 29, 2021 / 16:00	Temperature: °C	Temperature: 8.6 °C	pH Verified: ☐ By: NA

PARACE LABORATORIES L

Paracel ID: 2140497

Blvd. 4J8

ps.com n

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2140497	№ 133746

Client Name: Dillon Consulting

Contact Name: Elsa Hergel

Address: 177 Colonnade Rd. S., Suite 101, Ottawa

Telephone: 613-745-2213

Project Ref: 21-2419

Quote #: City of Ottawa - 1010 Somerset St

PO #:

E-mail: ehergel@dillon.ca, mmcurdy@dillon.ca

Page 1 of 1

Turnaround Time

☐ 1 day ☐ 3 day

☐ 2 day ☑ Regular

Date Required:

☒ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine

☐ Table 2 ☐ Ind/Comm ☒ Coarse

☒ Table 3 ☐ Agri/Other

☐ Table ___

For RSC: ☒ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO

☐ CCME ☐ MISA

☐ SU - Sani ☐ SU - Storm

Mun:

☐ Other:

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

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	SAR/EC	Na	Cl	CN	pH	Energetics, NO3, NH4
1	BH21-13 SS6 BKG012	S		4	21/09/13	10:15	X		X	X	X	X		X	X	X	X	X	X
2	BH21-15 SS5 ↕ .013	S		4	21/09/13	15:30	X		X	X	X	X		X	X	X	X	X	X
3	BH21-16 SS5 BKG014	S		4	21/09/13	12:42	X		X	X	X	X		X	X	X	X	X	X
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Elsa Hergel	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Elsa Hergel	Date/Time:	Date/Time: Sep 29 2021 16:27	Date/Time: Sep 30 2021
Date/Time: Sept. 29, 2021 / 16:00	Temperature: °C	Temperature: 8.6 °C	pH Verified: ☐ By: NA

Chain of Custody (Env) xlsx

Revision 4.0

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Subcontracted Analysis

Dillon Consulting Ltd. (Ottawa)
177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Elsa Hergel

Tel: (613) 745-2213
Fax: (613) 745-3491

Paracel Report No.	**2140497**
Client Project(s):	**21-2419/1010 Somerset St**
Client PO:	
Reference:	**City of Ottawa RFSO 26519-98891-S01- 2019-2022**
CoC Number:	**133746**

Order Date:	30-Sep-21
Report Date:	15-Oct-21

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2140497-01	BH21-13 SS6	Energetics
2140497-02	BH21-15 SS5	Energetics
2140497-03	BH21-16 SS5	Energetics

PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
ATTN: Mark Foto
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8

Date Received: 04-OCT-21
Report Date: 15-OCT-21 13:30 (MT)
Version: FINAL

Client Phone: 613-731-9577

Certificate of Analysis

Lab Work Order #: L2647712

Project P.O. #: NOT SUBMITTED
Job Reference: 2140497
C of C Numbers:
Legal Site Desc:

Costas Farassoglou
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647712-1 BH21-13 SS6 Sampled By: CLIENT on 13-SEP-21 @ 10:15 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
3,5-Dinitroaniline	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Nitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Nitroglycerin	<0.10		0.10	mg/kg	12-OCT-21	14-OCT-21	R5619417
2-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
3-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
4-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Octogen (HMX)	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	12-OCT-21	14-OCT-21	R5619417
Tetryl	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
L2647712-2 BH21-15 SS5 Sampled By: CLIENT on 13-SEP-21 @ 15:30 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
3,5-Dinitroaniline	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Nitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Nitroglycerin	<0.10		0.10	mg/kg	12-OCT-21	14-OCT-21	R5619417
2-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
3-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
4-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Octogen (HMX)	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	12-OCT-21	14-OCT-21	R5619417
Tetryl	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
L2647712-3 BH21-16 SS5 Sampled By: CLIENT on 13-SEP-21 @ 15:30 Matrix: SOIL							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647712-3 BH21-16 SS5 Sampled By: CLIENT on 13-SEP-21 @ 15:30 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
3,5-Dinitroaniline	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Nitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Nitroglycerin	<0.10		0.10	mg/kg	12-OCT-21	14-OCT-21	R5619417
2-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
3-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
4-Nitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Octogen (HMX)	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	12-OCT-21	14-OCT-21	R5619417
Tetryl	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	12-OCT-21	14-OCT-21	R5619417

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ENERGETICS-HPLC-WT	Soil	Energetics in Soils	SW846 8330A

Analytes are extracted from soil using acidified acetonitrile in a cooled ultrasonic bath. The extract undergoes solvent exchange and is analyzed by HPLC with UV detection.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2647712 Report Date: 15-OCT-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Soil**							
Batch	**R5619417**							
WG3635463-3	**DUP**	**WG3635463-5**						
Octogen (HMX)		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
Cyclonite (RDX)		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
1,3,5-Trinitrobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
1,3-Dinitrobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
Tetryl		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
Nitrobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
2,4,6-Trinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
4-Amino-2,6-Dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
2-Amino-4,6-dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
2,4-Dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
2,6-Dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
2-Nitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
3-Nitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
4-Nitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
3,5-Dinitroaniline		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	14-OCT-21
Nitroglycerin		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	14-OCT-21
Pentaerythritol tetranitrate (PETN)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	14-OCT-21
WG3635463-2	**LCS**							
Octogen (HMX)			99.0		%		70-130	14-OCT-21
Cyclonite (RDX)			91.3		%		70-130	14-OCT-21
1,3,5-Trinitrobenzene			108.7		%		70-130	14-OCT-21
1,3-Dinitrobenzene			107.2		%		70-130	14-OCT-21
Tetryl			94.8		%		70-130	14-OCT-21
Nitrobenzene			106.7		%		70-130	14-OCT-21
2,4,6-Trinitrotoluene			102.3		%		70-130	14-OCT-21
4-Amino-2,6-Dinitrotoluene			97.8		%		70-130	14-OCT-21
2-Amino-4,6-dinitrotoluene			108.8		%		70-130	14-OCT-21
2,4-Dinitrotoluene			104.6		%		70-130	14-OCT-21
2,6-Dinitrotoluene			106.5		%		70-130	14-OCT-21
2-Nitrotoluene			94.9		%		70-130	14-OCT-21
3-Nitrotoluene			97.1		%		70-130	14-OCT-21
4-Nitrotoluene			96.8		%		70-130	14-OCT-21
3,5-Dinitroaniline			103.8		%		70-130	14-OCT-21

Quality Control Report

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Soil**							
Batch R5619417								
WG3635463-2 LCS								
Nitroglycerin			123.4		%		70-130	14-OCT-21
Pentaerythritol tetranitrate (PETN)			105.6		%		70-130	14-OCT-21
WG3635463-1 MB								
Octogen (HMX)			<0.050		mg/kg		0.05	14-OCT-21
Cyclonite (RDX)			<0.050		mg/kg		0.05	14-OCT-21
1,3,5-Trinitrobenzene			<0.050		mg/kg		0.05	14-OCT-21
1,3-Dinitrobenzene			<0.050		mg/kg		0.05	14-OCT-21
Tetryl			<0.050		mg/kg		0.05	14-OCT-21
Nitrobenzene			<0.050		mg/kg		0.05	14-OCT-21
2,4,6-Trinitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
4-Amino-2,6-Dinitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
2-Amino-4,6-dinitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
2,4-Dinitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
2,6-Dinitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
2-Nitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
3-Nitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
4-Nitrotoluene			<0.050		mg/kg		0.05	14-OCT-21
3,5-Dinitroaniline			<0.050		mg/kg		0.05	14-OCT-21
Nitroglycerin			<0.10		mg/kg		0.1	14-OCT-21
Pentaerythritol tetranitrate (PETN)			<0.10		mg/kg		0.1	14-OCT-21
WG3635463-4 MS		**WG3635463-5**						
Octogen (HMX)			98.3		%		50-150	14-OCT-21
Cyclonite (RDX)			81.6		%		50-150	14-OCT-21
1,3,5-Trinitrobenzene			101.6		%		50-150	14-OCT-21
1,3-Dinitrobenzene			107.6		%		50-150	14-OCT-21
Tetryl			97.2		%		50-150	14-OCT-21
Nitrobenzene			114.3		%		50-150	14-OCT-21
2,4,6-Trinitrotoluene			106.2		%		50-150	14-OCT-21
4-Amino-2,6-Dinitrotoluene			100.0		%		50-150	14-OCT-21
2-Amino-4,6-dinitrotoluene			108.3		%		50-150	14-OCT-21
2,4-Dinitrotoluene			106.2		%		50-150	14-OCT-21
2,6-Dinitrotoluene			106.2		%		50-150	14-OCT-21
2-Nitrotoluene			105.2		%		50-150	14-OCT-21
3-Nitrotoluene			93.4		%		50-150	14-OCT-21

Quality Control Report

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Soil**							
Batch	**R5619417**							
WG3635463-4	**MS**	**WG3635463-5**						
4-Nitrotoluene			123.6		%		50-150	14-OCT-21
3,5-Dinitroaniline			104.1		%		50-150	14-OCT-21
Nitroglycerin			126.9		%		50-150	14-OCT-21
Pentaerythritol tetranitrate (PETN)			104.6		%		50-150	14-OCT-21

Quality Control Report

Workorder: L2647712 Report Date: 15-OCT-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L2647712 Report Date: 15-OCT-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Explosives							
Energetics in Soils							
	1	13-SEP-21 10:15	12-OCT-21 07:00	14	29	days	EHTR
	2	13-SEP-21 15:30	12-OCT-21 07:00	14	29	days	EHTR
	3	13-SEP-21 15:30	12-OCT-21 07:00	14	29	days	EHTR

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2647712 were received on 04-OCT-21 10:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

PARACEL LABORATORIES LTD.

TF
RI
RI



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

Subcontract Order

L2647712

SENDING LABORATORY:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577
Fax: 613-731-9064

RECEIVING LABORATORY:

ALS Laboratory Group (Waterloo)
60 Northland Drive, Unit 1
Waterloo, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047

INVOICE TO:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577
Fax: 613-731-9064

Date Requested: **30-Sep-21**
Project Number: **2140497**
Submitted By: **Donna Garner**

Required Regulation	Reg 153
Turnaround Time	Standard

Sample ID	Matrix	Analyses Requested:	Sampled	Comments
BH21-13 SS6	Soil	Energetics	13-Sep-21 10:15	
BH21-15 SS5	Soil	Energetics	13-Sep-21 15:30	
BH21-16 SS5	Soil	Energetics	13-Sep-21 15:30	

RECEIVED

proceed despite exceeding hold times

9.4°C
10:00

Please email all results to mfoto@paracellabs.com, dbloom@paracellabs.com, drobertson@paracellabs.com

Sonia Samuel Oct 1st 2021 14:00
Released By Date / Time

Received By Date

Temperature prior to Shipping: 3.0°C

PARACEL LABORATORIES LTD.

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

Certificate of Analysis

Dillon Consulting Ltd. (Ottawa)

177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Elsa Hergel

Client PO:
Project: 21-2419/1010 Somerset
Custody: 133745

Report Date: 15-Oct-2021
Order Date: 1-Oct-2021

Order #: 2140666

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

Paracel ID	Client ID
2140666-01	BH21-13 SS3
2140666-02	BH21-16 SS2
2140666-03	BH21-15 SS1
2140666-04	BH21-20 SS2
2140666-05	BH21-20 SS4
2140666-06	BH21-20 SS6
2140666-07	DUP 4
2140666-08	DUP 5
2140666-09	BH21-04 SS2
2140666-10	BH21-04 SS5
2140666-11	DUP 2
2140666-12	BH21-05 SS2
2140666-13	BH21-05 SS4
2140666-14	BH21-06 SS1
2140666-15	BH21-06 SS5
2140666-16	BH21-02 SS1
2140666-17	BH21-02 SS4
2140666-18	BH21-11 SS2
2140666-19	BH21-11 SS6
2140666-20	BH21-03 SS1
2140666-21	BH21-03 SS3
2140666-22	BH21-07 SS1
2140666-23	BH21-07 SS5
2140666-24	BH21-12 SS1
2140666-25	BH21-12 SS3
2140666-26	BH21-12 SS9
2140666-27	BH21-08 SS1
2140666-28	BH21-08 SS2
2140666-29	BH21-08 SS5
2140666-30	DUP 3

Approved By:



Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

2140666-31	BH21-14 SS1
2140666-32	BH21-14 SS3
2140666-33	BH21-01 SS2
2140666-34	BH21-01 SS6
2140666-35	BH21-01 S11
2140666-36	BH21-10 SS2
2140666-37	BH21-10 SS7
2140666-38	BH21-10 SS8
2140666-39	BH21-09 SS1
2140666-40	BH21-09 SS3
2140666-41	BH21-17 SS1
2140666-42	BH21-17 SS3
2140666-43	BH21-19 SS1
2140666-44	BH21-19 SS3

Certificate of Analysis

Report Date: 15-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Ammonia, as N	EPA 351.2 - Auto Colour	4-Oct-21	6-Oct-21
Anions	EPA 300.1 - IC, water extraction	8-Oct-21	14-Oct-21
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	4-Oct-21	4-Oct-21
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	2-Oct-21	6-Oct-21
Conductivity	MOE E3138 - probe @25 °C, water ext	6-Oct-21	8-Oct-21
Cyanide, free	MOE E3015 - Auto Colour, water extraction	2-Oct-21	6-Oct-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	8-Oct-21	12-Oct-21
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	6-Oct-21	6-Oct-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	6-Oct-21	8-Oct-21
PHC F1	CWS Tier 1 - P&T GC-FID	4-Oct-21	5-Oct-21
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	12-Oct-21	12-Oct-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	2-Oct-21	7-Oct-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	7-Oct-21	6-Oct-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	2-Oct-21	14-Oct-21
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	4-Oct-21	4-Oct-21
SAR	Calculated	6-Oct-21	7-Oct-21
Solids, %	Gravimetric, calculation	5-Oct-21	5-Oct-21

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-13 SS3	BH21-16 SS2	BH21-15 SS1	BH21-20 SS2
	Sample Date:	30-Sep-21 10:50	30-Sep-21 11:30	30-Sep-21 12:20	30-Sep-21 13:15
	Sample ID:	2140666-01	2140666-02	2140666-03	2140666-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	76.0	74.5	76.5	80.0
General Inorganics					
Ammonia as N	1 ug/g dry	5	6	6	4
SAR	0.01 N/A	0.51	0.68	1.05	1.93
Conductivity	5 uS/cm	303	538	632	387
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.45	7.50	10.32	7.50
Anions					
Chloride	5 ug/g dry	17	186	136	80
Nitrate as N	1 ug/g dry	<1	<1	4	<1
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.7	4.2	4.0	4.5
Barium	1.0 ug/g dry	129	295	233	208
Beryllium	0.5 ug/g dry	0.6	1.0	0.8	2.5
Boron	5.0 ug/g dry	5.8	7.4	8.0	7.6
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	34.2	118	85.3	56.9
Chromium (VI)	0.2 ug/g dry	<0.2	0.4	0.4	0.2
Cobalt	1.0 ug/g dry	9.5	22.8	16.7	15.0
Copper	5.0 ug/g dry	33.0	56.1	39.9	33.5
Lead	1.0 ug/g dry	19.0	13.4	49.3	18.8
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	1.2	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	22.2	65.7	44.6	33.5
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	2.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	529	1150	1180	1000
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	44.8	99.8	72.9	73.0
Zinc	20.0 ug/g dry	70.1	120	97.5	94.4
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-13 SS3	BH21-16 SS2	BH21-15 SS1	BH21-20 SS2
	Sample Date:	30-Sep-21 10:50	30-Sep-21 11:30	30-Sep-21 12:20	30-Sep-21 13:15
	Sample ID:	2140666-01	2140666-02	2140666-03	2140666-04
	MDL/Units	Soil	Soil	Soil	Soil
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	137%	141%	141%	137%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	17	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	15	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	0.04	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	0.03	<0.02	0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.06	<0.02	0.06	<0.02
Benzo [a] pyrene	0.02 ug/g dry	0.07	<0.02	0.06	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	0.13	<0.02	0.08	0.03
Benzo [g,h,i] perylene	0.02 ug/g dry	0.06	<0.02	0.04	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	0.05	<0.02	0.04	<0.02
Chrysene	0.02 ug/g dry	0.08	<0.02	0.08	0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.12	<0.02	0.15	0.04
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.06	<0.02	0.03	<0.02
1-Methylnaphthalene	0.02 ug/g dry	0.03	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	0.04	<0.02	0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	0.07	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	0.04	<0.01	0.01	0.02
Phenanthrene	0.02 ug/g dry	0.07	<0.02	0.09	0.02
Pyrene	0.02 ug/g dry	0.09	<0.02	0.12	0.03
2-Fluorobiphenyl	Surrogate	76.6%	61.5%	72.5%	66.6%
Terphenyl-d14	Surrogate	83.8%	90.8%	91.3%	63.0%

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-20 SS4	BH21-20 SS6	DUP 4	DUP 5
	Sample Date:	30-Sep-21 13:30	30-Sep-21 13:45	30-Sep-21 11:30	30-Sep-21 13:45
	Sample ID:	2140666-05	2140666-06	2140666-07	2140666-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	71.3	89.2	78.1	87.9
General Inorganics					
Ammonia as N	1 ug/g dry	4	1	4	<1
SAR	0.01 N/A	1.84	0.04	1.47	0.03
Conductivity	5 uS/cm	467	106	605	163
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.75	7.90	7.57	8.01
Anions					
Chloride	5 ug/g dry	153	12	300	15
Nitrate as N	1 ug/g dry	10	<1	<1	<1
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.6	1.5	4.4	1.5
Barium	1.0 ug/g dry	345	35.6	309	58.3
Beryllium	0.5 ug/g dry	0.9	<0.5	0.9	<0.5
Boron	5.0 ug/g dry	5.9	<5.0	7.1	5.9
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	72.6	7.7	126	9.9
Chromium (VI)	0.2 ug/g dry	0.3	<0.2	0.5	<0.2
Cobalt	1.0 ug/g dry	19.6	3.4	24.3	4.1
Copper	5.0 ug/g dry	38.9	8.7	56.5	7.6
Lead	1.0 ug/g dry	7.2	1.9	12.6	2.6
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	43.7	5.4	68.2	6.6
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	1560	<200	1170	<200
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	92.1	17.0	108	20.0
Zinc	20.0 ug/g dry	117	<20.0	130	<20.0
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-20 SS4	BH21-20 SS6	DUP 4	DUP 5
	Sample Date:	30-Sep-21 13:30	30-Sep-21 13:45	30-Sep-21 11:30	30-Sep-21 13:45
	Sample ID:	2140666-05	2140666-06	2140666-07	2140666-08
	MDL/Units	Soil	Soil	Soil	Soil
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	141%	130%	140%	131%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	55.3%	105%	72.0%	99.1%
Terphenyl-d14	Surrogate	56.7%	121%	84.3%	120%

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-04 SS2	BH21-04 SS5	DUP 2	BH21-05 SS2
	Sample Date:	20-Sep-21 10:20	20-Sep-21 10:20	20-Sep-21 10:50	21-Sep-21 13:29
	Sample ID:	2140666-09	2140666-10	2140666-11	2140666-12
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	78.2	69.4	67.8	97.3
General Inorganics					
SAR	0.01 N/A	0.21	0.25	0.23	2.62
Conductivity	5 uS/cm	344	592	636	422
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.66	7.80	7.73	7.98
Anions					
Chloride	5 ug/g dry	139	15	14	85
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.2	3.2	2.8	1.8
Barium	1.0 ug/g dry	106	311	293	45.3
Beryllium	0.5 ug/g dry	<0.5	0.8	0.8	<0.5
Boron	5.0 ug/g dry	<5.0	6.9	6.7	8.9
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	24.3	72.0	65.5	21.7
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	7.8	18.7	17.7	6.6
Copper	5.0 ug/g dry	15.2	37.5	34.7	13.7
Lead	1.0 ug/g dry	3.6	6.3	6.1	4.1
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	1.5	2.0	<1.0
Nickel	5.0 ug/g dry	14.9	40.9	37.9	13.8
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	497	1620	1550	555
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	1.2	1.4	<1.0
Vanadium	10.0 ug/g dry	41.5	92.5	86.6	40.7
Zinc	20.0 ug/g dry	41.0	112	105	28.9
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-04 SS2	BH21-04 SS5	DUP 2	BH21-05 SS2
	Sample Date:	20-Sep-21 10:20	20-Sep-21 10:20	20-Sep-21 10:50	21-Sep-21 13:29
	Sample ID:	2140666-09	2140666-10	2140666-11	2140666-12
	MDL/Units	Soil	Soil	Soil	Soil
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-04 SS2	BH21-04 SS5	DUP 2	BH21-05 SS2
	Sample Date:	20-Sep-21 10:20	20-Sep-21 10:20	20-Sep-21 10:50	21-Sep-21 13:29
	Sample ID:	2140666-09	2140666-10	2140666-11	2140666-12
	MDL/Units	Soil	Soil	Soil	Soil
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	89.4%	91.6%	96.9%	82.7%
Dibromofluoromethane	Surrogate	88.6%	88.4%	92.2%	73.7%
Toluene-d8	Surrogate	138%	141%	143%	125%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	74.9%	62.4%	56.2%	96.5%
Terphenyl-d14	Surrogate	99.0%	66.0%	54.7%	128%

