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Phase II Environmental Site Assessment

829 Carling Avenue
City of Ottawa, Ontario

Prepared For

Claridge Homes

May 25, 2021

Report: PE4247-2

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EXECUTIVE SUMMARY

Assessment

A Phase II ESA was conducted for the property addressed 829 Carling Avenue, in the 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 II ESA Property.

The subsurface investigation consisted of six (6) boreholes, of which three (3) were instrumented with groundwater monitoring wells. The general soil profile encountered during the field program consisted of fill material consisting of silty sand and crushed stone, followed by another fill layer consisting of silty sand with demolition debris (concrete and brick fragments), crushed stone, and some gravel and organics, overlying shallow limestone bedrock.

Four (4) soil samples, including a duplicate sample, were submitted for laboratory analysis of benzene, toluene, ethylbenzene and xylenes (BTEX), petroleum hydrocarbons (PHCs, Fractions F_1-F_4), Polycyclic Aromatic Hydrocarbons (PAHs), and metals (including hydride forming compounds: arsenic (As), Antimony (Sb), Selenium (Se)), mercury (Hg) and hexavalent chromium (CrVI). No BTEX/PHC concentrations were identified in any of the soil samples analysed. Concentrations of several PAH parameters and metal parameters were identified above the selected MECP Table 7 Standards in soil ample BH1-AU1/SS3.

Groundwater samples from monitoring wells MW-1, MW-2, BH1-21, BH2-21 and BH3-21 were collected during the interim of April 18 to April 28, 2021. No free product or petroleum hydrocarbon sheen was noted on the purge water during the groundwater sampling event.

Groundwater samples were analyzed for BTEX, PHCs and/or VOCs. A concentration of benzene was identified at BH1-21, in excess of the selected MECP Table 7 Standards. The groundwater from this well is indicate that the well has not stabilized. Additional groundwater analysis is recommended to confirm the true groundwater quality. All other groundwater results comply with the MECP Table 7 Standards.

Recommendations

It is our understanding that the Phase II ESA Property will be redeveloped with a 60-storey residential building with ground-floor commercial space and underground parking.

Due to the change in land use to a more sensitive land use (commercial parking lot to residential), a record of site condition (RSC) will be required as per O.Reg 154/03.

Soils

Fill material on the northeastern corner of the Phase II ESA Property contained PAH concentrations in excess of the Table 7 Standards. Soil/fill in excess of the MECP Standards, will need to be removed and disposed of at an approved waste disposal facility.

Subsequent to demolition and prior to construction, a test pit program to assess the soil for off-site disposal purposes and at the same time delineate the PAH exceedances identified is recommended.

In accordance with the new Excess Soil Reg.406/19, additional testing of the soil will be required prior to off-site disposal at a receiving site.

Groundwater

It is expected that the small concentrations of benzene present in the groundwater in BH1-21 above MECP Table 7 Standards is a result of the groundwater monitoring well not properly developed and should be retested when it stabilizes.

Monitoring Wells

If the monitoring wells installed on the subject site are not going to be used in the future, or will be destroyed during site redevelopment, they should be abandoned according to Ontario Regulation 903. The wells will be registered with the MECP under this regulation.

1.0 INTRODUCTION

At the request of Claridge Homes, Paterson Group (Paterson) conducted a Phase II Environmental Site Assessment at 829 Carling Avenue (the Phase II ESA Property), in the City of Ottawa, Ontario. The purpose of this Phase II ESA has been to address areas of potential environmental concern (APECs) identified during the Phase I ESA conducted by Paterson in April of 2021.

1.1 Site Description

Address:	829 Carling Avenue, Ottawa, Ontario
Legal Description:	Part of Lots 1554, 1554, 1556 and 1557of Plan 38, in the City of Ottawa.
Location:	The site is located on the northwest corner of the Preston Street and Carling Avenue intersection, in the City of Ottawa, Ontario. Refer to Figure 1 - Key Plan in the Figures section following the text.
PINs:	04102-0029
Latitude and Longitude:	45° 23’ 52.02" N, 75° 42' 29.22" W

Site Description:

Configuration:	Irregular
Area:	1,579 m^2 (approximately)
Zoning:	AM – Main Artillery Zone.

1.2 Property Ownership

Paterson was engaged to conduct this Phase I-ESA by Mr. Vincent Denomme of Claridge Homes. The head office is located at 210 Gladstone Avenue, Ottawa, Ontario. Mr. Denomme can be reached by telephone at (613)-233-6030.

1.3 Current and Proposed Future Uses

The Phase II ESA Property is currently occupied by a slab-on-grade commercial building and an asphaltic concrete paved parking lot situated on the eastern and western portions of the Phase II ESA Property, respectively.

It is our understanding that the Phase II ESA Property will be redeveloped with a 60-storey mixed-use high-rise building with 6 levels of underground parking. Due to the change in land use to a more sensitive land use (commercial to residential), a record of site condition (RSC) will be required as per O.Reg 154/03.

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
- ❒ Generic site conditions for shallow soils
- ❒ Non-potable groundwater conditions
- ❒ Residential land use

Section 35 of O.Reg. 153/04 does apply to the Phase II ESA Property in that the property does not rely upon potable groundwater.

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

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

The intended use of the Phase II ESA 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 ESA Property is situated in a mixed-used urban area, located on the northwest corner of Preston Street and Carling Avenue.

The Phase II ESA Property is occupied by a 2-storey, slab-on-grade commercial building with a more recent addition constructed circa early 1960s, which occupies the eastern portion of the site with an associated asphaltic concrete paved parking lot on the western portion of the Phase I ESA Property. Site

drainage consists primarily of sheetflow to catch basins located on site and overflows to the adjacent streets.

The site is relatively flat and at the grade of the adjacent streets, while the regional topography slopes downwards in a northerly direction.

2.2 Past Investigations

- *"Phase I Environmental Site Assessment, 829 Carling Avenue, Ottawa, Ontario, (CIBC Transit #406),"* prepared by Pinchin, dated March 2, 2016.

The Phase I ESA did not identify any potential environmental concerns on the subject site, however a former retail fuel outlet and garage located on the adjacent property to the west was considered to have the potential to impact the subject site. A Phase II ESA was recommended.

- *"Phase II Environmental Site Assessment, 829 Carling Avenue, Ottawa, Ontario, (CIBC Transit #406),"* prepared by Pinchin, dated May 27, 2016.

