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Paterson Group Inc.

Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

patersongroup

Phase II Environmental Site Assessment

473 Albert Street
Ottawa, Ontario

Prepared For

InterRent No. 3 Limited Partnership

March 15, 2021

Report: PE4908-1

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EXECUTIVE SUMMARY

Assessment

A Phase II ESA was conducted for the property addressed 473 Albert Street, in the City of Ottawa, Ontario. The purpose of the Phase II ESA was to address potentially contaminating activities (PCAs) that were identified during the Phase I ESA and considered to result in areas of potential environmental concern (APECs) on the Phase I and Phase II Property.

An initial subsurface program was conducted by Pinchin in December of 2019 to address the APECs identified in the Phase I ESA. This program consisted of drilling ten (10) boreholes, eight (8) of which were completed as groundwater monitoring wells. The stratigraphy at the site consisted of a concrete floor slab over engineered fill material which consisted of primarily crushed stone, mixed with a sandy clay soil matrix at some locations. Limestone bedrock was present beneath the fill.

Soil and groundwater samples were submitted for a combination of BTEX, PHCs, PAHs, PCB, VOCs and/or metals (including Hg) analyses. Based on the laboratory results, barium and 1,4-Dichlorobenzene concentrations in excess of the selected MECP Table 7 Residential Standards were identified in soil Sample MW-4-SS1, while a cobalt concentration exceeding the MECP Table 7 standard was identified in Sample MW-5-SS1. Groundwater results identified PHC-F2 and/or -F3 exceedances at MW-5 and MW-6.

During the interim of May through December 2020, Paterson carried out additional drilling and groundwater sampling programs to confirm and delineate groundwater exceedances identified during the Pinchin field program. Four (4) boreholes were drilled for lateral delineation purposes (BH1-20, BH1A-20, BH2,-20 and BH3-20) and a fifth borehole (BH4-20) was drilled for vertical delineation purposes. Soil samples were not recovered at this time; it should be noted however that no visual or olfactory evidence of potential contamination was noted in the fill material.

Groundwater samples recovered from the 2020 boreholes were analysed for a combination of BTEX or VOC and PHC parameters. No detections of the parameters analysed were noted in any of the samples, with the exception of chloroform (7 µg/L) at a concentration exceeding the MECP Table 7 standard of 2 µg/L in the groundwater recovered from BH1A-20.

The chloroform was considered to have resulted from the use of municipally treated water during the bedrock coring process and complies with the standard of 10 µg/L presented in Table A of the MECP document entitled "Guidance for Addressing Chloroform at a Record of Site Condition Property."

Based on the findings of the drilling program and sampling events in combination with re-sampling of the monitoring wells installed by Pinchin, it was considered likely that initial PHC F2 and F3 exceedances identified at MW-5 and MW-6 had resulted from sediment content in the groundwater samples. The most recent groundwater results indicate that no BTEX, VOC or PHC concentrations were detected above the laboratory method detection limits, with the exception of chloroform as noted above, and various metal parameters at concentrations below the MECP Table 7 Standards. As such, the groundwater beneath the Phase II Property complies with the MECP Table 7 Standards.

Conclusion

Based on the findings of the Pinchin field program and the initial Phase II ESA findings obtained by Paterson, a soil and groundwater remediation program was recommended and a soil remediation program was subsequently carried out. All impacted soil was removed from the property, as detailed in the Remediation Report provided in Appendix 2. Based on additional drilling and sampling events carried out in conjunction with the soil remediation program, no impacted groundwater was encountered or removed from the Phase II Property.

The findings of the Phase II ESA and Remediation Program indicate that the soil and groundwater beneath the Phase II Property comply with the MECP Table 7 standards. An RSC will be filed based on this Phase II ESA, to support the proposed change in land use.

It is expected that groundwater monitoring wells will be abandoned in accordance with O.Reg.903, at the time of building rehabilitation. It is recommended that they be maintained until this time, for possible future groundwater monitoring events.

1.0 INTRODUCTION

At the request of InterRent No. 3 Limited Partnership, Paterson Group (Paterson) conducted a Phase II Environmental Site Assessment for the property addressed 473 Albert Street, in the City of Ottawa, Ontario. The purpose of this Phase II ESA was to address areas of potential environmental concern (APECs) identified on the Phase II Property during the Phase I ESA conducted by Pinchin in December of 2019.

1.1 Site Description

Address:	473 Albert Street, Ottawa, Ontario.
Legal Description:	Part of Lots 23 and 24 and Lot 25, Plan 3922, N/S Albert Street, Numbering West, as in N418302, in the City of Ottawa.
Location:	The site is located on the north side of Albert Street, approximately 55 m east of Bronson Avenue, in the City of Ottawa, Ontario. Refer to Figure 1 - Key Plan in the Figures section following the text.
PIN:	04112-0053 (LT)
Latitude and Longitude:	45° 25’ 1.16" N, 75° 42' 27.56" W
Configuration:	L-shaped
Area:	0.17 hectares (approximately)

1.2 Property Ownership

The subject property is currently owned by InterRent No. 3 Development Partnership. Paterson was retained to complete this Phase II ESA by Mr. Evan Johnson, of CLV Group in partnership with InterRent No. 3 Development. Mr. Johnson can be reached by telephone at (613) 806-7816.

1.3 Current and Proposed Future Uses

The Phase II Property is currently occupied by a vacant, eleven (11) storey commercial office building with 2 basement levels. It is our understanding that the existing building will be rehabilitated/retrofitted as a residential building with ground floor commercial uses.

Due to the proposed change to a more sensitive land use, the filing of a Record of Site Condition (RSC) in the Ministry of the Environment, Conservation and Parks (MECP) Environmental Site Registry (ESR) will be required for the Phase II Property.

1.4 Applicable Site Condition Standard

The site condition standards for the property were obtained from Table 7 of the document entitled "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", prepared by the Ontario Ministry of Environment, Conservation and Parks (MECP), April 2011. The MECP selected Table 7 Standards are based on the following considerations:

- ❒ Coarse-grained soil conditions;
- ❒ Shallow Soil conditions;
- ❒ Non-potable groundwater conditions; and
- ❒ Residential land use.

Section 35 of O.Reg. 153/04 does apply to the Phase II Property in that the property is serviced with municipal drinking water.

Section 41 of O.Reg. 153/04 does not apply to the Phase II Property, as the property is not within 30m of an environmentally sensitive area and the pH of the soil is between 5 and 9.

Section 43.1 of O.Reg. 153/04 does apply to the Phase II Property in that the property is a Shallow Soil property.

The intended use of the Phase II Property is residential; therefore, the Residential Standards have been selected for the purpose of this Phase II ESA.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

The Phase II Property is situated in an urban area surrounded by various sized commercial and residential structures. Site topography is relatively flat and at the grade of Albert Street. Site drainage consists primarily of sheet flow to catch basins located along Albert Street. The regional topography slopes down in a westerly to northwesterly direction towards the Ottawa River. The Phase II Property is situated within a municipally serviced area.

2.2 Past Investigations

The following engineering report was reviewed as part of this assessment.

- ❒ "Phase One Environmental Site Assessment," prepared by Pinchin, dated December 6, 2019.

Based on the findings of the Phase I ESA report, four (4) potentially contaminating activities (PCAs) were considered to result in areas of potential environmental concern (APECs) on the Phase I Property, as presented in Table 1.

Table 1: Potentially Contaminating Activities and Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 1: Resulting from the presence of a 1,250-L diesel above ground storage tank (AST)	Northeastern portion of the Phase I Property (within the emergency generator room in the second basement level of the subject building).	PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX PHCs	Soil Groundwater
APEC 2: Resulting from the presence of a former heating oil AST	South-central portion of the Phase I Property (within the 'tank room' in the second basement level of the subject building).	PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX PHCs	Groundwater
APEC 3: Presence of a transformer vault	South-central portion of the Phase I Property (first basement level of the subject building above the 'tank room').	PCA 55 – Transformer manufacturing, processing and use	On-site	BTEX PHCs PCBs	Groundwater

Table 1: Potentially Contaminating Activities and Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 4: Resulting from the generation of hazardous wastes.	Within the footprint of the existing building (hazardous wastes inferred to be within the office portions of the site building).	Other – Hazardous waste generation	On-site	BTEX PHCs PAHs PCBs VOCs Metals As, Sb, Se Hg	Soil Groundwater
APEC 5[1]: Resulting from the use of salt as a deicing agent	Northern portion of the RSC Property	Other – use of salt as a deicing agent for vehicular and pedestrian safety	On-site	EC, SAR Na, Cl-	Soil
APEC 6: Resulting from fill material under the building slab	Central and southern portions of the Phase I Property within the footprint of the building	Item 30 – Importation of Fill Material of Unknown Quality	On-site	Metals, As, Sb, Se Hg	Soil
APEC 7: Resulting from a potential former dry cleaning facility at 447 Albert Street.	Eastern portion of the RSC Property.	Item 37 – Operation of Dry Cleaning Equipment (where chemicals are used)	Off-site	VOCs	Groundwater

Table 1: Potentially Contaminating Activities and Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 8: Resulting from the former Ottawa Car Manufacturing facility (422-426 Slater Street) and former dry cleaner (200-202 Bay Street).	Southern portion of the RSC Property.	Item 52 – Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles and Material Used to Maintain Transportation Systems	Off-site	BTEX PHC PAH	Groundwater
		Item 37- Operation of Dry Cleaning Equipment (where chemicals are used)	Off-site	VOCs	Groundwater

Notes:

1 – In accordance with Section 49.1 of Ontario Regulation 153/04 standards are deemed to be met if an applicable site condition standard is exceeded at a property solely because the qualified person has determined, based on a phase two environmental site assessment, that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. As further discussed in the Phase II CSM which accompanies the RSC submission, the exemption outlined in Section 49.1 is being relied upon with respect to the RSC Property.

A Phase II ESA was recommended to address these APECs and was subsequently carried out by Pinchin in December of 2019. The Phase II ESA field program consisted of drilling ten (10) boreholes, eight (8) of which were completed as groundwater monitoring wells. Soil and groundwater samples were submitted for BTEX, PHCs, PAHs, PCB, VOCs and/or metals (including As, Sb, Se, Hg and CrVI) analyses. Based on the laboratory results, barium and cobalt concentrations in excess of the selected MECP Table 7 Residential Standards were identified in soil Samples MW4-SS1 and MW5-SS1. Groundwater results identified PHC-F2 and -F3 exceedances in the groundwater recovered from MW-5 and MW-6.

It should be noted that the Pinchin report was not finalized, however drawings, borehole logs and laboratory Certificates of Analysis were provided to Paterson for review. Details of this initial subsurface program as well as the laboratory results are presented in this Phase II ESA report.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The initial subsurface investigation was conducted by Pinchin on December 11, 2019 and consisted of drilling ten (10) boreholes, eight (8) of which were completed as groundwater monitoring wells (BH1, BH2 and MW3 through MW10). Boreholes were drilled to a maximum depth of 4.57 m below the existing ground surface.

The more recent subsurface investigation was conducted by Paterson on May 4 and 5, 2020, and consisted of drilling three (3) additional boreholes, all of which were completed as groundwater monitoring wells (BH1-20 through BH3-20).

Borehole BH1-20 was later determined to be dry; an additional borehole (BH1A-20) was subsequently drilled on June 2, 2020 and completed with a monitoring well installation. Boreholes were drilled to a maximum depth of 4.42 m below the existing ground surface (basement floor slab).

A fifth borehole was drilled on November 30, 3030, subsequent to the November 2020 soil remediation program (the Remediation Report is provided in Appendix 2). Borehole BH4-20 was completed with a monitoring well installation at a depth of approximately 6.14 m below grade.

3.2 Media Investigated

During the subsurface investigation, soil samples and groundwater samples were obtained and submitted for laboratory analysis. The rationale for sampling and analyzing these media is based on the Contaminants of Potential Concern identified in the Phase I ESA.

Contaminants of concern for soil and groundwater include benzene, toluene, ethylbenzene, and xylenes (BTEX), petroleum hydrocarbons (PHCs, fractions F1-F4), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and/or metals (including As, Sb, Se, Hg and CrVI).

3.3 Phase I Conceptual Site Model

Geological and Hydrogeological Setting

According to the Geological Survey of Canada website, the bedrock in the area of the Phase I Property is reported to consist of interbedded limestone and shale of the Verulam Formation.

The overburden is reported to consist of exposed bedrock with a drift thickness ranging from 0 to 1 m over the entire site. The previous subsurface investigation conducted by Pinchin confirms the reported geology.

Groundwater beneath the Phase I Property is expected to flow in a westerly to north westerly direction based on the regional topography.

Existing Buildings and Structures

The Phase I Property is occupied by a vacant, 11-storey commercial office building, which encompasses the majority of the subject land. No other above-grade structures are present on the site.

Subsurface Structures and Utilities

Subsurface structures on the Phase I Property include the basement and underground parking levels associated with the above-grade structure.

Buried utilities on the Phase II Property included sanitary and storm sewer lines, a municipal water service, electrical services and telephone lines. Based on standard practice for subsurface utility installation, service trenches are expected to be present approximately 1 to 2 m below grade.

Water Bodies and Areas of Natural Significance

No areas of natural significance or water bodies were identified on the Phase I Property or within a 250 m search radius.

Drinking Water Wells

There are no potable water wells on the Phase I Property or within the 250 m study area.

Neighbouring Land Use

Neighbouring land use in the Phase I Study Area consists of residential and commercial (offices, cafes, and retailers) properties.

Potentially Contaminating Activities (PCAs) and Areas of Potential Environmental Concern (APECs)

As per Section 7.4 of the Phase I ESA report by Pinchin, 4 on-site and 3 off-site PCAs were considered to result in 6 APECs on the Phase I Property. Upon reviewing the Pinchin report, it is the opinion of Paterson that 2 of the off-site PCAs identified by Pinchin are not considered to result in an APEC on the RSC property given their separation distances relative to the site.

Areas of potential environmental concern (APECs) on the subject property are summarized in Table 1 in Section 2.2. of this report, along with their respective locations on the Phase I Property, associated contaminants of potential concern (CPCs) and potentially impacted media.

Contaminants of Potential Concern (CPCs)

As per the APECs identified in Table 1, the contaminants of potential concern (CPCs) in soil and/or groundwater include:

- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX);
- Petroleum hydrocarbons (PHCs, Fractions F_1-F_4);
- Polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs);
- Volatile organic compounds (VOCs);
- Metals;
- Arsenic (As), Antimony (Sb) and Selenium (Se); and
- Mercury (Hg).

The CPCs are expected to be present in the soil and/or groundwater at the Phase I Property.

Assessment of Uncertainty and/or Absence of Information

The information available for review as part of the preparation of the Phase I-ESA is considered to be sufficient to conclude that there are on-site PCAs that have resulted in APECs on the Phase I Property.

A variety of independent sources were consulted as part of this assessment, and as such, the conclusions of this report are not affected by uncertainty which may be present with respect to the individual sources.

3.4 Deviations from Sampling and Analysis Plan

The Sampling and Analysis Plan for this project is included in Appendix 1 of this report. Wells were purged dry and water quality parameters were not recovered due to the slow recovery and limited volume of groundwater available for sampling. Soil samples were not collected from all locations due to the absence of soil at some borehole locations. Otherwise, there were no deviations from the Sampling and Analysis Plan.

3.5 Impediments

Physical impediments encountered during the field portion of the Phase II ESA include buried services, and the presence of support columns in the vicinity of the drilling area, which influenced selected borehole locations. The recovery of soil samples was limited due to the granular nature of the fill material under the floor slab and the capability of portable drilling equipment. No other physical impediments were encountered.

4.0 INVESTIGATION METHOD

4.1 Subsurface Investigation

The initial subsurface investigation was conducted by Pinchin on December 11, 2019, and consisted of drilling ten (10) boreholes, eight (8) of which were completed as groundwater monitoring wells (BH1, BH2, MW-3 through MW-10). These boreholes were placed to address the APECs identified in the 2019 Phase I ESA report prepared by Pinchin.

The more recent subsurface investigation conducted by Paterson was carried out on May 4 and 5, 2020 and June 2, 2020. The investigation consisted of drilling three (3) additional boreholes (BH1 through BH3), all of which were completed as groundwater monitoring wells.

A fourth borehole (BH1A-20) was drilled due to insufficient water in BH1-20. These boreholes were placed to delineation PHC concentrations identified by Pinchin during the 2019 Phase II ESA field program.

Subsequent to the soil remediation program (the findings of which will be provided under separate cover, as noted above) a fifth borehole was drilled to a depth of approximately 6.14 m below the basement floor slab on November 30, 2020. Borehole BH4-20 was completed with a monitoring well installation. The purpose of the well was to confirm the quality of the groundwater beneath MW5.

All boreholes were drilled with a portable drilling equipment, provided by CCC Geotechnical and Environmental Drilling Ltd., of Ottawa, Ontario. Borehole locations are shown on Drawing PE4908-3 – Test Hole Location Plan, appended to this report.

4.2 Soil Sampling

A total of 5 soil samples were obtained from the Pinchin boreholes by means of split spoon sampling. The depths at which split spoon samples were obtained from the boreholes are shown as "**SS**" on the Soil Profile and Test Data Sheets, appended to this report.

Upon split spoon refusal, the boreholes were advanced into bedrock using a diamond coring system. An additional 21 rock core samples were recovered during the 2020 drilling programs and are shown as "**RC**" on the Soil Profile and Test Data Sheets. The borehole logs provided by Pinchin do not identify rock core samples recovered.

The stratigraphy at the borehole locations generally consisted of a concrete structure over sand and gravel fill material, underlain by limestone bedrock. The bedrock surface was encountered at depths ranging from approximately 0.15 to 1.19 m below grade.

4.3 Field Screening Measurements

All soil samples obtained during the 2019 field program underwent a preliminary screening procedure, which included visual screening for colour and evidence of deleterious fill, as well as combustible and organic vapour screening. According to the borehole logs provided to Paterson, soil vapour concentrations were measured using both an RKI Eagle 2 gastech equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

The soil vapours were measured by inserting the analyzer probe into the nominal headspace above the soil sample. Samples were then agitated, and the peak readings recorded. The CGI readings were generally less than 15ppm with the exception of an elevated reading of 80ppm for Sample MW4-SS-1. The PID readings were 1.0pppm. The readings were not indicative of significant combustible or organic vapours with the possible exception of Sample MW4-SS-1 which was submitted for analytical testing.

No visual or olfactory indications of potential contamination were noted on the borehole logs provided by Pinch. One soil sample was recovered from each BH-1, BH-2 and MW-4 through MW-7. Soil was not recovered in the remaining samples. Worst-case samples were submitted for analytical testing (based on vapour readings and visual observations).

Vapour readings are noted on the Soil Profile and Test Data Sheets in Appendix 1.

4.4 Groundwater Monitoring Well Installation

Twelve (12) groundwater monitoring wells were installed on the Phase II Property, at MW-3 through MW-10 and BH1-20, BH1A-20, BH2-20 and BH3-20. The monitoring wells consisted of 32 mm diameter Schedule 40 threaded PVC risers and screens. Monitoring well construction details are listed below in Table 2 and are also presented on the Soil Profile and Test Data Sheets provided in Appendix 1.

Table 2: Monitoring Well Construction Details

Well ID	Ground Surface Elevation	Total Depth (m BGS)	Screened Interval (m BGS)	Sand Pack (m BGS)	Bentonite Seal (m BGS)	Casing Type
MW-3	62.24	3.81	1.21-3.81	0.86-3.81	0.15-0.86	Flushmount
MW-4	62.26	4.57	1.57-4.57	1.20-4.57	0.15-1.20	Flushmount
MW-5	62.26	3.66	1.20-3.66	0.86-3.66	0.15-0.86	Flushmount
MW-6	62.25	3.81	1.25-3.65	0.86-3.65	0.15-0.86	Flushmount
MW-7	62.27	3.96	1.96-3.96	1.20-3.96	0.15-1.20	Flushmount
MW-8	--	3.66	1.26-3.66	0.86-3.66	0.15-0.86	Flushmount
MW-9	--	3.66	1.26-3.66	0.86-3.66	0.15-0.86	Flushmount
MW-10	62.24	3.66	1.26-3.66	0.86-3.66	0.15-0.86	Flushmount
BH1-20	62.28	4.11	2.61-4.11	2.26-4.11	0.15-2.26	Flushmount
BH1A-20	62.29	4.42	1.42-4.42	1.05-4.42	0.15-1.05	Flushmount
BH2-20	62.26	4.43	2.25-4.05	2.20-4.05	0.15-2.20	Flushmount
BH3-20	62.26	4.19	2.65-4.19	2.70-4.19	0.15-2.70	Flushmount
BH4-20[1]	62.26	6.14	3.70-6.14	3.40-6.14	1.95-3.40	Stickup

Notes:
- 1 – BH4-20 placed within excavation; granular backfill placed from 1.95m to original grade.

4.5 Field Measurement of Water Quality Parameters

Groundwater sampling events were conducted by Pinchin on January 15, 2020. Water levels recorded during this sampling event were not provided on the Pinchin borehole logs. Information pertaining to the measurement of water quality parameters was not provided for review.

Groundwater sampling events were conducted by Paterson on April 9, 2020, May 14, 2020, June 11, 2020 and November 24, 2020. Water levels were recorded during the sampling events however field measurement of water quality parameters was not conducted due to the limited amount of groundwater available.

4.6 Groundwater Sampling

Groundwater sampling protocols were followed using the MECP document entitled “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, dated May 1996. Groundwater samples were obtained from each monitoring well, using dedicated sampling equipment.

Standing water was purged from each well prior to sampling. Samples were stored in coolers to reduce analyte volatilization during transportation. Details of our standard operating procedure for groundwater sampling are provided in the Sampling and Analysis Plan in Appendix 1.

4.7 Analytical Testing

Based on the guidelines outlined in the Sampling and Analysis Plan appended to this report, the following soil and groundwater samples were submitted for analysis:

Table 3: Soil Samples Submitted

Sample ID	Sample Depth & Stratigraphic Unit	Parameters Analyzed							Rationale
		BTEX	PHCs	PAHs	PCBs	VOCs	Metals	Hg	
December, 2019 (Pinchin)									
BH1-SS1	0.036-0.61m Fill	X	X	X					Assess the potential soil impact due to the diesel above ground storage tank.
MW4-SS1	0.036-0.61m Fill	X	X	X	X	X	X	X	Assess the potential soil impact due to the hazardous wastes produced on-site.
MW5-SS1	0.036-0.61m Fill	X	X	X	X	X	X	X	
MW6-SS1	0.0-0.46m Fill	X	X	X	X	X	X	X	Assess the potential soil impact due to the hazardous wastes produced on-site and delineation of soil impacst.
DUP-1 (BH1-SS1)	0.036-0.61m Fill	X	X	X					Duplicate sample for QA/QC.
DUP-2 (MW4-SS1)	0.036-0.61m Fill				X	X			Duplicate sample for QA/QC.
DUP-3 (MW5-SS1)	0.036-0.61m Fill						X	X	Duplicate sample for QA/QC.

Table 4: Groundwater Samples Submitted

Sample ID	Sample Depth & Stratigraphic Unit	Parameters Analyzed						Rationale
		BTEX	PHCs	PAHs	PCBs	VOCs	Metals , Hg	
January 15, 2020 (Pinchin)								
MW3	1.21-3.81m	X	X	X		X		Assess the potential groundwater impact due to the former above ground storage tank and transformer room.
MW4	1.57-4.57m	X	X	X	X	X	X	Assess the potential groundwater impact due to the hazardous wastes produced on-site.
MW5	1.20-3.66m	X	X	X	X	X	X	Assess the potential groundwater impact due to the hazardous wastes produced on-site.
MW6	1.25-3.65m	X	X	X	X	X	X	Assess the potential groundwater impact due to the diesel back up generator and associated AST.
MW7	1.96-3.96m	X	X	X		X		Assess the potential groundwater impact due to the diesel back up generator and associated AST.
MW8	1.26-3.66m	X				X		Assess the potential groundwater impact due to the diesel back up generator and associated AST.
MW9	1.26-3.66m	X				X		Asses potential groundwater impacts associated with potential historical off-site dry cleaner to the east.
MW10	1.26-3.66m	X	X	X		X		Assess the potential groundwater impact due to the hazardous wastes produced on-site
DUP-4 (MW4)	1.57-4.57m	X	X	X	X	X	X	Duplicate sample for QA/QC.
February 12, 2020 (Pinchin)								
MW6[1]	1.25-3.65m		X					Monitor/confirm potential groundwater impact.
February 20, 2020 (Pinchin)								
MW6[1]	1.25-3.65m		X					Monitor/confirm potential groundwater impact.
April 9, 2020 (Paterson)								
MW5-GW1	1.2-3.66m	X	X					Monitor/confirm potential groundwater impact identified by Pinchin.

Table 4 Continued: Groundwater Samples Submitted

Sample ID	Sample Depth and Stratigraphic Unit	Parameters Analyzed						Rationale
		BTEX	PHCs	PAHs	PCBs	VOCs	Metals[2]	
MW6-GW1	1.25-3.65m	X	X					Confirm previous impacts identified and test for full PHC Method Group (PHC, F1-F4).
MW8-GW1	1.26-3.66m	X	X					Confirm previous results obtained by Pinchin.
May 14, 2020 (Paterson)								
BH2-20-GW1	2.84-4.34m	X	X					Delineation of PHC impacts identified in MW5 (by Pinchin and Paterson).
BH3-20-GW1	2.69-4.19m	X	X					Delineation of PHC impacts identified in MW5 (by Pinchin and Paterson).
DUP1 (BH3-20-GW1)	2.69-4.19m	X	X					QA/QC
June 2, 2020 (Paterson)								
MW6-20	1.25-3.65m	X	X					Confirm clean results obtained in April monitoring and test for full PHC Method Group (PHC, F1-F4).
June 11, 2020 (Paterson)								
BH1A-20-GW	1.42-4.42m	X	X			X		Delineation of PHC impacts identified in MW5 (by Pinchin and Paterson).
November 5, 2020 (Paterson)								
MW5-GW1	1.2-3.66m		X			X		Monitor/confirm potential groundwater impact identified in MW5 (by Pinchin and Paterson).
November 20, 2020 (Paterson)								
MW5-20-GW2	1.2-3.66m		X			X		Confirm clean results obtained during November 5, 2020 sampling event.
December 11, 2020 (Paterson)								
BH4-20-GW1	3.7-6.14	X	X					Confirm quality of groundwater at interval below MW5.
March 12, 2020 (Paterson)								
MW3-GW1	1.21-3.81m				X			Supplement results obtained by Pinchin to fully assess APECs.
MW8-GW2	1.26-3.66			X				

Notes:
- 1 – only PHC F2-F4 parameters analysed
- 2 - Metals include mercury (Hg)

Paracel Laboratories (Paracel), of Ottawa, Ontario, performed the laboratory analysis on the samples submitted for analytical testing. Paracel is a member of the Standards Council of Canada/Canadian Association for Laboratory Accreditation (SCC/CALA). Paracel is accredited and certified by SCC/CALA for specific tests registered with the association.

4.8 Residue Management

All excavated soil, purge water and fluids from equipment cleaning were retained on-site.

4.9 Elevation Surveying

The 2020 monitoring well locations were selected, located and surveyed in the field by Paterson. The 2019 monitoring wells were also surveyed by Paterson. The ground surface elevations at the monitoring well locations are referenced to a geodetic datum provided by Annis, O'Sullivan, Vollebekk Ltd. and are presented on Drawing PE4908-3 – Test Hole Location Plan appended to this report.

4.10 Quality Assurance and Quality Control Measures

A summary of quality assurance and quality control (QA/QC) measures, including sampling containers, preservation, labelling, handling, and custody, equipment cleaning procedures, and field quality control measurements is provided in the Sampling and Analysis Plan in Appendix 1.

5.0 REVIEW AND EVALUATION

5.1 Geology

Site soils beneath the concrete structure generally consisted of a granular fill material (sand and gravel), underlain by limestone bedrock. The site stratigraphy is shown on Drawings PE4908-4A-D through PE4908-9A-D – Cross Sections A-A' through D-D'.

Groundwater was encountered within the limestone bedrock at depths ranging from approximately 1.23 to 3.65 mbgs.

5.2 Groundwater Elevations, Flow Direction, and Hydraulic Gradient

Groundwater levels were measured during each of the groundwater sampling events using an electronic water level meter; those recorded during the April 9, 2020 and November 24, 2020 are summarized below in Table 5.

Table 5: Groundwater Level Measurements

Borehole Location	Ground Surface Elevation (m)	Water Level Depth (m below grade)	Water Level Elevation (m ASL)	Date of Measurement
MW-4	62.26	1.81	60.45	April 9, 2020
MW-5	62.26	2.03	60.23	April 9, 2020
MW-8	62.26	1.27	60.99	April 9, 2020
MW-5	62.26	2.03	60.23	November 23, 2020
MW-6	62.25	1.54	60.71	November 23, 2020
MW-8	62.26	1.23	61.03	November 23, 2020
BH1-20	62.28	3.63	58.65	November 23, 2020
BH1A-20	62.29	3.65	58.64	November 23, 2020
BH2-20	62.26	2.28	60.01	November 23, 2020
BH3-20	62.26	1.59	60.67	November 23, 2020
BH4-20	62.26	2.5	59.76	December 11, 2020

Based on the groundwater elevations measured during the November 2020 sampling event, groundwater contour mapping was completed. Groundwater contours are shown on Drawing PE4908-3 – Test Hole Location Plan. Based on the contour mapping, groundwater flow beneath the Phase II Property appears to flow towards the west. A horizontal hydraulic gradient of approximately 0.25 m/m was calculated.

No free product was observed in the monitoring wells sampled at the Phase II Property. No visual or olfactory evidence of petroleum hydrocarbons was observed on the purge water at any of the monitoring well locations sampled by Paterson during any of the groundwater sampling events.

5.3 Fine-Coarse Soil Texture

Based on observations made in the field, the more stringent coarse-grained soil standards are applicable to the Phase II Property.

5.4 Soil: Field Screening

No field screening of the soil samples collected was conducted during the 2019 field program carried out by Pinchin. According to the borehole logs provided to Paterson, soil vapour concentrations were measured using both an RKI Eagle 2 gastech equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

The CGI readings were generally less than 15ppm with the exception of an elevated reading of 80ppm for Sample MW4-SS-1. The PID readings were 1.0pppm. The readings were not indicative of significant combustible or organic vapours, with the possible exception of Sample MW4-SS-1 which was submitted for analytical testing.

5.5 Soil Quality

A total of 4 soil samples and 3 duplicates were submitted for analysis of a combination of BTEX, PHCs (F1-F4), PAHs, PCBs, VOCs and/or metals. The results of the analytical testing are presented below in Tables 6, 7, 8, 9 and 10. The laboratory Certificates of Analysis are provided in Appendix 1.

Table 6: Analytical Test Results – Soil (BTEX and PHCs (F1-F4)

Parameter	MDL (µg/g)	Soil Samples (µg/g) December 11, 2019					MECP Table 7 Residential Standards (µg/g)
		BH1-SS1	DUP-1	MW4-SS1	MW5-SS1	MW6-SS1	
Benzene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.21
Ethylbenzene	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	2
Toluene	0.05	0.1	0.024	0.033	0.028	<0.02	2.3
Xylene	0.05	0.14	0.046	0.10	0.095	<0.02	3.1
PHC F1	7	11	10	<10	<10	<10	55
PHC F2	4	<10	<10	<10	<10	<10	98
PHC F3	8	<50	<50	<50	<50	<50	300
PHC F4	6	<50	<50	<50	<50	<50	2800

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Concentrations of toluene, xylenes and/or PHC F1 were identified in soil Samples BH1-SS1, MW4-SS1, MW5-SS1 and DUP-1. No other parameters were identified in the remaining soil samples. The soil results are in compliance with the MECP Table 7 Residential Standards.

Table 7: Analytical Test Results – Soil (PAHs)

Parameter	MDL (µg/g)	Soil Samples (µg/g) December 11, 2019					MECP Table 7 Residential (µg/g)
		BH1-SS1	DUP-1	MW4-SS1	MW5-SS1	MW6-SS1	
Acenaphthene	0.02	nd	nd	nd	nd	nd	7.9
Acenaphthylene	0.02	nd	nd	nd	nd	nd	0.15
Anthracene	0.02	nd	nd	nd	nd	nd	0.67
Benzo[a]anthracene	0.02	0.017	0.012	nd	0.0072	0.0076	0.5
Benzo[a]pyrene	0.02	0.019	0.012	nd	0.0078	0.0088	0.3
Benzo[b]fluoranthene	0.02	0.028	0.018	0.0072	0.015	0.013	0.78
Benzo[g,h,i]perylene	0.02	0.014	0.0083	0.0054	0.0088	0.0097	6.6
Benzo[k]fluoranthene	0.02	0.0096	0.0062	nd	0.005	nd	0.78
Chrysene	0.02	0.018	0.012	nd	0.010	0.0072	7
Dibenzo[a,h]anthracene	0.02	nd	nd	nd	nd	nd	0.1
Fluoranthene	0.02	0.034	0.025	0.006	0.0078	0.011	0.69
Fluorene	0.02	nd	nd	nd	nd	nd	62
Indeno[1,2,3-cd]pyrene	0.02	0.014	0.0083	nd	0.0083	0.0084	0.38
1-Methylnaphthalene	0.02	nd	nd	nd	nd	nd	0.99
2-Methylnaphthalene	0.02	nd	nd	nd	nd	nd	0.99
Naphthalene	0.01	nd	nd	nd	nd	nd	0.6
Phenanthrene	0.02	0.023	0.027	0.006	0.009	0.0078	6.2
Pyrene	0.02	0.031	0.021	0.0072	0.0093	0.011	78

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

PAH parameter concentrations were identified in each of the soil samples analyzed. The analytical results comply with the selected MECP Table 7 Residential Standards.

Table 8: Analytical Test Results – Soil (PCBs)

Parameter	MDL (µg/g)	Soil Samples (µg/g) December 11, 2019				MECP Table 7 Residential Standards (µg/g)
		MW4-SS1	DUP-2	MW5-SS1	MW6-SS1	
PCBs	0.10	<0.10	<0.10	<0.10	<0.10	0.3

- MDL – Method Detection Limit

No PCB concentrations were identified in any of the samples analysed. The results comply with the MECP Table 7 standards.

Table 9: Analytical Test Results – Soil (VOCs)					
Parameter	**MDL (µg/g)**	**Soil Samples (µg/g) December 11, 2019**			**MECP Table 7 Residential Standards (µg/g)**
		MW4-SS1	**MW5-SS1**	**MW6-SS1**	
Acetone	0.50	nd	nd	nd	16
Benzene	0.02	nd	nd	nd	0.21
Bromodichloromethane	0.05	nd	nd	nd	13
Bromoform	0.05	nd	nd	nd	0.27
Bromomethane	0.05	nd	nd	nd	0.05
Carbon Tetrachloride	0.05	nd	nd	nd	0.05
Chlorobenzene	0.05	nd	nd	nd	2.4
Chloroform	0.05	nd	nd	nd	0.05
Dibromochloromethane	0.05	nd	nd	nd	9.4
m-Dichlorobenzene(1,2)	0.20	nd	nd	nd	3.4
o-Dichlorobenzene (1,3)	0.05	nd	nd	nd	4.8
p-Dichlorobenzene (1,4)	0.05	0.083	**0.91**	nd	0.083
Dichlorodifluoromethane	0.05	nd	nd	nd	16
1,1-Dichloroethane	0.05	nd	nd	nd	3.5
1,2-Dichloroethane	0.05	nd	nd	nd	0.05
1,1-Dichlroethylene	0.05	nd	nd	nd	0.05
c-1,2-Dichloroethylene	0.05	nd	nd	nd	3.4
t-1,2-Dichloroethylene	0.05	nd	nd	nd	0.084
1,2-Dichloropropane	0.05	nd	nd	nd	0.05
c-1,3-Dichloropropene	0.05	nd	nd	nd	0.05
Ethylbenzene	0.05	nd	nd	nd	2
Ethylene Dibromide	0.05	nd	nd	nd	0.05
Hexane	0.05	0.18	0.26	nd	2.8
Methyl Ethyl Ketone	0.5	nd	nd	nd	16
Methyl Isobutyl Ketone	0.5	nd	nd	nd	1.7
Methyl tert-Butyl Ether	0.05	nd	nd	nd	0.75
Methylene Chloride	0.05	nd	nd	nd	0.1
Styrene	0.05	nd	nd	nd	0.7
1,1,1,2-Tetrachloroethane	0.50	nd	nd	nd	0.058
1,1,2,2-Tetrachloroethane	0.05	nd	nd	nd	0.05
Tetrachloroethylene	0.05	nd	nd	nd	0.28
Toluene	0.05	0.033	0.028	nd	2.3
1,1,1-Trichloroethane	0.05	nd	nd	nd	0.38
1,1,2-Trichloroethane	0.05	nd	nd	nd	0.05
Trichloroethylene	0.05	nd	nd	nd	0.061
Trichlorofluoromethane	0.05	nd	nd	nd	4
Vinyl Chloride	0.02	nd	nd	nd	0.02
Xylenes	0.05	0.10	0.095	nd	3.1

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold** – concentration exceeds MECP Table 7 standard

Concentrations of 1,4-Dichlorobenzene, hexane, toluene and xylenes were identified in soil Samples MW4-SS1 and MW5-SS1. No other parameters were identified in the samples analysed. The concentration of 1,4-Dichlorobenzene (0.91 µg/g) identified in Sample MW5-SS1 exceeds the MECP Table 7 standard value. The remaining concentrations identified comply with the MECP Table 7 standards.

Table 10: Analytical Test Results – Soil (Metals)

Parameter	MDL (µg/g)	Soil Samples (µg/g) December 11, 2019				MECP Table 7 Residential Standards (µg/g)
		MW4-SS1	MW5-SS1	DUP-3	MW6-SS1	
Antimony	1.0	<0.2	2.3	<0.2	<0.2	7.5
Arsenic	1.0	3.6	1.9	2.4	3.3	18
Barium	1.0	120	**430**	330	290	390
Beryllium	1.0	0.21	0.31	0.26	0.25	4
Boron	1.0	8.2	9.8	8.9	7.9	120
Cadmium	0.5	<0.1	<0.1	<0.1	<0.1	1.2
Chromium	1.0	8.8	10	9.6	9.4	160
Cobalt	1.0	**28**	15	7.1	5.0	22
Copper	1.0	57	29	13	8.1	140
Lead	1.0	11	20	16	22	120
Mercury	0.1	0.057	<0.05	<0.05	<0.05	0.27
Molybdenum	1.0	1.8	1.7	1.2	1.6	6.9
Nickel	1.0	8.9	12	9.5	9.4	100
Selenium	1.0	<0.5	<0.5	<0.5	<0.5	2.4
Silver	0.5	<0.2	0.21	<0.2	<0.2	20
Thallium	1.0	0.098	0.36	0.066	0.085	1
Uranium	1.0	0.67	0.44	0.53	0.56	23
Vanadium	1.0	7.8	6.9	9.8	8.6	86
Zinc	1.0	15	26	22	23	340

Notes:
- ❒ MDL – Method Detection Limit
- ❒ nd – not detected above the MDL
- ❒ **Bold** – parameter concentration exceeds the MECP Table 7 standard

Barium and cobalt concentrations in soil samples MW5-SS1 and MW4-SS1, respectively, exceed the selected standards. All other metal parameter concentrations identified in the soil samples analyzed comply with the MECP Table 7 Residential Standards.

The maximum concentrations of analyzed parameters in the soil at the site are summarized below in Table 11.

Table 11: Maximum Concentrations – Soil			
Parameter	**Maximum Concentration (µg/g)**	**Borehole**	**Depth Interval (m BGS)**
Toluene	0.033	MW4-SS1	0.036-0.61; Fill
Xylene	0.14	BH1-SS1	0.036-0.61; Fill
PHC F1	11	BH1-SS1	0.036-0.61; Fill
Benzo[a]anthracene	0.017	BH1-SS1	0.036-0.61; Fill
Benzo[a]pyrene	0.019	BH1-SS1	0.036-0.61; Fill
Benzo[b]fluoranthene	0.028	BH1-SS1	0.036-0.61; Fill
Benzo[g,h,i]perylene	0.014	BH1-SS1	0.036-0.61; Fill
Benzo[k]fluoranthene	0.0096	BH1-SS1	0.036-0.61; Fill
Chrysene	0.018	BH1-SS1	0.036-0.61; Fill
Fluoranthene	0.034	BH1-SS1	0.036-0.61; Fill
Indeno[1,2,3-cd]pyrene	0.014	BH1-SS1	0.036-0.61; Fill
Phenanthrene	0.027	DUP-1 (BH1-SS1)	0.036-0.61; Fill
Pyrene	0.031	BH1-SS1	0.036-0.61; Fill
1,4-Dichlorobenzene	**0.91**	MW5-SS1	0.036-0.46; Fill
Hexane	0.26	MW5-SS1	0.036-0.46; Fill
Toluene	0.033	MW4-SS1	0.036-0.61; Fill
Xylenes	0.10	MW4-SS1	0.036-0.61; Fill
Antimony	2.3	MW5-SS1	0.036-0.46; Fill
Arsenic	3.6	MW4-SS1	0.036-0.61; Fill
Barium	**430**	MW5-SS1	0.036-0.46; Fill
Beryllium	0.31	MW5-SS1	0.036-0.46; Fill
Boron	9.8	MW5-SS1	0.036-0.46; Fill
Chromium	10	MW5-SS1	0.036-0.46; Fill
Cobalt	**28**	MW4-SS1	0.036-0.61; Fill
Copper	57	MW4-SS1	0.036-0.61; Fill
Lead	22	MW6-SS1	0.0-0.46; Fill
Mercury	0.057	MW4-SS1	0.036-0.61; Fill
Molybdenum	1.8	MW4-SS1	0.036-0.61; Fill
Nickel	12	MW5-SS1	0.036-0.46; Fill
Thallium	0.36	MW5-SS1	0.036-0.46; Fill
Uranium	0.67	MW4-SS1	0.036-0.61; Fill
Vanadium	9.8	DUP-3 (MW5-SS1)	0.036-0.46; Fill
Zinc	26	MW5-SS1	0.036-0.46; Fill

Notes:
- **Bold** – Value exceeds MECP Table 7 standard

All other parameter concentrations were below laboratory detection limits.

5.6 Groundwater Quality

Groundwater samples recovered from monitoring wells installed in MW3 through MW10, were submitted for analytical testing of a combination of BTEX or VOC, PHC, PAH, PCB, metals and mercury parameters by Pinchin (January, February 2020).

Groundwater samples recovered from MW5, MW6, MW8 and BH1A-20 by Paterson during subsequent 2020 sampling events, were submitted for analytical testing of a combination of BTEX or VOC and PHCs.

Groundwater samples were obtained from the screened intervals noted on Table 2. The results of the analytical testing are presented below in Tables 12, 13, 14 and 15. The laboratory Certificates of Analysis are provided in Appendix 1.

Table 12: Analytical Test Results (Pinchin)
Groundwater (BTEX and PHCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) January 15, 2020					MECP Table 7 Standards (µg/L)
		MW3	MW4	DUP-4	MW5	MW6	
Benzene	0.5	nd	nd	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	nd	nd	54
Toluene	0.5	nd	nd	nd	nd	nd	320
Xylenes	0.5	nd	nd	nd	nd	nd	72
PHC F1	25	<25	<25	<25	120	<25	420
PHC F2	100	<100	<100	<100	**1,800**	120	150
PHC F3	100	<200	<200	<200	**22,000**	**900**	500
PHC F4	100	<200	<200	<200	<200	<200	500

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold** – parameter exceeds the selected MECP Standards

Table 12 Continued: Analytical Test Results (Pinchin)
Groundwater (BTEX and PHCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) January 15, 2020				MECP Table 7 Standards (µg/L)
		MW7	MW8	MW9	MW10	
Benzene	0.5	nd	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	nd	54
Toluene	0.5	nd	nd	nd	nd	320
Xylenes	0.5	nd	nd	nd	nd	72
PHC F1	25	<25	NA	NA	<25	420
PHC F2	100	<100	NA	NA	<100	150
PHC F3	100	<200	NA	NA	<200	500
PHC F4	100	<200	NA	NA	<200	500

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- NA – parameter not analyzed

Petroleum hydrocarbon fractions F1, F2 and/or F3 were detected in groundwater Samples MW5 and MW6. The F2 and F3 concentrations identified in MW5 and the F3 concentrations identified in MW6 were in excess of the MECP Table 7 standards. The remaining concentrations identified in Samples MW5 and MW6 were in compliance with the MECP Table 7 standards. The remaining samples analysed were also in compliance with the remaining samples analysed.

Table 12 Continued: Analytical Test Results (Pinchin)
Groundwater (PHCs, F2-F4)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)		MECP Table 7 Standards (µg/L)
		February 12, 2020	February 20, 2020	
		MW6	MW6	
PHC F2	100	<100	<100	150
PHC F3	100	<200	<200	500
PHC F4	100	<200	<200	500

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Groundwater samples were recovered from MW6 on two subsequent events (February 12 and February 20, 2020). Both samples were submitted for analysis of PHC (F2-F4) parameters for confirmatory purposes. Based on the analytical test results, PHC concentrations were not identified in either sample; the results comply with the MECP Table 7 Standards. It should be noted that these results cannot be relied upon as the full method group was not analysed (PHC, F1-F4).

Table 12 Continued: Analytical Test Results (Paterson)
Groundwater (BTEX and PHCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) April 9, 2020			MECP Table 7 Standards (µg/L)
		MW5-GW1	MW6-GW1	MW8-GW1	
Benzene	0.5	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	54
Toluene	0.5	nd	nd	nd	320
Xylenes	0.5	nd	nd	nd	72
PHC F1	25	nd	nd	nd	420
PHC F2	100	**200**	nd	nd	150
PHC F3	100	**2910**	nd	nd	500
PHC F4	100	nd	nd	nd	500

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold**– parameter exceeds the selected MECP Standards

As part of Paterson's field program, wells MW5 and MW6 were re-sampled to confirm the results obtained by Pinchin. Paterson also sampled MW8 as the Pinchin investigation did include the analysis of BTEX and PHCs for groundwater recovered from this location.

Based on the analytical test results, no BTEX or PHC parameters were identified in any of the samples analysed, with the exception of Sample MW5-GW1, in which concentrations of PHC F2 and PHC F3 exceeding the Table 7 standards were identified. Groundwater results obtained from MW6 and MW8 comply with the MECP Table 7 standards.

Table 12 Continued: Analytical Test Results (Paterson)
Groundwater (BTEX and PHCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)				MECP Table 7 Standards (µg/L)
		May 14, 2020			June 11, 2020	
		BH2-20-GW1	BH3-20-GW1	DUP1	BH1A-20-GW1	
Benzene	0.5	nd	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	nd	54
Toluene	0.5	nd	nd	nd	nd	320
Xylenes	0.5	nd	nd	nd	nd	72
PHC F1	25	nd	nd	nd	nd	420
PHC F2	100	nd	nd	nd	nd	150
PHC F3	100	nd	nd	nd	nd	500
PHC F4	100	nd	nd	nd	nd	500

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

No BTEX or PHC concentrations were identified in the samples analysed. Results comply with the MECP Table 7 Standards.

Table 12 Continued: Analytical Test Results – Paterson Groundwater (BTEX and PHCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)			MECP Table 7 Standards (µg/L)
		November 5, 2020	November 20, 2020	December 11, 2020	
		MW5-GW1	MW5-GW2	BH4-20-GW1	
Benzene	0.5	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	54
Toluene	0.5	nd	nd	nd	320
Xylenes	0.5	nd	nd	nd	72
PHC F1	25	nd	nd	nd	420
PHC F2	100	nd	nd	nd	150
PHC F3	100	nd	nd	nd	500
PHC F4	100	nd	nd	nd	500

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Monitoring well MW5 was re-sampled in conjunction with the soil remediation and bedrock removal program which was implemented in November 2020 and is further discussed under separate cover. No BTEX or PHC parameters were identified either sample; the test results comply with the MECP Table 7 standards.

Groundwater from BH4-20 was sampled to confirm the quality of the groundwater below MW5. No BTEX or PHC concentrations were identified; the results comply with the MECP Table 7 standards

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Table 13: Analytical Test Results – Pinchin
Groundwater (PAHs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) January 15, 2020				MECP Table 7 Standards (µg/L)
		MW3	MW4	DUP-4	MW5	
Acenaphthene	0.05	nd	nd	nd	nd	17
Acenaphthylene	0.05	nd	nd	nd	nd	1
Anthracene	0.05	nd	nd	nd	0.18	1
Benzo[a]anthracene	0.05	nd	nd	nd	nd	1.8
Benzo[a]pyrene	0.01	nd	nd	nd	nd	0.81
Benzo[b]fluoranthene	0.05	nd	nd	nd	nd	0.75
Benzo[g,h,i]perylene	0.05	nd	nd	nd	nd	0.2
Benzo[k]fluoranthene	0.05	nd	nd	nd	nd	0.4
Chrysene	0.05	nd	nd	nd	nd	0.7
Dibenzo[a,h]anthracene	0.05	nd	nd	nd	nd	0.4
Fluoranthene	0.05	nd	nd	nd	nd	44
Fluorene	0.05	nd	nd	nd	nd	290
Indeno[1,2,3-cd]pyrene	0.05	nd	nd	nd	nd	0.2
1-Methylnaphthalene	0.05	nd	nd	nd	nd	1500
2-Methylnaphthalene	0.05	nd	nd	nd	nd	1500
Naphthalene	0.05	nd	nd	nd	nd	7
Phenanthrene	0.03	nd	nd	nd	nd	380
Pyrene	0.05	nd	nd	nd	nd	5.7

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Table 13 Continued: Analytical Test Results – Pinchin
Groundwater (PAHs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)				MECP Table 7 Standards (µg/L)
		January 15, 2020			March 12, 2021	
		MW6	MW7	MW10	MW8	
Acenaphthene	0.05	nd	nd	nd	nd	17
Acenaphthylene	0.05	nd	nd	nd	nd	1
Anthracene	0.05	nd	nd	0.18	nd	1
Benzo[a]anthracene	0.05	nd	nd	nd	nd	1.8
Benzo[a]pyrene	0.01	nd	nd	nd	nd	0.81
Benzo[b]fluoranthene	0.05	nd	nd	nd	nd	0.75
Benzo[g,h,i]perylene	0.05	nd	nd	nd	nd	0.2
Benzo[k]fluoranthene	0.05	nd	nd	nd	nd	0.4
Chrysene	0.05	nd	nd	nd	nd	0.7
Dibenzo[a,h]anthracene	0.05	nd	nd	nd	nd	0.4
Fluoranthene	0.05	nd	nd	nd	nd	44
Fluorene	0.05	nd	nd	nd	nd	290
Indeno[1,2,3-cd]pyrene	0.05	nd	nd	nd	nd	0.2
1-Methylnaphthalene	0.05	nd	nd	0.23	nd	1500
2-Methylnaphthalene	0.05	nd	nd	nd	nd	1500
Naphthalene	0.05	nd	nd	0.07	nd	7
Phenanthrene	0.03	nd	nd	nd	nd	380
Pyrene	0.05	nd	nd	nd	nd	5.7

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Several PAH parameters were identified in groundwater Samples MW5 and MW10, at concentrations below the MECP Table 7 standards. Otherwise, no PAH concentrations were identified in the samples analysed. The results comply with the MECP Table 7 standards.

Table 14: Analytical Test Results – Groundwater (VOCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) January 15, 2020			MECP Table 7 Standards (µg/L)
		MW3	MW4	DUP-4	
Acetone	5.0	nd	nd	nd	100000
Benzene	0.5	nd	nd	nd	0.5
Bromodichloromethane	0.5	nd	nd	nd	67000
Bromoform	0.5	nd	nd	nd	5
Bromomethane	0.5	nd	nd	nd	0.89
Carbon Tetrachloride	0.2	nd	nd	nd	0.2
Chlorobenzene	0.5	nd	nd	nd	140
Chloroform	0.5	nd	0.56	0.67	2
Dibromochloromethane	0.5	nd	nd	nd	65000
Dichlorodifluoromethane	1.0	nd	nd	nd	3500
1,2-Dichlorobenzene	0.5	nd	nd	nd	150
1,3-Dichlorobenzene	0.5	nd	nd	nd	7600
1,4-Dichlorobenzene	0.5	nd	nd	nd	0.5
1,1-Dichloroethane	0.5	nd	nd	nd	11
1,2-Dichloroethane	0.5	nd	nd	nd	0.5
1,1-Dichloroethylene	0.5	nd	nd	nd	0.5
cis-1,2-Dichloroethylene	0.5	nd	nd	nd	1.6
trans-1,2-Dichloroethylene	0.5	nd	nd	nd	1.6
1,2-Dichloropropane	0.5	nd	nd	nd	0.58
1,3-Dichloropropene, total	0.5	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	54
1, 2-dibromoethane	0.2	nd	nd	nd	0.2
Hexane	1.0	nd	nd	nd	5
Methyl Ethyl Ketone (2-Butanone)	5.0	nd	nd	nd	21000
Methyl Isobutyl Ketone	5.0	nd	nd	nd	5200
Methyl tert-butyl ether	2.0	nd	nd	nd	15
Methylene Chloride	5.0	nd	nd	nd	26
Styrene	0.5	nd	nd	nd	43
1,1,1,2-Tetrachloroethane	0.5	nd	nd	nd	1.1
1,1,2,2-Tetrachloroethane	0.5	nd	nd	nd	0.5
Tetrachloroethylene	0.5	nd	nd	nd	0.5
Toluene	0.5	nd	nd	nd	320
1,1,1-Trichloroethane	0.5	nd	nd	nd	23
1,1,2-Trichloroethane	0.5	nd	nd	nd	0.5
Trichloroethylene	0.5	nd	nd	nd	0.5
Trichlorofluoromethane	1.0	nd	nd	nd	2000
Vinyl Chloride	0.5	nd	nd	nd	0.5
Xylenes, total	0.5	nd	nd	nd	72

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Table 14 Continued: Analytical Test Results – Pinchin Groundwater (VOCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) January 15, 2020			MECP Table 7 Standards (µg/L)
		MW5	MW6	MW7	
Acetone	5.0	nd	nd	nd	100000
Benzene	0.5	nd	nd	nd	0.5
Bromodichloromethane	0.5	nd	nd	nd	67000
Bromoform	0.5	nd	nd	nd	5
Bromomethane	0.5	nd	nd	nd	0.89
Carbon Tetrachloride	0.2	nd	nd	nd	0.2
Chlorobenzene	0.5	nd	nd	nd	140
Chloroform	0.5	nd	0.28	0.41	2
Dibromochloromethane	0.5	nd	nd	nd	65000
Dichlorodifluoromethane	1.0	nd	nd	nd	3500
1,2-Dichlorobenzene	0.5	nd	nd	nd	150
1,3-Dichlorobenzene	0.5	nd	nd	nd	7600
1,4-Dichlorobenzene	0.5	nd	nd	nd	0.5
1,1-Dichloroethane	0.5	nd	nd	nd	11
1,2-Dichloroethane	0.5	nd	nd	nd	0.5
1,1-Dichloroethylene	0.5	nd	nd	nd	0.5
cis-1,2-Dichloroethylene	0.5	nd	nd	nd	1.6
trans-1,2-Dichloroethylene	0.5	nd	nd	nd	1.6
1,2-Dichloropropane	0.5	nd	nd	nd	0.58
1,3-Dichloropropene, total	0.5	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	54
1, 2-dibromoethane	0.2	nd	nd	nd	0.2
Hexane	1.0	nd	nd	nd	5
Methyl Ethyl Ketone (2-Butanone)	5.0	nd	nd	nd	21000
Methyl Isobutyl Ketone	5.0	nd	nd	nd	5200
Methyl tert-butyl ether	2.0	nd	nd	nd	15
Methylene Chloride	5.0	nd	nd	nd	26
Styrene	0.5	nd	nd	nd	43
1,1,1,2-Tetrachloroethane	0.5	nd	nd	nd	1.1
1,1,2,2-Tetrachloroethane	0.5	nd	nd	nd	0.5
Tetrachloroethylene	0.5	nd	nd	nd	0.5
Toluene	0.5	nd	nd	nd	320
1,1,1-Trichloroethane	0.5	nd	nd	nd	23
1,1,2-Trichloroethane	0.5	nd	nd	nd	0.5
Trichloroethylene	0.5	nd	nd	nd	0.5
Trichlorofluoromethane	1.0	nd	nd	nd	2000
Vinyl Chloride	0.5	nd	nd	nd	0.5
Xylenes, total	0.5	nd	nd	nd	72

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Table 14 Continued: Analytical Test Results – Pinchin Groundwater (VOCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) January 15, 2020			MECP Table 7 Standards (µg/L)
		MW8	MW9	MW10	
Acetone	5.0	nd	nd	nd	100000
Benzene	0.5	nd	nd	nd	0.5
Bromodichloromethane	0.5	nd	nd	nd	67000
Bromoform	0.5	nd	nd	nd	5
Bromomethane	0.5	nd	nd	nd	0.89
Carbon Tetrachloride	0.2	nd	nd	nd	0.2
Chlorobenzene	0.5	nd	nd	nd	140
Chloroform	0.5	0.81	0.79	0.32	2
Dibromochloromethane	0.5	nd	nd	nd	65000
Dichlorodifluoromethane	1.0	nd	nd	nd	3500
1,2-Dichlorobenzene	0.5	nd	nd	nd	150
1,3-Dichlorobenzene	0.5	nd	nd	nd	7600
1,4-Dichlorobenzene	0.5	nd	nd	nd	0.5
1,1-Dichloroethane	0.5	nd	nd	nd	11
1,2-Dichloroethane	0.5	nd	nd	nd	0.5
1,1-Dichloroethylene	0.5	nd	nd	nd	0.5
cis-1,2-Dichloroethylene	0.5	nd	nd	nd	1.6
trans-1,2-Dichloroethylene	0.5	nd	nd	nd	1.6
1,2-Dichloropropane	0.5	nd	nd	nd	0.58
1,3-Dichloropropene, total	0.5	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	54
1, 2-dibromoethane	0.2	nd	nd	nd	0.2
Hexane	1.0	nd	nd	nd	5
Methyl Ethyl Ketone (2-Butanone)	5.0	nd	nd	nd	21000
Methyl Isobutyl Ketone	5.0	nd	nd	nd	5200
Methyl tert-butyl ether	2.0	nd	nd	nd	15
Methylene Chloride	5.0	nd	nd	nd	26
Styrene	0.5	nd	nd	nd	43
1,1,1,2-Tetrachloroethane	0.5	nd	nd	nd	1.1
1,1,2,2-Tetrachloroethane	0.5	nd	nd	nd	0.5
Tetrachloroethylene	0.5	nd	nd	nd	0.5
Toluene	0.5	nd	nd	nd	320
1,1,1-Trichloroethane	0.5	nd	nd	nd	23
1,1,2-Trichloroethane	0.5	nd	nd	nd	0.5
Trichloroethylene	0.5	nd	nd	nd	0.5
Trichlorofluoromethane	1.0	nd	nd	nd	2000
Vinyl Chloride	0.5	nd	nd	nd	0.5
Xylenes, total	0.5	nd	nd	nd	72

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

With the exception of chloroform, no VOC parameters were identified in any of the samples analysed during the Pinchin field program. Chloroform concentrations detected are below the MECP Table 7 standard of 2 µg/L.

Table 14 Continued: Analytical Test Results - Paterson Groundwater (VOCs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)				MECP Table 7 Standards (µg/L)
		Jan.15/20	Jun.11/20	Nov.5/20	Nov.20/20	
		Trip Blank	BH1A-20-GW1	MW5-20-GW1	MW5-20-GW2	
Acetone	5.0	nd	nd	nd	nd	100000
Benzene	0.5	nd	nd	nd	nd	0.5
Bromodichloromethane	0.5	nd	nd	nd	nd	67000
Bromoform	0.5	nd	nd	nd	nd	5
Bromomethane	0.5	nd	nd	nd	nd	0.89
Carbon Tetrachloride	0.2	nd	nd	nd	nd	0.2
Chlorobenzene	0.5	nd	nd	nd	nd	140
Chloroform	0.5	nd	**7.1**	nd	nd	2
Dibromochloromethane	0.5	nd	nd	nd	nd	65000
Dichlorodifluoromethane	1.0	nd	7.2	nd	nd	3500
1,2-Dichlorobenzene	0.5	nd	nd	nd	nd	150
1,3-Dichlorobenzene	0.5	nd	nd	nd	nd	7600
1,4-Dichlorobenzene	0.5	nd	nd	nd	nd	0.5
1,1-Dichloroethane	0.5	nd	nd	nd	nd	11
1,2-Dichloroethane	0.5	nd	nd	nd	nd	0.5
1,1-Dichloroethylene	0.5	nd	nd	nd	nd	0.5
cis-1,2-Dichloroethylene	0.5	nd	nd	nd	nd	1.6
trans-1,2-Dichloroethylene	0.5	nd	nd	nd	nd	1.6
1,2-Dichloropropane	0.5	nd	nd	nd	nd	0.58
1,3-Dichloropropene, total	0.5	nd	nd	nd	nd	0.5
Ethylbenzene	0.5	nd	nd	nd	nd	54
1, 2-dibromoethane	0.2	nd	nd	nd	nd	0.2
Hexane	1.0	nd	nd	nd	nd	5
Methyl Ethyl Ketone (2-Butanone)	5.0	nd	nd	nd	nd	21000
Methyl Isobutyl Ketone	5.0	nd	nd	nd	nd	5200
Methyl tert-butyl ether	2.0	nd	nd	nd	nd	15
Methylene Chloride	5.0	nd	nd	nd	nd	26
Styrene	0.5	nd	nd	nd	nd	43
1,1,1,2-Tetrachloroethane	0.5	nd	nd	nd	nd	1.1
1,1,2,2-Tetrachloroethane	0.5	nd	nd	nd	nd	0.5
Tetrachloroethylene	0.5	nd	nd	nd	nd	0.5
Toluene	0.5	nd	nd	nd	nd	320
1,1,1-Trichloroethane	0.5	nd	nd	nd	nd	23
1,1,2-Trichloroethane	0.5	nd	nd	nd	nd	0.5
Trichloroethylene	0.5	nd	nd	nd	nd	0.5
Trichlorofluoromethane	1.0	nd	nd	nd	nd	2000
Vinyl Chloride	0.5	nd	nd	nd	nd	0.5
Xylenes, total	0.5	nd	nd	nd	nd	72

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold**– parameter in excess of the selected MECP Table 7 standards

Chloroform and dichlorodifluoromethane parameters were identified in groundwater Sample BH1A-20-GW1. Otherwise VOC parameters were not detected above the laboratory method detection limits in any of the groundwater samples analyzed. The chloroform concentration of 7.1 µg/gL identified in sample BH1A-20-GW1 exceeds the Table 7 standard of 2 µg/L.

Based on the review of available historical information and the PCAs for the Phase II Property, chloroform is not a contaminant of potential concern (CPC) for the Phase II Property. Chloroform is considered to be in compliance with the applicable site condition standard as the source of chloroform is only associated with the use of water from a treated municipal water supply and all concentrations of chloroform in the groundwater samples on the Phase II Property are less than 10 µg/L as listed in Table A of the MECP document entitled “Guidance for Addressing Chloroform at a Record of Site Condition Property.”

The dichlorodifluoromethane concentration of 7.2 µg/L is well below the MECP Table 7 standard of 3,500 µg/L.

As such, the groundwater results comply with the MECP Table 7 standards for VOC parameters.

Table 15: Analytical Test Results – Pinchin Groundwater (Metals and PCBs)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)					MECP Table 7 Standards (µg/L)
		January 15, 2020				March 12, 2021	
		MW4	DUP-4	MW5	MW6	MW3	
Antimony	0.5	nd	0.72	nd	nd	na	20000
Arsenic	1	nd	nd	nd	nd	na	1900
Barium	1	180	180	92	280	na	29000
Beryllium	0.5	nd	nd	nd	nd	na	67
Boron	10	84	86	97	75	na	45000
Cadmium	0.1	nd	nd	nd	nd	na	2.7
Chromium	1	nd	nd	nd	nd	na	810
Cobalt	0.5	4.3	4.3	19	nd	na	66
Copper	0.5	2.9	4.4	2.6	3.8	na	87
Lead	0.1	nd	nd	nd	nd	na	25
Mercury	0.1	nd	nd	nd	nd	na	0.1
Molybdenum	0.5	11	11	5.8	7.5	na	9200
Nickel	1	5.7	5.8	9.1	3.0	na	490
Selenium	1	nd	nd	nd	2.3	na	63
Silver	0.1	nd	nd	nd	nd	na	1.5
Sodium	200	1500000	1500000	1100000	1800000	na	2300000
Thallium	0.1	nd	nd	nd	nd	na	510
Uranium	0.1	1.8	1.9	2.2	3.1	na	420
Vanadium	0.5	nd	nd	nd	nd	na	250
Zinc	5	nd	5.9	nd	6.2	na	1100
PCBs	0.05	nd	nd	nd	nd	nd	0.2

Notes:
- MDL – Method Detection Limit
- na – not analyzed
- nd – not detected above the MDL

Metals parameters were detected in each of the groundwater samples analysed. The detected concentrations comply with the MECP Table 7 standards. No PCB concentrations were detected in the samples analysed. The groundwater results for both metals and PCB parameters are in compliance with the MECP Table 7 standards.

The maximum concentrations of analyzed parameters in the groundwater at the site are summarized below in Table 16.

Table 16: Maximum Concentrations – Groundwater			
Parameter	**Maximum Concentration (µg/L)**	**Borehole**	**Screened Interval (m BGS)**
Anthracene	0.18	MW10	1.26-3.66
1-Methylnaphthalene	0.23	MW10	1.26-3.66
Naphthalene	0.07	MW10	1.26-3.66
Chloroform	**7.1**	BH1A-20-GW1	1.42-4.42
Dichlorodifluoromethane	7.2	BH1A-20-GW1	1.42-4.42
Antimony	0.72	DUP-4 (MW4)	1.57-4.57
Barium	280	MW6	1.25-3.65
Boron	97	MW5	1.2-3.66
Cobalt	4.3	MW4 (DUP-4)	1.57-4.57
Copper	4.4	DUP-4 (MW4)	1.57-4.57
Molybdenum	11	MW4 (DUP-4)	1.57-4.57
Nickel	9.1	MW5	1.2-3.66
Selenium	2.3	MW6	1.25-3.65
Sodium	1800000	MW6	1.25-3.65
Uranium	3.1	MW6	1.25-3.65
Zinc	6.2	MW6	1.25-3.65

Notes:
- **Bold and underline** – parameter exceeds the MECP Table 7 standard

All other parameter concentrations were below laboratory detection limits. As discussed previously, chloroform is not considered to be a contaminant of concern.

5.7 Quality Assurance and Quality Control Results

All samples submitted during both the Pinchin and Paterson field programs and groundwater sampling events were handled in accordance with the Analytical Protocol with respect to holding time, preservation method, storage requirement, and container type.

As per Subsection 47(3) of O.Reg. 153/04, as amended, a Certificate of Analysis has been received for each sample submitted for analysis. The Certificates of Analysis are appended to this report.

Duplicate soil samples DUP-1 (BH1-SS1), DUP-2 (MW4-SS1) and DUP-3 (MW5-SS1) were analyzed for BTEX, PHCs, PCBs, VOCs and/or metals. Test results above the MDL for the duplicate soil samples and RPD calculations are provided below in Table 17.

TABLE 17: QA/QC Results –Soils (BTEX, PHCs, VOCs)				
Parameter	**BH1-SS1**	**DUP-1**	**RPD (%)**	**QA/QC Results**
Toluene	0.1	0.024	123	Outside the acceptable range
Xylene	0.14	0.046	101	Outside the acceptable range
PHC F1	11	10	10	Within the acceptable range
Benzo[a]anthracene	0.017	0.012	34	Outside the acceptable range
Benzo[a]pyrene	0.019	0.012	45	Outside the acceptable range
Benzo[b]fluoranthene	0.028	0.018	43	Outside the acceptable range
Benzo[g,h,i]perylene	0.014	0.0083	51	Outside the acceptable range
Benzo[k]fluoranthene	0.0096	0.0062	43	Outside the acceptable range
Chrysene	0.018	0.012	40	Outside the acceptable range
Fluoranthene	0.034	0.025	31	Outside the acceptable range
Indeno[1,2,3-cd]pyrene	0.014	0.0083	51	Outside the acceptable range
Phenanthrene	0.023	0.027	16	Within the acceptable range
Pyrene	0.031	0.021	38	Outside the acceptable range

TABLE 17 Continued: QA/QC Results –Soils (Metals)				
Parameter	**MW5-SS1**	**DUP-3**	**RPD (%)**	**QA/QC Results**
Arsenic	0.5	2.15	23	Outside the acceptable range
Barium	100	380	26	Outside the acceptable range
Beryllium	0.05	0.285	18	Within the acceptable range
Boron	0.9	9.35	10	Within the acceptable range
Chromium	0.4	9.8	4	Within the acceptable range
Cobalt	7.9	11.05	71	Outside the acceptable range
Copper	16	21	76	Outside the acceptable range
Lead	4	18	22	Outside the acceptable range
Molybdenum	0.5	1.45	34	Outside the acceptable range
Nickel	2.5	10.75	23	Outside the acceptable range
Thallium	0.294	0.213	138	Outside the acceptable range
Uranium	0.09	0.485	19	Within the acceptable range
Vanadium	2.9	8.35	35	Outside the acceptable range
Zinc	4	24	17	Within the acceptable range

All other parameters analysed were not detected above their respective method detection limits.

The majority of the RPD results for soil samples and their duplicates, are outside the acceptable range. It is not uncommon that very small or very high concentrations or values will yield higher RPD values; in these cases, the RPD values calculated can be unreliable.

A duplicate groundwater sample DUP-4 (MW4) was analyzed for BTEX, PHCs, PCBs, VOCs and/or metals. Test results above the MDL for the duplicate soil samples and RPD calculations are provided below in Table 18.

TABLE 18: QA/QC Results – Groundwater (Metals)

Parameter	MW4	DUP-4	RPD (%)	QA/QC Results
Chloroform	0.56	0.67	18	Within the acceptable range
Barium	180	180	0	Within the acceptable range
Boron	84	86	2	Within the acceptable range
Cobalt	4.3	4.3	0	Within the acceptable range
Copper	2.9	4.4	41	Outside the acceptable range
Molybdenum	11	11	0	Within the acceptable range
Nickel	5.7	5.8	2	Within the acceptable range
Sodium	1500000	1500000	0	Within the acceptable range
Uranium	1.8	1.9	5	Within the acceptable range

All other parameters analysed were not detected above their respective method detection limits.

The majority of the RPD results within the acceptable range, with the exception of that calculated for copper. It is not uncommon that very small or very high concentrations or values will yield higher RPD values, and as such, the RPD value is not an accurate measure in these cases.

A duplicate groundwater sample was also collected from BH3-20-GW1 during the sampling event conducted by Paterson on May 14, 2020. The original and duplicate samples were analysed for BTEX and PHC parameters; no concentrations were detected in the original or duplicate sample.

Based on the analytical laboratory results, it is our opinion that the overall quality of the field data collected during this Phase II-ESA is considered to be sufficient to meet the overall objectives of this assessment.

5.8 Phase II Conceptual Site Model

The following section has been prepared in accordance with the requirements of O.Reg. 153/0, as amended by the Environmental Protection Act. Conclusions and recommendations are discussed in a subsequent section.

Site Description

Potentially Contaminating Activity and Areas of Potential Environmental Concern

As presented in Table 1 in Section 2.2 of this report, PCAs that are considered to result in APECs on the Phase II Property discussed below:

APEC 1 – Existing AST: Based on the findings of the Pinchin Phase I ESA, a 1,250 L diesel AST (manufactured in 2009) associated with an adjacent emergency generator, is located on the second basement level of the subject building. According to the Phase I ESA, the historical review did not identify any records of spills for the Phase I Property, and no visual or olfactory evidence of leaks or stains within the generator room was reported. The AST is an on-site PCA resulting in an APEC on the northeastern portion of the Phase I Property. The associated chemicals of potential concern (CPCs) included BTEX and PHCs (F1-F4).

APEC 2 – Former heating oil AST: Based on the findings of the Phase I ESA, a former 15,141 L heating oil AST was formerly located within a tank room on the second basement level of the subject building. The Pinchin Phase I ESA did not report any signs of leakage or staining on the interior of the subject building. Based on a photo of the former tank room provided in the Phase I ESA report, some staining appeared to be present on the concrete floor; the concrete floor appeared to be in good condition with no obvious signs of pitting or cracks. No other potential migratory pathways, such as floor drains were noted within the stained area. The former AST is a former PCA resulting in an APEC on the south-central portion of the Phase II Property. The associated chemicals of potential concern (CPCs) include BTEX and PHCs (F1-F4).

APEC 3 – Transformer Vault:

Based on the findings of the Phase I ESA, a Hydro transformer vault is present on the first basement level of the subject building, above the former tank room (noted above).

The transformer vault was not accessed at the time of the Phase I ESA for safety purposes. The transformer vault represents an on-site PCA resulting in an APEC on the south-central portion of the Phase II Property. The associated chemicals of potential concern (CPCs) include PHCs (F1-F4) and PCBs.

APEC 4 – Hazardous Wastes:

Based on the ERIS report and MECP FOI search results reviewed as part of the Pinchin Phase I ESA, several waste generator numbers were identified for the subject property. Generator numbers were registered for photo-processing wastes, halogenated solvents, light fuels and polychlorinated biphenyls, considered to be associated with office activities within the subject building. The generation of hazardous wastes on-site is considered to a PCA resulting in an APEC across the central and southern portions of the site (within the footprint of the subject building). Associated CPCs include BTEX, PHCs, PAHs, VOCs, PCBs, metals (including hydride-forming compounds) and mercury (Hg).

APEC 5 – Application of deicing salts for vehicular and pedestrian safety: Based on the findings of the Phase I ESA, it is considered likely that road salt was applied to the surface of the parking lot and access lanes (on the northern portion of the Phase II Property) for the safety of vehicular and pedestrian traffic under conditions of ice and/or snow.

According to Section 49.1 of O.Reg. 153/04, if an applicable site condition standard is exceeded at a property solely because of the following reason, the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act: “The qualified person has determined, based on a phase one environmental site assessment or a phase two environmental site assessment, that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both.”

In accordance with Section 49.1 of O.Reg. 153/04, any EC and SAR concentrations on the RSC Property that exceed the MECP Table 3 standards for a residential/institutional land use are deemed *not to be exceeded* for the purpose of Part XV.1 of the Act. This exemption is being relied up for APEC 5.

APEC 6 – Fill material: Based on the findings of the 2019 Pinchin Phase II ESA, fill material is present beneath the concrete slab of the building. The fill material is considered to have been imported for construction purposes and consists largely of engineered fill material mixed with clayey silty sand at some locations; at other locations, the fill material consists only of crushed stone with no soil matrix.

No visual or olfactory evidence of potential contamination (such as deleterious material or staining) was noted in the fill material during the field program. The importation of fill material of unknown quality is considered to be a PCA resulting in an APEC across the majority of the Phase II Property, primarily within the building footprint. Associated chemicals of potential concern (CPCs) are metals (including As, Sb, Se) and Hg.

APEC 7 – Former Dry Cleaning Facility: Based on the findings of the Pinchin Phase I ESA, a possible former dry-cleaning facility (where chemicals were used) was present on the adjacent property to the east (447 Albert Street). The former cleaners is an off-site PCA considered to result in an APEC along the eastern portion of the Phase II Property.

APEC 8 – Former Off-Site Manufacturing Facility and Dry Cleaner: Based on the findings of the Pinchin Phase I ESA, a former car manufacturing facility was present at 422-425 Slater Street and a former dry cleaner was present at 200-202 Bay Street. Although these properties are 95m and 125m away from the Phase I Property, they were considered by Pinchin to represent an APEC on the Phase II Property based on their up-gradient orientation relative to the subject land.

The off-site PCAs considered to result in APECs on the Phase II Property are shown in red on Figure 5 appended to the Pinchin Phase I ESA report.

Remaining off-site PCAs identified are not considered to result in APECs on the Phase I Property based on their respective separation distances and/or cross- or down-gradient orientations relative to the Phase II Property. These off-site PCAs are shown in green on Figure 5 appended to the Pinchin Phase I ESA report.

Contaminants of Potential Concern

Based on the APECs identified on the Phase II Property, the contaminants of potential concern (CPCs) are:

(CPCs) in soil and/or groundwater include:

- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX);
- Petroleum hydrocarbons (PHCs, Fractions F1-F4);
- Polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs);
- Volatile organic compounds (VOCs); and
- Metals including Mercury (Hg).

Subsurface Structures and Utilities

The subject building has two (2) basement levels. Based on the findings of the Phase I ESA, the following pits were present on the lowest basement level of the subject structure:

- stormwater sump: present in the northwest portion of the basement and is inferred to capture storm water from a weeping tile system located around the subject building foundation;
- sanitary sump is located in the southwest portion basement;
- concrete pit in the former tank room on the lowest basement; and
- and elevator pit in the central portion of the basement.