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-05 SS4	BH21-06 SS1	BH21-06 SS5	BH21-02 SS1
	Sample Date:	21-Sep-21 13:45	21-Sep-21 11:16	21-Sep-21 11:53	21-Sep-21 14:40
	Sample ID:	2140666-13	2140666-14	2140666-15	2140666-16
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	72.5	75.5	66.2	74.2
General Inorganics					
SAR	0.01 N/A	2.04	14.8	0.21	9.00
Conductivity	5 uS/cm	1370	1790	970	1240
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.80	7.88	7.90	7.61
Anions					
Chloride	5 ug/g dry	691	1120	310	655
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	4.2	3.1	3.3	3.4
Barium	1.0 ug/g dry	182	388	244	403
Beryllium	0.5 ug/g dry	0.6	0.7	0.6	0.8
Boron	5.0 ug/g dry	7.1	<5.0	8.0	<5.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	39.1	93.7	64.7	118
Chromium (VI)	0.2 ug/g dry	<0.2	0.5	<0.2	0.5
Cobalt	1.0 ug/g dry	11.7	21.5	16.6	24.8
Copper	5.0 ug/g dry	22.0	51.7	31.6	58.1
Lead	1.0 ug/g dry	5.1	6.7	5.3	5.8
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	24.0	54.2	36.7	65.8
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	1040	2570	1330	2530
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	1.1	<1.0
Vanadium	10.0 ug/g dry	57.0	96.9	81.5	113
Zinc	20.0 ug/g dry	63.8	114	94.6	128
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-05 SS4	BH21-06 SS1	BH21-06 SS5	BH21-02 SS1
	Sample Date:	21-Sep-21 13:45	21-Sep-21 11:16	21-Sep-21 11:53	21-Sep-21 14:40
	Sample ID:	2140666-13	2140666-14	2140666-15	2140666-16
	MDL/Units	Soil	Soil	Soil	Soil
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-05 SS4	BH21-06 SS1	BH21-06 SS5	BH21-02 SS1
	Sample Date:	21-Sep-21 13:45	21-Sep-21 11:16	21-Sep-21 11:53	21-Sep-21 14:40
	Sample ID:	2140666-13	2140666-14	2140666-15	2140666-16
	MDL/Units	Soil	Soil	Soil	Soil
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	93.2%	89.6%	96.7%	90.8%
Dibromofluoromethane	Surrogate	94.0%	82.8%	97.0%	82.5%
Toluene-d8	Surrogate	143%	139%	147%	138%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	31	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	79	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	61.2%	75.1%	58.2%	72.5%
Terphenyl-d14	Surrogate	77.0%	87.2%	57.3%	87.1%

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-02 SS4	BH21-11 SS2	BH21-11 SS6	BH21-03 SS1
	Sample Date:	21-Sep-21 15:10	21-Sep-21 15:24	22-Sep-21 16:00	22-Sep-21 09:20
	Sample ID:	2140666-17	2140666-18	2140666-19	2140666-20
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	70.2	79.9	74.6	95.5
General Inorganics					
Ammonia as N	1 ug/g dry	-	3 [3]	1 [3]	-
SAR	0.01 N/A	1.16	12.2	6.70	0.10
Conductivity	5 uS/cm	744	1870	1390	187
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.78	7.95	7.65	7.88
Anions					
Chloride	5 ug/g dry	282	828	770	18
Nitrate as N	1 ug/g dry	-	2	5	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	1.2
Arsenic	1.0 ug/g dry	6.0	3.7	3.6	2.5
Barium	1.0 ug/g dry	216	195	381	76.0
Beryllium	0.5 ug/g dry	0.7	0.6	0.8	<0.5
Boron	5.0 ug/g dry	9.4	5.3	<5.0	<5.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	1.5
Chromium	5.0 ug/g dry	53.4	40.1	90.8	16.4
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	0.3	0.6
Cobalt	1.0 ug/g dry	14.9	11.2	21.9	3.5
Copper	5.0 ug/g dry	28.7	28.9	39.6	13.7
Lead	1.0 ug/g dry	6.2	15.6	6.1	96.8
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	1.2	<1.0	<1.0	1.1
Nickel	5.0 ug/g dry	31.4	23.1	49.8	8.3
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	1390	2290	2130	<200
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	1.1	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	75.5	57.9	101	18.2
Zinc	20.0 ug/g dry	89.8	65.6	118	94.8
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	<0.50
Benzene	0.02 ug/g dry	<0.02	-	-	<0.02

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-02 SS4	BH21-11 SS2	BH21-11 SS6	BH21-03 SS1
	Sample Date:	21-Sep-21 15:10	21-Sep-21 15:24	22-Sep-21 16:00	22-Sep-21 09:20
	Sample ID:	2140666-17	2140666-18	2140666-19	2140666-20
	MDL/Units	Soil	Soil	Soil	Soil
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	<0.05
Bromoform	0.05 ug/g dry	<0.05	-	-	<0.05
Bromomethane	0.05 ug/g dry	<0.05	-	-	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	<0.05
Chloroform	0.05 ug/g dry	<0.05	-	-	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	<0.05
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	-	-	<0.05
Hexane	0.05 ug/g dry	<0.05	-	-	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	<0.05
Styrene	0.05 ug/g dry	<0.05	-	-	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	<0.05
Toluene	0.05 ug/g dry	<0.05	-	-	0.15
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	-	-	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	-	-	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	-	-	<0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-02 SS4	BH21-11 SS2	BH21-11 SS6	BH21-03 SS1
	Sample Date:	21-Sep-21 15:10	21-Sep-21 15:24	22-Sep-21 16:00	22-Sep-21 09:20
	Sample ID:	2140666-17	2140666-18	2140666-19	2140666-20
	MDL/Units	Soil	Soil	Soil	Soil
Trichlorofluoromethane	0.05 ug/g dry	<0.05	-	-	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	-	-	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	0.16
o-Xylene	0.05 ug/g dry	<0.05	-	-	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	-	-	0.16
4-Bromofluorobenzene	Surrogate	93.0%	-	-	79.3%
Dibromofluoromethane	Surrogate	84.4%	-	-	76.8%
Toluene-d8	Surrogate	142%	-	-	125%
Benzene	0.02 ug/g dry	-	<0.02	<0.02	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Toluene	0.05 ug/g dry	-	<0.05	<0.05	-
m,p-Xylenes	0.05 ug/g dry	-	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	-	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	-	<0.05	<0.05	-
Toluene-d8	Surrogate	-	136%	138%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	112
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	308 [6]
F4G PHCs (gravimetric)	50 ug/g dry	-	-	-	209
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	0.24	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	0.26	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	0.58	<0.02	0.06
Benzo [a] pyrene	0.02 ug/g dry	<0.02	0.52	<0.02	0.07
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	0.52	<0.02	0.10
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	0.23	<0.02	0.07
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	0.33	<0.02	0.05
Chrysene	0.02 ug/g dry	<0.02	0.55	<0.02	0.07
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	0.09	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	1.18	<0.02	0.13
Fluorene	0.02 ug/g dry	<0.02	0.09	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	0.24	<0.02	0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-02 SS4	BH21-11 SS2	BH21-11 SS6	BH21-03 SS1
	Sample Date:	21-Sep-21 15:10	21-Sep-21 15:24	22-Sep-21 16:00	22-Sep-21 09:20
	Sample ID:	2140666-17	2140666-18	2140666-19	2140666-20
	MDL/Units	Soil	Soil	Soil	Soil
1-Methylnaphthalene	0.02 ug/g dry	<0.02	0.03	<0.02	0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	0.04	<0.02	0.03
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	0.07	<0.04	0.06
Naphthalene	0.01 ug/g dry	<0.01	0.03	<0.01	0.02
Phenanthrene	0.02 ug/g dry	<0.02	0.90	<0.02	0.07
Pyrene	0.02 ug/g dry	<0.02	0.94	<0.02	0.11
2-Fluorobiphenyl	Surrogate	60.9%	87.7%	70.1%	100%
Terphenyl-d14	Surrogate	74.7%	113%	86.1%	117%

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-03 SS3	BH21-07 SS1	BH21-07 SS5	BH21-12 SS1
	Sample Date:	22-Sep-21 09:35	22-Sep-21 10:28	22-Sep-21 10:48	22-Sep-21 11:36
	Sample ID:	2140666-21	2140666-22	2140666-23	2140666-24
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	81.5	89.8	66.5	94.0
General Inorganics					
Ammonia as N	1 ug/g dry	-	-	-	<1 [3]
SAR	0.01 N/A	6.03	12.9	19.6	5.68
Conductivity	5 uS/cm	803	1820	5570	1510
Cyanide, free	0.03 ug/g dry	<0.03	-	<0.03	<0.03
Cyanide, free	0.03 ug/g dry	-	<0.03 [3]	-	-
pH	0.05 pH Units	7.63	8.17	7.69	9.41
Anions					
Chloride	5 ug/g dry	192	611	3800	362
Nitrate as N	1 ug/g dry	-	-	-	3
Metals					
Antimony	1.0 ug/g dry	1.5	1.4	<1.0	<1.0
Arsenic	1.0 ug/g dry	4.3	15.3	4.2	1.9
Barium	1.0 ug/g dry	248	291	374	150
Beryllium	0.5 ug/g dry	0.8	1.0	0.9	<0.5
Boron	5.0 ug/g dry	<5.0	7.1	<5.0	19.9
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	76.3	67.7	84.1	13.9
Chromium (VI)	0.2 ug/g dry	0.3	<0.2	0.7	<0.2
Cobalt	1.0 ug/g dry	17.1	19.1	21.6	4.6
Copper	5.0 ug/g dry	60.7	81.1	49.3	11.1
Lead	1.0 ug/g dry	9.8	58.5	6.3	6.9
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	1.4	<1.0	<1.0
Nickel	5.0 ug/g dry	42.0	43.0	47.5	8.4
Selenium	1.0 ug/g dry	<1.0	1.3	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	1840	5010	5050	405
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	80.6	81.6	107	17.4
Zinc	20.0 ug/g dry	99.4	120	125	55.6
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-03 SS3	BH21-07 SS1	BH21-07 SS5	BH21-12 SS1
	Sample Date:	22-Sep-21 09:35	22-Sep-21 10:28	22-Sep-21 10:48	22-Sep-21 11:36
	Sample ID:	2140666-21	2140666-22	2140666-23	2140666-24
	MDL/Units	Soil	Soil	Soil	Soil
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-03 SS3	BH21-07 SS1	BH21-07 SS5	BH21-12 SS1
	Sample Date:	22-Sep-21 09:35	22-Sep-21 10:28	22-Sep-21 10:48	22-Sep-21 11:36
	Sample ID:	2140666-21	2140666-22	2140666-23	2140666-24
	MDL/Units	Soil	Soil	Soil	Soil
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	0.07	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	0.07	<0.05	-
4-Bromofluorobenzene	Surrogate	90.7%	84.6%	98.5%	-
Dibromofluoromethane	Surrogate	78.4%	75.4%	95.4%	-
Toluene-d8	Surrogate	135%	129%	149%	-
Benzene	0.02 ug/g dry	-	-	-	<0.02
Ethylbenzene	0.05 ug/g dry	-	-	-	<0.05
Toluene	0.05 ug/g dry	-	-	-	<0.05
m,p-Xylenes	0.05 ug/g dry	-	-	-	<0.05
o-Xylene	0.05 ug/g dry	-	-	-	<0.05
Xylenes, total	0.05 ug/g dry	-	-	-	<0.05
Toluene-d8	Surrogate	-	-	-	127%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	92	18	32	<8
F4 PHCs (C34-C50)	6 ug/g dry	173 [6]	7	8	<6
F4G PHCs (gravimetric)	50 ug/g dry	105	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	0.05	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	0.25	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	0.22	<0.02	0.04
Benzo [a] anthracene	0.02 ug/g dry	0.03	0.68	<0.02	0.12
Benzo [a] pyrene	0.02 ug/g dry	0.03	0.85	<0.02	0.13
Benzo [b] fluoranthene	0.02 ug/g dry	0.04	1.05	<0.02	0.16
Benzo [g,h,i] perylene	0.02 ug/g dry	0.03	0.54	<0.02	0.08
Benzo [k] fluoranthene	0.02 ug/g dry	0.02	0.55	<0.02	0.08
Chrysene	0.02 ug/g dry	0.04	0.70	<0.02	0.14
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	0.15	<0.02	0.02
Fluoranthene	0.02 ug/g dry	0.07	1.22	<0.02	0.27
Fluorene	0.02 ug/g dry	<0.02	0.04	<0.02	<0.02

Certificate of Analysis

Client: Dillon Consulting Ltd. (Ottawa)

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-03 SS3	BH21-07 SS1	BH21-07 SS5	BH21-12 SS1
	Sample Date:	22-Sep-21 09:35	22-Sep-21 10:28	22-Sep-21 10:48	22-Sep-21 11:36
	Sample ID:	2140666-21	2140666-22	2140666-23	2140666-24
	MDL/Units	Soil	Soil	Soil	Soil
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.02	0.53	<0.02	0.07
1-Methylnaphthalene	0.02 ug/g dry	0.05	0.10	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	0.07	0.11	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	0.12	0.21	<0.04	<0.04
Naphthalene	0.01 ug/g dry	0.06	0.12	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	0.05	0.55	<0.02	0.19
Pyrene	0.02 ug/g dry	0.06	1.04	<0.02	0.21
2-Fluorobiphenyl	Surrogate	58.8%	95.7%	52.5%	89.7%
Terphenyl-d14	Surrogate	56.5%	114%	54.1%	112%

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-12 SS3	BH21-12 SS9	BH21-08 SS1	BH21-08 SS2
	Sample Date:	22-Sep-21 11:36	22-Sep-21 13:10	23-Sep-21 10:05	23-Sep-21 10:15
	Sample ID:	2140666-25	2140666-26	2140666-27	2140666-28
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	72.4	85.9	88.0	97.9
General Inorganics					
Ammonia as N	1 ug/g dry	2 [3]	3 [3]	-	<1 [3]
SAR	0.01 N/A	1.30	0.14	10.3	-
Conductivity	5 uS/cm	767	240	1560	-
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	-
pH	0.05 pH Units	7.46	7.77	7.79	-
Anions					
Chloride	5 ug/g dry	510	10	739	-
Nitrate as N	1 ug/g dry	1	<1	-	<1
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	5.4	1.8	9.2	-
Barium	1.0 ug/g dry	209	71.7	120	-
Beryllium	0.5 ug/g dry	0.8	<0.5	1.2	-
Boron	5.0 ug/g dry	<5.0	<5.0	13.3	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	5.0 ug/g dry	53.8	15.3	39.1	-
Chromium (VI)	0.2 ug/g dry	0.3	<0.2	0.4	-
Cobalt	1.0 ug/g dry	15.7	5.1	13.0	-
Copper	5.0 ug/g dry	31.5	10.4	21.1	-
Lead	1.0 ug/g dry	6.0	3.2	16.0	-
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	1.6	-
Nickel	5.0 ug/g dry	31.6	9.5	25.4	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Sodium	200 ug/g dry	1350	379	1950	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	<1.0	<1.0	1.3	-
Vanadium	10.0 ug/g dry	79.6	24.5	68.8	-
Zinc	20.0 ug/g dry	81.8	<20.0	65.2	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	0.06	-

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-12 SS3	BH21-12 SS9	BH21-08 SS1	BH21-08 SS2
	Sample Date:	22-Sep-21 11:36	22-Sep-21 13:10	23-Sep-21 10:05	23-Sep-21 10:15
	Sample ID:	2140666-25	2140666-26	2140666-27	2140666-28
	MDL/Units	Soil	Soil	Soil	Soil
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	0.09	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	0.09	-
Toluene-d8	Surrogate	139%	133%	131%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	40	<8	<8	-
F4 PHCs (C34-C50)	6 ug/g dry	47	<6	<6	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Fluorobiphenyl	Surrogate	53.0%	60.1%	59.3%	-
Terphenyl-d14	Surrogate	57.4%	83.1%	71.7%	-

Certificate of Analysis

Report Date: 15-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-08 SS5	DUP 3	BH21-14 SS1	BH21-14 SS3
	Sample Date:	23-Sep-21 10:40	23-Sep-21 10:40	24-Sep-21 09:35	24-Sep-21 09:53
	Sample ID:	2140666-29	2140666-30	2140666-31	2140666-32
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	76.1	76.7	85.2	68.6
General Inorganics					
Ammonia as N	1 ug/g dry	3 [3]	3 [3]	-	3 [3]
SAR	0.01 N/A	16.5	16.3	1.25	9.09
Conductivity	5 uS/cm	1740	1830	1240	1490
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.70	7.69	11.78	7.73
Anions					
Chloride	5 ug/g dry	1130	1120	219	784
Nitrate as N	1 ug/g dry	<1	<1	-	<1
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	4.8	5.6	2.4	3.7
Barium	1.0 ug/g dry	246	316	205	334
Beryllium	0.5 ug/g dry	0.8	1.0	<0.5	0.9
Boron	5.0 ug/g dry	<5.0	7.1	20.0	<5.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	65.5	69.1	18.9	76.6
Chromium (VI)	0.2 ug/g dry	0.2	0.3	1.9	0.4
Cobalt	1.0 ug/g dry	16.0	20.3	6.0	21.0
Copper	5.0 ug/g dry	32.6	38.5	15.2	39.7
Lead	1.0 ug/g dry	6.2	7.8	24.0	6.6
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	33.6	41.5	10.8	45.8
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	2150	2620	488	2690
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	77.7	91.2	22.5	99.6
Zinc	20.0 ug/g dry	86.3	109	116	115
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-08 SS5	DUP 3	BH21-14 SS1	BH21-14 SS3
	Sample Date:	23-Sep-21 10:40	23-Sep-21 10:40	24-Sep-21 09:35	24-Sep-21 09:53
	Sample ID:	2140666-29	2140666-30	2140666-31	2140666-32
	MDL/Units	Soil	Soil	Soil	Soil
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	138%	139%	133%	145%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	0.22	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	0.04	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	0.45	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	1.09	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.87	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	1.13	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	0.51	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.57	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	1.12	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	0.15	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	3.58	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	0.12	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	0.50	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.57	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.95	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	1.52	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	0.24	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	3.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	2.48	<0.02
2-Fluorobiphenyl	Surrogate	87.8%	59.2%	89.1%	52.4%
Terphenyl-d14	Surrogate	107%	72.9%	98.4%	51.4%

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-01 SS2	BH21-01 SS6	BH21-01 S11	BH21-10 SS2
	Sample Date:	24-Sep-21 12:34	24-Sep-21 13:30	28-Sep-21 10:16	29-Sep-21 09:15
	Sample ID:	2140666-33	2140666-34	2140666-35	2140666-36
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	96.2	71.1	91.0	90.2
General Inorganics					
SAR	0.01 N/A	0.10	0.25	0.10	1.16
Conductivity	5 uS/cm	124	518	169	279
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	8.40	7.87	8.03	7.71
Anions					
Chloride	5 ug/g dry	11	27	6	33
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.3	5.0	1.7	3.4
Barium	1.0 ug/g dry	46.4	192	63.4	88.3
Beryllium	0.5 ug/g dry	<0.5	0.7	<0.5	<0.5
Boron	5.0 ug/g dry	<5.0	<5.0	<5.0	<5.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	16.5	47.3	12.0	18.9
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.8 [1]
Cobalt	1.0 ug/g dry	6.3	13.6	4.5	6.7
Copper	5.0 ug/g dry	13.9	25.1	7.8	20.7
Lead	1.0 ug/g dry	3.1	5.0	2.6	10.8
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	1.2
Nickel	5.0 ug/g dry	11.3	27.5	7.5	12.8
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	0.3
Sodium	200 ug/g dry	230	1240	291	432
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	45.4	67.1	22.2	28.9
Zinc	20.0 ug/g dry	23.8	71.2	<20.0	116
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-01 SS2	BH21-01 SS6	BH21-01 S11	BH21-10 SS2
	Sample Date:	24-Sep-21 12:34	24-Sep-21 13:30	28-Sep-21 10:16	29-Sep-21 09:15
	Sample ID:	2140666-33	2140666-34	2140666-35	2140666-36
	MDL/Units	Soil	Soil	Soil	Soil
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-01 SS2	BH21-01 SS6	BH21-01 S11	BH21-10 SS2
	Sample Date:	24-Sep-21 12:34	24-Sep-21 13:30	28-Sep-21 10:16	29-Sep-21 09:15
	Sample ID:	2140666-33	2140666-34	2140666-35	2140666-36
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	80.4%	88.6%	81.8%	-
Dibromofluoromethane	Surrogate	66.9%	75.4%	67.0%	-
Toluene-d8	Surrogate	125%	142%	130%	-
Benzene	0.02 ug/g dry	-	-	-	<0.02
Ethylbenzene	0.05 ug/g dry	-	-	-	<0.05
Toluene	0.05 ug/g dry	-	-	-	<0.05
m,p-Xylenes	0.05 ug/g dry	-	-	-	<0.05
o-Xylene	0.05 ug/g dry	-	-	-	<0.05
Xylenes, total	0.05 ug/g dry	-	-	-	<0.05
Toluene-d8	Surrogate	-	-	-	130%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	58
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	49
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.07
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.06
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.16
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.21
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.24
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.14
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.12
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.16
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.04
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.25
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.13
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.11
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.23

Certificate of Analysis

Client: Dillon Consulting Ltd. (Ottawa)

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-01 SS2	BH21-01 SS6	BH21-01 S11	BH21-10 SS2
	Sample Date:	24-Sep-21 12:34	24-Sep-21 13:30	28-Sep-21 10:16	29-Sep-21 09:15
	Sample ID:	2140666-33	2140666-34	2140666-35	2140666-36
	MDL/Units	Soil	Soil	Soil	Soil
2-Fluorobiphenyl	Surrogate	67.1%	58.1%	79.1%	79.4%
Terphenyl-d14	Surrogate	94.2%	80.9%	106%	98.5%