The subsurface program consisted of drilling three (3) boreholes along the western portion of the site, all of which were completed as groundwater monitoring wells. Soil and groundwater samples were collected and analyzed for BTEX, PHCs and VOCs. All soil samples were in compliance with the selected MECP Table 7 Commercial Standards. Groundwater samples obtained from the monitoring wells identified benzene concentration in excess of the selected MECP standards. Based on the results of the Phase II ESA, Pinchin recommended further investigation to delineate, remediate and/or manage the groundwater impacts.

Paterson completed a Phase I ESA in April of 2021 for the subject property. Based on the findings of the Phase I ESA, three (3) potentially contaminating activities (PCAs) were determined to result in areas of potential environmental concern (APECs) on the Phase II ESA Property:

- APEC 1: Resulting from fill material of unknown quality, associated with the redevelopment of the site in the 1960s (PCA 30).
- APEC 2: Resulting from the use of road salt for de-icing purpose on the asphaltic paved concrete parking lot and walkways (PCA Other).
- APEC 3: Resulting from the presence of former retail fuel outlet and current automotive repair garage at 845 Carling Avenue (PCA 28, PCA 52).

Although not identified as a specific PCA in Table 2 of the O.Reg. 153/04, the application of deicing salts for vehicular and pedestrian safety is also considered to represent an APEC (APEC 2) on the Phase I ESA Property.

Based on the findings of the Phase I ESA, it is considered likely that road salt was applied to the surface of the walkways and paved access lane on the Phase I ESA 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 Phase I ESA Property that may exceed the MECP Table 7 Standards for a residential/institutional land use are deemed not to be exceeded for the purpose of Part XV.1 of the Act.

The rationale for identifying the above APECs is based on a review of fire insurance plans, aerial photographs, previous reports, field observations, and personal interviews. A Phase II ESA was recommended to address the aforementioned APECs.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The subsurface investigation was conducted on April 20 and April 21, 2021. The field program consisted of drilling six (6) boreholes to address the APECs identified on the Phase II ESA Property. Three (3) the boreholes (BH1-21 through BH3-21) were cored into the bedrock and completed with monitoring well installations. Boreholes were drilled to a maximum depth of 23.49 m below the ground surface (mbgs).

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 the soil and groundwater is based on the Contaminants of Potential Concern (CPCs) identified in the Phase I ESA.

Contaminants of potential concern on the Phase II ESA Property include benzene, toluene, ethylbenzene, and xylenes (BTEX), petroleum hydrocarbons (PHCs, F1-F4), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals; including arsenic, antimony, selenium, mercury (Hg) and hexavalent chromium (CrVI). These CPCs may be present in the soil and/or groundwater beneath the Phase II ESA Property.

3.3 Phase I Conceptual Site Model

According to the Geological Survey of Canada website, the bedrock in the area of the Phase I Property is reported to consist of interbedded shale and limestone of the Verulam Formation. The surficial geology in the area of the site consists of plain till with a drift thickness ranging from 1 to 3 m.

The groundwater beneath the Phase I ESA Property is anticipated to flow in an easterly direction.

Fill Placement

Based on the historical use of the Phase I ESA Property, fill material of an unknown quality is potentially present on-site. It is expected that that fill material is associated with the former buildings on-site, which were demolished prior to the 1965.

Existing Buildings and Structures

A 2-storey, slab-on-grade commercial building constructed circa early 1960s with an addition added on the north end of the building in 1991, occupies the eastern portion of the Phase I ESA Property. The building exterior is finished in brick with a flat tar and gravel style roof. The building is heated and cooled by a natural gas fired HVAC roof mounted unit with electrical baseboard heaters for secondary heating.

Subsurface Structures and Utilities

The Phase I ESA Property is situated in a municipally serviced area. Underground utilities, both public and private are present on the Phase I ESA Property.

Areas of Natural Significance

No areas of natural significance were identified in the Phase I ESA Study Area.

Water Bodies

Dow's Lake is located approximately 175 m southeast of the Phase I ESA Property. No other natural bodies were identified in the Phase I ESA Study Area.

Drinking Water Wells and Monitoring Wells

There are no known potable water wells on the Phase I ESA Property, nor are they expected to be present as the subject land is situated in a municipally serviced area.

Three (3) groundwater monitoring wells drilled by Pinchin were identified along the western portion of the Phase I ESA Property.

Neighbouring Land Use

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

Potentially Contaminating Activities and Areas of Potential Environmental Concern

As per Section 7.1 of the Phase I-ESA, three (3) PCAs were considered to result in APECs on the Phase I ESA Property, which are summarized in Table 1, along with their respective location and contaminants of potential concern (CPCs).

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 fill material of unknown quality	Western portion of the Phase I ESA Property.	PCA 30 – Importation of Fill Material of Unknown Quality	On-site	PAHs Metals Hg, CrVI	Soil
APEC 2: Resulting from the use of road salt	Western portion of the Phase I ESA Property.	PCA Other – the application of road salt on paved areas for the safety of vehicular or pedestrian traffic under conditions of snow or ice	On-site	Electrical conductivity and Sodium adsorption ratio	Soil
APEC 3: Resulting from the former retail fuel outlet and current automotive repair garage at 845 Carling Avenue.	Western corner of the Phase I ESA Property	PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks PCA 52 – Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-site	VOCs PHCs (F_1-F_4)	Soil Groundwater

Based on the findings of this assessment, it is understood that a substance has been applied to surfaces of the Phase I ESA Property 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 applicable MECP 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 on for APEC 2. The remaining off-site PCAs were not considered to represent APECs on the Phase I ESA Property based on their separation distances and/or orientations relative to the subject property.

Contaminants of Potential Concern

Contaminants of potential concern on the Phase II ESA Property include, Petroleum Hydrocarbons (PHCs, F1-F4), Polycyclic Aromatic Hydrocarbons (PAHs), Volatile Organic Compounds (VOCs) and Metals; including arsenic, antimony, selenium, mercury (Hg) and hexavalent chromium (CrVI).

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 PCAs that have resulted in APECs on the Phase I ESA 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

There were no deviations from the Sampling and Analysis Plan which is included in Appendix 1 of this report.

3.5 Impediments

No physical impediments were encountered during the Phase II ESA field program aside from utilities and building structures. Paterson resampled the existing groundwater monitoring wells (MW-1, MW-2 and MW-3) during the April 16, 2021 sampling event, however, no groundwater sample could be retrieved from MW-3, as the monitoring well was dry when checked several times during the program.