No other subsurface structures were present on the Phase II Property.

Subsurface utilities on the Phase II Property include sanitary and storm sewers, a municipal water service, electrical services and telephone lines. Due to the shallow nature of the soil on the RSC Property, service trenches may have been excavated into the upper layer of the bedrock. In general, trench backfill may provide a preferential pathway for contaminant transport if the water table is at or above the base of the trenches.

Based on the findings of the Phase II ESA, underground services are not considered to have created preferential pathways for contaminant migration.

Physical Setting

Site Stratigraphy

The site stratigraphy, from ground surface to the deepest aquifer or aquitard investigated, is illustrated on Drawings PE4908-4A-D through PE4908-9A-D – Cross Sections A-A' through D-D'. Site stratigraphy consists of:

- Engineered fill material was encountered beneath the concrete floor slab in boreholes BH1, MW-4, MW-5, MW-6, MW-7, BH1-20, BH2-20 and BH3-20. The fill material consisted largely of crushed stone mixed to varying degrees with clayey silty sand. The fill extended to depths ranging from 0.18 to 0.91 m below the ground surface (mbgs). Groundwater was not encountered in this stratigraphic layer.

- Limestone bedrock was encountered beneath the concrete slab (BH2, MW-3) and/or granular fill material. Boreholes were terminated in this layer at depths ranging from 3.66 to 6.14 mbgs. Groundwater was encountered in this stratigraphic unit.

Hydrogeological Characteristics

Groundwater at the Phase II Property was encountered in the bedrock. This unit is considered to a local.

Water levels recorded at the subject site on April 9, 2020 and November 24, 2020, measured between 1.23 to 3.65 m below the basement floor slab. Groundwater contour mapping was completed based on the findings of the November 24, 2020 sampling event, and the horizontal hydraulic gradient for the subject site was calculated. Groundwater flow at the subject site was in a westerly direction, with a hydraulic gradient of approximately 0.25 m/m.

Approximate Depth to Bedrock

Bedrock is present at depths ranging from approximately 0.15 to 0.91 m below basement floor slab.

Approximate Depth to Water Table

Depth to water table at the subject site varies between approximately 1.23 to 3.65 m below the basement floor slab.

Sections 41 and 43.1 of the Regulation

Section 41 of the Regulation (Site Condition Standards, Environmentally Sensitive Areas) does not apply to the subject site as the Phase II Property is not within 30m of an environmentally sensitive area. The pH of the shallow soil is between 5 and 9. As noted below, the site is a shallow soil property and therefore no subsurface soil was available for pH testing.

Section 43.1 of the Regulation does apply to the subject site in that the subject site is a Shallow Soil Property.

Proposed Buildings and Other Structures

It is our understanding that floors 2 through 11 of the existing subject structure are to be renovated/rehabilitated as residential units, while the ground floor units will remain commercial in nature. Based on the change to a more sensitive land use, a Record of Site Condition will be required.

Existing Buildings and Structures

The Phase II Property is occupied by a vacant, 11-storey commercial office building with and underpass to the underground parking garage. No other above grade buildings or structures are present on the Phase II Property.

Water Bodies and Areas of Natural Significance

There are no water bodies or areas of natural significance present on the Phase II Property or within the 250m study area.

Environmental Condition

Areas Where Contaminants are Present

Soil – APEC 5

Based on the findings of the Pinchin field program, 1,4-Dichlorobenzene and barium were identified at concentrations exceeding MECP Table 7 standards at MW-5 located on the northwest portion of the Phase II Property. Cobalt was identified at a concentration exceeding the MECP Table 7 standard at MW-4 on the central portion of the site. These exceedances were identified in the fill material; at these borehole locations the fill material consisted of crushed stone mixed with varying quantities of a sandy clay soil. The impacts are confined to the overburden, as determined by vertical delineation, and discussed in a following section of the CSM.

Groundwater – APEC 5 and APEC 6

Groundwater testing conducted by Pinchin in January of 2020 identified PHC (F2 and/or F3) concentrations exceeding the MECP Table 7 standards, in groundwater samples recovered from MW-5 and MW-6. Groundwater testing conducted by Paterson in June of 2020 identified a chloroform concentration exceeding the MECP Table 7 standard in a groundwater sample recovered from BH1A-20.

Monitoring Well MW-5

Pinchin test results identified concentrations of PHC F2 (1,800 µg/L) and PHC F3 (22,000 µg/L) in the groundwater recovered from MW-5 in January of 2020. It should be noted that field notes pertaining to Pinchin staff sampling observations were not provided to Paterson for review. Based on a review of the laboratory Certificates of Analysis sample matrix interference was noted for the sample recovered from MW-5, suggesting sediment was present in the sample.

To confirm the findings of the Pinchin results, Paterson recovered a groundwater sample from MW-5 on April 9, 2020. The groundwater sample was analysed for BTEX and PHC (F1-F4). The analytical test results identified concentrations of PHC F2 (200 µg/L) and PHC F3 (2,910 µg/L) at concentrations exceeding the MECP Table 7 standards, yet significantly below the initial concentrations obtained by Pinchin. No free product was identified during the sampling event and no evidence of PHC odour or sheen was noted on the purge water.

A Remedial Action Plan was implemented to address the soil impacts in the vicinity of MW-5 and MW-4. As part of the RAP bedrock trench was excavated to a depth of approximately 2m below the basement floor slab, to intercept the top of the groundwater table to observe and ultimately pump any impacted groundwater. In conjunction with the remediation program groundwater from MW-5 was sampled 2 additional times, on November 5 and 20th, 2020, and submitted for analytical testing of VOC and PHCs. Based on the analytical test results, no VOC or PHC concentrations were identified in the samples.

Given the sound quality of the bedrock, groundwater was not observed to infiltrate within the bedrock trench excavated adjacent to MW-5. To confirm the groundwater quality at a lower elevation, BH4-20 was drilled within the trench to a depth of approximately 6.15m below the basement floor slab, approximately 2.5m below MW. A groundwater sample recovered on December 11, 2020 was submitted for analytical testing VOC and PHC parameters; no parameters concentrations were identified above the laboratory method detection limits. No free product was identified during the sampling event. No visual or olfactory indications of petroleum hydrocarbon contamination were observed on the purge water during the sampling event.

For the reasons provided below, it is the opinion of the QP that the groundwater at MW-6 complies with the MECP Table 7 standards:

- ❒ The November and December 2020 analytical test results obtained by Paterson at MW-5 did not detect any PHC concentrations above the laboratory method detection limits;
- ❒ No visual or olfactory indications of potential petroleum hydrocarbon contamination were observed at MW-5 during any of the sampling events carried out by Paterson;
- ❒ PHC concentrations were not detected at concentrations exceeding the laboratory method detection limits at any of the nearby surrounding wells;
- ❒ The absence of a nearby source of PHCs;

- The probability that sediment was present in the initial samples obtained from MW-5 in January and April of 2020. Sediment has been documented to affect PHC fractions identified in groundwater samples. Furthermore, it is the QPs opinion that if the concentrations of PHCs reported were present in the groundwater, visual and/or olfactory signs evidence of PHCs would have been observed on the purge water during the sampling events.

Monitoring Well MW-6

Pinchin test results identified concentrations of PHC F3 (900 µg/L) in the groundwater recovered from MW-5 in January of 2020. Pinchin conducted two additional rounds of groundwater sampling at MW6 in February of 2020; both groundwater samples were submitted for analytical testing of PHC F2 through F4. No concentrations were detected during either sampling event. Given the samples recovered from MW6 by Pinchin in February 2020 were not analysed for the full PHC Method Group (PHC F1-F4), Paterson carried out two subsequent sampling events on April 9, 2020 and June 2, 2020. The groundwater samples recovered from MW6 were analysed for BTEX and PHCs (F1-F4); no detectable concentrations were reported above the laboratory method detection limits. Given the analytical test results in combination with observations made at the time of the Paterson sampling events, during which no free product, hydrocarbon sheen or odour were noted on the purge water, it is the opinion of the QP that the January 2020 results obtained by Pinchin were not representative of the groundwater at MW6 at that time. The groundwater at MW6 is considered to comply with the MECP Table 7 standards.

Monitoring Well MW-1A-20

A concentration of chloroform (7.1 µg/L) was identified in the groundwater recovered from BH1A-20; the concentration exceeds the MECP Table 7 standard of 2 µ/L.

The source of the chloroform concentration is considered to have been the use of municipal groundwater during the rock coring process for the installation of monitoring wells. Chloroform complies with the applicable site condition standard as the source of chloroform is only considered to be associated with the use of water from a treated municipal water supply and all concentrations of chloroform in the soil and groundwater samples on the Phase II Property are less than 3.1 µg/g and 10 µg/L as listed in Table A of the MECP document entitled “Guidance for Addressing Chloroform at a Record of Site Condition Property.” **Chloroform is therefore not considered to be a contaminant of concern.**

The groundwater beneath the Phase II Property complies with the MECP Table 7 standards selected for the site. Analytical test results are presented in plan view on the following drawings:

- Drawing PE4908-7 – Analytical Testing Plan – Groundwater (Metals, Hg);
- Drawing PE4908-8 – Analytical Testing Plan – Groundwater (VOCs); and
- Drawing PE4980-9 – Analytical Testing Plan – Groundwater (BTEX, PHC, PAH and PCB).

Types of Contaminants

Based on the findings of the Phase II ESA, the following contaminants of concern (CPCs) are present in the fill (soil matrix) on the Phase II Property:

- 1,4-Dichlorobenzene;
- Barium; and
- Cobalt.

The groundwater beneath the Phase II Property complies with the MECP Table 7 standards.

Contaminated Media

Based on the results of the Phase II ESA, the soil matrix within the fill material (crushed stone mixed with sandy clay) on the central and northeast portions of the Phase II Property are impacted with 1,4-Dichlorobenzene, barium and cobalt concentrations exceeding the MECP Table 7 standards.

The groundwater beneath the Phase II Property complies with the MECP Table 7 standards.

What Is Known About Areas Where Contaminants Are Present

APEC 5 and 6

The barium and cobalt concentrations identified in soil on the Phase II Property are considered to be associated with the fill material (APEC 5), and are most likely naturally occurring given the clayey nature of the soil matrix mixed with the crushed stone fill material.

The concentration of 1,4-Dichlorobenzene may be associated with the importation of fill material or with the past generation of limited quantities of hazardous wastes associated with past commercial offices tenants at the Phase II Property.

Distribution Contaminants

Impacted fill material was identified in two small pockets on the central and northeast portions of the Phase II Property. As shown on the following drawings, the lateral distribution of contaminants was limited:

- PE4908-4 – Analytical Testing Plan – Soil (Metals, Hg); and
- PE4908-5 – Analytical Testing Plan – Soil (VOCs).

Soil impacts were considered to extend to the bedrock. The vertical distribution of contaminants is shown in the following drawings:

- PE4908-4A – Cross Section A-A' – Soil (Metals, Hg);
- PE4908-4B – Cross Section B-B' – Soil (Metals, Hg);
- PE4908-4C – Cross Section C-C' – Soil (Metals, Hg);
- PE4908-4D – Cross Section D-D' – Soil (Metals, Hg);
- PE4980-5A – Cross Section A-A' – Soil (VOCs); and
- PE4908-5B – Cross Section B-B' – Soil (VOCs).

Due to the shallow nature of the soil, vertical delineation of the soil impacts was not achieved at either MW-5 or MW-3. Based on the results of groundwater sampling at the MW-5 and MW-3, contaminants are not present in the groundwater at concentrations exceeding the MECP Table 7 standards. Contaminants are therefore not considered to have extended into the bedrock. Please refer to the following drawings:

- PE4908-7A – Cross Section A-A' – Groundwater (Metals, Hg);
- PE4908-7B – Cross Section B-B' – Groundwater (Metals, Hg);
- PE4908-7C – Cross Section C-C' – Groundwater (Metals, Hg);
- PE4908-7D – Cross Section D-D' – Groundwater (Metals, Hg);
- PE4980-8A – Cross Section A-A' – Groundwater (VOCs); and
- PE4908-8B – Cross Section B-B' – Groundwater (VOCs).

Discharge of Contaminants

The source of metal impacts is considered to be the imported fill material; it is expected that barium and cobalt concentrations are naturally occurring within the clayey soil matrix observed to be mixed with the crushed stone at MW-4 and MW-5. The 1,4-Dichlorobenze concentration identified in the soil at MW-5 may be associated with the hazardous wastes formerly generated on site or with the imported fill material.

Migration of Contaminants

Based on the results of groundwater sampling, contaminants exceeding the MECP Table 7 standards at the RSC Property for 1,4-Dichlorobenzene and metal parameters are confined to the soil mixed with the granular fill material. Groundwater beneath the Phase II Property complies with the MECP Table 7 standards. Based on the findings of the Phase II ESA, no significant migration of contaminants is considered to have occurred on the RSC Property.

Climatic and Meteorological Conditions

In general, climatic and meteorological conditions have the potential to affect contaminant distribution. Two (2) ways by which climatic and meteorological conditions may affect contaminant distribution include the downward leaching of contaminants by means of the infiltration of precipitation, and the migration of contaminants via groundwater levels and/or flow, which may fluctuate seasonally.

The RSC Property was largely covered with building structures or asphalt, significantly reducing the potential for precipitation infiltration and downward leaching. Based on the groundwater results, downward leaching and groundwater levels or flow are not considered to have affected contaminant distribution at the RSC Property.

Potential for Vapour Intrusion

While 1,4-Dichlorobenzene is a volatile substance, given the limited extent of the impacted soil and the concentrations detected (marginally above the standard), the potential for vapour instruction to have occurred at the Phase II Property is considered to be low.

All impacted soil has since been removed from the Phase II Property; soil and groundwater beneath the Phase II Property comply with the MECP Table 7 standards. As such, there is no anticipated potential for future vapour intrusion into future subsurface structures and utilities at the RSC Property.

Contaminant Transport Pathways

Physical transport – one potential contaminant transport pathway is the physical transport from one location to another of impacted soil, either intentionally or unintentionally, by earth moving equipment, vehicle traffic, or pedestrian traffic. The potential for physical transport of contaminants to have occurred on the RSC Property is considered to be low.

Precipitation/Infiltration/Leaching – As precipitation falls on the ground surface and subsequently infiltrates through the soil to the groundwater table, there is the potential for contaminants in the soil phase to enter the groundwater, depending on the solubility of the contaminants.

As the Phase II Property is largely covered with a building structure and parking garage with some paved areas, the potential for infiltration and leaching due to precipitation is very low.

Given that the groundwater beneath the RSC Property complies with the MECP Table 7 standards no significant contaminant transport is considered to have occurred at the RSC Property.

Human and Ecological Receptors

Human Receptors - Potential human receptors are considered to be limited to construction workers and environmental professionals who may contact the soil during the remediation and/or rehabilitation of the site. The site is located in a municipally serviced area.

Ecological Receptors – There are no significant potential ecological receptors are present on the Phase II Property as the property is entirely covered by a building, parking garage and paved areas. No significant potential ecological receptors are present downgradient of the Phase II Property given the downtown urban setting of the Phase II Property.

Receptor Exposure Points

Human Receptors – Exposure points for human receptors consist of remedial excavations.

Ecological Receptors – In general, the most likely exposure points for ecological receptors include the root zones of plants and the burrows of burrowing wildlife. As noted above there was limited potential for contact with ecological receptors on the Phase II Property.

Routes of Exposure

Human Receptors – Routes of exposure for human receptors (construction works and environmental professionals) include dermal contact, accidental ingestion and inhalation.

Ecological Receptors – Routes of exposure for ecological receptors include ingestion, dermal contact and inhalation. There are no potential ecological receptors as discussed above due to the site being covered with a building and parking garage structure as well as some paved areas, and situated in a downtown urban setting. Furthermore, groundwater at the RSC Property complies with the site standards.

Refer to Drawing PE4908-10 – Contaminant Distribution Diagram which illustrates and provides narrative notes explaining the contaminant release mechanisms, contaminant transport pathways, human and ecological receptors, receptor exposure points, and routes of exposure at the Phase II Property.

6.0 CONCLUSIONS

Assessment

A Phase II ESA was conducted for the property addressed 473 Albert Street, in the City of Ottawa, Ontario. The purpose of the Phase II ESA was to address potentially contaminating activities (PCAs) that were identified during the Phase I ESA and considered to result in areas of potential environmental concern (APECs) on the Phase I and Phase II Property.

An initial subsurface program was conducted by Pinchin in December of 2019 to address the APECs identified in the Phase I ESA. This program consisted of drilling ten (10) boreholes, eight (8) of which were completed as groundwater monitoring wells. The stratigraphy at the site consisted of a concrete floor slab over engineered fill material which consisted of primarily crushed stone, mixed with a sandy clay soil matrix at some locations. Limestone bedrock was present beneath the fill.

Soil and groundwater samples were submitted for a combination of BTEX, PHCs, PAHs, PCB, VOCs and/or metals (including Hg) analyses. Based on the laboratory results, barium and 1,4-Dichlorobenzene concentrations in excess of the selected MECP Table 7 Residential Standards were identified in soil Sample MW-4-SS1, while a cobalt concentration exceeding the MECP Table 7 standard was identified in Sample MW-5-SS1. Groundwater results identified PHC-F2 and/or -F3 exceedances at MW-5 and MW-6.

During the interim of May through December 2020, Paterson carried out additional drilling and groundwater sampling programs to confirm and delineate groundwater exceedances identified during the Pinchin field program. Four (4) boreholes were drilled for lateral delineation purposes (BH1-20, BH1A-20, BH2,-20 and BH3-20) and a fifth borehole (BH4-20) was drilled for vertical delineation purposes. Soil samples were not recovered at this time; it should be noted however that no visual or olfactory evidence of potential contamination was noted in the fill material.

Groundwater samples recovered from the 2020 boreholes were analysed for a combination of BTEX or VOC and PHC parameters. No detections of the parameters analysed were noted in any of the samples, with the exception of chloroform (7 µg/L) at a concentration exceeding the MECP Table 7 standard of 2 µg/L in the groundwater recovered from BH1A-20.

The chloroform was considered to have resulted from the use of municipally treated water during the bedrock coring process and complies with the standard of 10 µg/L presented in Table A of the MECP document entitled "Guidance for Addressing Chloroform at a Record of Site Condition Property."

Based on the findings of the drilling program and sampling events in combination with re-sampling of the monitoring wells installed by Pinchin, it was considered likely that initial PHC F2 and F3 exceedances identified at MW-5 and MW-6 had resulted from sediment content in the groundwater samples. The most recent groundwater results indicate that no BTEX, VOC or PHC concentrations were detected above the laboratory method detection limits, with the exception of chloroform as noted above, and various metal parameters at concentrations below the MECP Table 7 Standards. As such, the groundwater beneath the Phase II Property complies with the MECP Table 7 Standards.

Conclusion

Based on the findings of the Pinchin field program and the initial Phase II ESA findings obtained by Paterson, a soil and groundwater remediation program was recommended and a soil remediation program was subsequently carried out. All impacted soil was removed from the property, as detailed in the Remediation Report provided in Appendix 2. Based on additional drilling and sampling events carried out in conjunction with the soil remediation program, no impacted groundwater was encountered or removed from the Phase II Property.

The findings of the Phase II ESA and Remediation Program indicate that the soil and groundwater beneath the Phase II Property comply with the MECP Table 7 standards. An RSC will be filed based on this Phase II ESA, to support the proposed change in land use.

It is expected that groundwater monitoring wells will be abandoned in accordance with O.Reg.903, at the time of building rehabilitation. It is recommended that they be maintained until this time, for possible future groundwater monitoring events.

7.0 STATEMENT OF LIMITATIONS

This Phase II - Environmental Site Assessment report has been prepared under the supervision of a Qualified Person in general accordance with O.Reg. 153/04 as amended and meets the requirements of CSA Z769-00. The conclusions presented herein are based on information gathered from a limited sampling and testing program. The test results represent conditions at specific test locations at the time of the field program.

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes themselves.

Should any conditions be encountered at the subject site and/or historical information that differ from our findings, we request that we be notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of InterRent No. 3 Development and notification from InterRent No. 3 Development and Paterson Group will be required to release this report to any other party.

Paterson Group Inc.

Mandy Witteman, B.Eng., M.A.Sc.

Karyn Munch, P.Eng., QP$_{ESA}$

Report Distribution:

- ❒ InterRent No. 3 Development
- ❒ Paterson Group

FIGURES

Figure 1 - Key Plan

PE4908-3 – Test Hole Location Plan

Drawing PE4908-4– Analytical Testing Plan – Soil (Metals)

Drawing PE4908-4A - Cross-Section A-A' – Soil (Metals)

Drawing PE4908-4B - Cross-Section B-B' – Soil (Metals)

Drawing PE4908-4C - Cross-Section C-C' – Soil (Metals)

Drawing PE4908-4D - Cross-Section D-D' – Soil (Metals)

Drawing PE4908-5– Analytical Testing Plan – Soil (VOCs)

Drawing PE4908-5A - Cross-Section A-A' – Soil (VOCs)

Drawing PE4908-5B - Cross-Section B-B' – Soil (VOCs)

Drawing PE4908-5D - Cross-Section C-C' – Soil (VOCs)

Drawing PE4908-5D - Cross-Section D-D' – Soil (VOCs)

Drawing PE4908-6– Analytical Testing Plan – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6A - Cross-Section A-A' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6B - Cross-Section B-B' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6C - Cross-Section C-C' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6D - Cross-Section D-D' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-7– Analytical Testing Plan – Groundwater (Metals)

Drawing PE4908-7A - Cross-Section A-A' – Groundwater (Metals)

Drawing PE4908-7B - Cross-Section B-B' – Groundwater (Metals)

Drawing PE4908-7C- Cross-Section C-C' – Groundwater (Metals)

Drawing PE4908-7D - Cross-Section D-D' – Groundwater (Metals)

Drawing PE4908-8– Analytical Testing Plan – Groundwater (VOCs)

Drawing PE4908-8A - Cross-Section A-A' – Groundwater (VOCs)

Drawing PE4908-8B - Cross-Section B-B' – Groundwater (VOCs)

Drawing PE4908-8C- Cross-Section C-C' – Groundwater (VOCs)

Drawing PE4908-8D - Cross-Section D-D' – Groundwater (Metals)

Drawing PE4908-9– Analytical Testing Plan – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9A - Cross-Section A-A' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9B - Cross-Section B-B' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9C- Cross-Section C-C' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9D - Cross-Section D-D' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4980-10 – Contaminant Transport Diagram

APPENDIX 1

Sampling and Analysis Plan

Soil Profile and Test Data Sheets

Symbols and Terms

Laboratory Certificates of Analysis

APPENDIX 2

Remediation Report

FIGURES

Figure 1 - Key Plan

PE4908-3 – Test Hole Location Plan

Drawing PE4908-4– Analytical Testing Plan – Soil (Metals)

Drawing PE4908-4A - Cross-Section A-A' – Soil (Metals)

Drawing PE4908-4B - Cross-Section B-B' – Soil (Metals)

Drawing PE4908-4C - Cross-Section C-C' – Soil (Metals)

Drawing PE4908-4D - Cross-Section D-D' – Soil (Metals)

Drawing PE4908-5– Analytical Testing Plan – Soil (VOCs)

Drawing PE4908-5A - Cross-Section A-A' – Soil (VOCs)

Drawing PE4908-5B - Cross-Section B-B' – Soil (VOCs)

Drawing PE4908-5D - Cross-Section C-C' – Soil (VOCs)

Drawing PE4908-5D - Cross-Section D-D' – Soil (VOCs)

Drawing PE4908-6– Analytical Testing Plan – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6A - Cross-Section A-A' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6B - Cross-Section B-B' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6C - Cross-Section C-C' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-6D - Cross-Section D-D' – Soil (BTEX, PHC, PAH, PCB)

Drawing PE4908-7– Analytical Testing Plan – Groundwater (Metals)

Drawing PE4908-7A - Cross-Section A-A' – Groundwater (Metals)

Drawing PE4908-7B - Cross-Section B-B' – Groundwater (Metals)

Drawing PE4908-7C- Cross-Section C-C' – Groundwater (Metals)

Drawing PE4908-7D - Cross-Section D-D' – Groundwater (Metals)

Drawing PE4908-8– Analytical Testing Plan – Groundwater (VOCs)

Drawing PE4908-8A - Cross-Section A-A' – Groundwater (VOCs)

Drawing PE4908-8B - Cross-Section B-B' – Groundwater (VOCs)

Drawing PE4908-8C- Cross-Section C-C' – Groundwater (VOCs)

Drawing PE4908-8D - Cross-Section D-D' – Groundwater (Metals)

Drawing PE4908-9– Analytical Testing Plan – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9A - Cross-Section A-A' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9B - Cross-Section B-B' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9C- Cross-Section C-C' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4908-9D - Cross-Section D-D' – Groundwater (BTEX, PHC, PAH, PCB)

Drawing PE4980-10 – Contaminant Transport Diagram

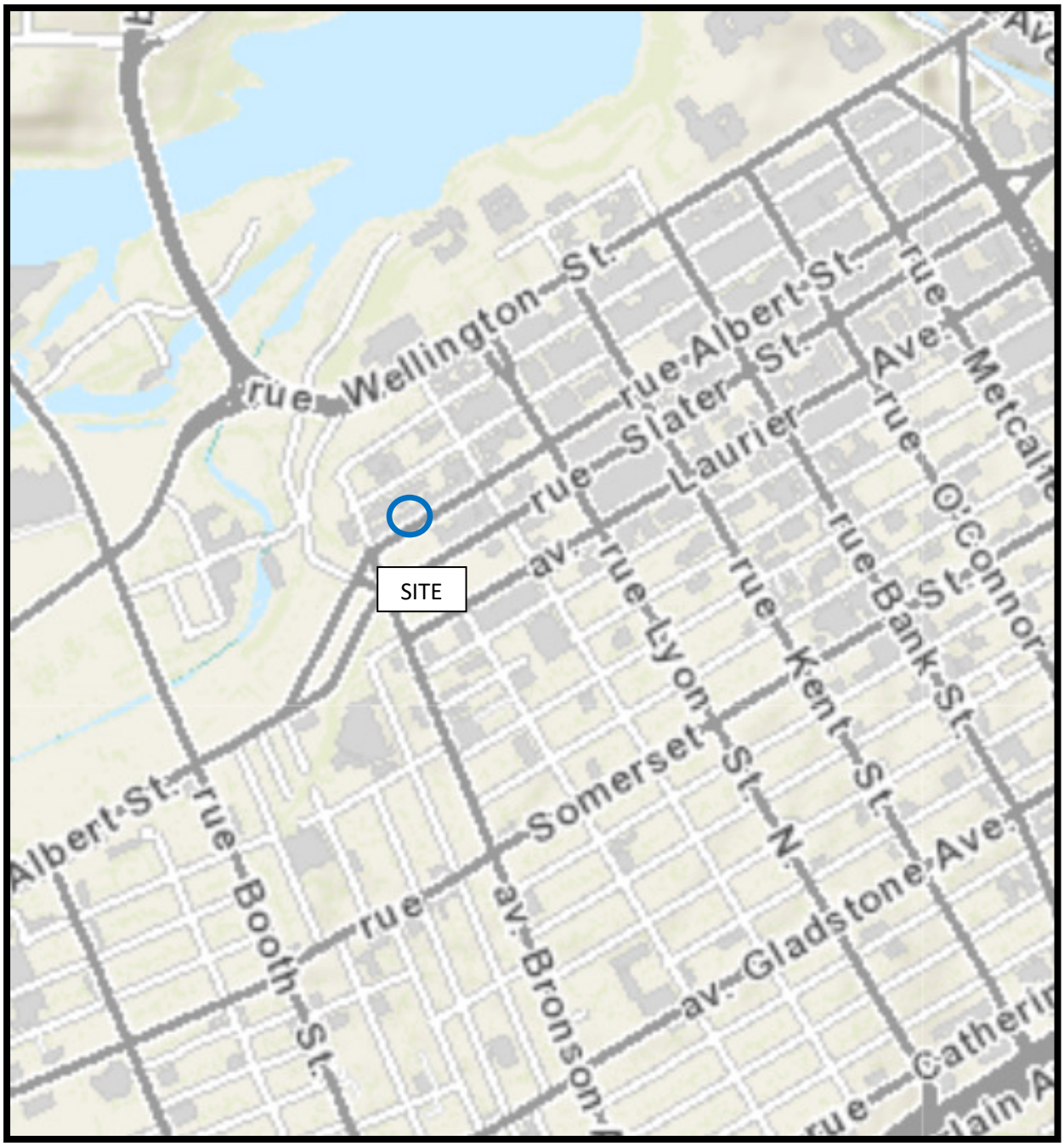

FIGURE 1

KEY PLAN

#434 QUEEN STREET
OFFICE BUILDING

#424 QUEEN STREET
RESIDENTIAL APARTMENT BUILDING

#85 & 95 BRONSON STREET
RESIDENTIAL CONDOMINIUM
BUILDINGS

15 Storey Bulding

APEC 6
APEC 4
APEC 5
APEC 1
APEC 2
APEC 3
APEC 7
APEC 8

MW-6
62.25
(60.71)

BH 1A-20
62.29
(58.64)
[61.10]

BH 1-20
62.28
(58.65)
[62.10]

BH 4-20
62.26
(59.76)

MW-5
62.26
(60.23)

BH 3-20
62.26
(60.67)
[61.91]

MW-8
62.26
(61.03)

BH-1

MW-4
62.26
(60.45)

BH 2-20
62.26
(60.01)
[61.35]

MW-9

MW-7
62.27

BH-2

MW-3
62.24

MW-10
62.24

0.25m/m

APPROX. LOCATION OF MECHANICAL ROOM

GENERATOR

Above Ground Vent Structure

APPROX. LOCATION OF ABOVEGROUND DIESEL STORAGE TANK

APPROX. LOCATION OF FORMER ABOVEGROUND STORAGE TANK ROOM (HYDRO VAULT LOCATED ABOVE)

LIMIT OF BUILDING (2nd to 11th Storey)

LIMIT OF BUILDING AT GRADE

LIMIT OF BUILDING (2nd to 11th Storey)

Limit of Underground Parking Garage

Concrete Curb (North Face Noted)

Concrete Pad Ventilation Pipe on top

Grate over air vent

Concrete Curb

Parking Garage Foundation Wall

Parking Garage Foundation Wall (No. 473)

Limit of Underground Parking Garage

Concrete Wall

Concrete Finish

South Face of Concrete Finish

No. 434
MULTI STOREY BUILDING

PARKING AREA ABOVE GROUND

CB
T/G = 73.20m

Concrete Step

Underpass to Underground Garage (Building above)

Underpass to Above Ground Parking Area (Building above)

Metal Gate

Interlock

Grate

2nd Storey

Metal Canopy

Concrete Slopes

Vent

Concrete Wall (South Face Noted)

Wall

Concrete Steps

Limit of Brick Wall at Ground Floo

Brick Extension Building

Covered Walkway

Northeast Corner of Parking Garage (No.473)

Parking Garage Foundation Wall (No. 473)

AC on Concrete Pad

Foundation Wall

1 STOREY BRICK BUILDING

No. 415
12 STOREY
BUILDING

#415 ALBERT STREET
RESIDENTIAL APARTMENT BUILDING

Concrete Sidewalk

Concrete Cub

Bus Shelter

Metal Grate – Drainage

MH–B
T\G=73.97
Bell Chamber

Rogers

#300mm Gas

Telus

LSA

AN

BRP

PO–W

TB

#473 ALBERT STREET
11 STOREY PRECAST /
CONCRETE FINISH BUILDING

A L B E R T S T R E E T

#486 ALBERT STREET
RESIDENTIAL APARTMENT
BUILDING

#478 ALBERT STREET
RESIDENTIAL APARTMENT
BUILDING

#470 ALBERT STREET
RESIDENTIAL APARTMENT
BUILDING

#440 ALBERT STREET
OTTAWA TECHNICAL HIGH SCHOOL

LEGEND:

- BOREHOLE WITH MONITORING WELL LOCATION, PATERSON GROUP
- APPROX. MONITORING WELL LOCATION, PINCHIN 2019
- APPROX. BOREHOLE LOCATION, PINCHIN 2019
- 100.03 GROUND SURFACE ELEVATION (m)
- (98.1) GROUNDWATER SURFACE ELEVATION (m) (NOVEMBER 2020)
- 59.6 GROUNDWATER CONTOUR(m)
- (0.25m/m) APPROXIMATE GROUNDWATER FLOW DIRECTION (HORIZONTAL HYDRAULIC GRADIENT)
- RSC PROPERTY BOUNDARY

SCALE: 1:250
0 1 2 3 4 5 10 15m

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consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:250	Date: 01/2021
Drawn by: MPG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-3
Approved by: MSD	Revision No.:

11x17

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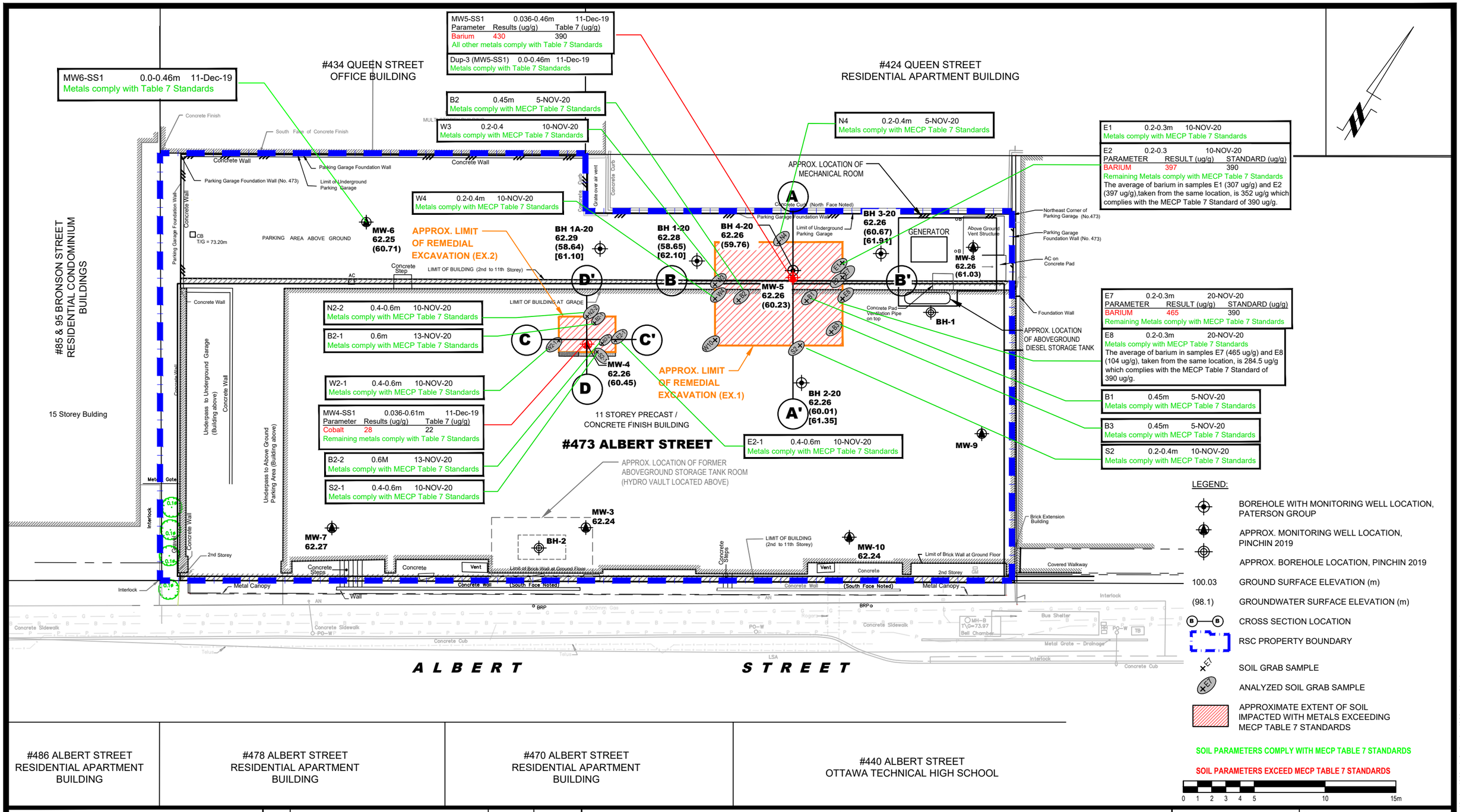

LEGEND:

- BOREHOLE WITH MONITORING WELL LOCATION, PATERSON GROUP
- APPROX. MONITORING WELL LOCATION, PINCHIN 2019
- APPROX. BOREHOLE LOCATION, PINCHIN 2019
- 100.03 GROUND SURFACE ELEVATION (m)
- (98.1) GROUNDWATER SURFACE ELEVATION (m)
- B — B CROSS SECTION LOCATION
- RSC PROPERTY BOUNDARY
- SOIL GRAB SAMPLE
- ANALYZED SOIL GRAB SAMPLE
- APPROXIMATE EXTENT OF SOIL IMPACTED WITH METALS EXCEEDING MECP TABLE 7 STANDARDS

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

0 1 2 3 4 5 10 15m

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154 Colonnade Road South
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL(METALS)

Scale: 1:250	Date: 07/2020
Drawn by: MPG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-4
Approved by: MSD	Revision No.:

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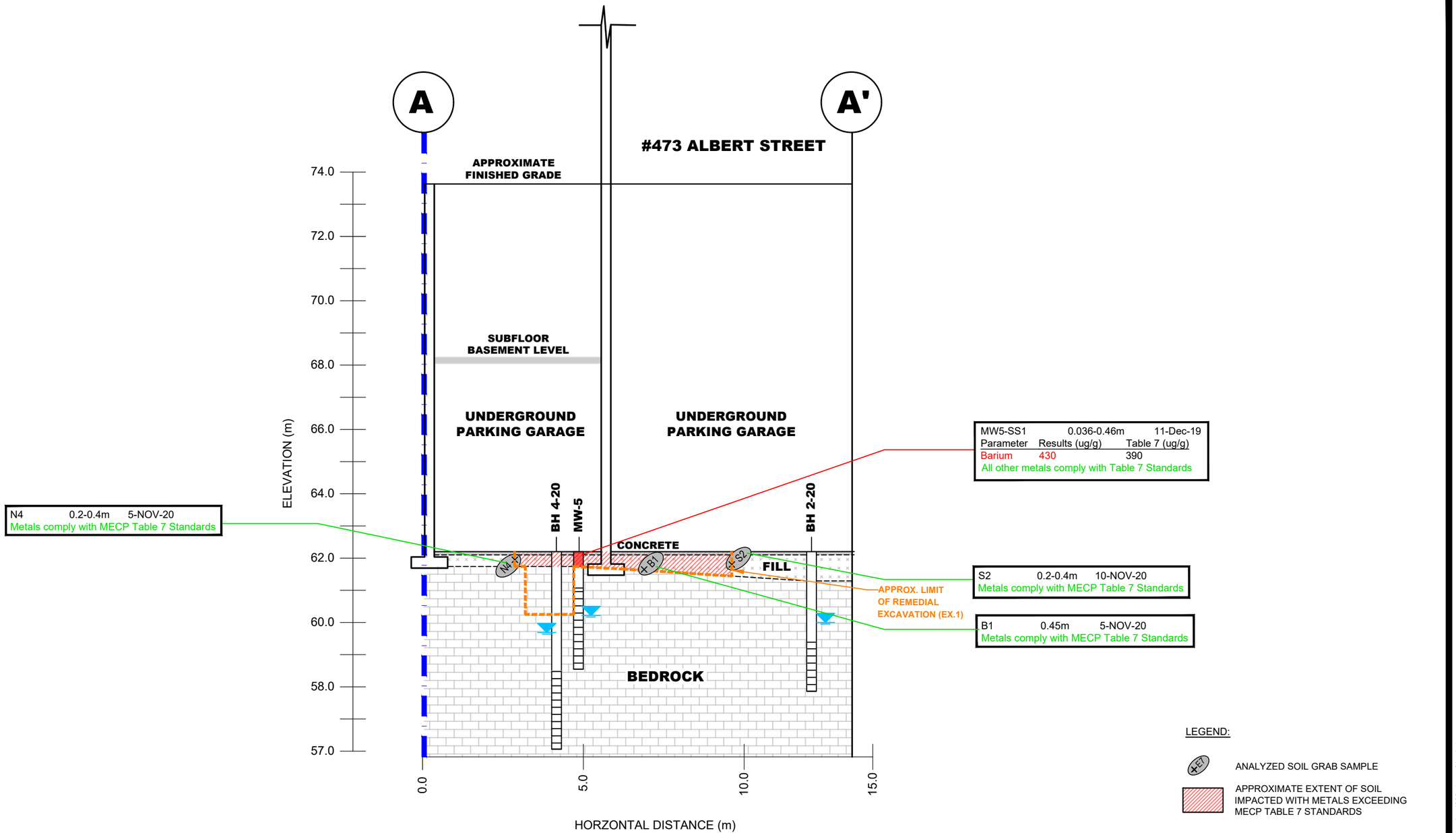

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consulting engineers
154 Colonnade Road South
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title: **CROSS SECTION A-A' - SOIL (METALS)**

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-4A
Approved by: KM	Revision No.:

11x17

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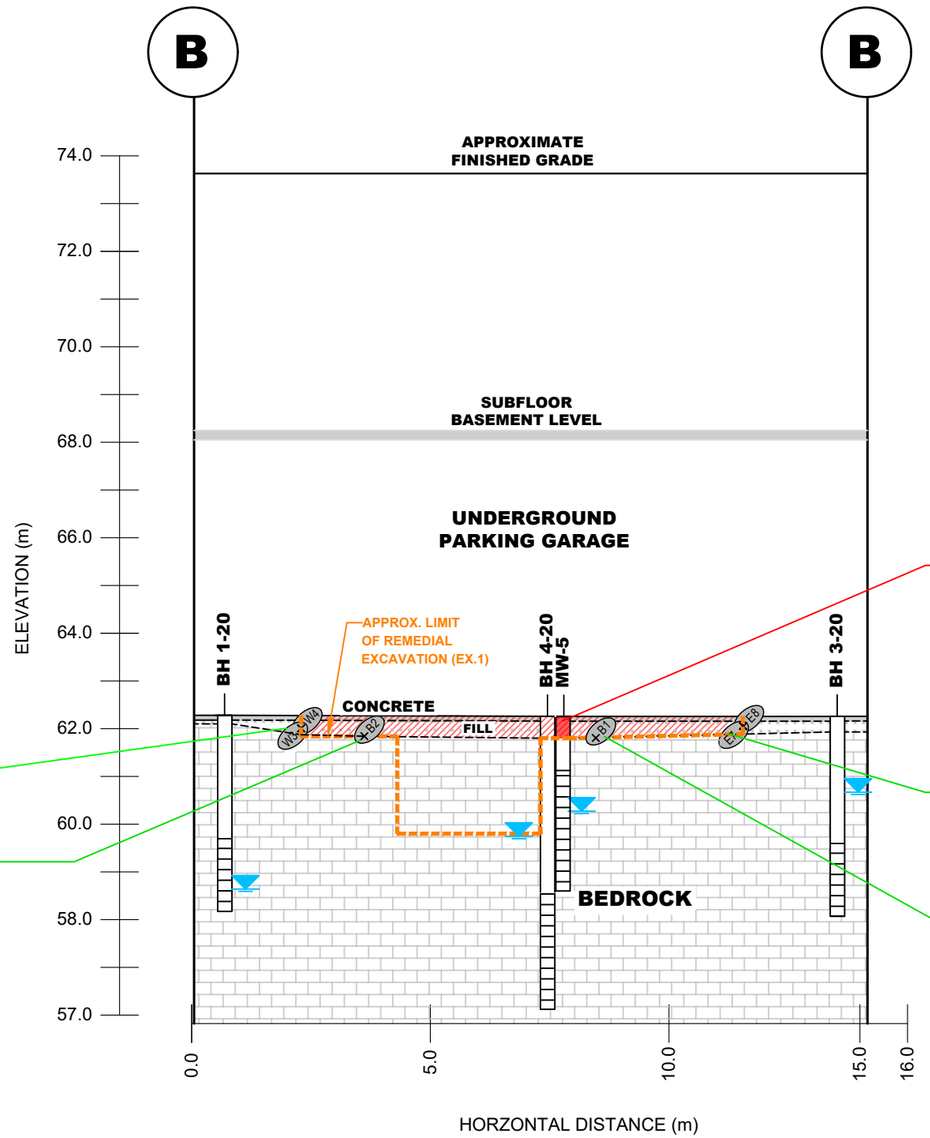

W3 0.2-0.4 10-NOV-20
Metals comply with MECP Table 7 Standards

W4 0.2-0.4m 10-NOV-20
Metals comply with MECP Table 7 Standards

B2 0.45m 5-NOV-20
Metals comply with MECP Table 7 Standards

MW5-SS1 0.036-0.46m 11-Dec-19

Parameter	Results (ug/g)	Table 7 (ug/g)
BARIUM	430	390

All other metals comply with Table 7 Standards

E7 0.2-0.3m 20-NOV-20

PARAMETER	RESULT (ug/g)	STANDARD (ug/g)
BARIUM	465	390

Remaining Metals comply with MECP Table 7 Standards

E8 0.2-0.3m 20-NOV-20
Metals comply with MECP Table 7 Standards
The average of barium in samples e7 (465 ug/g) and e8 (104 ug/g), taken from the same location, is 284.5 ug/g which complies with the MECP Table 7 Standard of 390 ug/g.

B1 0.45m 5-NOV-20
Metals comply with MECP Table 7 Standards

LEGEND:

ANALYZED SOIL GRAB SAMPLE

APPROXIMATE EXTENT OF SOIL IMPACTED WITH METALS EXCEEDING MECP TABLE 7 STANDARDS

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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154 Colonnade Road South
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Tel: (613) 226-7381 Fax: (613) 226-6344

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - SOIL (METALS)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-4B
Approved by: KM	Revision No.:

11x17

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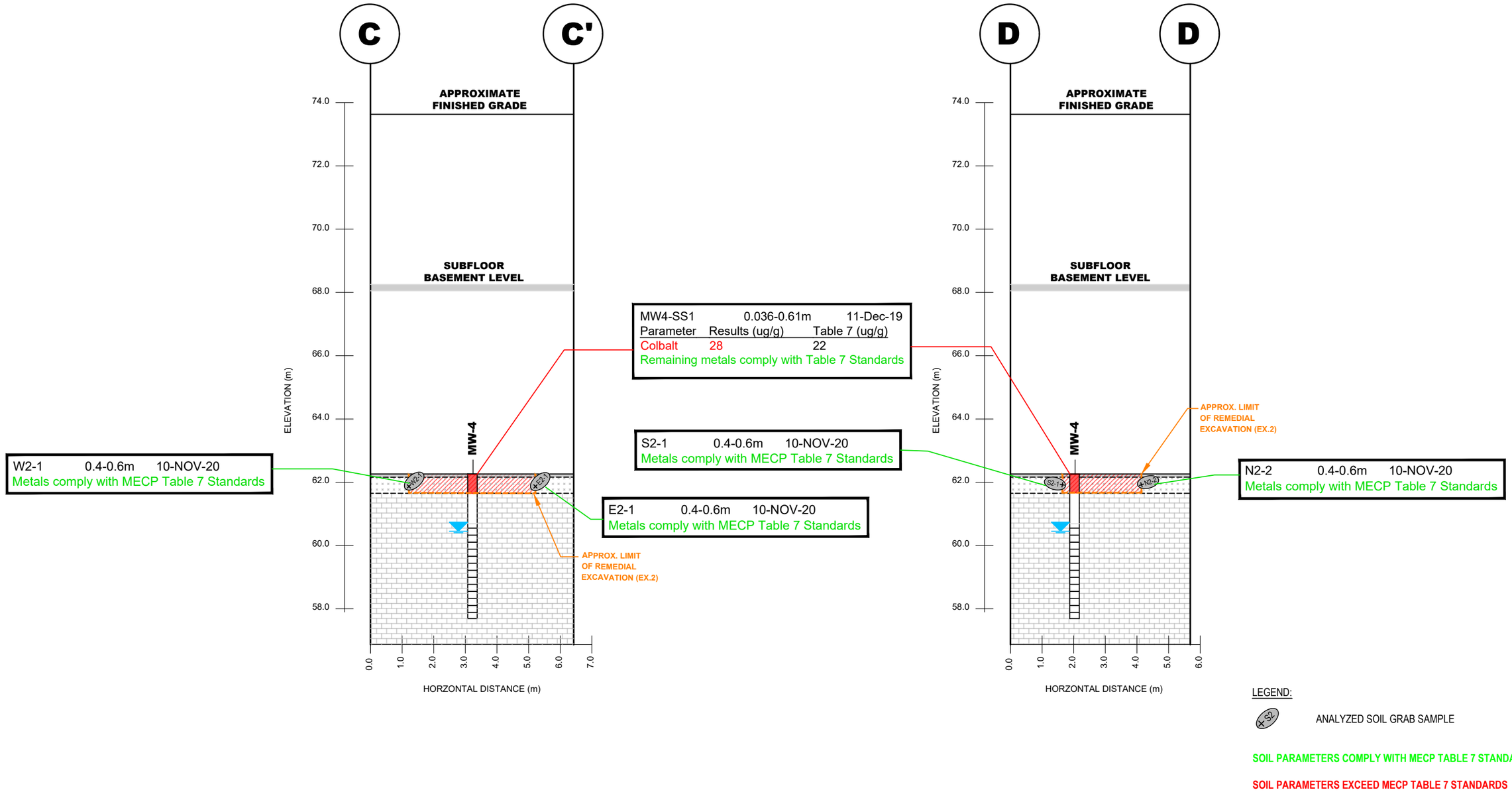

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consulting engineers
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION C-C' AND D-D' - SOIL (METALS)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-4CD
Approved by: KM	Revision No.:

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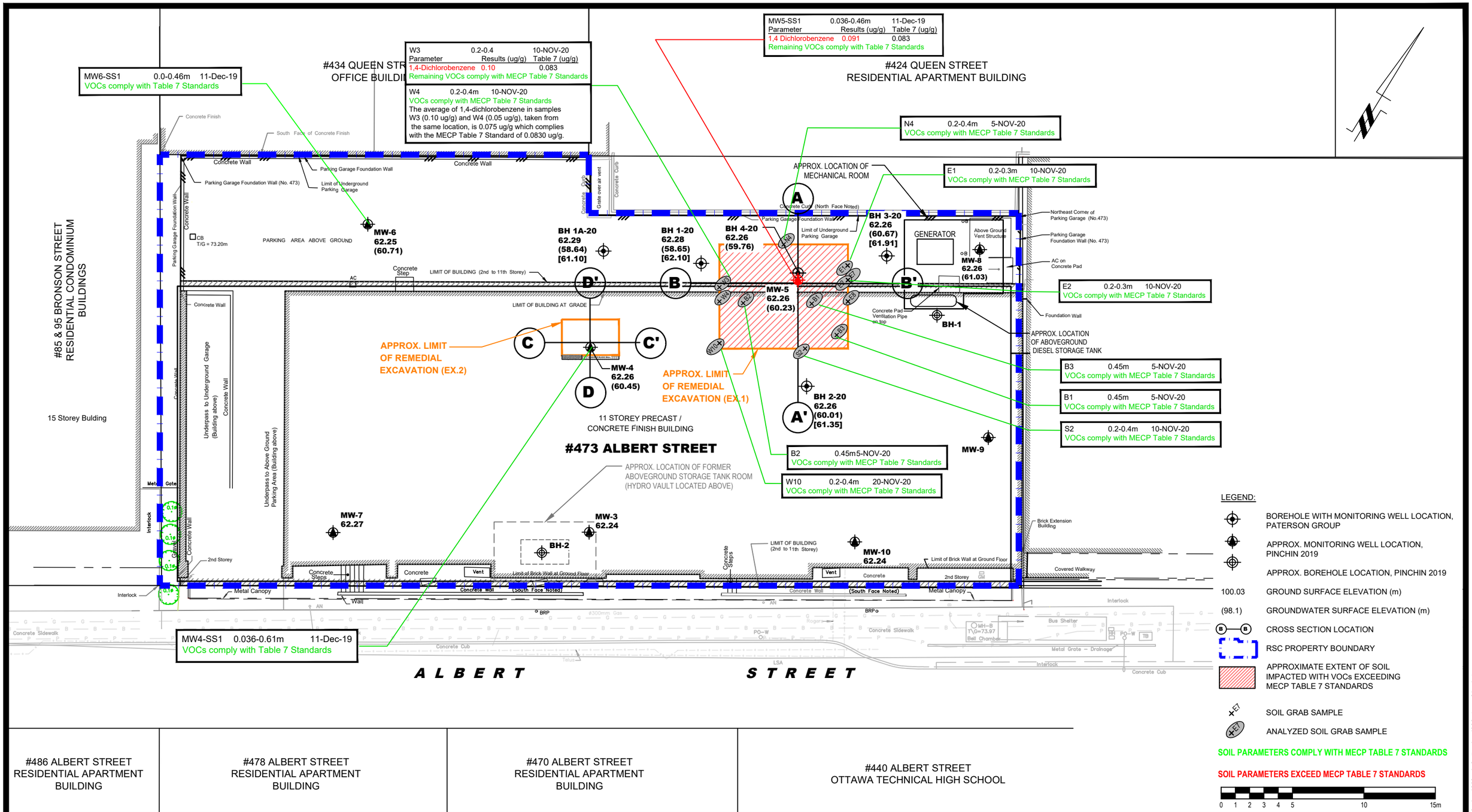

#486 ALBERT STREET
RESIDENTIAL APARTMENT BUILDING

#478 ALBERT STREET
RESIDENTIAL APARTMENT BUILDING

#470 ALBERT STREET
RESIDENTIAL APARTMENT BUILDING

#440 ALBERT STREET
OTTAWA TECHNICAL HIGH SCHOOL

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consulting engineers
154 Colonnade Road South
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Tel: (613) 226-7381 Fax: (613) 226-6344

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:
ANALYTICAL TESTING PLAN - SOIL (VOCs)

Scale: 1:250	Date: 07/2020
Drawn by: MPG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-5
Approved by: MSD	Revision No.:

11x17

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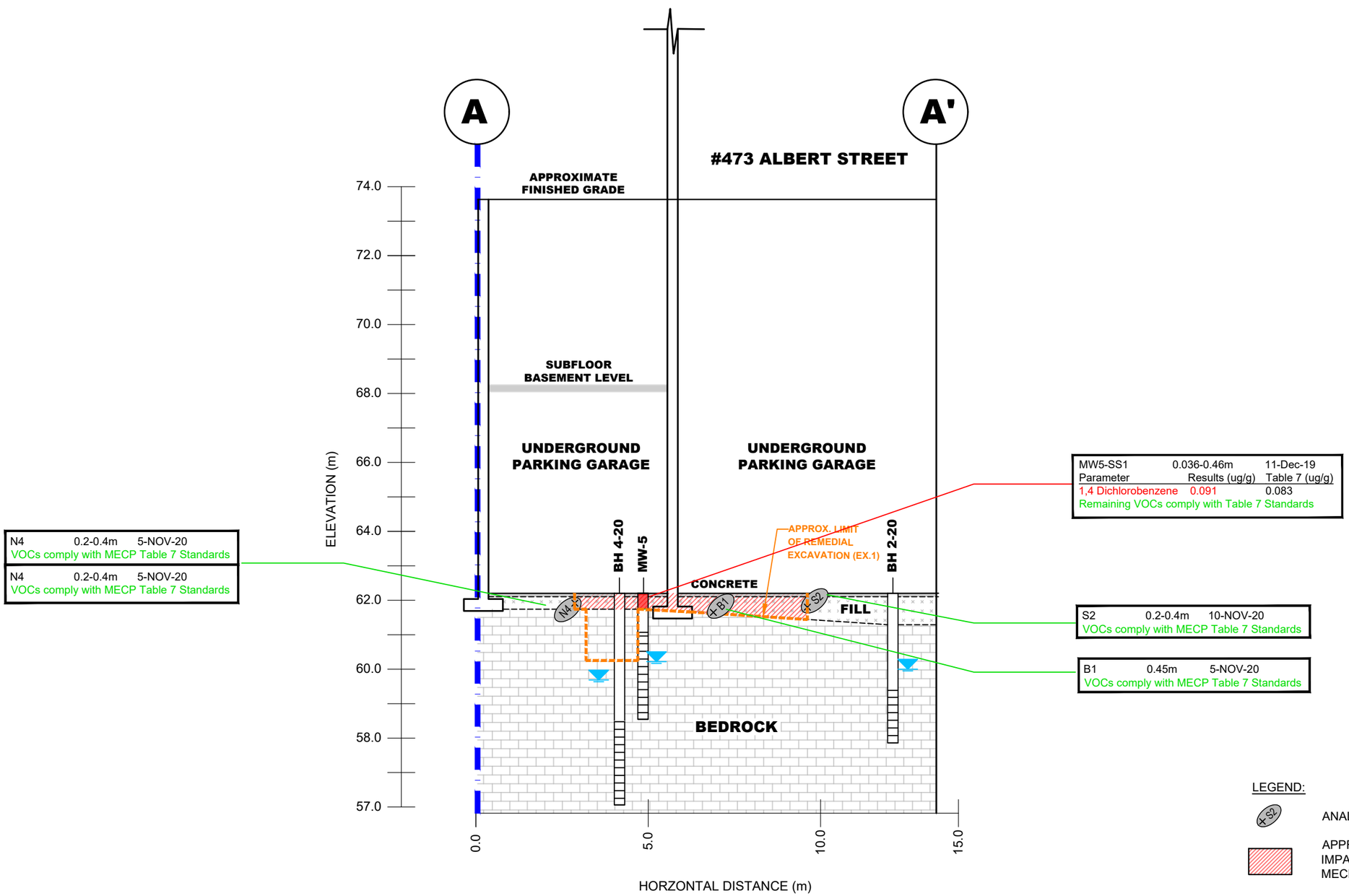

N4	0.2-0.4m	5-NOV-20
VOCs comply with MECP Table 7 Standards		
N4	0.2-0.4m	5-NOV-20
VOCs comply with MECP Table 7 Standards		

MW5-SS1	0.036-0.46m	11-Dec-19
Parameter	Results (ug/g)	Table 7 (ug/g)
1,4 Dichlorobenzene	0.091	0.083
Remaining VOCs comply with Table 7 Standards		

S2	0.2-0.4m	10-NOV-20
VOCs comply with MECP Table 7 Standards		

B1	0.45m	5-NOV-20
VOCs comply with MECP Table 7 Standards		

LEGEND:

4-S2 — ANALYZED SOIL GRAB SAMPLE

APPROXIMATE EXTENT OF SOIL IMPACTED WITH VOCs EXCEEDING MECP TABLE 7 STANDARDS

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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Tel: (613) 226-7381 Fax: (613) 226-6344

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title: CROSS SECTION A-A' - SOIL (VOCs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-5A
Approved by: KM	Revision No.:

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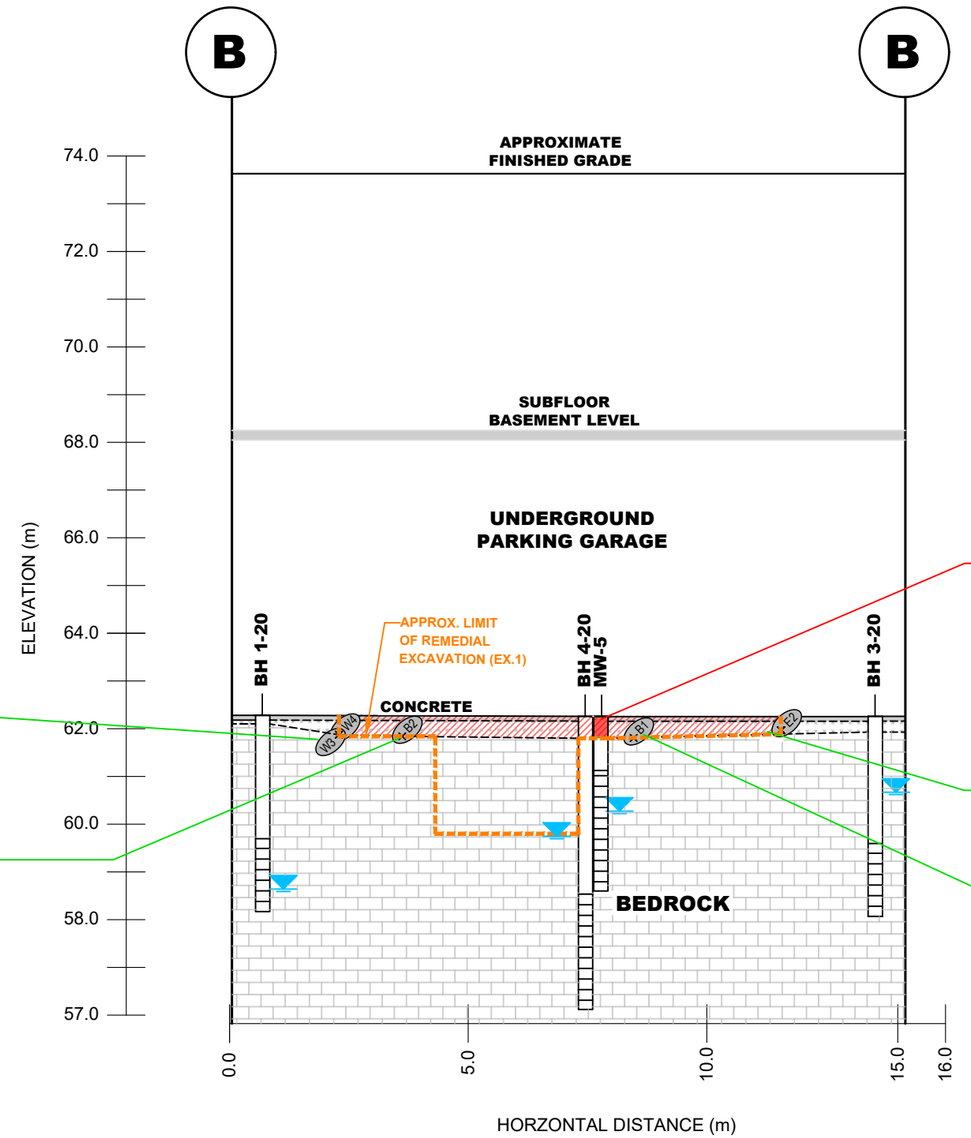

W3	0.2-0.4	10-NOV-20	
PARAMETER		RESULT (ug/g)	STANDARDS (ug/g)
1,4-DICHLOROBENZENE		0.10	0.083

Remaining VOCs comply with MECP Table 7 Standards

W4 0.2-0.4m 10-NOV-20
VOCs comply with MECP Table 7 Standards
The average of 1,4-dichlorobenzene in samples W3 (0.10 ug/g) and W4 (0.05 ug/g), taken from the same location, is 0.075 ug/g which complies with the MECP Table 7 Standard of 0.0830 ug/g.

B2 0.45m 5-NOV-20
VOCs comply with MECP Table 7 Standards

MW5-SS1 0.036-0.46m 11-Dec-19

Parameter	Results (ug/g)	Table 7 (ug/g)
1,4 Dichlorobenzene	0.091	0.083

Remaining VOCs comply with Table 7 Standards

E2 0.2-0.3m 10-NOV-20
VOCs comply with MECP Table 7 Standards

B1 0.45m 5-NOV-20
VOCs comply with MECP Table 7 Standards

LEGEND:

ANALYZED SOIL GRAB SAMPLE

APPROXIMATE EXTENT OF SOIL IMPACTED WITH VOCs EXCEEDING MECP TABLE 7 STANDARDS

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

patersongroup
consulting engineers
154 Colonnade Road South
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - SOIL (VOCs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-5B
Approved by: KM	Revision No.:

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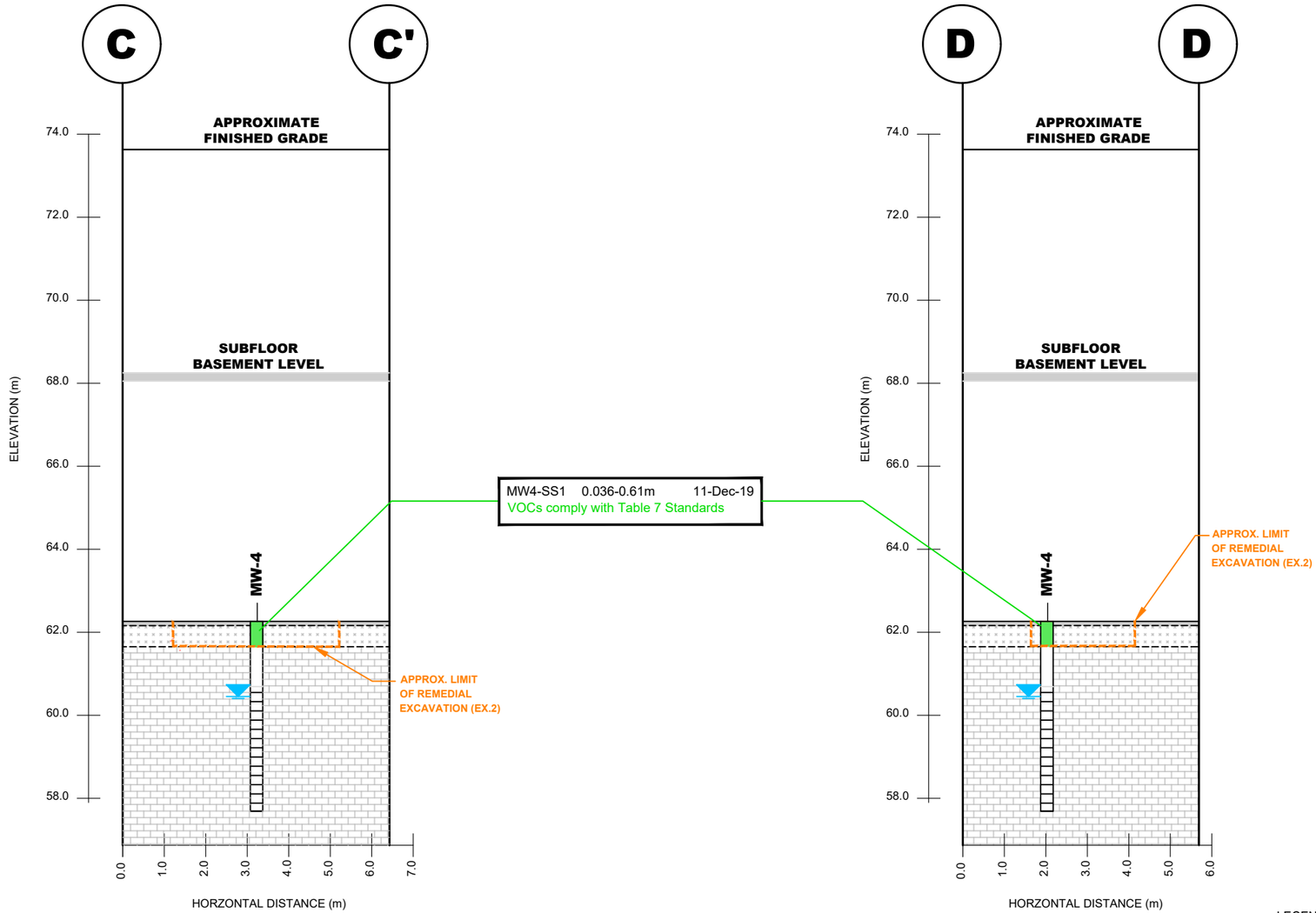

LEGEND:

ANALYZED SOIL GRAB SAMPLE

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title: CROSS SECTION C-C' AND D-D' - SOIL (VOCs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-5CD
Approved by: KM	Revision No.:

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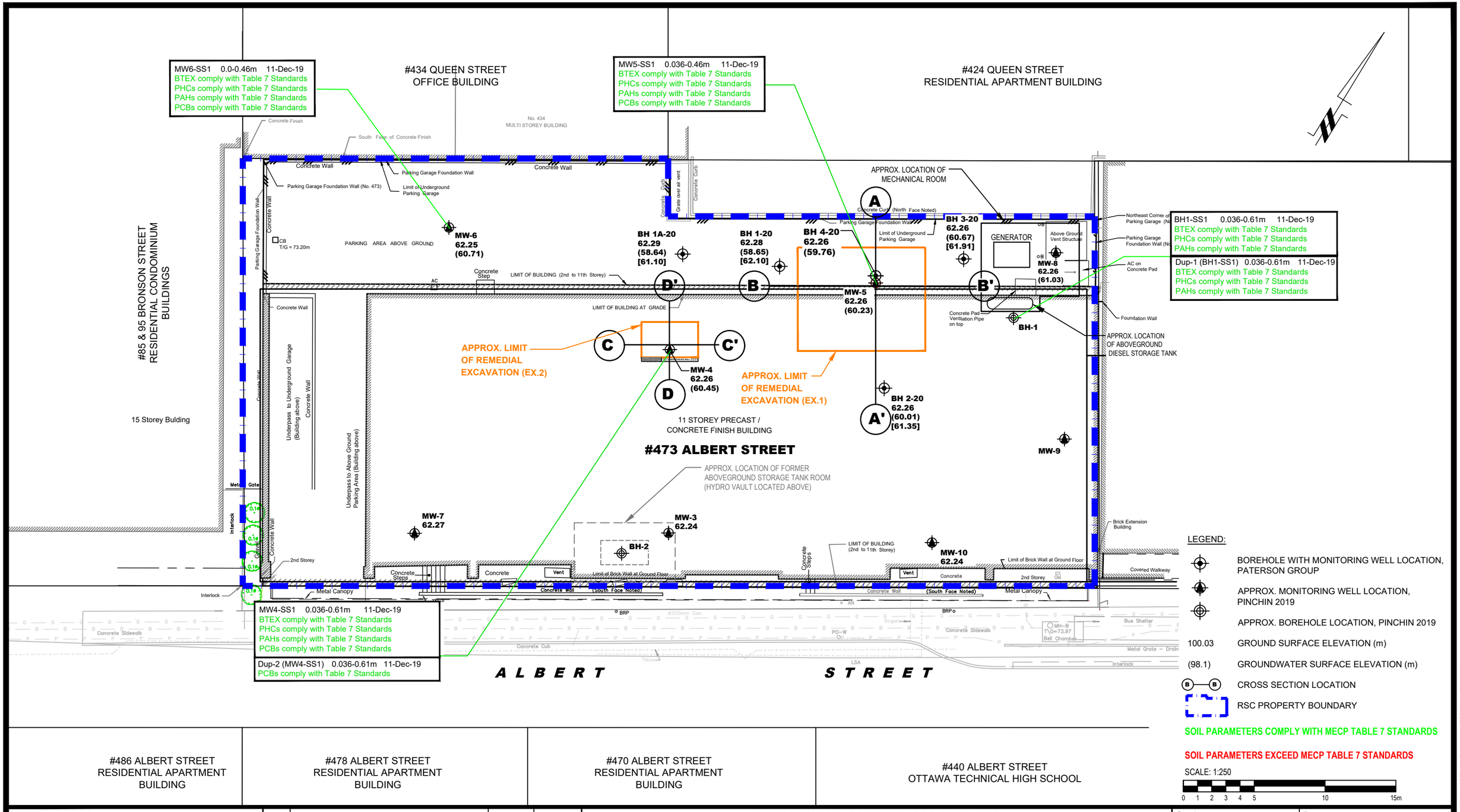

#486 ALBERT STREET
RESIDENTIAL APARTMENT BUILDING

#478 ALBERT STREET
RESIDENTIAL APARTMENT BUILDING

#470 ALBERT STREET
RESIDENTIAL APARTMENT BUILDING

#440 ALBERT STREET
OTTAWA TECHNICAL HIGH SCHOOL

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consulting engineers

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Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (BTEX,PHCs,PAHs,PCBs)

Scale: 1:250	Date: 07/2020
Drawn by: MPG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-6
Approved by: MSD	Revision No.:

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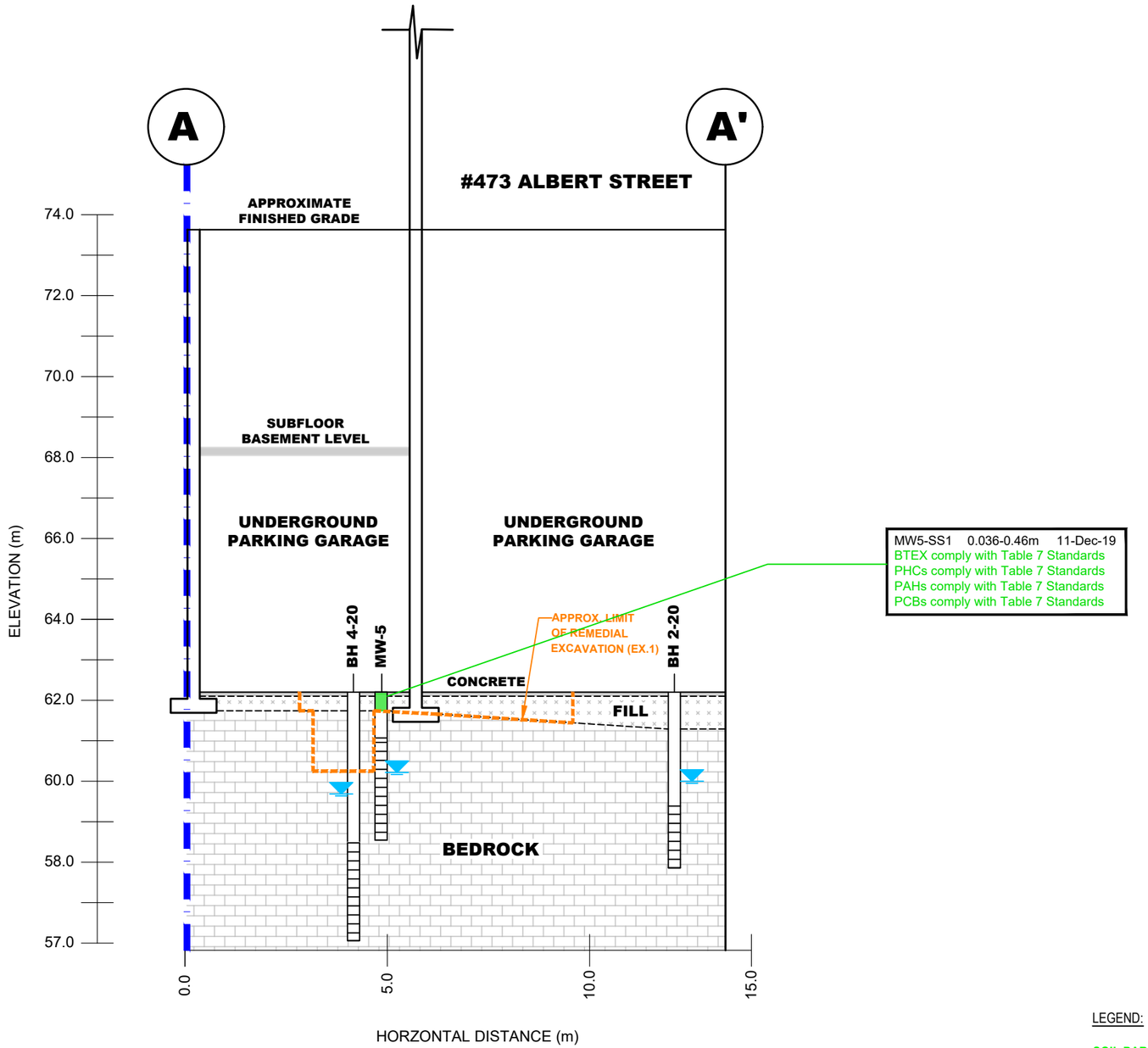

LEGEND:

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title: CROSS SECTION A-A' - SOIL (BTEX,PHCs,PAHs,PCBs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-6A
Approved by: KM	Revision No.:

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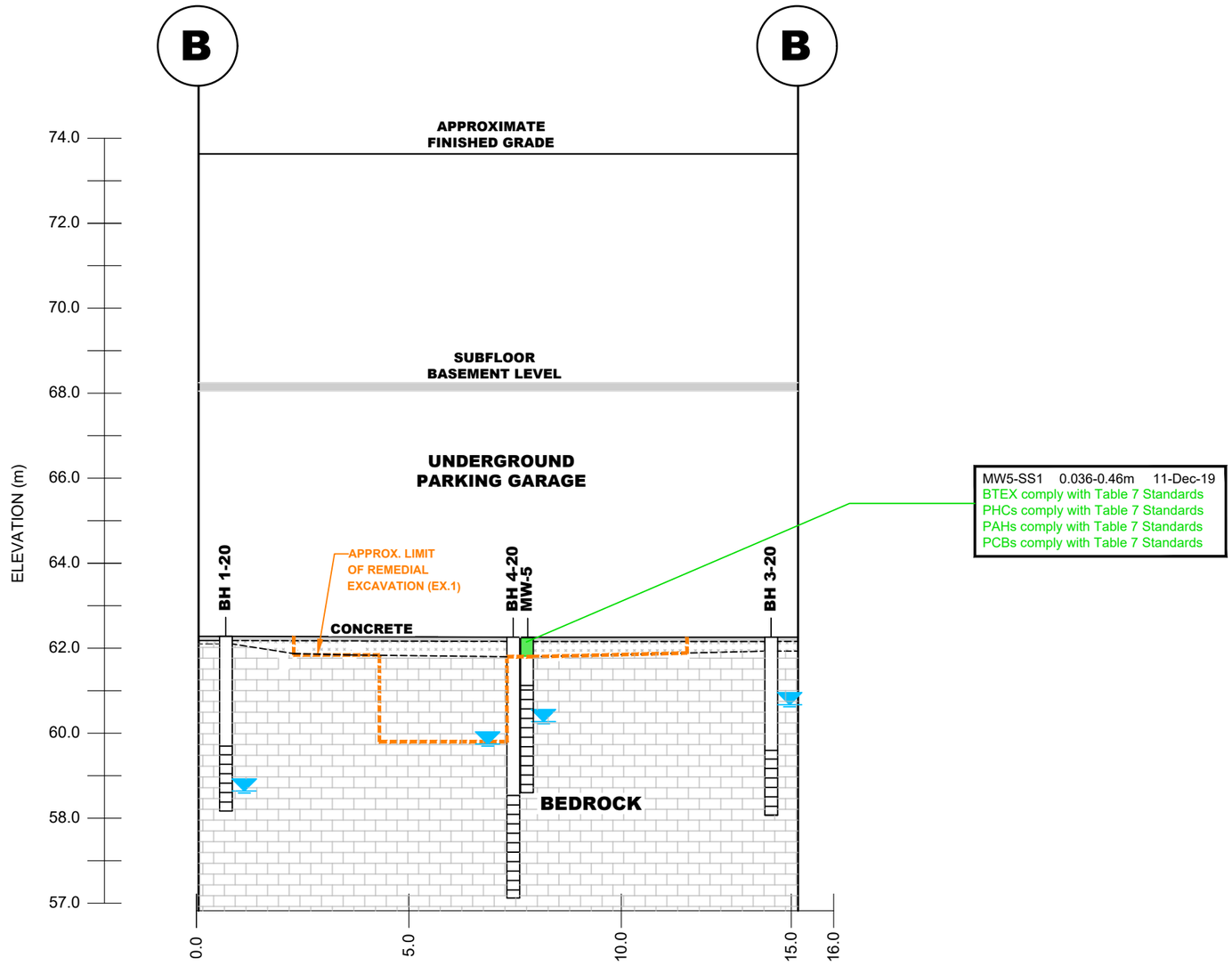

LEGEND:

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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NO.	REVISIONS	DATE	INITIAL
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:
CROSS SECTION B-B' - SOIL (BTEX,PHCs,PAHs,PCBs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-6B
Approved by: KM	Revision No.:

11x17

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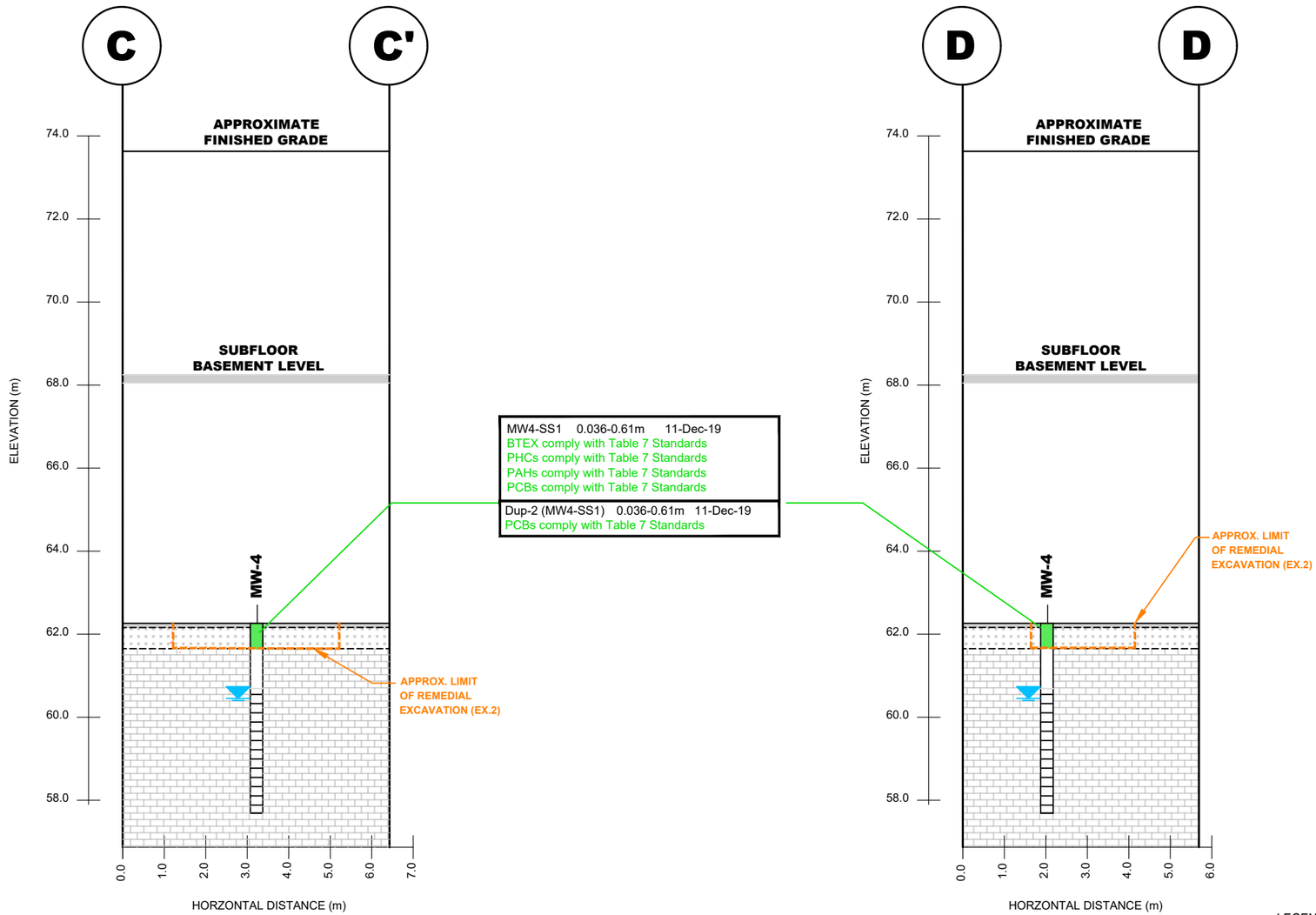

LEGEND:

ANALYZED SOIL GRAB SAMPLE

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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NO.	REVISIONS	DATE	INITIAL
0			

INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:
CROSS SECTION C-C' AND D-D' - SOIL ((BTEX,PHCs,PAHs,PCBs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-6CD
Approved by: KM	Revision No.:

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MW6 1.25-3.65m 15-Jan-20
Metals and mercury comply with Table 7 Standards

MW4 1.57-4.57m 15-Jan-20
Metals and mercury comply with Table 7 Standards

MW5 1.2-3.66m 15-Jan-20
Metals and mercury comply with Table 7 Standards

#85 & 95 BRONSON STREET
RESIDENTIAL CONDOMINIUM
BUILDINGS

15 Storey Bulding

No. 434
MULTI STOREY BUILDING

No. 415
12 STOREY
BUILDING

1 STOREY
BRICK BUILDING

APPROX. LIMIT
OF REMEDIAL
EXCAVATION (EX.2)

APPROX. LIMIT
OF REMEDIAL
EXCAVATION (EX.1)

APPROX. LOCATION
OF ABOVEGROUND
DIESEL STORAGE TANK

APPROX. LOCATION OF FORMER
ABOVEGROUND STORAGE TANK ROOM
(HYDRO VAULT LOCATED ABOVE)

MW-6
62.25
(60.71)

MW-7
62.27

MW-3
62.24

MW-4
62.26
(60.45)

MW-5
62.26
(60.23)

MW-8
62.26
(61.03)

MW-9

MW-10
62.24

BH 1A-20
62.29
(58.64)
[61.10]

BH 1-20
62.28
(58.65)
[62.10]

BH 4-20
62.26
(59.76)

BH 3-20
62.26
(60.67)
[61.91]

BH 2-20
62.26
(60.01)
[61.35]

BH-1

BH-2

A
A'
B
B'
C
C'
D
D'

GENERATOR

#473 ALBERT STREET
11 STOREY PRECAST /
CONCRETE FINISH BUILDING

ALBERT STREET

LEGEND:

- BOREHOLE WITH MONITORING WELL LOCATION, PATERSON GROUP
- APPROX. MONITORING WELL LOCATION, PINCHIN 2019
- APPROX. BOREHOLE LOCATION, PINCHIN 2019
- 100.03 GROUND SURFACE ELEVATION (m)
- (98.1) GROUNDWATER SURFACE ELEVATION (m)
- CROSS SECTION LOCATION
- RSC PROPERTY BOUNDARY

GROUNDWATER PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

GROUNDWATER PARAMETERS EXCEED MECP TABLE 7 STANDARDS

SCALE: 1:250

0 1 2 3 4 5 10 15m

#486 ALBERT STREET
RESIDENTIAL APARTMENT
BUILDING

#478 ALBERT STREET
RESIDENTIAL APARTMENT
BUILDING

#470 ALBERT STREET
RESIDENTIAL APARTMENT
BUILDING

#440 ALBERT STREET
OTTAWA TECHNICAL HIGH SCHOOL

patersongroup
consulting engineers
154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:
ANALYTICAL TESTING PLAN - GROUNDWATER (METALS,Hg)

Scale: 1:250	Date: 07/2020
Drawn by: MPG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-7
Approved by: MSD	Revision No.:

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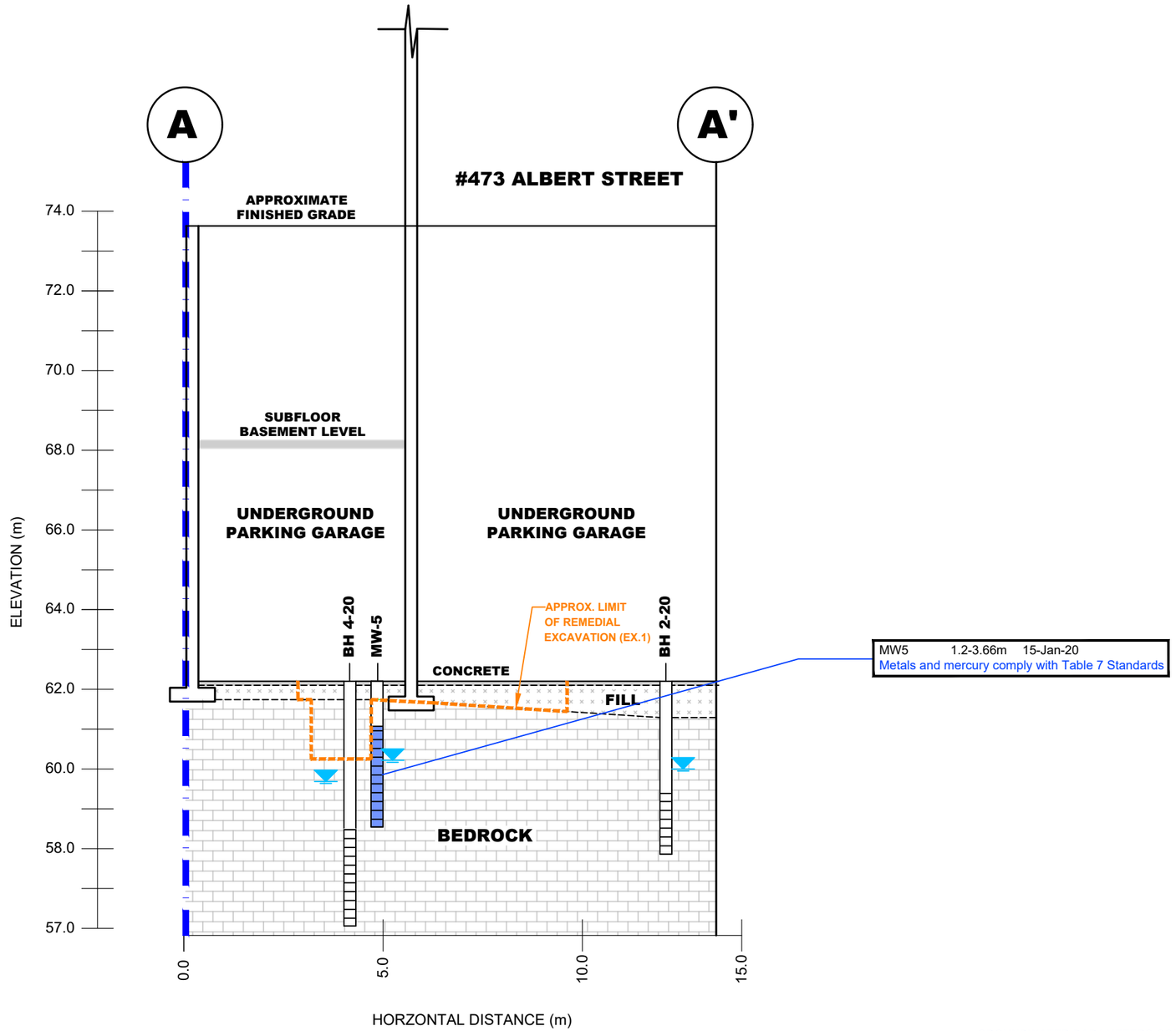

GROUNDWATER PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

GROUNDWATER PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - GROUNDWATER (METALS,Hg)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-7A
Approved by: KM	Revision No.:

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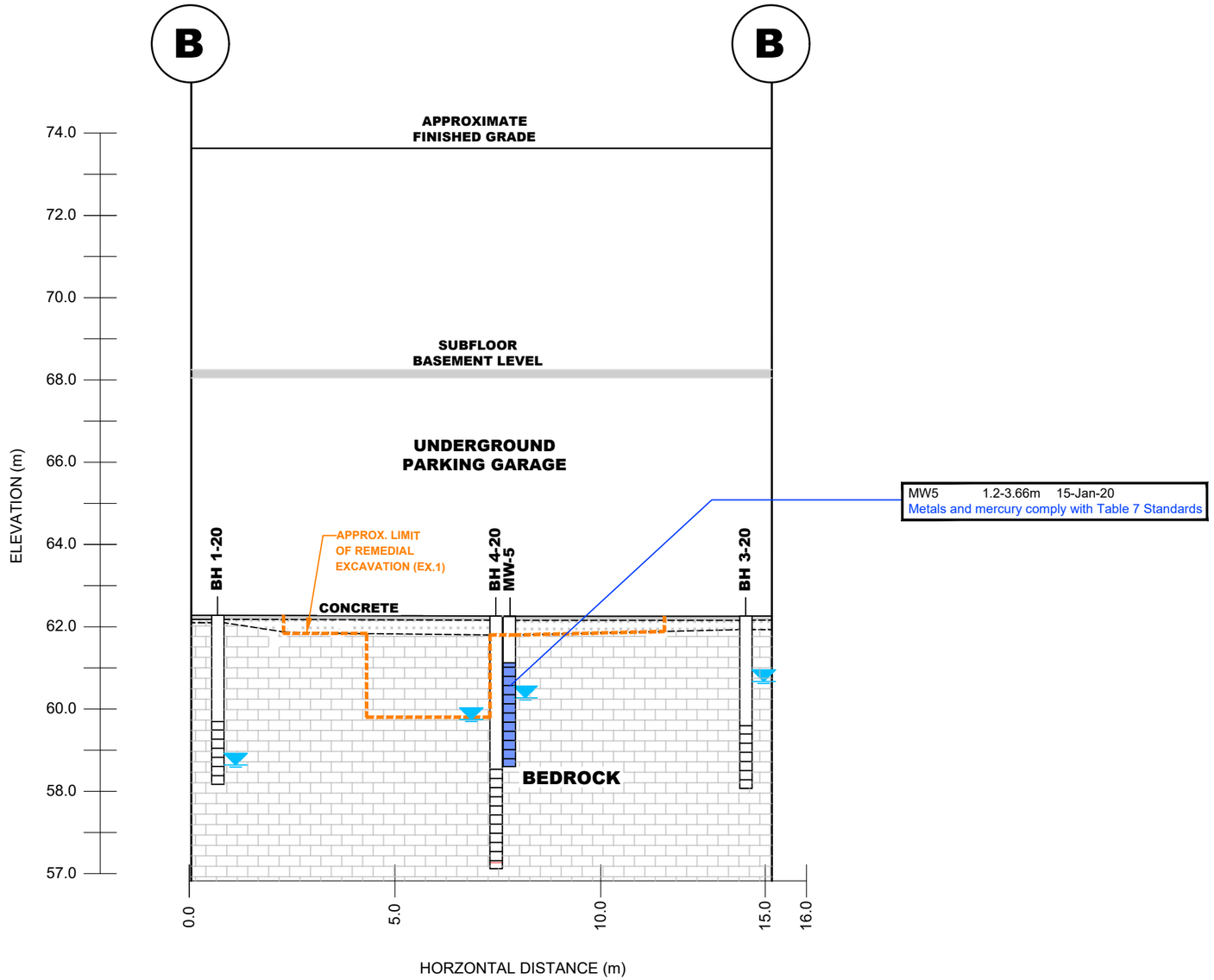

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - GROUNDWATER (METALS, Hg)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-7B
Approved by: KM	Revision No.:

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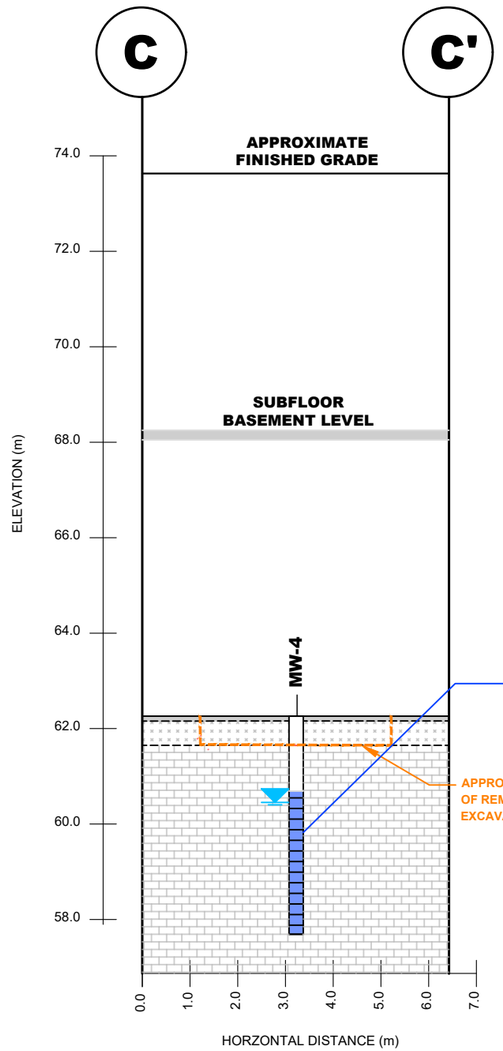

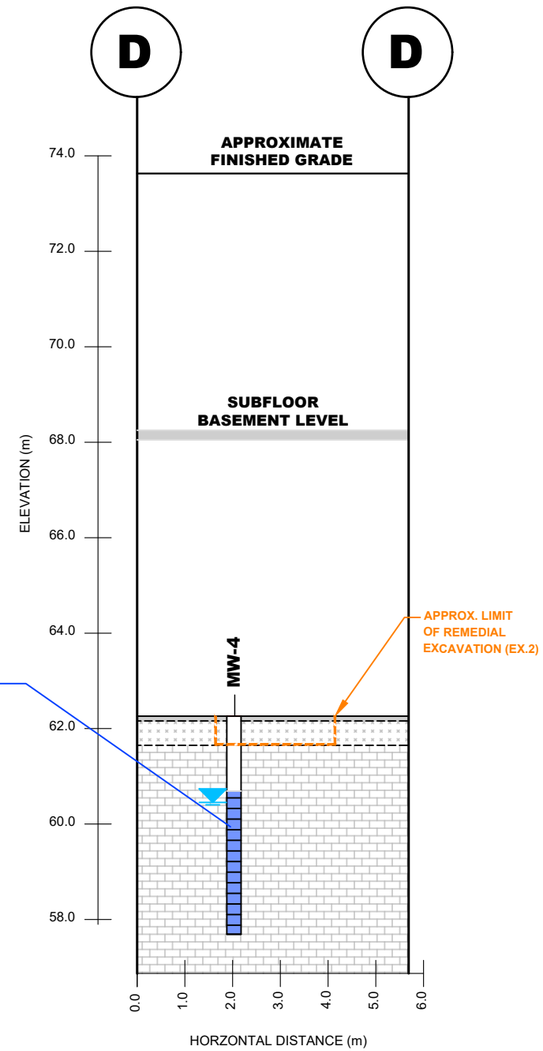

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title: CROSS SECTION C-C' AND D-D' - GROUNDWATER (METALS)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-7CD
Approved by: KM	Revision No.:

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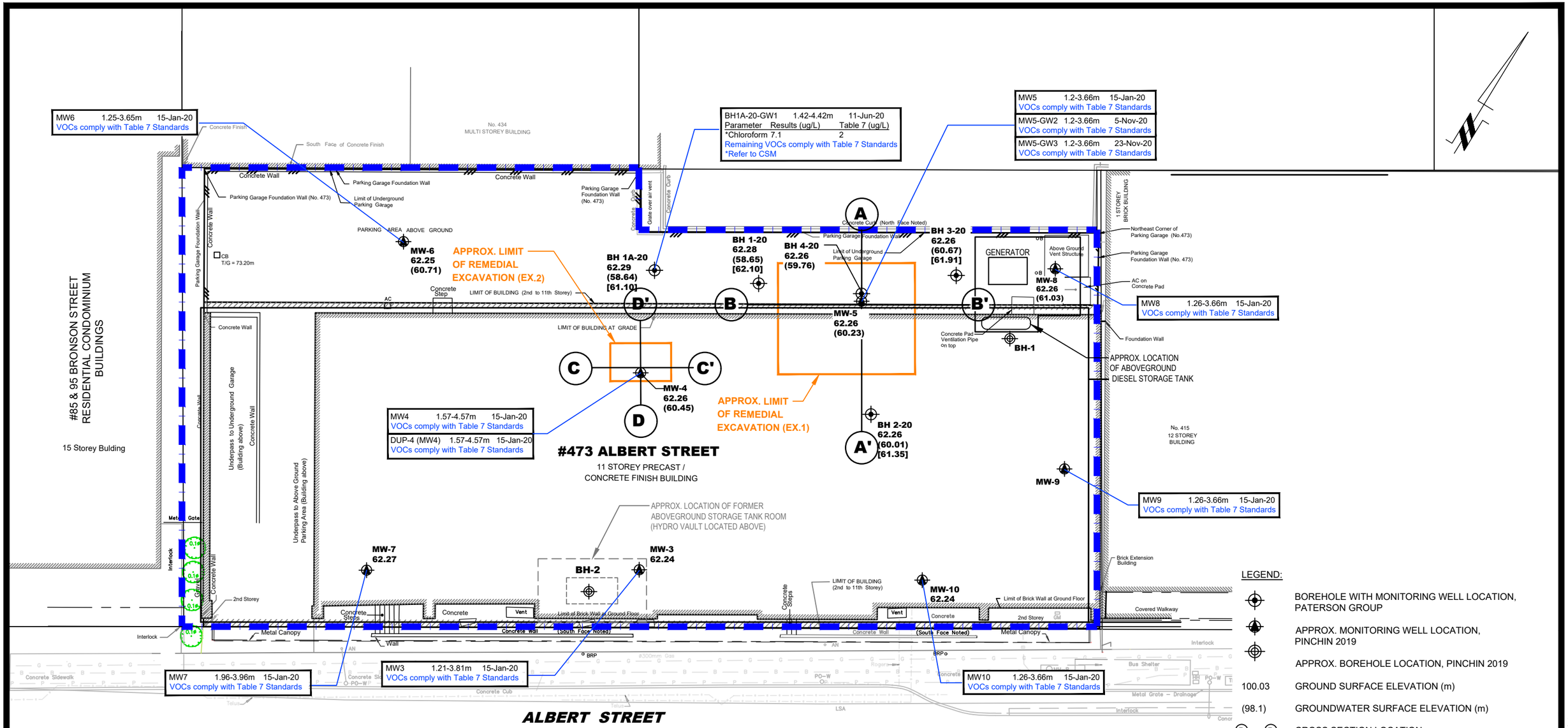

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SCALE: 1:250

0 1 2 3 4 5 10 15m

patersongroup
consulting engineers
154 Colonnade Road South
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:
ANALYTICAL TESTING PLAN - GROUNDWATER(VOCs)

Scale: 1:250	Date: 07/2020
Drawn by: MPG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-8
Approved by: MSD	Revision No.:

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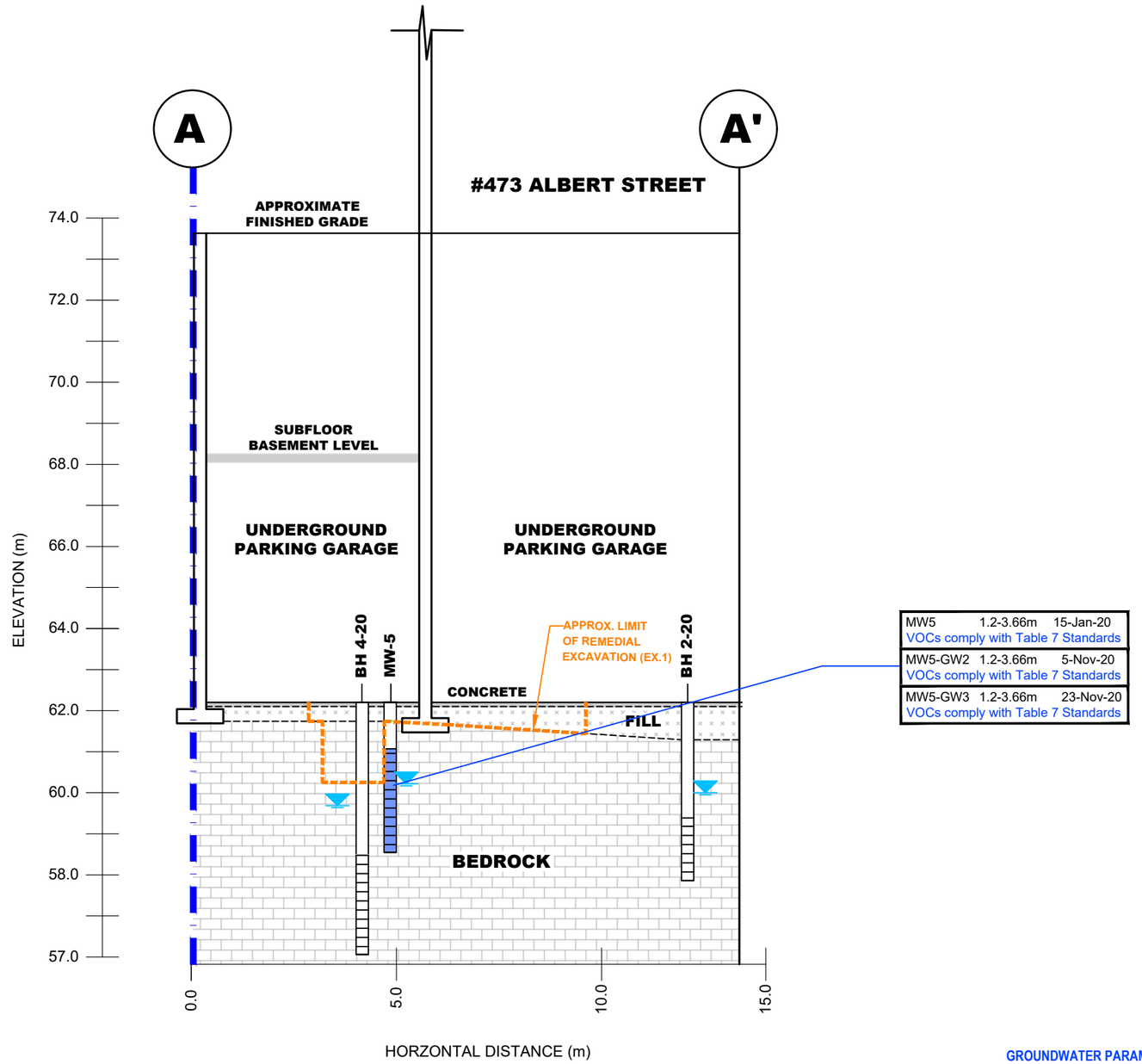

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154 Colonnade Road South
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - GROUNDWATER (VOCs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-8A
Approved by: KM	Revision No.:

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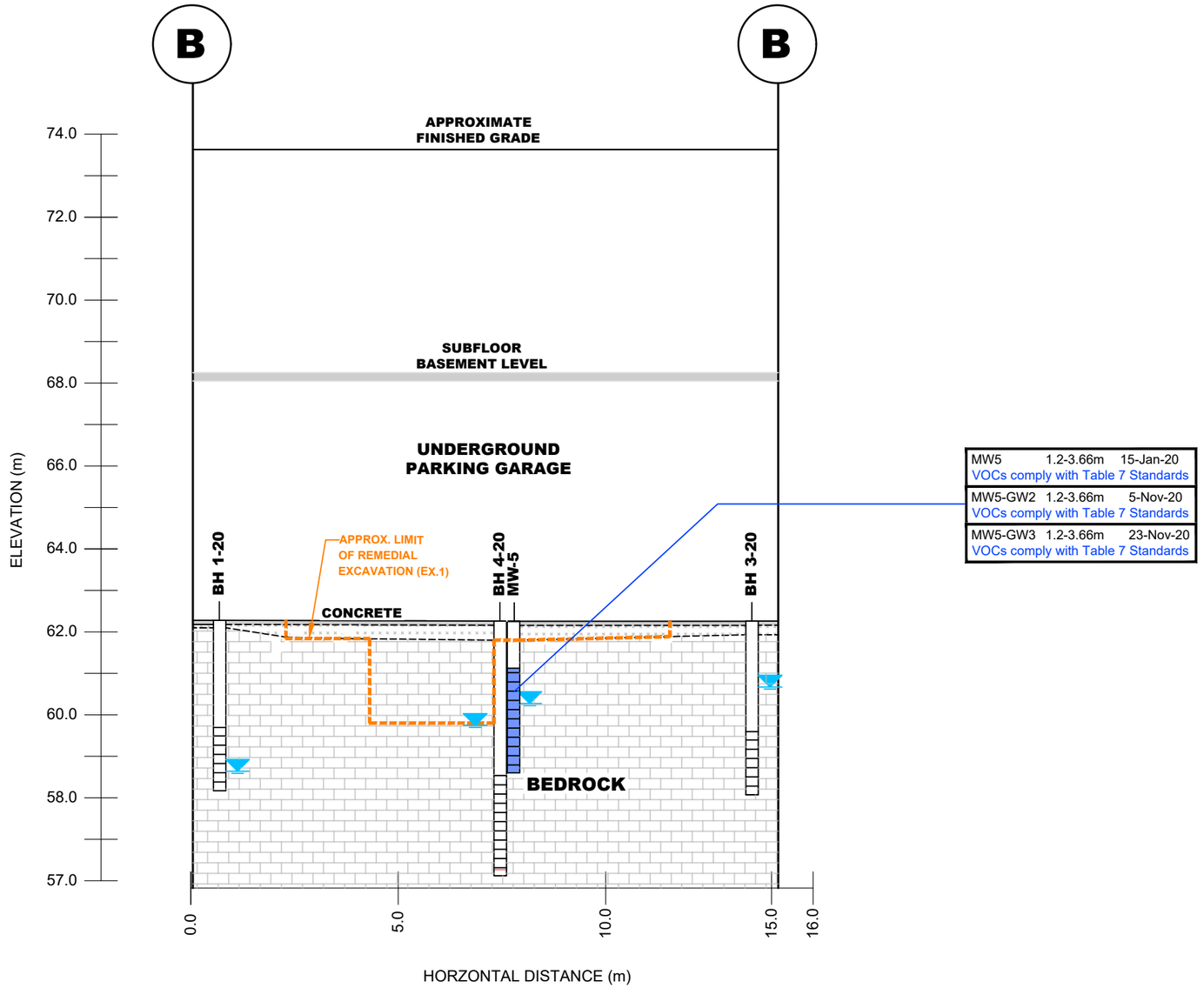

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - GROUNDWATER (VOCs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-8B
Approved by: KM	Revision No.:

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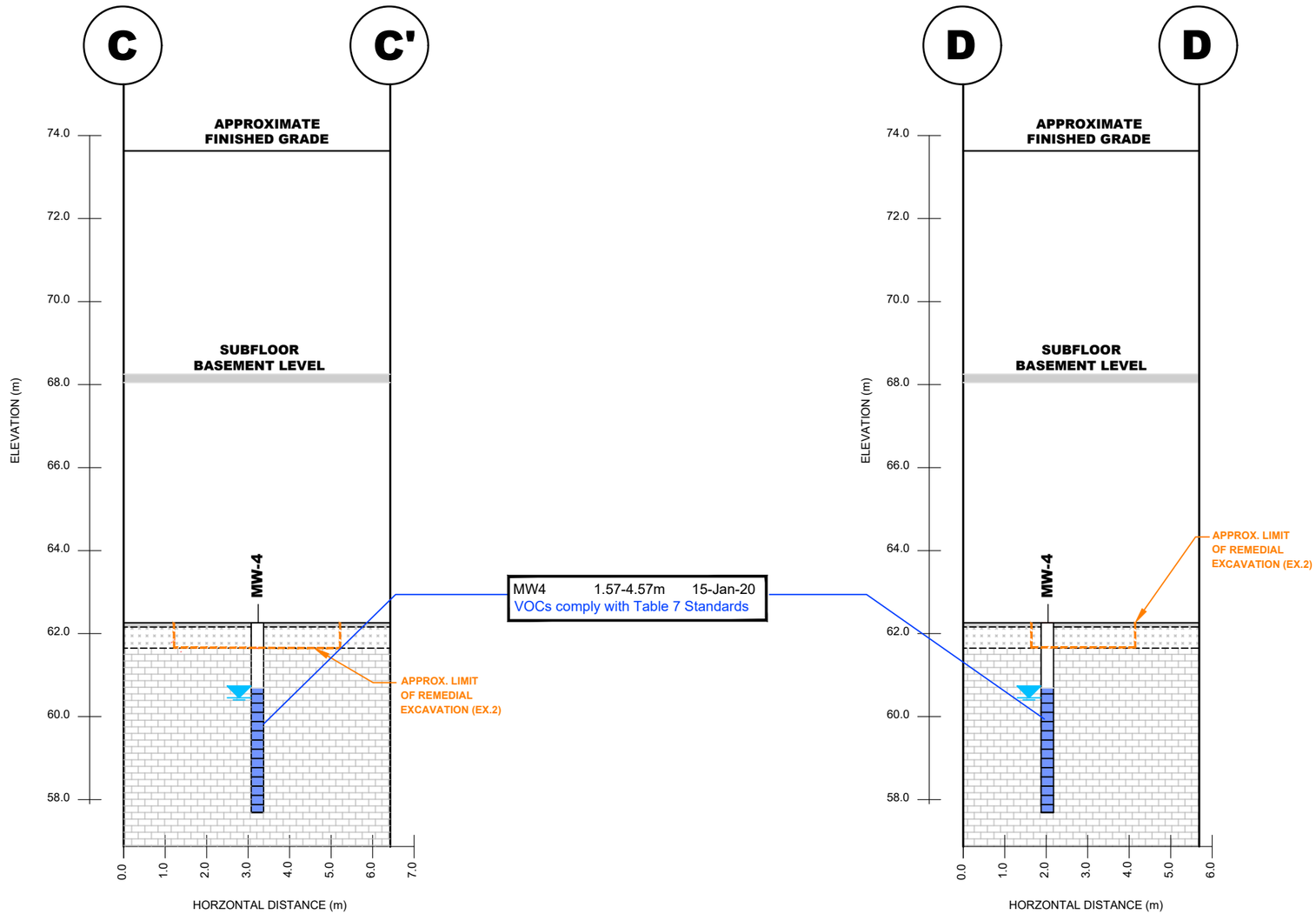

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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title: CROSS SECTION C-C' AND D-D' - GROUNDWATER (VOCs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-8CD
Approved by: KM	Revision No.:

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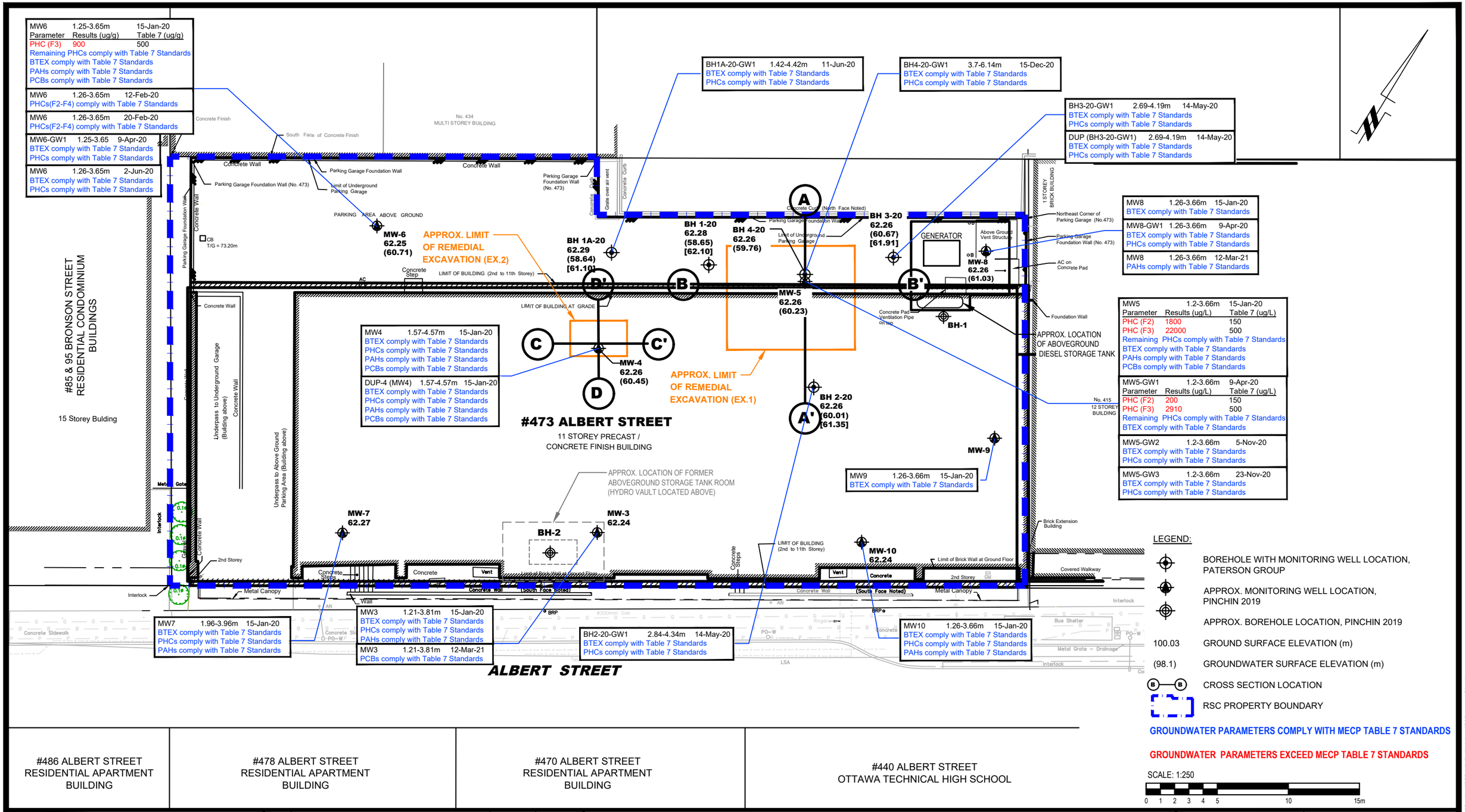

patersongroup
consulting engineers
154 Colonnade Road South
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - GROUNDWATER (BTEX,PHCs,PAHs,PCBs)

Scale: 1:250	Date: 07/2020
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Checked by: MW	Dwg. No.: PE4908-9
Approved by: MSD	Revision No.:

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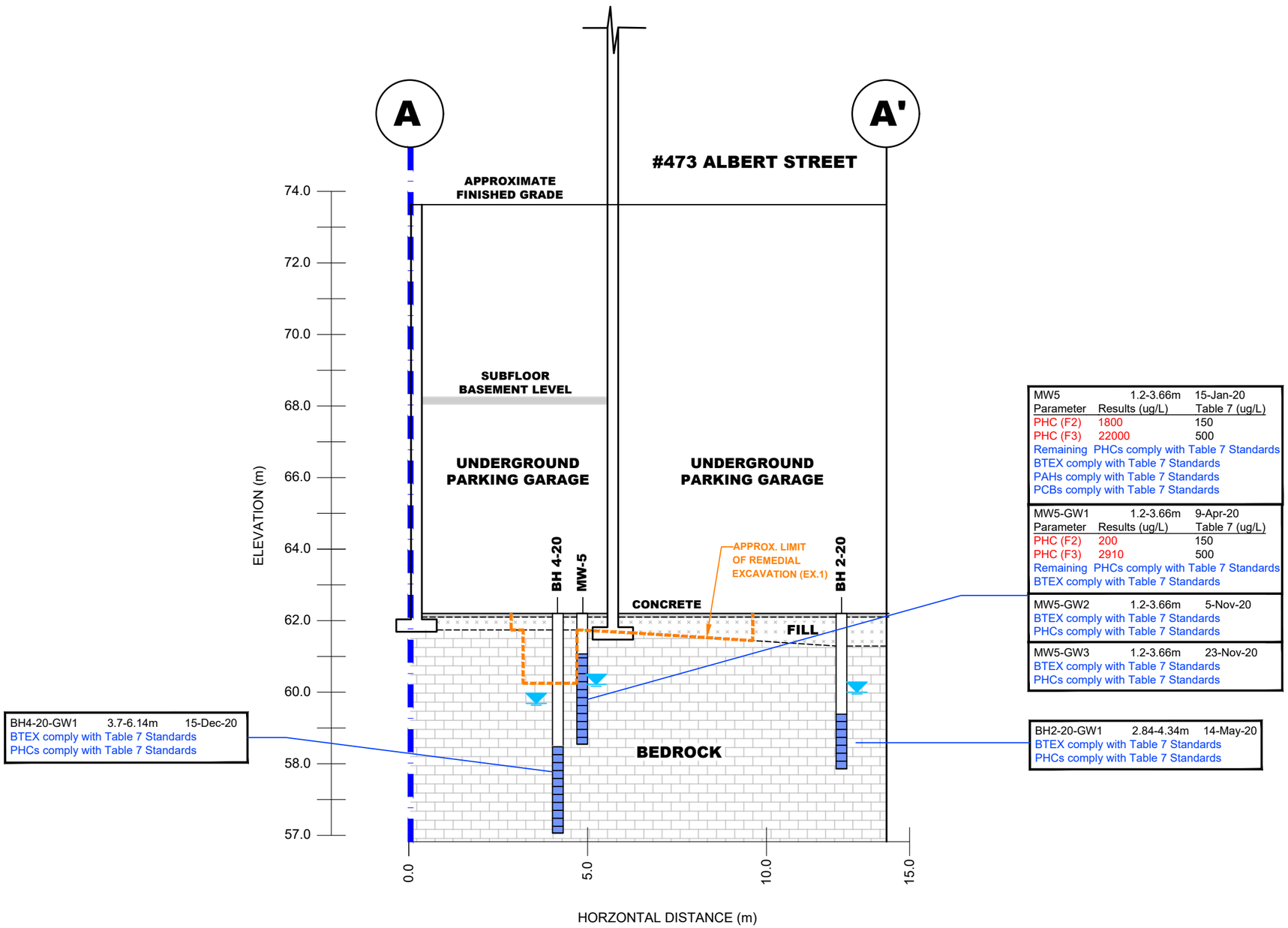

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:
CROSS SECTION A-A' - GROUNDWATER (BTEX,PHCs,PAHs,PCBs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-9A
Approved by: KM	Revision No.:

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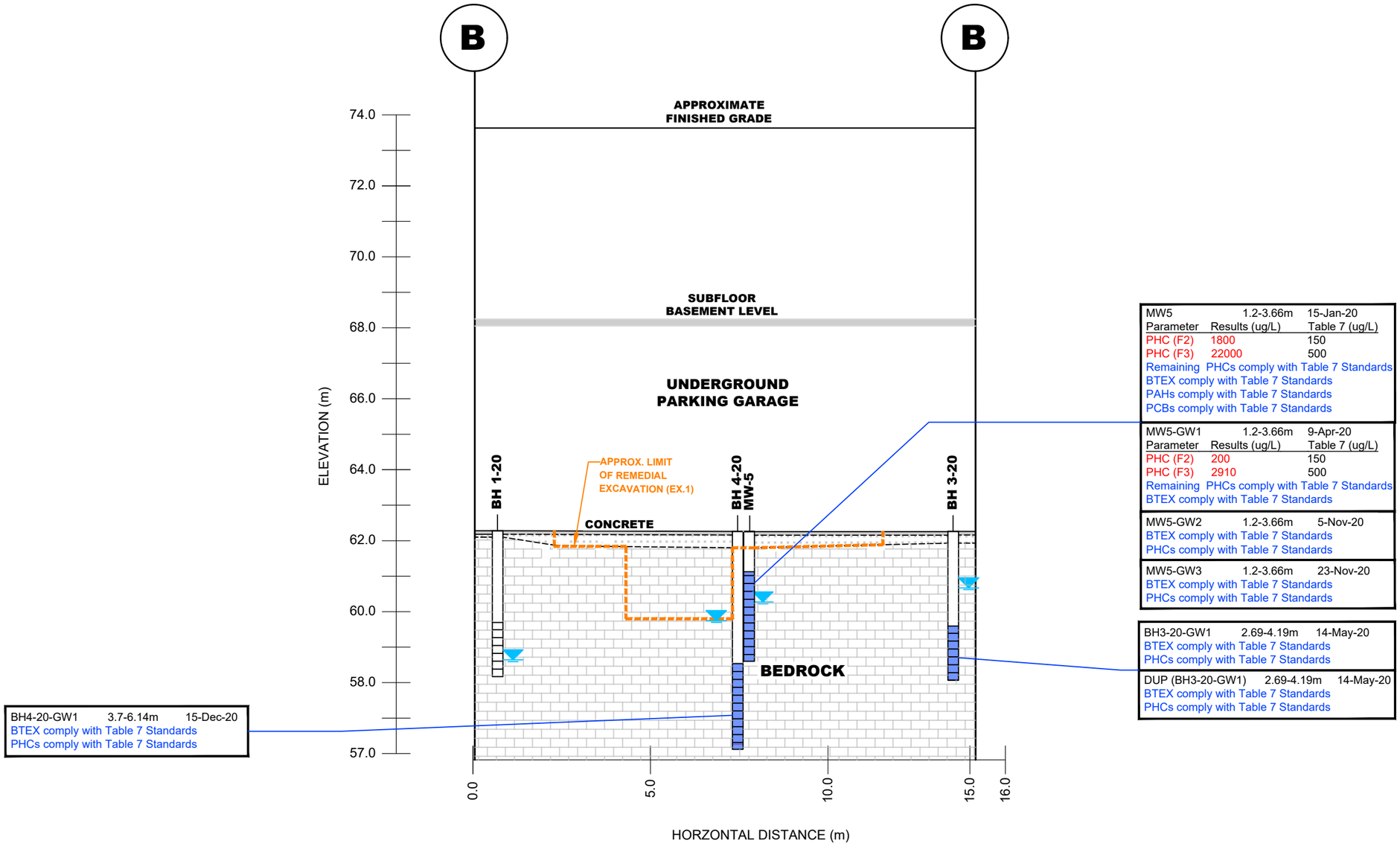

MW5 1.2-3.66m 15-Jan-20

Parameter	Results (ug/L)	Table 7 (ug/L)
PHC (F2)	1800	150
PHC (F3)	22000	500

Remaining PHCs comply with Table 7 Standards
BTEX comply with Table 7 Standards
PAHs comply with Table 7 Standards
PCBs comply with Table 7 Standards

MW5-GW1 1.2-3.66m 9-Apr-20

Parameter	Results (ug/L)	Table 7 (ug/L)
PHC (F2)	200	150
PHC (F3)	2910	500

Remaining PHCs comply with Table 7 Standards
BTEX comply with Table 7 Standards

MW5-GW2 1.2-3.66m 5-Nov-20
BTEX comply with Table 7 Standards
PHCs comply with Table 7 Standards

MW5-GW3 1.2-3.66m 23-Nov-20
BTEX comply with Table 7 Standards
PHCs comply with Table 7 Standards

BH3-20-GW1 2.69-4.19m 14-May-20
BTEX comply with Table 7 Standards
PHCs comply with Table 7 Standards

DUP (BH3-20-GW1) 2.69-4.19m 14-May-20
BTEX comply with Table 7 Standards
PHCs comply with Table 7 Standards

BH4-20-GW1 3.7-6.14m 15-Dec-20
BTEX comply with Table 7 Standards
PHCs comply with Table 7 Standards

GROUNDWATER PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

GROUNDWATER PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

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CROSS SECTION B-B' - GROUNDWATER (BTEX,PHCs,PAHs,PCBs)

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: MW	Dwg. No.: PE4908-9B
Approved by: KM	Revision No.:

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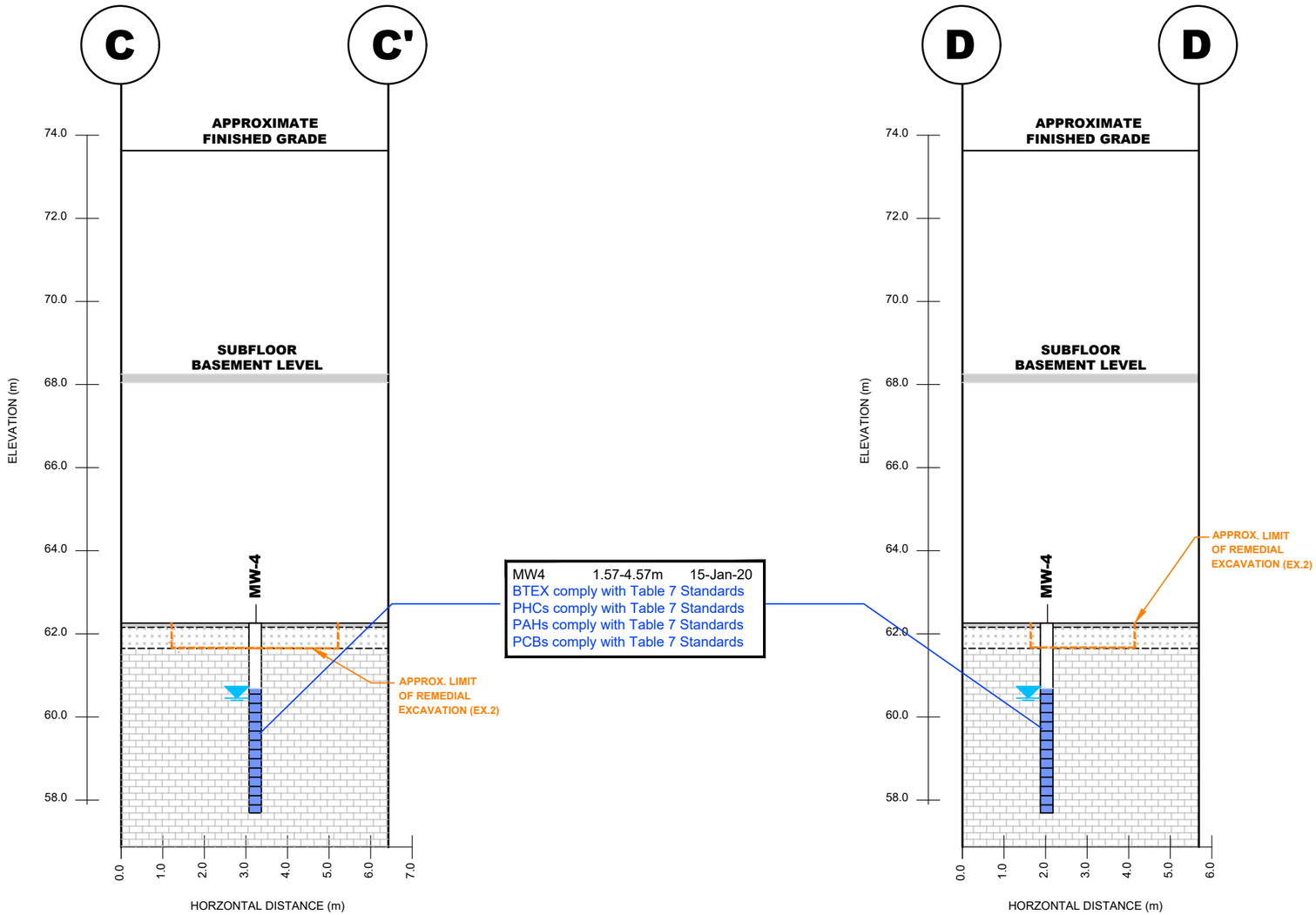

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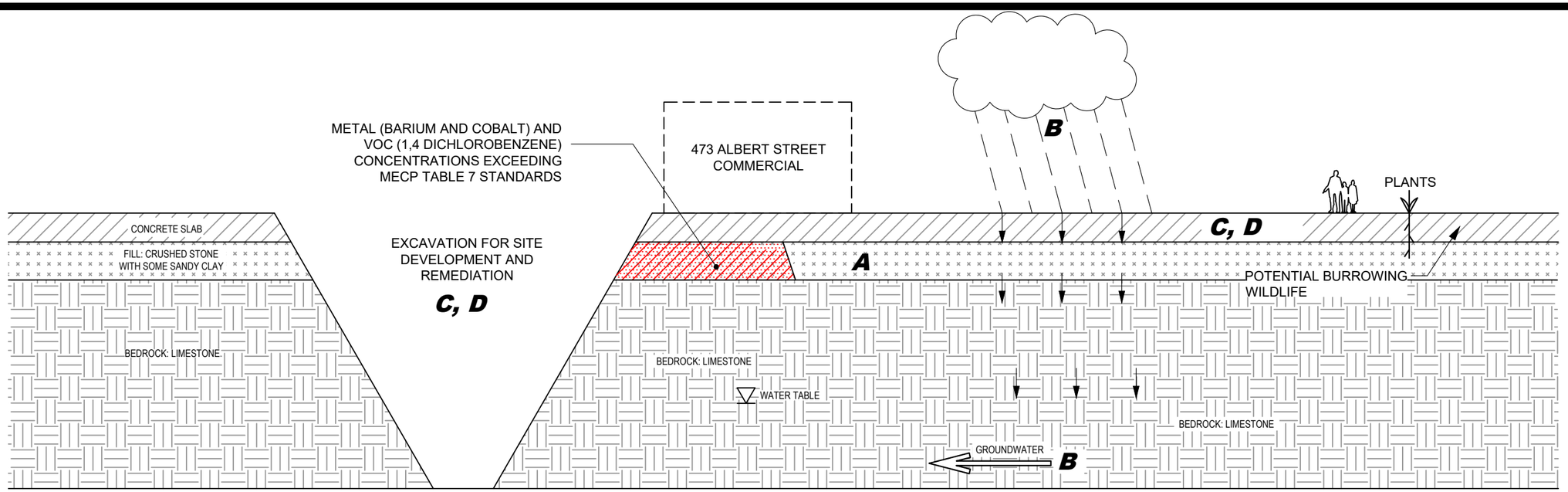

A CONTAMINANT RELEASE MECHANISMS

Volatile organic compound (1,4-Dichlorobenzene) and/or metal contaminants (Barium and Cobalt) are present in the fill on the northeastern and central portions of the RSC Property, beneath the pavement structure. Metal impacts are considered to be associated with the fill material imported to the RSC Property beneath the slab, while VOC impacts are considered to be related to the fill material or the former on-site generation of hazardous wastes.

B CONTAMINANT TRANSPORT PATHWAYS

1. PHYSICAL TRANSPORT – A potential contaminant transport pathway is the physical transport from one location to another of contaminated soil, either intentionally or unintentionally, by earth moving equipment, vehicle traffic, or pedestrian traffic. Based on observations made during the Phase I and Phase II ESA, physical transport of contaminants on the RSC Property is considered to be negligible.
2. PRECIPITATION/INFILTRATION/LEACHING – The RSC Property is covered with a building structure and underground parking garage, limiting the effects of precipitation/infiltration/leaching. The impacted fill material extends approximately 0.5m below the floor slab, to the bedrock. Furthermore, based on analytical testing, the groundwater beneath the site is in compliance with the MECP Table 7 standards and therefore precipitation, infiltration and leaching are not considered to have significantly impacted contaminant transport on the RSC Property.
3. DIFFUSION AND DISPERSION – Upon entering the groundwater table, contaminants will move from an area of greater concentration toward an area where it is less concentrated as long as a concentration gradient exists (diffusion). When groundwater travels through bedrock it moves at different velocities resulting in mixing and dilution of the contamination at the advancing edge of flow (dispersion). Groundwater beneath the RSC Property is in compliance with the MECP Table 7 standards, therefore these processes of contaminant transport are not applicable.

C HUMAN AND ECOLOGICAL RECEPTORS

HUMAN RECEPTORS – The RSC Property is covered by a building structure and underground parking garage (concrete slab), greatly reducing the chance for humans to have acted as receptors. Potential human receptors were limited to construction workers and environmental professionals who may have contacted the soil during the site remediation or during future development. Futhermore, the site and surrounding area is municipally serviced.
ECOLOGICAL RECEPTORS – Traditionally potential ecological receptors include plants whose root structures intercept contaminated soil, burrowing wildlife, and groundwater/surface water receptors downgradient of the subject site at groundwater discharge points. No plants or wildlife are present on the RSC Property. Additionally, due to the urban landscape, no significant receptors are expected to be present downgradient of the RSC Property. Given the clean groundwater results there is no risk to potential ecological receptors.

D ROUTES OF EXPOSURES

HUMAN RECEPTORS – Routes of exposure for human receptors (construction workers and environmental professionals) include dermal contact, accidental ingestion and inhalation (PHC vapours or particulate dust containing metals).
ECOLOGICAL RECEPTORS – Routes of exposure for ecological receptors include ingestion, dermal contact, and inhalation; as noted above, no significant receptors are expected due to the urban landscape setting of the RSC Property.

patersongroup
consulting engineers

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Ottawa, Ontario K2E 7J5
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INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

CONTAMINANT DISTRIBUTION DIAGRAM

Scale: N.T.S.	Date: 03/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: KM	Dwg. No.: PE4908-10
Approved by: MSD	Revision No.:

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APPENDIX 1

Sampling and Analysis Plan

Soil Profile and Test Data Sheets

Symbols and Terms

Laboratory Certificates of Analysis

Geotechnical Engineering

Environmental Engineering

Hydrogeology

Geological Engineering

Materials Testing

Building Science

Archaeological Services

Paterson Group Inc.

Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

patersongroup

Sampling & Analysis Plan

Phase II Environmental Site Assessment
473 Albert Street
Ottawa, Ontario

Prepared For

InterRent No. 3 Limited Partnership

April 2020

Report: PE4908-SAP

Table of Contents

1.0 SAMPLING PROGRAM

Paterson Group Inc. (Paterson) was commissioned by Mr. Evan Johnson of CLV Group, in partnership with InterRent No. 3 Development to conduct a Phase II Environmental Site Assessment (ESA) for the property addressed 473 Albert Street, in the City of Ottawa, Ontario. A geotechnical investigation was conducted concurrently with the environmental subsurface investigation. It should be noted that boreholes BH1, BH2, MW-3 to MW-10 were previously drilled by Pinchin in December of 2019. The borehole depths and rationale are included in the Table below for reference purposes.

Borehole	Location & Rationale	Proposed Depth & Rationale
Pinchin, 2019		
BH1	Place borehole as close as possible to existing AST on northeast portion of Phase I Property to assess the potential for associated soil and/or groundwater impacts.	Drill to a depth of approximately 1.5m below the water table or bedrock refusal, whichever is encountered first; due to above-grade location of AST, shallow soil impacts would be expected.
BH2	Place borehole in the immediate vicinity of the former AST location; to assess potential impact from former AST and Hydro Vault (located above).	Drill to a depth of approximately 1.5m below the water table or bedrock refusal, whichever is encountered first; to assess potential for shallow soil impacts resulting from the former AST.
MW-3	Place borehole on the central south side of the Phase II Property in the immediate vicinity of the former AST and Hydro vault to assess potential soil and/or groundwater impacts associated with these PCAs.	Drill to a depth of approximately 3.8 mbgs to intercept the groundwater table for a monitoring well installation.
MW-4	Place borehole on the central north side of the Phase II Property to provide general coverage of the site to assess potential soil and/or groundwater impacts related to the former on-site generation of hazardous wastes.	Drill to a depth of approximately 4.5 mbgs to intercept the groundwater table for a monitoring well installation.
MW-5 MW-6 MW-7	Place borehole on the central north side of the Phase II Property to provide general coverage of the site to assess potential soil and/or groundwater impacts related to the former on-site generation of hazardous wastes.	Drill to a depth of approximately 3.6 to 3.9 mbgs to intercept the groundwater table for a monitoring well installation.
MW-8	Place in immediate vicinity of existing AST to assess potential soil and groundwater impacts; place along eastern property boundary to assess potential impacts from a former off-site dry cleaner.	Drill to a depth of approximately 3.6 mbgs to intercept the groundwater table for a monitoring well installation.

Borehole	Location & Rationale	Proposed Depth & Rationale
MW-9	Place borehole along eastern property boundary to assess potential impacts from a former off-site dry cleaner.	Drill to a depth of approximately 3.6 mbgs to intercept the groundwater table for a monitoring well installation.
MW-10	Place borehole on the central north side of the Phase II Property to provide general coverage of the site to assess potential soil and/or groundwater impacts related to the former on-site generation of hazardous wastes.	Drill to a depth of approximately 3.6 mbgs to intercept the groundwater table for a monitoring well installation.
Paterson, 2020		
BH1-20	Place borehole north of MW-5 to delineate previously identified groundwater impacts.	Drill to the same depth as MW-5 for lateral delineation purposes.
BH1A-20	Place borehole to the west of BH1-20, to replace BH1-20 which was dry and to delineate previously identified groundwater impacts at MW-5.	Drill up to 0.5m deeper than MW-5/BH1-20 deeper to intercept the groundwater table for lateral delineation purposes.
BH2-20	Place borehole south of MW-5 to delineation previously identified groundwater impacts.	Drill to the same depth as MW-5 for lateral delineation purposes.
BH3-20	Place borehole east of MW-5 to delineation previously identified groundwater impacts.	Drill to the same depth as MW-5 for lateral delineation purposes.
BH4-20	Place borehole in the immediate vicinity of MW-5 to confirm groundwater quality below the MW-5 screened interval.	Drill to a depth of approximately 6 mbgs to confirm groundwater quality below MW-5.

At each borehole, split-spoon samples of overburden soils will be obtained at 0.76 m (2'6") intervals until practical refusal to augering. All soil samples will be retained, and samples will be selected for submission following a preliminary screening analysis.

Following borehole drilling, monitoring wells will be installed in selected boreholes (as above) for the measurement of water levels and the collection of groundwater samples. Borehole locations are shown on the Test Hole Location Plan appended to the main report.

2.0 ANALYTICAL TESTING PROGRAM

The analytical testing program for soil at the subject site is based on the following general considerations:

- ❒ At least one sample from each borehole should be submitted, in order to delineate the horizontal extent of contamination across the site.
- ❒ At least one sample from each stratigraphic unit should be submitted, in order to delineate the vertical extent of contamination at the site.
- ❒ In boreholes where there is visual or olfactory evidence of contamination, or where organic vapour meter or photoionization detector readings indicate the presence of contamination, the 'worst-case' sample from each borehole should be submitted for comparison with MOECC site condition standards.
- ❒ In boreholes with evidence of contamination as described above, a sample should be submitted from the stratigraphic unit below the 'worst-case' sample to determine whether the contaminant(s) have migrated downward.
- ❒ Parameters analyzed should be consistent with the Contaminants of Potential Concern identified in the Phase I ESA.

The analytical testing program for groundwater at the subject site is based on the following general considerations:

- ❒ Groundwater monitoring wells should be installed in all boreholes with visual or olfactory evidence of soil contamination, in stratigraphic units where soil contamination was encountered, where those stratigraphic units are at or below the water table (i.e. a water sample can be obtained).
- ❒ Groundwater monitoring well screens should straddle the water table at sites where the contaminants of concern are suspected to be LNAPLs.
- ❒ At least one groundwater monitoring well should be installed in a stratigraphic unit below the suspected contamination, where said stratigraphic unit is water-bearing.
- ❒ Parameters analyzed should be consistent with the Contaminants of Concern identified in the Phase I ESA and with the contaminants identified in the soil samples.

3.0 STANDARD OPERATING PROCEDURES

3.1 Environmental Drilling Procedure

Purpose

The purpose of environmental boreholes is to identify and/or delineate contamination within the soil and/or to install groundwater monitoring wells in order to identify contamination within the groundwater.

Equipment

The following is a list of equipment that is in addition to regular drilling equipment stated in the geotechnical drilling SOP:

- ❒ glass soil sample jars
- ❒ two buckets
- ❒ cleaning brush (toilet brush works well)
- ❒ dish detergent
- ❒ methyl hydrate
- ❒ water (if not available on site - water jugs available in trailer)
- ❒ latex or nitrile gloves (depending on suspected contaminant)
- ❒ RKI Eagle organic vapour meter or MiniRae photoionization detector (depending on contamination suspected)

Determining Borehole Locations

If conditions on site are not as suspected, and planned borehole locations cannot be drilled, **call the office to discuss**. Alternative borehole locations will be determined in conversation with the field technician and supervising engineer.

After drilling is completed a plan with the borehole locations must be provided. Distances and orientations of boreholes with respect to site features (buildings, roadways, etc.) must be provided. Distances should be measured using a measuring tape or wheel rather than paced off. Ground surface elevations at each borehole should be measured geodetically.

Drilling Procedure

The actual drilling procedure for environmental boreholes is the same as geotechnical boreholes (see SOP for drilling and sampling) with a few exceptions as follows:

- ❒ Continuous split spoon samples (every 0.6 m or 2') or semi-continuous (every 0.76 m or 2'6") are required.
- ❒ Make sure samples are well sealed in plastic bags with no holes prior to screening and are kept cool but unfrozen.
- ❒ If sampling for VOCs, BTEX, or PHCs F1, a soil core from each soil sample which may be analyzed must be taken and placed in the laboratory-provided methanol vial.
- ❒ Note all and any odours or discolouration of samples.
- ❒ Split spoon samplers must be washed between samples.
- ❒ If obvious contamination is encountered, continue sampling until vertical extent of contamination is delineated.
- ❒ As a general rule, environmental boreholes should be deep enough to intercept the groundwater table (unless this is impossible/impractical - call project manager to discuss).
- ❒ If at all possible, soil samples should be submitted to a preliminary screening procedure on site, either using a RKI Eagle, PID, etc. depending on type of suspected contamination.

Spoon Washing Procedure

All sampling equipment (spilt spoons, etc.) must be washed between samples in order to prevent cross contamination of soil samples.

- ❒ Obtain two buckets of water (preferably hot if available)
- ❒ Add a small amount of dish soap to one bucket
- ❒ Scrub spoons with brush in soapy water, inside and out, including tip
- ❒ Rinse in clean water
- ❒ Apply a small amount of methyl hydrate to the inside of the spoon. (A spray bottle or water bottle with a small hole in the cap works well)
- ❒ Allow to dry (takes seconds)
- ❒ Rinse with distilled water, a spray bottle works well.

The methyl hydrate eliminates any soap residue that may be on the spoon, and is especially important when dealing with suspected VOCs.

Screening Procedure

The RKI Eagle is used to screen most soil samples, particularly where petroleum hydrocarbon contamination is suspected. The MiniRae is used when VOCs are suspected, however it also can be useful for detecting petroleum. These tools are for screening purposes only and cannot be used in place of laboratory testing.

Vapour results obtained from the RKI Eagle and the PID are relative and must be interpreted.

Screening equipment should be calibrated on an approximately monthly basis, more frequently if heavily used.

- ❒ Samples should be brought to room temperature; this is specifically important in colder weather. Soil must not be frozen.
- ❒ Turn instrument on and allow to come to zero - calibrate if necessary
- ❒ If using RKI Eagle, ensure instrument is in methane elimination mode unless otherwise directed.
- ❒ Ensure measurement units are ppm (parts per million) initially. RKI Eagle will automatically switch to %LEL (lower explosive limit) if higher concentrations are encountered.
- ❒ Break up large lumps of soil in the sample bag, taking care not to puncture bag.
- ❒ Insert probe into soil bag, creating a seal with your hand around the opening.
- ❒ Gently manipulate soil in bag while observing instrument readings.
- ❒ Record the highest value obtained in the first 15 to 25 seconds
- ❒ Make sure to indicate scale (ppm or LEL); also note which instrument was used (RKI Eagle 1 or 2, or MiniRae).
- ❒ Jar samples and refrigerate as per Sampling and Analysis Plan.

3.2 Monitoring Well Installation Procedure

Equipment

- ❒ 5' x 2" [1.52 m x 50 mm] threaded sections of Schedule 40 PVC slotted well screen (5' x 1 ¼" [1.52 m x 32 mm] if installing in cored hole in bedrock)
- ❒ 5' x 2" [1.52 m x 50 mm] threaded sections of Schedule 40 PVC riser pipe (5' x 1 ¼" [1.52 m x 32 mm] if installing in cored hole in bedrock)
- ❒ Threaded end-cap
- ❒ Slip-cap or J-plug
- ❒ Asphalt cold patch or concrete
- ❒ Silica Sand
- ❒ Bentonite chips (Holeplug)
- ❒ Steel flushmount casing

Procedure

- ❒ Drill borehole to required depth, using drilling and sampling procedures described above.
- ❒ If borehole is deeper than required monitoring well, backfill with bentonite chips to required depth. This should only be done on wells where contamination is not suspected, in order to prevent downward migration of contamination.
- ❒ Only one monitoring well should be installed per borehole.
- ❒ Monitoring wells should not be screened across more than one stratigraphic unit to prevent potential migration of contaminants between units.
- ❒ Where LNAPLs are the suspected contaminants of concern, monitoring wells should be screened straddling the water table in order to capture any free product floating on top of the water table.
- ❒ Thread the end cap onto a section of screen. Thread second section of screen if required. Thread risers onto screen. Lower into borehole to required depth. Ensure slip-cap or J-plug is inserted to prevent backfill materials entering well.
- ❒ As drillers remove augers, backfill borehole annulus with silica sand until the level of sand is approximately 0.3 m above the top of the screen.
- ❒ Backfill with holeplug until at least 0.3 m of holeplug is present above the top of the silica sand.
- ❒ Backfill remainder of borehole with holeplug or with auger cuttings (if contamination is not suspected).
- ❒ Install flushmount casing. Seal space between flushmount and borehole annulus with concrete, cold patch, or holeplug to match surrounding ground surface.

3.3 Monitoring Well Sampling Procedure

Equipment

- ❒ Water level metre or interface probe on hydrocarbon/LNAPL sites
- ❒ Spray bottles containing water and methanol to clean water level tape or interface probe
- ❒ Peristaltic pump
- ❒ Polyethylene tubing for peristaltic pump
- ❒ Flexible tubing for peristaltic pump
- ❒ Latex or nitrile gloves (depending on suspected contaminant)
- ❒ Allen keys and/or 9/16” socket wrench to remove well caps
- ❒ Graduated bucket with volume measurements
- ❒ pH/Temperature/Conductivity combo pen

- ❒ Laboratory-supplied sample bottles

Sampling Procedure

- ❒ Locate well and use socket wrench or Allan key to open metal flush mount protector cap. Remove plastic well cap.
- ❒ Measure water level, with respect to existing ground surface, using water level meter or interface probe. If using interface probe on suspected NAPL site, measure the thickness of free product.
- ❒ Measure total depth of well.
- ❒ Clean water level tape or interface probe using methanol and water. Change gloves between wells.
- ❒ Calculate volume of standing water within well and record.
- ❒ Insert polyethylene tubing into well and attach to peristaltic pump. Turn on peristaltic pump and purge into graduated bucket. Purge at least three well volumes of water from the well. Measure and record field chemistry. Continue to purge, measuring field chemistry after every well volume purged, until appearance or field chemistry stabilizes.
- ❒ Note appearance of purge water, including colour, opacity (clear, cloudy, silty), sheen, presence of LNAPL, and odour. Note any other unusual features (particulate matter, effervescence (bubbling) of dissolved gas, etc.).
- ❒ Fill required sample bottles. If sampling for metals, attach 75-micron filter to discharge tube and filter metals sample. If sampling for VOCs, use low flow rate to ensure continuous stream of non-turbulent flow into sample bottles. Ensure no headspace is present in VOC vials.
- ❒ Replace well cap and flushmount casing cap.

4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The QA/QC program for this Phase II ESA is as follows:

- ❒ All non-dedicated sampling equipment (split spoons) will be decontaminated according to the SOPs listed above.

- ❒ All groundwater sampling equipment is dedicated (polyethylene and flexible peristaltic tubing is replaced for each well).

- ❒ Where groundwater samples are to be analyzed for VOCs, one laboratory-provided trip blank will be submitted for analysis with every laboratory submission.

- ❒ Approximately one (1) field duplicate will be submitted for every ten (10) samples submitted for laboratory analysis. A minimum of one (1) field duplicate per project will be submitted. Field duplicates will be submitted for soil and groundwater samples
- ❒ Where combo pens are used to measure field chemistry, they will be calibrated on an approximately monthly basis, according to frequency of use.

5.0 DATA QUALITY OBJECTIVES

The purpose of setting data quality objectives (DQOs) is to ensure that the level of uncertainty in data collected during the Phase II ESA is low enough that decision-making is not affected, and that the overall objectives of the investigation are met.

The quality of data is assessed by comparing field duplicates with original samples. If the relative percent difference (RPD) between the duplicate and the sample is within 20%, the data are considered to be of sufficient quality so as not to affect decision-making. The RPD is calculated as follows:

$$RPD = \left| \frac{x_1 - x_2}{(x_1 + x_2)/2} \right| \times 100\%$$

Where x_1 is the concentration of a given parameter in an original sample and x_2 is the concentration of that same parameter in the field duplicate sample.

For the purpose of calculating the RPD, it is desirable to select field duplicates from samples for which parameters are present in concentrations above laboratory detection limits, i.e. samples which are expected to be contaminated. If parameters are below laboratory detection limits for selected samples or duplicates, the RPD may be calculated using a concentration equal to one half (0.5 x) the laboratory detection limit.

It is also important to consider data quality in the overall context of the project. For example, if the DQOs are not met for a given sample, yet the concentrations of contaminants in both the sample and the duplicate exceed the MOE site remediation standards by a large margin, the decision-making usefulness of the sample may not be considered to be impaired. The proximity of other samples which meet the DQOs must also be considered in developing the Phase II Conceptual Site Model; often there are enough data available to produce a reliable Phase II Conceptual Site Model even if DQOs are not met for certain individual samples. These considerations are discussed in the body of the report.