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-10 SS7	BH21-10 SS8	BH21-09 SS1	BH21-09 SS3
	Sample Date:	29-Sep-21 09:55	29-Sep-21 10:10	23-Sep-21 11:36	23-Sep-21 11:50
	Sample ID:	2140666-37	2140666-38	2140666-39	2140666-40
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	84.0	93.6	95.0	94.8
General Inorganics					
Ammonia as N	1 ug/g dry	-	1	-	<1 [3]
SAR	0.01 N/A	4.11	2.87	14.8	8.04
Conductivity	5 uS/cm	473	397	2360	1050
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.92	7.81	7.76	7.83
Anions					
Chloride	5 ug/g dry	319	170	1050	527
Nitrate as N	1 ug/g dry	-	<1	-	3
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	1.8	<1.0
Arsenic	1.0 ug/g dry	2.7	2.2	2.3	3.3
Barium	1.0 ug/g dry	89.5	83.0	81.6	260
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	<5.0	5.6	5.5	7.6
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	20.3	14.9	18.6	20.8
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	7.3	5.3	4.3	6.3
Copper	5.0 ug/g dry	17.4	12.7	16.6	18.8
Lead	1.0 ug/g dry	4.5	3.2	42.0	6.1
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	12.8	10.7	9.7	12.8
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	0.7	<0.3
Sodium	200 ug/g dry	638	394	1420	885
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	1.3	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	33.1	24.9	16.0	39.5
Zinc	20.0 ug/g dry	22.4	<20.0	30.2	20.5
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-10 SS7	BH21-10 SS8	BH21-09 SS1	BH21-09 SS3
	Sample Date:	29-Sep-21 09:55	29-Sep-21 10:10	23-Sep-21 11:36	23-Sep-21 11:50
	Sample ID:	2140666-37	2140666-38	2140666-39	2140666-40
	MDL/Units	Soil	Soil	Soil	Soil
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	133%	127%	125%	127%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	113	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	93	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	0.05	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	0.17	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	0.50	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.46	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.51	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	0.28	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.27	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	0.43	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	0.09	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	1.00	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	0.05	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	0.28	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.04	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	0.08	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	0.10	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	0.64	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	0.78	<0.02
2-Fluorobiphenyl	Surrogate	62.3%	102%	82.4%	68.8%
Terphenyl-d14	Surrogate	83.9%	128%	99.5%	89.6%

Certificate of Analysis

Report Date: 15-Oct-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-17 SS1	BH21-17 SS3	BH21-19 SS1	BH21-19 SS3
	Sample Date:	23-Sep-21 14:38	24-Sep-21 14:55	23-Sep-21 15:40	23-Sep-21 15:59
	Sample ID:	2140666-41	2140666-42	2140666-43	2140666-44
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.3	75.0	87.8	67.0
General Inorganics					
Ammonia as N	1 ug/g dry	-	5 [3]	3 [3]	2 [3]
SAR	0.01 N/A	3.71	15.2	3.95	0.80
Conductivity	5 uS/cm	469	1950	2380	311
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	10.54	7.53	9.93	7.19
Anions					
Chloride	5 ug/g dry	39	968	303	34
Nitrate as N	1 ug/g dry	-	<1	5	16
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	5.2	5.6	1.9	4.0
Barium	1.0 ug/g dry	129	224	87.6	369
Beryllium	0.5 ug/g dry	0.5	0.7	<0.5	0.9
Boron	5.0 ug/g dry	<5.0	<5.0	7.4	<5.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	40.1	51.1	16.7	79.9
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	0.9	0.3
Cobalt	1.0 ug/g dry	11.5	14.7	4.8	21.2
Copper	5.0 ug/g dry	30.4	29.6	11.2	42.0
Lead	1.0 ug/g dry	22.3	5.7	13.6	6.4
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	1.2	<1.0	<1.0
Nickel	5.0 ug/g dry	24.9	30.4	9.9	46.1
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Sodium	200 ug/g dry	1060	1980	690	1340
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	1.1	<1.0	<1.0
Vanadium	10.0 ug/g dry	52.3	74.6	19.9	100
Zinc	20.0 ug/g dry	59.4	77.4	20.8	116
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 15-Oct-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 1-Oct-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	BH21-17 SS1	BH21-17 SS3	BH21-19 SS1	BH21-19 SS3
	Sample Date:	23-Sep-21 14:38	24-Sep-21 14:55	23-Sep-21 15:40	23-Sep-21 15:59
	Sample ID:	2140666-41	2140666-42	2140666-43	2140666-44
	MDL/Units	Soil	Soil	Soil	Soil
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	129%	138%	131%	144%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	39	<8	133	<8
F4 PHCs (C34-C50)	6 ug/g dry	171 [6]	<6	214	<6
F4G PHCs (gravimetric)	50 ug/g dry	613	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.40 [2]	<0.02	0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.40 [2]	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.40 [2]	<0.02	0.03	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.54	<0.02	0.06	<0.02
Benzo [a] pyrene	0.02 ug/g dry	0.51	<0.02	0.05	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	0.60	<0.02	0.09	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.40 [2]	<0.02	0.05	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.40 [2]	<0.02	0.04	<0.02
Chrysene	0.02 ug/g dry	0.49	<0.02	0.07	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.40 [2]	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.91	<0.02	0.16	<0.02
Fluorene	0.02 ug/g dry	<0.40 [2]	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.40 [2]	<0.02	0.04	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.40 [2]	<0.02	0.65	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.40 [2]	<0.02	1.19	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.80 [2]	<0.04	1.83	<0.04
Naphthalene	0.01 ug/g dry	<0.20 [2]	<0.01	0.27	<0.01
Phenanthrene	0.02 ug/g dry	<0.40 [2]	<0.02	0.23	<0.02
Pyrene	0.02 ug/g dry	0.76	<0.02	0.12	<0.02
2-Fluorobiphenyl	Surrogate	73.6%	88.0%	91.0%	73.0%
Terphenyl-d14	Surrogate	103%	91.2%	98.7%	70.8%

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	5	ug/g						
Nitrate as N	ND	1	ug/g						
General Inorganics									
Ammonia as N	ND	1	ug/g						
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
F4G PHCs (gravimetric)	ND	50	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Sodium	ND	200	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.08*		*ug/g*		*80.7*	*50-140*			
Surrogate: Terphenyl-d14	*1.25*		*ug/g*		*94.0*	*50-140*			
Volatiles									

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.25*		*ug/g*		*103*	*50-140*			
Surrogate: Dibromofluoromethane	*8.26*		*ug/g*		*103*	*50-140*			
Surrogate: Toluene-d8	*10.2*		*ug/g*		*128*	*50-140*			
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*10.2*		*ug/g*		*128*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	14.8	5	ug/g dry	16.8			12.7	20	
Nitrate as N	ND	1	ug/g dry	ND			NC	20	
General Inorganics									
Ammonia as N	3.2	1	ug/g dry	5.3			NC	35	
SAR	0.13	0.01	N/A	0.14			7.4	30	
Conductivity	108	5	uS/cm	106			1.9	5	
Cyanide, free	ND	0.03	ug/g dry	ND			NC	35	
pH	7.43	0.05	pH Units	7.45			0.3	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	3.7	1.0	ug/g dry	3.7			0.1	30	
Barium	119	1.0	ug/g dry	129			8.6	30	
Beryllium	0.7	0.5	ug/g dry	0.6			20.5	30	
Boron	5.9	5.0	ug/g dry	5.8			1.8	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	0.3	0.2	ug/g dry	0.3			10.5	35	
Chromium	31.4	5.0	ug/g dry	34.2			8.5	30	
Cobalt	8.8	1.0	ug/g dry	9.5			8.2	30	
Copper	30.1	5.0	ug/g dry	33.0			9.0	30	
Lead	16.5	1.0	ug/g dry	19.0			14.1	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	ND	1.0	ug/g dry	1.2			NC	30	
Nickel	20.7	5.0	ug/g dry	22.2			6.9	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Sodium	486	200	ug/g dry	529			8.5	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	43.2	10.0	ug/g dry	44.8			3.7	30	
Zinc	65.2	20.0	ug/g dry	70.1			7.3	30	
Physical Characteristics									
% Solids	78.9	0.1	% by Wt.	76.0			3.7	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Chrysene	ND	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Fluorene	ND	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
Naphthalene	ND	0.01	ug/g dry	ND			NC	40	
Phenanthrene	ND	0.02	ug/g dry	ND			NC	40	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Pyrene	ND	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.04*		*ug/g dry*		*56.5*	*50-140*			
Surrogate: Terphenyl-d14	*0.976*		*ug/g dry*		*53.2*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g dry	ND			NC	50	
Bromoform	ND	0.05	ug/g dry	ND			NC	50	
Bromomethane	ND	0.05	ug/g dry	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
Chloroform	ND	0.05	ug/g dry	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g dry	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g dry	ND			NC	50	
Hexane	ND	0.05	ug/g dry	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g dry	ND			NC	50	
Styrene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*9.57*		*ug/g dry*		*90.9*	*50-140*			
Surrogate: Dibromofluoromethane	*10.7*		*ug/g dry*		*101*	*50-140*			
Surrogate: Toluene-d8	*14.5*		*ug/g dry*		*138*	*50-140*			
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: Toluene-d8	*14.5*		*ug/g dry*		*138*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	112	5	ug/g	16.8	95.3	82-118			
Nitrate as N	10.9	1	ug/g	ND	109	68-132			
General Inorganics									
Ammonia as N	2.4	1	ug/g	ND	96.3	57-124			
Cyanide, free	0.303	0.03	ug/g	ND	82.1	70-130			
Hydrocarbons									
F1 PHCs (C6-C10)	198	7	ug/g	ND	99.1	80-120			
F2 PHCs (C10-C16)	110	4	ug/g	ND	104	60-140			
F3 PHCs (C16-C34)	284	8	ug/g	ND	110	60-140			
F4 PHCs (C34-C50)	171	6	ug/g	ND	105	60-140			
F4G PHCs (gravimetric)	810	50	ug/g	ND	81.0	80-120			
Metals									
Antimony	51.4	1.0	ug/g	ND	102	70-130			
Arsenic	57.0	1.0	ug/g	1.5	111	70-130			
Barium	104	1.0	ug/g	51.8	104	70-130			
Beryllium	53.0	0.5	ug/g	ND	105	70-130			
Boron	50.1	5.0	ug/g	ND	95.7	70-130			
Cadmium	51.9	0.5	ug/g	ND	104	70-130			
Chromium (VI)	0.2	0.2	ug/g	ND	80.5	70-130			
Chromium	69.8	5.0	ug/g	13.7	112	70-130			
Cobalt	58.3	1.0	ug/g	3.8	109	70-130			
Copper	65.4	5.0	ug/g	13.2	105	70-130			
Lead	58.7	1.0	ug/g	7.6	102	70-130			
Mercury	1.51	0.1	ug/g	ND	101	70-130			
Molybdenum	52.1	1.0	ug/g	ND	103	70-130			
Nickel	61.9	5.0	ug/g	8.9	106	70-130			
Selenium	51.8	1.0	ug/g	ND	103	70-130			
Silver	50.8	0.3	ug/g	ND	101	70-130			
Sodium	9790	200	ug/g	212	95.8	70-130			
Thallium	50.8	1.0	ug/g	ND	101	70-130			
Uranium	52.6	1.0	ug/g	ND	105	70-130			
Vanadium	75.3	10.0	ug/g	17.9	115	70-130			
Zinc	78.3	20.0	ug/g	28.1	101	70-130			
Semi-Volatiles									
Acenaphthene	0.150	0.02	ug/g	ND	65.3	50-140			
Acenaphthylene	0.129	0.02	ug/g	ND	56.3	50-140			
Anthracene	0.155	0.02	ug/g	ND	67.7	50-140			
Benzo [a] anthracene	0.131	0.02	ug/g	ND	57.1	50-140			
Benzo [a] pyrene	0.148	0.02	ug/g	ND	64.5	50-140			
Benzo [b] fluoranthene	0.172	0.02	ug/g	ND	75.1	50-140			
Benzo [g,h,i] perylene	0.152	0.02	ug/g	ND	66.1	50-140			
Benzo [k] fluoranthene	0.160	0.02	ug/g	ND	69.6	50-140			
Chrysene	0.172	0.02	ug/g	ND	75.0	50-140			
Dibenzo [a,h] anthracene	0.138	0.02	ug/g	ND	60.0	50-140			
Fluoranthene	0.139	0.02	ug/g	ND	60.6	50-140			
Fluorene	0.145	0.02	ug/g	ND	63.1	50-140			
Indeno [1,2,3-cd] pyrene	0.141	0.02	ug/g	ND	61.3	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1-Methylnaphthalene	0.158	0.02	ug/g	ND	68.6	50-140			
2-Methylnaphthalene	0.171	0.02	ug/g	ND	74.4	50-140			
Naphthalene	0.159	0.01	ug/g	ND	69.5	50-140			
Phenanthrene	0.158	0.02	ug/g	ND	69.0	50-140			
Pyrene	0.147	0.02	ug/g	ND	64.2	50-140			
Surrogate: 2-Fluorobiphenyl	*1.26*		*ug/g*		*68.6*	*50-140*			
Surrogate: Terphenyl-d14	*1.40*		*ug/g*		*76.1*	*50-140*			
Volatiles									
Acetone	10.1	0.50	ug/g	ND	101	50-140			
Benzene	3.99	0.02	ug/g	ND	99.7	60-130			
Bromodichloromethane	3.43	0.05	ug/g	ND	85.8	60-130			
Bromoform	3.58	0.05	ug/g	ND	89.5	60-130			
Bromomethane	3.78	0.05	ug/g	ND	94.4	50-140			
Carbon Tetrachloride	3.25	0.05	ug/g	ND	81.2	60-130			
Chlorobenzene	3.89	0.05	ug/g	ND	97.3	60-130			
Chloroform	3.77	0.05	ug/g	ND	94.1	60-130			
Dibromochloromethane	3.89	0.05	ug/g	ND	97.3	60-130			
Dichlorodifluoromethane	3.15	0.05	ug/g	ND	78.7	50-140			
1,2-Dichlorobenzene	3.20	0.05	ug/g	ND	79.9	60-130			
1,3-Dichlorobenzene	3.12	0.05	ug/g	ND	78.0	60-130			
1,4-Dichlorobenzene	3.05	0.05	ug/g	ND	76.3	60-130			
1,1-Dichloroethane	3.83	0.05	ug/g	ND	95.9	60-130			
1,2-Dichloroethane	3.70	0.05	ug/g	ND	92.6	60-130			
1,1-Dichloroethylene	4.23	0.05	ug/g	ND	106	60-130			
cis-1,2-Dichloroethylene	3.70	0.05	ug/g	ND	92.4	60-130			
trans-1,2-Dichloroethylene	3.85	0.05	ug/g	ND	96.2	60-130			
1,2-Dichloropropane	3.96	0.05	ug/g	ND	99.1	60-130			
cis-1,3-Dichloropropylene	2.84	0.05	ug/g	ND	71.0	60-130			
trans-1,3-Dichloropropylene	4.76	0.05	ug/g	ND	119	60-130			
Ethylbenzene	4.45	0.05	ug/g	ND	111	60-130			
Ethylene dibromide (dibromoethane, 1,2	4.29	0.05	ug/g	ND	107	60-130			
Hexane	4.58	0.05	ug/g	ND	114	60-130			
Methyl Ethyl Ketone (2-Butanone)	9.84	0.50	ug/g	ND	98.4	50-140			
Methyl Isobutyl Ketone	8.63	0.50	ug/g	ND	86.3	50-140			
Methyl tert-butyl ether	8.43	0.05	ug/g	ND	84.3	50-140			
Methylene Chloride	4.37	0.05	ug/g	ND	109	60-130			
Styrene	4.19	0.05	ug/g	ND	105	60-130			
1,1,1,2-Tetrachloroethane	3.48	0.05	ug/g	ND	87.1	60-130			
1,1,2,2-Tetrachloroethane	4.47	0.05	ug/g	ND	112	60-130			
Tetrachloroethylene	4.16	0.05	ug/g	ND	104	60-130			
Toluene	4.14	0.05	ug/g	ND	104	60-130			
1,1,1-Trichloroethane	3.19	0.05	ug/g	ND	79.9	60-130			
1,1,2-Trichloroethane	3.84	0.05	ug/g	ND	96.1	60-130			
Trichloroethylene	3.81	0.05	ug/g	ND	95.3	60-130			
Trichlorofluoromethane	3.89	0.05	ug/g	ND	97.3	50-140			
Vinyl chloride	3.69	0.02	ug/g	ND	92.2	50-140			
m,p-Xylenes	7.92	0.05	ug/g	ND	99.0	60-130			
o-Xylene	3.60	0.05	ug/g	ND	90.0	60-130			
Surrogate: 4-Bromofluorobenzene	*6.72*		*ug/g*		*84.0*	*50-140*			
Surrogate: Dibromofluoromethane	*7.91*		*ug/g*		*98.9*	*50-140*			

Certificate of Analysis

Client: Dillon Consulting Ltd. (Ottawa)

Client PO:

Report Date: 15-Oct-2021

Order Date: 1-Oct-2021

Project Description: 21-2419/1010 Somerset

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*8.44*		*ug/g*		*105*	*50-140*			
Benzene	3.99	0.02	ug/g	ND	99.7	60-130			
Ethylbenzene	4.45	0.05	ug/g	ND	111	60-130			
Toluene	4.14	0.05	ug/g	ND	104	60-130			
m,p-Xylenes	7.92	0.05	ug/g	ND	99.0	60-130			
o-Xylene	3.60	0.05	ug/g	ND	90.0	60-130			
Surrogate: Toluene-d8	*8.44*		*ug/g*		*105*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Sample - One or more parameter received past hold time - Ammonia

Applies to samples: BH21-08 SS2, BH21-08 SS5, DUP 3, BH21-14 SS3, BH21-09 SS3, BH21-17 SS3, BH21-19 SS1, BH21-19 SS3

Sample - One or more parameter received past hold time - Energetics, Ammonia

Applies to samples: BH21-11 SS2, BH21-11 SS6, BH21-12 SS1, BH21-12 SS3, BH21-12 SS9

Sample Qualifiers :

1 : Elevated Reporting Limit due to matrix interference.

2 : Elevated detection limits due to the nature of the sample matrix.

3 : Holding time had been exceeded upon receipt of the sample at the laboratory.

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

QC Qualifiers :

Sample Data Revisions

None

Work Order Revisions / Comments:

Other Report Notes:

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

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

CCME PHC additional information:

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

PARACEL LABORATORIES LTD.

Paracel ID: 2140666

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
666	№ 133745

Client Name: Dillon Consulting	Project Ref: 21-2419	Page 1 of 5
Contact Name: Elsa Hergel	Quote #: City of Ottawa, 1010 Somerset	Turnaround Time
Address: 177 Colonnade Rd S, Suite 101, Ottawa	PO #:	☐ 1 day ☐ 3 day
	E-mail: ehergel@dillon.ca, mmcurdy@dillon.ca	☐ 2 day ☒ Regular
Telephone: 613-745-2213		Date Required:

☒ REG 153/04 ☐ REG 406/19

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

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

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

Required Analysis

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	SAR/EC	Na + Cl	CN	pH	Energetics, NO3, NH4
1	BH21-13 SS3	BHg067	S		4	30/09/21	10:50	X		X	X	X	X		X	X	X	X	X
2	BH21-16 SS2	068	S		4	"	11:30	X		X	X	X	X		X	X	X	X	X
3	BH21-15 SS1	069	S		4	"	12:20	X		X	X	X	X		X	X	X	X	X
4	BH21-20 SS2	070	S		4	"	13:15	X		X	X	X	X		X	X	X	X	X
5	BH21-20 SS4	071	S		4	"	13:30	X		X	X	X	X		X	X	X	X	X
6	BH21-20 SS6	072	S		4	"	13:45	X		X	X	X	X		X	X	X	X	X
7	Dup 4	073	S		4	"	11:30	X		X	X	X	X		X	X	X	X	X
8	Dup 5	074	S		4	"	13:45	X		X	X	X	X		X	X	X	X	X
9	BH21-04 SS2	075	S		2	20/09/21	10:20	X	X	X	X	X	X		X	X	X	X	
10	BH21-04 SS5	076	S		2	"	10:50	X	X	X	X	X	X		X	X	X	X	

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Elsa Hergel	Received By Driver/Depot:	Received at Lab: [signature]	Verified By: [signature]
Relinquished By (Print): Elsa Hergel	Date/Time:	Date/Time: Oct 1 2021 16:10	Date/Time: Oct 1 2021 ~~5:23~~ 6:43
Date/Time: 2021/10/01 15:00	Temperature: °C	Temperature: 7.7 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD. | TRU RES REL

Paracel ID: 2140666

el Order Number
ab Use Only)

Chain Of Custody
(Lab Use Only)
№ 133742

Client Name: * See page 1/5	Project Ref:
Contact Name:	Quote #:
Address:	PO #:
Telephone:	E-mail:

Page 2 of 5

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

☐ REG 153/04 ☐ REG 406/19

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

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

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	SAR/EC	Na + Cl	CN	pH	Energetics, NO3, NH4
1	~~BH2~~ Dup 2	077	S		2	20/09/21	10:50	X	X	X	X	X	X		X	X	X	X	
2	BH21-05 SS2	078	S		2	21/09/21	13:29	X	X	X	X	X	X		X	X	X	X	
3	BH21-05 SS4	079	S		2	"	13:45	X	X	X	X	X	X		X	X	X	X	
4	BH21-06 SS1	080	S		2	"	11:16	X	X	X	X	X	X		X	X	X	X	
5	BH21-06 SS5	081	S		2	"	11:53	X	X	X	X	X	X		X	X	X	X	
6	BH21-02 SS1	082	S		2	21/09/21	14:40	X	X	X	X	X	X		X	X	X	X	
7	BH21-02 SS4	083	S		2	"	15:10	X	X	X	X	X	X		X	X	X	X	
8	BH21-11 SS2	084	S		4	22/09/21	15:24	X		X	X	X	X		X	X	X	X	X
9	BH21-11 SS6	085	S		4	"	16:00	X		X	X	X	X		X	X	X	X	X
10	BH21-03 SS1	086	S		2	22/09/21	9:20	X	X	X	X	X	X		X	X	X	X	

Comments:

Method of Delivery: DB

Relinquished By (Sign): Elsa Zugel	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Elsa Hergel	Date/Time:	Date/Time: Oct 1 2021 16:10	Date/Time: Oct 1 2021 6:43
Date/Time: 2021/10/01 15:00	Temperature: °C	Temperature: 7.7 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD. | TRUST RESPO RELIA

Paracel ID: 2140666

der Number
se Only)

Chain Of Custody
(Lab Use Only)
№ 133744

Client Name: * See page 1/5
Contact Name:
Address:
Telephone:

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

Page 3 of 5

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

☐ REG 153/04 ☐ REG 406/19
☐ Table 1 ☐ Res/Park ☐ Med/Fi
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☐ No

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

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

Required Analysis

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	SAR/EC	Na + Cl	CN	PH	Energetics, NO3, NH4
1	BH21-03-SS3	Big 087	S		2	22/09/21	9:35	X	X	X	X	X	X		X	X	X	X	
2	BH21-07 SS1	088	S		2	"	10:28	X	X	X	X	X	X		X	X	X	X	
3	BH21-07 SS5	089	S		2	"	10:48	X	X	X	X	X	X		X	X	X	X	
4	BH21-12 SS1	090	S		4	22/09/21	11:36	X		X	X	X	X		X	X	X	X	X
5	BH21-12 SS3	091	S		4	"	12:21	X		X	X	X	X		X	X	X	X	X
6	BH21-12 SS9	092	S		4	"	13:10	X		X	X	X	X		X	X	X	X	X
7	BH21-08 SS1	093	S		2	23/09/21	10:05	X		X	X	X	X		X	X	X	X	
8	BH21-08 SS2	094	S		2	"	10:15												X
9	BH21-08 SS5	095	S		4	"	10:40	X		X	X	X	X		X	X	X	X	X
10	Dup 3	096	S		4	"	16:40	X		X	X	X	X		X	X	X	X	X

Comments:

Method of Delivery: DB

Relinquished By (Sign): Elsa Hergel	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Elsa Hergel	Date/Time:	Date/Time: Oct 1/2021 16:10	Date/Time: Oct 1/2021 6:43
Date/Time: 2021/10/01 15:00	Temperature: °C	Temperature: 7.7 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD.