4.0 INVESTIGATION METHOD

4.1 Subsurface Investigation

The subsurface investigation was conducted April 20 through April 22, 2021, and consisted of drilling six (6) boreholes (BH1-21 through BH6-21) across the Phase II ESA Property, three (3) of which were completed with groundwater monitoring

well installations. The boreholes were drilled to a maximum depth of 23.49m below ground surface (bgs) to intercept groundwater.

The boreholes were drilled using a low clearance track mounted drill rig operated by George Downing Estate Drilling of Hawkesbury, Ontario, under full-time supervision of Paterson personnel. The borehole locations are indicated on the attached Drawing PE4247-3 - Test Hole Location Plan.

4.2 Soil Sampling

A total of 15 soil samples and 44 rock core samples were obtained from the boreholes by means of grab sampling from auger flights, split spoon sampling, and rock coring using diamond drilling bits. Split spoon samples were taken at approximate 0.76 m intervals.

The depths at which grab samples, split spoon samples, and rock core samples were obtained from the boreholes are shown as "**AU**", "**SS**" and **"RC"** on the Soil Profile and Test Data Sheets.

The borehole profiles generally consist of an asphaltic concrete paved structure overlying a gravelled layer, followed by fill material consisting of silty sand with some silty clay, with crushed stones, and traces of gravel and topsoil, underlain by limestone bedrock. Boreholes BH1-21 through BH3-21 were terminated in bedrock at depths ranging from 22.61 to 23.93 m below the ground surface (mbgs).

4.3 Field Screening Measurements

Soil samples recovered at the time of sampling were placed immediately into airtight plastic bags with nominal headspace. All lumps of soil inside the bags were broken by hand, and the soil was allowed to come to room temperature prior to conducting the vapour survey. Allowing the samples to stabilize to room temperature ensures consistency of readings between samples.

To measure the soil vapours, the analyser probe is inserted into the nominal headspace above the soil sample. A photo ionization detector (PID) was used to measure the volatile organic vapour concentrations. The sample is agitated/manipulated gently as the measurement is taken. The peak reading registered within the first 15 seconds is recorded as the vapour measurement.

The PID readings were found to range from 0 to 14.2 ppm in the soil samples obtained. These results do not indicate the potential for significant contamination

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

The results of the vapour survey are presented on the Soil Profile and Test Data sheets.

4.4 Groundwater Monitoring Well Installation

Three (3) groundwater monitoring wells were installed on the Phase II ESA Property as part of the subsurface investigation. 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.

Borehole locations and elevations were surveyed geodetically by Paterson personnel.

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
BH1-21	62.29	10.7+	9.29-10.79	8.53-10.79	0.18-8.53	Flushmount
BH2-21	62.37	22.86	19.83-22.86	19.51-22.86	0.18-19.51	Flushmount
BH3-21	62.67	7.62	4.62-7.62	3.35-7.62	0.18-3.35	Flushmount

4.5 Field Measurement of Water Quality Parameters

Groundwater samples from the existing Pinchin 2016 groundwater monitoring wells MW1 and MW2 were collected on April 16, 2021, and on April 28, 2021 for the wells installed during the recent subsurface program. Water levels were the only field parameter measured. No other field parameters were measured at the time of sampling.

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, as well as analyzed parameters are presented in Tables 3 and 4.

TABLE 3: Soil Samples Submitted and Analyzed Parameters

Sample ID	Sample Depth / Stratigraphic Unit	Parameters Analyzed								Rationale
		BTEX	PHCs (F1-F4)	PAHs	VOCs	Metals	Hg	CrVI	EC/SAR	
April 15, 2016 (Pinchin)										
MW1-SS2	0.75-1.52m Fill	X	X		X					Assess the potential soil impact due to the former off-site retail fuel outlet and garage.
MW2-SS2	0.75-1.52m Fill	X	X		X					Assess the potential soil impact due to the former off-site retail fuel outlet and garage.
MW3-SS2	0.75-1.52m Fill	X	X		X					Assess the potential soil impact due to the former off-site retail fuel outlet and garage.
April 20, 21 and 22, 2021										
BH1-AU2/SS3	0.3-1.27m Fill	X		X	X	X	X	X	X	Assess the potential soil impact due to the former off-site retail fuel outlet, garage and use of road salt as well as assess the quality of the fill material.
BH3-AU1	0.08-0.60m Fill			X		X	X	X		Assess the quality of the fill material.
BH3-SS2	0.76-1.09m Fill			X		X	X	X		Assess the quality of the fill material.
BH4-SS3	0.76-1.37m Fill	X	X	X		X	X	X		Assess the potential soil impact due to the former off-site retail fuel outlet and garage as well as assess the quality of the fill material.
DUP	0.3-1.27m Fill	X			X					Duplicate soil sample (BH1-AU2/SS3) for QA/QC purposes.

TABLE 4: Groundwater Samples Submitted and Analyzed Parameters					
Sample ID	Screened Interval	Parameters Analyzed			Rationale
		BTEX	PHCs (F1-F4)	VOCs	
April 18, 2016 (Pinchin)					
MW-1	2.6-4.53m	X	X	X	Assess potential groundwater impacts from the former off-site retail fuel outlet and garage.
MW-2	3.1-6.1m	X	X	X	Assess potential groundwater impacts from the former off-site retail fuel outlet and garage.
April 13, 2021					
MW-1-GW1	2.6-4.53m	X	X	X	Assess potential groundwater impacts from the former off-site retail fuel outlet and garage.
MW-2-GW1	3.1-6.1m	X	X	X	Assess potential groundwater impacts from the former off-site retail fuel outlet and garage.
April 28, 2021					
BH1-GW1	9.29-10.79m	X	X	X	Assess potential groundwater impacts from the former off-site retail fuel outlet and garage.
BH3-GW1	4.62-7.62m	X	X	X	Assess potential groundwater impacts from the former off-site retail fuel outlet and garage.
DUP	4.62-7.62m	X		X	Duplicate groundwater sample (BH3-GW1) for QA/QC purposes.

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

4.9 Elevation Surveying

Boreholes were surveyed at geodetic elevations by Paterson personnel.

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 consist of an asphaltic concrete structure over sand with crushed stones, underlain by fill material consisting of silty sand with demolition debris (brick and concrete fragments), traces of crushed stone and organics, underlain by silty clay, overlying glacial till (silty clay with sand and gravel) and shale bedrock. The boreholes were terminated at a maximum depth of 23.93mbgs.

Groundwater was encountered within the bedrock at depths ranging from approximately 2.1 to 23.24 mbgs.