6.0 PHYSICAL IMPEDIMENTS TO SAMPLING & ANALYSIS PLAN

Physical impediments to the Sampling and Analysis plan may include:

- ❒ The location of underground utilities
- ❒ Poor recovery of split-spoon soil samples
- ❒ Insufficient groundwater volume for groundwater samples
- ❒ Breakage of sampling containers following sampling or while in transit to the laboratory
- ❒ Elevated detection limits due to matrix interference (generally related to soil colour or presence of organic material)
- ❒ Elevated detection limits due to high concentrations of certain parameters, necessitating dilution of samples in laboratory
- ❒ Drill rig breakdowns
- ❒ Winter conditions
- ❒ Other site-specific impediments

Site-specific impediments to the Sampling and Analysis plan are discussed in the body of the Phase II ESA report

Log of Borehole: BH-1

Project #: 248967.001 **Logged By:** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 11, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00	No Monitoring Well Installed				
1 / 0		***Concrete***			60	SS-1	5/1.0	PHCs, PAHs, BTEX
2 / 1		***Sand and Gravel*** Brown, some large gravels, damp.	0.61					
3 / 1		End of Borehole						
4 / 1		Refusal at 0.61 mbfs on inferred bedrock.						
5 / 2								
6 / 2								
7 / 2								
8 / 2								
9 / 3								
10 / 3								
11 / 3								
12 / 3								
13 / 4								
14 / 4								
15 / 4								
16 / 5								
17 / 5								
18 / 5								
19 / 6								
20 / 6								

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: NA

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NA

Sheet: 1 of 1

Log of Borehole: BH-2

Project #: 248967.001 ***Logged By:*** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 11, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00	↑ No Monitoring Well Installed				
		Concrete	0.15					
		End of Borehole						
3 / 1		Refusal at 0.15 mbfs on inferred bedrock.						
6 / 2								
9 / 3								
13 / 4								
16 / 5								
19 / 6				↓				
20								

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: NA

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NA

Sheet: 1 of 1

Log of Borehole: MW-3

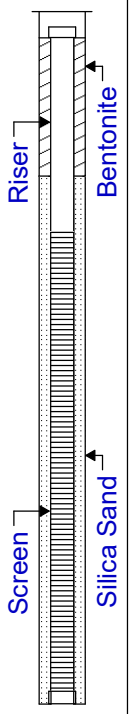
Project #: 248967.001 ***Logged By:*** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 11-12, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
		Concrete	0.25					
1		***Fractured Limestone***						
2 / 1								
3								
4 / 2								
5								
6 / 3								
7								
8 / 4								
9								
10 / 5								
11								
12 / 6			3.81					
13		End of Borehole						
14								
15								
16								
17								
18								
19								
20								

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

Log of Borehole: MW-4

Project #: 248967.001 **Logged By:** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 12, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
0–1 / 0		***Concrete***		Riser, Bentonite, Screen, Silica Sand	50	SS-1	80/1.0	PHCs, VOCs, PAHs, Metals, PCBs, Mercury
1–2 / 0–1		***Sand and Gravel*** Brown, some large stone, damp.	0.61					
2–15 / 1–4		***Fractured Limestone*** Refusal at 0.61 mbfs on inferred bedrock.						
15 / 4		End of Borehole	4.57					

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

Log of Borehole: MW-5

Project #: 248967.001 **Logged By:** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 12-18, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
0 / 0		***Concrete***			50	SS-1	15/1.0	PHCs, VOCs, PAHs, Metals, PCBs, Mercury
1 /		***Sand and Gravel*** Brown, damp.	0.46					
3 / 1		***Fractured Limestone*** Refusal at 0.46 mbfs on inferred bedrock.		Riser, Bentonite, Screen, Silica Sand				
12 /			3.66					
		End of Borehole						
13 / 4								
16 / 5								
19 / 6								
20 /								

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

Log of Borehole: MW-6

Project #: 248967.001 **Logged By:** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 12-16, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
		Concrete	0.20		60	SS-1	10/1.0	PHCs, VOCs, PAHs, Metals, PCBs, Mercury
1		***Sand and Gravel*** Brown, damp.	0.46					
2 / 1		***Fractured Limestone*** Refusal at 0.46 mbfs on inferred bedrock.		Riser, Bentonite, Screen, Silica Sand				
3								
4 / 2								
5								
6 / 3								
7								
8 / 4								
9								
10 / 5								
11								
12 / 6			3.81					
13		End of Borehole						
14								
15								
16								
17								
18								
19								
20								

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

Log of Borehole: MW-7

Project #: 248967.001 **Logged By:** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 17, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
		Concrete	0.15					
1		***Sand and Gravel*** Brown, damp.	0.46					
2 / 1		***Fractured Limestone*** Refusal at 0.46 mbfs on inferred bedrock.		Riser, Bentonite, Screen, Silica Sand				
3								
4 / 2								
5								
6 / 3								
7								
8 / 4								
9								
10 / 5								
11								
12 / 6								
13			3.96					
		End of Borehole						
14								
15 / 7								
16								
17 / 8								
18								
19 / 9								
20								

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

Log of Borehole: MW-8

Project #: 248967.001 ***Logged By:*** MK

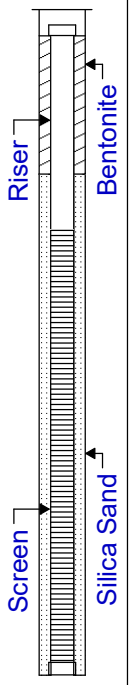
Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 19, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
		Concrete	0.15					
1		***No Recovery***	0.30					
2		***Fractured Limestone*** Refusal at 0.30 mbfs on inferred bedrock.						
3 / 1								
4								
5								
6 / 2								
7								
8								
9 / 3								
10								
11								
12		End of Borehole	3.66					
13 / 4								
14								
15								
16 / 5								
17								
18								
19								
20 / 6								



Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

Log of Borehole: MW-9

Project #: 248967.001 **Logged By:** MK

Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 18-19, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
		Concrete	0.30					
1		***No Recovery***						
2		***Fractured Limestone*** Refusal at 0.30 mbfs on inferred bedrock.						
3 / 1				Riser, Bentonite, Screen, Silica Sand				
4								
5								
6 / 2								
7								
8								
9								
10 / 3								
11								
12			3.66					
		End of Borehole						
13 / 4								
14								
15								
16 / 5								
17								
18								
19								
20 / 6								

Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

Log of Borehole: MW-10

Project #: 248967.001 **Logged By:** MK

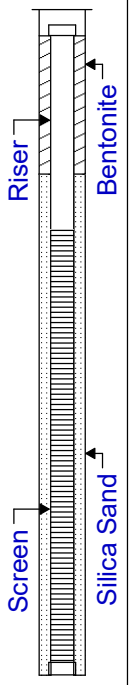
Project: Phase II Environmental Site Assessment

Client: Interrent No. 3 Limited Partnership

Location: 473 Albert Street, Ottawa, Ontario

Drill Date: December 19, 2019

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) CGI/PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
		Concrete						
1 /			0.30					
		No Recovery						
2 /		***Fractured Limestone*** Refusal at 0.30 mbfs on inferred bedrock.						
3 / 1								
4 /								
5 /								
6 / 2								
7 /								
8 /								
9 /								
10 / 3								
11 /								
12 /			3.66					
		End of Borehole						
13 / 4								
14 /								
15 /								
16 / 5								
17 /								
18 /								
19 /								
20 / 6								



Contractor: Strata Drilling Group Inc.

Drilling Method: Direct Push

Well Casing Size: 3.2 cm

Note:
* Soil vapour concentrations measured using a RKI Eagle 2 equipped with a combustible gas indicator (CGI) and a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
473 Albert Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4908

REMARKS

HOLE NO. BH 1-20

BORINGS BY Portable Drill **DATE** 2020 May 5

SOIL DESCRIPTION		STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE								
Concrete slab	0.10		G	1			0	62.28
FILL: Crushed stone	0.18							
			RC	1	81	0		
			RC	2	100	0	1	61.28
			RC	3	100	44		
BEDROCK: Very poor to excellent quality, grey limestone			RC	4	100	100	2	60.28
			RC	5	100	100		
							3	59.28
			RC	6	100	100		
	4.11						4	58.28
End of Borehole								
(BH dry - May 20, 2020)								

Photo Ionization Detector

● Volatile Organic Rdg. (ppm)

○ **Lower Explosive Limit %**

20 40 60 80

Monitoring Well Construction

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
473 Albert Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4908

REMARKS

HOLE NO. BH 1A-20

BORINGS BY Portable Drill **DATE** 2020 June 2

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	62.29
Concrete slab						1	61.29
1.19							
		RC	1	100	0		
		RC	2	100	74	2	60.29
		RC	3	100	100		
BEDROCK: Very poor to excellent quality, grey limestone		RC	4	100	100	3	59.29
		RC	5	100	94		
						4	58.29
4.42							
End of Borehole							
(GWL @ 2.08m - June 11, 2020)							

Photo Ionization Detector

● Volatile Organic Rdg. (ppm)

○ **Lower Explosive Limit %**

20 40 60 80

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

Monitoring Well Construction

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
473 Albert Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4908

REMARKS

HOLE NO. BH 2-20

BORINGS BY Portable Drill **DATE** 2020 May 4

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Photo Ionization Detector: Volatile Organic Rdg. (ppm) / Lower Explosive Limit %	Monitoring Well Construction
GROUND SURFACE									
Concrete slab 0.09		G	1			0	62.26		
FILL: Crushed stone									
0.91						1	61.26		
		RC	1	100	93				
BEDROCK: Excellent quality, grey limestone						2	60.26		
		RC	2	97	79				
		RC	3	100	90	3	59.26		
		RC	4	94	94	4	58.26		
4.34									
End of Borehole									
(GWL @ 1.85m - May 14, 2020)									

Photo Ionization Detector
● Volatile Organic Rdg. (ppm)
○ Lower Explosive Limit %
20 40 60 80

100 200 300 400 500
RKI Eagle Rdg. (ppm)
▲ Full Gas Resp. △ Methane Elim.

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
473 Albert Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4908

REMARKS

HOLE NO. BH 3-20

BORINGS BY Portable Drill **DATE** 2020 May 4

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Concrete slab 0.10		G	1			0	62.26
FILL: Crushed stone 0.33		RC	1	100	0		
		RC	2	95	0	1	61.26
		RC	3	90	0		
		RC	4	100	15	2	60.26
BEDROCK: Very poor to excellent quality, grey limestone							
		RC	5	100	77	3	59.26
		RC	6	100	100		
4.19						4	58.26
End of Borehole							
(GWL @ 1.35m - May 14, 2020)							

Photo Ionization Detector

● Volatile Organic Rdg. (ppm)

○ **Lower Explosive Limit %**

20 40 60 80

Monitoring Well Construction

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
473 Albert Street
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY Portable Drill **DATE** 2020 November 30

FILE NO. PE4908

HOLE NO. BH 4-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	62.26
FILL: Crushed stone with sand and gravel						1	61.26
1.95						2	60.26
BEDROCK: Grey limestone						3	59.26
						4	58.26
						5	57.26
6.14						6	56.26
End of Borehole (GWL @ 2.10 m depth - December 11, 2020)							

Photo Ionization Detector

● Volatile Organic Rdg. (ppm)

○ **Lower Explosive Limit %**

20 40 60 80

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

Monitoring Well Construction

SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the strength of cohesionless soils is the relative density, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm.

Relative Density	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory vane tests, penetrometer tests, unconfined compression tests, or occasionally by Standard Penetration Tests.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their “sensitivity”. The sensitivity is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil.

Terminology used for describing soil strata based upon texture, or the proportion of individual particle sizes present is provided on the Textural Soil Classification Chart at the end of this information package.

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NXL size core. However, it can be used on smaller core sizes, such as BX, if the bulk of the fractures caused by drilling stresses (called “mechanical breaks”) are easily distinguishable from the normal in situ fractures.

RQD %	ROCK QUALITY
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube
PS	-	Piston sample
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size AXT, BXL, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

MC%	-	Natural moisture content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic limit, % (water content above which soil behaves plastically)
PI	-	Plasticity index, % (difference between LL and PL)
Dxx	-	Grain size which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2$ / (D10 x D60)
Cu	-	Uniformity coefficient = D60 / D10

Cc and Cu are used to assess the grading of sands and gravels:
Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay
(more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

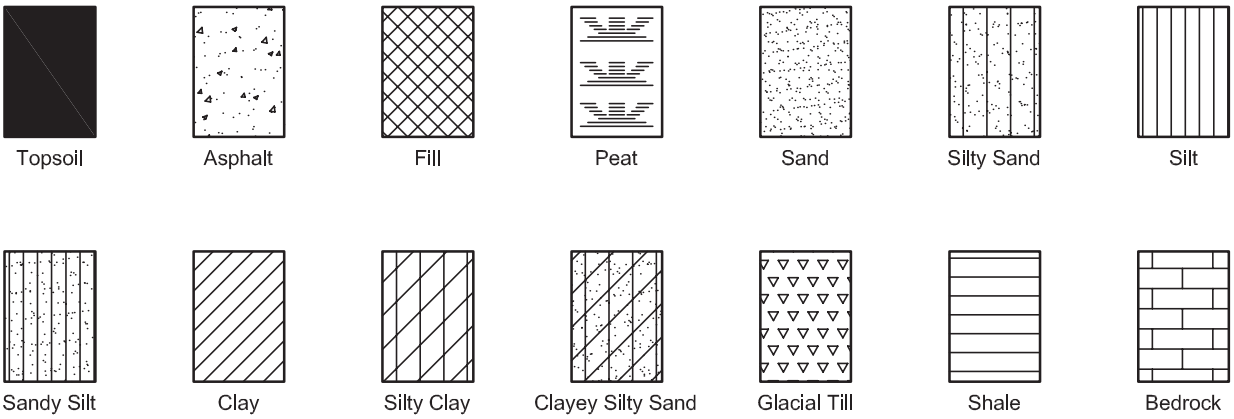
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.

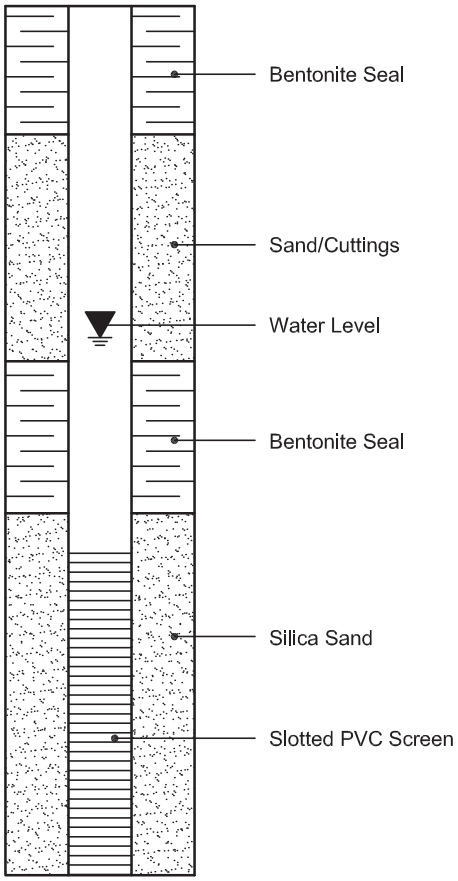
SYMBOLS AND TERMS (continued)

STRATA PLOT

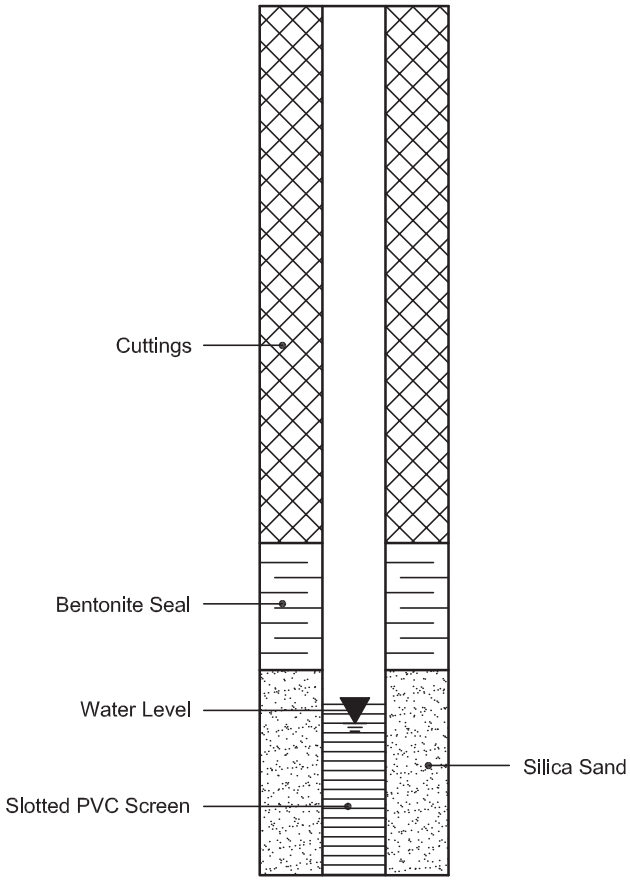


MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



Your Project #: 248967.001
Site Location: 473 ALBERT
Your C.O.C. #: 729720-30-01

Attention: Matt, Ryan, Mike

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2019/12/24
Report #: R6018467
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9Z4584
Received: 2019/12/17, 10:19

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	5	N/A	2019/12/23	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	1	N/A	2019/12/20		EPA 8260C m
1,3-Dichloropropene Sum (1)	2	N/A	2019/12/22		EPA 8260C m
1,3-Dichloropropene Sum (1)	1	N/A	2019/12/23		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	2	N/A	2019/12/21	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	5	2019/12/21	2019/12/22	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	4	2019/12/19	2019/12/20	CAM SOP-00447	EPA 6020B m
Moisture (1)	5	N/A	2019/12/19	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	1	N/A	2019/12/21	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	5	2019/12/20	2019/12/21	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Soil (1)	4	2019/12/23	2019/12/23	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT (1)	1	2019/12/20	2019/12/20	CAM SOP-00413	EPA 9045 D m
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2019/12/19	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds and F1 PHCs (1)	2	N/A	2019/12/20	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Soil (1)	1	N/A	2019/12/20	CAM SOP-00228	EPA 8260C m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope

Your Project #: 248967.001
Site Location: 473 ALBERT
Your C.O.C. #: 729720-30-01

Attention: Matt, Ryan, Mike

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2019/12/24
Report #: R6018467
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9Z4584
Received: 2019/12/17, 10:19

dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Laboratories Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Alisha Williamson
Project Manager
24 Dec 2019 12:07:21

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alisha Williamson, Project Manager
Email: Alisha.Williamson@bvlabs.com
Phone# (613)274-0573

==========

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

O.REG 153 ICPMS METALS (SOIL)

BV Labs ID		LPA700	LPA702	LPA703	LPA704		
Sampling Date		2019/12/12	2019/12/11	2019/12/11	2019/12/11		
COC Number		729720-30-01	729720-30-01	729720-30-01	729720-30-01		
	UNITS	MW4-SS-1	MW5-SS-1	DUP-3	MW6-SS-1	RDL	QC Batch
Metals							
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.23	<0.20	<0.20	0.20	6506156
Acid Extractable Arsenic (As)	ug/g	3.6	1.9	2.4	3.3	1.0	6506156
Acid Extractable Barium (Ba)	ug/g	120	430	330	290	0.50	6506156
Acid Extractable Beryllium (Be)	ug/g	0.21	0.31	0.26	0.25	0.20	6506156
Acid Extractable Boron (B)	ug/g	8.2	9.8	8.9	7.9	5.0	6506156
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	<0.10	<0.10	0.10	6506156
Acid Extractable Chromium (Cr)	ug/g	8.8	10	9.6	9.4	1.0	6506156
Acid Extractable Cobalt (Co)	ug/g	28	15	7.1	5.0	0.10	6506156
Acid Extractable Copper (Cu)	ug/g	57	29	13	8.1	0.50	6506156
Acid Extractable Lead (Pb)	ug/g	11	20	16	22	1.0	6506156
Acid Extractable Molybdenum (Mo)	ug/g	1.8	1.7	1.2	1.6	0.50	6506156
Acid Extractable Nickel (Ni)	ug/g	8.9	12	9.5	9.4	0.50	6506156
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	0.50	6506156
Acid Extractable Silver (Ag)	ug/g	<0.20	0.21	<0.20	<0.20	0.20	6506156
Acid Extractable Thallium (Tl)	ug/g	0.098	0.36	0.066	0.085	0.050	6506156
Acid Extractable Uranium (U)	ug/g	0.67	0.44	0.53	0.56	0.050	6506156
Acid Extractable Vanadium (V)	ug/g	7.8	6.9	9.8	8.6	5.0	6506156
Acid Extractable Zinc (Zn)	ug/g	15	26	22	23	5.0	6506156
Acid Extractable Mercury (Hg)	ug/g	0.057	<0.050	<0.050	<0.050	0.050	6506156

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

O.REG 153 PAHS (SOIL)

BV Labs ID		LPA698	LPA699	LPA700	LPA702	LPA704		
Sampling Date		2019/12/11	2019/12/11	2019/12/12	2019/12/11	2019/12/11		
COC Number		729720-30-01	729720-30-01	729720-30-01	729720-30-01	729720-30-01		
	UNITS	BH1-SS-1	DUP-1	MW4-SS-1	MW5-SS-1	MW6-SS-1	RDL	QC Batch
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	0.0071	6500971
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
Anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
Benzo(a)anthracene	ug/g	0.017	0.012	<0.0050	0.0072	0.0076	0.0050	6509258
Benzo(a)pyrene	ug/g	0.019	0.012	<0.0050	0.0078	0.0088	0.0050	6509258
Benzo(b/j)fluoranthene	ug/g	0.028	0.018	0.0072	0.015	0.013	0.0050	6509258
Benzo(g,h,i)perylene	ug/g	0.014	0.0083	0.0054	0.0088	0.0097	0.0050	6509258
Benzo(k)fluoranthene	ug/g	0.0096	0.0062	<0.0050	0.0055	<0.0050	0.0050	6509258
Chrysene	ug/g	0.018	0.012	<0.0050	0.010	0.0072	0.0050	6509258
Dibenzo(a,h)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
Fluoranthene	ug/g	0.034	0.025	0.0060	0.0078	0.011	0.0050	6509258
Fluorene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
Indeno(1,2,3-cd)pyrene	ug/g	0.014	0.0083	<0.0050	0.0083	0.0084	0.0050	6509258
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
Naphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6509258
Phenanthrene	ug/g	0.023	0.027	0.0060	0.0090	0.0078	0.0050	6509258
Pyrene	ug/g	0.031	0.021	0.0072	0.0093	0.011	0.0050	6509258
Surrogate Recovery (%)								
D10-Anthracene	%	99	99	98	97	101		6509258
D14-Terphenyl (FS)	%	93	92	92	89	91		6509258
D8-Acenaphthylene	%	90	90	89	88	90		6509258

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

O.REG 153 PCBS (SOIL)

BV Labs ID		LPA700	LPA701	LPA702	LPA704		
Sampling Date		2019/12/12	2019/12/12	2019/12/11	2019/12/11		
COC Number		729720-30-01	729720-30-01	729720-30-01	729720-30-01		
	UNITS	MW4-SS-1	DUP-2	MW5-SS-1	MW6-SS-1	RDL	QC Batch
PCBs							
Aroclor 1242	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	6511621
Aroclor 1248	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	6511621
Aroclor 1254	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	6511621
Aroclor 1260	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	6511621
Total PCB	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	6511621
Surrogate Recovery (%)							
Decachlorobiphenyl	%	88	93	91	98		6511621

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

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

BV Labs ID		LPA698		LPA699		
Sampling Date		2019/12/11		2019/12/11		
COC Number		729720-30-01		729720-30-01		
	UNITS	BH1-SS-1	QC Batch	DUP-1	RDL	QC Batch
Inorganics						
Moisture	%	3.7	6507168	4.4	1.0	6506972
BTEX & F1 Hydrocarbons						
Benzene	ug/g	<0.020	6510660	<0.020	0.020	6510660
Toluene	ug/g	0.10	6510660	0.024	0.020	6510660
Ethylbenzene	ug/g	<0.020	6510660	<0.020	0.020	6510660
o-Xylene	ug/g	0.033	6510660	<0.020	0.020	6510660
p+m-Xylene	ug/g	0.11	6510660	0.046	0.040	6510660
Total Xylenes	ug/g	0.14	6510660	0.046	0.040	6510660
F1 (C6-C10)	ug/g	11	6510660	10	10	6510660
F1 (C6-C10) - BTEX	ug/g	11	6510660	10	10	6510660
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<10	6510772	<10	10	6510772
F3 (C16-C34 Hydrocarbons)	ug/g	<50	6510772	<50	50	6510772
F4 (C34-C50 Hydrocarbons)	ug/g	<50	6510772	<50	50	6510772
Reached Baseline at C50	ug/g	Yes	6510772	Yes		6510772
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	100	6510660	103		6510660
4-Bromofluorobenzene	%	104	6510660	104		6510660
D10-Ethylbenzene	%	107	6510660	108		6510660
D4-1,2-Dichloroethane	%	94	6510660	95		6510660
o-Terphenyl	%	87	6510772	87		6510772

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID		LPA700	LPA702	LPA704		
Sampling Date		2019/12/12	2019/12/11	2019/12/11		
COC Number		729720-30-01	729720-30-01	729720-30-01		
	UNITS	MW4-SS-1	MW5-SS-1	MW6-SS-1	RDL	QC Batch
Inorganics						
Moisture	%	5.0	6.1	6.1	1.0	6507141
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	0.050	6500972
Volatile Organics						
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	0.50	6505767
Benzene	ug/g	<0.020	<0.020	<0.020	0.020	6505767
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Bromoform	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Bromomethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Chloroform	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,4-Dichlorobenzene	ug/g	0.083	0.091	<0.050	0.050	6505767
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	0.030	6505767
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	0.040	6505767
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	0.020	6505767
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Hexane	ug/g	0.18	0.26	<0.050	0.050	6505767
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	0.50	6505767
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	0.50	6505767
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Styrene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID		LPA700	LPA702	LPA704		
Sampling Date		2019/12/12	2019/12/11	2019/12/11		
COC Number		729720-30-01	729720-30-01	729720-30-01		
	UNITS	MW4-SS-1	MW5-SS-1	MW6-SS-1	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Toluene	ug/g	0.033	0.028	<0.020	0.020	6505767
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	0.050	6505767
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	0.020	6505767
p+m-Xylene	ug/g	0.076	0.069	<0.020	0.020	6505767
o-Xylene	ug/g	0.025	0.026	<0.020	0.020	6505767
Total Xylenes	ug/g	0.10	0.095	<0.020	0.020	6505767
F1 (C6-C10)	ug/g	<10	<10	<10	10	6505767
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	10	6505767
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	10	6510772
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	50	6510772
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	50	6510772
Reached Baseline at C50	ug/g	Yes	Yes	Yes		6510772
Surrogate Recovery (%)						
o-Terphenyl	%	84	85	94		6510772
4-Bromofluorobenzene	%	99	98	95		6505767
D10-o-Xylene	%	104	98	114		6505767
D4-1,2-Dichloroethane	%	99	100	103		6505767
D8-Toluene	%	101	100	99		6505767

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS (SOIL)

BV Labs ID		LPA701		
Sampling Date		2019/12/12		
COC Number		729720-30-01		
	UNITS	DUP-2	RDL	QC Batch
Inorganics				
Moisture	%	5.1	1.0	6508552
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	6500972
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	6504104
Benzene	ug/g	<0.020	0.020	6504104
Bromodichloromethane	ug/g	<0.050	0.050	6504104
Bromoform	ug/g	<0.050	0.050	6504104
Bromomethane	ug/g	<0.050	0.050	6504104
Carbon Tetrachloride	ug/g	<0.050	0.050	6504104
Chlorobenzene	ug/g	<0.050	0.050	6504104
Chloroform	ug/g	<0.050	0.050	6504104
Dibromochloromethane	ug/g	<0.050	0.050	6504104
1,2-Dichlorobenzene	ug/g	<0.050	0.050	6504104
1,3-Dichlorobenzene	ug/g	<0.050	0.050	6504104
1,4-Dichlorobenzene	ug/g	0.074	0.050	6504104
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	6504104
1,1-Dichloroethane	ug/g	<0.050	0.050	6504104
1,2-Dichloroethane	ug/g	<0.050	0.050	6504104
1,1-Dichloroethylene	ug/g	<0.050	0.050	6504104
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	6504104
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	6504104
1,2-Dichloropropane	ug/g	<0.050	0.050	6504104
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	6504104
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	6504104
Ethylbenzene	ug/g	<0.020	0.020	6504104
Ethylene Dibromide	ug/g	<0.050	0.050	6504104
Hexane	ug/g	0.30	0.050	6504104
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	6504104
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	6504104
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	6504104
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	6504104
Styrene	ug/g	<0.050	0.050	6504104
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	6504104

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS (SOIL)

BV Labs ID		LPA701		
Sampling Date		2019/12/12		
COC Number		729720-30-01		
	UNITS	DUP-2	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	6504104
Tetrachloroethylene	ug/g	<0.050	0.050	6504104
Toluene	ug/g	0.051	0.020	6504104
1,1,1-Trichloroethane	ug/g	<0.050	0.050	6504104
1,1,2-Trichloroethane	ug/g	<0.050	0.050	6504104
Trichloroethylene	ug/g	<0.050	0.050	6504104
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	6504104
Vinyl Chloride	ug/g	<0.020	0.020	6504104
p+m-Xylene	ug/g	0.093	0.020	6504104
o-Xylene	ug/g	0.031	0.020	6504104
Total Xylenes	ug/g	0.12	0.020	6504104
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	97		6504104
D10-o-Xylene	%	108		6504104
D4-1,2-Dichloroethane	%	98		6504104
D8-Toluene	%	101		6504104

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

RESULTS OF ANALYSES OF SOIL

BV Labs ID		LPA698	
Sampling Date		2019/12/11	
COC Number		729720-30-01	
	UNITS	BH1-SS-1	QC Batch
Inorganics			
Available (CaCl2) pH	pH	7.88	6508612
QC Batch = Quality Control Batch			

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BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

TEST SUMMARY

BV Labs ID: LPA698
Sample ID: BH1-SS-1
Matrix: Soil

Collected: 2019/12/11
Shipped:
Received: 2019/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6500971	N/A	2019/12/23	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6510660	N/A	2019/12/21	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6510772	2019/12/21	2019/12/22	Prabhjot Gulati
Moisture	BAL	6507168	N/A	2019/12/19	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6509258	2019/12/20	2019/12/21	Mitesh Raj
pH CaCl2 EXTRACT	AT	6508612	2019/12/20	2019/12/20	Kazzandra Adeva

BV Labs ID: LPA699
Sample ID: DUP-1
Matrix: Soil

Collected: 2019/12/11
Shipped:
Received: 2019/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6500971	N/A	2019/12/23	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6510660	N/A	2019/12/21	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6510772	2019/12/21	2019/12/22	Prabhjot Gulati
Moisture	BAL	6506972	N/A	2019/12/19	Manpreet Kaur
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6509258	2019/12/20	2019/12/21	Mitesh Raj

BV Labs ID: LPA700
Sample ID: MW4-SS-1
Matrix: Soil

Collected: 2019/12/12
Shipped:
Received: 2019/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6500971	N/A	2019/12/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6500972	N/A	2019/12/22	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6510772	2019/12/21	2019/12/22	Prabhjot Gulati
Strong Acid Leachable Metals by ICPMS	ICP/MS	6506156	2019/12/19	2019/12/20	Daniel Teclu
Moisture	BAL	6507141	N/A	2019/12/19	Gurpreet Kaur
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6509258	2019/12/20	2019/12/21	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	6511621	2019/12/23	2019/12/23	Svitlana Shaula
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6505767	N/A	2019/12/20	Manpreet Sarao

BV Labs ID: LPA701
Sample ID: DUP-2
Matrix: Soil

Collected: 2019/12/12
Shipped:
Received: 2019/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6500972	N/A	2019/12/23	Automated Statchk
Moisture	BAL	6508552	N/A	2019/12/21	Min Yang
Polychlorinated Biphenyl in Soil	GC/ECD	6511621	2019/12/23	2019/12/23	Svitlana Shaula
Volatile Organic Compounds in Soil	GC/MS	6504104	N/A	2019/12/20	Chandni Khawas

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BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

TEST SUMMARY

BV Labs ID: LPA702
Sample ID: MW5-SS-1
Matrix: Soil

Collected: 2019/12/11
Shipped:
Received: 2019/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6500971	N/A	2019/12/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6500972	N/A	2019/12/22	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6510772	2019/12/21	2019/12/22	Prabhjot Gulati
Strong Acid Leachable Metals by ICPMS	ICP/MS	6506156	2019/12/19	2019/12/20	Daniel Teclu
Moisture	BAL	6507141	N/A	2019/12/19	Gurpreet Kaur
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6509258	2019/12/20	2019/12/21	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	6511621	2019/12/23	2019/12/23	Svitlana Shaula
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6505767	N/A	2019/12/20	Manpreet Sarao

BV Labs ID: LPA703
Sample ID: DUP-3
Matrix: Soil

Collected: 2019/12/11
Shipped:
Received: 2019/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6506156	2019/12/19	2019/12/20	Daniel Teclu

BV Labs ID: LPA704
Sample ID: MW6-SS-1
Matrix: Soil

Collected: 2019/12/11
Shipped:
Received: 2019/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6500971	N/A	2019/12/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6500972	N/A	2019/12/20	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6510772	2019/12/21	2019/12/22	Prabhjot Gulati
Strong Acid Leachable Metals by ICPMS	ICP/MS	6506156	2019/12/19	2019/12/20	Daniel Teclu
Moisture	BAL	6507141	N/A	2019/12/19	Gurpreet Kaur
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6509258	2019/12/20	2019/12/21	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	6511621	2019/12/23	2019/12/23	Svitlana Shaula
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6505767	N/A	2019/12/19	Manpreet Sarao

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GENERAL COMMENTS

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

Package 1	5.7°C

Results relate only to the items tested.

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BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6504104	CKH	Matrix Spike	4-Bromofluorobenzene	2019/12/19		99	%	60 - 140
			D10-o-Xylene	2019/12/19		109	%	60 - 130
			D4-1,2-Dichloroethane	2019/12/19		96	%	60 - 140
			D8-Toluene	2019/12/19		101	%	60 - 140
			Acetone (2-Propanone)	2019/12/19		96	%	60 - 140
			Benzene	2019/12/19		93	%	60 - 140
			Bromodichloromethane	2019/12/19		90	%	60 - 140
			Bromoform	2019/12/19		92	%	60 - 140
			Bromomethane	2019/12/19		121	%	60 - 140
			Carbon Tetrachloride	2019/12/19		93	%	60 - 140
			Chlorobenzene	2019/12/19		91	%	60 - 140
			Chloroform	2019/12/19		89	%	60 - 140
			Dibromochloromethane	2019/12/19		94	%	60 - 140
			1,2-Dichlorobenzene	2019/12/19		90	%	60 - 140
			1,3-Dichlorobenzene	2019/12/19		92	%	60 - 140
			1,4-Dichlorobenzene	2019/12/19		97	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2019/12/19		87	%	60 - 140
			1,1-Dichloroethane	2019/12/19		94	%	60 - 140
			1,2-Dichloroethane	2019/12/19		94	%	60 - 140
			1,1-Dichloroethylene	2019/12/19		101	%	60 - 140
			cis-1,2-Dichloroethylene	2019/12/19		88	%	60 - 140
			trans-1,2-Dichloroethylene	2019/12/19		95	%	60 - 140
			1,2-Dichloropropane	2019/12/19		88	%	60 - 140
			cis-1,3-Dichloropropene	2019/12/19		95	%	60 - 140
			trans-1,3-Dichloropropene	2019/12/19		100	%	60 - 140
			Ethylbenzene	2019/12/19		94	%	60 - 140
			Ethylene Dibromide	2019/12/19		93	%	60 - 140
			Hexane	2019/12/19		104	%	60 - 140
			Methylene Chloride(Dichloromethane)	2019/12/19		91	%	60 - 140
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19		99	%	60 - 140
			Methyl Isobutyl Ketone	2019/12/19		94	%	60 - 140
			Methyl t-butyl ether (MTBE)	2019/12/19		86	%	60 - 140
			Styrene	2019/12/19		94	%	60 - 140
			1,1,1,2-Tetrachloroethane	2019/12/19		96	%	60 - 140
			1,1,2,2-Tetrachloroethane	2019/12/19		92	%	60 - 140
			Tetrachloroethylene	2019/12/19		88	%	60 - 140
			Toluene	2019/12/19		89	%	60 - 140
			1,1,1-Trichloroethane	2019/12/19		94	%	60 - 140
			1,1,2-Trichloroethane	2019/12/19		92	%	60 - 140
			Trichloroethylene	2019/12/19		95	%	60 - 140
			Trichlorofluoromethane (FREON 11)	2019/12/19		101	%	60 - 140
			Vinyl Chloride	2019/12/19		96	%	60 - 140
			p+m-Xylene	2019/12/19		102	%	60 - 140
			o-Xylene	2019/12/19		95	%	60 - 140
6504104	CKH	Spiked Blank	4-Bromofluorobenzene	2019/12/19		101	%	60 - 140
			D10-o-Xylene	2019/12/19		99	%	60 - 130
			D4-1,2-Dichloroethane	2019/12/19		101	%	60 - 140
			D8-Toluene	2019/12/19		99	%	60 - 140
			Acetone (2-Propanone)	2019/12/19		101	%	60 - 140
			Benzene	2019/12/19		90	%	60 - 130
			Bromodichloromethane	2019/12/19		91	%	60 - 130
			Bromoform	2019/12/19		96	%	60 - 130
			Bromomethane	2019/12/19		114	%	60 - 140

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Carbon Tetrachloride	2019/12/19		87	%	60 - 130
			Chlorobenzene	2019/12/19		87	%	60 - 130
			Chloroform	2019/12/19		86	%	60 - 130
			Dibromochloromethane	2019/12/19		96	%	60 - 130
			1,2-Dichlorobenzene	2019/12/19		88	%	60 - 130
			1,3-Dichlorobenzene	2019/12/19		87	%	60 - 130
			1,4-Dichlorobenzene	2019/12/19		93	%	60 - 130
			Dichlorodifluoromethane (FREON 12)	2019/12/19		79	%	60 - 140
			1,1-Dichloroethane	2019/12/19		90	%	60 - 130
			1,2-Dichloroethane	2019/12/19		95	%	60 - 130
			1,1-Dichloroethylene	2019/12/19		94	%	60 - 130
			cis-1,2-Dichloroethylene	2019/12/19		86	%	60 - 130
			trans-1,2-Dichloroethylene	2019/12/19		90	%	60 - 130
			1,2-Dichloropropane	2019/12/19		88	%	60 - 130
			cis-1,3-Dichloropropene	2019/12/19		95	%	60 - 130
			trans-1,3-Dichloropropene	2019/12/19		98	%	60 - 130
			Ethylbenzene	2019/12/19		87	%	60 - 130
			Ethylene Dibromide	2019/12/19		96	%	60 - 130
			Hexane	2019/12/19		96	%	60 - 130
			Methylene Chloride(Dichloromethane)	2019/12/19		90	%	60 - 130
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19		107	%	60 - 140
			Methyl Isobutyl Ketone	2019/12/19		104	%	60 - 130
			Methyl t-butyl ether (MTBE)	2019/12/19		87	%	60 - 130
			Styrene	2019/12/19		91	%	60 - 130
			1,1,1,2-Tetrachloroethane	2019/12/19		93	%	60 - 130
			1,1,2,2-Tetrachloroethane	2019/12/19		98	%	60 - 130
			Tetrachloroethylene	2019/12/19		81	%	60 - 130
			Toluene	2019/12/19		84	%	60 - 130
			1,1,1-Trichloroethane	2019/12/19		90	%	60 - 130
			1,1,2-Trichloroethane	2019/12/19		94	%	60 - 130
			Trichloroethylene	2019/12/19		90	%	60 - 130
			Trichlorofluoromethane (FREON 11)	2019/12/19		94	%	60 - 130
			Vinyl Chloride	2019/12/19		88	%	60 - 130
			p+m-Xylene	2019/12/19		95	%	60 - 130
			o-Xylene	2019/12/19		90	%	60 - 130
6504104	CKH	Method Blank	4-Bromofluorobenzene	2019/12/19		100	%	60 - 140
			D10-o-Xylene	2019/12/19		95	%	60 - 130
			D4-1,2-Dichloroethane	2019/12/19		100	%	60 - 140
			D8-Toluene	2019/12/19		96	%	60 - 140
			Acetone (2-Propanone)	2019/12/19	<0.50		ug/g	
			Benzene	2019/12/19	<0.020		ug/g	
			Bromodichloromethane	2019/12/19	<0.050		ug/g	
			Bromoform	2019/12/19	<0.050		ug/g	
			Bromomethane	2019/12/19	<0.050		ug/g	
			Carbon Tetrachloride	2019/12/19	<0.050		ug/g	
			Chlorobenzene	2019/12/19	<0.050		ug/g	
			Chloroform	2019/12/19	<0.050		ug/g	
			Dibromochloromethane	2019/12/19	<0.050		ug/g	
			1,2-Dichlorobenzene	2019/12/19	<0.050		ug/g	
			1,3-Dichlorobenzene	2019/12/19	<0.050		ug/g	
			1,4-Dichlorobenzene	2019/12/19	<0.050		ug/g	
			Dichlorodifluoromethane (FREON 12)	2019/12/19	<0.050		ug/g	
			1,1-Dichloroethane	2019/12/19	<0.050		ug/g	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,2-Dichloroethane	2019/12/19	<0.050		ug/g	
			1,1-Dichloroethylene	2019/12/19	<0.050		ug/g	
			cis-1,2-Dichloroethylene	2019/12/19	<0.050		ug/g	
			trans-1,2-Dichloroethylene	2019/12/19	<0.050		ug/g	
			1,2-Dichloropropane	2019/12/19	<0.050		ug/g	
			cis-1,3-Dichloropropene	2019/12/19	<0.030		ug/g	
			trans-1,3-Dichloropropene	2019/12/19	<0.040		ug/g	
			Ethylbenzene	2019/12/19	<0.020		ug/g	
			Ethylene Dibromide	2019/12/19	<0.050		ug/g	
			Hexane	2019/12/19	<0.050		ug/g	
			Methylene Chloride(Dichloromethane)	2019/12/19	<0.050		ug/g	
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19	<0.50		ug/g	
			Methyl Isobutyl Ketone	2019/12/19	<0.50		ug/g	
			Methyl t-butyl ether (MTBE)	2019/12/19	<0.050		ug/g	
			Styrene	2019/12/19	<0.050		ug/g	
			1,1,1,2-Tetrachloroethane	2019/12/19	<0.050		ug/g	
			1,1,2,2-Tetrachloroethane	2019/12/19	<0.050		ug/g	
			Tetrachloroethylene	2019/12/19	<0.050		ug/g	
			Toluene	2019/12/19	<0.020		ug/g	
			1,1,1-Trichloroethane	2019/12/19	<0.050		ug/g	
			1,1,2-Trichloroethane	2019/12/19	<0.050		ug/g	
			Trichloroethylene	2019/12/19	<0.050		ug/g	
			Trichlorofluoromethane (FREON 11)	2019/12/19	<0.050		ug/g	
			Vinyl Chloride	2019/12/19	<0.020		ug/g	
			p+m-Xylene	2019/12/19	<0.020		ug/g	
			o-Xylene	2019/12/19	<0.020		ug/g	
			Total Xylenes	2019/12/19	<0.020		ug/g	
6504104	CKH	RPD	Acetone (2-Propanone)	2019/12/19	NC		%	50
			Benzene	2019/12/19	NC		%	50
			Bromodichloromethane	2019/12/19	NC		%	50
			Bromoform	2019/12/19	NC		%	50
			Bromomethane	2019/12/19	NC		%	50
			Carbon Tetrachloride	2019/12/19	NC		%	50
			Chlorobenzene	2019/12/19	NC		%	50
			Chloroform	2019/12/19	NC		%	50
			Dibromochloromethane	2019/12/19	NC		%	50
			1,2-Dichlorobenzene	2019/12/19	NC		%	50
			1,3-Dichlorobenzene	2019/12/19	NC		%	50
			1,4-Dichlorobenzene	2019/12/19	NC		%	50
			Dichlorodifluoromethane (FREON 12)	2019/12/19	NC		%	50
			1,1-Dichloroethane	2019/12/19	NC		%	50
			1,2-Dichloroethane	2019/12/19	NC		%	50
			1,1-Dichloroethylene	2019/12/19	NC		%	50
			cis-1,2-Dichloroethylene	2019/12/19	NC		%	50
			trans-1,2-Dichloroethylene	2019/12/19	NC		%	50
			1,2-Dichloropropane	2019/12/19	NC		%	50
			cis-1,3-Dichloropropene	2019/12/19	NC		%	50
			trans-1,3-Dichloropropene	2019/12/19	NC		%	50
			Ethylbenzene	2019/12/19	NC		%	50
			Ethylene Dibromide	2019/12/19	NC		%	50
			Hexane	2019/12/19	NC		%	50
			Methylene Chloride(Dichloromethane)	2019/12/19	NC		%	50
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19	NC		%	50

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Methyl Isobutyl Ketone	2019/12/19	NC		%	50
			Methyl t-butyl ether (MTBE)	2019/12/19	NC		%	50
			Styrene	2019/12/19	NC		%	50
			1,1,1,2-Tetrachloroethane	2019/12/19	NC		%	50
			1,1,2,2-Tetrachloroethane	2019/12/19	NC		%	50
			Tetrachloroethylene	2019/12/19	0.65		%	50
			Toluene	2019/12/19	NC		%	50
			1,1,1-Trichloroethane	2019/12/19	NC		%	50
			1,1,2-Trichloroethane	2019/12/19	NC		%	50
			Trichloroethylene	2019/12/19	NC		%	50
			Trichlorofluoromethane (FREON 11)	2019/12/19	NC		%	50
			Vinyl Chloride	2019/12/19	NC		%	50
			p+m-Xylene	2019/12/19	NC		%	50
			o-Xylene	2019/12/19	NC		%	50
			Total Xylenes	2019/12/19	NC		%	50
6505767	MS4	Matrix Spike	4-Bromofluorobenzene	2019/12/19		98	%	60 - 140
			D10-o-Xylene	2019/12/19		129	%	60 - 130
			D4-1,2-Dichloroethane	2019/12/19		104	%	60 - 140
			D8-Toluene	2019/12/19		100	%	60 - 140
			Acetone (2-Propanone)	2019/12/19		93	%	60 - 140
			Benzene	2019/12/19		102	%	60 - 140
			Bromodichloromethane	2019/12/19		97	%	60 - 140
			Bromoform	2019/12/19		87	%	60 - 140
			Bromomethane	2019/12/19		129	%	60 - 140
			Carbon Tetrachloride	2019/12/19		107	%	60 - 140
			Chlorobenzene	2019/12/19		95	%	60 - 140
			Chloroform	2019/12/19		100	%	60 - 140
			Dibromochloromethane	2019/12/19		93	%	60 - 140
			1,2-Dichlorobenzene	2019/12/19		91	%	60 - 140
			1,3-Dichlorobenzene	2019/12/19		97	%	60 - 140
			1,4-Dichlorobenzene	2019/12/19		101	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2019/12/19		95	%	60 - 140
			1,1-Dichloroethane	2019/12/19		101	%	60 - 140
			1,2-Dichloroethane	2019/12/19		107	%	60 - 140
			1,1-Dichloroethylene	2019/12/19		110	%	60 - 140
			cis-1,2-Dichloroethylene	2019/12/19		97	%	60 - 140
			trans-1,2-Dichloroethylene	2019/12/19		105	%	60 - 140
			1,2-Dichloropropane	2019/12/19		94	%	60 - 140
			cis-1,3-Dichloropropene	2019/12/19		89	%	60 - 140
			trans-1,3-Dichloropropene	2019/12/19		87	%	60 - 140
			Ethylbenzene	2019/12/19		92	%	60 - 140
			Ethylene Dibromide	2019/12/19		92	%	60 - 140
			Hexane	2019/12/19		105	%	60 - 140
			Methylene Chloride(Dichloromethane)	2019/12/19		97	%	60 - 140
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19		94	%	60 - 140
			Methyl Isobutyl Ketone	2019/12/19		86	%	60 - 140
			Methyl t-butyl ether (MTBE)	2019/12/19		86	%	60 - 140
			Styrene	2019/12/19		84	%	60 - 140
			1,1,1,2-Tetrachloroethane	2019/12/19		101	%	60 - 140
			1,1,2,2-Tetrachloroethane	2019/12/19		89	%	60 - 140
			Tetrachloroethylene	2019/12/19		98	%	60 - 140
			Toluene	2019/12/19		94	%	60 - 140
			1,1,1-Trichloroethane	2019/12/19		106	%	60 - 140

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,2-Trichloroethane	2019/12/19		103	%	60 - 140
			Trichloroethylene	2019/12/19		109	%	60 - 140
			Trichlorofluoromethane (FREON 11)	2019/12/19		118	%	60 - 140
			Vinyl Chloride	2019/12/19		98	%	60 - 140
			p+m-Xylene	2019/12/19		97	%	60 - 140
			o-Xylene	2019/12/19		92	%	60 - 140
			F1 (C6-C10)	2019/12/19		88	%	60 - 140
6505767	MS4	Spiked Blank	4-Bromofluorobenzene	2019/12/19		98	%	60 - 140
			D10-o-Xylene	2019/12/19		111	%	60 - 130
			D4-1,2-Dichloroethane	2019/12/19		105	%	60 - 140
			D8-Toluene	2019/12/19		100	%	60 - 140
			Acetone (2-Propanone)	2019/12/19		94	%	60 - 140
			Benzene	2019/12/19		102	%	60 - 130
			Bromodichloromethane	2019/12/19		98	%	60 - 130
			Bromoform	2019/12/19		88	%	60 - 130
			Bromomethane	2019/12/19		132	%	60 - 140
			Carbon Tetrachloride	2019/12/19		108	%	60 - 130
			Chlorobenzene	2019/12/19		95	%	60 - 130
			Chloroform	2019/12/19		100	%	60 - 130
			Dibromochloromethane	2019/12/19		94	%	60 - 130
			1,2-Dichlorobenzene	2019/12/19		92	%	60 - 130
			1,3-Dichlorobenzene	2019/12/19		98	%	60 - 130
			1,4-Dichlorobenzene	2019/12/19		102	%	60 - 130
			Dichlorodifluoromethane (FREON 12)	2019/12/19		95	%	60 - 140
			1,1-Dichloroethane	2019/12/19		102	%	60 - 130
			1,2-Dichloroethane	2019/12/19		108	%	60 - 130
			1,1-Dichloroethylene	2019/12/19		111	%	60 - 130
			cis-1,2-Dichloroethylene	2019/12/19		98	%	60 - 130
			trans-1,2-Dichloroethylene	2019/12/19		106	%	60 - 130
			1,2-Dichloropropane	2019/12/19		95	%	60 - 130
			cis-1,3-Dichloropropene	2019/12/19		91	%	60 - 130
			trans-1,3-Dichloropropene	2019/12/19		90	%	60 - 130
			Ethylbenzene	2019/12/19		92	%	60 - 130
			Ethylene Dibromide	2019/12/19		93	%	60 - 130
			Hexane	2019/12/19		102	%	60 - 130
			Methylene Chloride(Dichloromethane)	2019/12/19		98	%	60 - 130
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19		95	%	60 - 140
			Methyl Isobutyl Ketone	2019/12/19		87	%	60 - 130
			Methyl t-butyl ether (MTBE)	2019/12/19		87	%	60 - 130
			Styrene	2019/12/19		84	%	60 - 130
			1,1,1,2-Tetrachloroethane	2019/12/19		101	%	60 - 130
			1,1,2,2-Tetrachloroethane	2019/12/19		91	%	60 - 130
			Tetrachloroethylene	2019/12/19		98	%	60 - 130
			Toluene	2019/12/19		94	%	60 - 130
			1,1,1-Trichloroethane	2019/12/19		107	%	60 - 130
			1,1,2-Trichloroethane	2019/12/19		104	%	60 - 130
			Trichloroethylene	2019/12/19		110	%	60 - 130
			Trichlorofluoromethane (FREON 11)	2019/12/19		118	%	60 - 130
			Vinyl Chloride	2019/12/19		98	%	60 - 130
			p+m-Xylene	2019/12/19		97	%	60 - 130
			o-Xylene	2019/12/19		92	%	60 - 130
			F1 (C6-C10)	2019/12/19		93	%	80 - 120
6505767	MS4	Method Blank	4-Bromofluorobenzene	2019/12/19		96	%	60 - 140

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			D10-o-Xylene	2019/12/19		110	%	60 - 130
			D4-1,2-Dichloroethane	2019/12/19		105	%	60 - 140
			D8-Toluene	2019/12/19		98	%	60 - 140
			Acetone (2-Propanone)	2019/12/19	<0.50		ug/g	
			Benzene	2019/12/19	<0.020		ug/g	
			Bromodichloromethane	2019/12/19	<0.050		ug/g	
			Bromoform	2019/12/19	<0.050		ug/g	
			Bromomethane	2019/12/19	<0.050		ug/g	
			Carbon Tetrachloride	2019/12/19	<0.050		ug/g	
			Chlorobenzene	2019/12/19	<0.050		ug/g	
			Chloroform	2019/12/19	<0.050		ug/g	
			Dibromochloromethane	2019/12/19	<0.050		ug/g	
			1,2-Dichlorobenzene	2019/12/19	<0.050		ug/g	
			1,3-Dichlorobenzene	2019/12/19	<0.050		ug/g	
			1,4-Dichlorobenzene	2019/12/19	<0.050		ug/g	
			Dichlorodifluoromethane (FREON 12)	2019/12/19	<0.050		ug/g	
			1,1-Dichloroethane	2019/12/19	<0.050		ug/g	
			1,2-Dichloroethane	2019/12/19	<0.050		ug/g	
			1,1-Dichloroethylene	2019/12/19	<0.050		ug/g	
			cis-1,2-Dichloroethylene	2019/12/19	<0.050		ug/g	
			trans-1,2-Dichloroethylene	2019/12/19	<0.050		ug/g	
			1,2-Dichloropropane	2019/12/19	<0.050		ug/g	
			cis-1,3-Dichloropropene	2019/12/19	<0.030		ug/g	
			trans-1,3-Dichloropropene	2019/12/19	<0.040		ug/g	
			Ethylbenzene	2019/12/19	<0.020		ug/g	
			Ethylene Dibromide	2019/12/19	<0.050		ug/g	
			Hexane	2019/12/19	<0.050		ug/g	
			Methylene Chloride(Dichloromethane)	2019/12/19	<0.050		ug/g	
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19	<0.50		ug/g	
			Methyl Isobutyl Ketone	2019/12/19	<0.50		ug/g	
			Methyl t-butyl ether (MTBE)	2019/12/19	<0.050		ug/g	
			Styrene	2019/12/19	<0.050		ug/g	
			1,1,1,2-Tetrachloroethane	2019/12/19	<0.050		ug/g	
			1,1,2,2-Tetrachloroethane	2019/12/19	<0.050		ug/g	
			Tetrachloroethylene	2019/12/19	<0.050		ug/g	
			Toluene	2019/12/19	<0.020		ug/g	
			1,1,1-Trichloroethane	2019/12/19	<0.050		ug/g	
			1,1,2-Trichloroethane	2019/12/19	<0.050		ug/g	
			Trichloroethylene	2019/12/19	<0.050		ug/g	
			Trichlorofluoromethane (FREON 11)	2019/12/19	<0.050		ug/g	
			Vinyl Chloride	2019/12/19	<0.020		ug/g	
			p+m-Xylene	2019/12/19	<0.020		ug/g	
			o-Xylene	2019/12/19	<0.020		ug/g	
			Total Xylenes	2019/12/19	<0.020		ug/g	
			F1 (C6-C10)	2019/12/19	<10		ug/g	
			F1 (C6-C10) - BTEX	2019/12/19	<10		ug/g	
6505767	MS4	RPD	Acetone (2-Propanone)	2019/12/19	NC		%	50
			Benzene	2019/12/19	NC		%	50
			Bromodichloromethane	2019/12/19	NC		%	50
			Bromoform	2019/12/19	NC		%	50
			Bromomethane	2019/12/19	NC		%	50
			Carbon Tetrachloride	2019/12/19	NC		%	50
			Chlorobenzene	2019/12/19	NC		%	50

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Chloroform	2019/12/19	NC		%	50
			Dibromochloromethane	2019/12/19	NC		%	50
			1,2-Dichlorobenzene	2019/12/19	NC		%	50
			1,3-Dichlorobenzene	2019/12/19	NC		%	50
			1,4-Dichlorobenzene	2019/12/19	NC		%	50
			Dichlorodifluoromethane (FREON 12)	2019/12/19	NC		%	50
			1,1-Dichloroethane	2019/12/19	NC		%	50
			1,2-Dichloroethane	2019/12/19	NC		%	50
			1,1-Dichloroethylene	2019/12/19	NC		%	50
			cis-1,2-Dichloroethylene	2019/12/19	NC		%	50
			trans-1,2-Dichloroethylene	2019/12/19	NC		%	50
			1,2-Dichloropropane	2019/12/19	NC		%	50
			cis-1,3-Dichloropropene	2019/12/19	NC		%	50
			trans-1,3-Dichloropropene	2019/12/19	NC		%	50
			Ethylbenzene	2019/12/19	2.8		%	50
			Ethylene Dibromide	2019/12/19	NC		%	50
			Hexane	2019/12/19	7.8		%	50
			Methylene Chloride(Dichloromethane)	2019/12/19	NC		%	50
			Methyl Ethyl Ketone (2-Butanone)	2019/12/19	NC		%	50
			Methyl Isobutyl Ketone	2019/12/19	NC		%	50
			Methyl t-butyl ether (MTBE)	2019/12/19	NC		%	50
			Styrene	2019/12/19	NC		%	50
			1,1,1,2-Tetrachloroethane	2019/12/19	NC		%	50
			1,1,2,2-Tetrachloroethane	2019/12/19	NC		%	50
			Tetrachloroethylene	2019/12/19	NC		%	50
			Toluene	2019/12/19	4.7		%	50
			1,1,1-Trichloroethane	2019/12/19	NC		%	50
			1,1,2-Trichloroethane	2019/12/19	NC		%	50
			Trichloroethylene	2019/12/19	NC		%	50
			Trichlorofluoromethane (FREON 11)	2019/12/19	NC		%	50
			Vinyl Chloride	2019/12/19	NC		%	50
			p+m-Xylene	2019/12/19	5.0		%	50
			o-Xylene	2019/12/19	4.6		%	50
			Total Xylenes	2019/12/19	4.8		%	50
			F1 (C6-C10)	2019/12/19	NC		%	30
			F1 (C6-C10) - BTEX	2019/12/19	NC		%	30
6506156	DT1	Matrix Spike	Acid Extractable Antimony (Sb)	2019/12/20		102	%	75 - 125
			Acid Extractable Arsenic (As)	2019/12/20		99	%	75 - 125
			Acid Extractable Barium (Ba)	2019/12/20		101	%	75 - 125
			Acid Extractable Beryllium (Be)	2019/12/20		103	%	75 - 125
			Acid Extractable Boron (B)	2019/12/20		96	%	75 - 125
			Acid Extractable Cadmium (Cd)	2019/12/20		100	%	75 - 125
			Acid Extractable Chromium (Cr)	2019/12/20		97	%	75 - 125
			Acid Extractable Cobalt (Co)	2019/12/20		97	%	75 - 125
			Acid Extractable Copper (Cu)	2019/12/20		96	%	75 - 125
			Acid Extractable Lead (Pb)	2019/12/20		101	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2019/12/20		102	%	75 - 125
			Acid Extractable Nickel (Ni)	2019/12/20		97	%	75 - 125
			Acid Extractable Selenium (Se)	2019/12/20		100	%	75 - 125
			Acid Extractable Silver (Ag)	2019/12/20		97	%	75 - 125
			Acid Extractable Thallium (Tl)	2019/12/20		100	%	75 - 125
			Acid Extractable Uranium (U)	2019/12/20		100	%	75 - 125
			Acid Extractable Vanadium (V)	2019/12/20		97	%	75 - 125

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Zinc (Zn)	2019/12/20		104	%	75 - 125
			Acid Extractable Mercury (Hg)	2019/12/20		91	%	75 - 125
6506156	DT1	Spiked Blank	Acid Extractable Antimony (Sb)	2019/12/20		102	%	80 - 120
			Acid Extractable Arsenic (As)	2019/12/20		102	%	80 - 120
			Acid Extractable Barium (Ba)	2019/12/20		99	%	80 - 120
			Acid Extractable Beryllium (Be)	2019/12/20		100	%	80 - 120
			Acid Extractable Boron (B)	2019/12/20		101	%	80 - 120
			Acid Extractable Cadmium (Cd)	2019/12/20		100	%	80 - 120
			Acid Extractable Chromium (Cr)	2019/12/20		97	%	80 - 120
			Acid Extractable Cobalt (Co)	2019/12/20		100	%	80 - 120
			Acid Extractable Copper (Cu)	2019/12/20		99	%	80 - 120
			Acid Extractable Lead (Pb)	2019/12/20		101	%	80 - 120
			Acid Extractable Molybdenum (Mo)	2019/12/20		100	%	80 - 120
			Acid Extractable Nickel (Ni)	2019/12/20		97	%	80 - 120
			Acid Extractable Selenium (Se)	2019/12/20		100	%	80 - 120
			Acid Extractable Silver (Ag)	2019/12/20		101	%	80 - 120
			Acid Extractable Thallium (Tl)	2019/12/20		100	%	80 - 120
			Acid Extractable Uranium (U)	2019/12/20		100	%	80 - 120
			Acid Extractable Vanadium (V)	2019/12/20		98	%	80 - 120
			Acid Extractable Zinc (Zn)	2019/12/20		95	%	80 - 120
			Acid Extractable Mercury (Hg)	2019/12/20		98	%	80 - 120
6506156	DT1	Method Blank	Acid Extractable Antimony (Sb)	2019/12/20	<0.20		ug/g	
			Acid Extractable Arsenic (As)	2019/12/20	<1.0		ug/g	
			Acid Extractable Barium (Ba)	2019/12/20	<0.50		ug/g	
			Acid Extractable Beryllium (Be)	2019/12/20	<0.20		ug/g	
			Acid Extractable Boron (B)	2019/12/20	<5.0		ug/g	
			Acid Extractable Cadmium (Cd)	2019/12/20	<0.10		ug/g	
			Acid Extractable Chromium (Cr)	2019/12/20	<1.0		ug/g	
			Acid Extractable Cobalt (Co)	2019/12/20	<0.10		ug/g	
			Acid Extractable Copper (Cu)	2019/12/20	<0.50		ug/g	
			Acid Extractable Lead (Pb)	2019/12/20	<1.0		ug/g	
			Acid Extractable Molybdenum (Mo)	2019/12/20	<0.50		ug/g	
			Acid Extractable Nickel (Ni)	2019/12/20	<0.50		ug/g	
			Acid Extractable Selenium (Se)	2019/12/20	<0.50		ug/g	
			Acid Extractable Silver (Ag)	2019/12/20	<0.20		ug/g	
			Acid Extractable Thallium (Tl)	2019/12/20	<0.050		ug/g	
			Acid Extractable Uranium (U)	2019/12/20	<0.050		ug/g	
			Acid Extractable Vanadium (V)	2019/12/20	<5.0		ug/g	
			Acid Extractable Zinc (Zn)	2019/12/20	<5.0		ug/g	
			Acid Extractable Mercury (Hg)	2019/12/20	<0.050		ug/g	
6506156	DT1	RPD	Acid Extractable Antimony (Sb)	2019/12/20	NC		%	30
			Acid Extractable Arsenic (As)	2019/12/20	5.9		%	30
			Acid Extractable Barium (Ba)	2019/12/20	9.1		%	30
			Acid Extractable Beryllium (Be)	2019/12/20	NC		%	30
			Acid Extractable Boron (B)	2019/12/20	NC		%	30
			Acid Extractable Cadmium (Cd)	2019/12/20	NC		%	30
			Acid Extractable Chromium (Cr)	2019/12/20	13		%	30
			Acid Extractable Cobalt (Co)	2019/12/20	1.2		%	30
			Acid Extractable Copper (Cu)	2019/12/20	0.74		%	30
			Acid Extractable Lead (Pb)	2019/12/20	8.0		%	30
			Acid Extractable Molybdenum (Mo)	2019/12/20	NC		%	30
			Acid Extractable Nickel (Ni)	2019/12/20	8.3		%	30
			Acid Extractable Selenium (Se)	2019/12/20	NC		%	30

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Silver (Ag)	2019/12/20	NC		%	30
			Acid Extractable Thallium (Tl)	2019/12/20	NC		%	30
			Acid Extractable Uranium (U)	2019/12/20	2.4		%	30
			Acid Extractable Vanadium (V)	2019/12/20	0.53		%	30
			Acid Extractable Zinc (Zn)	2019/12/20	4.1		%	30
6506972	SPC	RPD	Moisture	2019/12/19	3.8		%	20
6507141	GYA	RPD	Moisture	2019/12/19	1.8		%	20
6507168	SPC	RPD	Moisture	2019/12/19	0		%	20
6508552	GYA	RPD	Moisture	2019/12/21	6.6		%	20
6508612	KAD	Spiked Blank	Available (CaCl2) pH	2019/12/20		100	%	97 - 103
6508612	KAD	RPD	Available (CaCl2) pH	2019/12/20	0.22		%	N/A
6509258	RAJ	Matrix Spike	D10-Anthracene	2019/12/21		97	%	50 - 130
			D14-Terphenyl (FS)	2019/12/21		93	%	50 - 130
			D8-Acenaphthylene	2019/12/21		86	%	50 - 130
			Acenaphthene	2019/12/21		87	%	50 - 130
			Acenaphthylene	2019/12/21		84	%	50 - 130
			Anthracene	2019/12/21		84	%	50 - 130
			Benzo(a)anthracene	2019/12/21		84	%	50 - 130
			Benzo(a)pyrene	2019/12/21		81	%	50 - 130
			Benzo(b/j)fluoranthene	2019/12/21		83	%	50 - 130
			Benzo(g,h,i)perylene	2019/12/21		89	%	50 - 130
			Benzo(k)fluoranthene	2019/12/21		89	%	50 - 130
			Chrysene	2019/12/21		84	%	50 - 130
			Dibenzo(a,h)anthracene	2019/12/21		95	%	50 - 130
			Fluoranthene	2019/12/21		61	%	50 - 130
			Fluorene	2019/12/21		90	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2019/12/21		90	%	50 - 130
			1-Methylnaphthalene	2019/12/21		90	%	50 - 130
			2-Methylnaphthalene	2019/12/21		85	%	50 - 130
			Naphthalene	2019/12/21		73	%	50 - 130
			Phenanthrene	2019/12/21		56	%	50 - 130
			Pyrene	2019/12/21		60	%	50 - 130
6509258	RAJ	Spiked Blank	D10-Anthracene	2019/12/20		97	%	50 - 130
			D14-Terphenyl (FS)	2019/12/20		89	%	50 - 130
			D8-Acenaphthylene	2019/12/20		89	%	50 - 130
			Acenaphthene	2019/12/20		94	%	50 - 130
			Acenaphthylene	2019/12/20		89	%	50 - 130
			Anthracene	2019/12/20		94	%	50 - 130
			Benzo(a)anthracene	2019/12/20		99	%	50 - 130
			Benzo(a)pyrene	2019/12/20		94	%	50 - 130
			Benzo(b/j)fluoranthene	2019/12/20		93	%	50 - 130
			Benzo(g,h,i)perylene	2019/12/20		92	%	50 - 130
			Benzo(k)fluoranthene	2019/12/20		101	%	50 - 130
			Chrysene	2019/12/20		96	%	50 - 130
			Dibenzo(a,h)anthracene	2019/12/20		87	%	50 - 130
			Fluoranthene	2019/12/20		99	%	50 - 130
			Fluorene	2019/12/20		97	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2019/12/20		93	%	50 - 130
			1-Methylnaphthalene	2019/12/20		99	%	50 - 130
			2-Methylnaphthalene	2019/12/20		93	%	50 - 130
			Naphthalene	2019/12/20		85	%	50 - 130
			Phenanthrene	2019/12/20		93	%	50 - 130
			Pyrene	2019/12/20		97	%	50 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6509258	RAJ	Method Blank	D10-Anthracene	2019/12/20		99	%	50 - 130
			D14-Terphenyl (FS)	2019/12/20		92	%	50 - 130
			D8-Acenaphthylene	2019/12/20		89	%	50 - 130
			Acenaphthene	2019/12/20	<0.0050		ug/g	
			Acenaphthylene	2019/12/20	<0.0050		ug/g	
			Anthracene	2019/12/20	<0.0050		ug/g	
			Benzo(a)anthracene	2019/12/20	<0.0050		ug/g	
			Benzo(a)pyrene	2019/12/20	<0.0050		ug/g	
			Benzo(b/j)fluoranthene	2019/12/20	<0.0050		ug/g	
			Benzo(g,h,i)perylene	2019/12/20	<0.0050		ug/g	
			Benzo(k)fluoranthene	2019/12/20	<0.0050		ug/g	
			Chrysene	2019/12/20	<0.0050		ug/g	
			Dibenzo(a,h)anthracene	2019/12/20	<0.0050		ug/g	
			Fluoranthene	2019/12/20	<0.0050		ug/g	
			Fluorene	2019/12/20	<0.0050		ug/g	
			Indeno(1,2,3-cd)pyrene	2019/12/20	<0.0050		ug/g	
			1-Methylnaphthalene	2019/12/20	<0.0050		ug/g	
			2-Methylnaphthalene	2019/12/20	<0.0050		ug/g	
			Naphthalene	2019/12/20	<0.0050		ug/g	
			Phenanthrene	2019/12/20	<0.0050		ug/g	
			Pyrene	2019/12/20	<0.0050		ug/g	
6509258	RAJ	RPD	Acenaphthene	2019/12/21	76 (1)		%	40
			Acenaphthylene	2019/12/21	NC		%	40
			Anthracene	2019/12/21	72 (2)		%	40
			Benzo(a)anthracene	2019/12/21	73 (2)		%	40
			Benzo(a)pyrene	2019/12/21	80 (2)		%	40
			Benzo(b/j)fluoranthene	2019/12/21	78 (2)		%	40
			Benzo(g,h,i)perylene	2019/12/21	87 (2)		%	40
			Benzo(k)fluoranthene	2019/12/21	87 (2)		%	40
			Chrysene	2019/12/21	74 (2)		%	40
			Dibenzo(a,h)anthracene	2019/12/21	88 (2)		%	40
			Fluoranthene	2019/12/21	76 (2)		%	40
			Fluorene	2019/12/21	86 (2)		%	40
			Indeno(1,2,3-cd)pyrene	2019/12/21	88 (2)		%	40
			1-Methylnaphthalene	2019/12/21	NC		%	40
			2-Methylnaphthalene	2019/12/21	NC		%	40
			Naphthalene	2019/12/21	NC		%	40
			Phenanthrene	2019/12/21	81 (2)		%	40
			Pyrene	2019/12/21	69 (2)		%	40
6510660	ABD	Matrix Spike	1,4-Difluorobenzene	2019/12/21		106	%	60 - 140
			4-Bromofluorobenzene	2019/12/21		102	%	60 - 140
			D10-Ethylbenzene	2019/12/21		109	%	60 - 140
			D4-1,2-Dichloroethane	2019/12/21		99	%	60 - 140
			Benzene	2019/12/21		122	%	60 - 140
			Toluene	2019/12/21		112	%	60 - 140
			Ethylbenzene	2019/12/21		131	%	60 - 140
			o-Xylene	2019/12/21		123	%	60 - 140
			p+m-Xylene	2019/12/21		117	%	60 - 140
			F1 (C6-C10)	2019/12/21		120	%	60 - 140
6510660	ABD	Spiked Blank	1,4-Difluorobenzene	2019/12/21		103	%	60 - 140
			4-Bromofluorobenzene	2019/12/21		103	%	60 - 140
			D10-Ethylbenzene	2019/12/21		103	%	60 - 140
			D4-1,2-Dichloroethane	2019/12/21		96	%	60 - 140

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzene	2019/12/21		108	%	60 - 140
			Toluene	2019/12/21		102	%	60 - 140
			Ethylbenzene	2019/12/21		117	%	60 - 140
			o-Xylene	2019/12/21		110	%	60 - 140
			p+m-Xylene	2019/12/21		106	%	60 - 140
			F1 (C6-C10)	2019/12/21		102	%	80 - 120
6510660	ABD	Method Blank	1,4-Difluorobenzene	2019/12/21		102	%	60 - 140
			4-Bromofluorobenzene	2019/12/21		103	%	60 - 140
			D10-Ethylbenzene	2019/12/21		96	%	60 - 140
			D4-1,2-Dichloroethane	2019/12/21		95	%	60 - 140
			Benzene	2019/12/21	<0.020		ug/g	
			Toluene	2019/12/21	<0.020		ug/g	
			Ethylbenzene	2019/12/21	<0.020		ug/g	
			o-Xylene	2019/12/21	<0.020		ug/g	
			p+m-Xylene	2019/12/21	<0.040		ug/g	
			Total Xylenes	2019/12/21	<0.040		ug/g	
			F1 (C6-C10)	2019/12/21	<10		ug/g	
			F1 (C6-C10) - BTEX	2019/12/21	<10		ug/g	
6510660	ABD	RPD	Benzene	2019/12/21	NC		%	50
			Toluene	2019/12/21	6.6		%	50
			Ethylbenzene	2019/12/21	NC		%	50
			o-Xylene	2019/12/21	NC		%	50
			p+m-Xylene	2019/12/21	NC		%	50
			Total Xylenes	2019/12/21	NC		%	50
			F1 (C6-C10)	2019/12/21	NC		%	30
			F1 (C6-C10) - BTEX	2019/12/21	NC		%	30
6510772	GUL	Matrix Spike	o-Terphenyl	2019/12/21		92	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2019/12/21		100	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2019/12/21		87	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2019/12/21		85	%	50 - 130
6510772	GUL	Spiked Blank	o-Terphenyl	2019/12/21		87	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2019/12/21		95	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2019/12/21		84	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2019/12/21		81	%	80 - 120
6510772	GUL	Method Blank	o-Terphenyl	2019/12/21		87	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2019/12/21	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2019/12/21	<50		ug/g	
			F4 (C34-C50 Hydrocarbons)	2019/12/21	<50		ug/g	
6510772	GUL	RPD	F2 (C10-C16 Hydrocarbons)	2019/12/21	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2019/12/21	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2019/12/21	NC		%	30
6511621	SVS	Matrix Spike	Decachlorobiphenyl	2019/12/23		108	%	60 - 130
			Aroclor 1260	2019/12/23		125	%	30 - 130
			Total PCB	2019/12/23		125	%	30 - 130
6511621	SVS	Spiked Blank	Decachlorobiphenyl	2019/12/23		90	%	60 - 130
			Aroclor 1260	2019/12/23		107	%	30 - 130
			Total PCB	2019/12/23		107	%	30 - 130
6511621	SVS	Method Blank	Decachlorobiphenyl	2019/12/23		93	%	60 - 130
			Aroclor 1242	2019/12/23	<0.010		ug/g	
			Aroclor 1248	2019/12/23	<0.010		ug/g	
			Aroclor 1254	2019/12/23	<0.010		ug/g	
			Aroclor 1260	2019/12/23	<0.010		ug/g	
			Total PCB	2019/12/23	<0.010		ug/g	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6511621	SVS	RPD	Aroclor 1242	2019/12/23	NC		%	50
			Aroclor 1248	2019/12/23	NC		%	50
			Aroclor 1254	2019/12/23	NC		%	50
			Aroclor 1260	2019/12/23	NC		%	50
			Total PCB	2019/12/23	NC		%	50

N/A = Not Applicable

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

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

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

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

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

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

(1) Duplicate results exceeded RPD acceptance criteria due to the sample heterogeneity. The variability in the results for flagged analytes may be more pronounced. This has been confirmed by re-analysis.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: B9Z4584
Report Date: 2019/12/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT
Sampler Initials: MK

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Service Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

Bureau Veritas Laboratories
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvlabs.com

CHAIN OF CUSTODY RECORD

INVOICE TO:
Company Name: #982 Pinchin Ltd
Attention: Accounts Payable
Address: 1 Hines Road Suite 200, Kanata ON K2K 3C7
Tel: (613) 592-3387 Fax: (613) 592-5897
Email: ap@pinchin.com

REPORT TO:
Company Name:
Attention: Matt, Ryan, Mike, Rob M
Address:
Tel: rmackenzie@pinchin.com Fax:
Email: mkosiw@Pinchin.com, rlaronde@pinchin.com; mryan@

PROJECT INFORMATION:
Quotation #: A70927
P.O. #:
Project: 249267.001
Project Name: 473 Albert
Site #:
Sampled By:

Laboratory Use Only:
BV Labs Job #:
Bottle Order #: 729720
COC #: C#729720-30-01
Project Manager: Alisha Williamson

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): ☐ Table 1 ☒ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☒ Coarse ☒ Table 3 ☐ Agri/Other ☒ For RSC ☐ Table ___

Other Regulations: ☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558. ☐ Storm Sewer Bylaw ☐ MISA Municipality ☐ PWQO ☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Job Specific Rush TAT (If applies to entire submission)
Date Required: Time Required: ☐
Rush Confirmation Number: *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 Petroleum Hydrocarbons (Soil)	O.Reg 153 VOCs by HS (Soil)	O.Reg 153 PAHs (Soil)	pH CaCl2 EXTRACT	Sieve, 75um	BTEX	ICPMS Metals	Mercury	PCBs	# of Bottles	Comments
1		BH17 SS-1	Dec 11 2019	AM	SOIL		X		X	X		X				2	
2		Dup-1	"	"	"		X		X			X				2	
3		MW4 SS-1	Dec 12 2019	AM	"		X	X	X				X	X	X	2	
4		Dup-2	"	"	"		X	X							X	2	
5		MW5 SS-1	Dec 11	"	"		X	X	X				X	X	X	2	
6		Dup-3	"	"	"								X	X		1	
7		MW6 SS-1	"	"	"		X	X	X				X	X	X	2	
8																	
9																	
10																	ON Rec

17-Dec-19 10:19
Alisha Williamson
B9Z4584
KJY OTT-001

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Mike Kosiw	Dec 17 2019	9:00 AM		2019/12/17	10:20	

Laboratory Use Only
Time Sensitive | Temperature (°C) on Recei: 6, 5, 6 | Custody Seal: Present ✓, Intact | Yes | No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

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

White: BV Labs Yellow: Client

Bureau Veritas Canada (2019) Inc.