TR
RE
RE

Paracel ID: 2140666

acel Order Number (Lab Use Only)

Chain Of Custody (Lab Use Only)

№ 133743

Client Name: * See Page 1/5

Contact Name:

Address:

Telephone:

Project Ref:

Quote #:

PO #:

E-mail:

Page 4 of 5

Turnaround Time

☐ 1 day ☐ 3 day

☐ 2 day ☒ Regular

Date Required:

☐ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine

☐ Table 2 ☐ Ind/Comm ☐ Coarse

☐ Table 3 ☐ Agri/Other

☐ Table

For RSC: ☐ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO

☐ CCME ☐ MISA

☐ SU - Sani ☐ SU - Storm

Mun:

☐ Other:

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

Required Analysis

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	SAR/EC	Na + Cl	CN	pH	Energetics, NO3, NH4	PFAS
1	BH21-14 SS1	DKG 097	S		2	24/09/21	9:35	X		X	X	X	X		X	X	X	X	~~X~~	EZ
2	BH21-14 SS3	098	S		4	"	9:53	X		X	X	X	X		X	X	X	X	X	
3	BH21-01 SS2	099	S		2	"	12:34	X	X	X	X	X	X		X	X	X	X		
4	BH21-01 SS6	100	S		2	"	13:30	X	X	X	X	X	X		X	X	X	X		
5	BH21-01 SS11	101	S		2	28/09/21	10:16	X	X	X	X	X	X		X	X	X	X		
6	BH21-10 SS2	102	S		2	29/09/21	9:15	X		X	X	X	X		X	X	X	X		
7	BH21-10 SS7	103	S		2	"	9:55	X		X	X	X	X		X	X	X	X		
8	BH21-10 SS8	104	S		3	"	10:10	X		X	X	X	X		X	X	X	X	X	
9	EB		W		3	21/09/21	9:00													X
10	Trip Blank		W		3	13/09/21	–		X											

Comments:

Method of Delivery: DB

Relinquished By (Sign): Else Zlugel	Received By Driver/Depot:	Received at Lab: C	Verified By: C
Relinquished By (Print): Else Hurgel	Date/Time:	Date/Time: OCT 1 2021 16:10	Date/Time: OCT 1 2021 6:43
Date/Time: 2021/10/01 15:00	Temperature: °C	Temperature: 7.7 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD. | T R R

Paracel ID: 2140666

Paracel Order Number (Lab Use Only)

Chain Of Custody (Lab Use Only)

№ 133741

Client Name: * See page 1/5

Contact Name:

Address:

Telephone:

Project Ref:

Quote #:

PO #:

E-mail:

Page 5 of 5

Turnaround Time

☐ 1 day ☐ 3 day

☐ 2 day ☒ Regular

Date Required:

☐ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine

☐ Table 2 ☐ Ind/Comm ☐ Coarse

☐ Table 3 ☐ Agri/Other

☐ Table

For RSC: ☐ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO

☐ CCME ☐ MISA

☐ SU - Sani ☐ SU - Storm

Mun:

☐ Other:

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

Required Analysis

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	SAR/EC	Na + Cl	CN	pH	Energetics, NH4, NO3
1	BH21-09 SS1	BKG 105	S		2	23/09/21	11:36	X		X	X	X	X		X	X	X	X	
2	BH21-09 SS3	106	S		3	11	11:50	X		X	X	X	X		X	X	X	X	X
3	BH21-17 SS1	107	S		2	11	14:38	X		X	X	X	X		X	X	X	X	
4	BH21-17 SS3	108	S		4	24/09/21	14:55	X		X	X	X	X		X	X	X	X	X
5	BH21-19 SS1	109	S		3	23/09/21	15:40	X		X	X	X	X		X	X	X	X	X
6	BH21-19 SS3	110	S		4	11	15:59	X		X	X	X	X		X	X	X	X	X
7	TCLP		S		5	30/09/21	12:00		X	X	X								
8																			
9																			
10																			

Comments:

Method of Delivery: PB

Relinquished By (Sign): Elsa Hergel	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Elsa Hergel	Date/Time:	Date/Time: 16:10	Date/Time: Oct 1/21 6:53
Date/Time: 2021/10/01 15:00	Temperature: °C	Temperature: 7.7 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

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

Subcontracted Analysis

Dillon Consulting Ltd. (Ottawa)
177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Elsa Hergel

Tel: (613) 745-2213
Fax: (613) 745-3491

Paracel Report No. **2140666**
Client Project(s): **21-2419/1010 Somerset**
Client PO:
Reference: **City of Ottawa RFSO 26519-98891-S01- 2019-2022**
CoC Number: **133745**

Order Date: 01-Oct-21
Report Date: 9-Nov-21

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2140666-03	BH21-15 SS1	Energetics
2140666-04	BH21-20 SS2	Energetics
2140666-05	BH21-20 SS4	Energetics
2140666-06	BH21-20 SS6	Energetics
2140666-18	BH21-11 SS2	Energetics
2140666-19	BH21-11 SS6	Energetics
2140666-24	BH21-12 SS1	Energetics
2140666-25	BH21-12 SS3	Energetics
2140666-28	BH21-08 SS2	Energetics
2140666-29	BH21-08 SS5	Energetics
2140666-42	BH21-17 SS3	Energetics

PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
ATTN: Mark Foto
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8

Date Received: 04-OCT-21
Report Date: 05-NOV-21 15:10 (MT)
Version: FINAL

Client Phone: 613-731-9577

Certificate of Analysis

Lab Work Order #: L2647701

Project P.O. #: NOT SUBMITTED
Job Reference: 2140666
C of C Numbers:
Legal Site Desc:

Costas Farassoglou
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647701-3 BH21-15 SS1 Sampled By: CLIENT on 30-SEP-21 @ 12:20 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-4 BH21-20 SS2 Sampled By: CLIENT on 30-SEP-21 @ 13:15 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-5 BH21-20 SS4 Sampled By: CLIENT on 30-SEP-21 @ 13:30 Matrix: SOIL							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647701-5 BH21-20 SS4 Sampled By: CLIENT on 30-SEP-21 @ 13:30 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-6 BH21-20 SS6 Sampled By: CLIENT on 30-SEP-21 @ 13:45 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-9 BH21-11 SS2 Sampled By: CLIENT on 21-SEP-21 @ 15:24 Matrix: SOIL							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647701-9 BH21-11 SS2 Sampled By: CLIENT on 21-SEP-21 @ 15:24 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-10 BH21-11 SS6 Sampled By: CLIENT on 22-SEP-21 @ 16:00 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-11 BH21-12 SS1 Sampled By: CLIENT on 22-SEP-21 @ 11:36 Matrix: SOIL							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647701-11 BH21-12 SS1 Sampled By: CLIENT on 22-SEP-21 @ 11:36 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-12 BH21-12 SS3 Sampled By: CLIENT on 22-SEP-21 @ 11:36 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-14 BH21-08 SS2 Sampled By: CLIENT on 22-SEP-21 @ 10:15 Matrix: SOIL							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647701-14 BH21-08 SS2 Sampled By: CLIENT on 22-SEP-21 @ 10:15 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-15 BH21-08 SS5 Sampled By: CLIENT on 23-SEP-21 @ 10:40 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
L2647701-20 BH21-17 SS3 Sampled By: CLIENT on 24-SEP-21 @ 14:55 Matrix: SOIL							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2647701-20 BH21-17 SS3 Sampled By: CLIENT on 24-SEP-21 @ 14:55 Matrix: SOIL							
Explosives							
Cyclonite (RDX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Amino-2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Amino-4,6-dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3,5-Dinitroaniline	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3-Dinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,6-Dinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Nitroglycerin	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
2-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
3-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
4-Nitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Octogen (HMX)	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
Pentaerythritol tetranitrate (PETN)	<0.10		0.10	mg/kg	02-NOV-21	04-NOV-21	R5636608
Tetryl	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
1,3,5-Trinitrobenzene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608
2,4,6-Trinitrotoluene	<0.050		0.050	mg/kg	02-NOV-21	04-NOV-21	R5636608

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ENERGETICS-HPLC-WT	Soil	Energetics in Soils	SW846 8330A

Analytes are extracted from soil using acidified acetonitrile in a cooled ultrasonic bath. The extract undergoes solvent exchange and is analyzed by HPLC with UV detection.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2647701 Report Date: 05-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Soil**							
Batch R5636608								
WG3650224-3 DUP		**WG3650224-5**						
Octogen (HMX)		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
Cyclonite (RDX)		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
1,3,5-Trinitrobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
1,3-Dinitrobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
Tetryl		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
Nitrobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
2,4,6-Trinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
4-Amino-2,6-Dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
2-Amino-4,6-dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
2,4-Dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
2,6-Dinitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
2-Nitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
3-Nitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
4-Nitrotoluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
3,5-Dinitroaniline		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	04-NOV-21
Nitroglycerin		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	04-NOV-21
Pentaerythritol tetranitrate (PETN)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	04-NOV-21
WG3650224-2 LCS								
Octogen (HMX)			92.4		%		70-130	03-NOV-21
Cyclonite (RDX)			101.0		%		70-130	03-NOV-21
1,3,5-Trinitrobenzene			96.7		%		70-130	03-NOV-21
1,3-Dinitrobenzene			98.8		%		70-130	03-NOV-21
Tetryl			92.6		%		70-130	03-NOV-21
Nitrobenzene			100.2		%		70-130	03-NOV-21
2,4,6-Trinitrotoluene			93.9		%		70-130	03-NOV-21
4-Amino-2,6-Dinitrotoluene			91.7		%		70-130	03-NOV-21
2-Amino-4,6-dinitrotoluene			100.3		%		70-130	03-NOV-21
2,4-Dinitrotoluene			96.9		%		70-130	03-NOV-21
2,6-Dinitrotoluene			93.5		%		70-130	03-NOV-21
2-Nitrotoluene			88.1		%		70-130	03-NOV-21
3-Nitrotoluene			94.0		%		70-130	03-NOV-21
4-Nitrotoluene			85.1		%		70-130	03-NOV-21
3,5-Dinitroaniline			94.3		%		70-130	03-NOV-21

Quality Control Report

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Soil**							
Batch R5636608								
WG3650224-2 LCS								
Nitroglycerin			113.3		%		70-130	03-NOV-21
Pentaerythritol tetranitrate (PETN)			104.8		%		70-130	03-NOV-21
WG3650224-1 MB								
Octogen (HMX)			<0.050		mg/kg		0.05	04-NOV-21
Cyclonite (RDX)			<0.050		mg/kg		0.05	04-NOV-21
1,3,5-Trinitrobenzene			<0.050		mg/kg		0.05	04-NOV-21
1,3-Dinitrobenzene			<0.050		mg/kg		0.05	04-NOV-21
Tetryl			<0.050		mg/kg		0.05	04-NOV-21
Nitrobenzene			<0.050		mg/kg		0.05	04-NOV-21
2,4,6-Trinitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
4-Amino-2,6-Dinitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
2-Amino-4,6-dinitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
2,4-Dinitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
2,6-Dinitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
2-Nitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
3-Nitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
4-Nitrotoluene			<0.050		mg/kg		0.05	04-NOV-21
3,5-Dinitroaniline			<0.050		mg/kg		0.05	04-NOV-21
Nitroglycerin			<0.10		mg/kg		0.1	04-NOV-21
Pentaerythritol tetranitrate (PETN)			<0.10		mg/kg		0.1	04-NOV-21
WG3650224-4 MS		**WG3650224-5**						
Octogen (HMX)			92.0		%		50-150	04-NOV-21
Cyclonite (RDX)			87.2		%		50-150	04-NOV-21
1,3,5-Trinitrobenzene			96.9		%		50-150	04-NOV-21
1,3-Dinitrobenzene			102.8		%		50-150	04-NOV-21
Tetryl			86.3		%		50-150	04-NOV-21
Nitrobenzene			105.0		%		50-150	04-NOV-21
2,4,6-Trinitrotoluene			96.8		%		50-150	04-NOV-21
4-Amino-2,6-Dinitrotoluene			97.8		%		50-150	04-NOV-21
2-Amino-4,6-dinitrotoluene			105.0		%		50-150	04-NOV-21
2,4-Dinitrotoluene			101.4		%		50-150	04-NOV-21
2,6-Dinitrotoluene			91.5		%		50-150	04-NOV-21
2-Nitrotoluene			88.8		%		50-150	04-NOV-21
3-Nitrotoluene			92.5		%		50-150	04-NOV-21

Quality Control Report

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Soil**							
Batch	**R5636608**							
WG3650224-4	**MS**	**WG3650224-5**						
4-Nitrotoluene			85.3		%		50-150	04-NOV-21
3,5-Dinitroaniline			100.2		%		50-150	04-NOV-21
Nitroglycerin			120.5		%		50-150	04-NOV-21
Pentaerythritol tetranitrate (PETN)			106.1		%		50-150	04-NOV-21

Quality Control Report

Workorder: L2647701 Report Date: 05-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L2647701 Report Date: 05-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Explosives							
Energetics in Soils							
	3	30-SEP-21 12:20	02-NOV-21 08:00	14	33	days	EHT
	4	30-SEP-21 13:15	02-NOV-21 08:00	14	33	days	EHT
	5	30-SEP-21 13:30	02-NOV-21 08:00	14	33	days	EHT
	6	30-SEP-21 13:45	02-NOV-21 08:00	14	33	days	EHT
	9	21-SEP-21 15:24	02-NOV-21 08:00	14	42	days	EHT
	10	22-SEP-21 16:00	02-NOV-21 08:00	14	41	days	EHT
	11	22-SEP-21 11:36	02-NOV-21 08:00	14	41	days	EHT
	12	22-SEP-21 11:36	02-NOV-21 08:00	14	41	days	EHT
	14	22-SEP-21 10:15	02-NOV-21 08:00	14	41	days	EHT
	15	23-SEP-21 10:40	02-NOV-21 08:00	14	40	days	EHT
	20	24-SEP-21 14:55	02-NOV-21 08:00	14	39	days	EHT

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2647701 were received on 04-OCT-21 13:45.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

PARACEL LABORATORIES LTD.

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

Subcontract Order

L2647701

SENDING LABORATORY:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577
Fax: 613-731-9064

RECEIVING LABORATORY:

ALS Laboratory Group (Waterloo)
60 Northland Drive, Unit 1

L2647701-COFC

INVOICE TO:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577
Fax: 613-731-9064

Date Requested: **01-Oct-21**
Project Number: **2140666**
Submitted By: **Patrick Gravel**

Required Regulation	
Turnaround Time	Standard

Sample ID	Matrix	Analyses Requested:	Sampled	Comments
BH21-13 SS3	Soil	Energetics	30-Sep-21 10:50	
BH21-16 SS2	Soil	Energetics	30-Sep-21 11:30	
BH21-15 SS1	Soil	Energetics	30-Sep-21 12:20	
BH21-20 SS2	Soil	Energetics	30-Sep-21 13:15	
BH21-20 SS4	Soil	Energetics	30-Sep-21 13:30	13:30
BH21-20 SS6	Soil	Energetics	30-Sep-21 13:45	1:45
DUP 4	Soil	Energetics	30-Sep-21 11:30	
DUP 5	Soil	Energetics	30-Sep-21 13:45	
BH21-11 SS2	Soil	Energetics	21-Sep-21 15:24	
BH21-11 SS6	Soil	Energetics	22-Sep-21 16:00	
BH21-12 SS1	Soil	Energetics	22-Sep-21 11:36	
BH21-12 SS3	Soil	Energetics	22-Sep-21 11:36	
BH21-12 SS9	Soil	Energetics	22-Sep-21 13:10	
BH21-08 SS2	Soil	Energetics	23-Sep-21 10:15	

Please email all results to mfoto@paracellabs.com, dbloom@paracellabs.com, drobertson@paracellabs.com

Released By — Date / Time: Oct 1/2021 16:45

Received By — Date

Temperature prior to Shipping: 9.4

PARACEL LABORATORIES LTD.

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

Sample ID	Matrix	Analyses Requested:	Sampled	Comments
BH21-08 SS5	Soil	Energetics	23-Sep-21 10:40	
DUP 3	Soil	Energetics	23-Sep-21 10:40	
BH21-14 SS3	Soil	Energetics	24-Sep-21 09:53	
BH21-10 SS8	Soil	Energetics	29-Sep-21 10:10	
BH21-09 SS3	Soil	Energetics	23-Sep-21 11:50	
BH21-17 SS3	Soil	Energetics	24-Sep-21 14:55	
BH21-19 SS1	Soil	Energetics	23-Sep-21 15:40	
BH21-19 SS3	Soil	Energetics	23-Sep-21 15:59	

L2647701-COFC

13.3°C
1:45

Please email all results to mfoto@paracellabs.com, dbloom@paracellabs.com, drobertson@paracellabs.com

Released By — Date / Time: OCT 4 2021 10:45

Received By — Date

Temperature prior to Shipping: 9.4

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

Subcontracted Analysis

Dillon Consulting Ltd. (Ottawa)
177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Terri Ng

Tel: (613) 745-2213
Fax: (613) 745-3491

Paracel Report No. **2144303**
Client Project(s): **21-2419/1010 Somerset**
Client PO:
Reference: **City of Ottawa RFSO 26519-98891-S01- 2019-2022**
CoC Number: **62608**

Order Date: 27-Oct-21
Report Date: 12-Nov-21

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2144303-02	MW21-14	Energetics
2144303-03	MW21-15	Energetics
2144303-04	MW21-12	Energetics

PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
ATTN: Mark Foto
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8

Date Received: 28-OCT-21
Report Date: 12-NOV-21 13:58 (MT)
Version: FINAL

Client Phone: 613-731-9577

Certificate of Analysis

Lab Work Order #: L2656735

Project P.O. #: NOT SUBMITTED
Job Reference: 2144303
C of C Numbers:
Legal Site Desc:

Costas Farassoglou
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2656735-1 MW21-14 Sampled By: CLIENT on 26-OCT-21 @ 13:35 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
3,5-Dinitroaniline	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
1,3-Dinitrobenzene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2,4-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2,6-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Nitrobenzene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Nitroglycerin	<0.50		0.50	ug/L	02-NOV-21	10-NOV-21	R5644478
2-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
3-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
4-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Octogen (HMX)	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	02-NOV-21	10-NOV-21	R5644478
Tetryl	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	02-NOV-21	10-NOV-21	R5644478
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
L2656735-2 MW21-15 Sampled By: CLIENT on 26-OCT-21 @ 16:20 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
3,5-Dinitroaniline	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
1,3-Dinitrobenzene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2,4-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2,6-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Nitrobenzene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Nitroglycerin	<0.50		0.50	ug/L	02-NOV-21	10-NOV-21	R5644478
2-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
3-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
4-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Octogen (HMX)	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	02-NOV-21	10-NOV-21	R5644478
Tetryl	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	02-NOV-21	10-NOV-21	R5644478
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
L2656735-3 MW21-12 Sampled By: CLIENT on 26-OCT-21 @ 15:30 Matrix: WATER							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2656735-3 MW21-12 Sampled By: CLIENT on 26-OCT-21 @ 15:30 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
3,5-Dinitroaniline	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
1,3-Dinitrobenzene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2,4-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
2,6-Dinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Nitrobenzene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Nitroglycerin	<0.50		0.50	ug/L	02-NOV-21	10-NOV-21	R5644478
2-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
3-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
4-Nitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Octogen (HMX)	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	02-NOV-21	10-NOV-21	R5644478
Tetryl	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	02-NOV-21	10-NOV-21	R5644478
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	02-NOV-21	10-NOV-21	R5644478

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ENERGETICS-HPLC-WT	Water	Energetics in Water	SW846 8330A