Site geology details are provided in the Soil Profile and Test Data Sheets provided in Appendix 1.

5.2 Groundwater Elevations, Flow Direction, and Hydraulic Gradient

Groundwater levels were measured during the groundwater sampling event on April 28, 2021, using an electronic water level meter. Groundwater levels 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
MW1	62.32	1.51	60.81	April 28, 2021
MW2	62.12	1.16	60.96	April 28, 2021
MW3	62.69	Dry	--	April 28, 2021
BH1-21	62.29	10.35	51.94	April 28, 2021
BH2-21	62.37	23.24	39.13	April 28, 2021
BH3-21	62.67	3.59	59.08	April 28, 2021

Based on the shallow wells, groundwater elevations measured during the sampling events, groundwater contour mapping was completed. Groundwater contours are shown on Drawing PE4247-3. Based on the contour mapping,

groundwater flow at the subject site is in a northerly direction. A horizontal hydraulic gradient of approximately 0.15 m/m was calculated.

5.3 Fine-Coarse Soil Texture

Grain-size analysis was not completed for the Phase II ESA Property. As such, the more stringent, coarse-grained soil standards were used.

5.4 Soil: Field Screening

Field screening of the soil samples collected during drilling resulted in vapour readings ranging from 0 to 14.2 ppm. The field screening results of each individual soil sample are provided on the Soil Profile and Test Data Sheets appended to this report.

5.5 Soil Quality

Three (3) soil samples including a duplicate sample were submitted for BTEX, PHCs (F1-F4), PAHs, VOCs, and/or metals including mercury and hexavalent chromium as well as EC/SAR analysis. The results of the 2016 Pinchin and the recent analytical tests results are presented below in Tables 6 through 10. The laboratory certificate of analysis is provided in Appendix 1.

TABLE 6: Analytical Test Results – Soil
BTEX and PHCs F_1-F_4

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 15, 2016			MECP Table 7 Residential Standards (µg/g)
		MW-1-SS2	MW-2-SS2	MW-3-SS2	
Benzene	0.02	nd	nd	nd	0.21
Toluene	0.05	nd	nd	nd	2.3
Ethylbenzene	0.05	nd	nd	nd	0.05
Xylenes	0.05	nd	nd	nd	3.1
PHC F_1	7	<10	<10	<10	55
PHC F_2	4	<10	<10	<10	98
PHC F_3	8	<50	300	100	300
PHC F_4	6	<50	120	<50	2800

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

No detectable BTEX parameters were identified in any of the soil samples analyzed. Concentrations of PHC F3-F4 were detected in soil samples MW-2-SS2 and MW-3-SS2. All of the identified concentrations comply with the MECP Table 7 Residential Standards.

TABLE 6 Continued: Analytical Test Results – Soil
BTEX and PHCs F_1-F_4

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 20 and 21, 2021			MECP Table 7 Residential Standards (µg/g)
		BH1-AU2/SS3	BH4-SS3	DUP	
Benzene	0.02	nd	nd	nd	0.21
Toluene	0.05	nd	nd	nd	2.3
Ethylbenzene	0.05	nd	nd	nd	0.05
Xylenes	0.05	nd	nd	nd	3.1
PHC F_1	7	NA	nd	NA	55
PHC F_2	4	NA	nd	NA	98
PHC F_3	8	NA	13	NA	300
PHC F_4	6	NA	15	NA	2800

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

No detectable BTEX parameters were identified in any of the soil samples analyzed. Concentrations of PHC F3-F4 were detected in soil sample BH4-SS3. All identified concentrations comply with the MECP Table 7 Residential Standards.

TABLE 7: Analytical Test Results – Soil
Metals

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 20 and 21, 2021		MECP Table 7 Residential Standards (µg/g)
		BH1-AU2/SS3	BH4-SS3	
Antimony	1.0	1.0	nd	7.5
Arsenic	1.0	14.8	6.5	18
Barium	1.0	287	149	390
Beryllium	0.5	0.6	0.8	4
Boron	5.0	14.2	15.4	120
Cadmium	0.5	0.6	nd	1.2
Chromium	5.0	23.6	27.7	160
Chromium (VI)	0.2	nd	nd	8
Cobalt	1.0	6.8	8.3	22
Copper	5.0	50.8	18.4	140
Lead	1.0	**299**	33.3	120
Mercury	0.1	**0.3**	nd	0.27
Molybdenum	1.0	2.6	1.0	6.9
Nickel	5.0	16.3	20.2	100
Selenium	1.0	1.6	nd	2.4
Silver	0.3	nd	nd	20
Thallium	1.0	nd	nd	1
Uranium	1.0	nd	nd	23
Vanadium	10.0	24.7	34.2	86
Zinc	20.0	248	100	340

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and underlined** – Parameter exceeds the selected MECP standards

TABLE 7 Continued: Analytical Test Results – Soil
Metals

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 22, 2021		MECP Table 7 Residential Standards (µg/g)
		BH3-AU1	BH3-SS2	
Antimony	1.0	2.7	1.3	7.5
Arsenic	1.0	1.5	1.4	18
Barium	1.0	18.0	31.7	390
Beryllium	0.5	nd	nd	4
Boron	5.0	nd	nd	120
Cadmium	0.5	nd	nd	1.2
Chromium	5.0	7.0	8.2	160
Chromium (VI)	0.2	nd	nd	8
Cobalt	1.0	3.3	3.4	22
Copper	5.0	9.2	8.9	140
Lead	1.0	38.3	16.5	120
Mercury	0.1	nd	nd	0.27
Molybdenum	1.0	nd	nd	6.9
Nickel	5.0	nd	5.9	100
Selenium	1.0	nd	nd	2.4
Silver	0.3	nd	nd	20
Thallium	1.0	nd	nd	1
Uranium	1.0	nd	nd	23
Vanadium	10.0	17.9	14.5	86
Zinc	20.0	29.8	36.5	340

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

Metal parameters were detected in all of the soil samples analyzed. Lead and mercury in soil sample BH1-AU2/SS2 were in excess of the MECP Table 7 Residential Standards. All other metals concentrations comply with the selected MECP Table 7 Residential Standards.