CHAIN OF CUSTODY RECORD

Bureau Veritas Laboratories
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvlabs.com

INVOICE TO:
Company Name: #982 Pinchin Ltd
Attention: Accounts Payable
Address: 1 Hines Road Suite 200, Kanata ON K2K 3C7
Tel: (613) 592-3387 Fax: (613) 592-5897
Email: ap@pinchin.com

REPORT TO:
Company Name:
Attention: Matt, Ryan, Mike, Rob M
Address:
Tel: Fax:
Email: mkosiw@Pinchin.com, rlaronde@pinchin.com; mryan@

PROJECT INFORMATION:
Quotation #: A70927
P.O. #:
Project: 249967.001
Project Name: 473 Albert
Site #:
Sampled By:

Laboratory Use Only:
BV Labs Job #:
Bottle Order #: 729720
COC #: C#729720-30-01
Project Manager: Alisha Williamson

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY

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Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 Petroleum Hydrocarbons (Soil)	O.Reg 153 VOCs by HS (Soil)	O.Reg 153 PAHs (Soil)	pH CaCl2 EXTRACT	Sieve- 75um	BTEX	ICPMS Metals	Mercury	PCBs	# of Bottles	Comments
1		BH1 SS-1	Dec 11 2019	AM	SOIL		X		X	X		X				2	
2		Dup-1	"	"	"		X		X			X				2	
3		MW4 SS-1	Dec 12 2019	AM	"		X	X	X				X	X	X	2	
4		Dup-2	"	"	"		X	X							X	2	
5		MW5 SS-1	Dec 11	"	"		X	X	X				X	X	X	2	
6		Dup-3	"	"	"								X	X		1	
7		MW6 SS-1	"	"	"		X	X	X				X	X	X	2	
8																	
9																	
10																	

17-Dec-19 10:19
Alisha Williamson
B9Z4584
KJY OTT-001

ON Blue

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Mike Kosiw	Dec 17 2019	9:00 AM	EVELYN TORRE	2019/12/18	8:20	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 6, 5, 6
Custody Seal Present ✓ Intact ✓ — Yes — No

3, 4, 4
5, 5, 7

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

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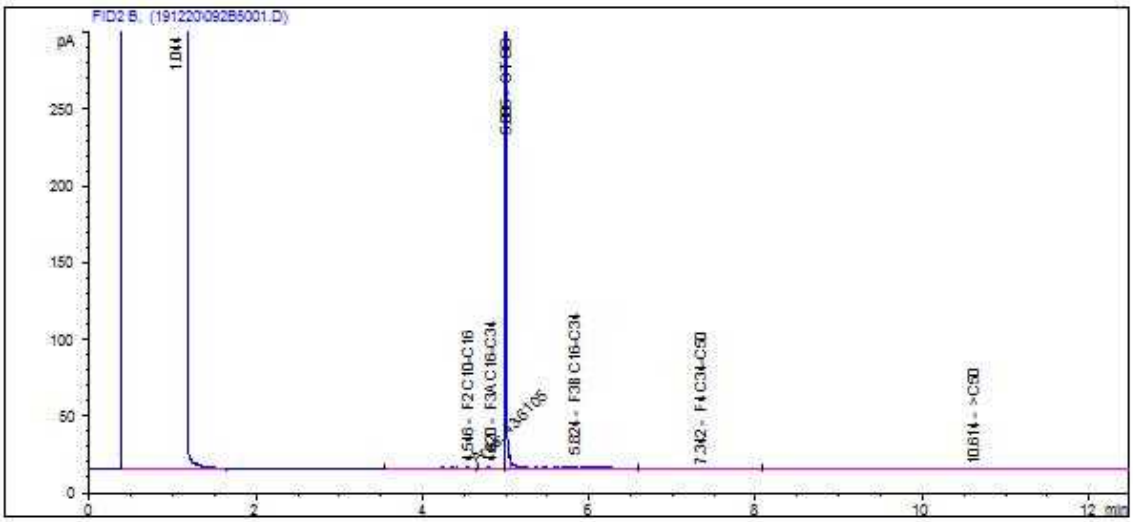
SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS

White: BV Labs Yellow: Client

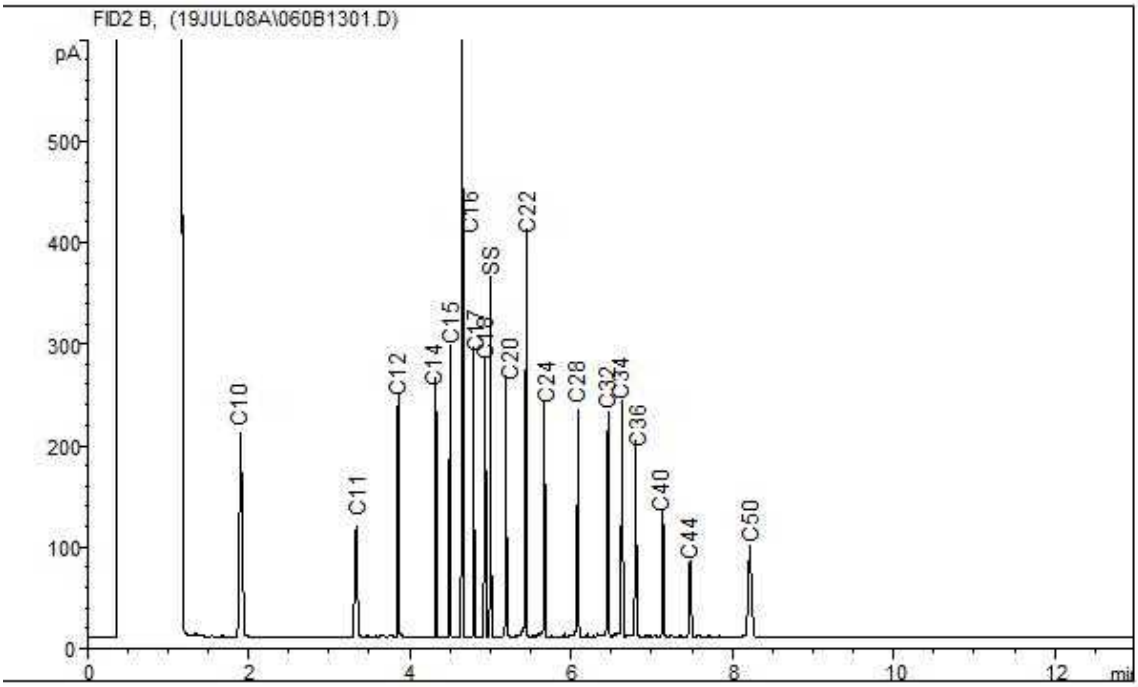
BV Labs Job #: B9Z4584
Report Date: 2019/12/24
BV Labs Sample: LPA698

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT
Client ID: BH1-SS-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

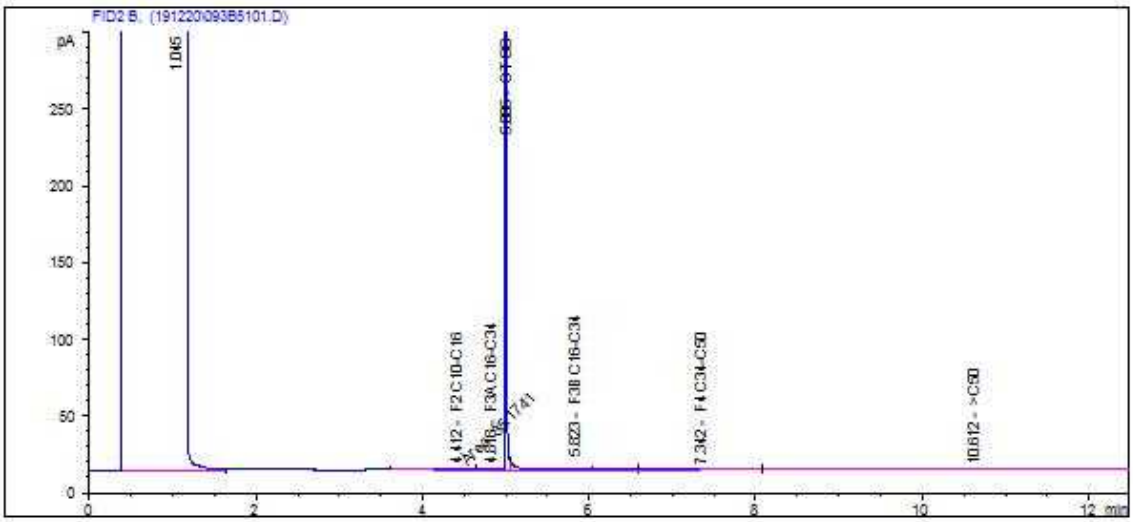
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

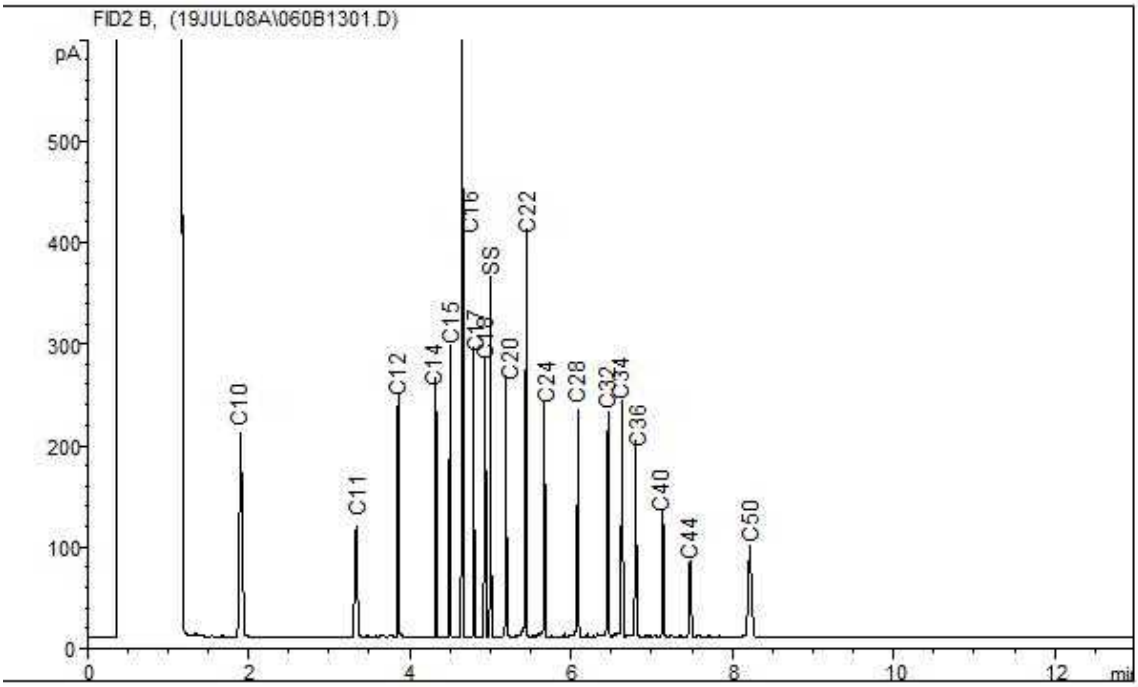
BV Labs Job #: B9Z4584
Report Date: 2019/12/24
BV Labs Sample: LPA699

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT
Client ID: DUP-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

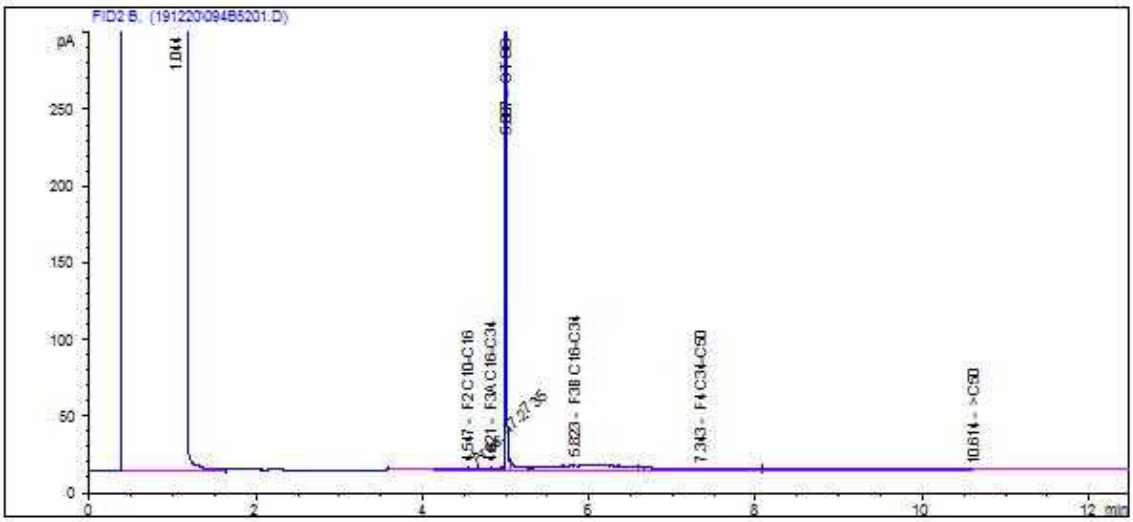
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

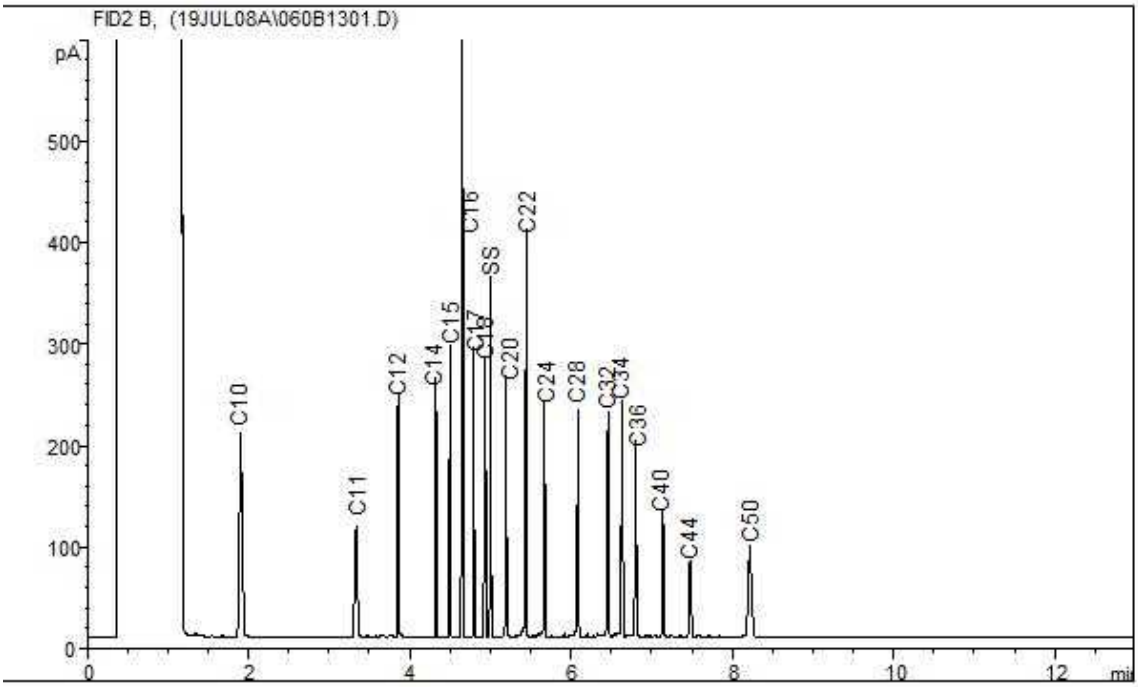
BV Labs Job #: B9Z4584
Report Date: 2019/12/24
BV Labs Sample: LPA700

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT
Client ID: MW4-SS-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

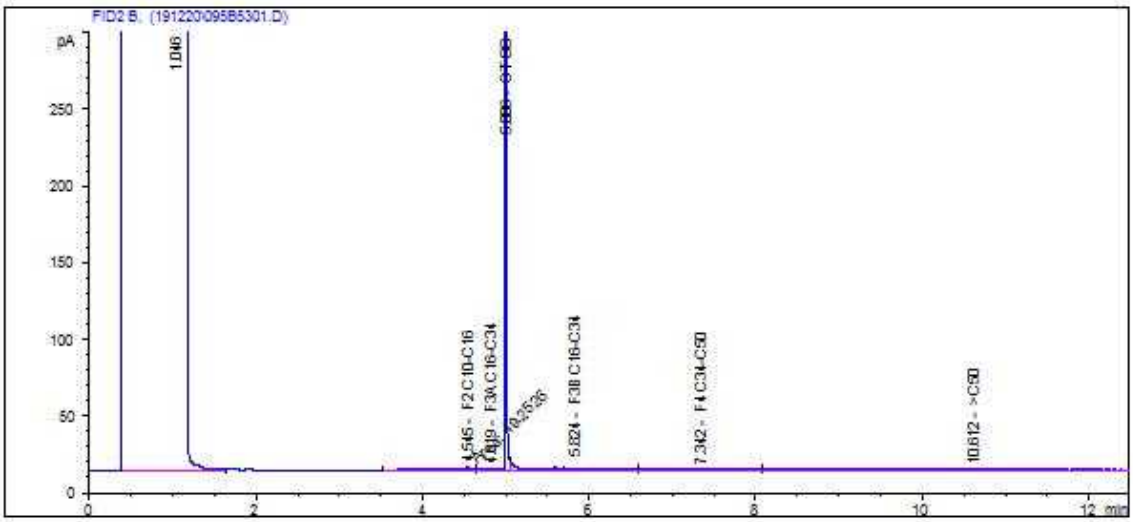
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

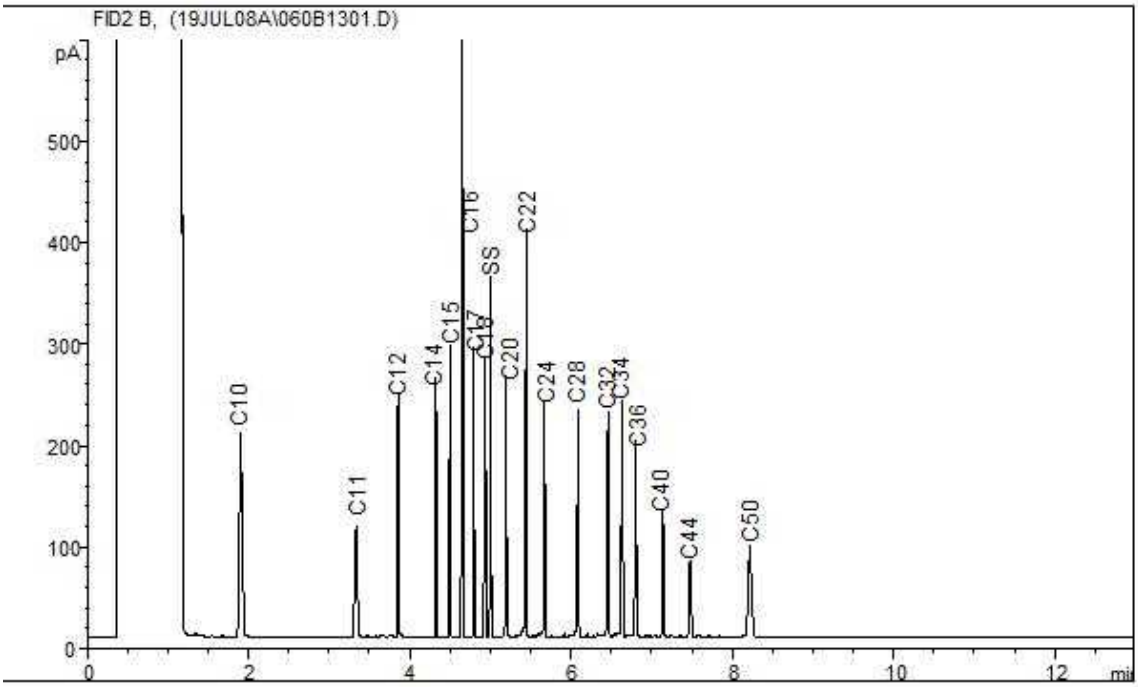
BV Labs Job #: B9Z4584
Report Date: 2019/12/24
BV Labs Sample: LPA702

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT
Client ID: MW5-SS-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

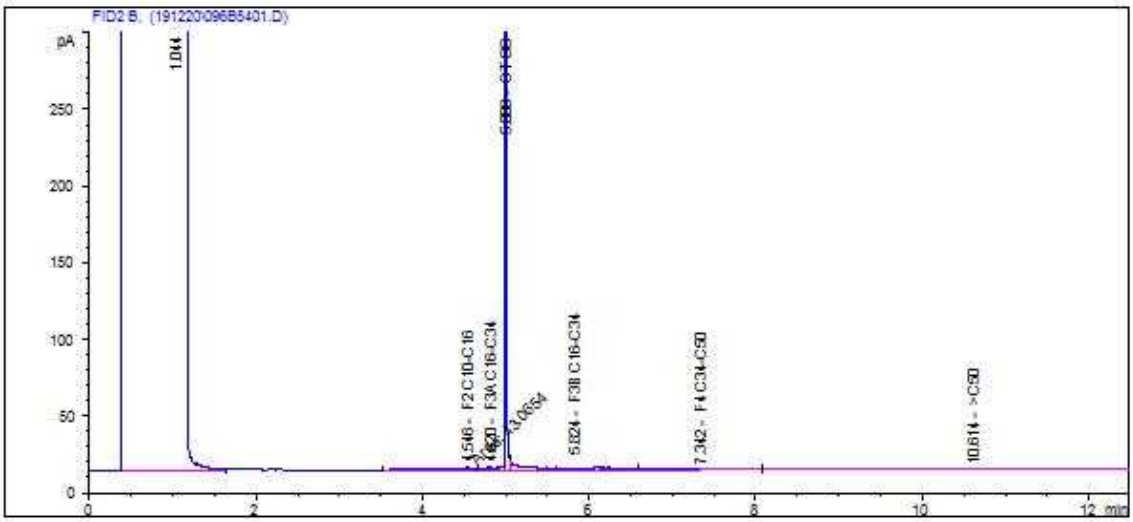
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

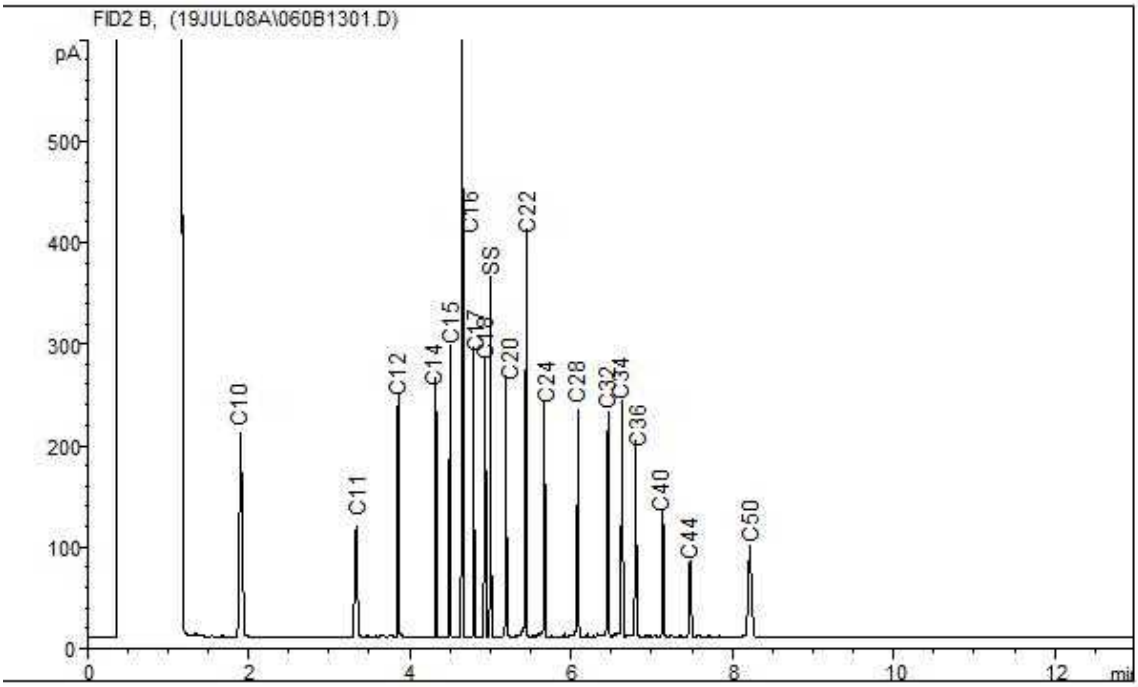
BV Labs Job #: B9Z4584
Report Date: 2019/12/24
BV Labs Sample: LPA704

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT
Client ID: MW6-SS-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: 248967.001
Site Location: 473 ALBERT ST
Your C.O.C. #: 729720-35-01

Attention: Matt, Ryan, Mike

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2020/01/24
Report #: R6048774
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C015237
Received: 2020/01/17, 11:05

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	7	N/A	2020/01/23	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	3	N/A	2020/01/22		EPA 8260C m
1,3-Dichloropropene Sum (1)	7	N/A	2020/01/23		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	7	2020/01/22	2020/01/23	CAM SOP-00316	CCME PHC-CWS m
Mercury (1)	4	2020/01/21	2020/01/21	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS (1)	4	N/A	2020/01/21	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM) (1)	7	2020/01/22	2020/01/23	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Water (1)	1	2020/01/21	2020/01/21	CAM SOP-00309	EPA 8082A m
Polychlorinated Biphenyl in Water (1)	3	2020/01/21	2020/01/22	CAM SOP-00309	EPA 8082A m
Volatile Organic Compounds and F1 PHCs (1)	7	N/A	2020/01/22	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water (1)	3	N/A	2020/01/21	CAM SOP-00228	EPA 8260C m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 248967.001
Site Location: 473 ALBERT ST
Your C.O.C. #: 729720-35-01

Attention: Matt, Ryan, Mike

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2020/01/24
Report #: R6048774
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C015237
Received: 2020/01/17, 11:05

(1) This test was performed by Bureau Veritas Laboratories Mississauga
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Alisha Sullivan
Project Manager
24 Jan 2020 10:37:24

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alisha Sullivan, Project Manager
Email: Alisha.Williamson@bvlabs.com
Phone# (613)274-0573

==========

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		LUP355	LUP356	LUP357	LUP362		
Sampling Date		2020/01/15	2020/01/15	2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01	729720-35-01	729720-35-01		
	UNITS	MW4	MW5	MW6	DUP-4	RDL	QC Batch
Metals							
Mercury (Hg)	ug/L	<0.1	<0.1	<0.1	<0.1	0.1	6547703

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 DISSOLVED ICPMS METALS (WATER)

BV Labs ID		LUP355	LUP356	LUP357	LUP362		
Sampling Date		2020/01/15	2020/01/15	2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01	729720-35-01	729720-35-01		
	UNITS	MW4	MW5	MW6	DUP-4	RDL	QC Batch
Metals							
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	0.72	0.50	6546678
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	6546678
Dissolved Barium (Ba)	ug/L	180	92	280	180	2.0	6546678
Dissolved Beryllium (Be)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6546678
Dissolved Boron (B)	ug/L	84	97	75	86	10	6546678
Dissolved Cadmium (Cd)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	6546678
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	6546678
Dissolved Cobalt (Co)	ug/L	4.3	19	<0.50	4.3	0.50	6546678
Dissolved Copper (Cu)	ug/L	2.9	2.6	3.8	4.4	1.0	6546678
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6546678
Dissolved Molybdenum (Mo)	ug/L	11	5.8	7.5	11	0.50	6546678
Dissolved Nickel (Ni)	ug/L	5.7	9.1	3.0	5.8	1.0	6546678
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	2.3	<2.0	2.0	6546678
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	6546678
Dissolved Sodium (Na)	ug/L	1500000	1100000	1800000	1500000	500	6546678
Dissolved Thallium (Tl)	ug/L	<0.050	0.31	0.078	<0.050	0.050	6546678
Dissolved Uranium (U)	ug/L	1.8	2.2	3.1	1.9	0.10	6546678
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6546678
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	6.2	5.9	5.0	6546678

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 PAHS (WATER)

BV Labs ID		LUP354	LUP355		LUP356		LUP357	LUP358		
Sampling Date		2020/01/15	2020/01/15		2020/01/15		2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01		729720-35-01		729720-35-01	729720-35-01		
	UNITS	MW3	MW4	RDL	MW5	RDL	MW6	MW7	RDL	QC Batch
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/L	<0.071	<0.071	0.071	<0.071	0.071	<0.071	<0.071	0.071	6545141
Polyaromatic Hydrocarbons										
Acenaphthene	ug/L	<0.050	<0.050	0.050	0.70	0.050	<0.050	<0.050	0.050	6550953
Acenaphthylene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Anthracene	ug/L	<0.050	<0.050	0.050	0.18	0.050	<0.050	<0.050	0.050	6550953
Benzo(a)anthracene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	<0.010	0.010	6550953
Benzo(b/j)fluoranthene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Chrysene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Dibenzo(a,h)anthracene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Fluoranthene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Fluorene	ug/L	<0.050	<0.050	0.050	<0.20 (1)	0.20	<0.050	<0.050	0.050	6550953
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
1-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
2-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	6550953
Naphthalene	ug/L	<0.050	<0.050	0.050	<0.20 (1)	0.20	<0.050	<0.050	0.050	6550953
Phenanthrene	ug/L	<0.030	<0.030	0.030	<0.030	0.030	<0.030	<0.030	0.030	6550953
Pyrene	ug/L	<0.050	<0.050	0.050	0.066	0.050	<0.050	<0.050	0.050	6550953
Surrogate Recovery (%)										
D10-Anthracene	%	93	94		89		97	97		6550953
D14-Terphenyl (FS)	%	81	85		60		86	89		6550953
D8-Acenaphthylene	%	91	89		90		91	92		6550953

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) DL was raised due to matrix interference.

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Pinchin Ltd
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Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 PAHS (WATER)

BV Labs ID		LUP361	LUP362		
Sampling Date		2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01		
	UNITS	MW10	DUP-4	RDL	QC Batch
Calculated Parameters					
Methylnaphthalene, 2-(1-)	ug/L	0.23	<0.071	0.071	6545141
Polyaromatic Hydrocarbons					
Acenaphthene	ug/L	<0.050	<0.050	0.050	6550953
Acenaphthylene	ug/L	<0.050	<0.050	0.050	6550953
Anthracene	ug/L	<0.050	<0.050	0.050	6550953
Benzo(a)anthracene	ug/L	<0.050	<0.050	0.050	6550953
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.010	6550953
Benzo(b/j)fluoranthene	ug/L	<0.050	<0.050	0.050	6550953
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	0.050	6550953
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	0.050	6550953
Chrysene	ug/L	<0.050	<0.050	0.050	6550953
Dibenzo(a,h)anthracene	ug/L	<0.050	<0.050	0.050	6550953
Fluoranthene	ug/L	<0.050	<0.050	0.050	6550953
Fluorene	ug/L	<0.050	<0.050	0.050	6550953
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	0.050	6550953
1-Methylnaphthalene	ug/L	0.23	<0.050	0.050	6550953
2-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	6550953
Naphthalene	ug/L	0.070	<0.050	0.050	6550953
Phenanthrene	ug/L	<0.030	<0.030	0.030	6550953
Pyrene	ug/L	<0.050	<0.050	0.050	6550953
Surrogate Recovery (%)					
D10-Anthracene	%	95	101		6550953
D14-Terphenyl (FS)	%	75	93		6550953
D8-Acenaphthylene	%	87	96		6550953

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 PCBS (WATER)

BV Labs ID		LUP355	LUP356	LUP357	LUP362	LUP362		
Sampling Date		2020/01/15	2020/01/15	2020/01/15	2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01	729720-35-01	729720-35-01	729720-35-01		
	UNITS	MW4	MW5	MW6	DUP-4	DUP-4 Lab-Dup	RDL	QC Batch
PCBs								
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	6547897
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	6547897
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	6547897
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	6547897
Total PCB	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	6547897
Surrogate Recovery (%)								
Decachlorobiphenyl	%	83	67	84	84	89		6547897

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 VOCS BY HS & F1-F4 (WATER)

BV Labs ID		LUP354	LUP355	LUP356	LUP357	LUP358		
Sampling Date		2020/01/15	2020/01/15	2020/01/15	2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01	729720-35-01	729720-35-01	729720-35-01		
	UNITS	MW3	MW4	MW5	MW6	MW7	RDL	QC Batch
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6545083
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	<10	<10	<10	<10	10	6546168
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
Bromoform	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6546168
Bromomethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
Chloroform	ug/L	<0.20	0.56	<0.20	0.28	0.41	0.20	6546168
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6546168
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	6546168
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	6546168
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
Hexane	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6546168
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6546168
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	<10	<10	10	6546168
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6546168
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
Styrene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C015237
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Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 VOCS BY HS & F1-F4 (WATER)

BV Labs ID		LUP354	LUP355	LUP356	LUP357	LUP358		
Sampling Date		2020/01/15	2020/01/15	2020/01/15	2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01	729720-35-01	729720-35-01	729720-35-01		
	UNITS	MW3	MW4	MW5	MW6	MW7	RDL	QC Batch
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6546168
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6546168
F1 (C6-C10)	ug/L	<25	<25	120	<25	<25	25	6546168
F1 (C6-C10) - BTEX	ug/L	<25	<25	120	<25	<25	25	6546168
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	1800	120	<100	100	6550974
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	22000	900	<200	200	6550974
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	<200	<200	200	6550974
Reached Baseline at C50	ug/L	Yes	Yes	Yes	Yes	Yes		6550974
Surrogate Recovery (%)								
o-Terphenyl	%	97	96	116	97	97		6550974
4-Bromofluorobenzene	%	98	99	96	100	100		6546168
D4-1,2-Dichloroethane	%	100	101	103	103	103		6546168
D8-Toluene	%	98	97	99	97	97		6546168

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 VOCS BY HS & F1-F4 (WATER)

BV Labs ID		LUP361	LUP362		
Sampling Date		2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01		
	UNITS	MW10	DUP-4	RDL	QC Batch
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	6545083
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	6546168
Benzene	ug/L	<0.20	<0.20	0.20	6546168
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	6546168
Bromoform	ug/L	<1.0	<1.0	1.0	6546168
Bromomethane	ug/L	<0.50	<0.50	0.50	6546168
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	6546168
Chlorobenzene	ug/L	<0.20	<0.20	0.20	6546168
Chloroform	ug/L	0.32	0.67	0.20	6546168
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	6546168
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6546168
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6546168
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6546168
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	6546168
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	6546168
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	6546168
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	6546168
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	6546168
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	6546168
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	6546168
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	6546168
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	6546168
Ethylbenzene	ug/L	<0.20	<0.20	0.20	6546168
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	6546168
Hexane	ug/L	<1.0	<1.0	1.0	6546168
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	6546168
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	6546168
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	6546168
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	6546168
Styrene	ug/L	<0.50	<0.50	0.50	6546168
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	6546168
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	6546168
Tetrachloroethylene	ug/L	<0.20	<0.20	0.20	6546168

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (WATER)

BV Labs ID		LUP361	LUP362		
Sampling Date		2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01		
	UNITS	MW10	DUP-4	RDL	QC Batch
Toluene	ug/L	<0.20	<0.20	0.20	6546168
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	6546168
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	6546168
Trichloroethylene	ug/L	<0.20	<0.20	0.20	6546168
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	6546168
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	6546168
p+m-Xylene	ug/L	<0.20	<0.20	0.20	6546168
o-Xylene	ug/L	<0.20	<0.20	0.20	6546168
Total Xylenes	ug/L	<0.20	<0.20	0.20	6546168
F1 (C6-C10)	ug/L	<25	<25	25	6546168
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	6546168
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	6550974
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	6550974
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	6550974
Reached Baseline at C50	ug/L	Yes	Yes		6550974
Surrogate Recovery (%)					
o-Terphenyl	%	93	96		6550974
4-Bromofluorobenzene	%	97	98		6546168
D4-1,2-Dichloroethane	%	102	102		6546168
D8-Toluene	%	98	98		6546168

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS (WATER)

BV Labs ID		LUP359	LUP360	LUP363		
Sampling Date		2020/01/15	2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01	729720-35-01		
	UNITS	MW8	MW9	TRIP BLANK	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	6545083
Volatile Organics						
Acetone (2-Propanone)	ug/L	<10	23	<10	10	6545881
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	6545881
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	6545881
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	6545881
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	6545881
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	6545881
Chlorobenzene	ug/L	<0.20	0.26	<0.20	0.20	6545881
Chloroform	ug/L	0.81	0.79	<0.20	0.20	6545881
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	6545881
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	6545881
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	6545881
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	6545881
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	6545881
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	6545881
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6545881
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	6545881
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	6545881
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	6545881
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	6545881
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	6545881
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	6545881
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	6545881
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	6545881
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	6545881
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	6545881
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	10	6545881
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	6545881
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	0.50	6545881
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	6545881
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6545881
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6545881
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	6545881

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

O.REG 153 VOCS BY HS (WATER)

BV Labs ID		LUP359	LUP360	LUP363		
Sampling Date		2020/01/15	2020/01/15	2020/01/15		
COC Number		729720-35-01	729720-35-01	729720-35-01		
	UNITS	MW8	MW9	TRIP BLANK	RDL	QC Batch
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	6545881
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	6545881
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6545881
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	6545881
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	6545881
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	6545881
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	6545881
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	6545881
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	6545881
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	95	96	96		6545881
D4-1,2-Dichloroethane	%	106	109	103		6545881
D8-Toluene	%	96	96	97		6545881

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

TEST SUMMARY

BV Labs ID: LUP354
Sample ID: MW3
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6545141	N/A	2020/01/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6550974	2020/01/22	2020/01/23	Biljana Lazovic
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6550953	2020/01/22	2020/01/23	Mitesh Raj
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6546168	N/A	2020/01/22	Denis Reid

BV Labs ID: LUP355
Sample ID: MW4
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6545141	N/A	2020/01/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6550974	2020/01/22	2020/01/23	Biljana Lazovic
Mercury	CV/AA	6547703	2020/01/21	2020/01/21	Medhat Nasr
Dissolved Metals by ICPMS	ICP/MS	6546678	N/A	2020/01/21	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6550953	2020/01/22	2020/01/23	Mitesh Raj
Polychlorinated Biphenyl in Water	GC/ECD	6547897	2020/01/21	2020/01/22	Sarah Huang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6546168	N/A	2020/01/22	Denis Reid

BV Labs ID: LUP356
Sample ID: MW5
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6545141	N/A	2020/01/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6550974	2020/01/22	2020/01/23	Biljana Lazovic
Mercury	CV/AA	6547703	2020/01/21	2020/01/21	Medhat Nasr
Dissolved Metals by ICPMS	ICP/MS	6546678	N/A	2020/01/21	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6550953	2020/01/22	2020/01/23	Mitesh Raj
Polychlorinated Biphenyl in Water	GC/ECD	6547897	2020/01/21	2020/01/22	Sarah Huang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6546168	N/A	2020/01/22	Denis Reid

BV Labs ID: LUP357
Sample ID: MW6
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6545141	N/A	2020/01/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6550974	2020/01/22	2020/01/23	Biljana Lazovic
Mercury	CV/AA	6547703	2020/01/21	2020/01/21	Medhat Nasr
Dissolved Metals by ICPMS	ICP/MS	6546678	N/A	2020/01/21	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6550953	2020/01/22	2020/01/23	Mitesh Raj

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BV Labs Job #: C015237
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Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

TEST SUMMARY

BV Labs ID: LUP357
Sample ID: MW6
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Water	GC/ECD	6547897	2020/01/21	2020/01/22	Sarah Huang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6546168	N/A	2020/01/22	Denis Reid

BV Labs ID: LUP358
Sample ID: MW7
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6545141	N/A	2020/01/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6550974	2020/01/22	2020/01/23	Biljana Lazovic
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6550953	2020/01/22	2020/01/23	Mitesh Raj
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6546168	N/A	2020/01/22	Denis Reid

BV Labs ID: LUP359
Sample ID: MW8
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/22	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6545881	N/A	2020/01/21	Rebecca McClean

BV Labs ID: LUP360
Sample ID: MW9
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/22	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6545881	N/A	2020/01/21	Rebecca McClean

BV Labs ID: LUP361
Sample ID: MW10
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6545141	N/A	2020/01/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6550974	2020/01/22	2020/01/23	Biljana Lazovic
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6550953	2020/01/22	2020/01/23	Mitesh Raj
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6546168	N/A	2020/01/22	Denis Reid

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BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

TEST SUMMARY

BV Labs ID: LUP362
Sample ID: DUP-4
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6545141	N/A	2020/01/23	Automated Statchk
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6550974	2020/01/22	2020/01/23	Biljana Lazovic
Mercury	CV/AA	6547703	2020/01/21	2020/01/21	Medhat Nasr
Dissolved Metals by ICPMS	ICP/MS	6546678	N/A	2020/01/21	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6550953	2020/01/22	2020/01/23	Mitesh Raj
Polychlorinated Biphenyl in Water	GC/ECD	6547897	2020/01/21	2020/01/21	Sarah Huang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6546168	N/A	2020/01/22	Denis Reid

BV Labs ID: LUP362 Dup
Sample ID: DUP-4
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Water	GC/ECD	6547897	2020/01/21	2020/01/22	Sarah Huang

BV Labs ID: LUP363
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2020/01/15
Shipped:
Received: 2020/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6545083	N/A	2020/01/22	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6545881	N/A	2020/01/21	Rebecca McClean

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GENERAL COMMENTS

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

Package 1	6.3°C

Revised Report (2020/01/24): Criteria removed per client request.

Results relate only to the items tested.

BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6545881	RSC	Matrix Spike	4-Bromofluorobenzene	2020/01/21		101	%	70 - 130
			D4-1,2-Dichloroethane	2020/01/21		102	%	70 - 130
			D8-Toluene	2020/01/21		98	%	70 - 130
			Acetone (2-Propanone)	2020/01/21		100	%	60 - 140
			Benzene	2020/01/21		97	%	70 - 130
			Bromodichloromethane	2020/01/21		95	%	70 - 130
			Bromoform	2020/01/21		103	%	70 - 130
			Bromomethane	2020/01/21		93	%	60 - 140
			Carbon Tetrachloride	2020/01/21		91	%	70 - 130
			Chlorobenzene	2020/01/21		92	%	70 - 130
			Chloroform	2020/01/21		91	%	70 - 130
			Dibromochloromethane	2020/01/21		101	%	70 - 130
			1,2-Dichlorobenzene	2020/01/21		88	%	70 - 130
			1,3-Dichlorobenzene	2020/01/21		87	%	70 - 130
			1,4-Dichlorobenzene	2020/01/21		91	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2020/01/21		90	%	60 - 140
			1,1-Dichloroethane	2020/01/21		93	%	70 - 130
			1,2-Dichloroethane	2020/01/21		102	%	70 - 130
			1,1-Dichloroethylene	2020/01/21		97	%	70 - 130
			cis-1,2-Dichloroethylene	2020/01/21		89	%	70 - 130
			trans-1,2-Dichloroethylene	2020/01/21		93	%	70 - 130
			1,2-Dichloropropane	2020/01/21		91	%	70 - 130
			cis-1,3-Dichloropropene	2020/01/21		97	%	70 - 130
			trans-1,3-Dichloropropene	2020/01/21		101	%	70 - 130
			Ethylbenzene	2020/01/21		88	%	70 - 130
			Ethylene Dibromide	2020/01/21		101	%	70 - 130
			Hexane	2020/01/21		94	%	70 - 130
			Methylene Chloride(Dichloromethane)	2020/01/21		102	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21		105	%	60 - 140
			Methyl Isobutyl Ketone	2020/01/21		100	%	70 - 130
			Methyl t-butyl ether (MTBE)	2020/01/21		90	%	70 - 130
			Styrene	2020/01/21		90	%	70 - 130
			1,1,1,2-Tetrachloroethane	2020/01/21		98	%	70 - 130
			1,1,2,2-Tetrachloroethane	2020/01/21		104	%	70 - 130
			Tetrachloroethylene	2020/01/21		87	%	70 - 130
			Toluene	2020/01/21		89	%	70 - 130
			1,1,1-Trichloroethane	2020/01/21		93	%	70 - 130
			1,1,2-Trichloroethane	2020/01/21		102	%	70 - 130
			Trichloroethylene	2020/01/21		95	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2020/01/21		96	%	70 - 130
			Vinyl Chloride	2020/01/21		92	%	70 - 130
			p+m-Xylene	2020/01/21		93	%	70 - 130
			o-Xylene	2020/01/21		91	%	70 - 130
6545881	RSC	Spiked Blank	4-Bromofluorobenzene	2020/01/21		101	%	70 - 130
			D4-1,2-Dichloroethane	2020/01/21		99	%	70 - 130
			D8-Toluene	2020/01/21		97	%	70 - 130
			Acetone (2-Propanone)	2020/01/21		98	%	60 - 140
			Benzene	2020/01/21		96	%	70 - 130
			Bromodichloromethane	2020/01/21		93	%	70 - 130
			Bromoform	2020/01/21		97	%	70 - 130
			Bromomethane	2020/01/21		90	%	60 - 140
			Carbon Tetrachloride	2020/01/21		92	%	70 - 130
			Chlorobenzene	2020/01/21		90	%	70 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Chloroform	2020/01/21		90	%	70 - 130
			Dibromochloromethane	2020/01/21		97	%	70 - 130
			1,2-Dichlorobenzene	2020/01/21		85	%	70 - 130
			1,3-Dichlorobenzene	2020/01/21		86	%	70 - 130
			1,4-Dichlorobenzene	2020/01/21		90	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2020/01/21		89	%	60 - 140
			1,1-Dichloroethane	2020/01/21		93	%	70 - 130
			1,2-Dichloroethane	2020/01/21		98	%	70 - 130
			1,1-Dichloroethylene	2020/01/21		99	%	70 - 130
			cis-1,2-Dichloroethylene	2020/01/21		88	%	70 - 130
			trans-1,2-Dichloroethylene	2020/01/21		94	%	70 - 130
			1,2-Dichloropropane	2020/01/21		90	%	70 - 130
			cis-1,3-Dichloropropene	2020/01/21		92	%	70 - 130
			trans-1,3-Dichloropropene	2020/01/21		93	%	70 - 130
			Ethylbenzene	2020/01/21		88	%	70 - 130
			Ethylene Dibromide	2020/01/21		95	%	70 - 130
			Hexane	2020/01/21		95	%	70 - 130
			Methylene Chloride(Dichloromethane)	2020/01/21		99	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21		102	%	60 - 140
			Methyl Isobutyl Ketone	2020/01/21		96	%	70 - 130
			Methyl t-butyl ether (MTBE)	2020/01/21		88	%	70 - 130
			Styrene	2020/01/21		89	%	70 - 130
			1,1,1,2-Tetrachloroethane	2020/01/21		96	%	70 - 130
			1,1,2,2-Tetrachloroethane	2020/01/21		98	%	70 - 130
			Tetrachloroethylene	2020/01/21		87	%	70 - 130
			Toluene	2020/01/21		88	%	70 - 130
			1,1,1-Trichloroethane	2020/01/21		94	%	70 - 130
			1,1,2-Trichloroethane	2020/01/21		96	%	70 - 130
			Trichloroethylene	2020/01/21		96	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2020/01/21		97	%	70 - 130
			Vinyl Chloride	2020/01/21		92	%	70 - 130
			p+m-Xylene	2020/01/21		92	%	70 - 130
			o-Xylene	2020/01/21		90	%	70 - 130
6545881	RSC	Method Blank	4-Bromofluorobenzene	2020/01/21		100	%	70 - 130
			D4-1,2-Dichloroethane	2020/01/21		100	%	70 - 130
			D8-Toluene	2020/01/21		97	%	70 - 130
			Acetone (2-Propanone)	2020/01/21	<10		ug/L	
			Benzene	2020/01/21	<0.20		ug/L	
			Bromodichloromethane	2020/01/21	<0.50		ug/L	
			Bromoform	2020/01/21	<1.0		ug/L	
			Bromomethane	2020/01/21	<0.50		ug/L	
			Carbon Tetrachloride	2020/01/21	<0.20		ug/L	
			Chlorobenzene	2020/01/21	<0.20		ug/L	
			Chloroform	2020/01/21	<0.20		ug/L	
			Dibromochloromethane	2020/01/21	<0.50		ug/L	
			1,2-Dichlorobenzene	2020/01/21	<0.50		ug/L	
			1,3-Dichlorobenzene	2020/01/21	<0.50		ug/L	
			1,4-Dichlorobenzene	2020/01/21	<0.50		ug/L	
			Dichlorodifluoromethane (FREON 12)	2020/01/21	<1.0		ug/L	
			1,1-Dichloroethane	2020/01/21	<0.20		ug/L	
			1,2-Dichloroethane	2020/01/21	<0.50		ug/L	
			1,1-Dichloroethylene	2020/01/21	<0.20		ug/L	
			cis-1,2-Dichloroethylene	2020/01/21	<0.50		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			trans-1,2-Dichloroethylene	2020/01/21	<0.50		ug/L	
			1,2-Dichloropropane	2020/01/21	<0.20		ug/L	
			cis-1,3-Dichloropropene	2020/01/21	<0.30		ug/L	
			trans-1,3-Dichloropropene	2020/01/21	<0.40		ug/L	
			Ethylbenzene	2020/01/21	<0.20		ug/L	
			Ethylene Dibromide	2020/01/21	<0.20		ug/L	
			Hexane	2020/01/21	<1.0		ug/L	
			Methylene Chloride(Dichloromethane)	2020/01/21	<2.0		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21	<10		ug/L	
			Methyl Isobutyl Ketone	2020/01/21	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2020/01/21	<0.50		ug/L	
			Styrene	2020/01/21	<0.50		ug/L	
			1,1,1,2-Tetrachloroethane	2020/01/21	<0.50		ug/L	
			1,1,2,2-Tetrachloroethane	2020/01/21	<0.50		ug/L	
			Tetrachloroethylene	2020/01/21	<0.20		ug/L	
			Toluene	2020/01/21	<0.20		ug/L	
			1,1,1-Trichloroethane	2020/01/21	<0.20		ug/L	
			1,1,2-Trichloroethane	2020/01/21	<0.50		ug/L	
			Trichloroethylene	2020/01/21	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2020/01/21	<0.50		ug/L	
			Vinyl Chloride	2020/01/21	<0.20		ug/L	
			p+m-Xylene	2020/01/21	<0.20		ug/L	
			o-Xylene	2020/01/21	<0.20		ug/L	
			Total Xylenes	2020/01/21	<0.20		ug/L	
6545881	RSC	RPD	Acetone (2-Propanone)	2020/01/21	NC		%	30
			Benzene	2020/01/21	NC		%	30
			Bromodichloromethane	2020/01/21	NC		%	30
			Bromoform	2020/01/21	NC		%	30
			Bromomethane	2020/01/21	NC		%	30
			Carbon Tetrachloride	2020/01/21	NC		%	30
			Chlorobenzene	2020/01/21	NC		%	30
			Chloroform	2020/01/21	NC		%	30
			Dibromochloromethane	2020/01/21	NC		%	30
			1,2-Dichlorobenzene	2020/01/21	NC		%	30
			1,3-Dichlorobenzene	2020/01/21	NC		%	30
			1,4-Dichlorobenzene	2020/01/21	NC		%	30
			Dichlorodifluoromethane (FREON 12)	2020/01/21	NC		%	30
			1,1-Dichloroethane	2020/01/21	NC		%	30
			1,2-Dichloroethane	2020/01/21	NC		%	30
			1,1-Dichloroethylene	2020/01/21	NC		%	30
			cis-1,2-Dichloroethylene	2020/01/21	NC		%	30
			trans-1,2-Dichloroethylene	2020/01/21	NC		%	30
			1,2-Dichloropropane	2020/01/21	NC		%	30
			cis-1,3-Dichloropropene	2020/01/21	NC		%	30
			trans-1,3-Dichloropropene	2020/01/21	NC		%	30
			Ethylbenzene	2020/01/21	NC		%	30
			Ethylene Dibromide	2020/01/21	NC		%	30
			Hexane	2020/01/21	NC		%	30
			Methylene Chloride(Dichloromethane)	2020/01/21	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21	NC		%	30
			Methyl Isobutyl Ketone	2020/01/21	NC		%	30
			Methyl t-butyl ether (MTBE)	2020/01/21	NC		%	30
			Styrene	2020/01/21	NC		%	30

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,1,2-Tetrachloroethane	2020/01/21	NC		%	30
			1,1,2,2-Tetrachloroethane	2020/01/21	NC		%	30
			Tetrachloroethylene	2020/01/21	NC		%	30
			Toluene	2020/01/21	NC		%	30
			1,1,1-Trichloroethane	2020/01/21	NC		%	30
			1,1,2-Trichloroethane	2020/01/21	NC		%	30
			Trichloroethylene	2020/01/21	NC		%	30
			Trichlorofluoromethane (FREON 11)	2020/01/21	NC		%	30
			Vinyl Chloride	2020/01/21	NC		%	30
			p+m-Xylene	2020/01/21	NC		%	30
			o-Xylene	2020/01/21	NC		%	30
			Total Xylenes	2020/01/21	NC		%	30
6546168	DR1	Matrix Spike	4-Bromofluorobenzene	2020/01/21		100	%	70 - 130
			D4-1,2-Dichloroethane	2020/01/21		102	%	70 - 130
			D8-Toluene	2020/01/21		101	%	70 - 130
			Acetone (2-Propanone)	2020/01/21		115	%	60 - 140
			Benzene	2020/01/21		98	%	70 - 130
			Bromodichloromethane	2020/01/21		98	%	70 - 130
			Bromoform	2020/01/21		107	%	70 - 130
			Bromomethane	2020/01/21		90	%	60 - 140
			Carbon Tetrachloride	2020/01/21		93	%	70 - 130
			Chlorobenzene	2020/01/21		97	%	70 - 130
			Chloroform	2020/01/21		92	%	70 - 130
			Dibromochloromethane	2020/01/21		108	%	70 - 130
			1,2-Dichlorobenzene	2020/01/21		97	%	70 - 130
			1,3-Dichlorobenzene	2020/01/21		96	%	70 - 130
			1,4-Dichlorobenzene	2020/01/21		101	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2020/01/21		76	%	60 - 140
			1,1-Dichloroethane	2020/01/21		95	%	70 - 130
			1,2-Dichloroethane	2020/01/21		102	%	70 - 130
			1,1-Dichloroethylene	2020/01/21		100	%	70 - 130
			cis-1,2-Dichloroethylene	2020/01/21		93	%	70 - 130
			trans-1,2-Dichloroethylene	2020/01/21		94	%	70 - 130
			1,2-Dichloropropane	2020/01/21		95	%	70 - 130
			cis-1,3-Dichloropropene	2020/01/21		99	%	70 - 130
			trans-1,3-Dichloropropene	2020/01/21		105	%	70 - 130
			Ethylbenzene	2020/01/21		97	%	70 - 130
			Ethylene Dibromide	2020/01/21		107	%	70 - 130
			Hexane	2020/01/21		98	%	70 - 130
			Methylene Chloride(Dichloromethane)	2020/01/21		102	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21		118	%	60 - 140
			Methyl Isobutyl Ketone	2020/01/21		108	%	70 - 130
			Methyl t-butyl ether (MTBE)	2020/01/21		91	%	70 - 130
			Styrene	2020/01/21		99	%	70 - 130
			1,1,1,2-Tetrachloroethane	2020/01/21		106	%	70 - 130
			1,1,2,2-Tetrachloroethane	2020/01/21		108	%	70 - 130
			Tetrachloroethylene	2020/01/21		93	%	70 - 130
			Toluene	2020/01/21		94	%	70 - 130
			1,1,1-Trichloroethane	2020/01/21		96	%	70 - 130
			1,1,2-Trichloroethane	2020/01/21		105	%	70 - 130
			Trichloroethylene	2020/01/21		99	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2020/01/21		99	%	70 - 130
			Vinyl Chloride	2020/01/21		87	%	70 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			p+m-Xylene	2020/01/21		102	%	70 - 130
			o-Xylene	2020/01/21		99	%	70 - 130
			F1 (C6-C10)	2020/01/21		99	%	60 - 140
6546168	DR1	Spiked Blank	4-Bromofluorobenzene	2020/01/21		100	%	70 - 130
			D4-1,2-Dichloroethane	2020/01/21		100	%	70 - 130
			D8-Toluene	2020/01/21		102	%	70 - 130
			Acetone (2-Propanone)	2020/01/21		111	%	60 - 140
			Benzene	2020/01/21		91	%	70 - 130
			Bromodichloromethane	2020/01/21		94	%	70 - 130
			Bromoform	2020/01/21		105	%	70 - 130
			Bromomethane	2020/01/21		84	%	60 - 140
			Carbon Tetrachloride	2020/01/21		88	%	70 - 130
			Chlorobenzene	2020/01/21		93	%	70 - 130
			Chloroform	2020/01/21		87	%	70 - 130
			Dibromochloromethane	2020/01/21		105	%	70 - 130
			1,2-Dichlorobenzene	2020/01/21		95	%	70 - 130
			1,3-Dichlorobenzene	2020/01/21		94	%	70 - 130
			1,4-Dichlorobenzene	2020/01/21		99	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2020/01/21		76	%	60 - 140
			1,1-Dichloroethane	2020/01/21		90	%	70 - 130
			1,2-Dichloroethane	2020/01/21		97	%	70 - 130
			1,1-Dichloroethylene	2020/01/21		95	%	70 - 130
			cis-1,2-Dichloroethylene	2020/01/21		87	%	70 - 130
			trans-1,2-Dichloroethylene	2020/01/21		89	%	70 - 130
			1,2-Dichloropropane	2020/01/21		90	%	70 - 130
			cis-1,3-Dichloropropene	2020/01/21		92	%	70 - 130
			trans-1,3-Dichloropropene	2020/01/21		98	%	70 - 130
			Ethylbenzene	2020/01/21		92	%	70 - 130
			Ethylene Dibromide	2020/01/21		104	%	70 - 130
			Hexane	2020/01/21		93	%	70 - 130
			Methylene Chloride(Dichloromethane)	2020/01/21		96	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21		114	%	60 - 140
			Methyl Isobutyl Ketone	2020/01/21		106	%	70 - 130
			Methyl t-butyl ether (MTBE)	2020/01/21		88	%	70 - 130
			Styrene	2020/01/21		96	%	70 - 130
			1,1,1,2-Tetrachloroethane	2020/01/21		102	%	70 - 130
			1,1,2,2-Tetrachloroethane	2020/01/21		106	%	70 - 130
			Tetrachloroethylene	2020/01/21		88	%	70 - 130
			Toluene	2020/01/21		89	%	70 - 130
			1,1,1-Trichloroethane	2020/01/21		90	%	70 - 130
			1,1,2-Trichloroethane	2020/01/21		102	%	70 - 130
			Trichloroethylene	2020/01/21		93	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2020/01/21		94	%	70 - 130
			Vinyl Chloride	2020/01/21		84	%	70 - 130
			p+m-Xylene	2020/01/21		97	%	70 - 130
			o-Xylene	2020/01/21		95	%	70 - 130
			F1 (C6-C10)	2020/01/21		92	%	60 - 140
6546168	DR1	Method Blank	4-Bromofluorobenzene	2020/01/21		98	%	70 - 130
			D4-1,2-Dichloroethane	2020/01/21		100	%	70 - 130
			D8-Toluene	2020/01/21		100	%	70 - 130
			Acetone (2-Propanone)	2020/01/21	<10		ug/L	
			Benzene	2020/01/21	<0.20		ug/L	
			Bromodichloromethane	2020/01/21	<0.50		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Bromoform	2020/01/21	<1.0		ug/L	
			Bromomethane	2020/01/21	<0.50		ug/L	
			Carbon Tetrachloride	2020/01/21	<0.20		ug/L	
			Chlorobenzene	2020/01/21	<0.20		ug/L	
			Chloroform	2020/01/21	<0.20		ug/L	
			Dibromochloromethane	2020/01/21	<0.50		ug/L	
			1,2-Dichlorobenzene	2020/01/21	<0.50		ug/L	
			1,3-Dichlorobenzene	2020/01/21	<0.50		ug/L	
			1,4-Dichlorobenzene	2020/01/21	<0.50		ug/L	
			Dichlorodifluoromethane (FREON 12)	2020/01/21	<1.0		ug/L	
			1,1-Dichloroethane	2020/01/21	<0.20		ug/L	
			1,2-Dichloroethane	2020/01/21	<0.50		ug/L	
			1,1-Dichloroethylene	2020/01/21	<0.20		ug/L	
			cis-1,2-Dichloroethylene	2020/01/21	<0.50		ug/L	
			trans-1,2-Dichloroethylene	2020/01/21	<0.50		ug/L	
			1,2-Dichloropropane	2020/01/21	<0.20		ug/L	
			cis-1,3-Dichloropropene	2020/01/21	<0.30		ug/L	
			trans-1,3-Dichloropropene	2020/01/21	<0.40		ug/L	
			Ethylbenzene	2020/01/21	<0.20		ug/L	
			Ethylene Dibromide	2020/01/21	<0.20		ug/L	
			Hexane	2020/01/21	<1.0		ug/L	
			Methylene Chloride(Dichloromethane)	2020/01/21	<2.0		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21	<10		ug/L	
			Methyl Isobutyl Ketone	2020/01/21	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2020/01/21	<0.50		ug/L	
			Styrene	2020/01/21	<0.50		ug/L	
			1,1,1,2-Tetrachloroethane	2020/01/21	<0.50		ug/L	
			1,1,2,2-Tetrachloroethane	2020/01/21	<0.50		ug/L	
			Tetrachloroethylene	2020/01/21	<0.20		ug/L	
			Toluene	2020/01/21	<0.20		ug/L	
			1,1,1-Trichloroethane	2020/01/21	<0.20		ug/L	
			1,1,2-Trichloroethane	2020/01/21	<0.50		ug/L	
			Trichloroethylene	2020/01/21	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2020/01/21	<0.50		ug/L	
			Vinyl Chloride	2020/01/21	<0.20		ug/L	
			p+m-Xylene	2020/01/21	<0.20		ug/L	
			o-Xylene	2020/01/21	<0.20		ug/L	
			Total Xylenes	2020/01/21	<0.20		ug/L	
			F1 (C6-C10)	2020/01/21	<25		ug/L	
			F1 (C6-C10) - BTEX	2020/01/21	<25		ug/L	
6546168	DR1	RPD	Acetone (2-Propanone)	2020/01/21	0.15		%	30
			Benzene	2020/01/21	NC		%	30
			Bromodichloromethane	2020/01/21	NC		%	30
			Bromoform	2020/01/21	NC		%	30
			Bromomethane	2020/01/21	NC		%	30
			Carbon Tetrachloride	2020/01/21	NC		%	30
			Chlorobenzene	2020/01/21	NC		%	30
			Chloroform	2020/01/21	NC		%	30
			Dibromochloromethane	2020/01/21	NC		%	30
			1,2-Dichlorobenzene	2020/01/21	NC		%	30
			1,3-Dichlorobenzene	2020/01/21	NC		%	30
			1,4-Dichlorobenzene	2020/01/21	NC		%	30
			Dichlorodifluoromethane (FREON 12)	2020/01/21	NC		%	30

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1-Dichloroethane	2020/01/21	NC		%	30
			1,2-Dichloroethane	2020/01/21	NC		%	30
			1,1-Dichloroethylene	2020/01/21	NC		%	30
			cis-1,2-Dichloroethylene	2020/01/21	NC		%	30
			trans-1,2-Dichloroethylene	2020/01/21	NC		%	30
			1,2-Dichloropropane	2020/01/21	NC		%	30
			cis-1,3-Dichloropropene	2020/01/21	NC		%	30
			trans-1,3-Dichloropropene	2020/01/21	NC		%	30
			Ethylbenzene	2020/01/21	NC		%	30
			Ethylene Dibromide	2020/01/21	NC		%	30
			Hexane	2020/01/21	NC		%	30
			Methylene Chloride(Dichloromethane)	2020/01/21	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2020/01/21	NC		%	30
			Methyl Isobutyl Ketone	2020/01/21	NC		%	30
			Methyl t-butyl ether (MTBE)	2020/01/21	NC		%	30
			Styrene	2020/01/21	NC		%	30
			1,1,1,2-Tetrachloroethane	2020/01/21	NC		%	30
			1,1,2,2-Tetrachloroethane	2020/01/21	NC		%	30
			Tetrachloroethylene	2020/01/21	NC		%	30
			Toluene	2020/01/21	0.50		%	30
			1,1,1-Trichloroethane	2020/01/21	NC		%	30
			1,1,2-Trichloroethane	2020/01/21	NC		%	30
			Trichloroethylene	2020/01/21	NC		%	30
			Trichlorofluoromethane (FREON 11)	2020/01/21	NC		%	30
			Vinyl Chloride	2020/01/21	NC		%	30
			p+m-Xylene	2020/01/21	NC		%	30
			o-Xylene	2020/01/21	NC		%	30
			Total Xylenes	2020/01/21	NC		%	30
			F1 (C6-C10)	2020/01/21	NC		%	30
			F1 (C6-C10) - BTEX	2020/01/21	NC		%	30
6546678	N_R	Matrix Spike	Dissolved Antimony (Sb)	2020/01/21		108	%	80 - 120
			Dissolved Arsenic (As)	2020/01/21		100	%	80 - 120
			Dissolved Barium (Ba)	2020/01/21		101	%	80 - 120
			Dissolved Beryllium (Be)	2020/01/21		98	%	80 - 120
			Dissolved Boron (B)	2020/01/21		94	%	80 - 120
			Dissolved Cadmium (Cd)	2020/01/21		104	%	80 - 120
			Dissolved Chromium (Cr)	2020/01/21		96	%	80 - 120
			Dissolved Cobalt (Co)	2020/01/21		97	%	80 - 120
			Dissolved Copper (Cu)	2020/01/21		104	%	80 - 120
			Dissolved Lead (Pb)	2020/01/21		97	%	80 - 120
			Dissolved Molybdenum (Mo)	2020/01/21		104	%	80 - 120
			Dissolved Nickel (Ni)	2020/01/21		94	%	80 - 120
			Dissolved Selenium (Se)	2020/01/21		101	%	80 - 120
			Dissolved Silver (Ag)	2020/01/21		98	%	80 - 120
			Dissolved Sodium (Na)	2020/01/21		NC	%	80 - 120
			Dissolved Thallium (Tl)	2020/01/21		101	%	80 - 120
			Dissolved Uranium (U)	2020/01/21		99	%	80 - 120
			Dissolved Vanadium (V)	2020/01/21		100	%	80 - 120
			Dissolved Zinc (Zn)	2020/01/21		99	%	80 - 120
6546678	N_R	Spiked Blank	Dissolved Antimony (Sb)	2020/01/21		102	%	80 - 120
			Dissolved Arsenic (As)	2020/01/21		96	%	80 - 120
			Dissolved Barium (Ba)	2020/01/21		102	%	80 - 120
			Dissolved Beryllium (Be)	2020/01/21		99	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Boron (B)	2020/01/21		102	%	80 - 120
			Dissolved Cadmium (Cd)	2020/01/21		101	%	80 - 120
			Dissolved Chromium (Cr)	2020/01/21		92	%	80 - 120
			Dissolved Cobalt (Co)	2020/01/21		97	%	80 - 120
			Dissolved Copper (Cu)	2020/01/21		103	%	80 - 120
			Dissolved Lead (Pb)	2020/01/21		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2020/01/21		98	%	80 - 120
			Dissolved Nickel (Ni)	2020/01/21		94	%	80 - 120
			Dissolved Selenium (Se)	2020/01/21		98	%	80 - 120
			Dissolved Silver (Ag)	2020/01/21		96	%	80 - 120
			Dissolved Sodium (Na)	2020/01/21		97	%	80 - 120
			Dissolved Thallium (Tl)	2020/01/21		99	%	80 - 120
			Dissolved Uranium (U)	2020/01/21		95	%	80 - 120
			Dissolved Vanadium (V)	2020/01/21		95	%	80 - 120
			Dissolved Zinc (Zn)	2020/01/21		97	%	80 - 120
6546678	N_R	Method Blank	Dissolved Antimony (Sb)	2020/01/21	<0.50		ug/L	
			Dissolved Arsenic (As)	2020/01/21	<1.0		ug/L	
			Dissolved Barium (Ba)	2020/01/21	<2.0		ug/L	
			Dissolved Beryllium (Be)	2020/01/21	<0.50		ug/L	
			Dissolved Boron (B)	2020/01/21	<10		ug/L	
			Dissolved Cadmium (Cd)	2020/01/21	<0.10		ug/L	
			Dissolved Chromium (Cr)	2020/01/21	<5.0		ug/L	
			Dissolved Cobalt (Co)	2020/01/21	<0.50		ug/L	
			Dissolved Copper (Cu)	2020/01/21	<1.0		ug/L	
			Dissolved Lead (Pb)	2020/01/21	<0.50		ug/L	
			Dissolved Molybdenum (Mo)	2020/01/21	<0.50		ug/L	
			Dissolved Nickel (Ni)	2020/01/21	<1.0		ug/L	
			Dissolved Selenium (Se)	2020/01/21	<2.0		ug/L	
			Dissolved Silver (Ag)	2020/01/21	<0.10		ug/L	
			Dissolved Sodium (Na)	2020/01/21	<100		ug/L	
			Dissolved Thallium (Tl)	2020/01/21	<0.050		ug/L	
			Dissolved Uranium (U)	2020/01/21	<0.10		ug/L	
			Dissolved Vanadium (V)	2020/01/21	<0.50		ug/L	
			Dissolved Zinc (Zn)	2020/01/21	<5.0		ug/L	
6546678	N_R	RPD	Dissolved Antimony (Sb)	2020/01/21	NC		%	20
			Dissolved Arsenic (As)	2020/01/21	7.7		%	20
			Dissolved Barium (Ba)	2020/01/21	1.2		%	20
			Dissolved Beryllium (Be)	2020/01/21	NC		%	20
			Dissolved Boron (B)	2020/01/21	3.6		%	20
			Dissolved Cadmium (Cd)	2020/01/21	NC		%	20
			Dissolved Chromium (Cr)	2020/01/21	NC		%	20
			Dissolved Cobalt (Co)	2020/01/21	1.0		%	20
			Dissolved Copper (Cu)	2020/01/21	2.6		%	20
			Dissolved Lead (Pb)	2020/01/21	NC		%	20
			Dissolved Molybdenum (Mo)	2020/01/21	0.99		%	20
			Dissolved Nickel (Ni)	2020/01/21	5.2		%	20
			Dissolved Selenium (Se)	2020/01/21	NC		%	20
			Dissolved Silver (Ag)	2020/01/21	NC		%	20
			Dissolved Sodium (Na)	2020/01/21	0.33		%	20
			Dissolved Thallium (Tl)	2020/01/21	NC		%	20
			Dissolved Uranium (U)	2020/01/21	1.9		%	20
			Dissolved Vanadium (V)	2020/01/21	NC		%	20
			Dissolved Zinc (Zn)	2020/01/21	NC		%	20

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6547703	MEN	Matrix Spike	Mercury (Hg)	2020/01/21		98	%	75 - 125
6547703	MEN	Spiked Blank	Mercury (Hg)	2020/01/21		99	%	80 - 120
6547703	MEN	Method Blank	Mercury (Hg)	2020/01/21	<0.1		ug/L	
6547703	MEN	RPD	Mercury (Hg)	2020/01/21	NC		%	20
6547897	SHG	Matrix Spike	Decachlorobiphenyl	2020/01/22		108	%	60 - 130
			Aroclor 1260	2020/01/22		104	%	60 - 130
			Total PCB	2020/01/22		104	%	60 - 130
6547897	SHG	Spiked Blank	Decachlorobiphenyl	2020/01/21		91	%	60 - 130
			Aroclor 1260	2020/01/21		88	%	60 - 130
			Total PCB	2020/01/21		88	%	60 - 130
6547897	SHG	Method Blank	Decachlorobiphenyl	2020/01/21		91	%	60 - 130
			Aroclor 1242	2020/01/21	<0.05		ug/L	
			Aroclor 1248	2020/01/21	<0.05		ug/L	
			Aroclor 1254	2020/01/21	<0.05		ug/L	
			Aroclor 1260	2020/01/21	<0.05		ug/L	
			Total PCB	2020/01/21	<0.05		ug/L	
6547897	SHG	RPD [LUP362-01]	Aroclor 1242	2020/01/22	NC		%	30
			Aroclor 1248	2020/01/22	NC		%	30
			Aroclor 1254	2020/01/22	NC		%	30
			Aroclor 1260	2020/01/22	NC		%	30
			Total PCB	2020/01/22	NC		%	40
6550953	RAJ	Matrix Spike	D10-Anthracene	2020/01/22		99	%	50 - 130
			D14-Terphenyl (FS)	2020/01/22		93	%	50 - 130
			D8-Acenaphthylene	2020/01/22		94	%	50 - 130
			Acenaphthene	2020/01/22		73	%	50 - 130
			Acenaphthylene	2020/01/22		103	%	50 - 130
			Anthracene	2020/01/22		86	%	50 - 130
			Benzo(a)anthracene	2020/01/22		109	%	50 - 130
			Benzo(a)pyrene	2020/01/22		105	%	50 - 130
			Benzo(b/j)fluoranthene	2020/01/22		105	%	50 - 130
			Benzo(g,h,i)perylene	2020/01/22		102	%	50 - 130
			Benzo(k)fluoranthene	2020/01/22		111	%	50 - 130
			Chrysene	2020/01/22		103	%	50 - 130
			Dibenzo(a,h)anthracene	2020/01/22		116	%	50 - 130
			Fluoranthene	2020/01/22		88	%	50 - 130
			Fluorene	2020/01/22		91	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2020/01/22		104	%	50 - 130
			1-Methylnaphthalene	2020/01/22		104	%	50 - 130
			2-Methylnaphthalene	2020/01/22		103	%	50 - 130
			Naphthalene	2020/01/22		74	%	50 - 130
			Phenanthrene	2020/01/22		39 (1)	%	50 - 130
			Pyrene	2020/01/22		80	%	50 - 130
6550953	RAJ	Spiked Blank	D10-Anthracene	2020/01/23		101	%	50 - 130
			D14-Terphenyl (FS)	2020/01/23		98	%	50 - 130
			D8-Acenaphthylene	2020/01/23		95	%	50 - 130
			Acenaphthene	2020/01/23		105	%	50 - 130
			Acenaphthylene	2020/01/23		97	%	50 - 130
			Anthracene	2020/01/23		102	%	50 - 130
			Benzo(a)anthracene	2020/01/23		113	%	50 - 130
			Benzo(a)pyrene	2020/01/23		111	%	50 - 130
			Benzo(b/j)fluoranthene	2020/01/23		113	%	50 - 130
			Benzo(g,h,i)perylene	2020/01/23		108	%	50 - 130
			Benzo(k)fluoranthene	2020/01/23		108	%	50 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Chrysene	2020/01/23		109	%	50 - 130
			Dibenzo(a,h)anthracene	2020/01/23		115	%	50 - 130
			Fluoranthene	2020/01/23		110	%	50 - 130
			Fluorene	2020/01/23		100	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2020/01/23		109	%	50 - 130
			1-Methylnaphthalene	2020/01/23		110	%	50 - 130
			2-Methylnaphthalene	2020/01/23		100	%	50 - 130
			Naphthalene	2020/01/23		90	%	50 - 130
			Phenanthrene	2020/01/23		107	%	50 - 130
			Pyrene	2020/01/23		108	%	50 - 130
6550953	RAJ	Method Blank	D10-Anthracene	2020/01/22		103	%	50 - 130
			D14-Terphenyl (FS)	2020/01/22		102	%	50 - 130
			D8-Acenaphthylene	2020/01/22		92	%	50 - 130
			Acenaphthene	2020/01/22	<0.050		ug/L	
			Acenaphthylene	2020/01/22	<0.050		ug/L	
			Anthracene	2020/01/22	<0.050		ug/L	
			Benzo(a)anthracene	2020/01/22	<0.050		ug/L	
			Benzo(a)pyrene	2020/01/22	<0.010		ug/L	
			Benzo(b/j)fluoranthene	2020/01/22	<0.050		ug/L	
			Benzo(g,h,i)perylene	2020/01/22	<0.050		ug/L	
			Benzo(k)fluoranthene	2020/01/22	<0.050		ug/L	
			Chrysene	2020/01/22	<0.050		ug/L	
			Dibenzo(a,h)anthracene	2020/01/22	<0.050		ug/L	
			Fluoranthene	2020/01/22	<0.050		ug/L	
			Fluorene	2020/01/22	<0.050		ug/L	
			Indeno(1,2,3-cd)pyrene	2020/01/22	<0.050		ug/L	
			1-Methylnaphthalene	2020/01/22	<0.050		ug/L	
			2-Methylnaphthalene	2020/01/22	<0.050		ug/L	
			Naphthalene	2020/01/22	<0.050		ug/L	
			Phenanthrene	2020/01/22	<0.030		ug/L	
			Pyrene	2020/01/22	<0.050		ug/L	
6550953	RAJ	RPD	Acenaphthene	2020/01/22	25		%	30
			Acenaphthylene	2020/01/22	NC		%	30
			Anthracene	2020/01/22	99 (2)		%	30
			Benzo(a)anthracene	2020/01/22	80 (2)		%	30
			Benzo(a)pyrene	2020/01/22	78 (2)		%	30
			Benzo(b/j)fluoranthene	2020/01/22	78 (2)		%	30
			Benzo(g,h,i)perylene	2020/01/22	80 (2)		%	30
			Benzo(k)fluoranthene	2020/01/22	NC		%	30
			Chrysene	2020/01/22	98 (2)		%	30
			Dibenzo(a,h)anthracene	2020/01/22	NC		%	30
			Fluoranthene	2020/01/22	85 (2)		%	30
			Fluorene	2020/01/22	40 (3)		%	30
			Indeno(1,2,3-cd)pyrene	2020/01/22	81 (2)		%	30
			1-Methylnaphthalene	2020/01/22	11		%	30
			2-Methylnaphthalene	2020/01/22	22		%	30
			Naphthalene	2020/01/22	8.6		%	30
			Phenanthrene	2020/01/22	65 (2)		%	30
			Pyrene	2020/01/22	85 (2)		%	30
6550974	BLZ	Matrix Spike	o-Terphenyl	2020/01/23		101	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/01/23		98	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2020/01/23		97	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2020/01/23		89	%	50 - 130

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6550974	BLZ	Spiked Blank	o-Terphenyl	2020/01/23		102	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/01/23		102	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2020/01/23		100	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2020/01/23		97	%	60 - 130
6550974	BLZ	Method Blank	o-Terphenyl	2020/01/23		95	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/01/23	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2020/01/23	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2020/01/23	<200		ug/L	
6550974	BLZ	RPD	F2 (C10-C16 Hydrocarbons)	2020/01/23	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2020/01/23	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2020/01/23	NC		%	30

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

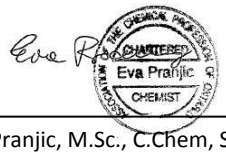
(3) Duplicate results exceeded RPD acceptance criteria. This may be due to the sediment presented in the containers supplied. The variability in the results for flagged analytes may be more pronounced.