Analytes are extracted from solution using SPE (solid phase extraction). The analytes are eluted from the SPE cartridge, filtered and analyzed by HPLC with UV detection.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2656735 Report Date: 12-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Water**							
Batch	**R5644478**							
WG3650277-3	**DUP**	**L2656873-16**						
Octogen (HMX)		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
Cyclonite (RDX)		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
1,3,5-Trinitrobenzene		<0.40	<0.40	RPD-NA	ug/L	N/A	30	11-NOV-21
1,3-Dinitrobenzene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
Tetryl		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
Nitrobenzene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
2,4,6-Trinitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
4-Amino-2,6-Dinitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
2-Amino-4,6-dinitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
2,4-Dinitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
2,6-Dinitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
2-Nitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
3-Nitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
4-Nitrotoluene		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
3,5-Dinitroaniline		<0.25	<0.25	RPD-NA	ug/L	N/A	30	11-NOV-21
Nitroglycerin		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-NOV-21
Pentaerythritol tetranitrate (PETN)		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-NOV-21
WG3650277-2	**LCS**							
Octogen (HMX)			86.8		%		70-130	10-NOV-21
Cyclonite (RDX)			90.2		%		70-130	10-NOV-21
1,3,5-Trinitrobenzene			113.5		%		70-130	10-NOV-21
1,3-Dinitrobenzene			102.2		%		70-130	10-NOV-21
Tetryl			95.2		%		70-130	10-NOV-21
Nitrobenzene			101.8		%		70-130	10-NOV-21
2,4,6-Trinitrotoluene			96.0		%		70-130	10-NOV-21
4-Amino-2,6-Dinitrotoluene			89.3		%		70-130	10-NOV-21
2-Amino-4,6-dinitrotoluene			102.3		%		70-130	10-NOV-21
2,4-Dinitrotoluene			99.8		%		70-130	10-NOV-21
2,6-Dinitrotoluene			95.3		%		70-130	10-NOV-21
2-Nitrotoluene			92.1		%		70-130	10-NOV-21
3-Nitrotoluene			84.4		%		70-130	10-NOV-21
4-Nitrotoluene			85.7		%		70-130	10-NOV-21
3,5-Dinitroaniline			96.8		%		70-130	10-NOV-21

Quality Control Report

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Water**							
Batch	**R5644478**							
WG3650277-2	**LCS**							
Nitroglycerin			117.1		%		70-130	10-NOV-21
Pentaerythritol tetranitrate (PETN)			84.0		%		70-130	10-NOV-21
WG3650277-1	**MB**							
Octogen (HMX)			<0.25		ug/L		0.25	10-NOV-21
Cyclonite (RDX)			<0.25		ug/L		0.25	10-NOV-21
1,3,5-Trinitrobenzene			<0.40		ug/L		0.4	10-NOV-21
1,3-Dinitrobenzene			<0.25		ug/L		0.25	10-NOV-21
Tetryl			<0.25		ug/L		0.25	10-NOV-21
Nitrobenzene			<0.25		ug/L		0.25	10-NOV-21
2,4,6-Trinitrotoluene			<0.25		ug/L		0.25	10-NOV-21
4-Amino-2,6-Dinitrotoluene			<0.25		ug/L		0.25	10-NOV-21
2-Amino-4,6-dinitrotoluene			<0.25		ug/L		0.25	10-NOV-21
2,4-Dinitrotoluene			<0.25		ug/L		0.25	10-NOV-21
2,6-Dinitrotoluene			<0.25		ug/L		0.25	10-NOV-21
2-Nitrotoluene			<0.25		ug/L		0.25	10-NOV-21
3-Nitrotoluene			<0.25		ug/L		0.25	10-NOV-21
4-Nitrotoluene			<0.25		ug/L		0.25	10-NOV-21
3,5-Dinitroaniline			<0.25		ug/L		0.25	10-NOV-21
Nitroglycerin			<0.50		ug/L		0.5	10-NOV-21
Pentaerythritol tetranitrate (PETN)			<0.50		ug/L		0.5	10-NOV-21

Quality Control Report

Workorder: L2656735 Report Date: 12-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

PARACEL LABORATORIES LTD. | TRUSTED.

L2656735-COFC

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

RD

L2656735

Subcontract Order

SENDING LABORATORY:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577

Fax: 613-731-9064

RECEIVING LABORATORY:

ALS Laboratory Group (Waterloo)
60 Northland Drive, Unit 1
Waterloo, ON N2V 2B8
Phone: (519) 886-6910

Fax: (519) 886-9047

INVOICE TO:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577

Fax: 613-731-9064

Date Requested: **27-Oct-21**
Project Number: **2144303**
Submitted By: **Bernice Samuel**

Required Regulation	Reg 153/03
Turnaround Time	Standard

Sample ID	Matrix	Analyses Requested:	Sampled	Comments
MW21-14	Water	Energetics	26-Oct-21 13:35	
MW21-15	Water	Energetics	26-Oct-21 16:20	
MW21-12	Water	Energetics	26-Oct-21 15:30	

Please email all results to mfoto@paracellabs.com, dbloom@paracellabs.com, drobertson@paracellabs.com

Bernice Samuel Oct 27, 2021 14:30
Released By Date / Time

Received By 12/28/21 0900
Date

Temperature prior to Shipping: 7-8 °C

6.3

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

Certificate of Analysis

Dillon Consulting Ltd. (Ottawa)

177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Terri Ng

Client PO:
Project: 212419/1010 Somerset
Custody: 63023

Report Date: 10-Nov-2021
Order Date: 29-Oct-2021

Order #: 2144627

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

Paracel ID	Client ID
2144627-01	FB
2144627-02	TB
2144627-03	MW21-13
2144627-04	MW21-10S
2144627-05	MW21-20S
2144627-06	MW21-10D
2144627-07	MW21-02
2144627-08	MW21-18
2144627-09	MW19-11
2144627-10	DUP1
2144627-11	MW19-01
2144627-12	MW21-04S
2144627-13	MW21-01S
2144627-14	MW21-02

Approved By:



Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Report Date: 10-Nov-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Ammonia, as N	EPA 351.2 - Auto Colour	1-Nov-21	2-Nov-21
Anions	EPA 300.1 - IC	1-Nov-21	1-Nov-21
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	1-Nov-21	1-Nov-21
Chromium, hexavalent - water	MOE E3056 - colourimetric	1-Nov-21	1-Nov-21
Cyanide, free	MOE E3015 - Auto Colour	2-Nov-21	2-Nov-21
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	2-Nov-21	3-Nov-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	2-Nov-21	3-Nov-21
Perfluoroalkyl Acids	MOECC E3457 - LC-MS/MS	9-Nov-21	9-Nov-21
pH	EPA 150.1 - pH probe @25 °C	1-Nov-21	1-Nov-21
PHC F1	CWS Tier 1 - P&T GC-FID	1-Nov-21	1-Nov-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	4-Nov-21	5-Nov-21
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	3-Nov-21	4-Nov-21
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	1-Nov-21	1-Nov-21

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	FB	TB	MW21-13	MW21-10S
	Sample Date:	28-Oct-21 12:35	23-Oct-21 00:00	27-Oct-21 09:59	28-Oct-21 10:33
	Sample ID:	2144627-01	2144627-02	2144627-03	2144627-04
	MDL/Units	Water	Water	Water	Water
General Inorganics					
Ammonia as N	0.01 mg/L	-	-	-	0.33
Cyanide, free	2 ug/L	-	-	<2	<2
pH	0.1 pH Units	-	-	7.2	7.2
Anions					
Chloride	1 mg/L	-	-	398	495
Nitrate as N	0.1 mg/L	-	-	8.3	<0.1
Metals					
Mercury	0.1 ug/L	-	-	<0.1	<0.1
Antimony	0.5 ug/L	-	-	<0.5	<0.5
Arsenic	1 ug/L	-	-	<1	<1
Barium	1 ug/L	-	-	126	904
Beryllium	0.5 ug/L	-	-	<0.5	<0.5
Boron	10 ug/L	-	-	34	50
Cadmium	0.1 ug/L	-	-	<0.1	<0.1
Chromium	1 ug/L	-	-	2	<1
Chromium (VI)	10 ug/L	-	-	<10	<10
Cobalt	0.5 ug/L	-	-	0.6	<0.5
Copper	0.5 ug/L	-	-	0.7	0.7
Lead	0.1 ug/L	-	-	<0.1	<0.1
Molybdenum	0.5 ug/L	-	-	2.0	3.7
Nickel	1 ug/L	-	-	2	1
Selenium	1 ug/L	-	-	1	<1
Silver	0.1 ug/L	-	-	<0.1	<0.1
Sodium	200 ug/L	-	-	172000	165000
Thallium	0.1 ug/L	-	-	<0.1	<0.1
Uranium	0.1 ug/L	-	-	3.3	1.3
Vanadium	0.5 ug/L	-	-	1.8	<0.5
Zinc	5 ug/L	-	-	<5	<5
Volatiles					
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Client: Dillon Consulting Ltd. (Ottawa)

Client PO:

Report Date: 10-Nov-2021

Order Date: 29-Oct-2021

Project Description: 212419/1010 Somerset

	Client ID:	FB	TB	MW21-13	MW21-10S
	Sample Date:	28-Oct-21 12:35	23-Oct-21 00:00	27-Oct-21 09:59	28-Oct-21 10:33
	Sample ID:	2144627-01	2144627-02	2144627-03	2144627-04
	MDL/Units	Water	Water	Water	Water
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	FB	TB	MW21-13	MW21-10S
	Sample Date:	28-Oct-21 12:35	23-Oct-21 00:00	27-Oct-21 09:59	28-Oct-21 10:33
	Sample ID:	2144627-01	2144627-02	2144627-03	2144627-04
	MDL/Units	Water	Water	Water	Water
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	85.8%	85.5%	-	-
Dibromofluoromethane	Surrogate	98.2%	99.2%	-	-
Toluene-d8	Surrogate	89.4%	90.4%	-	-
Benzene	0.5 ug/L	-	-	<0.5	<0.5
Ethylbenzene	0.5 ug/L	-	-	<0.5	<0.5
Toluene	0.5 ug/L	-	-	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	-	-	<0.5	<0.5
o-Xylene	0.5 ug/L	-	-	<0.5	<0.5
Xylenes, total	0.5 ug/L	-	-	<0.5	<0.5
Toluene-d8	Surrogate	-	-	88.4%	86.4%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	-	-	<25	<25
F2 PHCs (C10-C16)	100 ug/L	-	-	<100	<100
F3 PHCs (C16-C34)	100 ug/L	-	-	<100	<100
F4 PHCs (C34-C50)	100 ug/L	-	-	<100	<100
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	-	<0.05	<0.05
Acenaphthylene	0.05 ug/L	-	-	<0.05	<0.05
Anthracene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [a] anthracene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [a] pyrene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [b] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	-	-	<0.05	<0.05
Benzo [k] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05
Chrysene	0.05 ug/L	-	-	<0.05	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	<0.05	<0.05
Fluoranthene	0.01 ug/L	-	-	<0.01	<0.01
Fluorene	0.05 ug/L	-	-	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	<0.05	<0.05
1-Methylnaphthalene	0.05 ug/L	-	-	<0.05	<0.05
2-Methylnaphthalene	0.05 ug/L	-	-	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	-	-	<0.10	<0.10
Naphthalene	0.05 ug/L	-	-	<0.05	<0.05
Phenanthrene	0.05 ug/L	-	-	<0.05	<0.05
Pyrene	0.01 ug/L	-	-	<0.01	<0.01
2-Fluorobiphenyl	Surrogate	-	-	100%	103%

Certificate of Analysis

Report Date: 10-Nov-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	FB	TB	MW21-13	MW21-10S
	Sample Date:	28-Oct-21 12:35	23-Oct-21 00:00	27-Oct-21 09:59	28-Oct-21 10:33
	Sample ID:	2144627-01	2144627-02	2144627-03	2144627-04
	MDL/Units	Water	Water	Water	Water
Terphenyl-d14	Surrogate	-	-	114%	118%
Perfluoroalkyl substances (PFAS)					
PFBA	0.02 ug/L	<0.02	<0.02	-	-
PFPeA	0.03 ug/L	<0.03	<0.03	-	-
PFHxA	0.08 ug/L	<0.08	<0.08	-	-
PFHpA	0.04 ug/L	<0.04	<0.04	-	-
PFOA	0.05 ug/L	<0.05	<0.05	-	-
PFNA	0.04 ug/L	<0.04	<0.04	-	-
PFDA	0.04 ug/L	<0.04	<0.04	-	-
PFUnA	0.04 ug/L	<0.04	<0.04	-	-
PFDoA	0.03 ug/L	<0.03	<0.03	-	-
PFOSA	0.01 ug/L	<0.01	<0.01	-	-
PFBS	0.04 ug/L	<0.04	<0.04	-	-
PFHxS	0.05 ug/L	<0.05	<0.05	-	-
PFOS	0.02 ug/L	<0.02	<0.02	-	-
PFDS	0.03 ug/L	<0.03	<0.03	-	-

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	MW21-20S	MW21-10D	MW21-02	MW21-18
	Sample Date:	27-Oct-21 13:50	27-Oct-21 16:52	27-Oct-21 12:00	27-Oct-21 12:35
	Sample ID:	2144627-05	2144627-06	2144627-07	2144627-08
	MDL/Units	Water	Water	Water	Water
General Inorganics					
Ammonia as N	0.01 mg/L	0.06	0.83	-	0.55
Cyanide, free	2 ug/L	<2	<2	-	<2
pH	0.1 pH Units	7.4	7.2	7.3	7.5
Anions					
Chloride	1 mg/L	67	701	297	104
Nitrate as N	0.1 mg/L	0.4	<0.1	-	<0.1
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	-	<0.1
Antimony	0.5 ug/L	<0.5	<0.5	-	<0.5
Arsenic	1 ug/L	<1	<1	-	<1
Barium	1 ug/L	111	825	-	194
Beryllium	0.5 ug/L	<0.5	<0.5	-	<0.5
Boron	10 ug/L	38	89	-	131
Cadmium	0.1 ug/L	<0.1	<0.1	-	<0.1
Chromium	1 ug/L	<1	<1	-	<1
Chromium (VI)	10 ug/L	<10	<10	-	<10
Cobalt	0.5 ug/L	<0.5	<0.5	-	<0.5
Copper	0.5 ug/L	<0.5	<0.5	-	<0.5
Lead	0.1 ug/L	<0.1	<0.1	-	<0.1
Molybdenum	0.5 ug/L	6.0	3.7	-	1.3
Nickel	1 ug/L	1	<1	-	<1
Selenium	1 ug/L	<1	<1	-	<1
Silver	0.1 ug/L	<0.1	<0.1	-	<0.1
Sodium	200 ug/L	23600	259000	-	35700
Thallium	0.1 ug/L	<0.1	<0.1	-	<0.1
Uranium	0.1 ug/L	0.5	3.4	-	0.2
Vanadium	0.5 ug/L	<0.5	<0.5	-	<0.5
Zinc	5 ug/L	<5	<5	-	<5
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	-	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	<0.5
Toluene	0.5 ug/L	<0.5	3.8	-	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	0.7	-	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	-	<0.5
Xylenes, total	0.5 ug/L	<0.5	0.7	-	<0.5

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 10-Nov-2021

Order Date: 29-Oct-2021

Project Description: 212419/1010 Somerset

	Client ID:	MW21-20S	MW21-10D	MW21-02	MW21-18
	Sample Date:	27-Oct-21 13:50	27-Oct-21 16:52	27-Oct-21 12:00	27-Oct-21 12:35
	Sample ID:	2144627-05	2144627-06	2144627-07	2144627-08
	MDL/Units	Water	Water	Water	Water
Toluene-d8	Surrogate	87.4%	88.0%	-	87.3%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	<100
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	-	<0.05
Acenaphthylene	0.05 ug/L	<0.05	<0.05	-	<0.05
Anthracene	0.01 ug/L	<0.01	<0.01	-	<0.01
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	-	<0.01
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	-	<0.01
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	-	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	-	<0.05
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	-	<0.05
Chrysene	0.05 ug/L	<0.05	<0.05	-	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	-	<0.05
Fluoranthene	0.01 ug/L	<0.01	<0.01	-	<0.01
Fluorene	0.05 ug/L	<0.05	<0.05	-	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	-	<0.05
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	<0.05
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	-	<0.10
Naphthalene	0.05 ug/L	<0.05	<0.05	-	<0.05
Phenanthrene	0.05 ug/L	<0.05	<0.05	-	<0.05
Pyrene	0.01 ug/L	<0.01	<0.01	-	<0.01
2-Fluorobiphenyl	Surrogate	100%	97.6%	-	95.2%
Terphenyl-d14	Surrogate	116%	114%	-	104%
Perfluoroalkyl substances (PFAS)					
PFBA	0.02 ug/L	<0.02	-	<0.02	<0.02
PFPeA	0.03 ug/L	<0.03	-	<0.03	<0.03
PFHxA	0.08 ug/L	<0.08	-	<0.08	<0.08
PFHpA	0.04 ug/L	<0.04	-	<0.04	<0.04
PFOA	0.05 ug/L	<0.05	-	<0.05	<0.05
PFNA	0.04 ug/L	<0.04	-	<0.04	<0.04

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	MW21-20S	MW21-10D	MW21-02	MW21-18
	Sample Date:	27-Oct-21 13:50	27-Oct-21 16:52	27-Oct-21 12:00	27-Oct-21 12:35
	Sample ID:	2144627-05	2144627-06	2144627-07	2144627-08
	MDL/Units	Water	Water	Water	Water
PFDA	0.04 ug/L	<0.04	-	<0.04	<0.04
PFUnA	0.04 ug/L	<0.04	-	<0.04	<0.04
PFDoA	0.03 ug/L	<0.03	-	<0.03	<0.03
PFOSA	0.01 ug/L	<0.01	-	<0.01	<0.01
PFBS	0.04 ug/L	<0.04	-	<0.04	<0.04
PFHxS	0.05 ug/L	<0.05	-	<0.05	<0.05
PFOS	0.02 ug/L	<0.02	-	<0.02	<0.02
PFDS	0.03 ug/L	<0.03	-	<0.03	<0.03

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	MW19-11	DUP1	MW19-01	MW21-04S
	Sample Date:	28-Oct-21 09:33	28-Oct-21 09:33	28-Oct-21 13:10	28-Oct-21 14:45
	Sample ID:	2144627-09	2144627-10	2144627-11	2144627-12
	MDL/Units	Water	Water	Water	Water
General Inorganics					
Ammonia as N	0.01 mg/L	0.49	0.60	-	-
Cyanide, free	2 ug/L	<2	<2	17	<2
pH	0.1 pH Units	7.4	7.4	7.4	7.5
Anions					
Chloride	1 mg/L	249	249	3760	82
Nitrate as N	0.1 mg/L	<0.1	<0.1	-	-
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Antimony	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Arsenic	1 ug/L	<1	<1	<1	<1
Barium	1 ug/L	91	89	205	160
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Boron	10 ug/L	123	119	59	94
Cadmium	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Chromium	1 ug/L	<1	<1	2	<1
Chromium (VI)	10 ug/L	<10	<10	<10	<10
Cobalt	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Copper	0.5 ug/L	<0.5	<0.5	4.4	0.7
Lead	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Molybdenum	0.5 ug/L	5.8	5.7	3.9	4.6
Nickel	1 ug/L	2	2	2	<1
Selenium	1 ug/L	<1	<1	<1	<1
Silver	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Sodium	200 ug/L	53300	53800	1890000	18800
Thallium	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Uranium	0.1 ug/L	0.1	0.1	3.9	3.3
Vanadium	0.5 ug/L	<0.5	<0.5	1.8	1.4
Zinc	5 ug/L	<5	<5	<5	<5
Volatiles					
cis-1,3-Dichloropropylene	0.5 ug/L	-	-	<0.5	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	-	-	<0.5	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	-	-	<0.5	<0.5
1,1,1-Trichloroethane	0.5 ug/L	-	-	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	-	-	<0.5	<0.5
1,1,2-Trichloroethane	0.5 ug/L	-	-	<0.5	<0.5

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 10-Nov-2021

Order Date: 29-Oct-2021

Project Description: 212419/1010 Somerset

	Client ID:	MW19-11	DUP1	MW19-01	MW21-04S
	Sample Date:	28-Oct-21 09:33	28-Oct-21 09:33	28-Oct-21 13:10	28-Oct-21 14:45
	Sample ID:	2144627-09	2144627-10	2144627-11	2144627-12
	MDL/Units	Water	Water	Water	Water
1,1-Dichloroethane	0.5 ug/L	-	-	<0.5	<0.5
1,1-Dichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	-	-	<0.2	<0.2
1,2-Dichlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
1,2-Dichloroethane	0.5 ug/L	-	-	<0.5	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
1,2-Dichloropropane	0.5 ug/L	-	-	<0.5	<0.5
1,3-Dichlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
1,3-Dichloropropene, total	0.5 ug/L	-	-	<0.5	<0.5
1,4-Dichlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
Acetone	5.0 ug/L	-	-	<5.0	<5.0
Benzene	0.5 ug/L	-	-	<0.5	<0.5
Bromodichloromethane	0.5 ug/L	-	-	<0.5	<0.5
Bromoform	0.5 ug/L	-	-	<0.5	<0.5
Bromomethane	0.5 ug/L	-	-	<0.5	<0.5
Carbon Tetrachloride	0.2 ug/L	-	-	<0.2	<0.2
Chlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
Dibromochloromethane	0.5 ug/L	-	-	<0.5	<0.5
Chloroform	0.5 ug/L	-	-	<0.5	<0.5
Dichlorodifluoromethane	1.0 ug/L	-	-	<1.0	<1.0
Methylene Chloride	5.0 ug/L	-	-	<5.0	<5.0
Ethylbenzene	0.5 ug/L	-	-	<0.5	<0.5
Hexane	1.0 ug/L	-	-	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	-	-	<5.0	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	-	-	<5.0	<5.0
Methyl tert-butyl ether	2.0 ug/L	-	-	<2.0	<2.0
Styrene	0.5 ug/L	-	-	<0.5	<0.5
Toluene	0.5 ug/L	-	-	<0.5	<0.5
Trichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
Tetrachloroethylene	0.5 ug/L	-	-	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	-	-	<1.0	<1.0
Vinyl chloride	0.5 ug/L	-	-	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	-	-	<0.5	<0.5
o-Xylene	0.5 ug/L	-	-	<0.5	<0.5