TABLE 8: Analytical Test Results – Soil
PAHs

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 20 and 21, 2021		MECP Table 7 Residential Standards (µg/g)
		BH1-AU2/SS3	BH4-SS3	
Acenaphthene	0.02	0.07	nd	7.9
Acenaphthylene	0.02	**0.38**	0.04	0.15
Anthracene	0.02	0.24	0.02	0.67
Benzo[a]anthracene	0.02	**0.90**	0.04	0.5
Benzo[a]pyrene	0.02	**0.96**	0.06	0.3
Benzo[b]fluoranthene	0.02	**1.15**	0.07	0.78
Benzo[g,h,i]perylene	0.02	0.67	0.06	6.6
Benzo[k]fluoranthene	0.02	0.57	0.04	0.78
Chrysene	0.02	1.01	0.07	7
Dibenzo[a,h]anthracene	0.02	**0.19**	nd	0.1
Fluoranthene	0.02	**1.36**	0.08	0.69
Fluorene	0.02	0.09	nd	62
Indeno[1,2,3-cd]pyrene	0.02	**0.65**	0.06	0.38
1-Methylnaphthalene	0.02	0.31	nd	0.99
2-Methylnaphthalene	0.02	0.43	nd	0.99
Methylnaphthalene (1&2)	0.04	0.74	nd	0.99
Naphthalene	0.01	0.45	nd	0.6
Phenanthrene	0.02	0.80	0.02	6.2
Pyrene	0.02	1.40	0.08	78

Notes:
- MDL – Minimum Detection Limit
- nd – not detected above the MDL
- **Bold and underlined** – Parameter exceeds the selected MECP standards

TABLE 8 Continued: Analytical Test Results – Soil
PAHs

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 22, 2021		MECP Table 7 Residential Standards (µg/g)
		BH3-AU1	BH3-SS2	
Acenaphthene	0.02	nd	nd	7.9
Acenaphthylene	0.02	nd	nd	0.15
Anthracene	0.02	nd	nd	0.67
Benzo[a]anthracene	0.02	nd	nd	0.5
Benzo[a]pyrene	0.02	nd	nd	0.3
Benzo[b]fluoranthene	0.02	nd	nd	0.78
Benzo[g,h,i]perylene	0.02	nd	nd	6.6
Benzo[k]fluoranthene	0.02	nd	nd	0.78
Chrysene	0.02	nd	nd	7
Dibenzo[a,h]anthracene	0.02	nd	nd	0.1
Fluoranthene	0.02	0.03	0.04	0.69
Fluorene	0.02	nd	nd	62
Indeno[1,2,3-cd]pyrene	0.02	nd	nd	0.38
1-Methylnaphthalene	0.02	nd	nd	0.99
2-Methylnaphthalene	0.02	nd	nd	0.99
Methylnaphthalene (1&2)	0.04	nd	nd	0.99
Naphthalene	0.01	nd	nd	0.6
Phenanthrene	0.02	nd	nd	6.2
Pyrene	0.02	0.03	0.04	78

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

PAH parameters were detected in all of the soil samples analyzed. Several PAH concentrations in soil sample BH1-AU2/SS3 were in excess of the MECP Table 7 Residential Standards. All other PAH concentrations comply with the selected MECP Table 7 Residential Standards.

TABLE 9: Analytical Test Results – Soil
VOCs

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 15, 2016			MECP Table 7 Residential Standards (µg/g)
		MW-1-SS2	MW-2-SS2	MW-3-SS2	
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
Dichlorodifluoromethane	0.05	nd	nd	nd	16
1,2-Dichlorobenzene	0.05	nd	nd	nd	3.4
1,3-Dichlorobenzene	0.05	nd	nd	nd	4.8
1,4-Dichlorobenzene	0.05	nd	nd	nd	0.083
1,1-Dichloroethane	0.05	nd	nd	nd	3.5
1,2-Dichloroethane	0.05	nd	nd	nd	0.05
1,1-Dichloroethylene	0.05	nd	nd	nd	0.05
cis-1,2-Dichloroethylene	0.05	nd	nd	nd	3.4
trans-1,2-Dichloroethylene	0.05	nd	nd	nd	0.084
1,2-Dichloropropane	0.05	nd	nd	nd	0.05
1,3-Dichloropropene, total	0.05	nd	nd	nd	0.05
Ethylbenzene	0.05	nd	nd	nd	2
Ethylene dibromide (dibromoethane, 1,2-)	0.05	nd	nd	nd	0.05
Hexane	0.05	nd	nd	nd	2.8
Methyl Ethyl Ketone (2-Butanone)	0.50	nd	nd	nd	16
Methyl Isobutyl Ketone	0.50	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	0.05	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, total	0.05	nd	nd	nd	3.1

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

TABLE 9 Continued: Analytical Test Results – Soil
VOCs

Parameter	MDL (µg/g)	Soil Samples (µg/g) April 20 and 21, 2021			MECP Table 7 Residential Standards (µg/g)
		BH1-AU2/SS3	BH4-SS3	DUP	
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
Dichlorodifluoromethane	0.05	nd	nd	nd	16
1,2-Dichlorobenzene	0.05	nd	nd	nd	3.4
1,3-Dichlorobenzene	0.05	nd	nd	nd	4.8
1,4-Dichlorobenzene	0.05	nd	nd	nd	0.083
1,1-Dichloroethane	0.05	nd	nd	nd	3.5
1,2-Dichloroethane	0.05	nd	nd	nd	0.05
1,1-Dichloroethylene	0.05	nd	nd	nd	0.05
cis-1,2-Dichloroethylene	0.05	nd	nd	nd	3.4
trans-1,2-Dichloroethylene	0.05	nd	nd	nd	0.084
1,2-Dichloropropane	0.05	nd	nd	nd	0.05
1,3-Dichloropropene, total	0.05	nd	nd	nd	0.05
Ethylbenzene	0.05	nd	nd	nd	2
Ethylene dibromide (dibromoethane, 1,2-)	0.05	nd	nd	nd	0.05
Hexane	0.05	nd	nd	nd	2.8
Methyl Ethyl Ketone (2-Butanone)	0.50	nd	nd	nd	16
Methyl Isobutyl Ketone	0.50	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	0.05	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, total	0.05	nd	nd	nd	3.1

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

No VOC parameters were detected in any of the soil samples analyzed. All VOC concentrations comply with the selected MECP Table 7 Residential Standards.