BV Labs Job #: C015237
Report Date: 2020/01/24

Pinchin Ltd
Client Project #: 248967.001
Site Location: 473 ALBERT ST
Sampler Initials: MK

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

Bureau Veritas Laboratories
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvlabs.com

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#982 Pinchin Ltd	Company Name:		Quotation #:	A70927	BV Labs Job #:	Bottle Order #: 729720
Attention:	Accounts Payable	Attention:	Matt, Ryan, Mike, Rob Mackenzie	P.O. #:			
Address:	1 Hines Road Suite 200 Kanata ON K2K 3C7	Address:		Project:	2489672.001		
Tel:	(613) 592-3387 Fax: (613) 592-5897	Tel:	Fax:	Project Name:	473 Albert St.	COC #: C#729720-35-01	Project Manager: Alisha Williamson
Email:	ap@pinchin.com	Email:	mkosiw@Pinchin.com, rlaronde@pinchin.com; mryan@	Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☒ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☒ Coarse	☐ Reg 558. ☐ Storm Sewer Bylaw	
☒ Table 3 ☐ Agri/Other ☒ For RSC	☐ MISA Municipality	
☐ Table	☐ PWQO	
	☐ Other	

Include Criteria on Certificate of Analysis (Y/N)? (Y)

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____ Time Required: _____ ☐
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): (Metals) / Hg / Cr VI	O.Reg 153 Petroleum Hydrocarbons (Soil)	O.Reg 153 VOCs by HS (Soil)	O.Reg 153 PAHs (Soil)	pH CaCl2 EXTRACT	Sieve, 75um	Icpms Metals	Mercury	PCBs			# of Bottles	Comments
1		MW3	Jan 15 2020	PM	GW		X	X	X								6	
2		MW4		AM		X	X	X	X			X	X	X			10	
3		MW5				X	X	X	X			X	X	X			10	
4		MW6				X	X	X	X			X	X	X			10	
5		MW7		PM			X	X	X								6	
6		MW8						X									3	
7		MW9						X									3	
8		MW10					X	X	X								6	
9		DUP-4		AM			X	X	X			X	X	X			10	
10		Trip Blank		—				X									2	

17-Jan-20 11:05
Alisha Sullivan
C015237
WVL ENV-1248

ON ICE

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Mike Kosiw	Jan 17, 2019	9:20 AM	Serge Leger	20/01/17	11:05	
			DIPIKA SINGH	2020/01/18	08:31	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	5, 8, 6	Present		
		Intact	X	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

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

White: BV Labs Yellow: Client

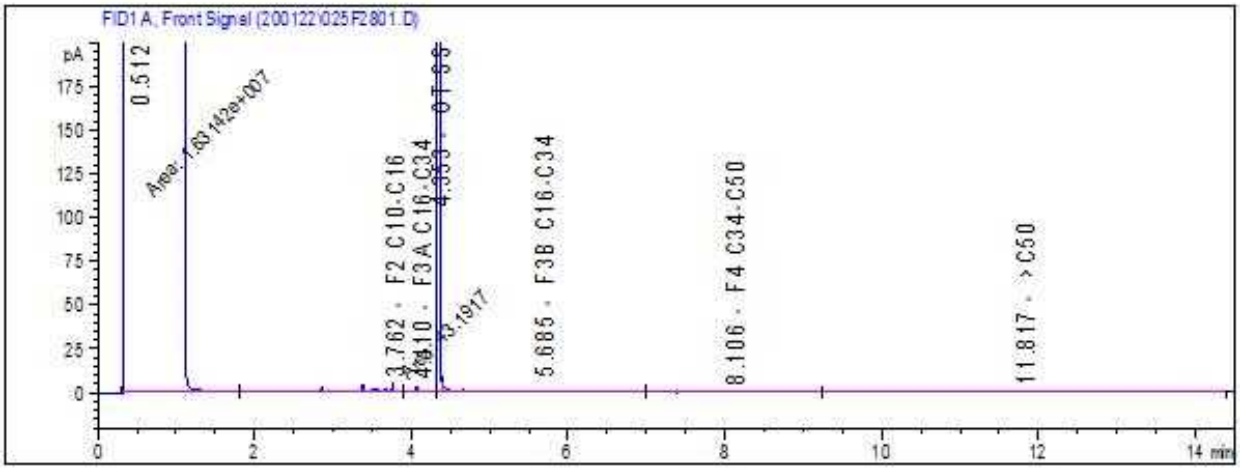
Bureau Veritas Canada (2019) Inc.

41414 41411 Custody Seal Intact

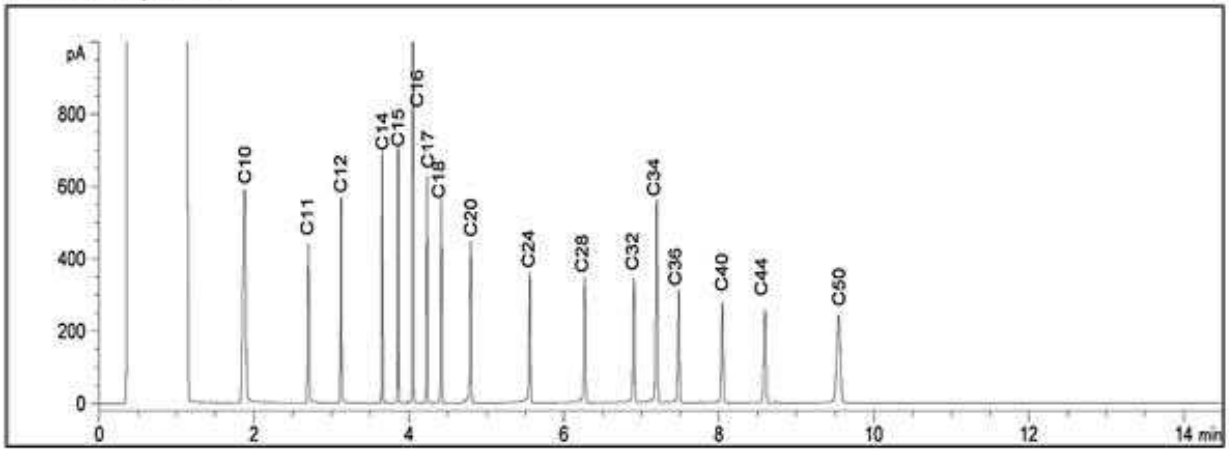
BV Labs Job #: C015237
Report Date: 2020/01/24
BV Labs Sample: LUP354

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT ST
Client ID: MW3

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

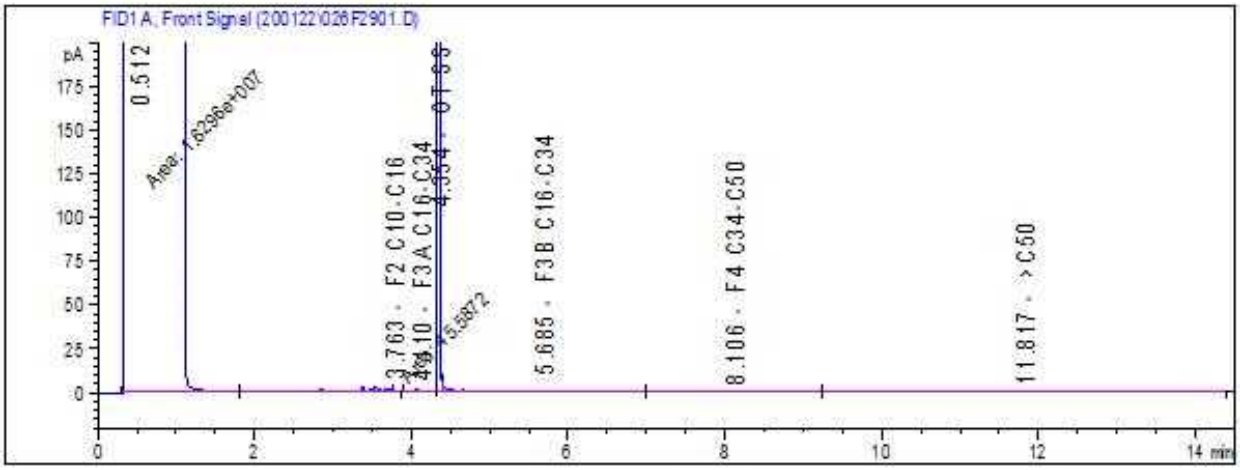
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

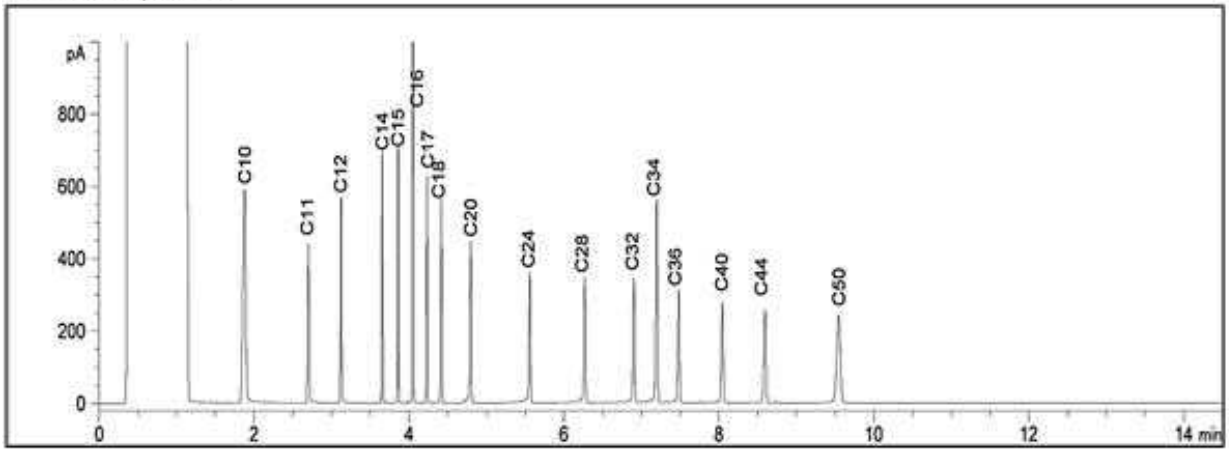
BV Labs Job #: C015237
Report Date: 2020/01/24
BV Labs Sample: LUP355

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT ST
Client ID: MW4

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

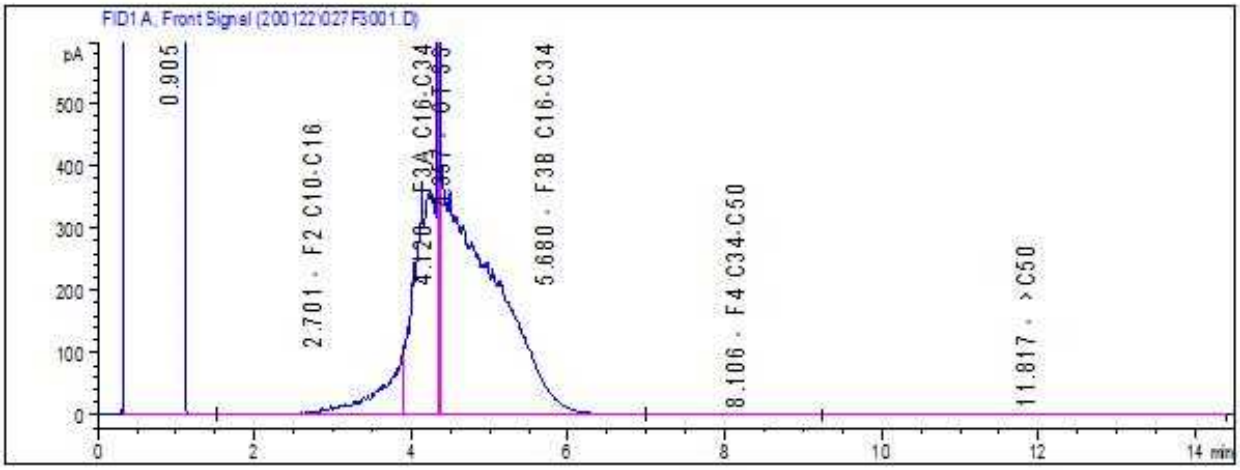
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

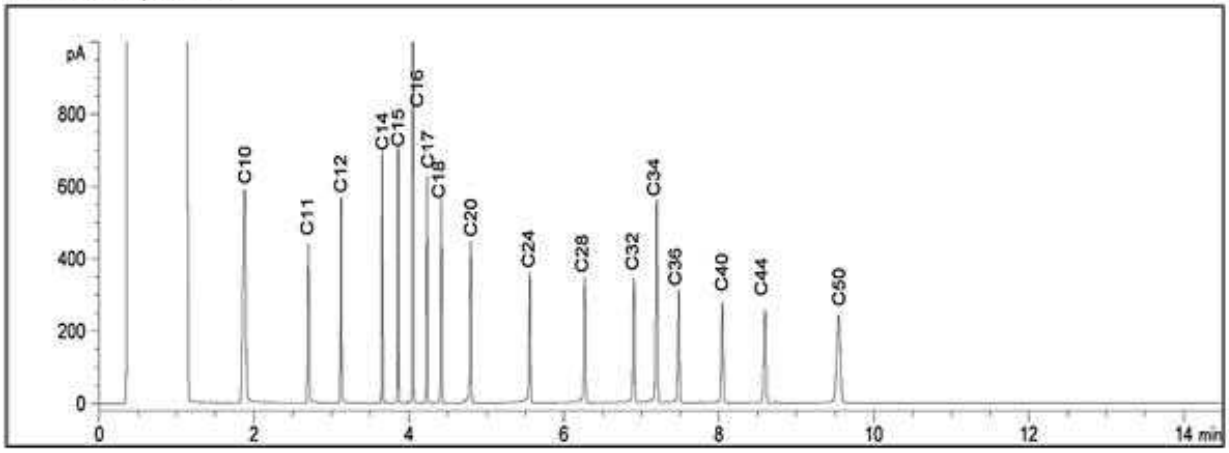
BV Labs Job #: C015237
Report Date: 2020/01/24
BV Labs Sample: LUP356

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT ST
Client ID: MW5

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

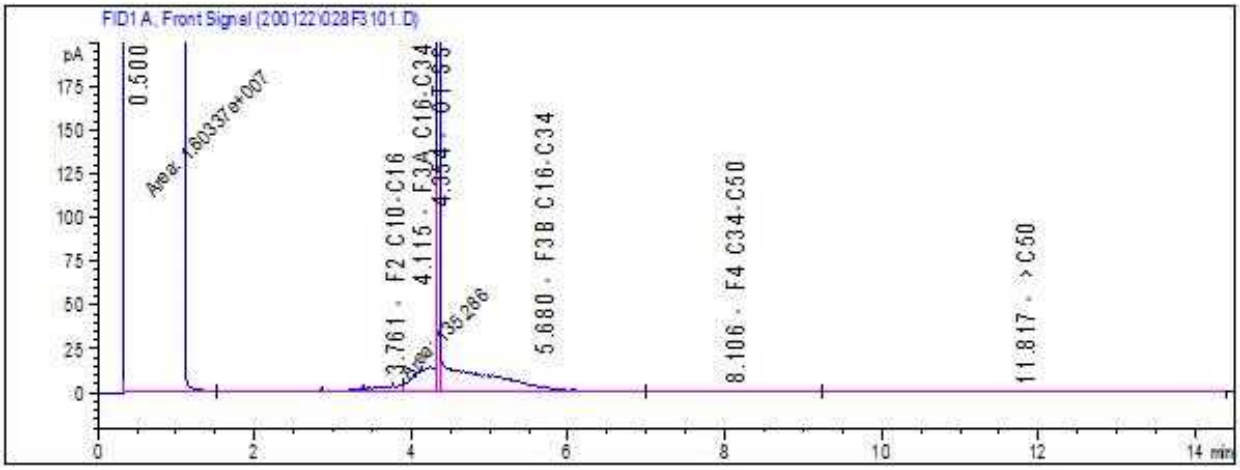
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

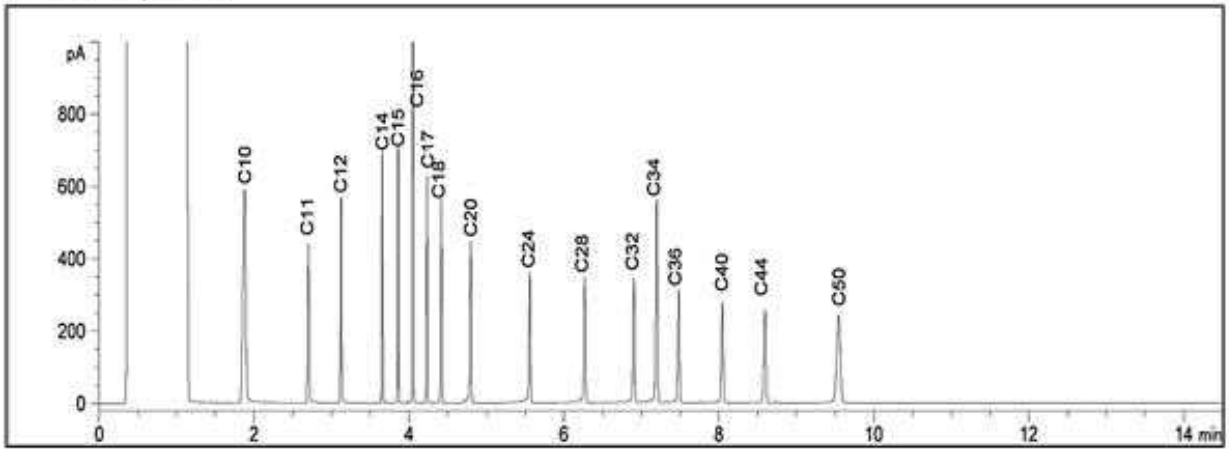
BV Labs Job #: C015237
Report Date: 2020/01/24
BV Labs Sample: LUP357

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT ST
Client ID: MW6

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

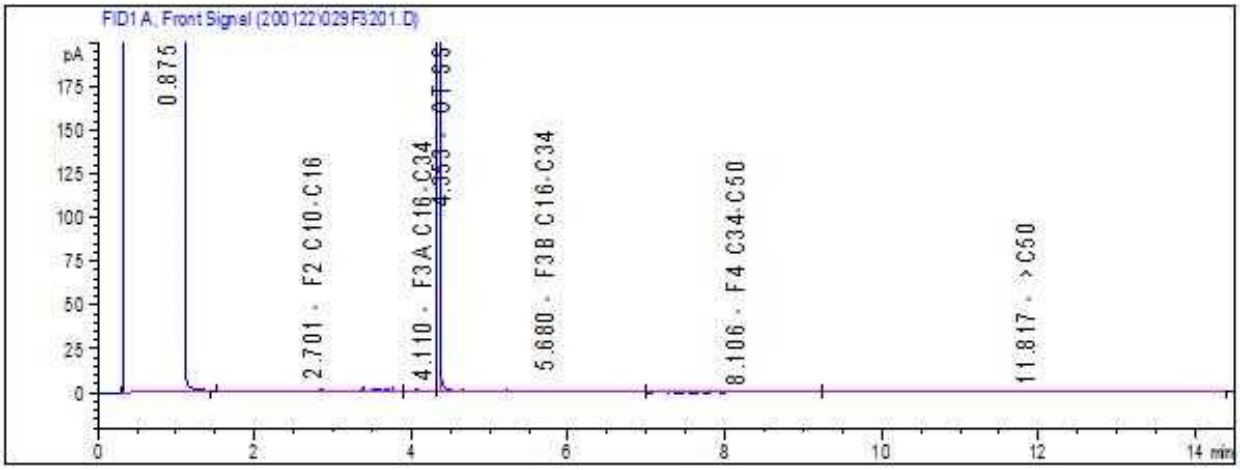
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

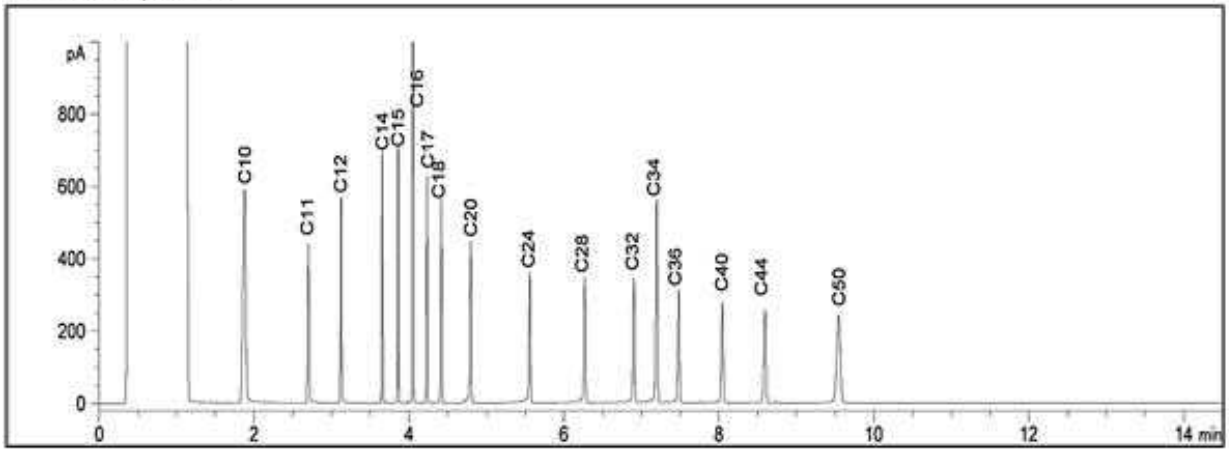
BV Labs Job #: C015237
Report Date: 2020/01/24
BV Labs Sample: LUP358

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT ST
Client ID: MW7

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

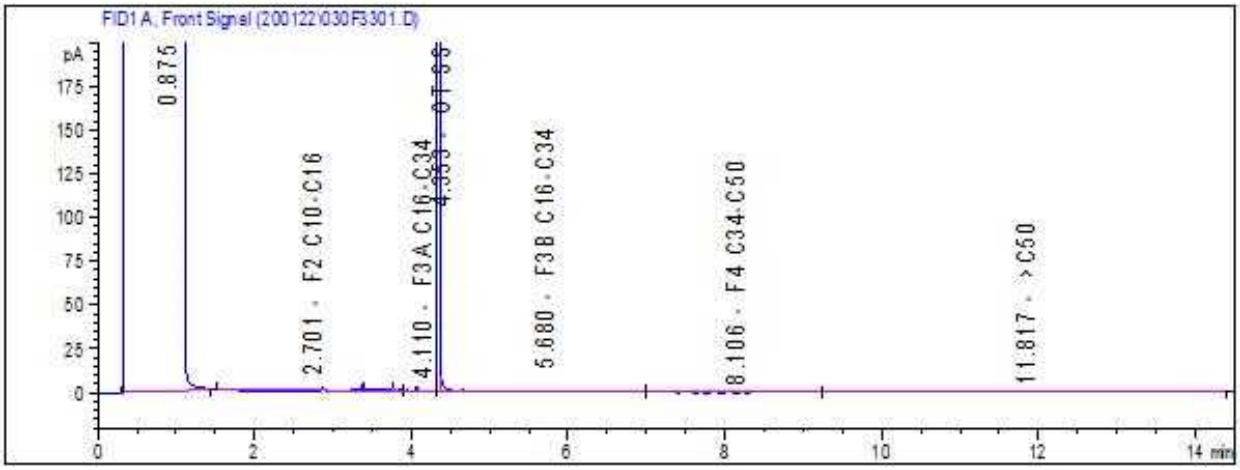
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

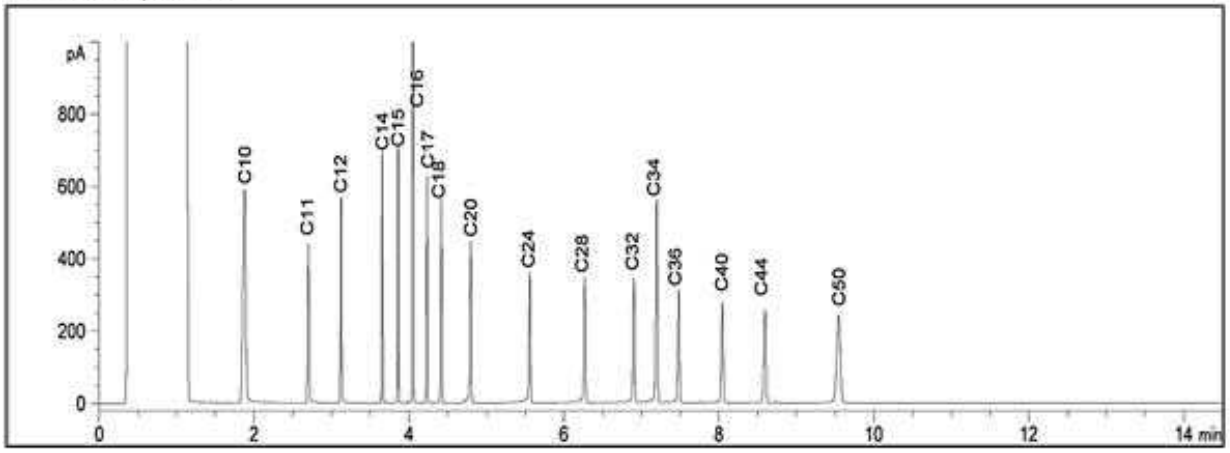
BV Labs Job #: C015237
Report Date: 2020/01/24
BV Labs Sample: LUP361

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT ST
Client ID: MW10

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

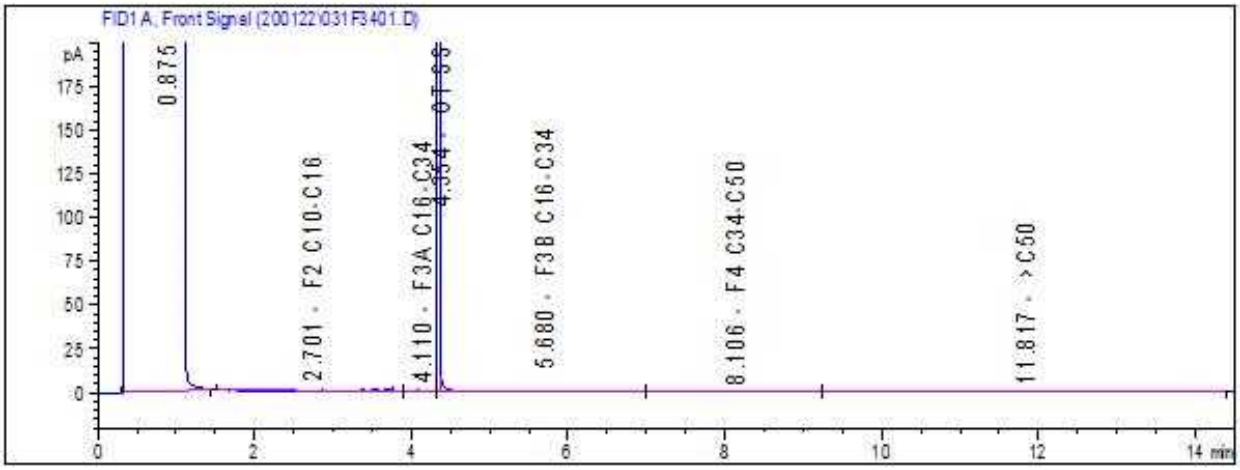
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

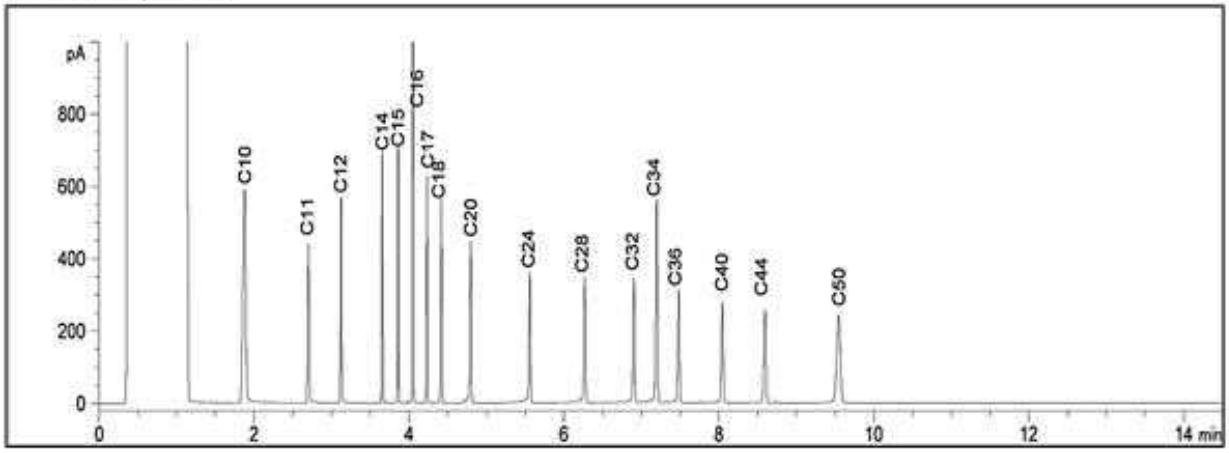
BV Labs Job #: C015237
Report Date: 2020/01/24
BV Labs Sample: LUP362

Pinchin Ltd
Client Project #: 248967.001
Project name: 473 ALBERT ST
Client ID: DUP-4

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: 248967.001
Site Location: ALBERT
Your C.O.C. #: 137898

Attention: Mike Kosiw

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2020/02/13
Report #: R6073857
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C038544
Received: 2020/02/12, 11:08

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	1	2020/02/13	2020/02/13	CAM SOP-00316	CCME PHC-CWS m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Laboratories Mississauga
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: 248967.001
Site Location: ALBERT
Your C.O.C. #: 137898

Attention: Mike Kosiw

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2020/02/13
Report #: R6073857
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C038544
Received: 2020/02/12, 11:08

Encryption Key

Alisha Sullivan
Project Manager
13 Feb 2020 16:51:40

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alisha Sullivan, Project Manager
Email: Alisha.Williamson@bvlabs.com
Phone# (613)274-0573
==========
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C038544
Report Date: 2020/02/13

Pinchin Ltd
Client Project #: 248967.001
Site Location: ALBERT
Sampler Initials: MK

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		LZO758		
Sampling Date		2020/02/12		
COC Number		137898		
	UNITS	MW6	RDL	QC Batch
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	6587558
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	6587558
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	6587558
Reached Baseline at C50	ug/L	Yes		6587558
Surrogate Recovery (%)				
o-Terphenyl	%	89		6587558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C038544
Report Date: 2020/02/13

Pinchin Ltd
Client Project #: 248967.001
Site Location: ALBERT
Sampler Initials: MK

TEST SUMMARY

BV Labs ID: LZO758
Sample ID: MW6
Matrix: Water

Collected: 2020/02/12
Shipped:
Received: 2020/02/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6587558	2020/02/13	2020/02/13	(Kent) Maolin Li

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C038544
Report Date: 2020/02/13

Pinchin Ltd
Client Project #: 248967.001
Site Location: ALBERT
Sampler Initials: MK

GENERAL COMMENTS

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

Package 1	2.0°C

Results relate only to the items tested.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C038544
Report Date: 2020/02/13

Pinchin Ltd
Client Project #: 248967.001
Site Location: ALBERT
Sampler Initials: MK

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6587558	KLI	Matrix Spike [LZO758-01]	o-Terphenyl	2020/02/13		99	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/02/13		94	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2020/02/13		NC	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2020/02/13		104	%	50 - 130
6587558	KLI	Spiked Blank	o-Terphenyl	2020/02/13		110	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/02/13		100	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2020/02/13		105	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2020/02/13		104	%	60 - 130
6587558	KLI	RPD	F2 (C10-C16 Hydrocarbons)	2020/02/13	3.0		%	30
			F3 (C16-C34 Hydrocarbons)	2020/02/13	1.3		%	30
			F4 (C34-C50 Hydrocarbons)	2020/02/13	1.1		%	30
6587558	KLI	Method Blank	o-Terphenyl	2020/02/13		99	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/02/13	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2020/02/13	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2020/02/13	<200		ug/L	

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

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

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

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

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

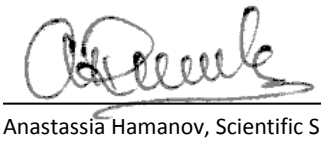
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

BV Labs Job #: C038544
Report Date: 2020/02/13

Pinchin Ltd
Client Project #: 248967.001
Site Location: ALBERT
Sampler Initials: MK

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BUREAU VERITAS

RUSH!

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/5

CHAIN OF CUSTODY RECORD 137898

Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin Ltd.	Company Name:	Quotation #:	☐ Regular TAT (5-7 days) Most analyses
Contact Name: Mike Kosh	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: Matt Ryan	Address: SAME	Project #: 248967.001	Rush TAT (Surcharges will be applied)
Phone: Fax: Red.	Phone: Fax:	Site Location: Albert	☒ 1 Day ☐ 2 Days ☐ 3-4 Days
Email: Kmatt	Email:	Site #:	SUPER FAST ASAP
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY		Site Location Province:	Date Required: ASAP
		Sampled By: Mike Kosh	Rush Confirmation #:

Regulation 153	Other Regulations
☐ Table 1 ☒ Res/Park ☐ Med/ Fine	☐ CCME ☐ Sanitary Sewer Bylaw
☐ Table 2 ☒ ~~Ind/Comm~~ ☒ Coarse	☐ MISA ☐ Storm Sewer Bylaw
☐ Table 3 ☐ Agri/ Other	☐ PWQO Region
☒ Table 7	☐ Other (Specify)
FOR RSC (PLEASE CIRCLE) (Y) N	☐ REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y (N)

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

Analysis Requested

LABORATORY USE ONLY

CUSTODY SEAL Y / N: Present / Intact

COOLER TEMPERATURES: 1.3, 2 / 6.5

COOLING MEDIA PRESENT: (Y) / N

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC-F1	PHC: F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	HOLD- DO NOT ANALYZE	COMMENTS
1	MW6	Feb 12 2020	AM	GW	2			X						
2														
3														
4														
5														
6														
7														
8														
9														
10														

12-Feb-20 11:08
Alisha Sullivan
C038544
KJY OTT-001

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
	Feb 12	11:07	Alisha Williamson	2020/02/12	11:08	
Mike Kosh	2020		[illegible]	2020/02/13	08:00	

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

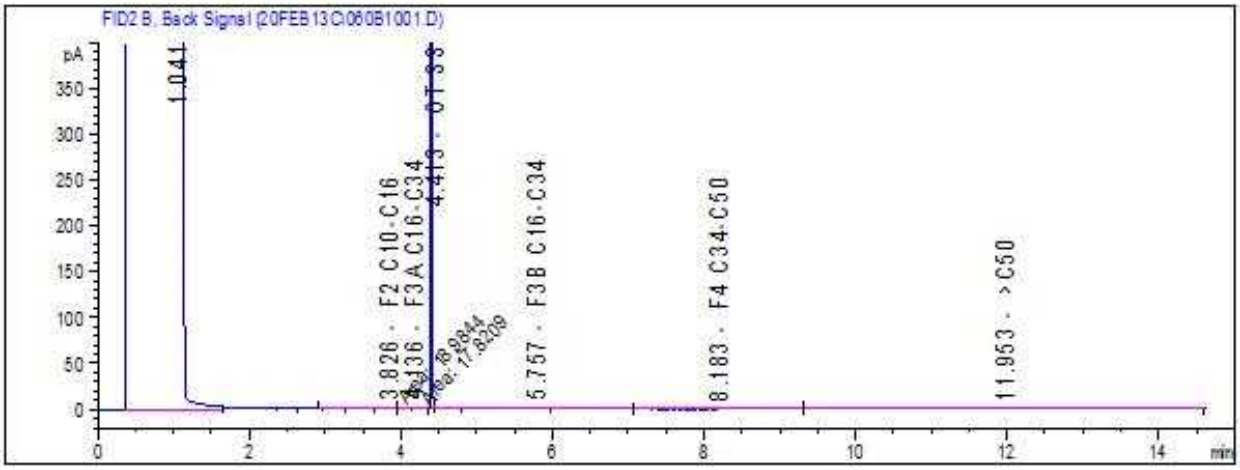
COC-1004 (06/19)

White: Maxxam ~ Yellow: Client

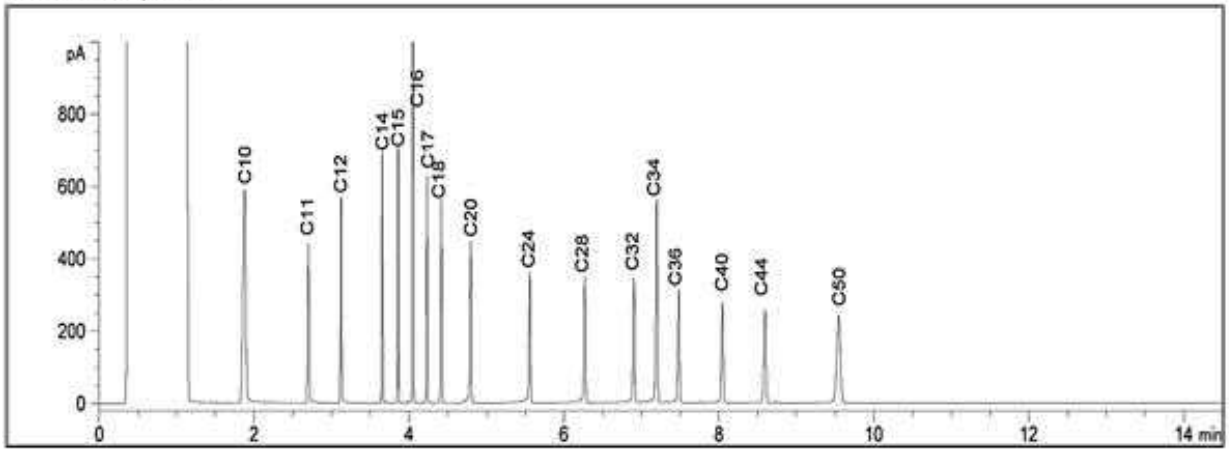
BV Labs Job #: C038544
Report Date: 2020/02/13
BV Labs Sample: LZO758

Pinchin Ltd
Client Project #: 248967.001
Project name: ALBERT
Client ID: MW6

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: 248967.001
Your C.O.C. #: 729720-47-01

Attention: Matt, Ryan, Mike

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2020/02/21
Report #: R6083192
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C046845
Received: 2020/02/20, 15:45

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	1	2020/02/21	2020/02/21	CAM SOP-00316	CCME PHC-CWS m

Remarks:

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

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

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Laboratories Mississauga
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: 248967.001
Your C.O.C. #: 729720-47-01

Attention: Matt, Ryan, Mike

Pinchin Ltd
Ottawa
1 Hines Road
Suite 200
Kanata, ON
CANADA K2K 3C7

Report Date: 2020/02/21
Report #: R6083192
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C046845
Received: 2020/02/20, 15:45

Encryption Key

Alisha Sullivan
Project Manager
21 Feb 2020 16:22:06

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alisha Sullivan, Project Manager
Email: Alisha.Williamson@bvlabs.com
Phone# (613)274-0573
==========
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Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		MBI537		
Sampling Date		2020/02/20		
COC Number		729720-47-01		
	UNITS	MW6	RDL	QC Batch
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	6599521
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	6599521
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	6599521
Reached Baseline at C50	ug/L	Yes		6599521
Surrogate Recovery (%)				
o-Terphenyl	%	100		6599521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C046845
Report Date: 2020/02/21

Pinchin Ltd
Client Project #: 248967.001
Sampler Initials: MK

TEST SUMMARY

BV Labs ID: MBI537
Sample ID: MW6
Matrix: Water

Collected: 2020/02/20
Shipped:
Received: 2020/02/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6599521	2020/02/21	2020/02/21	(Kent) Maolin Li

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

GENERAL COMMENTS

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

Package 1	2.0°C

Results relate only to the items tested.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C046845
Report Date: 2020/02/21

Pinchin Ltd
Client Project #: 248967.001
Sampler Initials: MK

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6599521	KLI	Matrix Spike [MBI537-01]	o-Terphenyl	2020/02/21		106	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/02/21		107	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2020/02/21		NC	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2020/02/21		100	%	50 - 130
6599521	KLI	Spiked Blank	o-Terphenyl	2020/02/21		80	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/02/21		92	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2020/02/21		85	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2020/02/21		88	%	60 - 130
6599521	KLI	RPD	F2 (C10-C16 Hydrocarbons)	2020/02/21	6.9		%	30
			F3 (C16-C34 Hydrocarbons)	2020/02/21	4.0		%	30
			F4 (C34-C50 Hydrocarbons)	2020/02/21	1.6		%	30
6599521	KLI	Method Blank	o-Terphenyl	2020/02/21		81	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2020/02/21	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2020/02/21	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2020/02/21	<200		ug/L	

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

BV Labs Job #: C046845
Report Date: 2020/02/21

Pinchin Ltd
Client Project #: 248967.001
Sampler Initials: MK

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.bvlabs.com

20-Feb-20 15:45

Alisha Sullivan

C046845

J_L ENV-1219

Presence of Visible Particulate/Sediment

Maxxam Analytics
CAM FCD-01013/5

When there is >1cm of visible particulate/sediment, the amount will be recorded in the field below

Bottle Types

			Inorganics						Organics											Hydrocarbons							Volatiles				Other
	Sample ID	All	CrVI	CN	General	Hg	Metals (Diss.)	Organic 1 of 2	Organic 2 of 2	PCB 1 of 2	PCB 2 of 2	Pest/ Herb 1 of 2	Pest/ Herb 2 of 2	SVOC/ ABN 1 of 2	SVOC/ ABN 2 of 2	PAH 1 of 2	PAH 2 of 2	Dioxin /Furan	F1 Vial 1	F1 Vial 2	F1 Vial 3	F1 Vial 4	F2-F4 1 of 2	F2-F4 2 of 2	F4G	VOC Vial 1	VOC Vial 2	VOC Vial 3	VOC Vial 4	
1	MW6	TS																												
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														

Comments:

Legend:	
P	Suspended Particulate
TS	Trace Settled Sediment (just covers bottom of container or less)
S	Sediment greater than (>) Trace, but less than (<) 1 cm

Recorded By: (signature/print)

BUREAU VERITAS

Bureau Veritas Laboratories
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvlabs.com

RUSH!

20-Feb-20 15:45
Alisha Sullivan
C046845

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		
Company Name:	#982 Pinchin Ltd	Company Name:		Quotation #:	A70927	Bottle Order #: 729720
Attention:	Accounts Payable	Attention:	Matt, Ryan, Mike	P.O. #:		
Address:	1 Hines Road Suite 200 Kanata ON K2K 3C7	Address:		Project:	248967.001	COC #: C#729720-47-01
Tel:	(613) 592-3387 Fax: (613) 592-5897	Tel:	Fax:	Project Name:		Project Manager: Alisha Williamson
Email:	ap@pinchin.com	Email:	mkosiw@Pinchin.com, rlaronde@pinchin.com; mryan@	Site #:		
				Sampled By:	J L	ENV-1219

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☑ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☒ Coarse	☐ Reg 558. ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☒ For RSC	☐ MISA Municipality _____	
☒ Table 7	☐ PWQO	
	☐ Other _____	

Include Criteria on Certificate of Analysis (Y/N)? N

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: RUSH ASAP Time Required: 1 Day ☒
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 Petroleum Hydrocarbons (Soil) (F2 - F4)	O.Reg 153 VOCs by HS (Soil)	O.Reg 153 PAHs (Soil)	pH CaCl2 EXTRACT	Sieve, 75um	# of Bottles	Comments
1		MW6	Feb 20 2020	AM	GW		X					2	
2													
3													
4													
5													
6													
7													
8													
9													Mike
10													

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Mike	Feb 20 2020	10:45 AM	Sese Leger	20/02/20	15:45	
			GAUTHIER	2020/02/21	08:00	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	2.2.2	Present	☒	
		Intact		

1, 4, 4

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

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

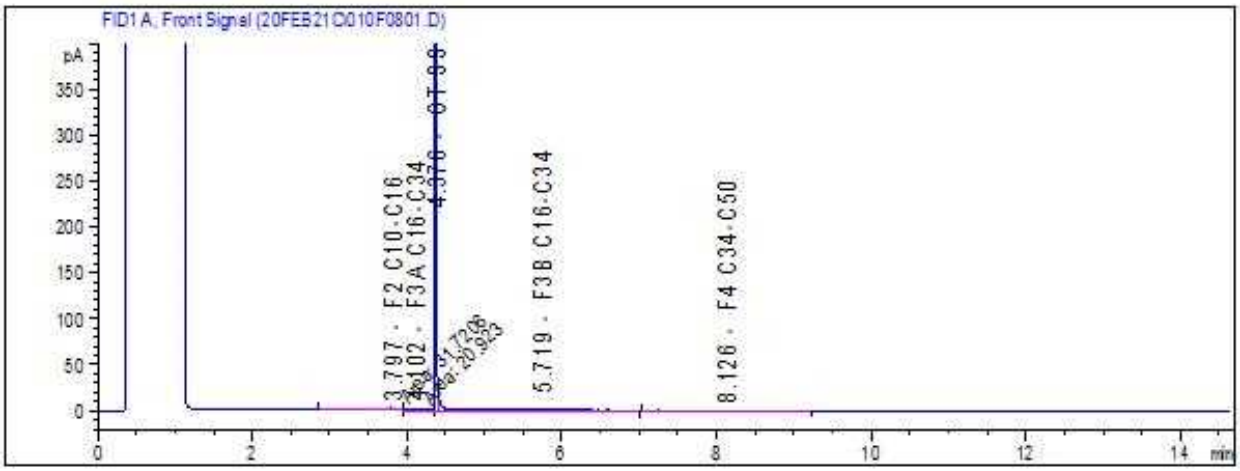
White: BV Labs Yellow: Client

Bureau Veritas Canada (2019) Inc.

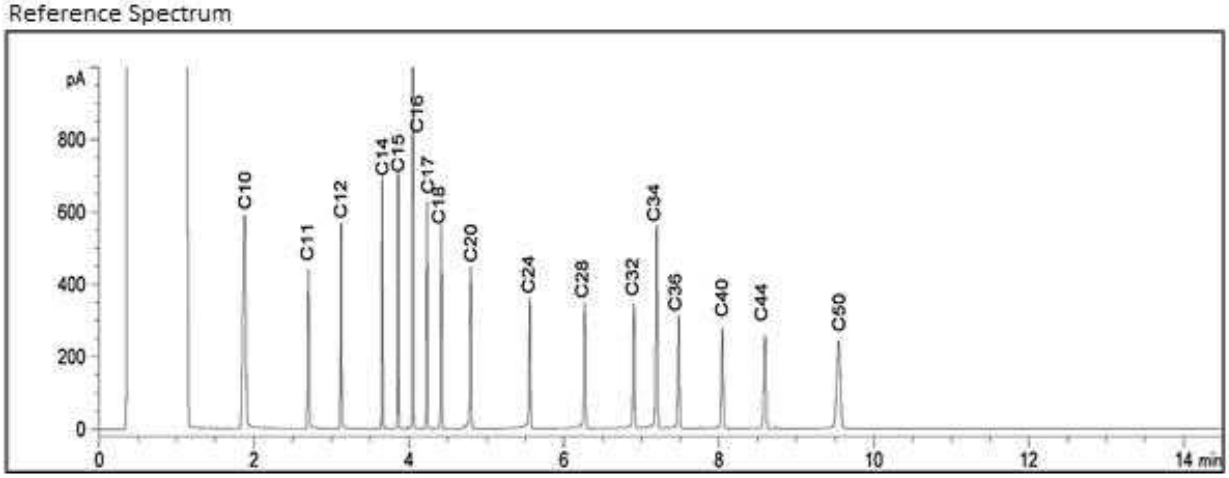
BV Labs Job #: C046845
Report Date: 2020/02/21
BV Labs Sample: MBI537

Pinchin Ltd
Client Project #: 248967.001
Client ID: MW6

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 30068
Project: PE4908
Custody: 125759

Report Date: 26-Jun-2020
Order Date: 19-Jun-2020

Order #: 2026016

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

Paracel ID	Client ID
2026016-01	BH1A-GW1

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 26-Jun-2020

Client: Paterson Group Consulting Engineers

Order Date: 19-Jun-2020

Client PO: 30068

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	22-Jun-20	22-Jun-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	25-Jun-20	25-Jun-20
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	22-Jun-20	22-Jun-20

Certificate of Analysis

Report Date: 26-Jun-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 19-Jun-2020

Client PO: **30068**

Project Description: **PE4908**

	Client ID:	BH1A-GW1	-	-	-
	Sample Date:	11-Jun-20 09:00	-	-	-
	Sample ID:	2026016-01	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	7.1	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	7.2	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 26-Jun-2020

Client: Paterson Group Consulting Engineers

Order Date: 19-Jun-2020

Client PO: 30068

Project Description: PE4908

	Client ID:	BH1A-GW1	-	-	-
	Sample Date:	11-Jun-20 09:00	-	-	-
	Sample ID:	2026016-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	122%	-	-	-
Dibromofluoromethane	Surrogate	87.1%	-	-	-
Toluene-d8	Surrogate	110%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*97.9*		*ug/L*		*122*	*50-140*			
Surrogate: Dibromofluoromethane	*72.0*		*ug/L*		*90.0*	*50-140*			
Surrogate: Toluene-d8	*90.9*		*ug/L*		*114*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*93.4*		*ug/L*		*117*	*50-140*			
Surrogate: Dibromofluoromethane	*70.4*		*ug/L*		*87.9*	*50-140*			
Surrogate: Toluene-d8	*74.5*		*ug/L*		*93.2*	*50-140*			

Certificate of Analysis

Report Date: 26-Jun-2020

Client: Paterson Group Consulting Engineers

Order Date: 19-Jun-2020

Client PO: 30068

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1760	25	ug/L	ND	88.1	68-117			
Volatiles									
Acetone	121	5.0	ug/L	ND	121	50-140			
Benzene	41.0	0.5	ug/L	ND	103	60-130			
Bromodichloromethane	45.4	0.5	ug/L	ND	114	60-130			
Bromoform	42.6	0.5	ug/L	ND	106	60-130			
Bromomethane	46.0	0.5	ug/L	ND	115	50-140			
Carbon Tetrachloride	45.5	0.2	ug/L	ND	114	60-130			
Chlorobenzene	44.0	0.5	ug/L	ND	110	60-130			
Chloroform	45.7	0.5	ug/L	ND	114	60-130			
Dibromochloromethane	44.3	0.5	ug/L	ND	111	60-130			
Dichlorodifluoromethane	46.1	1.0	ug/L	ND	115	50-140			
1,2-Dichlorobenzene	44.8	0.5	ug/L	ND	112	60-130			
1,3-Dichlorobenzene	48.9	0.5	ug/L	ND	122	60-130			
1,4-Dichlorobenzene	39.4	0.5	ug/L	ND	98.5	60-130			
1,1-Dichloroethane	42.3	0.5	ug/L	ND	106	60-130			
1,2-Dichloroethane	44.2	0.5	ug/L	ND	110	60-130			
1,1-Dichloroethylene	36.7	0.5	ug/L	ND	91.7	60-130			
cis-1,2-Dichloroethylene	49.4	0.5	ug/L	ND	123	60-130			
trans-1,2-Dichloroethylene	39.9	0.5	ug/L	ND	99.7	60-130			
1,2-Dichloropropane	38.8	0.5	ug/L	ND	97.0	60-130			
cis-1,3-Dichloropropylene	40.0	0.5	ug/L	ND	99.9	60-130			
trans-1,3-Dichloropropylene	41.2	0.5	ug/L	ND	103	60-130			
Ethylbenzene	45.9	0.5	ug/L	ND	115	60-130			
Ethylene dibromide (dibromoethane, 1,2	41.7	0.2	ug/L	ND	104	60-130			
Hexane	49.3	1.0	ug/L	ND	123	60-130			
Methyl Ethyl Ketone (2-Butanone)	89.4	5.0	ug/L	ND	89.4	50-140			
Methyl Isobutyl Ketone	101	5.0	ug/L	ND	101	50-140			
Methyl tert-butyl ether	122	2.0	ug/L	ND	122	50-140			
Methylene Chloride	45.8	5.0	ug/L	ND	115	60-130			
Styrene	42.9	0.5	ug/L	ND	107	60-130			
1,1,1,2-Tetrachloroethane	40.2	0.5	ug/L	ND	101	60-130			
1,1,2,2-Tetrachloroethane	40.6	0.5	ug/L	ND	102	60-130			
Tetrachloroethylene	45.0	0.5	ug/L	ND	112	60-130			
Toluene	45.6	0.5	ug/L	ND	114	60-130			
1,1,1-Trichloroethane	48.9	0.5	ug/L	ND	122	60-130			
1,1,2-Trichloroethane	46.9	0.5	ug/L	ND	117	60-130			
Trichloroethylene	44.4	0.5	ug/L	ND	111	60-130			
Trichlorofluoromethane	43.9	1.0	ug/L	ND	110	60-130			
Vinyl chloride	44.1	0.5	ug/L	ND	110	50-140			
m,p-Xylenes	98.4	0.5	ug/L	ND	123	60-130			
o-Xylene	48.5	0.5	ug/L	ND	121	60-130			
Surrogate: 4-Bromofluorobenzene	*62.2*		*ug/L*		*77.7*	*50-140*			
Surrogate: Dibromofluoromethane	*70.3*		*ug/L*		*87.9*	*50-140*			
Surrogate: Toluene-d8	*68.0*		*ug/L*		*85.0*	*50-140*			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

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

PARACEL LABORATORIES

Paracel ID: 2026016

Head Office
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www.paracellabs.com

Paracel Order Number (Lab Use Only): 2026016

Chain Of Custody (Lab Use Only) Nº 125759

Client Name: PATERSON
Project Ref: PE4908
Page 1 of 1

Contact Name: KARYN MUNCH
Quote #:

Address: 154 Colonnade Road
PO #: 30068

E-mail: Kmunch@patersongroup.ca

Telephone: 613-226-7381

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

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs / F1	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	F2 - F4						
1	BH1A-GW1	GW		3	June 11/20			X						X						
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: COURIER

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Joshua Rempel	Date/Time:	Date/Time: 06-19-20 17:22	Date/Time: 06-22-20 9:15
Date/Time: June 19/2020	Temperature: °C	Temperature: 19.9 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 26343
Project: PE4908
Custody: 125484

Report Date: 19-May-2020
Order Date: 15-May-2020

Order #: 2020379

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

Paracel ID	Client ID
2020379-01	BH2-20-GW1
2020379-02	BH3-20-GW1
2020379-03	Dup1

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 19-May-2020

Client: Paterson Group Consulting Engineers

Order Date: 15-May-2020

Client PO: 26343

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	16-May-20	16-May-20
PHC F1	CWS Tier 1 - P&T GC-FID	15-May-20	16-May-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	15-May-20	15-May-20

Certificate of Analysis

Report Date: 19-May-2020

Client: Paterson Group Consulting Engineers

Order Date: 15-May-2020

Client PO: 26343

Project Description: PE4908

	Client ID:	BH2-20-GW1	BH3-20-GW1	Dup1	-
	Sample Date:	14-May-20 09:00	14-May-20 09:00	14-May-20 09:00	-
	Sample ID:	2020379-01	2020379-02	2020379-03	-
	MDL/Units	Water	Water	Water	-
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	<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	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene-d8	Surrogate	113%	108%	116%	-
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	-

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 26343

Report Date: 19-May-2020

Order Date: 15-May-2020

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Volatiles									
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
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	*89.0*		*ug/L*		*111*	*50-140*			

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 26343

Report Date: 19-May-2020

Order Date: 15-May-2020

Project Description: PE4908

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
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	*93.0*		*ug/L*		*116*	*50-140*			

Certificate of Analysis

Report Date: 19-May-2020

Client: Paterson Group Consulting Engineers

Order Date: 15-May-2020

Client PO: 26343

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1690	25	ug/L	ND	84.6	68-117			
F2 PHCs (C10-C16)	1690	100	ug/L	ND	106	60-140			
F3 PHCs (C16-C34)	4500	100	ug/L	ND	115	60-140			
F4 PHCs (C34-C50)	2740	100	ug/L	ND	110	60-140			
Volatiles									
Benzene	25.5	0.5	ug/L	ND	63.7	60-130			
Ethylbenzene	38.7	0.5	ug/L	ND	96.7	60-130			
Toluene	36.9	0.5	ug/L	ND	92.2	60-130			
m,p-Xylenes	80.4	0.5	ug/L	ND	100	60-130			
o-Xylene	41.7	0.5	ug/L	ND	104	60-130			
Surrogate: Toluene-d8	*77.0*		*ug/L*		*96.2*	*50-140*			

Certificate of Analysis

Report Date: 19-May-2020

Client: Paterson Group Consulting Engineers

Order Date: 15-May-2020

Client PO: 26343

Project Description: PE4908

Qualifier Notes:

Login Qualifiers :

Container(s) - Labeled improperly/insufficient information - Bottles read May 14th

Applies to samples: BH2-20-GW1, BH3-20-GW1, Dup1

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

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

Paracel ID: 2020379

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Paracel Order Number (Lab Use Only): 202379

Chain Of Custody (Lab Use Only) No. 125484

Client Name: Patersongroup	Project Ref: PE4908	Page __ of __
Contact Name: Karyn & Eric	Quote #:	Turnaround Time
Address: 154 COLONNADE RD OTTAWA Ont	PO #: 26343	☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular
Telephone: 226-7361	E-mail: Kmunch@patersongroup.ca eleveque@patersongroup.ca	Date Required:

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table — For RSC: ☐ Yes ☐ No

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
1	BH2-20-GW1	GW		3	May 4/2020		✓						
2	BH3-20-GW1	GW		3	"	"	✓						
3	DUP1	GW		3	"	"	✓						
4													
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Eric Leveque	Date/Time:	Date/Time: 05-15-2020 11:16	Date/Time: 05-15-2020 11:23
Date/Time: May 15/2020	Temperature: °C	Temperature: 9.5 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Eric Leveque

Client PO: 26336
Project: PE4908
Custody: 126107

Report Date: 15-Apr-2020
Order Date: 9-Apr-2020

Order #: 2015282

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

Paracel ID	Client ID
2015282-01	MW5-GW1
2015282-02	MW6-GW1
2015282-03	MW8-GW1

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 15-Apr-2020

Client: Paterson Group Consulting Engineers

Order Date: 9-Apr-2020

Client PO: 26336

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	14-Apr-20	14-Apr-20
PHC F1	CWS Tier 1 - P&T GC-FID	14-Apr-20	14-Apr-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	14-Apr-20	14-Apr-20

Certificate of Analysis

Report Date: 15-Apr-2020

Client: Paterson Group Consulting Engineers

Order Date: 9-Apr-2020

Client PO: 26336

Project Description: PE4908

	Client ID:	MW5-GW1	MW6-GW1	MW8-GW1	-
	Sample Date:	09-Apr-20 09:00	09-Apr-20 09:00	09-Apr-20 09:00	-
	Sample ID:	2015282-01	2015282-02	2015282-03	-
	MDL/Units	Water	Water	Water	-
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	<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	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene-d8	Surrogate	96.4%	95.6%	96.5%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	200	<100	<100	-
F3 PHCs (C16-C34)	100 ug/L	2910	<100	<100	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 26336

Report Date: 15-Apr-2020

Order Date: 9-Apr-2020

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Volatiles									
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
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	*76.9*		*ug/L*		*96.1*	*50-140*			

Certificate of Analysis

Report Date: 15-Apr-2020

Client: Paterson Group Consulting Engineers

Order Date: 9-Apr-2020

Client PO: 26336

Project Description: PE4908

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
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	*77.1*		*ug/L*		*96.4*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1810	25	ug/L	ND	90.7	68-117			
F2 PHCs (C10-C16)	1510	100	ug/L	ND	94.5	60-140			
F3 PHCs (C16-C34)	3780	100	ug/L	ND	96.6	60-140			
F4 PHCs (C34-C50)	2330	100	ug/L	ND	93.9	60-140			
Volatiles									
Benzene	38.3	0.5	ug/L	ND	95.7	60-130			
Ethylbenzene	46.7	0.5	ug/L	ND	117	60-130			
Toluene	38.1	0.5	ug/L	ND	95.2	60-130			
m,p-Xylenes	76.9	0.5	ug/L	ND	96.1	60-130			
o-Xylene	40.1	0.5	ug/L	ND	100	60-130			
Surrogate: Toluene-d8	*65.9*		*ug/L*		*82.4*	*50-140*			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

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

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Paracel ID: 2015282

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49-1947
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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2015282	Nº 126107

Page __ of __

Client Name: PATERSON GROUP	Project Ref: PE4908
Contact Name: ERIC LEVEQUE	Quote #:
Address: 154 COLONNADE RD SOUTH	PO #: 26336
Telephone: 226-7381	E-mail: eleveque@patersongroup.ca

Turnaround Time

☐ 1 day ☐ 3 day
☐ 2 day ☑ Regular
Date Required: _____

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
1	MW5-GW1	GW		3	APR 9/2020		✓						
2	MW6-GW1	GW		3	"	"	✓						
3	MW8-GW1	GW		3	"	"	✓						
4													
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery:

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): ERIC LEVEQUE	Date/Time:	Date/Time: APR 9 2020 4	Date/Time: 04 09 20 16:3
Date/Time: APR 9/2020	Temperature: °C	Temperature: 16.3 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 30216
Project: PE4908
Custody: 125726

Report Date: 9-Jun-2020
Order Date: 3-Jun-2020

Order #: 2023293

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

Paracel ID	Client ID
2023293-01	MW6-20

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 09-Jun-2020

Client: Paterson Group Consulting Engineers

Order Date: 3-Jun-2020

Client PO: 30216

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	6-Jun-20	6-Jun-20
PHC F1	CWS Tier 1 - P&T GC-FID	5-Jun-20	6-Jun-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	8-Jun-20	9-Jun-20

Certificate of Analysis

Report Date: 09-Jun-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 3-Jun-2020

Client PO: **30216**

Project Description: PE4908

	Client ID:	MW6-20	-	-	-
	Sample Date:	02-Jun-20 09:00	-	-	-
	Sample ID:	2023293-01	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Benzene	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
Toluene-d8	Surrogate	110%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-

Certificate of Analysis

Report Date: 09-Jun-2020

Client: Paterson Group Consulting Engineers

Order Date: 3-Jun-2020

Client PO: 30216

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Volatiles									
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
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	*88.5*		*ug/L*		*111*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
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	*88.6*		*ug/L*		*111*	*50-140*			

Certificate of Analysis

Report Date: 09-Jun-2020

Client: Paterson Group Consulting Engineers

Order Date: 3-Jun-2020

Client PO: 30216

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	2040	25	ug/L	ND	102	68-117			
F2 PHCs (C10-C16)	1680	100	ug/L	ND	105	60-140			
F3 PHCs (C16-C34)	4280	100	ug/L	ND	109	60-140			
F4 PHCs (C34-C50)	2100	100	ug/L	ND	84.7	60-140			
Volatiles									
Benzene	31.8	0.5	ug/L	ND	79.5	60-130			
Ethylbenzene	46.7	0.5	ug/L	ND	117	60-130			
Toluene	43.7	0.5	ug/L	ND	109	60-130			
m,p-Xylenes	90.6	0.5	ug/L	ND	113	60-130			
o-Xylene	48.0	0.5	ug/L	ND	120	60-130			
Surrogate: Toluene-d8	*74.7*		*ug/L*		*93.4*	*50-140*			

Qualifier Notes:

None

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

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2023293	Nº 125726

Client Name: Paterson	Project Ref: PE4908	Page 1 of 1
Contact Name: Karyn Munch	Quote #:	Turnaround Time
Address: 154 Colonnade Road South	PO #: 30216	☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular
Telephone:	E-mail: kmunch@patersongroup.ca	Date Required:

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
1	MW6-20	GW		3	June 21 2020		✓						
2													
3													
4													
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Sureepam Dahmani	Verified By:
Relinquished By (Print): Samuel Berube	Date/Time:	Date/Time: JUN 03 2020 05:05	Date/Time: 06-03-20
Date/Time:	Temperature: °C	Temperature: 10.8 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31404
Project: PE4908
Custody: 130233

Report Date: 9-Nov-2020
Order Date: 6-Nov-2020

Order #: 2045664

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

Paracel ID	Client ID
2045664-01	MW5-GW1

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 09-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 6-Nov-2020

Client PO: 31404

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	6-Nov-20	7-Nov-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	9-Nov-20	9-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	6-Nov-20	7-Nov-20

Certificate of Analysis

Report Date: 09-Nov-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 6-Nov-2020

Client PO: **31404**

Project Description: PE4908

	Client ID:	MW5-GW1	-	-	-
	Sample Date:	05-Nov-20 15:00	-	-	-
	Sample ID:	2045664-01	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 09-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 6-Nov-2020

Client PO: 31404

Project Description: PE4908

	Client ID:	MW5-GW1	-	-	-
	Sample Date:	05-Nov-20 15:00	-	-	-
	Sample ID:	2045664-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	99.5%	-	-	-
Dibromofluoromethane	Surrogate	84.2%	-	-	-
Toluene-d8	Surrogate	105%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-

Certificate of Analysis

Report Date: 09-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 6-Nov-2020

Client PO: 31404

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*77.2*		*ug/L*		*96.5*	*50-140*			
Surrogate: Dibromofluoromethane	*73.4*		*ug/L*		*91.8*	*50-140*			
Surrogate: Toluene-d8	*83.3*		*ug/L*		*104*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	25.6	0.5	ug/L	47.9			60.6	30	QR-07
trans-1,2-Dichloroethylene	ND	0.5	ug/L	0.77			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	8.17	0.5	ug/L	16.3			66.6	30	QR-07
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	*80.2*		*ug/L*		*100*	*50-140*			
Surrogate: Dibromofluoromethane	*68.2*		*ug/L*		*85.3*	*50-140*			
Surrogate: Toluene-d8	*82.8*		*ug/L*		*104*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	2060	25	ug/L	ND	103	68-117			
F2 PHCs (C10-C16)	1640	100	ug/L	ND	103	60-140			
F3 PHCs (C16-C34)	4280	100	ug/L	ND	109	60-140			
F4 PHCs (C34-C50)	2690	100	ug/L	ND	109	60-140			
Volatiles									
Acetone	102	5.0	ug/L	ND	102	50-140			
Benzene	38.0	0.5	ug/L	ND	95.1	60-130			
Bromodichloromethane	42.7	0.5	ug/L	ND	107	60-130			
Bromoform	44.9	0.5	ug/L	ND	112	60-130			
Bromomethane	47.4	0.5	ug/L	ND	119	50-140			
Carbon Tetrachloride	41.1	0.2	ug/L	ND	103	60-130			
Chlorobenzene	41.1	0.5	ug/L	ND	103	60-130			
Chloroform	33.0	0.5	ug/L	ND	82.5	60-130			
Dibromochloromethane	47.1	0.5	ug/L	ND	118	60-130			
Dichlorodifluoromethane	27.1	1.0	ug/L	ND	67.8	50-140			
1,2-Dichlorobenzene	42.4	0.5	ug/L	ND	106	60-130			
1,3-Dichlorobenzene	42.4	0.5	ug/L	ND	106	60-130			
1,4-Dichlorobenzene	42.9	0.5	ug/L	ND	107	60-130			
1,1-Dichloroethane	40.4	0.5	ug/L	ND	101	60-130			
1,2-Dichloroethane	37.2	0.5	ug/L	ND	93.0	60-130			
1,1-Dichloroethylene	41.2	0.5	ug/L	ND	103	60-130			
cis-1,2-Dichloroethylene	35.5	0.5	ug/L	ND	88.7	60-130			
trans-1,2-Dichloroethylene	42.9	0.5	ug/L	ND	107	60-130			
1,2-Dichloropropane	40.6	0.5	ug/L	ND	102	60-130			
cis-1,3-Dichloropropylene	40.5	0.5	ug/L	ND	101	60-130			
trans-1,3-Dichloropropylene	39.2	0.5	ug/L	ND	98.1	60-130			
Ethylbenzene	41.6	0.5	ug/L	ND	104	60-130			
Ethylene dibromide (dibromoethane, 1,2-	40.8	0.2	ug/L	ND	102	60-130			
Hexane	39.3	1.0	ug/L	ND	98.4	60-130			
Methyl Ethyl Ketone (2-Butanone)	98.9	5.0	ug/L	ND	98.9	50-140			
Methyl Isobutyl Ketone	108	5.0	ug/L	ND	108	50-140			
Methyl tert-butyl ether	93.5	2.0	ug/L	ND	93.5	50-140			
Methylene Chloride	39.2	5.0	ug/L	ND	98.0	60-130			
Styrene	33.2	0.5	ug/L	ND	83.0	60-130			
1,1,1,2-Tetrachloroethane	42.5	0.5	ug/L	ND	106	60-130			
1,1,2,2-Tetrachloroethane	41.0	0.5	ug/L	ND	103	60-130			
Tetrachloroethylene	37.0	0.5	ug/L	ND	92.4	60-130			
Toluene	41.0	0.5	ug/L	ND	103	60-130			
1,1,1-Trichloroethane	39.4	0.5	ug/L	ND	98.5	60-130			
1,1,2-Trichloroethane	40.2	0.5	ug/L	ND	101	60-130			
Trichloroethylene	40.0	0.5	ug/L	ND	100	60-130			
Trichlorofluoromethane	37.4	1.0	ug/L	ND	93.6	60-130			
Vinyl chloride	39.9	0.5	ug/L	ND	99.7	50-140			
m,p-Xylenes	77.6	0.5	ug/L	ND	97.0	60-130			
o-Xylene	38.9	0.5	ug/L	ND	97.2	60-130			
Surrogate: 4-Bromofluorobenzene	*84.4*		*ug/L*		*105*	*50-140*			
Surrogate: Dibromofluoromethane	*73.1*		*ug/L*		*91.4*	*50-140*			
Surrogate: Toluene-d8	*81.5*		*ug/L*		*102*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QR-07 : Duplicate result exceeds RPD limits due to non-homogeneity between multiple sample vials. Remainder of QA/QC is acceptable.

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.

Chain Of Custody

Paracel ID: 2045664

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

Paracel Order Number (Lab Use Only): 2045664

Chain Of Custody (Lab Use Only): № 130233

Client Name: PATERSON GROUP
Project Ref: PE 4908
Page 1 of 1
Contact Name: KARYN MUNCH
Quote #:
Address: 154 COLONNADE Rd. S. OTTAWA, ONT.
PO #: 31404
E-mail: KMUNCH@PATERSONGROUP.CA
Telephone: (613) 226-7381

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

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☒ Table 7 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: PHCs F1-F4+BTEX, VOCs, PAHs, Metals by ICP, Hg, CrVI, B (HWS)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
1	MW5-GW1	GW	\	3	Nov 5/20	3PM	✓	✓					
2													
3													
4													
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign):
Relinquished By (Print): DOMINIC LANDRY
Date/Time: Nov 6/2020

Received By Driver/Depot: T. LOUISE
Date/Time: 06/11/20 3:06
Temperature: °C PH.

Received at Lab:
Date/Time: 11-6-20 15:15
Temperature: 17.5 °C

Verified By:
Date/Time: 11-6-20 15:09
pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31291
Project: PE4908
Custody: 52440

Report Date: 25-Nov-2020
Order Date: 23-Nov-2020

Order #: 2048110

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

Paracel ID	Client ID
2048110-01	MW5-20-GW2

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 25-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Nov-2020

Client PO: 31291

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	24-Nov-20	25-Nov-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	24-Nov-20	25-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	24-Nov-20	25-Nov-20

Certificate of Analysis

Report Date: 25-Nov-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 23-Nov-2020

Client PO: **31291**

Project Description: **PE4908**

	Client ID:	MW5-20-GW2	-	-	-
	Sample Date:	20-Nov-20 09:00	-	-	-
	Sample ID:	2048110-01	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 25-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Nov-2020

Client PO: 31291

Project Description: PE4908

	Client ID:	MW5-20-GW2	-	-	-
	Sample Date:	20-Nov-20 09:00	-	-	-
	Sample ID:	2048110-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	125%	-	-	-
Dibromofluoromethane	Surrogate	110%	-	-	-
Toluene-d8	Surrogate	122%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-

Certificate of Analysis

Report Date: 25-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Nov-2020

Client PO: 31291

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*81.0*		*ug/L*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*101*		*ug/L*		*126*	*50-140*			
Surrogate: Toluene-d8	*102*		*ug/L*		*127*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*92.9*		*ug/L*		*116*	*50-140*			
Surrogate: Dibromofluoromethane	*83.0*		*ug/L*		*104*	*50-140*			
Surrogate: Toluene-d8	*97.8*		*ug/L*		*122*	*50-140*			

Certificate of Analysis

Report Date: 25-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Nov-2020

Client PO: 31291

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1860	25	ug/L	ND	92.9	68-117			
F2 PHCs (C10-C16)	1400	100	ug/L	ND	87.6	60-140			
F3 PHCs (C16-C34)	3340	100	ug/L	ND	85.1	60-140			
F4 PHCs (C34-C50)	1820	100	ug/L	ND	73.3	60-140			
Volatiles									
Acetone	124	5.0	ug/L	ND	124	50-140			
Benzene	38.8	0.5	ug/L	ND	96.9	60-130			
Bromodichloromethane	42.6	0.5	ug/L	ND	106	60-130			
Bromoform	44.0	0.5	ug/L	ND	110	60-130			
Bromomethane	40.2	0.5	ug/L	ND	101	50-140			
Carbon Tetrachloride	39.8	0.2	ug/L	ND	99.4	60-130			
Chlorobenzene	43.6	0.5	ug/L	ND	109	60-130			
Chloroform	38.5	0.5	ug/L	ND	96.3	60-130			
Dibromochloromethane	45.4	0.5	ug/L	ND	113	60-130			
Dichlorodifluoromethane	37.9	1.0	ug/L	ND	94.8	50-140			
1,2-Dichlorobenzene	43.7	0.5	ug/L	ND	109	60-130			
1,3-Dichlorobenzene	41.6	0.5	ug/L	ND	104	60-130			
1,4-Dichlorobenzene	42.4	0.5	ug/L	ND	106	60-130			
1,1-Dichloroethane	39.9	0.5	ug/L	ND	99.8	60-130			
1,2-Dichloroethane	40.6	0.5	ug/L	ND	102	60-130			
1,1-Dichloroethylene	42.2	0.5	ug/L	ND	106	60-130			
cis-1,2-Dichloroethylene	41.1	0.5	ug/L	ND	103	60-130			
trans-1,2-Dichloroethylene	43.9	0.5	ug/L	ND	110	60-130			
1,2-Dichloropropane	38.6	0.5	ug/L	ND	96.5	60-130			
cis-1,3-Dichloropropylene	37.0	0.5	ug/L	ND	92.5	60-130			
trans-1,3-Dichloropropylene	36.2	0.5	ug/L	ND	90.6	60-130			
Ethylbenzene	45.0	0.5	ug/L	ND	112	60-130			
Ethylene dibromide (dibromoethane, 1,2-	44.7	0.2	ug/L	ND	112	60-130			
Hexane	44.4	1.0	ug/L	ND	111	60-130			
Methyl Ethyl Ketone (2-Butanone)	102	5.0	ug/L	ND	102	50-140			
Methyl Isobutyl Ketone	89.9	5.0	ug/L	ND	89.9	50-140			
Methyl tert-butyl ether	102	2.0	ug/L	ND	102	50-140			
Methylene Chloride	40.5	5.0	ug/L	ND	101	60-130			
Styrene	40.1	0.5	ug/L	ND	100	60-130			
1,1,1,2-Tetrachloroethane	42.6	0.5	ug/L	ND	107	60-130			
1,1,2,2-Tetrachloroethane	42.1	0.5	ug/L	ND	105	60-130			
Tetrachloroethylene	45.2	0.5	ug/L	ND	113	60-130			
Toluene	46.2	0.5	ug/L	ND	116	60-130			
1,1,1-Trichloroethane	42.8	0.5	ug/L	ND	107	60-130			
1,1,2-Trichloroethane	38.7	0.5	ug/L	ND	96.8	60-130			
Trichloroethylene	39.4	0.5	ug/L	ND	98.5	60-130			
Trichlorofluoromethane	41.7	1.0	ug/L	ND	104	60-130			
Vinyl chloride	45.0	0.5	ug/L	ND	112	50-140			
m,p-Xylenes	92.4	0.5	ug/L	ND	115	60-130			
o-Xylene	46.8	0.5	ug/L	ND	117	60-130			
Surrogate: 4-Bromofluorobenzene	*77.8*		*ug/L*		*97.2*	*50-140*			
Surrogate: Dibromofluoromethane	*79.6*		*ug/L*		*99.5*	*50-140*			
Surrogate: Toluene-d8	*82.1*		*ug/L*		*103*	*50-140*			

Qualifier Notes:

None

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.