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	MW19-11	DUP1	MW19-01	MW21-04S
	Sample Date:	28-Oct-21 09:33	28-Oct-21 09:33	28-Oct-21 13:10	28-Oct-21 14:45
	Sample ID:	2144627-09	2144627-10	2144627-11	2144627-12
	MDL/Units	Water	Water	Water	Water
Xylenes, total	0.5 ug/L	-	-	<0.5	<0.5
4-Bromofluorobenzene	Surrogate	-	-	86.6%	87.5%
Dibromofluoromethane	Surrogate	-	-	101%	101%
Toluene-d8	Surrogate	-	-	90.3%	87.4%
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
Toluene-d8	Surrogate	87.8%	91.0%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Anthracene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Chrysene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Fluorene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Phenanthrene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	MW19-11	DUP1	MW19-01	MW21-04S
	Sample Date:	28-Oct-21 09:33	28-Oct-21 09:33	28-Oct-21 13:10	28-Oct-21 14:45
	Sample ID:	2144627-09	2144627-10	2144627-11	2144627-12
	MDL/Units	Water	Water	Water	Water
Pyrene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
2-Fluorobiphenyl	Surrogate	98.6%	96.2%	95.0%	90.8%
Terphenyl-d14	Surrogate	115%	111%	110%	103%
Perfluoroalkyl substances (PFAS)					
PFBA	0.02 ug/L	<0.02	<0.02	-	-
PFPeA	0.03 ug/L	<0.03	<0.03	-	-
PFHxA	0.08 ug/L	<0.08	<0.08	-	-
PFHpA	0.04 ug/L	<0.04	<0.04	-	-
PFOA	0.05 ug/L	<0.05	<0.05	-	-
PFNA	0.04 ug/L	<0.04	<0.04	-	-
PFDA	0.04 ug/L	<0.04	<0.04	-	-
PFUnA	0.04 ug/L	<0.04	<0.04	-	-
PFDoA	0.03 ug/L	<0.03	<0.03	-	-
PFOSA	0.01 ug/L	<0.01	<0.01	-	-
PFBS	0.04 ug/L	<0.04	<0.04	-	-
PFHxS	0.05 ug/L	<0.05	<0.05	-	-
PFOS	0.02 ug/L	<0.02	<0.02	-	-
PFDS	0.03 ug/L	<0.03	<0.03	-	-

Certificate of Analysis

Report Date: 10-Nov-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	MW21-01S	MW21-02	-	-
	Sample Date:	28-Oct-21 16:47	28-Oct-21 12:00	-	-
	Sample ID:	2144627-13	2144627-14	-	-
	MDL/Units	Water	Water	-	-
General Inorganics					
Cyanide, free	2 ug/L	<2	<2	-	-
pH	0.1 pH Units	7.7	-	-	-
Anions					
Chloride	1 mg/L	67	-	-	-
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	-	-
Antimony	0.5 ug/L	<0.5	<0.5	-	-
Arsenic	1 ug/L	1	<1	-	-
Barium	1 ug/L	483	195	-	-
Beryllium	0.5 ug/L	<0.5	<0.5	-	-
Boron	10 ug/L	170	38	-	-
Cadmium	0.1 ug/L	<0.1	<0.1	-	-
Chromium	1 ug/L	<1	<1	-	-
Chromium (VI)	10 ug/L	<10	<10	-	-
Cobalt	0.5 ug/L	<0.5	0.9	-	-
Copper	0.5 ug/L	0.5	1.5	-	-
Lead	0.1 ug/L	<0.1	<0.1	-	-
Molybdenum	0.5 ug/L	0.9	10.0	-	-
Nickel	1 ug/L	1	3	-	-
Selenium	1 ug/L	<1	<1	-	-
Silver	0.1 ug/L	<0.1	<0.1	-	-
Sodium	200 ug/L	27100	23500	-	-
Thallium	0.1 ug/L	<0.1	<0.1	-	-
Uranium	0.1 ug/L	0.5	4.7	-	-
Vanadium	0.5 ug/L	1.1	1.4	-	-
Zinc	5 ug/L	<5	<5	-	-
Volatiles					
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 10-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 29-Oct-2021

Client PO:

Project Description: 212419/1010 Somerset

	Client ID:	MW21-01S	MW21-02	-	-
	Sample Date:	28-Oct-21 16:47	28-Oct-21 12:00	-	-
	Sample ID:	2144627-13	2144627-14	-	-
	MDL/Units	Water	Water	-	-
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	<0.2	<0.2	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	90.1%	87.3%	-	-

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 10-Nov-2021

Order Date: 29-Oct-2021

Project Description: 212419/1010 Somerset

	Client ID:	MW21-01S	MW21-02	-	-
	Sample Date:	28-Oct-21 16:47	28-Oct-21 12:00	-	-
	Sample ID:	2144627-13	2144627-14	-	-
	MDL/Units	Water	Water	-	-
Dibromofluoromethane	Surrogate	105%	101%	-	-
Toluene-d8	Surrogate	88.6%	88.1%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	-	-	-
Acenaphthylene	0.05 ug/L	<0.05	-	-	-
Anthracene	0.01 ug/L	<0.01	-	-	-
Benzo [a] anthracene	0.01 ug/L	<0.01	-	-	-
Benzo [a] pyrene	0.01 ug/L	<0.01	-	-	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	-	-	-
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	-	-	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	-	-	-
Chrysene	0.05 ug/L	<0.05	-	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	-	-	-
Fluoranthene	0.01 ug/L	<0.01	-	-	-
Fluorene	0.05 ug/L	<0.05	-	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	-	-	-
1-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-
2-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	-	-	-
Naphthalene	0.05 ug/L	<0.05	-	-	-
Phenanthrene	0.05 ug/L	<0.05	-	-	-
Pyrene	0.01 ug/L	<0.01	-	-	-
2-Fluorobiphenyl	Surrogate	91.3%	-	-	-
Terphenyl-d14	Surrogate	108%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Nitrate as N	ND	0.1	mg/L						
General Inorganics									
Ammonia as N	ND	0.01	mg/L						
Cyanide, free	ND	2	ug/L						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Perfluoroalkyl substances (PFAS)									
PFBA	ND	0.02	ug/L						
PFPeA	ND	0.03	ug/L						
PFHxA	ND	0.08	ug/L						
PFHpA	ND	0.04	ug/L						
PFOA	ND	0.05	ug/L						
PFNA	ND	0.04	ug/L						
PFDA	ND	0.04	ug/L						
PFUnA	ND	0.04	ug/L						
PFDoA	ND	0.03	ug/L						
PFOSA	ND	0.01	ug/L						
PFBS	ND	0.04	ug/L						
PFHxS	ND	0.05	ug/L						
PFOS	ND	0.02	ug/L						
PFDS	ND	0.03	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*21.0*		*ug/L*		*105*	*50-140*			
Surrogate: Terphenyl-d14	*24.2*		*ug/L*		*121*	*50-140*			
Volatiles									
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Styrene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*67.2*		*ug/L*		*84.0*	*50-140*			
Surrogate: Dibromofluoromethane	*77.0*		*ug/L*		*96.3*	*50-140*			
Surrogate: Toluene-d8	*68.2*		*ug/L*		*85.3*	*50-140*			
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						

Certificate of Analysis

Client: Dillon Consulting Ltd. (Ottawa)

Client PO:

Report Date: 10-Nov-2021

Order Date: 29-Oct-2021

Project Description: 212419/1010 Somerset

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Toluene	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: Toluene-d8	*68.2*		*ug/L*		*85.3*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	110	1	mg/L	112			1.2	10	
Nitrate as N	0.75	0.1	mg/L	0.75			0.5	10	
General Inorganics									
Ammonia as N	0.471	0.01	mg/L	0.444			6.1	18	
Cyanide, free	ND	2	ug/L	ND			NC	20	
pH	7.4	0.1	pH Units	7.5			0.4	3.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	ND	1	ug/L	ND			NC	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	ND	10	ug/L	ND			NC	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	ND	0.5	ug/L	ND			NC	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	ND	200	ug/L	ND			NC	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	ND	5	ug/L	ND			NC	20	
Volatiles									
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*68.4*		*ug/L*		*85.5*	*50-140*			
Surrogate: Dibromofluoromethane	*81.6*		*ug/L*		*102*	*50-140*			
Surrogate: Toluene-d8	*71.6*		*ug/L*		*89.5*	*50-140*			
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*71.6*		*ug/L*		*89.5*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	120	1	mg/L	112	82.3	77-123			
Nitrate as N	1.78	0.1	mg/L	0.75	103	79-120			
General Inorganics									
Ammonia as N	0.711	0.01	mg/L	0.444	107	81-124			
Cyanide, free	27.4	2	ug/L	ND	91.4	70-130			
Hydrocarbons									
F1 PHCs (C6-C10)	1910	25	ug/L	ND	95.4	68-117			
F2 PHCs (C10-C16)	1400	100	ug/L	ND	87.4	60-140			
F3 PHCs (C16-C34)	3690	100	ug/L	ND	94.2	60-140			
F4 PHCs (C34-C50)	2420	100	ug/L	ND	97.7	60-140			
Metals									
Mercury	3.06	0.1	ug/L	ND	102	70-130			
Antimony	43.3	0.5	ug/L	ND	85.6	80-120			
Arsenic	46.3	1	ug/L	ND	92.4	80-120			
Barium	46.7	1	ug/L	ND	93.3	80-120			
Beryllium	48.3	0.5	ug/L	ND	96.6	80-120			
Boron	46	10	ug/L	ND	90.7	80-120			
Cadmium	46.6	0.1	ug/L	ND	93.3	80-120			
Chromium (VI)	206	10	ug/L	ND	103	70-130			
Chromium	46.8	1	ug/L	ND	93.6	80-120			
Cobalt	46.5	0.5	ug/L	ND	92.9	80-120			
Copper	46.1	0.5	ug/L	ND	92.1	80-120			
Lead	45.1	0.1	ug/L	ND	90.3	80-120			
Molybdenum	42.7	0.5	ug/L	ND	85.2	80-120			
Nickel	45.3	1	ug/L	ND	90.4	80-120			
Selenium	45.7	1	ug/L	ND	91.4	80-120			
Silver	47.1	0.1	ug/L	ND	94.3	80-120			
Sodium	8550	200	ug/L	ND	85.0	80-120			
Thallium	47.0	0.1	ug/L	ND	93.9	80-120			
Uranium	43.3	0.1	ug/L	ND	86.5	80-120			
Vanadium	47.2	0.5	ug/L	ND	94.4	80-120			
Zinc	48	5	ug/L	ND	93.5	80-120			
Perfluoroalkyl substances (PFAS)									
PFBA	0.23	0.02	ug/L	ND	114	50-150			
PFPeA	0.19	0.03	ug/L	ND	96.2	50-150			
PFHxA	0.18	0.08	ug/L	ND	90.2	50-150			
PFHpA	0.19	0.04	ug/L	ND	94.2	50-150			
PFOA	0.18	0.05	ug/L	ND	89.5	50-150			
PFNA	0.20	0.04	ug/L	ND	97.6	50-150			
PFDA	0.21	0.04	ug/L	ND	105	50-150			
PFUnA	0.18	0.04	ug/L	ND	91.4	50-150			
PFDoA	0.19	0.03	ug/L	ND	95.9	50-150			
PFOSA	0.20	0.01	ug/L	ND	98.6	50-150			
PFBS	0.18	0.04	ug/L	ND	92.5	50-150			
PFHxS	0.17	0.05	ug/L	ND	83.8	50-150			
PFOS	0.17	0.02	ug/L	ND	85.3	50-150			
PFDS	0.20	0.03	ug/L	ND	98.3	50-150			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	3.86	0.05	ug/L	ND	77.1	50-140			
Acenaphthylene	3.36	0.05	ug/L	ND	67.3	50-140			
Anthracene	3.66	0.01	ug/L	ND	73.3	50-140			
Benzo [a] anthracene	3.59	0.01	ug/L	ND	71.7	50-140			
Benzo [a] pyrene	4.39	0.01	ug/L	ND	87.8	50-140			
Benzo [b] fluoranthene	4.95	0.05	ug/L	ND	99.0	50-140			
Benzo [g,h,i] perylene	3.89	0.05	ug/L	ND	77.7	50-140			
Benzo [k] fluoranthene	4.60	0.05	ug/L	ND	92.0	50-140			
Chrysene	4.59	0.05	ug/L	ND	91.9	50-140			
Dibenzo [a,h] anthracene	4.35	0.05	ug/L	ND	87.1	50-140			
Fluoranthene	3.64	0.01	ug/L	ND	72.8	50-140			
Fluorene	4.01	0.05	ug/L	ND	80.3	50-140			
Indeno [1,2,3-cd] pyrene	4.25	0.05	ug/L	ND	84.9	50-140			
1-Methylnaphthalene	4.84	0.05	ug/L	ND	96.8	50-140			
2-Methylnaphthalene	5.16	0.05	ug/L	ND	103	50-140			
Naphthalene	4.12	0.05	ug/L	ND	82.5	50-140			
Phenanthrene	3.77	0.05	ug/L	ND	75.4	50-140			
Pyrene	3.76	0.01	ug/L	ND	75.2	50-140			
Surrogate: 2-Fluorobiphenyl	*21.2*		*ug/L*		*106*	*50-140*			
Surrogate: Terphenyl-d14	*22.7*		*ug/L*		*114*	*50-140*			
Volatiles									
cis-1,3-Dichloropropylene	38.8	0.5	ug/L	ND	96.9	60-130			
trans-1,3-Dichloropropylene	36.5	0.5	ug/L	ND	91.2	60-130			
1,1,1,2-Tetrachloroethane	36.5	0.5	ug/L	ND	91.2	60-130			
1,1,1-Trichloroethane	30.5	0.5	ug/L	ND	76.2	60-130			
1,1,2,2-Tetrachloroethane	32.3	0.5	ug/L	ND	80.8	60-130			
1,1,2-Trichloroethane	33.2	0.5	ug/L	ND	83.1	60-130			
1,1-Dichloroethane	33.5	0.5	ug/L	ND	83.7	60-130			
1,1-Dichloroethylene	39.1	0.5	ug/L	ND	97.7	60-130			
Ethylene dibromide (dibromoethane, 1,2-	39.5	0.2	ug/L	ND	98.8	60-130			
1,2-Dichlorobenzene	32.3	0.5	ug/L	ND	80.8	60-130			
1,2-Dichloroethane	33.7	0.5	ug/L	ND	84.3	60-130			
cis-1,2-Dichloroethylene	32.3	0.5	ug/L	ND	80.7	60-130			
trans-1,2-Dichloroethylene	33.7	0.5	ug/L	ND	84.2	60-130			
1,2-Dichloropropane	32.6	0.5	ug/L	ND	81.4	60-130			
1,3-Dichlorobenzene	32.7	0.5	ug/L	ND	81.8	60-130			
1,4-Dichlorobenzene	31.6	0.5	ug/L	ND	78.9	60-130			
Acetone	84.7	5.0	ug/L	ND	84.7	50-140			
Benzene	34.6	0.5	ug/L	ND	86.5	60-130			
Bromodichloromethane	30.1	0.5	ug/L	ND	75.2	60-130			
Bromoform	43.1	0.5	ug/L	ND	108	60-130			
Bromomethane	34.3	0.5	ug/L	ND	85.8	50-140			
Carbon Tetrachloride	29.7	0.2	ug/L	ND	74.3	60-130			
Chlorobenzene	39.8	0.5	ug/L	ND	99.5	60-130			
Dibromochloromethane	36.0	0.5	ug/L	ND	89.9	60-130			
Chloroform	34.6	0.5	ug/L	ND	86.4	60-130			
Dichlorodifluoromethane	40.6	1.0	ug/L	ND	101	50-140			
Methylene Chloride	34.2	5.0	ug/L	ND	85.4	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylbenzene	35.1	0.5	ug/L	ND	87.8	60-130			
Hexane	39.8	1.0	ug/L	ND	99.5	60-130			
Methyl Ethyl Ketone (2-Butanone)	80.9	5.0	ug/L	ND	80.9	50-140			
Methyl Isobutyl Ketone	79.8	5.0	ug/L	ND	79.8	50-140			
Methyl tert-butyl ether	79.4	2.0	ug/L	ND	79.4	50-140			
Styrene	42.6	0.5	ug/L	ND	106	60-130			
Toluene	40.5	0.5	ug/L	ND	101	60-130			
Trichloroethylene	39.6	0.5	ug/L	ND	99.1	60-130			
Tetrachloroethylene	39.7	0.5	ug/L	ND	99.2	60-130			
Trichlorofluoromethane	36.5	1.0	ug/L	ND	91.4	60-130			
Vinyl chloride	35.4	0.5	ug/L	ND	88.6	50-140			
m,p-Xylenes	63.6	0.5	ug/L	ND	79.4	60-130			
o-Xylene	40.6	0.5	ug/L	ND	102	60-130			
Surrogate: 4-Bromofluorobenzene	*58.4*		*ug/L*		*73.1*	*50-140*			
Surrogate: Dibromofluoromethane	*77.8*		*ug/L*		*97.2*	*50-140*			
Surrogate: Toluene-d8	*60.5*		*ug/L*		*75.6*	*50-140*			
Benzene	34.6	0.5	ug/L	ND	86.5	60-130			
Ethylbenzene	35.1	0.5	ug/L	ND	87.8	60-130			
Toluene	40.5	0.5	ug/L	ND	101	60-130			
m,p-Xylenes	63.6	0.5	ug/L	ND	79.4	60-130			
o-Xylene	40.6	0.5	ug/L	ND	102	60-130			
Surrogate: Toluene-d8	*60.5*		*ug/L*		*75.6*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Samples received submerged in water, possibly melted ice. This condition can compromise sample integrity.

Applies to samples: FB, TB, MW21-13, MW21-10S, MW21-20S, MW21-10D, MW21-02, MW21-18, MW19-11, DUP1, MW19-01, MW21-04S, MW21-01S

Sample Data Revisions

None

Work Order Revisions / Comments:

Samples were not stored in the cooler upon receiving and temperature was above 10 degree Celsiu

Sample MW21-02 included containers with with different sample dates which are reported as separate samples.

Other Report Notes:

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

CCME PHC additional information:

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

Paracel ID: 2144627

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Paracel Order Number (Lab Use Only): 2144627

Chain Of Custody (Lab Use Only) № 63023

Page 1 of 2

Client Name: Dillon Consulting	Project Ref: 212419
Contact Name: Terri Ng, Elsa Hergel	Quote #: City of Ottawa - 1010 Somerset
Address: 177 Colonnade Rd	PO #:
Telephone: 613 2923342	E-mail: tng@dillon.ca, ehergel@dillon.ca, mmccurdy@dillon.ca

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

Date Required:

☑ REG 153/04 ☐ REG 406/19

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

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

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

Required Analysis

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PFAS	NO3/NH4	Energetics	Reg 153 PAH	Reg 153 Btex/PHC	Reg 153 VOC/PHC	Reg 153 Metals/inorganics					
1	FB	BKG 382	GW		~~2~~ 4	10/28/21	12:35	✓		✓	✓	✓	✓	✓	*	PFAS	VOC FB		
2	TB	383	GW		~~1~~ 2	10/27/21	—	✓											
3	MW21-13	384	GW		12	10/27/21	09:59		✓	✓	✓	✓		✓					
4	MW21-10S	385	GW		12	10/28/21	10:33		✓	✓	✓	✓		✓					
5	MW21-20S	386	GW		14	10/27/21	13:50	✓	✓	✓	✓	✓		✓					
6	MW21-10D	387	GW		12	10/27/21	16:52		✓	✓	✓	✓		✓					
7	MW21-02	388	GW		11	10/27-28/21	12:00	✓			✓	✓	✓	✓					
8	MW21-18	389	GW		14	10/27/21	12:35	✓	✓	✓	✓	✓		✓					
9	MW19-11	390	GW		14	10/28/21	9:33	✓	✓	✓	✓	✓		✓					
10	Dup 1	391	GW		14	10/28/21	9:33	✓	✓	✓	✓	✓		✓					

Comments: mercury, metal, cr - field filtered

Method of Delivery: Drop Box

Relinquished By (Sign): [signature] Emily J. Barber	Received By Driver/Depot:	Received at Lab: [signature]	Verified By: [signature]
Relinquished By (Print): Terri Ng Emily Barber	Date/Time:	Date/Time: Oct 29 2021 1225	Date/Time: Oct 29, 2021 15:12
Date/Time: 15:00 29-Oct-21 11:30	Temperature: °C	Temperature: 7.4 °C	pH Verified: ☑ By: BS

Chain of Custody (Blank) xlsx

Revision 4.0

Paracel ID: 2144627

PARACE LABORATORIES L

Blvd. 4J8

bs.com

Paracel Order Number (Lab Use Only)

Chain Of Custody (Lab Use Only)

№ 63062

Client Name: DILLON CONSULTING.

Project Ref: 21-2419

Page 2 of 2

Contact Name: Terri Ng, Elsa Hergel.

Quote #: CITY OF OTTAWA - 1010 SOMERSET.

Address: 177 COLONNADE RD.

PO #:

E-mail: tng@dillon.ca; ehergel@dillon.ca; mmccurdy@dillon.ca.

Telephone: 613 292 3342.

Turnaround Time

☐ 1 day ☐ 3 day

☐ 2 day ☑ Regular

Date Required:

☑ REG 153/04 ☐ REG 406/19

Other Regulation

☐ Table 1 ☐ Res/Park ☐ Med/Fine

☐ Table 2 ☐ Ind/Comm ☐ Coarse

☑ Table 3 ☐ Agri/Other

☐ Table

For RSC: ☐ Yes ☐ No

☐ REG,558 ☐ PWQO

☐ CCME ☐ MISA

☐ SU - Sani ☐ SU - Storm

Mun:

☐ Other:

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

Required Analysis

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PFAS	NO_3/NH_4	Emergerics	Reg 153 PAH	Reg 153 BTEX/PHC	Reg 153 VOC/PHC	Reg 153 Metals/Inorganics	Turbidity
1	MW19-01	BRG-392	GW		9	10/28/21	13:10				/	/	/	/	
2	MW21-04S	393	GW		9	10/28/21	14:45				/	/	/	/	
3	MW21-~~02~~01S	394	GW		9	10/28/21	16:47				/	/	/	/	/
4															
5															
6															
7															
8															
9															
10															

Comments: Mercury, metals, Cr - field filtered. Returned one small empty cooler.