TABLE 10: Analytical Test Results – Soil
pH, EC/SAR

Parameter	MDL	Soil Samples			MECP Table 7 Residential Standards
		April 15, 2016		April 20, 2021	
		MW-1-SS2	MW-3-SS2	BH1-AU2/SS3	
pH	0.05	7.58	7.41	7.64	5 to 9
EC (uS/cm)	5	NA	NA	**1240**	700
SAR	0.01	NA	NA	3.55	5

Notes:
- MDL – Minimum Detection Limit
- NA – Parameter not analyzed
- **Bold and underlined** – Parameter exceeds the selected MECP standards

The soil pH and sodium absorption ratio (SAR) are in compliance with the selected MECP standards. The electrical conductivity (EC) is in excess of the MECP Table 7 Residential Standards. It should be noted that although the use of road salt was identified as an APEC, an exception has been made under the Section 49.1 of O.Reg. 153/04.

The analytical results for BTEX, PHCs, PAHs, VOCs and metals including pH and EC/SAR tested in soil are shown on Drawings PE4247-4, PE4247-5 and PE4247-6 - Analytical Testing Plans.

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)
PHC F_3	300	MW-2-SS2	
PHC F_4	120	MW-2-SS2	
Antimony	1.0	BH1-AU2/SS3	0.05-1.37
Arsenic	14.8		
Barium	287		
Beryllium	0.8	BH4-SS3	0.76-1.37
Boron	15.4		
Cadmium	0.6	BH1-AU2/SS3	0.05-1.37
Chromium	27.7	BH4-SS3	0.76-1.37
Cobalt	8.3		
Copper	50.8	BH1-AU2/SS3	0.05-1.37
Lead	**299**		
Mercury	**0.3**		

TABLE 11: Maximum Concentrations – Soil			
Parameter	**Maximum Concentration (µg/g)**	**Borehole**	**Depth Interval (m BGS)**
Molybdenum	2.6		
Nickel	20.2	BH4-SS3	0.76-1.37
Selenium	1.6	BH1-AU2/SS3	0.05-1.37
Vanadium	34.2	BH4-SS3	0.76-1.37
Zinc	248	BH1-AU2/SS3	0.05-1.37
Acenaphthene	0.07	BH1-AU2/SS3	
Acenaphthylene	**0.38**	BH1-AU2/SS3	0.76-1.37
Anthracene	0.24		
Benzo[a]anthracene	**0.90**		
Benzo[a]pyrene	**0.96**		
Benzo[b]fluoranthene	**1.15**		
Benzo[g,h,i]perylene	0.67		
Benzo[k]fluoranthene	0.57		
Chrysene	1.01		
Dibenzo[a,h]anthracene	**0.19**		
Fluoranthene	**1.36**		
Fluorene	0.09		
Indeno[1,2,3-cd]pyrene	**0.65**		
1-Methylnaphthalene	0.31		
2-Methylnaphthalene	0.43		
Methylnaphthalene (1&2)	0.74		
Naphthalene	0.45		
Phenanthrene	0.80		
Pyrene	1.40		

Note:
- **Bold and underlined** – Parameter exceeds the selected MECP standards

No other parameters were identified above the laboratory method detection limits.

5.6 Groundwater Quality

Groundwater samples from monitoring wells installed in BH1-21 and BH3-21 including a duplicate sample from BH3-21 were submitted for laboratory analysis of BTEX and PHC (fractions, F1-F4) and/or VOC analyses. The groundwater samples were obtained from the screened intervals noted in Table 2. The results of the analytical testing are presented in Tables 12 and 13. The laboratory certificates of analysis are provided in Appendix 1.

TABLE 12: Analytical Test Results – Groundwater
BTEX and PHCs

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)				MECP Table 7 Standards (µg/L)
		April 18, 2016		April 13, 2021		
		MW-1	MW-2	MW1-GW1	MW2-GW1	
Benzene	0.5	**1.2**	**0.58**	nd	nd	0.5
Toluene	0.5	4.8	2.30	nd	nd	320
Ethylbenzene	0.5	0.37	nd	nd	nd	54
Xylenes	0.5	4.5	1.7	nd	nd	72
PHC F_1	25	nd	nd	nd	nd	750
PHC F_2	100	nd	nd	nd	nd	150
PHC F_3	100	nd	nd	nd	nd	500
PHC F_4	100	nd	nd	nd	nd	500

Notes:
- MDL – Minimum Detection Limit
- nd – not detected above the MDL
- NA – not analyzed for this parameter
- **Bold and Underlined** – parameter exceeds the selected MECP Standards

TABLE 12 Continued: Analytical Test Results – Groundwater
BTEX and PHCs

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)			MECP Table 7 Standards (µg/L)
		April 28, 2021			
		BH1-GW1	BH3-GW1	DUP	
Benzene	0.5	**2.6**	nd	nd	0.5
Toluene	0.5	6.4	nd	nd	320
Ethylbenzene	0.5	nd	nd	nd	54
Xylenes	0.5	0.6	nd	nd	72
PHC F_1	25	nd	nd	NA	750
PHC F_2	100	nd	nd	NA	150
PHC F_3	100	nd	nd	NA	500
PHC F_4	100	nd	nd	NA	500

Notes:
- MDL – Minimum Detection Limit
- nd – not detected above the MDL
- NA – not analyzed for this parameter
- **Bold and Underlined** – parameter exceeds the selected MECP Standards

No detectable PHC concentrations were identified in the groundwater samples analyzed. No BTEX parameters were identified in BH3-21.

Based on the most recent groundwater sampling event, BTEX concentration in excess of the selected MECP Table 7 Standards was identified in BH1-GW1.

The analytical results for BTEX and PHCs tested in groundwater are shown on Drawing PE4247-7–Analytical Testing Plan – Groundwater.