PARA LABORATO

Paracel ID: 2048110

ffice
19 St. Laurent Blvd.
, Ontario K1G 4J8
)-749-1947
cel@paracellabs.com
aracellabs.com

Paracel Order Number (Lab Use Only): 2018110

Chain Of Custody (Lab Use Only) No. 52440

Client Name: PATERSON	Project Ref: PE4908	Page __ of __
Contact Name: KARYN MUNCH	Quote #:	Turnaround Time
Address: 154 COLONNADE Rd. S. OTTAWA, ONT	PO #: 31291	☐ 1 day ☐ 3 day
	E-mail: KMUNCH@PATERSONGROUP.CA	☒ 2 day ☐ Regular
Telephone: (613) 226-7381		Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☒ Table 7	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	~~BTEX~~/PHCs	VOCs										
1	MW5-20-GW2	GW		3	Nov. 20/2020		✓	✓										✓
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Shneepaurn Rahmani	Verified By:
Relinquished By (Print): Dominic LANDRY	Date/Time:	Date/Time: Nov 23, 2020 03.29	Date/Time: 23 Nov 2020 1535
Date/Time: Nov 23/2020	Temperature: °C	Temperature: 15.3 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31372
Project: PE4908
Custody: 55576

Report Date: 21-Dec-2020
Order Date: 15-Dec-2020

Order #: 2051238

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

Paracel ID	Client ID
2051238-01	BH4-20-GW1

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 21-Dec-2020

Client: Paterson Group Consulting Engineers

Order Date: 15-Dec-2020

Client PO: 31372

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	17-Dec-20	17-Dec-20
PHC F1	CWS Tier 1 - P&T GC-FID	16-Dec-20	17-Dec-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	18-Dec-20	19-Dec-20

Certificate of Analysis

Report Date: 21-Dec-2020

Client: Paterson Group Consulting Engineers

Order Date: 15-Dec-2020

Client PO: 31372

Project Description: PE4908

	Client ID:	BH4-20-GW1	-	-	-
	Sample Date:	11-Dec-20 09:00	-	-	-
	Sample ID:	2051238-01	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Benzene	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
Toluene-d8	Surrogate	94.0%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Volatiles									
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
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	*78.9*		*ug/L*		*98.6*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
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	*76.1*		*ug/L*		*95.2*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1850	25	ug/L	ND	92.7	68-117			
F2 PHCs (C10-C16)	1260	100	ug/L	ND	78.8	60-140			
F3 PHCs (C16-C34)	3340	100	ug/L	ND	85.2	60-140			
F4 PHCs (C34-C50)	2350	100	ug/L	ND	94.7	60-140			
Volatiles									
Benzene	34.3	0.5	ug/L	ND	85.8	60-130			
Ethylbenzene	38.7	0.5	ug/L	ND	96.7	60-130			
Toluene	43.7	0.5	ug/L	ND	109	60-130			
m,p-Xylenes	78.6	0.5	ug/L	ND	98.2	60-130			
o-Xylene	38.2	0.5	ug/L	ND	95.5	60-130			
Surrogate: Toluene-d8	*64.7*		*ug/L*		*80.9*	*50-140*			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

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

PARACEL LABORATORIES LTD.

Paracel ID: 2051238

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2051238	№ 55576

Client Name: Paterson Group Inc.	Project Ref: PE4908	Page 1 of 1
Contact Name: Kanga Munch	Quote #:	**Turnaround Time**
Address: 154 Colonnade Rd S.	PO #: 31372	☐ 1 day ☐ 3 day
	E-mail: Kmunch@patersongroup.ca	☐ 2 day ☒ Regular
Telephone: 613-226-7381		Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☑ Table 7	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: BTEX/PHCs
1	BH4-20-GW1	GW		3	Dec. 11/20		✓
2							
3							
4							
5							
6							
7							
8							
9							
10							

Comments:

Method of Delivery: PARCEL COURIER

Relinquished By (Sign):	Received By Driver/Depot: A. Flouise	Received at Lab: Jumee Goran Dohrmann	Verified By:
Relinquished By (Print): Jonathan Dyer	Date/Time: 15/12/20 2:43	Date/Time: DEC 15, 2020 04:40	Date/Time: Dec 15, 2020 16:48
Date/Time: Dec 15/2020	Temperature: °C FH	Temperature: 9.3 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31910
Project: PE4908
Custody: 31104

Report Date: 12-Mar-2021
Order Date: 12-Mar-2021

Order #: 2111604

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

Paracel ID	Client ID
2111604-01	MW3-GW1
2111604-02	MW8-GW2

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 12-Mar-2021

Client: Paterson Group Consulting Engineers

Order Date: 12-Mar-2021

Client PO: 31910

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PCBs, total	EPA 608 - GC-ECD	12-Mar-21	12-Mar-21
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	12-Mar-21	12-Mar-21

Certificate of Analysis

Report Date: 12-Mar-2021

Client: Paterson Group Consulting Engineers

Order Date: 12-Mar-2021

Client PO: 31910

Project Description: PE4908

	Client ID:	MW3-GW1	MW8-GW2	-	-
	Sample Date:	12-Mar-21 09:00	12-Mar-21 09:00	-	-
	Sample ID:	2111604-01	2111604-02	-	-
	MDL/Units	Water	Water	-	-
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	-	108%	-	-
Terphenyl-d14	Surrogate	-	119%	-	-
PCBs					
PCBs, total	0.05 ug/L	<0.05	-	-	-
Decachlorobiphenyl	Surrogate	118%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
PCBs									
PCBs, total	ND	0.05	ug/L						
Surrogate: Decachlorobiphenyl	*0.375*		*ug/L*		*75.0*	*60-140*			
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	*14.6*		*ug/L*		*73.2*	*50-140*			
Surrogate: Terphenyl-d14	*23.2*		*ug/L*		*116*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
PCBs									
PCBs, total	0.930	0.05	ug/L	ND	93.0	60-140			
Surrogate: Decachlorobiphenyl	*0.445*		*ug/L*		*89.0*	*60-140*			
Semi-Volatiles									
Acenaphthene	4.72	0.05	ug/L	ND	94.4	50-140			
Acenaphthylene	4.21	0.05	ug/L	ND	84.1	50-140			
Anthracene	4.89	0.01	ug/L	ND	97.7	50-140			
Benzo [a] anthracene	4.40	0.01	ug/L	ND	87.9	50-140			
Benzo [a] pyrene	4.67	0.01	ug/L	ND	93.4	50-140			
Benzo [b] fluoranthene	5.79	0.05	ug/L	ND	116	50-140			
Benzo [g,h,i] perylene	4.35	0.05	ug/L	ND	86.9	50-140			
Benzo [k] fluoranthene	5.59	0.05	ug/L	ND	112	50-140			
Chrysene	5.16	0.05	ug/L	ND	103	50-140			
Dibenzo [a,h] anthracene	4.76	0.05	ug/L	ND	95.3	50-140			
Fluoranthene	4.40	0.01	ug/L	ND	88.1	50-140			
Fluorene	4.35	0.05	ug/L	ND	87.0	50-140			
Indeno [1,2,3-cd] pyrene	4.54	0.05	ug/L	ND	90.7	50-140			
1-Methylnaphthalene	4.65	0.05	ug/L	ND	93.0	50-140			
2-Methylnaphthalene	5.13	0.05	ug/L	ND	103	50-140			
Naphthalene	5.34	0.05	ug/L	ND	107	50-140			
Phenanthrene	4.61	0.05	ug/L	ND	92.1	50-140			
Pyrene	4.51	0.01	ug/L	ND	90.1	50-140			
Surrogate: 2-Fluorobiphenyl	*15.2*		*ug/L*		*76.1*	*50-140*			
Surrogate: Terphenyl-d14	*23.9*		*ug/L*		*120*	*50-140*			

Qualifier Notes:

None

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

PARACE LABORATORIES L

Paracel ID: 2111604

Blvd.
4J8
s.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2111604	№ 131104

Client Name: Paterson | Project Ref: DE4906 | Page 1 of 1

Contact Name: Kasyn Munch | Quote #:

Address: 154 Colonnade | PO #: 31910

E-mail: kmunch@patersongroup.ca

Telephone: 613-226-7381

Turnaround Time

☑ 1 day ☐ 3 day ☐ 2 day ☐ Regular

Date Required: ASAP!!

Regulation 153/04

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☑ Table 7
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)	PCBs
1	MW3-GW1	GW		1	3/12/2021									✓
2	MW8-GW2	↓		↓					✓					
3														
4														
5														
6														
7														
8														
9														
10														

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Sumeeparn Dolmai	Verified By:
Relinquished By (Print): Jeremy Campeau	Date/Time:	Date/Time: March 9, 2021 12:03	Date/Time: 3-12-21 12:04
Date/Time: 3/10/2021	Temperature: °C	Temperature: 17.0 °C	pH Verified: ☐ By:

APPENDIX 2

Remediation Report

Geotechnical Engineering

Environmental Engineering

Hydrogeology

Geological Engineering

Materials Testing

Building Science

Archaeological Services

Paterson Group Inc.

Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

patersongroup

Environmental Site Remediation Program

473 Albert Street
Ottawa, Ontario

Prepared For

InterRent No. 3 Limited Partnership

January 25, 2021

Report: PE4908-1REM

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List of Figures

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EXECUTIVE SUMMARY

Assessment

During the interim of November 4 through November 20, 2020 Paterson Group monitored the removal of impacted soil from the commercial property addressed 473 Albert Street in the City of Ottawa, Ontario.

Paterson monitored the excavation of contaminated soil and determined the limits of the excavations using visual screening methods and/or vapour screening, as well as analytical testing. Metal and VOC impacted soil was removed from the vicinity of MW5 (Excavation, EX1). Impacted fill material, consisting of crushed stone and a sandy clay soil matrix was identified beneath the concrete floor slab of the underground parking structure, and extended approximately 0.5m, to the underlying bedrock. Metal impacted soil was removed from the vicinity of MW4 (Excavation, EX2), from the underside of the floor slab to a depth of approximately 0.6m below the floor slab. Bedrock was encountered within the western portion of the excavation only. Based on the results of confirmatory sampling, the soil remaining on the Phase II Property complies with the MECP Table 7 standards.

Full horizontal delineation of soil impacts was obtained during the remediation program. To achieve vertical delineation at MW-4 and MW-5 groundwater was analysed for VOC and/or metal parameters. Based on the results of the analytical testing, the groundwater complies with the MECP Table 7 standards. Metal and VOC parameters are therefore not considered to have extended beneath the bedrock surface.

Approximately 39.5 mt of contaminated soil (mixed with granular material) was removed from the subject property and disposed of at Waste Connections of Canada Ottawa Landfill.

Groundwater levels at the subject property were measured within the bedrock at depths ranging from approximately 1.2 to 3.6 m below the basement floor slab, during the November 2020 groundwater monitoring event. Groundwater was not encountered during the remediation program. Based on the findings of the Phase II ESA, the groundwater beneath the subject site is considered to be in compliance with the MECP Table 7 standards.

Conclusion

Based on our field observations combined with the analytical test results, in our opinion, all contaminated soil has been removed from the Phase II Property. No further remedial work is recommended at this time.

1.0 INTRODUCTION

In November 2020 Paterson monitored an environmental site remediation program at the property addressed 473 Albert Street, in the City of Ottawa, Ontario. The findings of the remediation program are detailed in this report.

The subject property is located on the north side of Albert Street, approximately 55m east of Bronson Avenue, in the City of Ottawa. The area of the Phase II property is approximately 0.17 hectares with approximately 60m of frontage along Albert Street.

The location of the Phase II Property is shown on Figure 1 – Key Plan, appended to the Phase II ESA report.

1.1 Background

Pinchin Ltd. (Pinchin) prepared a Phase I ESA report in December of 2019 and subsequently conducted a subsurface investigation during the interim of December 2019 through February 2020 to address areas of potential environmental concern (APECs) identified in the Phase I ESA: existing diesel aboveground storage tank (AST); former heating oil AST; Hydro Vault; previous generation of on-site chemical waste; and a former off-site drycleaner. A final Phase II ESA report was not prepared, although plans, borehole logs and Certificates of Analysis were provided to Paterson for review.

Based on the findings of the field work carried out by Pinchin, soil impacted with 1,4-Dichlorobenzene and/or metals, was identified at MW-5 and MW-4. The impacts were considered to be primarily associated with the sandy clay soil fill mixed with the engineered fill at these locations; fill material underneath the concrete floor slab of the sub-basement level primarily consisted of crushed stone larger than 2 millimeters, although a soil matrix was also identified at several locations.

The Pinchin groundwater sampling event also identified concentrations of PHC F2 and/or F3 in the groundwater recovered from MW-5 and MW-6. Pinchin conducted 2 subsequent sampling events at MW-6 for PHC F2-F4 only; no parameter concentrations were identified above the laboratory method detection limits.

Paterson Group subsequently conducted a field program which consisted of drilling 4 additional boreholes, each of which were completed with monitoring well installations (BH1-20, BH1A-20, BH2-20 and BH3-20).

Groundwater was recovered from each of the 2020 monitoring wells (except BH1-20 which had insufficient water for sampling purposes), as well as from MW-5, MW-6 and MW-8 previously installed by Pinchin. The samples were submitted for BTEX or VOC and PHC analyses. Based on the analytical test results, no BTEX or VOC parameters were identified in the samples analysed, with the exception of chloroform in BH1A-20, which was the result of using municipally treated water for bedrock coring.

No PHC parameters were identified with the exception of PHC (F2 and F3) concentrations in MW-5. While the detected concentrations were significantly lower than those previously identified during the January 2020 sampling event conducted by Pinchin, they remained above the MECP Table 7 standards.

At the time of the soil remediation program, the details of which are presented in the following report, bedrock was excavated adjacent to MW-5 to a depth below the measured water table, to allow the infiltration of impacted groundwater, while maintaining the integrity of MW-5 for sampling purposes. A second groundwater sample was recovered from MW-5 in conjunction with the remediation program and analysed for BTEX, VOCs and PHCs. Based on the results of the analytical testing, no parameter concentrations were identified. A third groundwater sample was subsequently recovered and submitted for analytical testing; the results did not identify any parameters concentrations.

Given the analytical test results, it was considered likely that original PHC F2 and F3 fractions were the result of sediment in the recovered samples, as discussed in the Phase II ESA. Due to the sound quality of the bedrock, no groundwater infiltration was observed in the bedrock trench. A fifth borehole (BH4-20) was subsequently drilled within the trench to confirm the quality of the groundwater below the screened interval at MW-5. No BTEX or PHC parameters were identified in the sample.

The groundwater beneath the site was deemed to comply with the MECP Table 7 standards.

2.0 SOIL REMEDIATION PROGRAM

A representative sample of impacted soil obtained by Paterson personnel on November 2, 2020, was submitted to Paracel Laboratories of Ottawa for a leachate analysis in accordance with Ontario Regulation 347/558. Based on the results of the testing, the impacted material was classified as non-hazardous solid waste.

Prior to the removal of impacted soil, the concrete floor slab in the vicinity of MW-4 and MW-5 was cut as instructed by Paterson, and disposed offsite at an approved recycling facility. During the interim of November 4 through November 20, 2020, Paterson personnel were on-site periodically, to monitor the removal of the metal and VOC impacted soil. George W. Drummond Ltd. was retained as the excavation contractor for the remediation program. All impacted soil was excavated using a mini-excavator and placed in bins which were later removed for off-site disposal at a licenced landfill site. The remedial program consisted of two separate excavations (Excavation 1, EX1 and Excavation 2, EX2), located on in the vicinity of MW-5 and MW-4, respectively, on the northeast and central portions of the site.

Upon completion of the remediation program, all impacted soil had been removed from the subject property. Approximately 39.5 mt of contaminated soil was sent to Waste Connections of Canada Ottawa Landfill. A summary of landfill weigh scale tonnages is appended to this report.

Excavation 1 (EX1)

Excavation 1 (EX1) commenced at MW5 and continued to the west, north, east and south to the limits of the concrete cut. No visual or olfactory indications of contamination were noted in the fill material. The fill material primarily consisted of a granular material mixed with a sandy clay soil matrix. No deleterious materials were noted in the fill.

The fill material was removed to the bedrock surface, except where bedding sand was present around a sewer line, as shown on Drawing PE4908-11 – Remediation Excavation and Sidwalls – Excavation 1.

Sidewall samples were collected from within EX1 at multiple increments for visual screening purposes and confirmatory sampling purposes. Samples of the bedding sand were collected from along the sewer line; otherwise, the base of the excavation consisted of bedrock.

Based on visual and olfactory observations in combination with vapour measurements, worst case sidewall samples were selected for confirmatory analysis. The final floor area of EX1 was approximately 72 m^2. In accordance with O.Reg. 153/04, a minimum of three (3) sidewall samples and three (3) base samples were analysed for confirmatory purposes.

Upon completion of the excavation, full horizontal delineation was obtained. Vertical delineation within the soil was not obtained, however based on analytical testing groundwater at MW-5 complies with the MECP Table 7 standards for metals and VOCs. As such, metal and VOC impacts are not considered to have vertically migrated into the bedrock.

Excavation 2

Excavation 2 (EX2) commenced at MW-4 and continued to the west, north, east and south to the limits of the concrete cut. No visual or olfactory indications of contamination were noted in the fill material. The fill material primarily consisted of a granular material mixed with a sandy clay soil matrix. No deleterious materials were noted in the fill.

The fill material was removed to the bedrock surface only on the western portion of the excavation, as shown on Drawing PE4908-12 – Remediation Excavation and Sidwalls – Excavation 2.

Sidewall samples were collected from within EX2 at multiple increments for visual screening purposes and confirmatory sampling purposes. Two samples were recovered from the base within the eastern portion of the excavation.

No visual or olfactory indications of potential contamination were noted in the fill material and therefore confirmatory samples were selected based on location relative to the impact sample identified at MW-4. The final floor area of EX2 was approximately 10m^2; in accordance with O.Reg.153/04, a minimum of 2 sidewall and 2 base samples are required to be submitted for confirmatory testing. Two (2) additional sidewall samples were submitted for analytical testing to achieve ful horizontal delineation. The test results were determined to comply with the MECP Table 7 standards.

Upon completion of the excavation, full horizontal delineation was obtained. Based on analytical testing of the base samples within the eastern portion of the excavation in combination with analytical testing of the groundwater at MW4, metal concentrations in the remaining soil and groundwater comply with MECP Table 7 standards. As such, metals are not considered to have vertically migrated into the bedrock.

3.0 FREE PRODUCT

Based on the findings of the initial testing conducted by Pinchin, groundwater PHC F2 and/or F3 concentrations were identified at MW5 and MW6; those identified at MW5 were significantly higher than those at MW6. Pinchin subsequently sampled MW6 for PHC F2-F4; while the results indicated no parameter concentrations were identified, they could not be relied upon without the F1 analysis. Paterson subsequently recovered groundwater samples for analysis during two separate sampling events. Free product was not observed on the purge water and the analytical test results did not identify any PHC concentrations.

Groundwater was not encountered within the remedial excavations. As previously discussed, a bedrock trench was excavated within EX1. No groundwater was observed within the excavation. Groundwater samples were recovered from MW-5 in conjunction with the remedial excavation; no visual or olfactory indications of free product were observed on the purge water. Analytical test results did not identify any PHC concentrations in the groundwater samples.

To confirm the quality of the groundwater in the vicinity of MW-5, an additional monitoring well (BH4-20) was drilled within the trench excavation, to a depth of approximately 6.1m below the floor slab. No visual or olfactory indications of free product were observed on the purge water. Analytical test results did not identify any PHC concentrations.

As further discussed in the Phase II ESA, it is the opinion of the QP that the PHC results obtained by Pinchin for MW-4 and MW-5, as well as the initial results obtained by Paterson at MW-5, resulted from sediment in the samples. Based on the most recent groundwater sampling events in combination with visual and olfactory observations during the field programs, the groundwater beneath the Phase II Property complies with the MECP Table 7 standards.

4.0 CONFIRMATORY SAMPLING AND ANALYSIS

4.1 Confirmatory Soil Sampling Program

The soil sampling protocols followed during this remedial program were in general accordance with the MECP document entitled "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", dated May 1996.

All soil samples collected from EX1 were submitted to a preliminary screening procedure which included visual and olfactory screening for colour and odour, as well as screening with a photoionization detector (PID).

The soil vapours were measured by inserting the analyzer probe into the nominal headspace above the soil sample. Samples were then agitated and the peak readings recorded. The PID organic vapour readings measured were less than 1ppm and were not considered to be indicative of VOC impacts.

Typically, the soil samples with the highest organic vapour readings are selected for analytical testing. Given the low readings where VOCs were contaminants of concern, and the low-volatility of metals, sample selection was also based on visual and olfactory observations in combination with sample location, in accordance with the prescribed sample density outlined in Ontario Regulation (O.Reg.) 153/04. Contaminants analyzed were selected based on the contaminants of concern identified during the Phase II – ESA.

A total of twenty (20) base and sidewall screening samples were collected from the larger excavation (EX1). A total of 10 sidewall and base screening samples were collected from the smaller excavation (EX2).

Screening samples selected for analysis and analytical test results are presented on Drawings PE4908-11 and 12 – Remediation Excavation and Sidewalls.

4.2 Analytical Testing

The remediation standards for the subject property were obtained from Table 7 of the document entitled "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", prepared by the Ontario Ministry of Environment, Conservation and Parks, April 15, 2011. The MECP Table 7 Standards are based on the following considerations:

- ❒ Coarse-grained soil conditions;
- ❒ Shallow-soil conditions;
- ❒ Non-potable groundwater situation; and
- ❒ Residential land use.

Paracel Laboratories (Paracel) of Ottawa, performed the laboratory analysis of the samples submitted for testing. Paracel is a member of the Standards Council of Canada/Canadian Association for Environmental Analytical Laboratories (SCC/CAEAL). Paracel is accredited and certified by SCC/CAEAL for specific tests registered with the association.

Soil

As noted previously, a leachate analysis was completed for a representative sample of impacted soil, in accordance with O.Reg. 347/558, for off-site disposal purposes. A copy of the laboratory Certificate of Analysis is appended to this report.

Excavation EX1 - Metals

Based on our field observations, a total of 10 confirmatory soil samples were submitted for laboratory analysis of metals. The results of the analysed soil samples are presented in Table 1. Copies of the laboratory Certificates of Analysis are appended to this report.

Table 1: Analytical Test Results – EX1 Confirmatory Wall Samples - Metals

Parameter	MDL (µg/g)	Soil Samples (µg/g)						MECP Table7 Residential Standards (µg/g)
		November 5, 2020					Nov.10, 2020	
		N4	E1[1]	E2	B1	DUP[1,2]	W3	
Antimony	1	nd	nd	nd	nd	nd	nd	7.5
Arsenic	1	2.6	1.4	1.8	nd	1.7	2.2	18
Barium	1	274	307	**397**	19.6	**419**	378	390
Beryllium	0.5	0.7	nd	nd	nd	nd	0.7	4
Boron	5.0	15.5	10.5	7.0	nd	8.6	18.8	120
Cadmium	0.5	nd	nd	nd	nd	nd	nd	1.2
Chromium	5	11.0	7.5	8.4	6.8	8.5	10.8	160
Cobalt	1	9.6	6.9	6.5	2.4	6.5	7.4	22
Copper	5	13.7	7.1	7.0	nd	7.3	11.7	140
Lead	1	22.8	22.0	8.9	nd	8.3	10.9	120
Molybdenum	1	nd	nd	nd	nd	nd	nd	6.9
Nickel	5	18.2	12.8	13.0	6.3	12.5	15.6	100
Selenium	1	nd	nd	nd	nd	nd	nd	2.4

Table 1: Analytical Test Results – EX1
Confirmatory Wall Samples - Metals

Parameter	MDL (µg/g)	Soil Samples (µg/g)						MECP Table7 Residential Standards (µg/g)
		November 5, 2020					Nov.10, 2020	
		N4	E1[1]	E2	B1	DUP[1,2]	W3	
Silver	0.3	nd	nd	nd	nd	nd	nd	20
Thallium	1	nd	nd	nd	nd	nd	nd	1
Uranium	1	nd	nd	nd	nd	nd	nd	23
Vanadium	10	10.1	nd	nd	12.3	10.4	10.4	86
Zinc	20	nd	nd	nd	nd	nd	nd	340

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and Underlined** – Value exceeds MECP Table 7 Standard
- 1 - Removed from the excavation for off-site disposal
- 2 – Duplicate of E2

Table 1 Continued: Analytical Test Results – EX1
Confirmatory Soil Samples – Metals

Parameter	MDL (µg/g)	Soil Samples (µg/g)						MECP Table 7 Residential Standards (µg/g)
		Nov. 10, 2020		Nov. 13, 2020		Nov.20, 2020		
		W4	S2	B2	B3	E7	E8	
Antimony	1	nd	nd	nd	nd	nd	nd	7.5
Arsenic	1	1.1	1.6	nd	nd	2.0	nd	18
Barium	1	65.0	340	121	24.5	**465**	104	390
Beryllium	0.5	nd	nd	nd	nd	nd	nd	4
Boron	5.0	nd	7.1	nd	nd	14.5	nd	120
Cadmium	0.5	nd	nd	nd	nd	nd	nd	1.2
Chromium	5	8.6	8.5	7.1	6.5	9.2	7.0	160
Cobalt	1	3.9	6.3	3.1	2.3	12.0	3.9	22
Copper	5	5.1	7.9	nd	nd	15.6	nd	140
Lead	1	2.7	6.0	2.5	nd	10.4	1.7	120
Molybdenum	1	nd	nd	nd	nd	nd	nd	6.9
Nickel	5	9.4	10.5	7.7	5.8	16.7	8.0	100
Selenium	1	nd	nd	nd	nd	nd	nd	2.4
Silver	0.3	nd	nd	nd	nd	nd	nd	20
Thallium	1	nd	nd	nd	nd	nd	nd	1
Uranium	1	nd	nd	nd	nd	nd	nd	23
Vanadium	10	13.3	10.3	11.2	nd	10.1	nd	86
Zinc	20	23.1	nd	20.1	nd	nd	nd	340

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and Underlined** – Value exceeds MECP Table 7 Standard

Concentrations of barium exceeding the MECP Table 7 standard were identified in sample E2 and its duplicate. The soil from the east wall was further removed and re-sampled. A concentration of barium exceeding MECP Table 7 was identified in Sample E7. In accordance with Section 48 (2) of O.Reg. 153/04, as amended under the Environmental Protection Act, "if two or more samples of soil or sediment are taken from sampling points at the same sampling location that are at the same depth in, on or under the property, the property meets a standard mentioned in subsection (1) if the average of the sampling results meets the standard and in no other circumstances". As per Section 48 (4) of the regulation, "sampling location" means an area of the property that does not have a radius larger than 2m. As such, Sample E8, collected at the same depth and from within a 2m radius of Sample E7, was subsequently submitted for analytical testing of metal parameters.

The average of the barium concentrations identified in Samples E7 (465 µg/g) and E8 (104 µg/g), taken from sampling points at the same sampling location and the same depth, is 284.5 µg/g, below the MECP Table 7 standard of 390 µg/g. All metal parameters identified in the final confirmatory wall and base samples comply with the MECP Table 7 standards.

Excavation 1 – VOCs

Based on our field observations, a total of 8 confirmatory soil samples were submitted for laboratory analysis of metals. The results of the analysed soil samples are presented in Table 2. Copies of the laboratory Certificates of Analysis are appended to this report.

Table 2: Analytical Test Results – Soil (VOCs)

Parameter	MDL (µg/g)	Soil Samples (µg/g) Nov.5, 2020			MECP Table 7 Residential Standards (µg/g)
		N4	E2	B1	
Acetone	0.50	nd	nd	nd	16
Benzene	0.02	nd	nd	nd	0.21
Bromodichloromethane	0.05	nd	nd	nd	13
Bromoform	0.05	nd	nd	nd	0.27
Bromomethane	0.05	nd	nd	nd	0.05
Carbon Tetrachloride	0.05	nd	nd	nd	0.05
Chlorobenzene	0.05	nd	nd	nd	2.4
Chloroform	0.05	nd	nd	nd	0.05
Dibromochloromethane	0.05	nd	nd	nd	9.4
m-Dichlorobenzene	0.20	nd	nd	nd	3.4
o-Dichlorobenzene	0.05	nd	nd	nd	4.8
p-Dichlorobenzene	0.05	nd	nd	nd	0.083
Dichlorodifluoromethane	0.05	nd	nd	nd	16
1,1-Dichloroethane	0.05	nd	nd	nd	3.5
1,2-Dichloroethane	0.05	nd	nd	nd	0.05
1,1-Dichlroethylene	0.05	nd	nd	nd	0.05
c-1,2-Dichloroethylene	0.05	nd	nd	nd	3.4
t-1,2-Dichloroethylene	0.05	nd	nd	nd	0.084
1,2-Dichloropropane	0.05	nd	nd	nd	0.05
c-1,3-Dichloropropene	0.05	nd	nd	nd	0.05
Ethylbenzene	0.05	nd	nd	nd	2
Ethylene Dibromide	0.05	nd	nd	nd	0.05
Hexane	0.05	nd	nd	nd	2.8
Methyl Ethyl Ketone	0.5	nd	nd	nd	16
Methyl Isobutyl Ketone	0.5	nd	nd	nd	1.7
Methyl tert-Butyl Ether	0.05	nd	nd	nd	0.75
Methylene Chloride	0.05	nd	nd	nd	0.1
Styrene	0.05	nd	nd	nd	0.7
1,1,1,2-Tetrachloroethane	0.50	nd	nd	nd	0.058
1,1,2,2-Tetrachloroethane	0.05	nd	nd	nd	0.05
Tetrachloroethylene	0.05	nd	nd	nd	0.28
Toluene	0.05	nd	nd	nd	2.3
1,1,1-Trichloroethane	0.05	nd	nd	nd	0.38
1,1,2-Trichloroethane	0.05	nd	nd	nd	0.05
Trichloroethylene	0.05	nd	nd	nd	0.061
Trichlorofluoromethane	0.05	nd	nd	nd	4
Vinyl Chloride	0.02	nd	nd	nd	0.02
Xylenes	0.05	nd	nd	nd	3.1

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Table 2 Continued: Analytical Test Results – Soil (VOCs)

Parameter	MDL (µg/g)	Soil Samples (µg/g)				MECP Table 7 Residential Standards (µg/g)
		Nov.10, 2020		Nov.13, 2020		
		W3	W4	B2	B3	
Acetone	0.50	nd	nd	nd	nd	16
Benzene	0.02	nd	nd	nd	nd	0.21
Bromodichloromethane	0.05	nd	nd	nd	nd	13
Bromoform	0.05	nd	nd	nd	nd	0.27
Bromomethane	0.05	nd	nd	nd	nd	0.05
Carbon Tetrachloride	0.05	nd	nd	nd	nd	0.05
Chlorobenzene	0.05	nd	nd	nd	nd	2.4
Chloroform	0.05	nd	nd	nd	nd	0.05
Dibromochloromethane	0.05	nd	nd	nd	nd	9.4
Dichlorodifluoromethane	0.05	nd	nd	nd	nd	16
m-Dichlorobenzene	0.20	nd	nd	nd	nd	3.4
o-Dichlorobenzene	0.05	nd	nd	nd	nd	4.8
p-Dichlorobenzene	0.05	**0.10**	0.06	nd	nd	0.083
1,1-Dichloroethane	0.05	nd	nd	nd	nd	3.5
1,2-Dichloroethane	0.05	nd	nd	nd	nd	0.05
1,1-Dichlroethylene	0.05	nd	nd	nd	nd	0.05
c-1,2-Dichloroethylene	0.05	nd	nd	nd	nd	3.4
t-1,2-Dichloroethylene	0.05	nd	nd	nd	nd	0.084
1,2-Dichloropropane	0.05	nd	nd	nd	nd	0.05
c-1,3-Dichloropropene	0.05	nd	nd	nd	nd	0.05
Ethylbenzene	0.05	nd	nd	nd	nd	2
Ethylene Dibromide	0.05	nd	nd	nd	nd	0.05
Hexane	0.05	nd	nd	nd	nd	2.8
Methyl Ethyl Ketone	0.5	nd	nd	nd	nd	16
Methyl Isobutyl Ketone	0.5	nd	nd	nd	nd	1.7
Methyl tert-Butyl Ether	0.05	nd	nd	nd	nd	0.75
Methylene Chloride	0.05	nd	nd	nd	nd	0.1
Styrene	0.05	nd	nd	nd	nd	0.7
1,1,1,2-Tetrachloroethane	0.50	nd	nd	nd	nd	0.058
1,1,2,2-Tetrachloroethane	0.05	nd	nd	nd	nd	0.05
Tetrachloroethylene	0.05	nd	nd	nd	nd	0.28
Toluene	0.05	nd	0.14	nd	nd	2.3
1,1,1-Trichloroethane	0.05	nd	nd	nd	nd	0.38
1,1,2-Trichloroethane	0.05	nd	nd	nd	nd	0.05
Trichloroethylene	0.05	nd	nd	nd	nd	0.061
Trichlorofluoromethane	0.05	nd	nd	nd	nd	4
Vinyl Chloride	0.02	nd	nd	nd	nd	0.02
Xylenes	0.05	nd	0.08	nd	nd	3.1

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

Table 2 Continued: Analytical Test Results – Soil (VOCs)			
Parameter	MDL (µg/g)	Soil Samples (µg/g)	MECP Table 7 Residential Standards (µg/g)
		Nov.20, 2020	
		W10	
Acetone	0.50	nd	16
Benzene	0.02	nd	0.21
Bromodichloromethane	0.05	nd	13
Bromoform	0.05	nd	0.27
Bromomethane	0.05	nd	0.05
Carbon Tetrachloride	0.05	nd	0.05
Chlorobenzene	0.05	nd	2.4
Chloroform	0.05	nd	0.05
Dibromochloromethane	0.05	nd	9.4
m-Dichlorobenzene	0.20	nd	3.4
o-Dichlorobenzene	0.05	nd	4.8
p-Dichlorobenzene	0.05	nd	0.083
Dichlorodifluoromethane	0.05	nd	16
1,1-Dichloroethane	0.05	nd	3.5
1,2-Dichloroethane	0.05	nd	0.05
1,1-Dichlroethylene	0.05	nd	0.05
c-1,2-Dichloroethylene	0.05	nd	3.4
t-1,2-Dichloroethylene	0.05	nd	0.084
1,2-Dichloropropane	0.05	nd	0.05
c-1,3-Dichloropropene	0.05	nd	0.05
Ethylbenzene	0.05	nd	2
Ethylene Dibromide	0.05	nd	0.05
Hexane	0.05	nd	2.8
Methyl Ethyl Ketone	0.5	nd	16
Methyl Isobutyl Ketone	0.5	nd	1.7
Methyl tert-Butyl Ether	0.05	nd	0.75
Methylene Chloride	0.05	nd	0.1
Styrene	0.05	nd	0.7
1,1,1,2-Tetrachloroethane	0.50	nd	0.058
1,1,2,2-Tetrachloroethane	0.05	nd	0.05
Tetrachloroethylene	0.05	nd	0.28
Toluene	0.05	nd	2.3
1,1,1-Trichloroethane	0.05	nd	0.38
1,1,2-Trichloroethane	0.05	nd	0.05
Trichloroethylene	0.05	nd	0.061
Trichlorofluoromethane	0.05	nd	4
Vinyl Chloride	0.02	nd	0.02
Xylenes	0.05	nd	3.1

- MDL – Method Detection Limit
- nd – not detected above the MDL

A concentration of 1,4-dichlorobenzene exceeding the MECP Table 7 standard was identified in sample W3. No other VOC concentrations were identified above in the samples analysed, with the exception of 1,4-dichlorobenzene, toluene and xylene concentrations below the MECP Table 7 standards in Sample W4.

In accordance with Section 48 (2) of O.Reg. 153/04, as amended under the Environmental Protection Act, “if two or more samples of soil or sediment are taken from sampling points at the same sampling location that are at the same depth in, on or under the property, the property meets a standard mentioned in subsection (1) if the average of the sampling results meets the standard and in no other circumstances”. As per Section 48 (4) of the regulation, “sampling location” means an area of the property that does not have a radius larger than 2m. As such, Sample E8, collected at the same depth and from within a 2m radius of Sample E7, was subsequently submitted for analytical testing of metal parameters.

The average of the 1,4-dichlorobenzene concentrations identified in Samples W3 (0.10 µg/g) and W4 (0.06 µg/g), taken from sampling points at the same sampling location and the same depth, is 0.08 µg/g, below the MECP Table 7 standard of 0.083 µg/g. All VOC parameters identified in the final confirmatory wall and base samples comply with the MECP Table 7 standards.

Excavation EX2

Based on our field observations in combination with the results of the combustible vapour screening, a total of 6 confirmatory soil samples were submitted for laboratory analysis of metal parameters. The results of the analysed soil samples are presented in Table 3. Copies of the laboratory Certificates of Analysis are appended to this report.

Table 3: Analytical Test Results – EX2
Confirmatory Soil Samples – Metals

Parameter	MDL (µg/g)	Soil Samples (µg/g)							MECP Table 7 Residential Standards (µg/g)
		Nov. 10, 2020					Nov.13, 2020		
		W2-1	E2-1	S2-1	N2-2	DUP[1]	B2-1	B2-2	
Antimony	1	nd	nd	nd	nd	nd	nd	nd	7.5
Arsenic	1	2.7	1.3	1.6	1.6	1.5	1.2	1.2	18
Barium	1	157	133	381	342	309	40.3	35.4	390
Beryllium	0.5	nd	nd	nd	nd	nd	nd	nd	4
Boron	5.0	7.8	6.0	12.1	11.6	12.1	nd	nd	120
Cadmium	0.5	nd	nd	nd	nd	nd	nd	nd	1.2
Chromium	5	7.5	7.6	8.4	9.3	8.7	7.6	7.6	160
Cobalt	1	3.3	4.3	5.0	6.4	5.3	2.9	3.0	22
Copper	5	nd	nd	6.0	7.6	6.1	nd	nd	140
Lead	1	8.2	4.1	5.7	5.6	5.5	3.1	2.2	120
Molybdenum	1	nd	nd	nd	nd	nd	nd	nd	6.9
Nickel	5	8.2	8.9	10.9	10.6	9.8	7.2	7.4	100
Selenium	1	nd	nd	nd	nd	nd	nd	nd	2.4
Silver	0.3	nd	nd	nd	nd	nd	nd	nd	20
Thallium	1	nd	nd	nd	nd	nd	nd	nd	1
Uranium	1	nd	nd	nd	nd	nd	nd	nd	23
Vanadium	10	nd	10.3	nd	nd	nd	11.7	12.6	86
Zinc	20	nd	nd	nd	nd	nd	21.0	23.2	340

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- 1 – Duplicate of S2-1

Based on the analytical test results all metal parameters identified comply with the MECP Table 7 standards.

4.3 Quality Assurance/Quality Control

Duplicates of soil Samples E2 (Excavation 1) and S2-1 (Excavation 2) were collected and submitted for analytical testing of metals. The duplicate samples were collected with the intent of calculating the relative percent difference (RPD) between duplicate sample values, as a way of assessing the quality of the analytical test results. The RPD calculations for Sample E2 and its duplicate are provided below in Table 4.

Table 4: Quality Assurance/Quality Control – EX1				
Parameter	Soil Samples (µg/g)		RPD (%)	Meets Target
	E2	DUP		
Arsenic	1.8	1.7	5.7	YES
Barium	397	419	5.4	YES
Boron	7.0	8.6	20.5	NO
Chromium	8.4	8.5	1.2	YES
Cobalt	6.5	6.5	0	YES
Copper	7.0	7.3	4.2	YES
Lead	8.9	8.3	7.0	YES
Nickel	13.0	12.5	3.9	YES
Vanadium	nd[1]	10.4	3.9	YES
1 – where the parameter was not identified above the MDL, the value of the MDL was used for the RPD calculation				

Table 5: Quality Assurance/Quality Control – EX2				
Parameter	Soil Samples (µg/g)		RPD (%)	Meets Target
	S2-1	DUP		
Arsenic	1.6	1.5	6.5	YES
Barium	381	309	20.9	NO
Boron	12.1	12.1	0	YES
Chromium	8.4	8.7	3.5	YES
Cobalt	5.0	5.3	5.8	YES
Copper	6.0	6.1	1.6	YES
Lead	5.7	5.5	3.6	YES
Nickel	10.9	9.8	10.6	YES

Typically, RPD values below 20% are considered to be of satisfactory quality. With the exception of the boron (E2) and barium (S2-1) parameters, the RPD values calculated for all detected parameters meet the 20% target. As such, it is our opinion that the overall quality of the field data collected during the Phase II ESA is considered to be sufficient to meet the overall objectives of this assessment.

Furthermore, all samples submitted during the remediation activities were handled in accordance with the Analytical Protocol with respect to holding time, preservation method, storage requirement and container type, and as per Subsection 47(3) of O.Reg. 153/04, as amended by O.Reg. 269/11, a Certificate of Analysis has been received for each sample submitted for analysis and all Certificates of Analysis are appended to this report.

5.0 CONCLUSIONS

5.1 Assessment

During the interim of November 4 through November 20, 2020 Paterson Group monitored the removal of impacted soil from the commercial property addressed 473 Albert Street in the City of Ottawa, Ontario.

Paterson monitored the excavation of contaminated soil and determined the limits of the excavations using visual screening methods and/or vapour screening, as well as analytical testing. Metal and VOC impacted soil was removed from the vicinity of MW5 (Excavation, EX1). Impacted fill material, consisting of crushed stone and a sandy clay soil matrix was identified beneath the concrete floor slab of the underground parking structure, and extended approximately 0.5m, to the underlying bedrock. Metal impacted soil was removed from the vicinity of MW4 (Excavation, EX2), from the underside of the floor slab to a depth of approximately 0.6m below the floor slab. Bedrock was encountered within the western portion of the excavation only. Based on the results of confirmatory sampling, the soil remaining on the Phase II Property complies with the MECP Table 7 standards.

Full horizontal delineation of soil impacts was obtained during the remediation program. To achieve vertical delineation at MW-4 and MW-5 groundwater was analysed for VOC and/or metal parameters. Based on the results of the analytical testing, the groundwater complies with the MECP Table 7 standards. Metal and VOC parameters are therefore not considered to have extended beneath the bedrock surface.

Approximately 39.5 mt of contaminated soil (mixed with granular material) was removed from the subject property and disposed of at Waste Connections of Canada Ottawa Landfill.

Groundwater levels at the subject property were measured within the bedrock at depths ranging from approximately 1.2 to 3.6 m below the basement floor slab, during the November 2020 groundwater monitoring event. Groundwater was not encountered during the remediation program. Based on the findings of the Phase II ESA, the groundwater beneath the subject site is considered to be in compliance with the MECP Table 7 standards.

5.2 Conclusion

Based on our field observations combined with the analytical test results, in our opinion, all contaminated soil has been removed from the Phase II Property. No further remedial work is recommended at this time.

6.0 STATEMENT OF LIMITATIONS

The results of the sampling program are based on our field observations, preliminary screening results, and analytical test results obtained at specific test locations which can only be extrapolated to an undefined limited area around each location. The test results may not reflect conditions at other locations or areas beyond the extent of the excavation.

This report was prepared for the sole use of InterRent No.3 Limited Partnership. Permission from InterRent No.3 Limited Partnership and Paterson Group will be required to release this report to any other party.

Paterson Group Inc.

Karyn Munch, P.Eng., QP$_{ESA}$

Report Distribution:

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- ❒ Paterson Group

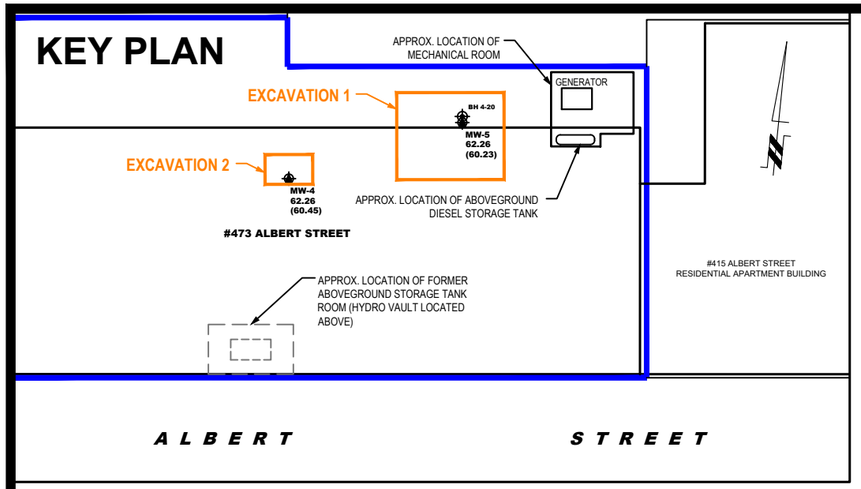
FIGURES

Drawing PE4908-11A – Remediation Excavation and Sidewalls – Excavation 1 (Metals)

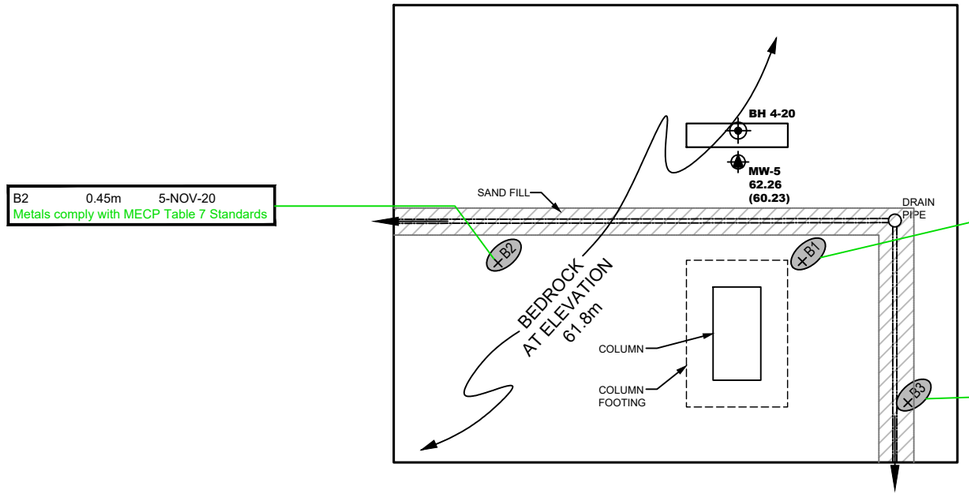
Drawing PE4908-11B – Remediation Excavation and Sidewalls – Excavation 1 (VOCs)

Drawing PE4908-12 – Remediation Excavation and Sidewalls – Excavation 2 (Metals)

KEY PLAN



EX1 - PLAN VIEW

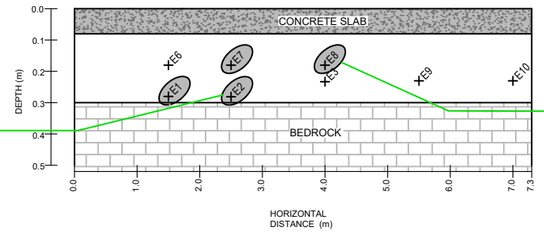


B2 0.45m 5-NOV-20
Metals comply with MECP Table 7 Standards

B1 0.45m 5-NOV-20
Metals comply with MECP Table 7 Standards

B3 0.45m 5-NOV-20
Metals comply with MECP Table 7 Standards

EAST WALL



E1 0.2-0.3m 10-NOV-20
Metals comply with MECP Table 7 Standards

E2 0.2-0.3 10-NOV-20

PARAMETER	RESULT (ug/g)	STANDARD (ug/g)
BARIUM	397	390

Remaining Metals comply with MECP Table 7 Standards
The average of barium in samples e1 (307 ug/g) and e2 (397 ug/g),taken from the same location, is 352 ug/g which complies with the MECP Table 7 Standard of 390 ug/g.

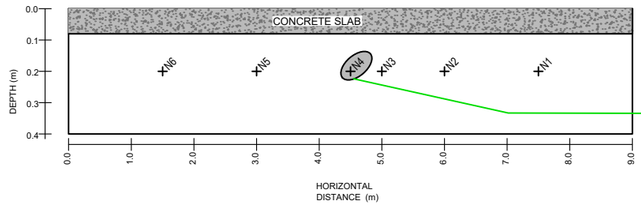
E7 0.2-0.3m 20-NOV-20

PARAMETER	RESULT (ug/g)	STANDARD (ug/g)
BARIUM	465	390

Remaining Metals comply with MECP Table 7 Standards

E8 0.2-0.3m 20-NOV-20
Metals comply with MECP Table 7 Standards
The average of barium in samples E7 (465 ug/g) and E8 (104 ug/g), taken from the same location, is 284.5 ug/g which complies with the MECP Table 7 Standard of 390 ug/g.

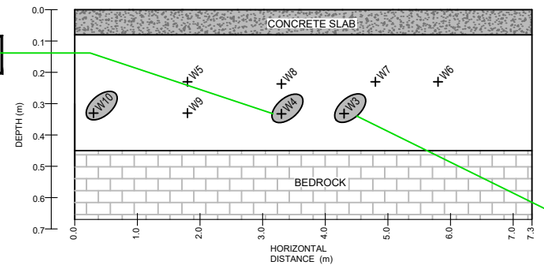
NORTH WALL



N4 0.2-0.4m 5-NOV-20
VOCs comply with MECP Table 7 Standards

N4 0.2-0.4m 5-NOV-20
Metals comply with MECP Table 7 Standards

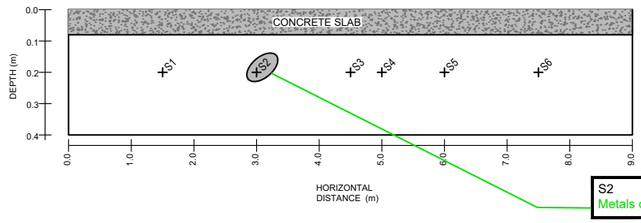
WEST WALL



W4 0.2-0.4m 10-NOV-20
Metals comply with MECP Table 7 Standards

W3 0.2-0.4 10-NOV-20
Metals comply with MECP Table 7 Standards

SOUTH WALL



S2 0.2-0.4m 10-NOV-20
Metals comply with MECP Table 7 Standards

LEGEND:

E7 SOIL GRAB SAMPLE

E7 ANALYZED SOIL GRAB SAMPLE

SCALE: 1:1500

0 25 50 75 100m

patersongroup
consulting engineers
154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

REMEDIATION EXCAVATION AND SIDEWALLS - EX1 - METALS

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: KM	Dwg. No.: PE4908-11A
Approved by: MSD	Revision No.: 0

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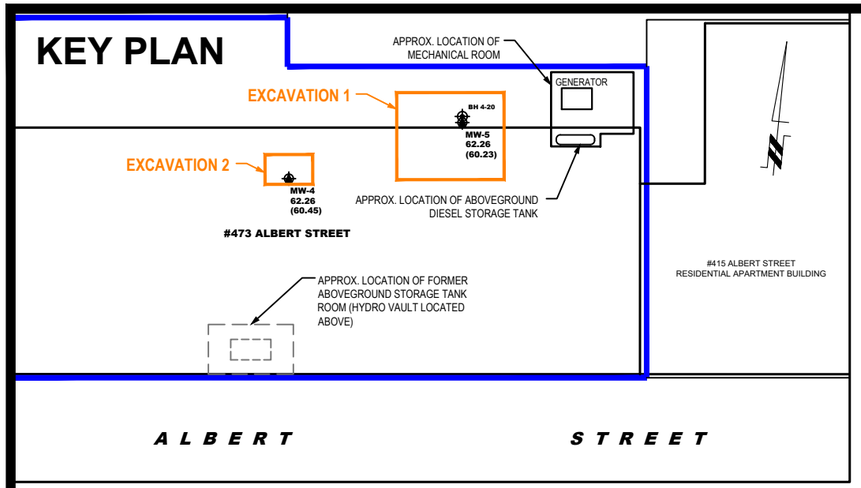
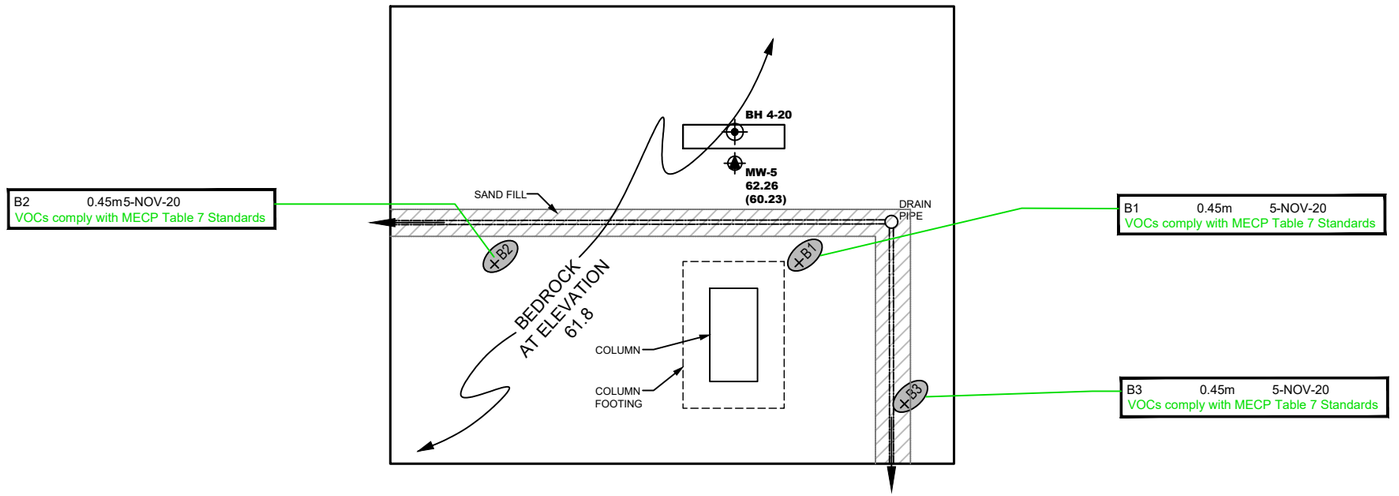
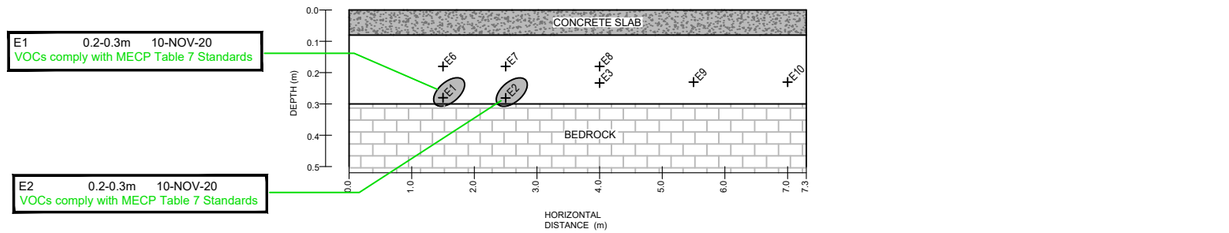
KEY PLAN



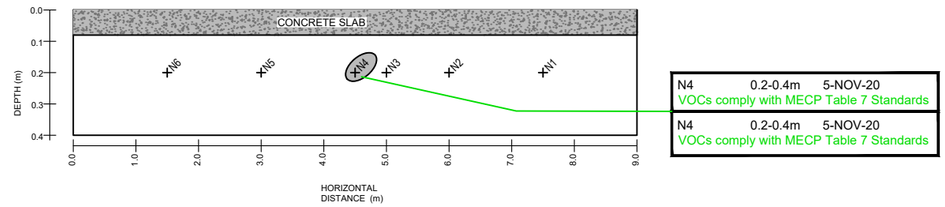
EX1 - PLAN VIEW



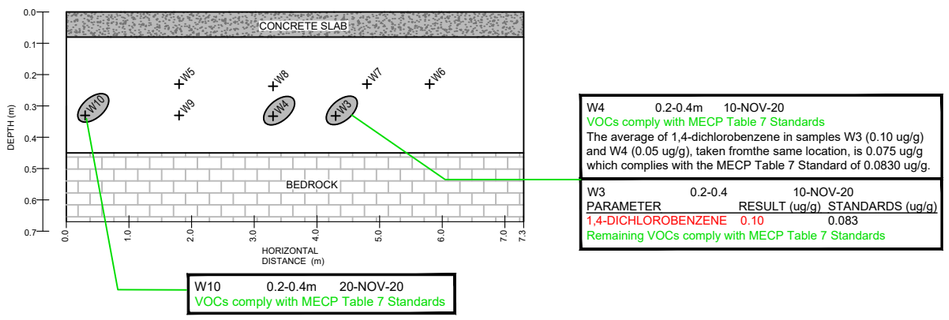
EAST WALL



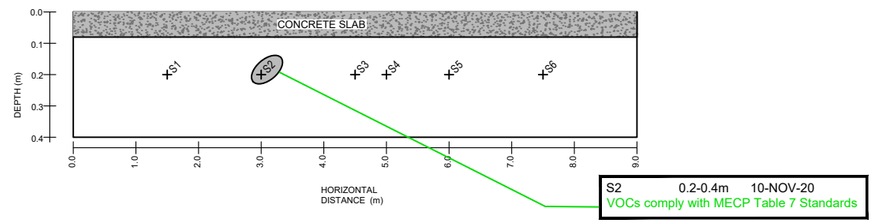
NORTH WALL



WEST WALL



SOUTH WALL



LEGEND:

- SOIL GRAB SAMPLE
- ANALYZED SOIL GRAB SAMPLE

SCALE: 1:1500

0 25 50 75 100m

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154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

REMEDIATION EXCAVATION AND SIDEWALLS - EX1 - VOCs

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: KM	Dwg. No.: PE4908-11B
Approved by: MSD	Revision No.: 0

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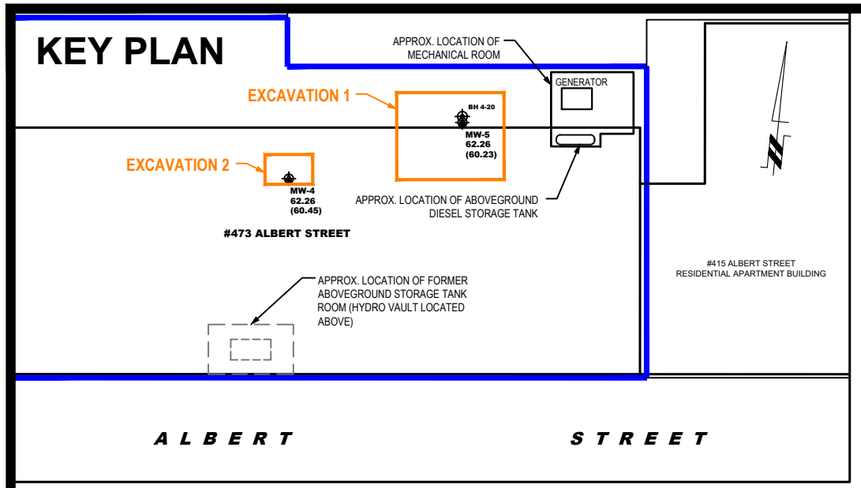
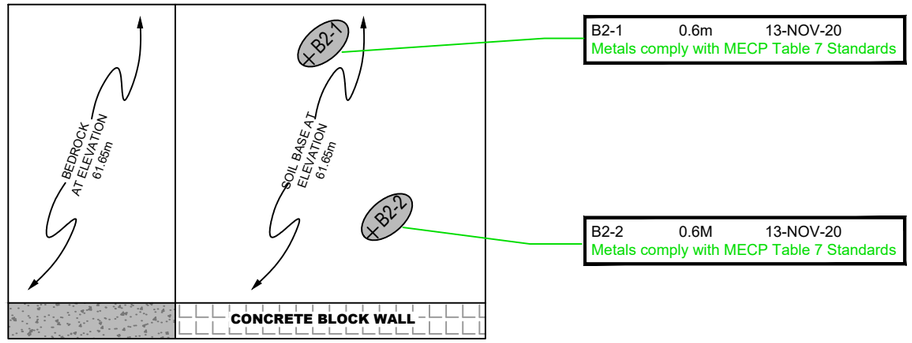
KEY PLAN



EX2 - PLAN VIEW

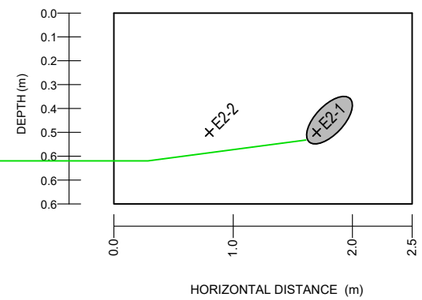


B2-1 0.6m 13-NOV-20
Metals comply with MECP Table 7 Standards

B2-2 0.6M 13-NOV-20
Metals comply with MECP Table 7 Standards

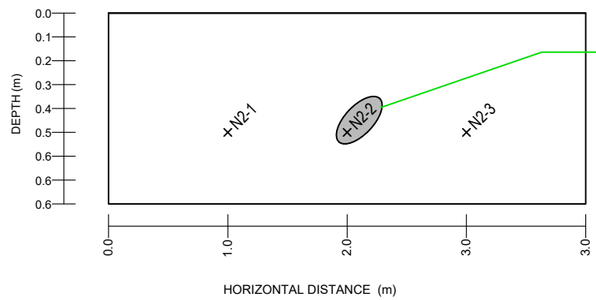
EAST WALL

E2-1 0.4-0.6m 10-NOV-20
Metals comply with MECP Table 7 Standards



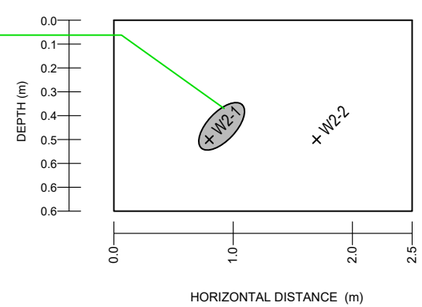
NORTH WALL

N2-2 0.4-0.6m 10-NOV-20
Metals comply with MECP Table 7 Standards



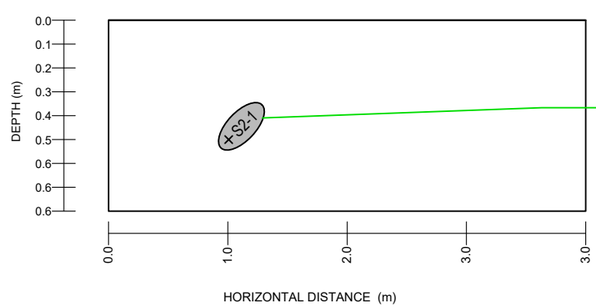
WEST WALL

W2-1 0.4-0.6m 10-NOV-20
Metals comply with MECP Table 7 Standards



SOUTH WALL

S2-1 0.4-0.6m 10-NOV-20
Metals comply with MECP Table 7 Standards



LEGEND:

SOIL GRAB SAMPLE

ANALYZED SOIL GRAB SAMPLE

SCALE: 1:1500

0 25 50 75 100m

patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

INTERRENT NO.3 LIMITED PARTNERSHIP

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
473 ALBERT STREET

OTTAWA, ONTARIO

Title:

REMEDIATION EXCAVATION AND SIDEWALLS - EX.2

Scale: AS SHOWN	Date: 01/2021
Drawn by: RCG	Report No.: PE4908-2
Checked by: KM	Dwg. No.: PE4908-12
Approved by: MSD	Revision No.: 0

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APPENDIX 1

LABORATORY CERTIFICATES OF ANALYSIS

WEIGH SCALE SUMMARY

PARACEL LABORATORIES LTD.

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 27467
Project: PE4908
Custody: 55060

Report Date: 4-Nov-2020
Order Date: 2-Nov-2020

Order #: 2045120

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

Paracel ID	Client ID
2045120-01	TCLP

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 04-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 2-Nov-2020

Client PO: 27467

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Flashpoint	ASTM D93 - Pensky-Martens Closed Cup	2-Nov-20	3-Nov-20
Metals, ICP-MS	TCLP EPA 6020 - Digestion - ICP-MS	4-Nov-20	4-Nov-20
PHC F1	CWS Tier 1 - P&T GC-FID	3-Nov-20	3-Nov-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	4-Nov-20	4-Nov-20
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	3-Nov-20	3-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	3-Nov-20	3-Nov-20
REG 558 - Cyanide	MOE E3015- Auto Colour	4-Nov-20	4-Nov-20
REG 558 - Fluoride	EPA 340.2 - ISE	4-Nov-20	4-Nov-20
REG 558 - Mercury by CVAA	EPA 7470A - Cold Vapour AA	4-Nov-20	4-Nov-20
REG 558 - NO3/NO2	EPA 300.1 - IC	4-Nov-20	4-Nov-20
REG 558 - VOCs	EPA 624 - P&T GC-MS	4-Nov-20	4-Nov-20
Solids, %	Gravimetric, calculation	3-Nov-20	3-Nov-20

Certificate of Analysis

Report Date: 04-Nov-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 2-Nov-2020

Client PO: 27467

Project Description: PE4908

	Client ID:	TCLP	-	-	-
	Sample Date:	02-Nov-20 09:00	-	-	-
	Sample ID:	2045120-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	95.4	-	-	-
Flashpoint	°C	>70	-	-	-
EPA 1311 - TCLP Leachate Inorganics					
Fluoride	0.05 mg/L	0.27	-	-	-
Nitrate as N	1 mg/L	<1	-	-	-
Nitrite as N	1 mg/L	<1	-	-	-
Cyanide, free	0.02 mg/L	<0.02	-	-	-
EPA 1311 - TCLP Leachate Metals					
Arsenic	0.05 mg/L	<0.05	-	-	-
Barium	0.05 mg/L	0.21	-	-	-
Boron	0.05 mg/L	<0.05	-	-	-
Cadmium	0.01 mg/L	<0.01	-	-	-
Chromium	0.05 mg/L	<0.05	-	-	-
Lead	0.05 mg/L	1.11	-	-	-
Mercury	0.005 mg/L	<0.005	-	-	-
Selenium	0.05 mg/L	<0.05	-	-	-
Silver	0.05 mg/L	<0.05	-	-	-
Uranium	0.05 mg/L	<0.05	-	-	-
EPA 1311 - TCLP Leachate Volatiles					
Benzene	0.005 mg/L	<0.005	-	-	-
Carbon Tetrachloride	0.005 mg/L	<0.005	-	-	-
Chlorobenzene	0.004 mg/L	<0.004	-	-	-
Chloroform	0.006 mg/L	<0.006	-	-	-
1,2-Dichlorobenzene	0.004 mg/L	<0.004	-	-	-
1,4-Dichlorobenzene	0.004 mg/L	<0.004	-	-	-
1,2-Dichloroethane	0.005 mg/L	<0.005	-	-	-
1,1-Dichloroethylene	0.006 mg/L	<0.006	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.30 mg/L	<0.30	-	-	-
Methylene Chloride	0.04 mg/L	<0.04	-	-	-
Tetrachloroethylene	0.005 mg/L	<0.005	-	-	-
Trichloroethylene	0.004 mg/L	<0.004	-	-	-
Vinyl chloride	0.005 mg/L	<0.005	-	-	-
4-Bromofluorobenzene	Surrogate	103%	-	-	-
Dibromofluoromethane	Surrogate	118%	-	-	-
Toluene-d8	Surrogate	99.8%	-	-	-
Metals					

Certificate of Analysis

Report Date: 04-Nov-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 2-Nov-2020

Client PO: 27467

Project Description: PE4908

	Client ID:	TCLP	-	-	-
	Sample Date:	02-Nov-20 09:00	-	-	-
	Sample ID:	2045120-01	-	-	-
	MDL/Units	Soil	-	-	-
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	1.2	-	-	-
Barium	1.0 ug/g dry	50.3	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	<5.0	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	7.0	-	-	-
Cobalt	1.0 ug/g dry	3.1	-	-	-
Copper	5.0 ug/g dry	<5.0	-	-	-
Lead	1.0 ug/g dry	4.3	-	-	-
Molybdenum	1.0 ug/g dry	<1.0	-	-	-
Nickel	5.0 ug/g dry	7.5	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	10.3	-	-	-
Zinc	20.0 ug/g dry	20.2	-	-	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-

Certificate of Analysis

Report Date: 04-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 2-Nov-2020

Client PO: 27467

Project Description: PE4908

	Client ID:	TCLP	-	-	-
	Sample Date:	02-Nov-20 09:00	-	-	-
	Sample ID:	2045120-01	-	-	-
	MDL/Units	Soil	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	-	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	-	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	-	-	-
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	-	-	-
4-Bromofluorobenzene	Surrogate	98.9%	-	-	-
Dibromofluoromethane	Surrogate	111%	-	-	-
Toluene-d8	Surrogate	117%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	ND	0.05	mg/L						
Nitrate as N	ND	1	mg/L						
Nitrite as N	ND	1	mg/L						
Cyanide, free	ND	0.02	mg/L						
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L						
Barium	ND	0.05	mg/L						
Boron	ND	0.05	mg/L						
Cadmium	ND	0.01	mg/L						
Chromium	ND	0.05	mg/L						
Lead	ND	0.05	mg/L						
Mercury	ND	0.005	mg/L						
Selenium	ND	0.05	mg/L						
Silver	ND	0.05	mg/L						
Uranium	ND	0.05	mg/L						
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L						
Carbon Tetrachloride	ND	0.005	mg/L						
Chlorobenzene	ND	0.004	mg/L						
Chloroform	ND	0.006	mg/L						
1,2-Dichlorobenzene	ND	0.004	mg/L						
1,4-Dichlorobenzene	ND	0.004	mg/L						
1,2-Dichloroethane	ND	0.005	mg/L						
1,1-Dichloroethylene	ND	0.006	mg/L						
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L						
Methylene Chloride	ND	0.04	mg/L						
Tetrachloroethylene	ND	0.005	mg/L						
Trichloroethylene	ND	0.004	mg/L						
Vinyl chloride	ND	0.005	mg/L						
Surrogate: 4-Bromofluorobenzene	*0.723*		*mg/L*		*105*	*83-134*			
Surrogate: Dibromofluoromethane	*0.816*		*mg/L*		*119*	*78-124*			
Surrogate: Toluene-d8	*0.694*		*mg/L*		*101*	*76-118*			
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									

Certificate of Analysis

Report Date: 04-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 2-Nov-2020

Client PO: 27467

Project Description: PE4908

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	*8.46*		*ug/g*		*106*	*50-140*			
Surrogate: Dibromofluoromethane	*9.10*		*ug/g*		*114*	*50-140*			
Surrogate: Toluene-d8	*8.69*		*ug/g*		*109*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.14	0.05	mg/L	0.14			0.9	20	
Nitrate as N	ND	1	mg/L	ND			NC	20	
Nitrite as N	ND	1	mg/L	ND			NC	20	
Cyanide, free	ND	0.02	mg/L	ND			NC	20	
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L	ND			NC	29	
Barium	0.239	0.05	mg/L	0.206			14.6	34	
Boron	ND	0.05	mg/L	ND			NC	33	
Cadmium	ND	0.01	mg/L	ND			NC	33	
Chromium	ND	0.05	mg/L	ND			NC	32	
Lead	ND	0.05	mg/L	ND			NC	32	
Mercury	ND	0.005	mg/L	ND			NC	30	
Selenium	ND	0.05	mg/L	ND			NC	28	
Silver	ND	0.05	mg/L	ND			NC	28	
Uranium	ND	0.05	mg/L	ND			NC	27	
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L	ND			NC	25	
Carbon Tetrachloride	ND	0.005	mg/L	ND			NC	25	
Chlorobenzene	ND	0.004	mg/L	ND			NC	25	
Chloroform	ND	0.006	mg/L	ND			NC	25	
1,2-Dichlorobenzene	ND	0.004	mg/L	ND			NC	25	
1,4-Dichlorobenzene	ND	0.004	mg/L	ND			NC	25	
1,2-Dichloroethane	ND	0.005	mg/L	ND			NC	25	
1,1-Dichloroethylene	ND	0.006	mg/L	ND			NC	25	
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L	ND			NC	25	
Methylene Chloride	ND	0.04	mg/L	ND			NC	25	
Tetrachloroethylene	ND	0.005	mg/L	ND			NC	25	
Trichloroethylene	ND	0.004	mg/L	ND			NC	25	
Vinyl chloride	ND	0.005	mg/L	ND			NC	25	
Surrogate: 4-Bromofluorobenzene	*0.723*		*mg/L*		*105*	*83-134*			
Surrogate: Dibromofluoromethane	*0.823*		*mg/L*		*120*	*78-124*			
Surrogate: Toluene-d8	*0.684*		*mg/L*		*99.4*	*76-118*			
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	2.1	1.0	ug/g dry	2.2			6.6	30	
Barium	41.7	1.0	ug/g dry	44.0			5.3	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron	5.3	5.0	ug/g dry	ND			NC	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	11.8	5.0	ug/g dry	12.0			2.1	30	
Cobalt	4.0	1.0	ug/g dry	4.1			2.1	30	
Copper	8.3	5.0	ug/g dry	8.3			0.6	30	
Lead	40.6	1.0	ug/g dry	41.0			0.9	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	7.0	5.0	ug/g dry	7.3			4.5	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	19.9	10.0	ug/g dry	19.8			0.8	30	
Zinc	39.4	20.0	ug/g dry	40.8			3.5	30	
Physical Characteristics									
% Solids	92.8	0.1	% by Wt.	92.5			0.4	25	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*10.5*		*ug/g dry*		*99.8*	*50-140*			
Surrogate: Dibromofluoromethane	*11.5*		*ug/g dry*		*109*	*50-140*			
Surrogate: Toluene-d8	*12.3*		*ug/g dry*		*118*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.61	0.05	mg/L	0.14	94.0	70-130			
Nitrate as N	10	1	mg/L	ND	99.7	81-112			
Nitrite as N	10	1	mg/L	ND	97.7	76-107			
Cyanide, free	0.033	0.02	mg/L	ND	66.1	60-136			
EPA 1311 - TCLP Leachate Metals									
Arsenic	46.4	0.05	mg/L	0.078	92.6	83-119			
Barium	68.4	0.05	mg/L	20.6	95.6	83-116			
Boron	41.1	0.05	mg/L	3.85	74.4	71-128			
Cadmium	38.7	0.01	mg/L	ND	77.5	78-119			QM-07
Chromium	48.1	0.05	mg/L	ND	96.2	80-124			
Lead	41.5	0.05	mg/L	1.10	80.9	77-126			
Mercury	0.0367	0.005	mg/L	ND	122	70-130			
Selenium	39.1	0.05	mg/L	ND	78.2	75-125			
Silver	38.9	0.05	mg/L	ND	77.8	70-128			
Uranium	45.7	0.05	mg/L	ND	91.3	70-131			
EPA 1311 - TCLP Leachate Volatiles									
Benzene	0.355	0.005	mg/L	ND	103	55-141			
Carbon Tetrachloride	0.439	0.005	mg/L	ND	127	49-149			
Chlorobenzene	0.369	0.004	mg/L	ND	107	64-137			
Chloroform	0.410	0.006	mg/L	ND	119	58-138			
1,2-Dichlorobenzene	0.353	0.004	mg/L	ND	103	60-150			
1,4-Dichlorobenzene	0.343	0.004	mg/L	ND	99.8	63-132			
1,2-Dichloroethane	0.433	0.005	mg/L	ND	126	50-140			
1,1-Dichloroethylene	0.351	0.006	mg/L	ND	102	43-153			
Methyl Ethyl Ketone (2-Butanone)	0.785	0.30	mg/L	ND	91.3	26-153			
Methylene Chloride	0.373	0.04	mg/L	ND	109	58-149			
Tetrachloroethylene	0.363	0.005	mg/L	ND	105	51-145			
Trichloroethylene	0.407	0.004	mg/L	ND	118	52-135			
Vinyl chloride	0.338	0.005	mg/L	ND	98.2	31-159			
Surrogate: 4-Bromofluorobenzene	*0.680*		*mg/L*		*98.8*	*83-134*			
Surrogate: Dibromofluoromethane	*0.802*		*mg/L*		*117*	*78-124*			
Surrogate: Toluene-d8	*0.580*		*mg/L*		*84.3*	*76-118*			
Hydrocarbons									
F1 PHCs (C6-C10)	198	7	ug/g	ND	99.1	80-120			
F2 PHCs (C10-C16)	88	4	ug/g	ND	109	80-120			
F3 PHCs (C16-C34)	228	8	ug/g	ND	117	80-120			
F4 PHCs (C34-C50)	144	6	ug/g	ND	116	80-120			
Metals									
Antimony	46.9	1.0	ug/g	ND	93.7	70-130			
Arsenic	52.1	1.0	ug/g	ND	102	70-130			
Barium	67.0	1.0	ug/g	17.6	98.8	70-130			
Beryllium	49.5	0.5	ug/g	ND	98.7	70-130			
Boron	43.8	5.0	ug/g	ND	83.8	70-130			
Cadmium	48.8	0.5	ug/g	ND	97.6	70-130			
Chromium	55.3	5.0	ug/g	ND	101	70-130			
Cobalt	51.1	1.0	ug/g	1.6	99.0	70-130			
Copper	49.8	5.0	ug/g	ND	93.0	70-130			
Lead	63.4	1.0	ug/g	16.4	94.0	70-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Molybdenum	45.5	1.0	ug/g	ND	90.7	70-130			
Nickel	51.0	5.0	ug/g	ND	96.1	70-130			
Selenium	49.2	1.0	ug/g	ND	98.2	70-130			
Silver	40.6	0.3	ug/g	ND	81.2	70-130			
Thallium	45.9	1.0	ug/g	ND	91.8	70-130			
Uranium	47.2	1.0	ug/g	ND	94.1	70-130			
Vanadium	58.7	10.0	ug/g	ND	102	70-130			
Zinc	62.7	20.0	ug/g	ND	92.7	70-130			
Volatiles									
Acetone	9.05	0.50	ug/g	ND	90.5	50-140			
Benzene	3.71	0.02	ug/g	ND	92.8	60-130			
Bromodichloromethane	2.92	0.05	ug/g	ND	73.1	60-130			
Bromoform	4.29	0.05	ug/g	ND	107	60-130			
Bromomethane	3.08	0.05	ug/g	ND	77.0	50-140			
Carbon Tetrachloride	5.00	0.05	ug/g	ND	125	60-130			
Chlorobenzene	3.97	0.05	ug/g	ND	99.3	60-130			
Chloroform	4.00	0.05	ug/g	ND	100	60-130			
Dibromochloromethane	4.27	0.05	ug/g	ND	107	60-130			
Dichlorodifluoromethane	4.71	0.05	ug/g	ND	118	50-140			
1,2-Dichlorobenzene	3.91	0.05	ug/g	ND	97.9	60-130			
1,3-Dichlorobenzene	3.96	0.05	ug/g	ND	98.9	60-130			
1,4-Dichlorobenzene	3.79	0.05	ug/g	ND	94.7	60-130			
1,1-Dichloroethane	3.79	0.05	ug/g	ND	94.7	60-130			
1,2-Dichloroethane	4.13	0.05	ug/g	ND	103	60-130			
1,1-Dichloroethylene	3.68	0.05	ug/g	ND	91.9	60-130			
cis-1,2-Dichloroethylene	3.89	0.05	ug/g	ND	97.3	60-130			
trans-1,2-Dichloroethylene	3.84	0.05	ug/g	ND	96.1	60-130			
1,2-Dichloropropane	3.67	0.05	ug/g	ND	91.7	60-130			
cis-1,3-Dichloropropylene	4.20	0.05	ug/g	ND	105	60-130			
trans-1,3-Dichloropropylene	4.76	0.05	ug/g	ND	119	60-130			
Ethylbenzene	3.83	0.05	ug/g	ND	95.8	60-130			
Ethylene dibromide (dibromoethane, 1,2	3.67	0.05	ug/g	ND	91.6	60-130			
Hexane	4.63	0.05	ug/g	ND	116	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.73	0.50	ug/g	ND	87.3	50-140			
Methyl Isobutyl Ketone	7.36	0.50	ug/g	ND	73.6	50-140			
Methyl tert-butyl ether	5.70	0.05	ug/g	ND	57.0	50-140			
Methylene Chloride	3.87	0.05	ug/g	ND	96.7	60-130			
Styrene	4.05	0.05	ug/g	ND	101	60-130			
1,1,1,2-Tetrachloroethane	4.23	0.05	ug/g	ND	106	60-130			
1,1,2,2-Tetrachloroethane	3.52	0.05	ug/g	ND	88.0	60-130			
Tetrachloroethylene	4.01	0.05	ug/g	ND	100	60-130			
Toluene	3.90	0.05	ug/g	ND	97.5	60-130			
1,1,1-Trichloroethane	4.17	0.05	ug/g	ND	104	60-130			
1,1,2-Trichloroethane	3.57	0.05	ug/g	ND	89.1	60-130			
Trichloroethylene	3.90	0.05	ug/g	ND	97.5	60-130			
Trichlorofluoromethane	4.33	0.05	ug/g	ND	108	50-140			
Vinyl chloride	4.34	0.02	ug/g	ND	109	50-140			
m,p-Xylenes	7.70	0.05	ug/g	ND	96.2	60-130			
o-Xylene	3.95	0.05	ug/g	ND	98.8	60-130			
Surrogate: 4-Bromofluorobenzene	*8.12*		*ug/g*		*101*	*50-140*			

Certificate of Analysis

Report Date: 04-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 2-Nov-2020

Client PO: 27467

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Dibromofluoromethane	*8.79*		*ug/g*		*110*	*50-140*			
Surrogate: Toluene-d8	*7.85*		*ug/g*		*98.2*	*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.