Method of Delivery: DAPBOT

Relinquished By (Sign): Emily J. Barber.	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Emily Barber.	Date/Time:	Date/Time: Oct 29/2021 1225	Date/Time: Oct 29, 2021 15:12
Date/Time: 29-Oct-21, 11:30.	Temperature: °C	Temperature: 7.4° °C	pH Verified: ☑ By: BS

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Subcontracted Analysis

Dillon Consulting Ltd. (Ottawa)
177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Terri Ng

Tel: (613) 745-2213
Fax: (613) 745-3491

Paracel Report No. **2144627**
Client Project(s): **212419/1010 Somerset**
Client PO:
Reference: **City of Ottawa RFSO 26519-98891-S01- 2019-2022**
CoC Number: **63023**

Order Date: 29-Oct-21
Report Date: 17-Nov-21

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2144627-03	MW21-13	Energetics
2144627-04	MW21-10S	Energetics
2144627-05	MW21-20S	Energetics
2144627-06	MW21-10D	Energetics
2144627-08	MW21-18	Energetics
2144627-09	MW19-11	Energetics
2144627-10	DUP1	Energetics

PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
ATTN: Mark Foto
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8

Date Received: 01-NOV-21
Report Date: 17-NOV-21 11:31 (MT)
Version: FINAL

Client Phone: 613-731-9577

Certificate of Analysis

Lab Work Order #: L2657900

Project P.O. #: NOT SUBMITTED
Job Reference: 2144627
C of C Numbers:
Legal Site Desc:

Costas Farassoglou
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2657900-1 MW21- 13 Sampled By: CLIENT on 27-OCT-21 @ 09:59 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
L2657900-2 MW21- 10S Sampled By: CLIENT on 28-OCT-21 @ 10:33 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
L2657900-3 MW21- 20S Sampled By: CLIENT on 27-OCT-21 @ 13:50 Matrix: WATER							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2657900-3 MW21- 20S Sampled By: CLIENT on 27-OCT-21 @ 13:50 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
L2657900-4 MW21- 10S Sampled By: CLIENT on 28-OCT-21 @ 16:52 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
L2657900-5 MW21- 18 Sampled By: CLIENT on 27-OCT-21 @ 12:35 Matrix: WATER							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2657900-5 MW21- 18 Sampled By: CLIENT on 27-OCT-21 @ 12:35 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
L2657900-6 MW19- 11 Sampled By: CLIENT on 28-OCT-21 @ 09:33 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
L2657900-7 DUP1 Sampled By: CLIENT on 26-OCT-21 @ 09:33 Matrix: WATER							
Explosives							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2657900-7 DUP1 Sampled By: CLIENT on 26-OCT-21 @ 09:33 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
2-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
4-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	15-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	15-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	15-NOV-21	R5651877

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ENERGETICS-HPLC-WT	Water	Energetics in Water	SW846 8330A

Analytes are extracted from solution using SPE (solid phase extraction). The analytes are eluted from the SPE cartridge, filtered and analyzed by HPLC with UV detection.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2657900 Report Date: 17-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Water**							
Batch	**R5651877**							
WG3653148-6	**LCS**							
Octogen (HMX)			73.5		%		70-130	15-NOV-21
Cyclonite (RDX)			88.4		%		70-130	15-NOV-21
1,3,5-Trinitrobenzene			118.2		%		70-130	15-NOV-21
1,3-Dinitrobenzene			103.4		%		70-130	15-NOV-21
Tetryl			95.9		%		70-130	15-NOV-21
Nitrobenzene			101.6		%		70-130	15-NOV-21
2,4,6-Trinitrotoluene			93.3		%		70-130	15-NOV-21
4-Amino-2,6-Dinitrotoluene			93.3		%		70-130	15-NOV-21
2-Amino-4,6-dinitrotoluene			106.7		%		70-130	15-NOV-21
2,4-Dinitrotoluene			97.5		%		70-130	15-NOV-21
2,6-Dinitrotoluene			93.8		%		70-130	15-NOV-21
2-Nitrotoluene			97.9		%		70-130	15-NOV-21
3-Nitrotoluene			88.3		%		70-130	15-NOV-21
4-Nitrotoluene			94.9		%		70-130	15-NOV-21
3,5-Dinitroaniline			96.2		%		70-130	15-NOV-21
Nitroglycerin			116.5		%		70-130	15-NOV-21
Pentaerythritol tetranitrate (PETN)			92.0		%		70-130	15-NOV-21
WG3653148-5	**MB**							
Octogen (HMX)			<0.25		ug/L		0.25	15-NOV-21
Cyclonite (RDX)			<0.25		ug/L		0.25	15-NOV-21
1,3,5-Trinitrobenzene			<0.40		ug/L		0.4	15-NOV-21
1,3-Dinitrobenzene			<0.25		ug/L		0.25	15-NOV-21
Tetryl			<0.25		ug/L		0.25	15-NOV-21
Nitrobenzene			<0.25		ug/L		0.25	15-NOV-21
2,4,6-Trinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
4-Amino-2,6-Dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2-Amino-4,6-dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2,4-Dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2,6-Dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2-Nitrotoluene			<0.25		ug/L		0.25	15-NOV-21
3-Nitrotoluene			<0.25		ug/L		0.25	15-NOV-21
4-Nitrotoluene			<0.25		ug/L		0.25	15-NOV-21
3,5-Dinitroaniline			<0.25		ug/L		0.25	15-NOV-21
Nitroglycerin			<0.50		ug/L		0.5	15-NOV-21

Quality Control Report

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Water**							
Batch R5651877								
WG3653148-5 MB								
Pentaerythritol tetranitrate (PETN)			<0.50		ug/L		0.5	15-NOV-21

Quality Control Report

Workorder: L2657900 Report Date: 17-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Quality Control Report

Workorder: L2657900 Report Date: 17-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Explosives							
Energetics in Water							
	1	27-OCT-21 09:59	05-NOV-21 13:39	7	9	days	EHT
	2	28-OCT-21 10:33	05-NOV-21 13:39	7	8	days	EHT
	3	27-OCT-21 13:50	05-NOV-21 13:39	7	9	days	EHT
	4	28-OCT-21 16:52	05-NOV-21 13:39	7	8	days	EHT
	5	27-OCT-21 12:35	05-NOV-21 13:39	7	9	days	EHT
	6	28-OCT-21 09:33	05-NOV-21 13:39	7	8	days	EHT
	7	26-OCT-21 09:33	05-NOV-21 13:39	7	10	days	EHTL

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2657900 were received on 01-NOV-21 10:30.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

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www.paracellabs.com

Certificate of Analysis

Dillon Consulting Ltd. (Ottawa)

177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Elsa Hergel

Client PO:
Project: 21-2419/1010 Somerset
Custody: 63215

Report Date: 11-Nov-2021
Order Date: 2-Nov-2021

Order #: 2145243

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

Paracel ID	Client ID
2145243-01	MW21-20D
2145243-02	MW21-01D
2145243-03	DUP2

Approved By:

Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Client: Dillon Consulting Ltd. (Ottawa)

Client PO:

Report Date: 11-Nov-2021

Order Date: 2-Nov-2021

Project Description: 21-2419/1010 Somerset

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Ammonia, as N	EPA 351.2 - Auto Colour	3-Nov-21	4-Nov-21
Anions	EPA 300.1 - IC	3-Nov-21	3-Nov-21
Chromium, hexavalent - water	MOE E3056 - colourimetric	5-Nov-21	5-Nov-21
Cyanide, free	MOE E3015 - Auto Colour	3-Nov-21	3-Nov-21
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	4-Nov-21	4-Nov-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	4-Nov-21	4-Nov-21
Perfluoroalkyl Acids	MOECC E3457 - LC-MS/MS	9-Nov-21	9-Nov-21
pH	EPA 150.1 - pH probe @25 °C	3-Nov-21	3-Nov-21
PHC F1	CWS Tier 1 - P&T GC-FID	3-Nov-21	3-Nov-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	9-Nov-21	10-Nov-21
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	9-Nov-21	11-Nov-21
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	3-Nov-21	3-Nov-21
Turbidity	SM 2130B - Turbidity meter	3-Nov-21	3-Nov-21

Certificate of Analysis

Report Date: 11-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 2-Nov-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	MW21-20D	MW21-01D	DUP2	-
	Sample Date:	01-Nov-21 14:05	01-Nov-21 15:17	01-Nov-21 15:17	-
	Sample ID:	2145243-01	2145243-02	2145243-03	-
	MDL/Units	Water	Water	Water	-
General Inorganics					
Ammonia as N	0.01 mg/L	0.46	-	-	-
Cyanide, free	2 ug/L	<2	<2	<2	-
pH	0.1 pH Units	8.0	8.2	8.2	-
Turbidity	0.1 NTU	334	-	-	-
Anions					
Chloride	1 mg/L	418	141	140	-
Metals					
Mercury	0.1 ug/L	-	<0.1	<0.1	-
Antimony	0.5 ug/L	-	<0.5	<0.5	-
Arsenic	1 ug/L	-	2	2	-
Barium	1 ug/L	-	1060	958	-
Beryllium	0.5 ug/L	-	<0.5	<0.5	-
Boron	10 ug/L	-	259	255	-
Cadmium	0.1 ug/L	-	<0.1	<0.1	-
Chromium	1 ug/L	-	<1	<1	-
Chromium (VI)	10 ug/L	-	<10	<10	-
Cobalt	0.5 ug/L	-	0.7	0.7	-
Copper	0.5 ug/L	-	1.4	0.7	-
Lead	0.1 ug/L	-	<0.1	<0.1	-
Molybdenum	0.5 ug/L	-	5.6	5.2	-
Nickel	1 ug/L	-	4	4	-
Selenium	1 ug/L	-	<1	<1	-
Silver	0.1 ug/L	-	<0.1	<0.1	-
Sodium	200 ug/L	380000	52000	51100	-
Thallium	0.1 ug/L	-	<0.1	<0.1	-
Uranium	0.1 ug/L	-	0.5	0.5	-
Vanadium	0.5 ug/L	-	1.3	1.3	-
Zinc	5 ug/L	-	<5	<5	-
Volatiles					
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-

Certificate of Analysis

Client: Dillon Consulting Ltd. (Ottawa)

Client PO:

Report Date: 11-Nov-2021

Order Date: 2-Nov-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	MW21-20D	MW21-01D	DUP2	-
	Sample Date:	01-Nov-21 14:05	01-Nov-21 15:17	01-Nov-21 15:17	-
	Sample ID:	2145243-01	2145243-02	2145243-03	-
	MDL/Units	Water	Water	Water	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	-
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	1.2	<0.5	<0.5	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 11-Nov-2021

Order Date: 2-Nov-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	MW21-20D	MW21-01D	DUP2	-
	Sample Date:	01-Nov-21 14:05	01-Nov-21 15:17	01-Nov-21 15:17	-
	Sample ID:	2145243-01	2145243-02	2145243-03	-
	MDL/Units	Water	Water	Water	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate	79.8%	83.3%	82.4%	-
Dibromofluoromethane	Surrogate	105%	105%	105%	-
Toluene-d8	Surrogate	85.6%	84.8%	86.5%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	<0.05	-
Acenaphthylene	0.05 ug/L	<0.05	<0.05	<0.05	-
Anthracene	0.01 ug/L	<0.01	<0.01	<0.01	-
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	<0.01	-
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	<0.01	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	-
Benzo [g,h,i] perylene	0.05 ug/L	0.08	<0.05	<0.05	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	-
Chrysene	0.05 ug/L	0.05	<0.05	<0.05	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	<0.05	-
Fluoranthene	0.01 ug/L	0.05	<0.01	<0.01	-
Fluorene	0.05 ug/L	<0.05	<0.05	<0.05	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	<0.05	-
1-Methylnaphthalene	0.05 ug/L	0.09	<0.05	<0.05	-
2-Methylnaphthalene	0.05 ug/L	0.39	<0.05	<0.05	-
Methylnaphthalene (1&2)	0.10 ug/L	0.49	<0.10	<0.10	-
Naphthalene	0.05 ug/L	1.95	<0.05	<0.05	-
Phenanthrene	0.05 ug/L	<0.05	<0.05	<0.05	-
Pyrene	0.01 ug/L	0.05	<0.01	<0.01	-
2-Fluorobiphenyl	Surrogate	78.6%	83.4%	89.3%	-
Terphenyl-d14	Surrogate	79.4%	113%	108%	-
Perfluoroalkyl substances (PFAS)					
PFBA	0.02 ug/L	<0.02	<0.02	<0.02	-
PFPeA	0.03 ug/L	<0.03	<0.03	<0.03	-
PFHxA	0.08 ug/L	<0.08	<0.08	<0.08	-
PFHpA	0.04 ug/L	<0.04	<0.04	<0.04	-
PFOA	0.05 ug/L	<0.05	<0.05	<0.05	-

Certificate of Analysis

Client: **Dillon Consulting Ltd. (Ottawa)**

Client PO:

Report Date: 11-Nov-2021

Order Date: 2-Nov-2021

Project Description: 21-2419/1010 Somerset

	Client ID:	MW21-20D	MW21-01D	DUP2	-
	Sample Date:	01-Nov-21 14:05	01-Nov-21 15:17	01-Nov-21 15:17	-
	Sample ID:	2145243-01	2145243-02	2145243-03	-
	MDL/Units	Water	Water	Water	-
PFNA	0.04 ug/L	<0.04	<0.04	<0.04	-
PFDA	0.04 ug/L	<0.04	<0.04	<0.04	-
PFUnA	0.04 ug/L	<0.04	<0.04	<0.04	-
PFDoA	0.03 ug/L	<0.03	<0.03	<0.03	-
PFOSA	0.01 ug/L	<0.01	<0.01	<0.01	-
PFBS	0.04 ug/L	<0.04	<0.04	<0.04	-
PFHxS	0.05 ug/L	<0.05	<0.05	<0.05	-
PFOS	0.02 ug/L	<0.02	<0.02	<0.02	-
PFDS	0.03 ug/L	<0.03	<0.03	<0.03	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
General Inorganics									
Ammonia as N	ND	0.01	mg/L						
Cyanide, free	ND	2	ug/L						
Turbidity	ND	0.1	NTU						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Perfluoroalkyl substances (PFAS)									
PFBA	ND	0.02	ug/L						
PFPeA	ND	0.03	ug/L						
PFHxA	ND	0.08	ug/L						
PFHpA	ND	0.04	ug/L						
PFOA	ND	0.05	ug/L						
PFNA	ND	0.04	ug/L						
PFDA	ND	0.04	ug/L						
PFUnA	ND	0.04	ug/L						
PFDoA	ND	0.03	ug/L						
PFOSA	ND	0.01	ug/L						
PFBS	ND	0.04	ug/L						
PFHxS	ND	0.05	ug/L						
PFOS	ND	0.02	ug/L						
PFDS	ND	0.03	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*18.0*		*ug/L*		*90.0*	*50-140*			
Surrogate: Terphenyl-d14	*21.1*		*ug/L*		*106*	*50-140*			
Volatiles									
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Styrene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*75.0*		*ug/L*		*93.7*	*50-140*			
Surrogate: Dibromofluoromethane	*78.3*		*ug/L*		*97.8*	*50-140*			
Surrogate: Toluene-d8	*67.7*		*ug/L*		*84.6*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	140	1	mg/L	140			0.1	10	
General Inorganics									
Ammonia as N	26.4	1.00	mg/L	24.9			5.7	18	
Cyanide, free	ND	2	ug/L	ND			NC	20	
pH	7.8	0.1	pH Units	7.8			0.3	3.3	
Turbidity	338	0.1	NTU	334			1.2	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	0.79	0.5	ug/L	ND			NC	20	
Arsenic	1.9	1	ug/L	2.0			1.8	20	
Barium	988	1	ug/L	1060			7.0	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	265	10	ug/L	259			2.4	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	0.71	0.5	ug/L	0.70			1.5	20	
Copper	1.37	0.5	ug/L	1.41			3.2	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	5.87	0.5	ug/L	5.64			3.9	20	
Nickel	3.8	1	ug/L	4.1			7.5	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	50800	200	ug/L	52000			2.3	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	0.5	0.1	ug/L	0.5			3.5	20	
Vanadium	1.26	0.5	ug/L	1.32			4.4	20	
Zinc	6	5	ug/L	ND			NC	20	
Volatiles									
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*66.8*		*ug/L*		*83.5*	*50-140*			
Surrogate: Dibromofluoromethane	*82.8*		*ug/L*		*104*	*50-140*			
Surrogate: Toluene-d8	*70.4*		*ug/L*		*88.1*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	149	1	mg/L	140	91.9	77-123			
General Inorganics									
Ammonia as N	0.273	0.01	mg/L	ND	109	81-124			
Cyanide, free	25.1	2	ug/L	ND	83.8	70-130			
Hydrocarbons									
F1 PHCs (C6-C10)	2040	25	ug/L	ND	102	68-117			
F2 PHCs (C10-C16)	1660	100	ug/L	ND	104	60-140			
F3 PHCs (C16-C34)	4210	100	ug/L	ND	107	60-140			
F4 PHCs (C34-C50)	2720	100	ug/L	ND	110	60-140			
Metals									
Mercury	3.17	0.1	ug/L	ND	106	70-130			
Antimony	48.8	0.5	ug/L	ND	96.8	80-120			
Arsenic	59.8	1	ug/L	2.0	116	80-120			
Barium	57.9	1	ug/L	ND	116	80-120			
Beryllium	51.8	0.5	ug/L	ND	104	80-120			
Boron	295	10	ug/L	259	71.5	80-120			QM-07
Cadmium	46.6	0.1	ug/L	ND	93.2	80-120			
Chromium (VI)	202	10	ug/L	ND	101	70-130			
Chromium	58.4	1	ug/L	ND	116	80-120			
Cobalt	56.3	0.5	ug/L	0.70	111	80-120			
Copper	53.9	0.5	ug/L	1.41	105	80-120			
Lead	49.1	0.1	ug/L	ND	98.1	80-120			
Molybdenum	56.7	0.5	ug/L	5.64	102	80-120			
Nickel	57.3	1	ug/L	4.1	106	80-120			
Selenium	54.1	1	ug/L	ND	108	80-120			
Silver	57.3	0.1	ug/L	ND	115	80-120			
Sodium	11900	200	ug/L	ND	119	80-120			
Thallium	45.4	0.1	ug/L	ND	90.7	80-120			
Uranium	48.1	0.1	ug/L	0.5	95.3	80-120			
Zinc	55	5	ug/L	5	101	80-120			
Perfluoroalkyl substances (PFAS)									
PFBA	0.23	0.02	ug/L	ND	114	50-150			
PFPeA	0.19	0.03	ug/L	ND	96.2	50-150			
PFHxA	0.18	0.08	ug/L	ND	90.2	50-150			
PFHpA	0.19	0.04	ug/L	ND	94.2	50-150			
PFOA	0.18	0.05	ug/L	ND	89.5	50-150			
PFNA	0.20	0.04	ug/L	ND	97.6	50-150			
PFDA	0.21	0.04	ug/L	ND	105	50-150			
PFUnA	0.18	0.04	ug/L	ND	91.4	50-150			
PFDoA	0.19	0.03	ug/L	ND	95.9	50-150			
PFOSA	0.20	0.01	ug/L	ND	98.6	50-150			
PFBS	0.18	0.04	ug/L	ND	92.5	50-150			
PFHxS	0.17	0.05	ug/L	ND	83.8	50-150			
PFOS	0.17	0.02	ug/L	ND	85.3	50-150			
PFDS	0.20	0.03	ug/L	ND	98.3	50-150			
Semi-Volatiles									
Acenaphthene	3.65	0.05	ug/L	ND	73.0	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acenaphthylene	3.20	0.05	ug/L	ND	64.0	50-140			
Anthracene	3.70	0.01	ug/L	ND	73.9	50-140			
Benzo [a] anthracene	3.47	0.01	ug/L	ND	69.5	50-140			
Benzo [a] pyrene	4.56	0.01	ug/L	ND	91.2	50-140			
Benzo [b] fluoranthene	4.54	0.05	ug/L	ND	90.8	50-140			
Benzo [g,h,i] perylene	3.47	0.05	ug/L	ND	69.5	50-140			
Benzo [k] fluoranthene	4.33	0.05	ug/L	ND	86.7	50-140			
Chrysene	3.53	0.05	ug/L	ND	70.7	50-140			
Dibenzo [a,h] anthracene	3.90	0.05	ug/L	ND	78.0	50-140			
Fluoranthene	4.27	0.01	ug/L	ND	85.4	50-140			
Fluorene	3.77	0.05	ug/L	ND	75.4	50-140			
Indeno [1,2,3-cd] pyrene	3.83	0.05	ug/L	ND	76.6	50-140			
1-Methylnaphthalene	4.16	0.05	ug/L	ND	83.1	50-140			
2-Methylnaphthalene	4.42	0.05	ug/L	ND	88.3	50-140			
Naphthalene	3.94	0.05	ug/L	ND	78.9	50-140			
Phenanthrene	3.59	0.05	ug/L	ND	71.9	50-140			
Pyrene	4.54	0.01	ug/L	ND	90.7	50-140			
Surrogate: 2-Fluorobiphenyl	*16.4*		*ug/L*		*82.2*	*50-140*			
Surrogate: Terphenyl-d14	*17.3*		*ug/L*		*86.3*	*50-140*			
Volatiles									
cis-1,3-Dichloropropylene	35.7	0.5	ug/L	ND	89.2	60-130			
trans-1,3-Dichloropropylene	42.3	0.5	ug/L	ND	106	60-130			
1,1,1,2-Tetrachloroethane	34.8	0.5	ug/L	ND	87.0	60-130			
1,1,1-Trichloroethane	30.6	0.5	ug/L	ND	76.4	60-130			
1,1,2,2-Tetrachloroethane	32.2	0.5	ug/L	ND	80.5	60-130			
1,1,2-Trichloroethane	31.7	0.5	ug/L	ND	79.2	60-130			
1,1-Dichloroethane	31.9	0.5	ug/L	ND	79.7	60-130			
1,1-Dichloroethylene	36.2	0.5	ug/L	ND	90.6	60-130			
Ethylene dibromide (dibromoethane, 1,2-	35.8	0.2	ug/L	ND	89.5	60-130			
1,2-Dichlorobenzene	30.8	0.5	ug/L	ND	77.1	60-130			
1,2-Dichloroethane	32.1	0.5	ug/L	ND	80.2	60-130			
cis-1,2-Dichloroethylene	30.3	0.5	ug/L	ND	75.8	60-130			
trans-1,2-Dichloroethylene	32.0	0.5	ug/L	ND	80.0	60-130			
1,2-Dichloropropane	30.2	0.5	ug/L	ND	75.4	60-130			
1,3-Dichlorobenzene	31.1	0.5	ug/L	ND	77.8	60-130			
1,4-Dichlorobenzene	29.9	0.5	ug/L	ND	74.8	60-130			
Acetone	71.3	5.0	ug/L	ND	71.3	50-140			
Benzene	32.7	0.5	ug/L	ND	81.8	60-130			
Bromodichloromethane	32.2	0.5	ug/L	ND	80.4	60-130			
Bromoform	38.4	0.5	ug/L	ND	96.0	60-130			
Bromomethane	34.6	0.5	ug/L	ND	86.5	50-140			
Carbon Tetrachloride	30.2	0.2	ug/L	ND	75.5	60-130			
Chlorobenzene	38.2	0.5	ug/L	ND	95.6	60-130			
Dibromochloromethane	34.0	0.5	ug/L	ND	85.0	60-130			
Chloroform	33.7	0.5	ug/L	ND	84.3	60-130			
Dichlorodifluoromethane	35.9	1.0	ug/L	ND	89.7	50-140			
Methylene Chloride	36.6	5.0	ug/L	ND	91.6	60-130			
Ethylbenzene	33.5	0.5	ug/L	ND	83.8	60-130			
Hexane	38.0	1.0	ug/L	ND	95.0	60-130			
Methyl Ethyl Ketone (2-Butanone)	70.6	5.0	ug/L	ND	70.6	50-140			