TABLE 13: Analytical Test Results – Groundwater
VOCs

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)		MECP Table 7 Standards (µg/L)
		April 18, 2016		
		MW-1	MW-2	
Acetone	5.0	nd	nd	100000
Benzene	0.5	**1.2**	0.58	0.5
Bromodichloromethane	0.5	nd	nd	67000
Bromoform	0.5	nd	nd	5
Bromomethane	0.5	nd	nd	0.89
Carbon Tetrachloride	0.2	nd	nd	0.2
Chlorobenzene	0.5	nd	nd	140
Chloroform	0.5	nd	nd	2
Dibromochloromethane	0.5	nd	nd	65000
Dichlorodifluoromethane	1.0	nd	nd	3500
1,2-Dichlorobenzene	0.5	nd	nd	150
1,3-Dichlorobenzene	0.5	nd	nd	7600
1,4-Dichlorobenzene	0.5	nd	nd	0.5
1,1-Dichloroethane	0.5	nd	nd	11
1,2-Dichloroethane	0.5	nd	nd	0.5
1,1-Dichloroethylene	0.5	nd	nd	0.5
cis-1,2-Dichloroethylene	0.5	nd	nd	1.6
trans-1,2-Dichloroethylene	0.5	nd	nd	1.6
1,2-Dichloropropane	0.5	nd	nd	0.58
1,3-Dichloropropene, total	0.5	nd	nd	0.5
Ethylbenzene	0.5	0.37	nd	54
Ethylene dibromide (dibromoethane, 1,2-)	0.2	nd	nd	0.2
Hexane	1.0	nd	nd	5
Methyl Ethyl Ketone (2-Butanone)	5.0	nd	nd	21000
Methyl Isobutyl Ketone	5.0	nd	nd	5200
Methyl tert-butyl ether	2.0	nd	nd	15
Methylene Chloride	5.0	nd	nd	26
Styrene	0.5	nd	nd	43
1,1,1,2-Tetrachloroethane	0.5	nd	nd	1.1
1,1,2,2-Tetrachloroethane	0.5	nd	nd	0.5
Tetrachloroethylene	0.5	nd	nd	0.5
Toluene	0.5	4.8	2.3	320
1,1,1-Trichloroethane	0.5	nd	nd	23
1,1,2-Trichloroethane	0.5	nd	nd	0.5
Trichloroethylene	0.5	nd	nd	0.5
Trichlorofluoromethane	1.0	nd	nd	2000
Vinyl Chloride	0.5	nd	nd	0.5
Xylenes, total	0.5	4.5	1.7	72

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

TABLE 13 Continued: Analytical Test Results – Groundwater
VOCs

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)			MECP Table 7 Standards (µg/L)
		April 28, 2021			
		BH1-GW1	BH3-GW1	DUP	
Acetone	5.0	nd	nd	nd	100000
Benzene	0.5	**2.6**	nd	nd	0.5
Bromodichloromethane	0.5	0.9	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	**16.5**	0.5	0.6	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
Ethylene dibromide (dibromoethane, 1,2-)	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	6.4	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	0.6	nd	nd	72

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

The maximum concentrations of analyzed parameters in the groundwater at the site are summarized below in Table 14.

TABLE 14: Maximum Concentrations – Groundwater

Parameter	Maximum Concentration (µg/g)	Borehole	Screened Interval (m BGS)
Benzene	**2.6**	BH1-GW1	9.85-12.85m
Bromodichloromethane	0.9		
Chloroform	**16.5**		
Toluene	6.4		
Xylenes	0.6		

Remaining parameters analysed were not identified above the laboratory method detection limits.

5.7 Quality Assurance and Quality Control Results

All samples submitted as part of the April 2021 sampling events were handled in accordance with the Analytical Protocol with respect to preservation method, storage requirement, and container type. As per Subsection 47(3) of O.Reg. 153/04, as amended, under the Environmental Protection Act, a Certificate of Analysis has been received for each sample submitted for analysis and all Certificates of Analysis are appended to this report.

A duplicate soil sample and groundwater sample (DUP) were obtained from BH1-AU2/SS3 and BH3-GW1 and analyzed for BTEX and VOCs. Test results for the duplicate soil sample were non detect above the laboratory limits. Test results for the duplicate groundwater sample and RPD calculations are provided below in Table 15.

TABLE 15: QA/QC Results - Groundwater (VOCs)

Parameter	BH3-GW1	DUP	RPD (%)	QA/QC Results
Chloroform	0.5	0.6	18.18	Within the acceptable range

The remainder of the test results for the duplicate water sample were non-detect above the laboratory detection limit.

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 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. 153/04, 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 3.3 of this report on- and off-site PCAs are considered to results in the following three APECs on the Phase II ESA Property:

- APEC 1: Resulting from fill material of unknown quality, associated with the redevelopment of the site in the 1960s (PCA 30).
- APEC 2: Resulting from the use of road salt for de-icing purpose on the asphaltic paved concrete parking lot and walkways (PCA Other).
- APEC 3: Resulting from the presence of former retail fuel outlet and current automotive repair garage at 845 Carling Avenue (PCA 28, PCA 52).

Contaminants of Potential Concern

Based on the APECs identified on the Phase II ESA Property, the contaminants of potential concern (CPCs) present in soil and/or groundwater include:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX);
- Petroleum hydrocarbons (PHCs, Fractions F_1-F_4);
- Polycyclic aromatic compounds (PAHs);
- Metals, Hg and CrVI; and
- Volatile organic compounds (VOCs).

Subsurface Structures and Utilities

The Phase II ESA Property is situated in a municipally serviced area. Underground utility services on the Phase II ESA Property include natural gas, electricity, municipal water and sewer services. These services enter the Phase II ESA Property from Carling Avenue and Preston Street.

Based on the findings of the Phase II ESA, underground utilities are not expected to affect contaminant distribution and transport.

Physical Setting

Site Stratigraphy

The site stratigraphy, from ground surface to the deepest aquifer or aquitard investigated, is illustrated on Drawings PE4247-4A, 4B, 5A, 5B, 6A, 6B, 7A and 7B. The stratigraphy consists of:

- An asphaltic concrete structure of approximately 0.05 to 0.08 m thick, which overlies a fill material consisting of silty sand with crushed stone. This fill was encountered in BH1-21, BH3-21 and BH6-21extending to depths of 0.76 to 0.91 mbgs. Groundwater was not encountered in this layer.

- Fill material consisting of silty sand or silty clay with crushed stone and traces of gravel and topsoil and traces of demolition debris. Fill material was encountered in all of the boreholes and extended to depths of approximately 1.09 to 1.22 mbgs. Groundwater was not encountered in this layer.

- Limestone bedrock was encountered in boreholes BH1-21, BH2-21 and BH3-21 and terminated at a maximum depth of 23.93 mbgs. Practical refusal to augering was encountered at BH4-21, BH5-21 and BH6-21 at depths ranging from 0.91 to 1.45 mbgs. Groundwater was encountered in this layer at BH1-21, BH2-21 and BH3-21.

Hydrogeological Characteristics

Groundwater at the Phase II ESA Property was encountered in the bedrock. During the most recent groundwater monitoring event, groundwater flow was measured in a northerly direction, with a hydraulic gradient of 0.15 m/m. Groundwater contours are shown on Drawing PE4247-3 – Test Hole Location Plan.

Approximate Depth to Bedrock

Bedrock was encountered during the drilling program at depths ranging from approximately 0.91 to 1.45 mbgs.