QS-02 : Spike level outside of control limits. Analysis batch accepted based on other QC included in the batch.

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.

PARA LABORATOR

Paracel ID: 2045120

ce
St. Laurent Blvd.
ntario K1G 4J8
49-1947
@paracellabs.com
www.paracellabs.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2045120	Nº 55060

Client Name: PATERSON GROUP	Project Ref: PE4908	Page __ of __
Contact Name: Karyn Munch	Quote #: ~~27467~~	Turnaround Time
Address: 154 COLONNADE RD OTTAWA K2E 7J5	PO #: 27467	☐ 1 day ☐ 3 day
	E-mail: Kmunch@patersongroup.ca	☑ 2 day ☐ Regular
Telephone: 226-7381		Date Required:

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	VOC's	PHC's (F1 → F4)	METALS By ICP	LEACHATE on VOC's	LEACHATE on METALS	LEACHATE on INORGANICS	FLASHPOINT
1	TCLP	S	\	4	Nov 2/20		✓	✓	✓	✓	✓	✓	✓
2													
3													
4													
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign):	Received By Driver/Depot: M. FLOUSE	Received at Lab: Jumeepam Rahmai	Verified By:
Relinquished By (Print): DOMINIC LANDRY	Date/Time: 02/11/20 3:44	Date/Time: NOV 02, 2020 04:25	Date/Time: 11-2-20 16:30
Date/Time: NOV 2ND/2020	Temperature: °C PM	Temperature: 5.3 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31202
Project: PE4908
Custody: 55081

Report Date: 12-Nov-2020
Order Date: 6-Nov-2020

Order #: 2045671

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

Paracel ID	Client ID
2045671-01	N4
2045671-02	E2
2045671-03	B1
2045671-04	Dup

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 31202

Report Date: 12-Nov-2020

Order Date: 6-Nov-2020

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	11-Nov-20	11-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	10-Nov-20	11-Nov-20
Solids, %	Gravimetric, calculation	10-Nov-20	11-Nov-20

Certificate of Analysis

Report Date: 12-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 6-Nov-2020

Client PO: 31202

Project Description: PE4908

	Client ID:	N4	E2	B1	Dup
	Sample Date:	05-Nov-20 15:00	05-Nov-20 15:00	05-Nov-20 15:00	05-Nov-20 15:00
	Sample ID:	2045671-01	2045671-02	2045671-03	2045671-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	93.1	95.2	98.4	95.0
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.6	1.8	<1.0	1.7
Barium	1.0 ug/g dry	274	397	19.6	419
Beryllium	0.5 ug/g dry	0.7	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	15.5	7.0	<5.0	8.6
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	11.0	8.4	6.8	8.5
Cobalt	1.0 ug/g dry	9.6	6.5	2.4	6.5
Copper	5.0 ug/g dry	13.7	7.0	<5.0	7.3
Lead	1.0 ug/g dry	22.8	8.9	<1.0	8.3
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	18.2	13.0	6.3	12.5
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	10.1	<10.0	12.3	10.4
Zinc	20.0 ug/g dry	<20.0	<20.0	<20.0	<20.0
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 12-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 6-Nov-2020

Client PO: 31202

Project Description: PE4908

	Client ID:	N4	E2	B1	Dup
	Sample Date:	05-Nov-20 15:00	05-Nov-20 15:00	05-Nov-20 15:00	05-Nov-20 15:00
	Sample ID:	2045671-01	2045671-02	2045671-03	2045671-04
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	100%	102%	101%	-
Dibromofluoromethane	Surrogate	84.0%	91.3%	92.6%	-
Toluene-d8	Surrogate	107%	108%	107%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
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						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*7.83*		*ug/g*		*97.9*	*50-140*			
Surrogate: Dibromofluoromethane	*6.25*		*ug/g*		*78.2*	*50-140*			
Surrogate: Toluene-d8	*8.36*		*ug/g*		*104*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	8.2	1.0	ug/g dry	8.3			0.9	30	
Barium	66.2	1.0	ug/g dry	72.9			9.6	30	
Beryllium	0.7	0.5	ug/g dry	0.6			5.4	30	
Boron	10.3	5.0	ug/g dry	11.3			9.7	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	19.7	5.0	ug/g dry	20.6			4.4	30	
Cobalt	9.1	1.0	ug/g dry	9.1			0.5	30	
Copper	15.4	5.0	ug/g dry	15.2			1.2	30	
Lead	8.5	1.0	ug/g dry	8.7			1.6	30	
Molybdenum	2.7	1.0	ug/g dry	2.9			7.8	30	
Nickel	22.7	5.0	ug/g dry	22.6			0.2	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	1.0	1.0	ug/g dry	1.1			2.0	30	
Vanadium	30.3	10.0	ug/g dry	32.1			5.7	30	
Zinc	45.1	20.0	ug/g dry	48.2			6.7	30	
Physical Characteristics									
% Solids	82.3	0.1	% by Wt.	83.5			1.4	25	
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	0.408	0.05	ug/g dry	0.345			16.9	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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*9.23*		*ug/g dry*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*7.67*		*ug/g dry*		*84.0*	*50-140*			
Surrogate: Toluene-d8	*9.76*		*ug/g dry*		*107*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	46.3	1.0	ug/g	ND	92.3	70-130			
Arsenic	52.6	1.0	ug/g	3.3	98.5	70-130			
Barium	73.7	1.0	ug/g	29.2	89.1	70-130			
Beryllium	49.1	0.5	ug/g	ND	97.7	70-130			
Boron	47.2	5.0	ug/g	ND	85.3	70-130			
Cadmium	46.2	0.5	ug/g	ND	92.2	70-130			
Chromium	57.8	5.0	ug/g	8.2	99.2	70-130			
Cobalt	52.3	1.0	ug/g	3.7	97.2	70-130			
Copper	52.5	5.0	ug/g	6.1	92.8	70-130			
Lead	49.5	1.0	ug/g	3.5	92.0	70-130			
Molybdenum	48.6	1.0	ug/g	1.2	94.9	70-130			
Nickel	56.0	5.0	ug/g	9.0	93.9	70-130			
Selenium	48.2	1.0	ug/g	ND	96.2	70-130			
Silver	42.4	0.3	ug/g	ND	84.8	70-130			
Thallium	46.6	1.0	ug/g	ND	92.7	70-130			
Uranium	49.0	1.0	ug/g	ND	97.1	70-130			
Vanadium	62.0	10.0	ug/g	12.8	98.3	70-130			
Zinc	63.7	20.0	ug/g	ND	88.9	70-130			
Volatiles									
Acetone	11.4	0.50	ug/g	ND	114	50-140			
Benzene	4.52	0.02	ug/g	ND	113	60-130			
Bromodichloromethane	3.82	0.05	ug/g	ND	95.6	60-130			
Bromoform	3.42	0.05	ug/g	ND	85.4	60-130			
Bromomethane	5.17	0.05	ug/g	ND	129	50-140			
Carbon Tetrachloride	3.68	0.05	ug/g	ND	92.0	60-130			
Chlorobenzene	3.91	0.05	ug/g	ND	97.7	60-130			
Chloroform	3.49	0.05	ug/g	ND	87.3	60-130			
Dibromochloromethane	4.00	0.05	ug/g	ND	100	60-130			
Dichlorodifluoromethane	4.28	0.05	ug/g	ND	107	50-140			
1,2-Dichlorobenzene	3.93	0.05	ug/g	ND	98.3	60-130			
1,3-Dichlorobenzene	3.93	0.05	ug/g	ND	98.3	60-130			
1,4-Dichlorobenzene	3.98	0.05	ug/g	ND	99.5	60-130			
1,1-Dichloroethane	4.42	0.05	ug/g	ND	110	60-130			
1,2-Dichloroethane	3.20	0.05	ug/g	ND	80.0	60-130			
1,1-Dichloroethylene	4.64	0.05	ug/g	ND	116	60-130			
cis-1,2-Dichloroethylene	3.77	0.05	ug/g	ND	94.2	60-130			
trans-1,2-Dichloroethylene	4.55	0.05	ug/g	ND	114	60-130			
1,2-Dichloropropane	4.30	0.05	ug/g	ND	107	60-130			
cis-1,3-Dichloropropylene	3.42	0.05	ug/g	ND	85.6	60-130			
trans-1,3-Dichloropropylene	3.24	0.05	ug/g	ND	81.1	60-130			
Ethylbenzene	3.90	0.05	ug/g	ND	97.6	60-130			
Ethylene dibromide (dibromoethane, 1,2	3.57	0.05	ug/g	ND	89.3	60-130			
Hexane	4.83	0.05	ug/g	ND	121	60-130			
Methyl Ethyl Ketone (2-Butanone)	10.3	0.50	ug/g	ND	103	50-140			
Methyl Isobutyl Ketone	10.7	0.50	ug/g	ND	107	50-140			
Methyl tert-butyl ether	9.96	0.05	ug/g	ND	99.6	50-140			
Methylene Chloride	4.23	0.05	ug/g	ND	106	60-130			
Styrene	3.02	0.05	ug/g	ND	75.4	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	3.84	0.05	ug/g	ND	95.9	60-130			
1,1,2,2-Tetrachloroethane	3.31	0.05	ug/g	ND	82.9	60-130			
Tetrachloroethylene	3.47	0.05	ug/g	ND	86.6	60-130			
Toluene	3.97	0.05	ug/g	ND	99.1	60-130			
1,1,1-Trichloroethane	4.01	0.05	ug/g	ND	100	60-130			
1,1,2-Trichloroethane	4.01	0.05	ug/g	ND	100	60-130			
Trichloroethylene	4.17	0.05	ug/g	ND	104	60-130			
Trichlorofluoromethane	4.34	0.05	ug/g	ND	109	50-140			
Vinyl chloride	4.94	0.02	ug/g	ND	123	50-140			
m,p-Xylenes	7.37	0.05	ug/g	ND	92.2	60-130			
o-Xylene	3.67	0.05	ug/g	ND	91.7	60-130			
Surrogate: 4-Bromofluorobenzene	*8.11*		*ug/g*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*8.01*		*ug/g*		*100*	*50-140*			
Surrogate: Toluene-d8	*8.19*		*ug/g*		*102*	*50-140*			

Qualifier Notes:

None

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.

PARACE LABORATORIES LT

Paracel ID: 2045671

lvd.
J8
.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2045671	Nº 55081

Client Name: PATERSON	Project Ref: PE 4908	Page 1 of 1
Contact Name: KARYN MUNCH	Quote #:	Turnaround Time
Address: 154 COLONNADE Rd. S. OTTAWA, ONT.	PO #: ~~32~~ 31202	☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: (613) 226-7381	E-mail: KMUNCH@PATERSONGROUP.CA	Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☒ Table 7	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: VOC's	Required Analysis: METALS By ICP
1	N4	S	\	2	Nov 5/20	3 PM	✓	✓
2	E2	↓	\	↓	↓	↓	✓	✓
3	B1	↓	\	↓	↓	↓	✓	✓
4	Dup	S	\	2	Nov 5/20	3PM		✓
5								
6								
7								
8								
9								
10								

Comments:

Method of Delivery: PACKAGE COURIER

Relinquished By (Sign):	Received By Driver/Depot: A. LOUISE	Received at Lab:	Verified By:
Relinquished By (Print): DOMINIC LANDRY	Date/Time: 06/11/20 3:06	Date/Time: 11-6-20 15:50	Date/Time: 11-6-20 16:31
Date/Time: Nov 6/2020	Temperature: °C	Temperature: 13.1 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 30817
Project: PE4908
Custody: 54889

Report Date: 17-Nov-2020
Order Date: 10-Nov-2020

Order #: 2046238

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

Paracel ID	Client ID
2046238-01	W3
2046238-02	S2
2046238-03	W2-1
2046238-04	E2-1
2046238-05	S2-1
2046238-06	N2-2
2046238-07	DUP

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 30817

Report Date: 17-Nov-2020

Order Date: 10-Nov-2020

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	16-Nov-20	16-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	13-Nov-20	13-Nov-20
Solids, %	Gravimetric, calculation	11-Nov-20	12-Nov-20

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 10-Nov-2020

Client PO: 30817

Project Description: PE4908

	Client ID:	W3	S2	W2-1	E2-1
	Sample Date:	10-Nov-20 09:00	10-Nov-20 09:00	10-Nov-20 09:00	10-Nov-20 09:00
	Sample ID:	2046238-01	2046238-02	2046238-03	2046238-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	93.9	97.7	97.5	98.4
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.2	1.6	2.7	1.3
Barium	1.0 ug/g dry	378	340	157	133
Beryllium	0.5 ug/g dry	0.7	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	18.8	7.1	7.8	6.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	10.8	8.5	7.5	7.6
Cobalt	1.0 ug/g dry	7.4	6.3	3.3	4.3
Copper	5.0 ug/g dry	11.7	7.9	<5.0	<5.0
Lead	1.0 ug/g dry	10.9	6.0	8.2	4.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	15.6	10.5	8.2	8.9
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	10.4	10.3	<10.0	10.3
Zinc	20.0 ug/g dry	<20.0	<20.0	<20.0	<20.0
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	-	-
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	-	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	-	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	-	-
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	0.10	<0.05	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	-	-

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 10-Nov-2020

Client PO: 30817

Project Description: PE4908

	Client ID:	W3	S2	W2-1	E2-1
	Sample Date:	10-Nov-20 09:00	10-Nov-20 09:00	10-Nov-20 09:00	10-Nov-20 09:00
	Sample ID:	2046238-01	2046238-02	2046238-03	2046238-04
	MDL/Units	Soil	Soil	Soil	Soil
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, 1,2-)	0.05 ug/g dry	<0.05	<0.05	-	-
Hexane	0.05 ug/g dry	<0.05	<0.05	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	-	-
Styrene	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-
4-Bromofluorobenzene	Surrogate	97.0%	97.7%	-	-
Dibromofluoromethane	Surrogate	106%	107%	-	-
Toluene-d8	Surrogate	126%	124%	-	-

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 10-Nov-2020

Client PO: 30817

Project Description: PE4908

	Client ID:	S2-1	N2-2	DUP	-
	Sample Date:	10-Nov-20 09:00	10-Nov-20 09:00	10-Nov-20 09:00	-
	Sample ID:	2046238-05	2046238-06	2046238-07	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	95.8	95.4	96.0	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	1.6	1.6	1.5	-
Barium	1.0 ug/g dry	381	342	309	-
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Boron	5.0 ug/g dry	12.1	11.6	12.1	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	5.0 ug/g dry	8.4	9.3	8.7	-
Cobalt	1.0 ug/g dry	5.0	6.4	5.3	-
Copper	5.0 ug/g dry	6.0	7.6	6.1	-
Lead	1.0 ug/g dry	5.7	5.6	5.5	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Nickel	5.0 ug/g dry	10.9	10.6	9.8	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Vanadium	10.0 ug/g dry	<10.0	<10.0	<10.0	-
Zinc	20.0 ug/g dry	<20.0	<20.0	<20.0	-

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 10-Nov-2020

Client PO: 30817

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
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						

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 10-Nov-2020

Client PO: 30817

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.39*		*ug/g*		*105*	*50-140*			
Surrogate: Dibromofluoromethane	*8.75*		*ug/g*		*109*	*50-140*			
Surrogate: Toluene-d8	*9.07*		*ug/g*		*113*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	7.2	1.0	ug/g dry	6.0			16.8	30	
Barium	75.8	1.0	ug/g dry	66.0			13.8	30	
Beryllium	1.0	0.5	ug/g dry	0.8			17.4	30	
Boron	9.4	5.0	ug/g dry	8.3			12.2	30	
Cadmium	0.7	0.5	ug/g dry	0.6			14.7	30	
Chromium	23.4	5.0	ug/g dry	20.6			12.8	30	
Cobalt	13.3	1.0	ug/g dry	11.8			11.9	30	
Copper	64.3	5.0	ug/g dry	60.5			6.1	30	
Lead	34.3	1.0	ug/g dry	30.6			11.5	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	23.1	5.0	ug/g dry	20.7			11.2	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	32.4	10.0	ug/g dry	29.4			9.8	30	
Zinc	147	20.0	ug/g dry	128			13.3	30	
Physical Characteristics									
% Solids	91.5	0.1	% by Wt.	91.2			0.3	25	
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	0.130	0.05	ug/g dry	0.101			25.3	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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*8.34*		*ug/g dry*		*97.9*	*50-140*			
Surrogate: Dibromofluoromethane	*8.90*		*ug/g dry*		*104*	*50-140*			
Surrogate: Toluene-d8	*10.6*		*ug/g dry*		*124*	*50-140*			

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 10-Nov-2020

Client PO: 30817

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	41.8	1.0	ug/g	ND	83.4	70-130			
Arsenic	49.0	1.0	ug/g	2.4	93.2	70-130			
Barium	75.4	1.0	ug/g	26.4	98.1	70-130			
Beryllium	46.9	0.5	ug/g	ND	93.2	70-130			
Boron	44.2	5.0	ug/g	ND	81.7	70-130			
Cadmium	43.4	0.5	ug/g	ND	86.3	70-130			
Chromium	56.6	5.0	ug/g	8.2	96.6	70-130			
Cobalt	51.2	1.0	ug/g	4.7	92.9	70-130			
Copper	69.7	5.0	ug/g	24.2	91.0	70-130			
Lead	55.4	1.0	ug/g	12.2	86.4	70-130			
Molybdenum	44.4	1.0	ug/g	ND	88.3	70-130			
Nickel	53.2	5.0	ug/g	8.3	89.8	70-130			
Selenium	43.5	1.0	ug/g	ND	86.6	70-130			
Silver	42.2	0.3	ug/g	ND	84.3	70-130			
Thallium	43.3	1.0	ug/g	ND	86.6	70-130			
Uranium	44.7	1.0	ug/g	ND	89.2	70-130			
Vanadium	60.4	10.0	ug/g	11.8	97.3	70-130			
Zinc	100	20.0	ug/g	51.4	98.3	70-130			
Volatiles									
Acetone	11.9	0.50	ug/g	ND	119	50-140			
Benzene	3.27	0.02	ug/g	ND	81.7	60-130			
Bromodichloromethane	2.89	0.05	ug/g	ND	72.4	60-130			
Bromoform	4.85	0.05	ug/g	ND	121	60-130			
Bromomethane	4.34	0.05	ug/g	ND	108	50-140			
Carbon Tetrachloride	4.96	0.05	ug/g	ND	124	60-130			
Chlorobenzene	3.97	0.05	ug/g	ND	99.2	60-130			
Chloroform	3.84	0.05	ug/g	ND	96.0	60-130			
Dibromochloromethane	4.69	0.05	ug/g	ND	117	60-130			
Dichlorodifluoromethane	5.06	0.05	ug/g	ND	127	50-140			
1,2-Dichlorobenzene	3.79	0.05	ug/g	ND	94.8	60-130			
1,3-Dichlorobenzene	3.87	0.05	ug/g	ND	96.7	60-130			
1,4-Dichlorobenzene	3.89	0.05	ug/g	ND	97.3	60-130			
1,1-Dichloroethane	3.46	0.05	ug/g	ND	86.5	60-130			
1,2-Dichloroethane	4.16	0.05	ug/g	ND	104	60-130			
1,1-Dichloroethylene	3.24	0.05	ug/g	ND	80.9	60-130			
cis-1,2-Dichloroethylene	3.33	0.05	ug/g	ND	83.4	60-130			
trans-1,2-Dichloroethylene	3.31	0.05	ug/g	ND	82.9	60-130			
1,2-Dichloropropane	3.27	0.05	ug/g	ND	81.8	60-130			
cis-1,3-Dichloropropylene	3.88	0.05	ug/g	ND	97.0	60-130			
trans-1,3-Dichloropropylene	4.55	0.05	ug/g	ND	114	60-130			
Ethylbenzene	3.84	0.05	ug/g	ND	96.1	60-130			
Ethylene dibromide (dibromoethane, 1,2	3.82	0.05	ug/g	ND	95.6	60-130			
Hexane	4.08	0.05	ug/g	ND	102	60-130			
Methyl Ethyl Ketone (2-Butanone)	9.59	0.50	ug/g	ND	95.9	50-140			
Methyl Isobutyl Ketone	8.35	0.50	ug/g	ND	83.5	50-140			
Methyl tert-butyl ether	7.30	0.05	ug/g	ND	73.0	50-140			
Methylene Chloride	3.56	0.05	ug/g	ND	88.9	60-130			
Styrene	4.07	0.05	ug/g	ND	102	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	4.62	0.05	ug/g	ND	115	60-130			
1,1,2,2-Tetrachloroethane	3.93	0.05	ug/g	ND	98.4	60-130			
Tetrachloroethylene	4.00	0.05	ug/g	ND	100	60-130			
Toluene	3.83	0.05	ug/g	ND	95.7	60-130			
1,1,1-Trichloroethane	4.15	0.05	ug/g	ND	104	60-130			
1,1,2-Trichloroethane	3.00	0.05	ug/g	ND	75.1	60-130			
Trichloroethylene	3.69	0.05	ug/g	ND	92.2	60-130			
Trichlorofluoromethane	4.64	0.05	ug/g	ND	116	50-140			
Vinyl chloride	5.18	0.02	ug/g	ND	130	50-140			
m,p-Xylenes	7.93	0.05	ug/g	ND	99.2	60-130			
o-Xylene	4.16	0.05	ug/g	ND	104	60-130			
Surrogate: 4-Bromofluorobenzene	*7.75*		*ug/g*		*96.9*	*50-140*			
Surrogate: Dibromofluoromethane	*8.75*		*ug/g*		*109*	*50-140*			
Surrogate: Toluene-d8	*7.34*		*ug/g*		*91.7*	*50-140*			

Qualifier Notes:

None

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.

PARACEL LABORATORIES LTD.

Paracel ID: 2046238

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2046238	Nº 54889

Page 1 of 1

Client Name: PATERSON	Project Ref: PE4908
Contact Name: KARIN MUNCH	Quote #:
Address: 154 COLONNADE Rd. S. OTTAWA, ON.	PO #: 30817
Telephone: 613 226 7381	E-mail: KMUNCH@PATERSONGROUP.CA

Turnaround Time

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

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☑ Table 1	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 BY ICP	Required Analysis: VOC's
1	W3	S		2	Nov 10/2020		✓	✓
2	S2						✓	✓
3	W2-1						✓	
4	E2-1						✓	
5	S2-1						✓	
6	N2-2						✓	
7	DUP.						✓	
8								
9								
10								

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: BJam	Verified By: BJam
Relinquished By (Print): DOMINIC LANDRY	Date/Time:	Date/Time: Nov 10, 20 18:30	Date/Time: Nov 10, 2020 18:46
Date/Time: Nov 10/2020	Temperature: °C	Temperature: 14.5 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31222
Project: PE4908
Custody: 54897

Report Date: 17-Nov-2020
Order Date: 13-Nov-2020

Order #: 2046545

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

Paracel ID	Client ID
2046545-01	B2-1
2046545-02	B2-2

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31222

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	17-Nov-20	17-Nov-20
Solids, %	Gravimetric, calculation	16-Nov-20	17-Nov-20

Certificate of Analysis

Report Date: 17-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31222

Project Description: PE4908

	Client ID:	B2-1	B2-2	-	-
	Sample Date:	13-Nov-20 09:00	13-Nov-20 09:00	-	-
	Sample ID:	2046545-01	2046545-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	99.3	99.4	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	-	-
Arsenic	1.0 ug/g dry	1.2	1.2	-	-
Barium	1.0 ug/g dry	40.3	35.4	-	-
Beryllium	0.5 ug/g dry	<0.5	<0.5	-	-
Boron	5.0 ug/g dry	<5.0	<5.0	-	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	-	-
Chromium	5.0 ug/g dry	7.6	7.6	-	-
Cobalt	1.0 ug/g dry	2.9	3.0	-	-
Copper	5.0 ug/g dry	<5.0	<5.0	-	-
Lead	1.0 ug/g dry	3.1	2.2	-	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	-	-
Nickel	5.0 ug/g dry	7.2	7.4	-	-
Selenium	1.0 ug/g dry	<1.0	<1.0	-	-
Silver	0.3 ug/g dry	<0.3	<0.3	-	-
Thallium	1.0 ug/g dry	<1.0	<1.0	-	-
Uranium	1.0 ug/g dry	<1.0	<1.0	-	-
Vanadium	10.0 ug/g dry	11.7	12.6	-	-
Zinc	20.0 ug/g dry	21.0	23.2	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	3.4	1.0	ug/g dry	4.0			16.3	30	
Barium	70.2	1.0	ug/g dry	87.3			21.7	30	
Beryllium	0.6	0.5	ug/g dry	0.7			7.6	30	
Boron	5.5	5.0	ug/g dry	5.8			5.2	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	25.8	5.0	ug/g dry	30.9			18.0	30	
Cobalt	5.5	1.0	ug/g dry	6.6			17.9	30	
Copper	11.7	5.0	ug/g dry	13.7			16.0	30	
Lead	12.8	1.0	ug/g dry	15.3			17.7	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	14.8	5.0	ug/g dry	17.8			18.6	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	25.7	10.0	ug/g dry	30.9			18.5	30	
Zinc	49.0	20.0	ug/g dry	57.4			15.8	30	
Physical Characteristics									
% Solids	83.4	0.1	% by Wt.	86.0			3.0	25	

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 31222

Report Date: 17-Nov-2020

Order Date: 13-Nov-2020

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	48.5	1.0	ug/g	ND	96.9	70-130			
Arsenic	50.5	1.0	ug/g	1.6	97.9	70-130			
Barium	79.9	1.0	ug/g	34.9	90.1	70-130			
Beryllium	52.2	0.5	ug/g	ND	104	70-130			
Boron	48.1	5.0	ug/g	ND	91.7	70-130			
Cadmium	47.8	0.5	ug/g	ND	95.3	70-130			
Chromium	61.7	5.0	ug/g	12.4	98.7	70-130			
Cobalt	49.8	1.0	ug/g	2.6	94.4	70-130			
Copper	52.6	5.0	ug/g	5.5	94.3	70-130			
Lead	51.0	1.0	ug/g	6.1	89.9	70-130			
Molybdenum	47.8	1.0	ug/g	ND	95.2	70-130			
Nickel	54.7	5.0	ug/g	7.1	95.1	70-130			
Selenium	48.7	1.0	ug/g	ND	96.8	70-130			
Silver	42.3	0.3	ug/g	ND	84.5	70-130			
Thallium	47.4	1.0	ug/g	ND	94.6	70-130			
Uranium	47.5	1.0	ug/g	ND	94.5	70-130			
Vanadium	61.9	10.0	ug/g	12.4	99.0	70-130			
Zinc	68.6	20.0	ug/g	23.0	91.2	70-130			

Qualifier Notes:

None

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.

PARACE LABORATORIES L

Paracel ID: 2046545

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2046545	№ 54897

Client Name: PATERSON	Project Ref: PE4908	Page 1 of 1
Contact Name: KARYN MUNCH	Quote #:	Turnaround Time
Address: 154 COLONNADE Rd. S. OTTAWA, ONT.	PO #: 31222	☐ 1 day ☐ 3 day ☑ 2 day ☐ Regular
Telephone: (613) 226-7381	E-mail: KMUNCH@PATERSONGROUP.CA	Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☑ Table 7	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 BY ICP
1	BZ-1	S	-	2	Nov. 13/20	-	✓
2	BZ-2	S	-	2	Nov. 13/20	-	✓
3							
4							
5							
6							
7							
8							
9							
10							

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign):	Received By Driver/Depot: T. DEROSE	Received at Lab: Jumeeparm Dohmai	Verified By:
Relinquished By (Print): DOMINIC LANDRY	Date/Time: 13/11/20 2:14	Date/Time: NOV 13, 2020 02.52	Date/Time: 11-13-20 15:07
Date/Time: Nov. 13/2020	Temperature: °C	Temperature: 8.6 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31221
Project: PE4908
Custody: 54896

Report Date: 19-Nov-2020
Order Date: 13-Nov-2020

Order #: 2046550

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

Paracel ID	Client ID
2046550-01	B2
2046550-02	B3

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31221

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	18-Nov-20	18-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	16-Nov-20	18-Nov-20
Solids, %	Gravimetric, calculation	16-Nov-20	17-Nov-20

Certificate of Analysis

Report Date: 19-Nov-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 13-Nov-2020

Client PO: **31221**

Project Description: **PE4908**

	Client ID:	B2	B3	-	-
	Sample Date:	13-Nov-20 09:00	13-Nov-20 09:00	-	-
	Sample ID:	2046550-01	2046550-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	93.4	98.0	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	-	-
Arsenic	1.0 ug/g dry	<1.0	<1.0	-	-
Barium	1.0 ug/g dry	121	24.5	-	-
Beryllium	0.5 ug/g dry	<0.5	<0.5	-	-
Boron	5.0 ug/g dry	<5.0	<5.0	-	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	-	-
Chromium	5.0 ug/g dry	7.1	6.5	-	-
Cobalt	1.0 ug/g dry	3.1	2.3	-	-
Copper	5.0 ug/g dry	<5.0	<5.0	-	-
Lead	1.0 ug/g dry	2.5	<1.0	-	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	-	-
Nickel	5.0 ug/g dry	7.7	5.8	-	-
Selenium	1.0 ug/g dry	<1.0	<1.0	-	-
Silver	0.3 ug/g dry	<0.3	<0.3	-	-
Thallium	1.0 ug/g dry	<1.0	<1.0	-	-
Uranium	1.0 ug/g dry	<1.0	<1.0	-	-
Vanadium	10.0 ug/g dry	11.2	<10.0	-	-
Zinc	20.0 ug/g dry	20.1	<20.0	-	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	-	-
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	-	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	-	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	-	-
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	-	-

Certificate of Analysis

Report Date: 19-Nov-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 13-Nov-2020

Client PO: **31221**

Project Description: PE4908

	Client ID:	B2	B3	-	-
	Sample Date:	13-Nov-20 09:00	13-Nov-20 09:00	-	-
	Sample ID:	2046550-01	2046550-02	-	-
	MDL/Units	Soil	Soil	-	-
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, 1,2-)	0.05 ug/g dry	<0.05	<0.05	-	-
Hexane	0.05 ug/g dry	<0.05	<0.05	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	-	-
Styrene	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-
4-Bromofluorobenzene	Surrogate	103%	103%	-	-
Dibromofluoromethane	Surrogate	110%	109%	-	-
Toluene-d8	Surrogate	123%	124%	-	-

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31221

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
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						

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31221

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.40*		*ug/g*		*105*	*50-140*			
Surrogate: Dibromofluoromethane	*8.90*		*ug/g*		*111*	*50-140*			
Surrogate: Toluene-d8	*8.76*		*ug/g*		*109*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	1.5	1.0	ug/g dry	1.3			12.9	30	
Barium	8.0	1.0	ug/g dry	7.5			6.1	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron	ND	5.0	ug/g dry	ND			NC	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	5.6	5.0	ug/g dry	5.4			2.5	30	
Cobalt	1.6	1.0	ug/g dry	1.4			12.5	30	
Copper	ND	5.0	ug/g dry	ND			NC	30	
Lead	1.7	1.0	ug/g dry	1.5			12.5	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	7.0	5.0	ug/g dry	ND			NC	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	15.0	10.0	ug/g dry	14.9			0.5	30	
Zinc	ND	20.0	ug/g dry	ND			NC	30	
Physical Characteristics									
% Solids	83.4	0.1	% by Wt.	86.0			3.0	25	
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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*9.51*		*ug/g dry*		*99.1*	*50-140*			
Surrogate: Dibromofluoromethane	*10.3*		*ug/g dry*		*108*	*50-140*			
Surrogate: Toluene-d8	*11.7*		*ug/g dry*		*122*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	44.5	1.0	ug/g	ND	88.7	70-130			
Arsenic	46.6	1.0	ug/g	ND	92.1	70-130			
Barium	49.1	1.0	ug/g	3.0	92.1	70-130			
Beryllium	48.2	0.5	ug/g	ND	96.3	70-130			
Boron	41.9	5.0	ug/g	ND	81.8	70-130			
Cadmium	45.6	0.5	ug/g	ND	91.2	70-130			
Chromium	50.5	5.0	ug/g	ND	96.7	70-130			
Cobalt	46.3	1.0	ug/g	ND	91.4	70-130			
Copper	46.0	5.0	ug/g	ND	90.5	70-130			
Lead	43.2	1.0	ug/g	ND	85.3	70-130			
Molybdenum	44.9	1.0	ug/g	ND	89.7	70-130			
Nickel	47.2	5.0	ug/g	ND	92.1	70-130			
Selenium	43.8	1.0	ug/g	ND	87.5	70-130			
Silver	43.8	0.3	ug/g	ND	87.7	70-130			
Thallium	45.8	1.0	ug/g	ND	91.5	70-130			
Uranium	46.0	1.0	ug/g	ND	91.7	70-130			
Vanadium	54.3	10.0	ug/g	ND	96.6	70-130			
Zinc	46.0	20.0	ug/g	ND	86.6	70-130			
Volatiles									
Acetone	9.88	0.50	ug/g	ND	98.8	50-140			
Benzene	3.21	0.02	ug/g	ND	80.3	60-130			
Bromodichloromethane	2.72	0.05	ug/g	ND	67.9	60-130			
Bromoform	4.29	0.05	ug/g	ND	107	60-130			
Bromomethane	5.18	0.05	ug/g	ND	130	50-140			
Carbon Tetrachloride	4.89	0.05	ug/g	ND	122	60-130			
Chlorobenzene	3.70	0.05	ug/g	ND	92.4	60-130			
Chloroform	3.63	0.05	ug/g	ND	90.7	60-130			
Dibromochloromethane	4.22	0.05	ug/g	ND	105	60-130			
Dichlorodifluoromethane	5.16	0.05	ug/g	ND	129	50-140			
1,2-Dichlorobenzene	3.69	0.05	ug/g	ND	92.3	60-130			
1,3-Dichlorobenzene	3.72	0.05	ug/g	ND	93.0	60-130			
1,4-Dichlorobenzene	3.67	0.05	ug/g	ND	91.7	60-130			
1,1-Dichloroethane	3.35	0.05	ug/g	ND	83.7	60-130			
1,2-Dichloroethane	3.77	0.05	ug/g	ND	94.3	60-130			
1,1-Dichloroethylene	3.17	0.05	ug/g	ND	79.2	60-130			
cis-1,2-Dichloroethylene	3.31	0.05	ug/g	ND	82.6	60-130			
trans-1,2-Dichloroethylene	3.30	0.05	ug/g	ND	82.6	60-130			
1,2-Dichloropropane	3.19	0.05	ug/g	ND	79.8	60-130			
cis-1,3-Dichloropropylene	3.86	0.05	ug/g	ND	96.5	60-130			
trans-1,3-Dichloropropylene	4.13	0.05	ug/g	ND	103	60-130			
Ethylbenzene	3.58	0.05	ug/g	ND	89.4	60-130			
Ethylene dibromide (dibromoethane, 1,2	3.42	0.05	ug/g	ND	85.6	60-130			
Hexane	3.83	0.05	ug/g	ND	95.7	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.11	0.50	ug/g	ND	81.1	50-140			
Methyl Isobutyl Ketone	6.87	0.50	ug/g	ND	68.7	50-140			
Methyl tert-butyl ether	5.74	0.05	ug/g	ND	57.4	50-140			
Methylene Chloride	3.44	0.05	ug/g	ND	86.1	60-130			
Styrene	3.80	0.05	ug/g	ND	94.9	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	4.24	0.05	ug/g	ND	106	60-130			
1,1,2,2-Tetrachloroethane	3.33	0.05	ug/g	ND	83.3	60-130			
Tetrachloroethylene	3.82	0.05	ug/g	ND	95.4	60-130			
Toluene	3.56	0.05	ug/g	ND	88.9	60-130			
1,1,1-Trichloroethane	3.90	0.05	ug/g	ND	97.6	60-130			
1,1,2-Trichloroethane	3.21	0.05	ug/g	ND	80.3	60-130			
Trichloroethylene	3.53	0.05	ug/g	ND	88.2	60-130			
Trichlorofluoromethane	4.06	0.05	ug/g	ND	102	50-140			
Vinyl chloride	4.78	0.02	ug/g	ND	119	50-140			
m,p-Xylenes	7.34	0.05	ug/g	ND	91.7	60-130			
o-Xylene	3.79	0.05	ug/g	ND	94.8	60-130			
Surrogate: 4-Bromofluorobenzene	*7.72*		*ug/g*		*96.5*	*50-140*			
Surrogate: Dibromofluoromethane	*8.89*		*ug/g*		*111*	*50-140*			
Surrogate: Toluene-d8	*7.91*		*ug/g*		*98.9*	*50-140*			

Qualifier Notes:

None

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.

PARACEL LABORATORIES LTD.

Paracel ID: 2046550

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2046550	Nº 54896

Client Name: PATERSON | Project Ref: PE4908 | Page 1 of 1

Contact Name: KARYN MUNCH | Quote #:

Address: 154 COLONNADE Rd. S. OTTAWA ONT. | PO #: 31221

E-mail: KMUNCH@PATERSONGROUP.CA

Telephone: (613) 226-7381

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular

Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☑ Table 7	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 By ICP	Required Analysis: VOC's
1	BZ	S		2	Nov. 13/20		✓	✓
2	B3	S		2	Nov. 13/20		✓	✓
3								
4								
5								
6								
7								
8								
9								
10								

Comments:

Method of Delivery: PARCEL COURIER

Relinquished By (Sign):	Received By Driver/Depot: T. FLOOSE	Received at Lab: Vineetpaul Dohman	Verified By:
Relinquished By (Print): DOMINIC LANDRY	Date/Time: 13/11/2014	Date/Time: Nov 13, 2020 02:52	Date/Time: NOV 13, 2020 15:15
Date/Time: NOV. 13/2020	Temperature: °C PM	Temperature: 8.6 °C	pH Verified: ☐ By:

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www.paracellabs.com

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31220
Project: PE4908
Custody: 54895

Report Date: 19-Nov-2020
Order Date: 13-Nov-2020

Order #: 2046552

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

Paracel ID	Client ID
2046552-01	E1

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31220

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	18-Nov-20	18-Nov-20
Solids, %	Gravimetric, calculation	16-Nov-20	17-Nov-20

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31220

Project Description: PE4908

	Client ID:	E1	-	-	-
	Sample Date:	05-Nov-20 09:00	-	-	-
	Sample ID:	2046552-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	95.1	-	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	1.4	-	-	-
Barium	1.0 ug/g dry	307	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	10.5	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	7.5	-	-	-
Cobalt	1.0 ug/g dry	6.9	-	-	-
Copper	5.0 ug/g dry	7.1	-	-	-
Lead	1.0 ug/g dry	22.0	-	-	-
Molybdenum	1.0 ug/g dry	<1.0	-	-	-
Nickel	5.0 ug/g dry	12.8	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	<10.0	-	-	-
Zinc	20.0 ug/g dry	<20.0	-	-	-

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 31220

Report Date: 19-Nov-2020

Order Date: 13-Nov-2020

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	1.5	1.0	ug/g dry	1.3			12.9	30	
Barium	8.0	1.0	ug/g dry	7.5			6.1	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron	ND	5.0	ug/g dry	ND			NC	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	5.6	5.0	ug/g dry	5.4			2.5	30	
Cobalt	1.6	1.0	ug/g dry	1.4			12.5	30	
Copper	ND	5.0	ug/g dry	ND			NC	30	
Lead	1.7	1.0	ug/g dry	1.5			12.5	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	7.0	5.0	ug/g dry	ND			NC	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	15.0	10.0	ug/g dry	14.9			0.5	30	
Zinc	ND	20.0	ug/g dry	ND			NC	30	
Physical Characteristics									
% Solids	83.4	0.1	% by Wt.	86.0			3.0	25	

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 13-Nov-2020

Client PO: 31220

Project Description: PE4908

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	44.5	1.0	ug/g	ND	88.7	70-130			
Arsenic	46.6	1.0	ug/g	ND	92.1	70-130			
Barium	49.1	1.0	ug/g	3.0	92.1	70-130			
Beryllium	48.2	0.5	ug/g	ND	96.3	70-130			
Boron	41.9	5.0	ug/g	ND	81.8	70-130			
Cadmium	45.6	0.5	ug/g	ND	91.2	70-130			
Chromium	50.5	5.0	ug/g	ND	96.7	70-130			
Cobalt	46.3	1.0	ug/g	ND	91.4	70-130			
Copper	46.0	5.0	ug/g	ND	90.5	70-130			
Lead	43.2	1.0	ug/g	ND	85.3	70-130			
Molybdenum	44.9	1.0	ug/g	ND	89.7	70-130			
Nickel	47.2	5.0	ug/g	ND	92.1	70-130			
Selenium	43.8	1.0	ug/g	ND	87.5	70-130			
Silver	43.8	0.3	ug/g	ND	87.7	70-130			
Thallium	45.8	1.0	ug/g	ND	91.5	70-130			
Uranium	46.0	1.0	ug/g	ND	91.7	70-130			
Vanadium	54.3	10.0	ug/g	ND	96.6	70-130			
Zinc	46.0	20.0	ug/g	ND	86.6	70-130			

Qualifier Notes:

None

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.

PARACEL LABORATORIES LTD.

Paracel ID: 2046552

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2046552	No 54895

Client Name: PATERSON	Project Ref: PE4908	Page 1 of 1
Contact Name: KARYN MUNCH	Quote #:	Turnaround Time
Address: 154 COLONNADE Rd. S. OTTAWA, ONT.	PO #: 31220	☐ 1 day ☐ 3 day
	E-mail: KMUNCH@PATERSONGROUP.CA	☐ 2 day ☒ Regular
Telephone: (613) 226-7381		Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☑ Table 7	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 By ICP
1	E1	S	\	2	Nov. 5/20	\	\
2	E3 (hold)	S	\	2	Nov. 10/20	\	\
3							
4							
5							
6							
7							
8							
9							
10							

Comments: * hold E3

Method of Delivery: PARACEL COURIER

Relinquished By (Sign):	Received By Driver/Depot: A. Fleurge	Received at Lab: Jumeagam Dohmal	Verified By: BCm
Relinquished By (Print): Dominic Landry	Date/Time: 13/11/2020 14	Date/Time: NOV 13, 2020 02.52	Date/Time: Nov 13, 2020 15:17
Date/Time: Nov. 13/2020	Temperature: °C FF	Temperature: 8.6 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31250
Project: PE4908
Custody: 52596

Report Date: 19-Nov-2020
Order Date: 18-Nov-2020

Order #: 2047284

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

Paracel ID	Client ID
2047284-01	W4

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 18-Nov-2020

Client PO: 31250

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	19-Nov-20	19-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	18-Nov-20	19-Nov-20
Solids, %	Gravimetric, calculation	18-Nov-20	18-Nov-20

Certificate of Analysis

Report Date: 19-Nov-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 18-Nov-2020

Client PO: **31250**

Project Description: **PE4908**

	Client ID:	W4	-	-	-
	Sample Date:	10-Nov-20 09:00	-	-	-
	Sample ID:	2047284-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	97.6	-	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	1.1	-	-	-
Barium	1.0 ug/g dry	65.0	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	<5.0	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	8.6	-	-	-
Cobalt	1.0 ug/g dry	3.9	-	-	-
Copper	5.0 ug/g dry	5.1	-	-	-
Lead	1.0 ug/g dry	2.7	-	-	-
Molybdenum	1.0 ug/g dry	<1.0	-	-	-
Nickel	5.0 ug/g dry	9.4	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	13.3	-	-	-
Zinc	20.0 ug/g dry	23.1	-	-	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	0.06	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 18-Nov-2020

Client PO: 31250

Project Description: PE4908

	Client ID:	W4	-	-	-
	Sample Date:	10-Nov-20 09:00	-	-	-
	Sample ID:	2047284-01	-	-	-
	MDL/Units	Soil	-	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	0.14	-	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	-	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	-	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	-	-	-
m,p-Xylenes	0.05 ug/g dry	0.08	-	-	-
o-Xylene	0.05 ug/g dry	<0.05	-	-	-
Xylenes, total	0.05 ug/g dry	0.08	-	-	-
4-Bromofluorobenzene	Surrogate	105%	-	-	-
Dibromofluoromethane	Surrogate	94.6%	-	-	-
Toluene-d8	Surrogate	108%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
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						

Certificate of Analysis

Report Date: 19-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 18-Nov-2020

Client PO: 31250

Project Description: PE4908

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.72*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*7.48*		*ug/g*		*93.5*	*50-140*			
Surrogate: Toluene-d8	*8.37*		*ug/g*		*105*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	1.9	1.0	ug/g dry	2.2			15.2	30	
Barium	41.9	1.0	ug/g dry	43.7			4.4	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron	6.4	5.0	ug/g dry	6.5			2.2	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	12.6	5.0	ug/g dry	12.8			1.2	30	
Cobalt	4.4	1.0	ug/g dry	4.5			3.3	30	
Copper	8.2	5.0	ug/g dry	8.6			4.5	30	
Lead	3.4	1.0	ug/g dry	3.6			6.2	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	8.7	5.0	ug/g dry	9.0			3.4	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	22.8	10.0	ug/g dry	23.0			0.7	30	
Zinc	21.4	20.0	ug/g dry	22.1			3.2	30	
Physical Characteristics									
% Solids	93.9	0.1	% by Wt.	92.4			1.6	25	
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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*9.34*		*ug/g dry*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*8.61*		*ug/g dry*		*100*	*50-140*			
Surrogate: Toluene-d8	*9.24*		*ug/g dry*		*107*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	44.5	1.0	ug/g	ND	88.4	70-130			
Arsenic	53.5	1.0	ug/g	ND	105	70-130			
Barium	63.9	1.0	ug/g	17.5	92.7	70-130			
Beryllium	54.3	0.5	ug/g	ND	108	70-130			
Boron	49.5	5.0	ug/g	ND	93.7	70-130			
Cadmium	46.2	0.5	ug/g	ND	92.4	70-130			
Chromium	61.3	5.0	ug/g	5.1	112	70-130			
Cobalt	54.6	1.0	ug/g	1.8	106	70-130			
Copper	54.6	5.0	ug/g	ND	102	70-130			
Lead	42.8	1.0	ug/g	1.5	82.7	70-130			
Molybdenum	49.9	1.0	ug/g	ND	99.5	70-130			
Nickel	56.4	5.0	ug/g	ND	106	70-130			
Selenium	49.1	1.0	ug/g	ND	98.1	70-130			
Silver	42.6	0.3	ug/g	ND	85.2	70-130			
Thallium	44.9	1.0	ug/g	ND	89.8	70-130			
Uranium	42.3	1.0	ug/g	ND	84.2	70-130			
Vanadium	66.2	10.0	ug/g	ND	114	70-130			
Zinc	56.6	20.0	ug/g	ND	95.6	70-130			
Volatiles									
Acetone	9.19	0.50	ug/g	ND	91.9	50-140			
Benzene	3.38	0.02	ug/g	ND	84.6	60-130			
Bromodichloromethane	3.65	0.05	ug/g	ND	91.4	60-130			
Bromoform	4.07	0.05	ug/g	ND	102	60-130			
Bromomethane	5.11	0.05	ug/g	ND	128	50-140			
Carbon Tetrachloride	3.60	0.05	ug/g	ND	90.1	60-130			
Chlorobenzene	3.47	0.05	ug/g	ND	86.8	60-130			
Chloroform	3.33	0.05	ug/g	ND	83.2	60-130			
Dibromochloromethane	4.45	0.05	ug/g	ND	111	60-130			
Dichlorodifluoromethane	4.55	0.05	ug/g	ND	114	50-140			
1,2-Dichlorobenzene	3.47	0.05	ug/g	ND	86.7	60-130			
1,3-Dichlorobenzene	3.67	0.05	ug/g	ND	91.9	60-130			
1,4-Dichlorobenzene	3.64	0.05	ug/g	ND	91.1	60-130			
1,1-Dichloroethane	3.79	0.05	ug/g	ND	94.6	60-130			
1,2-Dichloroethane	3.03	0.05	ug/g	ND	75.6	60-130			
1,1-Dichloroethylene	4.15	0.05	ug/g	ND	104	60-130			
cis-1,2-Dichloroethylene	3.16	0.05	ug/g	ND	79.0	60-130			
trans-1,2-Dichloroethylene	4.09	0.05	ug/g	ND	102	60-130			
1,2-Dichloropropane	3.40	0.05	ug/g	ND	85.1	60-130			
cis-1,3-Dichloropropylene	3.40	0.05	ug/g	ND	85.0	60-130			
trans-1,3-Dichloropropylene	3.25	0.05	ug/g	ND	81.3	60-130			
Ethylbenzene	3.38	0.05	ug/g	ND	84.5	60-130			
Ethylene dibromide (dibromoethane, 1,2	3.45	0.05	ug/g	ND	86.1	60-130			
Hexane	4.79	0.05	ug/g	ND	120	60-130			
Methyl Ethyl Ketone (2-Butanone)	7.25	0.50	ug/g	ND	72.5	50-140			
Methyl Isobutyl Ketone	7.21	0.50	ug/g	ND	72.1	50-140			
Methyl tert-butyl ether	7.33	0.05	ug/g	ND	73.3	50-140			
Methylene Chloride	3.50	0.05	ug/g	ND	87.5	60-130			
Styrene	3.06	0.05	ug/g	ND	76.6	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	4.04	0.05	ug/g	ND	101	60-130			
1,1,2,2-Tetrachloroethane	2.92	0.05	ug/g	ND	73.0	60-130			
Tetrachloroethylene	3.24	0.05	ug/g	ND	81.1	60-130			
Toluene	3.59	0.05	ug/g	ND	89.8	60-130			
1,1,1-Trichloroethane	3.67	0.05	ug/g	ND	91.7	60-130			
1,1,2-Trichloroethane	3.10	0.05	ug/g	ND	77.5	60-130			
Trichloroethylene	3.52	0.05	ug/g	ND	87.9	60-130			
Trichlorofluoromethane	3.91	0.05	ug/g	ND	97.7	50-140			
Vinyl chloride	4.76	0.02	ug/g	ND	119	50-140			
m,p-Xylenes	6.86	0.05	ug/g	ND	85.7	60-130			
o-Xylene	3.36	0.05	ug/g	ND	84.0	60-130			
Surrogate: 4-Bromofluorobenzene	*8.92*		*ug/g*		*111*	*50-140*			
Surrogate: Dibromofluoromethane	*8.22*		*ug/g*		*103*	*50-140*			
Surrogate: Toluene-d8	*8.33*		*ug/g*		*104*	*50-140*			

Qualifier Notes:

None

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.

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2047284	Nº 52596

Client Name: PATERSON	Project Ref: PE4908	Page 1 of 1
Contact Name: KARYN MUNCH	Quote #:	Turnaround Time
Address: 154 COLONNADE Rd. S. OTTAWA, ONT.	PO #: 31250	☒ 1 day ☐ 3 day ☐ 2 day ☐ Regular
Telephone: (613) 226-7381	E-mail: KMUNCH@PATERSONGROUP.CA	Date Required:

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☒ Table 7 For RSC: ☐ Yes ☐ No

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: VOC's	Required Analysis: METALS BY ICP
1	W4 ← HOLD!	S	/	2	Nov. 10/2020	/	/	/
2								
3								
4								
5								
6								
7								
8								
9								
10								

Comments:

Method of Delivery: DIB

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Dominic Landry	Date/Time:	Date/Time: 11-17-20 15:45	Date/Time: 11-18-20 10:33
Date/Time: Nov. 17/2020	Temperature: °C	Temperature: 11.8 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31280
Project: PE4908
Custody: 52430

Report Date: 24-Nov-2020
Order Date: 20-Nov-2020

Order #: 2047664

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

Paracel ID	Client ID
2047664-01	W10
2047664-02	E7

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 24-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 20-Nov-2020

Client PO: 31280

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	24-Nov-20	24-Nov-20
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	23-Nov-20	24-Nov-20
Solids, %	Gravimetric, calculation	23-Nov-20	23-Nov-20

Certificate of Analysis

Report Date: 24-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 20-Nov-2020

Client PO: 31280

Project Description: PE4908

	Client ID:	W10	E7	-	-
	Sample Date:	20-Nov-20 09:00	20-Nov-20 09:00	-	-
	Sample ID:	2047664-01	2047664-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	97.6	96.2	-	-
Metals					
Antimony	1.0 ug/g dry	-	<1.0	-	-
Arsenic	1.0 ug/g dry	-	2.0	-	-
Barium	1.0 ug/g dry	-	465	-	-
Beryllium	0.5 ug/g dry	-	<0.5	-	-
Boron	5.0 ug/g dry	-	14.5	-	-
Cadmium	0.5 ug/g dry	-	<0.5	-	-
Chromium	5.0 ug/g dry	-	9.2	-	-
Cobalt	1.0 ug/g dry	-	12.0	-	-
Copper	5.0 ug/g dry	-	15.6	-	-
Lead	1.0 ug/g dry	-	10.4	-	-
Molybdenum	1.0 ug/g dry	-	<1.0	-	-
Nickel	5.0 ug/g dry	-	16.7	-	-
Selenium	1.0 ug/g dry	-	<1.0	-	-
Silver	0.3 ug/g dry	-	<0.3	-	-
Thallium	1.0 ug/g dry	-	<1.0	-	-
Uranium	1.0 ug/g dry	-	<1.0	-	-
Vanadium	10.0 ug/g dry	-	10.1	-	-
Zinc	20.0 ug/g dry	-	<20.0	-	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-

Certificate of Analysis

Report Date: 24-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 20-Nov-2020

Client PO: 31280

Project Description: PE4908

	Client ID:	W10	E7	-	-
	Sample Date:	20-Nov-20 09:00	20-Nov-20 09:00	-	-
	Sample ID:	2047664-01	2047664-02	-	-
	MDL/Units	Soil	Soil	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	-	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	-	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	-	-	-
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	-	-	-
4-Bromofluorobenzene	Surrogate	51.2%	-	-	-
Dibromofluoromethane	Surrogate	52.0%	-	-	-
Toluene-d8	Surrogate	56.8%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
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						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*10.6*		*ug/g*		*133*	*50-140*			
Surrogate: Dibromofluoromethane	*9.55*		*ug/g*		*119*	*50-140*			
Surrogate: Toluene-d8	*9.59*		*ug/g*		*120*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	1.6	1.0	ug/g dry	1.6			1.4	30	
Arsenic	5.5	1.0	ug/g dry	6.0			8.7	30	
Barium	76.8	1.0	ug/g dry	80.0			4.0	30	
Beryllium	ND	0.5	ug/g dry	0.5			NC	30	
Boron	7.2	5.0	ug/g dry	8.1			10.9	30	
Cadmium	ND	0.5	ug/g dry	0.5			NC	30	
Chromium	14.6	5.0	ug/g dry	16.9			14.5	30	
Cobalt	4.6	1.0	ug/g dry	5.2			12.0	30	
Copper	26.6	5.0	ug/g dry	30.4			13.3	30	
Lead	92.8	1.0	ug/g dry	90.9			2.1	30	
Molybdenum	1.3	1.0	ug/g dry	1.4			3.0	30	
Nickel	11.7	5.0	ug/g dry	12.1			3.1	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	0.5	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	20.5	10.0	ug/g dry	23.2			12.5	30	
Zinc	216	20.0	ug/g dry	244			11.9	30	
Physical Characteristics									
% Solids	97.3	0.1	% by Wt.	97.6			0.3	25	
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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*8.75*		*ug/g dry*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*8.80*		*ug/g dry*		*110*	*50-140*			
Surrogate: Toluene-d8	*9.31*		*ug/g dry*		*116*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	46.1	1.0	ug/g	ND	91.0	70-130			
Arsenic	50.2	1.0	ug/g	2.4	95.5	70-130			
Barium	78.4	1.0	ug/g	32.0	92.7	70-130			
Beryllium	47.8	0.5	ug/g	ND	95.2	70-130			
Boron	46.7	5.0	ug/g	ND	86.9	70-130			
Cadmium	46.1	0.5	ug/g	ND	91.8	70-130			
Chromium	54.9	5.0	ug/g	6.8	96.2	70-130			
Cobalt	48.5	1.0	ug/g	2.1	92.9	70-130			
Copper	56.5	5.0	ug/g	12.2	88.7	70-130			
Lead	83.7	1.0	ug/g	36.4	94.7	70-130			
Molybdenum	47.1	1.0	ug/g	ND	93.2	70-130			
Nickel	50.9	5.0	ug/g	ND	92.1	70-130			
Selenium	45.6	1.0	ug/g	ND	90.7	70-130			
Silver	45.5	0.3	ug/g	ND	91.0	70-130			
Thallium	46.6	1.0	ug/g	ND	93.1	70-130			
Uranium	48.5	1.0	ug/g	ND	96.6	70-130			
Vanadium	55.3	10.0	ug/g	ND	92.1	70-130			
Zinc	131	20.0	ug/g	97.4	67.7	70-130			QM-07
Volatiles									
Acetone	9.49	0.50	ug/g	ND	94.9	50-140			
Benzene	4.38	0.02	ug/g	ND	109	60-130			
Bromodichloromethane	4.56	0.05	ug/g	ND	114	60-130			
Bromoform	5.15	0.05	ug/g	ND	129	60-130			
Bromomethane	3.84	0.05	ug/g	ND	96.1	50-140			
Carbon Tetrachloride	4.08	0.05	ug/g	ND	102	60-130			
Chlorobenzene	4.60	0.05	ug/g	ND	115	60-130			
Chloroform	4.28	0.05	ug/g	ND	107	60-130			
Dibromochloromethane	5.12	0.05	ug/g	ND	128	60-130			
Dichlorodifluoromethane	4.71	0.05	ug/g	ND	118	50-140			
1,2-Dichlorobenzene	4.65	0.05	ug/g	ND	116	60-130			
1,3-Dichlorobenzene	4.56	0.05	ug/g	ND	114	60-130			
1,4-Dichlorobenzene	4.55	0.05	ug/g	ND	114	60-130			
1,1-Dichloroethane	4.34	0.05	ug/g	ND	109	60-130			
1,2-Dichloroethane	4.20	0.05	ug/g	ND	105	60-130			
1,1-Dichloroethylene	4.20	0.05	ug/g	ND	105	60-130			
cis-1,2-Dichloroethylene	4.35	0.05	ug/g	ND	109	60-130			
trans-1,2-Dichloroethylene	4.46	0.05	ug/g	ND	112	60-130			
1,2-Dichloropropane	4.18	0.05	ug/g	ND	104	60-130			
cis-1,3-Dichloropropylene	4.18	0.05	ug/g	ND	105	60-130			
trans-1,3-Dichloropropylene	3.44	0.05	ug/g	ND	86.0	60-130			
Ethylbenzene	4.57	0.05	ug/g	ND	114	60-130			
Ethylene dibromide (dibromoethane, 1,2	4.76	0.05	ug/g	ND	119	60-130			
Hexane	3.91	0.05	ug/g	ND	97.7	60-130			
Methyl Ethyl Ketone (2-Butanone)	13.0	0.50	ug/g	ND	130	50-140			
Methyl Isobutyl Ketone	7.73	0.50	ug/g	ND	77.3	50-140			
Methyl tert-butyl ether	9.84	0.05	ug/g	ND	98.4	50-140			
Methylene Chloride	4.13	0.05	ug/g	ND	103	60-130			
Styrene	4.68	0.05	ug/g	ND	117	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	4.72	0.05	ug/g	ND	118	60-130			
1,1,2,2-Tetrachloroethane	4.82	0.05	ug/g	ND	120	60-130			
Tetrachloroethylene	4.55	0.05	ug/g	ND	114	60-130			
Toluene	4.52	0.05	ug/g	ND	113	60-130			
1,1,1-Trichloroethane	4.37	0.05	ug/g	ND	109	60-130			
1,1,2-Trichloroethane	4.22	0.05	ug/g	ND	105	60-130			
Trichloroethylene	4.47	0.05	ug/g	ND	112	60-130			
Trichlorofluoromethane	4.31	0.05	ug/g	ND	108	50-140			
Vinyl chloride	4.91	0.02	ug/g	ND	123	50-140			
m,p-Xylenes	9.21	0.05	ug/g	ND	115	60-130			
o-Xylene	4.70	0.05	ug/g	ND	118	60-130			
Surrogate: 4-Bromofluorobenzene	*7.65*		*ug/g*		*95.6*	*50-140*			
Surrogate: Dibromofluoromethane	*7.81*		*ug/g*		*97.7*	*50-140*			
Surrogate: Toluene-d8	*8.08*		*ug/g*		*101*	*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

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.

PARACEL LABORATORIES LTD.

Paracel ID: 2047664

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2047664	Nº 52430

Client Name: PATERSON
Project Ref: PE4908
Page 1 of 1

Contact Name: KARYN MUNCH
Quote #:

Address: 154 COLONNADE Rd. S. OTTAWA, ONT
PO #: 31280

Telephone: (613) ~~30~~ 226-7381
E-mail: KMUNCH@PATERSONGROUP.CA

Turnaround Time
- ☑ 1 day
- ☐ 2 day
- ☐ 3 day
- ☐ Regular

Date Required: _____

Regulation 153/04
- ☐ Table 1 ☐ Res/Park ☐ Med/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other
- ☑ Table 7

For RSC: ☐ Yes ☐ No

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: VOC's	Required Analysis: METALS: PCB
1	W10	S	—	2	Nov 20/2020	—	↓	
2	E7	S	—	2	Nov 20/2020	—		↓
3								
4								
5								
6								
7								
8								
9								
10								

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: BS	Verified By: BS
Relinquished By (Print): Dominic LANDRY	Date/Time:	Date/Time: Nov 20,20 18:10	Date/Time: Nov 20,20 18:14
Date/Time: Nov. 20/2020	Temperature: °C	Temperature: 15.6 °C	pH Verified: ☐ By:

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

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Karyn Munch

Client PO: 31281
Project: PE4908
Custody: 52431

Report Date: 26-Nov-2020
Order Date: 20-Nov-2020

Order #: 2048362

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

Paracel ID	Client ID
2048362-01	E8

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 31281

Report Date: 26-Nov-2020

Order Date: 20-Nov-2020

Project Description: PE4908

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	26-Nov-20	26-Nov-20
Solids, %	Gravimetric, calculation	26-Nov-20	26-Nov-20

Certificate of Analysis

Report Date: 26-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 20-Nov-2020

Client PO: 31281

Project Description: PE4908

	Client ID:	E8	-	-	-
	Sample Date:	20-Nov-20 09:00	-	-	-
	Sample ID:	2048362-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	96.8	-	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	<1.0	-	-	-
Barium	1.0 ug/g dry	104	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	<5.0	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	7.0	-	-	-
Cobalt	1.0 ug/g dry	3.9	-	-	-
Copper	5.0 ug/g dry	<5.0	-	-	-
Lead	1.0 ug/g dry	1.7	-	-	-
Molybdenum	1.0 ug/g dry	<1.0	-	-	-
Nickel	5.0 ug/g dry	8.0	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	<10.0	-	-	-
Zinc	20.0 ug/g dry	<20.0	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	1.1	1.0	ug/g dry	ND			NC	30	
Arsenic	4.0	1.0	ug/g dry	4.3			6.5	30	
Barium	56.3	1.0	ug/g dry	64.7			13.8	30	
Beryllium	0.7	0.5	ug/g dry	0.8			14.8	30	
Boron	7.0	5.0	ug/g dry	7.9			12.4	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	17.5	5.0	ug/g dry	19.9			12.8	30	
Cobalt	4.6	1.0	ug/g dry	5.3			13.1	30	
Copper	18.0	5.0	ug/g dry	20.6			13.3	30	
Lead	11.2	1.0	ug/g dry	12.9			14.2	30	
Molybdenum	1.1	1.0	ug/g dry	1.1			1.4	30	
Nickel	14.5	5.0	ug/g dry	16.0			9.7	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	26.8	10.0	ug/g dry	30.9			14.5	30	
Zinc	45.0	20.0	ug/g dry	50.4			11.5	30	
Physical Characteristics									
% Solids	94.3	0.1	% by Wt.	93.3			1.0	25	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	43.5	1.0	ug/g	ND	86.6	70-130			
Arsenic	46.6	1.0	ug/g	1.7	89.7	70-130			
Barium	66.2	1.0	ug/g	25.9	80.6	70-130			
Beryllium	47.5	0.5	ug/g	ND	94.4	70-130			
Boron	48.4	5.0	ug/g	ND	90.4	70-130			
Cadmium	43.1	0.5	ug/g	ND	86.0	70-130			
Chromium	53.0	5.0	ug/g	8.0	90.2	70-130			
Cobalt	46.6	1.0	ug/g	2.1	89.1	70-130			
Copper	50.8	5.0	ug/g	8.2	85.1	70-130			
Lead	47.5	1.0	ug/g	5.2	84.6	70-130			
Molybdenum	45.3	1.0	ug/g	ND	89.7	70-130			
Nickel	50.6	5.0	ug/g	6.4	88.5	70-130			
Selenium	44.0	1.0	ug/g	ND	87.5	70-130			
Silver	52.2	0.3	ug/g	ND	104	70-130			
Thallium	44.6	1.0	ug/g	ND	89.1	70-130			
Uranium	46.9	1.0	ug/g	ND	93.2	70-130			
Vanadium	55.7	10.0	ug/g	12.4	86.7	70-130			
Zinc	61.4	20.0	ug/g	20.2	82.4	70-130			

Qualifier Notes:

None

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.

PARACE LABORATORIES LT

Paracel ID: 2048362

lvd.
J8

.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2048362	Nº 52431

Client Name: PATERSON

Project Ref: PE4908

Page 1 of 1

Contact Name: KARYN MUNCH

Quote #:

Address: 154 COLONNADE Rd. S. OTTAWA, ON.

PO #: 31281

E-mail: KMUNCH@PATERSONGROUP.CA

Telephone: (613) 226-7381

Turnaround Time

☐ 1 day ☐ 3 day

☐ 2 day ☐ Regular

Date Required: HOLD.

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☑ Table 7	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: VOC's	Required Analysis: METALS BY ICP
1	W7 ← HOLD !	S	/	2	Nov. 20/2020	/	✓	
2	E8 ← HOLD !	S	/	2	Nov. 20/2020	/		✓
3								
4								
5								
6								
7								
8								
9								
10								

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: BSam	Verified By:
Relinquished By (Print): DOMINIC LANDRY	Date/Time:	Date/Time: NOV 20, 20 18:10	Date/Time: 11-25-20 16:15
Date/Time: Nov. 20/2020	Temperature: °C	Temperature: 15.6 °C	pH Verified: ☐ By:

REPRINT

WASTE CONNECTIONS OF CANADA
OTTAWA LANDFILL
3354 NAVAN ROAD
OTTAWA, ON K4B 1H9
(613) 824-7289

SITE	TICKET #	OPERATOR
05	**1069440**	kmasson

IN	OUT	TRUCK	CONT.	LICENCE
11/6/20 10:42 am	11/6/20 11:02 am	**278**		

REFERENCE	ORIGIN
240229- henri	OTTAWA CENTER

000330 - WASTE CONNECTIONS OF CANADA
1152 KENASTON STREET
OTTAWA, ON K1B 3P5

Contract: VC 278 - 473 ALBERT ST - OTTAWA

INVOICE
INBOUND

GROSS 27820 kg
TARE 15780 kg
NET 12040 kg

Scale In
Scale Out

COMMENTS: H-16

QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL
12.04	MT	Contaminated Soil				

HST# 866808298RT0004

Intercompany:
Workorder: 1255905

SIGNATURE:_____

REPRINT

WASTE CONNECTIONS OF CANADA
OTTAWA LANDFILL
3354 NAVAN ROAD
OTTAWA, ON K4B 1H9
(613) 824-7289

SITE	TICKET #	OPERATOR
05	**1069887**	jcheckowy

IN	OUT	TRUCK	CONT.	LICENCE
11/9/20 11:44 am	11/9/20 12:04 pm	**278**		

REFERENCE	ORIGIN
694121 MTO 15Y	OTTAWA CENTER

000330 - WASTE CONNECTIONS OF CANADA
1152 KENASTON STREET
OTTAWA, ON K1B 3P5

Contract: VC 278 - 473 ALBERT ST - OTTAWA

INVOICE
INBOUND

GROSS 30250 kg
TARE 17030 kg
NET 13220 kg

Scale In
Scale Out

COMMENTS: H-16

QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL
13.22	MT	Contaminated Soil				

HST# 866808298RT0004

Intercompany:
Workorder: 1255911

SIGNATURE:_____

REPRINT

WASTE CONNECTIONS OF CANADA
OTTAWA LANDFILL
3354 NAVAN ROAD
OTTAWA, ON K4B 1H9
(613) 824-7289

SITE	TICKET #	OPERATOR
05	**1070181**	jcheckowy

IN	OUT	TRUCK	CONT.	LICENCE
11/10/20 1:34 pm	11/10/20 1:51 pm	**278**		

REFERENCE	ORIGIN
694121 MTO 15Y	OTTAWA CENTER

000330 - WASTE CONNECTIONS OF CANADA
1152 KENASTON STREET
OTTAWA, ON K1B 3P5

Contract: VC 278 - 473 ALBERT ST - OTTAWA

INVOICE
INBOUND

GROSS	31200 kg	Scale In
TARE	16990 kg	Scale Out
NET	14210 kg	

COMMENTS: H-16

QTY	UNIT	DESCRIPTION	TRACKING QTY	RATE	TAX	TOTAL
14.21	MT	Contaminated Soil				

HST# 866808298RT0004

Intercompany:
Workorder: 1256567

SIGNATURE:_____