Certificate of Analysis

Report Date: 11-Nov-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 2-Nov-2021

Client PO:

Project Description: 21-2419/1010 Somerset

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methyl Isobutyl Ketone	68.6	5.0	ug/L	ND	68.6	50-140			
Methyl tert-butyl ether	72.3	2.0	ug/L	ND	72.3	50-140			
Styrene	39.3	0.5	ug/L	ND	98.2	60-130			
Toluene	38.7	0.5	ug/L	ND	96.8	60-130			
Trichloroethylene	36.0	0.5	ug/L	ND	90.0	60-130			
Tetrachloroethylene	39.3	0.5	ug/L	ND	98.3	60-130			
Trichlorofluoromethane	35.3	1.0	ug/L	ND	88.2	60-130			
Vinyl chloride	34.3	0.5	ug/L	ND	85.6	50-140			
m,p-Xylenes	61.2	0.5	ug/L	ND	76.4	60-130			
o-Xylene	39.0	0.5	ug/L	ND	97.6	60-130			
Surrogate: 4-Bromofluorobenzene	*59.7*		*ug/L*		*74.6*	*50-140*			
Surrogate: Dibromofluoromethane	*79.8*		*ug/L*		*99.8*	*50-140*			
Surrogate: Toluene-d8	*59.9*		*ug/L*		*74.9*	*50-140*			

Qualifier Notes:

QC Qualifiers :

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

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

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

PARACE LABORATORIES L

Paracel ID: 2145243

lvd.
J8
.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2145243	№ 63215

Client Name: Dillon Consulting Ltd.
Contact Name: Emily Barber / Elsa Hergel.
Address: 177 Colonnade Rd.
Telephone: 613-813-2080.

Project Ref: 21-2419
Quote #: City of Ottawa Project - 1010 Somerset.
PO #:
E-mail: ebarber@dillon.ca. ehergel@dillon.ca.

Page 1 of 1

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

☑ REG 153/04 ☐ REG 406/19
☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☑ Table 3 ☐ Agri/Other
☐ Table ___
For RSC: ☑ Yes ☐ No

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

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

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	VOC	Energetics	NH3/NH4	BTEX/PHCs	PAHs	Na, Cl, CN, pH	Metals (Hg, Cr, VI)	PFAs	Turbidity			
1	MW21-20D BKG467	GW		8	01-11-21	14:05	/	/	/	/	/	/		/	/			
2	MW21-01D 472	GW		9	01-11-21	15:17	/			/	/	/	/	/				
3	Dup2 473	GW		9	01-11-21	15:17	/			/	/	/	/	/				
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments: MW21-20D: only filled one vial each for PFAS + VOCs/BTEX/PHCs. Metals (Hg, Cr) field filtered.

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Emily J. Barber		Suneeprem Dolmai	[signature]
Relinquished By (Print): Emily Barber	Date/Time:	Date/Time: NOV 02, 2021 04.50	Date/Time: Nov 2, 2021 17:50
Date/Time: Nov 2/21, 16:30.	Temperature: °C	Temperature: 6.6 °C	pH Verified: ☑ By: BS

Chain of Custody (Blank) xlsx

Revision 4.0

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Subcontracted Analysis

Dillon Consulting Ltd. (Ottawa)
177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Elsa Hergel

Tel: (613) 745-2213
Fax: (613) 745-3491

Paracel Report No.	**2145243**
Client Project(s):	**21-2419/1010 Somerset**
Client PO:	
Reference:	**City of Ottawa RFSO 26519-98891-S01- 2019-2022**
CoC Number:	**63215**

Order Date:	02-Nov-21
Report Date:	19-Nov-21

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2145243-01	MW21-20D	Energetics

PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
ATTN: Mark Foto
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8

Date Received: 03-NOV-21
Report Date: 17-NOV-21 16:12 (MT)
Version: FINAL

Client Phone: 613-731-9577

Certificate of Analysis

Lab Work Order #: L2658989

Project P.O. #: NOT SUBMITTED
Job Reference: 2145243
C of C Numbers:
Legal Site Desc:

Costas Farassoglou
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2658989-1 MW21-20D Sampled By: CLIENT on 02-NOV-21 @ 14:05 Matrix: WATER							
Explosives							
Cyclonite (RDX)	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
4-Amino-2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
2-Amino-4,6-dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
3,5-Dinitroaniline	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
1,3-Dinitrobenzene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
2,4-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
2,6-Dinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
Nitrobenzene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
Nitroglycerin	<0.50		0.50	ug/L	05-NOV-21	16-NOV-21	R5651877
2-Nitrotoluene	<0.29	DLM	0.29	ug/L	05-NOV-21	16-NOV-21	R5651877
3-Nitrotoluene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
4-Nitrotoluene	<0.28	DLM	0.28	ug/L	05-NOV-21	16-NOV-21	R5651877
Octogen (HMX)	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
Pentaerythritol tetranitrate (PETN)	<0.50		0.50	ug/L	05-NOV-21	16-NOV-21	R5651877
Tetryl	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877
1,3,5-Trinitrobenzene	<0.40		0.40	ug/L	05-NOV-21	16-NOV-21	R5651877
2,4,6-Trinitrotoluene	<0.25		0.25	ug/L	05-NOV-21	16-NOV-21	R5651877

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ENERGETICS-HPLC-WT	Water	Energetics in Water	SW846 8330A

Analytes are extracted from solution using SPE (solid phase extraction). The analytes are eluted from the SPE cartridge, filtered and analyzed by HPLC with UV detection.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2658989 Report Date: 17-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Water**							
Batch	**R5651877**							
WG3653148-6	**LCS**							
Octogen (HMX)			73.5		%		70-130	15-NOV-21
Cyclonite (RDX)			88.4		%		70-130	15-NOV-21
1,3,5-Trinitrobenzene			118.2		%		70-130	15-NOV-21
1,3-Dinitrobenzene			103.4		%		70-130	15-NOV-21
Tetryl			95.9		%		70-130	15-NOV-21
Nitrobenzene			101.6		%		70-130	15-NOV-21
2,4,6-Trinitrotoluene			93.3		%		70-130	15-NOV-21
4-Amino-2,6-Dinitrotoluene			93.3		%		70-130	15-NOV-21
2-Amino-4,6-dinitrotoluene			106.7		%		70-130	15-NOV-21
2,4-Dinitrotoluene			97.5		%		70-130	15-NOV-21
2,6-Dinitrotoluene			93.8		%		70-130	15-NOV-21
2-Nitrotoluene			97.9		%		70-130	15-NOV-21
3-Nitrotoluene			88.3		%		70-130	15-NOV-21
4-Nitrotoluene			94.9		%		70-130	15-NOV-21
3,5-Dinitroaniline			96.2		%		70-130	15-NOV-21
Nitroglycerin			116.5		%		70-130	15-NOV-21
Pentaerythritol tetranitrate (PETN)			92.0		%		70-130	15-NOV-21
WG3653148-5	**MB**							
Octogen (HMX)			<0.25		ug/L		0.25	15-NOV-21
Cyclonite (RDX)			<0.25		ug/L		0.25	15-NOV-21
1,3,5-Trinitrobenzene			<0.40		ug/L		0.4	15-NOV-21
1,3-Dinitrobenzene			<0.25		ug/L		0.25	15-NOV-21
Tetryl			<0.25		ug/L		0.25	15-NOV-21
Nitrobenzene			<0.25		ug/L		0.25	15-NOV-21
2,4,6-Trinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
4-Amino-2,6-Dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2-Amino-4,6-dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2,4-Dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2,6-Dinitrotoluene			<0.25		ug/L		0.25	15-NOV-21
2-Nitrotoluene			<0.25		ug/L		0.25	15-NOV-21
3-Nitrotoluene			<0.25		ug/L		0.25	15-NOV-21
4-Nitrotoluene			<0.25		ug/L		0.25	15-NOV-21
3,5-Dinitroaniline			<0.25		ug/L		0.25	15-NOV-21
Nitroglycerin			<0.50		ug/L		0.5	15-NOV-21

Quality Control Report

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ENERGETICS-HPLC-WT	**Water**							
Batch R5651877								
WG3653148-5 MB								
Pentaerythritol tetranitrate (PETN)			<0.50		ug/L		0.5	15-NOV-21

Quality Control Report

Workorder: L2658989 Report Date: 17-NOV-21

Client: PARACEL LABORATORIES LTD (Ottawa-London-Kingston)
300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Contact: Mark Foto

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

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L2658989-COFC

Subcontract Order

SENDING LABORATORY:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577

Fax: 613-731-9064

RECEIVING LABORATORY:

ALS Laboratory Group (Waterloo)
60 Northland Drive, Unit 1
Waterloo, ON N2V 2B8
Phone: (519) 886-6910

Fax: (519) 886-9047

INVOICE TO:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577

Fax: 613-731-9064

Date Requested: **02-Nov-21**
Project Number: **2145243**
Submitted By: **Bernice Samuel**

Required Regulation	Reg 153/03
Turnaround Time	Standard

Sample ID	Matrix	Analyses Requested:	Sampled	Comments
MW21-20D	Water	Energetics	02-Nov-21 14:05	

L2658989

8.4c
2:30

Please email all results to mfoto@paracellabs.com, dbloom@paracellabs.com, drobertson@paracellabs.com

Released By — Date / Time: Nov 3 2021 11:40

Received By — Date

Temperature prior to Shipping: 6.3°C

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Certificate of Analysis

Dillon Consulting Ltd. (Ottawa)

177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
Attn: Emily Barber

Client PO:
Project: 21-2419/1010 Somerset
Custody: 63052

Report Date: 24-Nov-2021
Order Date: 18-Nov-2021

Order #: 2147476

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

Paracel ID	Client ID
2147476-01	MW21-20D
2147476-02	MW21-13
2147476-03	MW21-02

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Report Date: 24-Nov-2021

Client: Dillon Consulting Ltd. (Ottawa)

Order Date: 18-Nov-2021

Client PO:

Project Description: 21-2419/1010 Somerset

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Ammonia, as N	EPA 351.2 - Auto Colour	23-Nov-21	23-Nov-21
Chromium, hexavalent - water	MOE E3056 - colourimetric	22-Nov-21	22-Nov-21
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	22-Nov-21	22-Nov-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	19-Nov-21	19-Nov-21
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	23-Nov-21	24-Nov-21

Certificate of Analysis

Report Date: 24-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 18-Nov-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	MW21-20D	MW21-13	MW21-02	-
	Sample Date:	18-Nov-21 08:15	18-Nov-21 08:45	18-Nov-21 09:21	-
	Sample ID:	2147476-01	2147476-02	2147476-03	-
	MDL/Units	Water	Water	Water	-
General Inorganics					
Ammonia as N	0.01 mg/L	-	0.05	-	-
Metals					
Mercury	0.1 ug/L	<0.1	-	-	-
Antimony	0.5 ug/L	0.9	-	-	-
Arsenic	1 ug/L	2	-	-	-
Barium	1 ug/L	105	-	-	-
Beryllium	0.5 ug/L	<0.5	-	-	-
Boron	10 ug/L	537	-	-	-
Cadmium	0.1 ug/L	<0.1	-	-	-
Chromium	1 ug/L	<1	-	-	-
Chromium (VI)	10 ug/L	<10	-	-	-
Cobalt	0.5 ug/L	<0.5	-	-	-
Copper	0.5 ug/L	0.5	-	-	-
Lead	0.1 ug/L	<0.1	-	-	-
Molybdenum	0.5 ug/L	10.3	-	-	-
Nickel	1 ug/L	1	-	-	-
Selenium	1 ug/L	<1	-	-	-
Silver	0.1 ug/L	<0.1	-	-	-
Sodium	200 ug/L	503000	-	-	-
Thallium	0.1 ug/L	<0.1	-	-	-
Uranium	0.1 ug/L	7.1	-	-	-
Vanadium	0.5 ug/L	1.5	-	-	-
Zinc	5 ug/L	<5	-	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	-	<0.05	-
Acenaphthylene	0.05 ug/L	-	-	<0.05	-
Anthracene	0.01 ug/L	-	-	<0.01	-
Benzo [a] anthracene	0.01 ug/L	-	-	<0.01	-
Benzo [a] pyrene	0.01 ug/L	-	-	<0.01	-
Benzo [b] fluoranthene	0.05 ug/L	-	-	<0.05	-
Benzo [g,h,i] perylene	0.05 ug/L	-	-	<0.05	-
Benzo [k] fluoranthene	0.05 ug/L	-	-	<0.05	-
Chrysene	0.05 ug/L	-	-	<0.05	-
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	<0.05	-
Fluoranthene	0.01 ug/L	-	-	<0.01	-

Certificate of Analysis

Report Date: 24-Nov-2021

Client: **Dillon Consulting Ltd. (Ottawa)**

Order Date: 18-Nov-2021

Client PO:

Project Description: 21-2419/1010 Somerset

	Client ID:	MW21-20D	MW21-13	MW21-02	-
	Sample Date:	18-Nov-21 08:15	18-Nov-21 08:45	18-Nov-21 09:21	-
	Sample ID:	2147476-01	2147476-02	2147476-03	-
	MDL/Units	Water	Water	Water	-
Fluorene	0.05 ug/L	-	-	<0.05	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	<0.05	-
1-Methylnaphthalene	0.05 ug/L	-	-	<0.05	-
2-Methylnaphthalene	0.05 ug/L	-	-	<0.05	-
Methylnaphthalene (1&2)	0.10 ug/L	-	-	<0.10	-
Naphthalene	0.05 ug/L	-	-	<0.05	-
Phenanthrene	0.05 ug/L	-	-	<0.05	-
Pyrene	0.01 ug/L	-	-	<0.01	-
2-Fluorobiphenyl	Surrogate	-	-	112%	-
Terphenyl-d14	Surrogate	-	-	125%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Ammonia as N	ND	0.01	mg/L						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*21.6*		*ug/L*		*108*	*50-140*			
Surrogate: Terphenyl-d14	*22.6*		*ug/L*		*113*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Ammonia as N	0.282	0.01	mg/L	0.337			17.7	18	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	0.64	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	22.0	1	ug/L	21.6			1.9	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	19	10	ug/L	19			0.4	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	85	10	ug/L	85			0.0	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	0.72	0.5	ug/L	0.70			3.3	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	1.06	0.5	ug/L	1.00			6.4	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	15500	200	ug/L	15600			0.7	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	9	5	ug/L	8			6.6	20	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Ammonia as N	0.244	0.01	mg/L	ND	97.6	81-124			
Metals									
Mercury	3.26	0.1	ug/L	ND	109	70-130			
Antimony	45.0	0.5	ug/L	ND	89.7	80-120			
Arsenic	50.4	1	ug/L	ND	99.9	80-120			
Barium	66.5	1	ug/L	21.6	89.9	80-120			
Beryllium	44.7	0.5	ug/L	ND	89.5	80-120			
Boron	59	10	ug/L	19	80.2	80-120			
Cadmium	45.4	0.1	ug/L	ND	90.7	80-120			
Chromium (VI)	280	10	ug/L	85	97.5	70-130			
Chromium	45.4	1	ug/L	ND	90.4	80-120			
Cobalt	44.4	0.5	ug/L	ND	88.8	80-120			
Copper	43.8	0.5	ug/L	0.70	86.2	80-120			
Lead	43.0	0.1	ug/L	ND	85.9	80-120			
Molybdenum	41.6	0.5	ug/L	1.00	81.2	80-120			
Nickel	43.9	1	ug/L	ND	87.0	80-120			
Selenium	46.3	1	ug/L	ND	92.4	80-120			
Silver	46.9	0.1	ug/L	ND	93.8	80-120			
Sodium	23500	200	ug/L	15600	79.1	80-120			QM-07
Thallium	45.3	0.1	ug/L	ND	90.7	80-120			
Uranium	44.8	0.1	ug/L	ND	89.5	80-120			
Vanadium	46.5	0.5	ug/L	ND	92.8	80-120			
Zinc	50	5	ug/L	8	83.9	80-120			
Semi-Volatiles									
Acenaphthene	5.46	0.05	ug/L	ND	109	50-140			
Acenaphthylene	4.17	0.05	ug/L	ND	83.3	50-140			
Anthracene	5.60	0.01	ug/L	ND	112	50-140			
Benzo [a] anthracene	5.62	0.01	ug/L	ND	112	50-140			
Benzo [a] pyrene	5.70	0.01	ug/L	ND	114	50-140			
Benzo [b] fluoranthene	5.74	0.05	ug/L	ND	115	50-140			
Benzo [g,h,i] perylene	5.99	0.05	ug/L	ND	120	50-140			
Benzo [k] fluoranthene	5.63	0.05	ug/L	ND	113	50-140			
Chrysene	5.90	0.05	ug/L	ND	118	50-140			
Dibenzo [a,h] anthracene	5.92	0.05	ug/L	ND	118	50-140			
Fluoranthene	5.89	0.01	ug/L	ND	118	50-140			
Fluorene	5.32	0.05	ug/L	ND	106	50-140			
Indeno [1,2,3-cd] pyrene	4.75	0.05	ug/L	ND	95.1	50-140			
1-Methylnaphthalene	5.94	0.05	ug/L	ND	119	50-140			
2-Methylnaphthalene	5.97	0.05	ug/L	ND	119	50-140			
Naphthalene	5.68	0.05	ug/L	ND	114	50-140			
Phenanthrene	5.75	0.05	ug/L	ND	115	50-140			
Pyrene	5.32	0.01	ug/L	ND	106	50-140			
Surrogate: 2-Fluorobiphenyl	*23.2*		*ug/L*		*116*	*50-140*			
Surrogate: Terphenyl-d14	*26.3*		*ug/L*		*132*	*50-140*			

Qualifier Notes:

QC Qualifiers :

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

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

Paracel ID: 2147476

PARAC LABORATORIE

Laurent Blvd.
rio K1G 4J8
-1947
aracellabs.com
labs.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2147476	№ 63052

Client Name: Dillon Consulting.	Project Ref: 21-2419	Page 1 of 1
Contact Name: Emily Barber	Quote #: City of Ottawa Project - 1010 Somerset	Turnaround Time
Address: 177 Colonnade Rd.	PO #:	☐ 1 day ☐ 3 day
	E-mail: ebarber@dillon.ca.	☒ 2 day ☒ Regular
Telephone: 613-813-2080	ejergel@dillon.ca.	Date Required:
	mmurdy@dillon.ca.	

☒ REG 153/04 ☐ REG 406/19	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG,558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table ___	Mun: ___
For RSC: ☒ Yes ☐ No	☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: Metals (Hg, CrVI)	PAH	NO3, NH4
1	MW 21-20D	BK6648	GW		3	18-11-21	08:15	X		
2	MW 21-13	649	GW		1	↓	08:45			X
3	MW 21-02	650	GW		1	↓	09:21		X	
4										
5										
6										
7										
8										
9										
10										

Comments: Metals field filtered. 2 day turnaround time required. This is a city of Ottawa Project. The city PM is Vahid

Method of Delivery: Dropbox

Relinquished By (Sign): Emily J. Barber	Received By Driver/Depot:	Received at Lab:	Verified By: Dropbox
Relinquished By (Print): Emily Barber.	Date/Time:	Date/Time: Nov 18 2021 6:20	Date/Time: Nov 19 2021 8:46
Date/Time: 18-11-21, 17:20	Temperature: °C	Temperature: 5.8 °C	pH Verified: ☒