Approximate Depth to Water Table

The depth to the water table at the subject site varies between approximately 2.1 to 23.24 m below existing grade.

Sections 35, 41 and 43.1 of the Regulation

Non-potable groundwater conditions, as defined in Section 35 of O.Reg. 153/04, were selected as the Phase II ESA Property is situated in a municipally serviced area and residential land use standards were selected based on the proposed development.

Section 41 of the O.Reg. 153/04 does not apply to the Phase II ESA Property, as there are no areas of natural significance or bodies of water located on or within 30 m of the Phase II ESA Property. The Phase II ESA Property is not considered to be environmentally sensitive.

Section 43.1 of O.Reg. 153/04 does apply to the Phase II ESA Property as bedrock is located less than 2 m below ground surface and thus, the site is defined as a shallow soil property.

Fill Placement

Two fill material layers were encountered during the subsurface program. The first layer consisted of silty sand with crushed stone, and traces of clay, which extended to depths of approximately 0.76 to 0.91mbgs. The second layer consisted of silty sand with gravel, traces of topsoil and demolition debris, which extended to depths ranging from 1.09 to 1.22 mbgs.

Existing Buildings and Structures

A 2-storey, slab-on-grade commercial building constructed circa early 1960s occupies the eastern portion of the Phase II ESA Property. The building exterior is finished in brick with a flat tar and gravel style roof. The building is heated and cooled by a natural gas fired HVAC roof mounted unit with electrical baseboard heaters for secondary heating.

No other buildings or above-grade structures are present on the Phase II ESA Property.

Proposed Buildings and Other Structures

The proposed site development for the Phase II ESA Property will include a 60-storey residential building with ground floor commercial space and 6 levels of underground parking.

Areas of Natural Significance

No areas of natural significance were identified in the Phase I ESA Study Area.

Water Bodies

Dow's Lake is located approximately 175 m southeast of the Phase II ESA Property. No other natural bodies were identified in the Phase I ESA Study Area.

Environmental Condition

Areas Where Contaminants are Present

Based on the analytical results for soil and groundwater, contaminants are present in the fill material on the western portion of the Phase II ESA Property, and in the groundwater below the western portion of the Phase II ESA Property.

Types of Contaminants

Based on the PCAs identified at the Phase II ESA Property, the Contaminants of Concern (COCs) identified in the soil at the Phase II ESA Property included lead (Pb) and mercury (Hg) and several PAH parameters.

The COCs identified in the groundwater at the Phase II ESA Property include Benzene. Chloroform was also identified in the groundwater in excess of the selected standards, however, the presence of chloroform at the time of the testing is a result of the municipal water used for bedrock coring. It is excepted that the chloroform concentration will dissipate in the near future.

Contaminated Media

Based on the findings of the Phase II ESA, the concentration of lead, mercury, and several PAH parameters at BH1-21 exceed MECP Table 7 Standards for soil.

The analyzed groundwater sample for BH1-21 exceeded MECP Table 7 Standard for benzene.

What Is Known About Areas Where Contaminants Are Present

The impacted soil identified in BH1-21 is considered to have originated on-site from former residential buildings during site redevelopment in approximately the early 1960s.

It is suspected that the small concentrations of benzene present in the groundwater in BH1-21 above MECP Table 7 Standards is a result of the groundwater monitoring well not properly developed and should be retested when it stabilizes.

Distribution and Migration of Contaminants

A layer of impacted fill material was identified in the western portion of subject site. This layer was observed to be approximately 1.2 metres thick. Based on the observations made during the field program, in conjunction with analytical test results, it is expected that the majority of the fill material is impacted with metals and/or PAHs.

The groundwater results from BH1 are not considered to be representative of the groundwater beneath the Phase II ESA Porperty given the presence of the chloroform.

Discharge of Contaminants

The metals and PAH impacted fill material identified in the western portion of the subject site is considered to be the result of site redevelopment, or from the importation of fill material of a poor quality.

It is suspected that the small concentrations of benzene present in the groundwater in BH1-21 above MECP Table 7 Standards is a result of the groundwater monitoring well not properly developed and should be retested when it stabilizes.

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.

Based on the analytical results contaminant distribution is not considered to have occurred on the Phase II ESA Property.

Potential for Vapour Intrusion

Based on the findings of the Phase II ESA and lack of building structures below the ground surface, there is no potential for vapour intrusion on the Phase II ESA Property.

6.0 CONCLUSIONS

Assessment

A Phase II ESA was conducted for the property addressed 829 Carling Avenue, in the 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 II ESA Property.

The subsurface investigation consisted of six (6) boreholes, of which three (3) were instrumented with groundwater monitoring wells. The general soil profile encountered during the field program consisted of fill material consisting of silty sand and crushed stone, followed by another fill layer consisting of silty sand with demolition debris (concrete and brick fragments), crushed stone, and some gravel and organics, overlying shallow limestone bedrock.

Four (4) soil samples, including a duplicate sample, were submitted for laboratory analysis of benzene, toluene, ethylbenzene and xylenes (BTEX), petroleum hydrocarbons (PHCs, Fractions F_1-F_4), Polycyclic Aromatic Hydrocarbons (PAHs), and metals (including hydride forming compounds: arsenic (As), Antimony (Sb), Selenium (Se)), mercury (Hg) and hexavalent chromium (CrVI). No BTEX/PHC concentrations were identified in any of the soil samples analysed. Concentrations of several PAH parameters and metal parameters were identified above the selected MECP Table 7 Standards in soil ample BH1-AU1/SS3.

Groundwater samples from monitoring wells MW-1, MW-2, BH1-21, BH2-21 and BH3-21 were collected during the interim of April 18 to April 28, 2021. No free product or petroleum hydrocarbon sheen was noted on the purge water during the groundwater sampling event.

Groundwater samples were analyzed for BTEX, PHCs and/or VOCs. A concentration of benzene was identified at BH1-21, in excess of the selected MECP Table 7 Standards. The groundwater from this well is indicate that the well has not stabilized. Additional groundwater analysis is recommended to confirm the true groundwater quality. All other groundwater results comply with the MECP Table 7 Standards.

Recommendations

It is our understanding that the Phase II ESA Property will be redeveloped with a 60-storey residential building with ground-floor commercial space and underground parking. Due to the change in land use to a more sensitive land use (commercial parking lot to residential), a record of site condition (RSC) will be required as per O.Reg 154/03.

Soils

Fill material on the northeastern corner of the Phase II ESA Property contained PAH concentrations in excess of the Table 7 Standards. Soil/fill in excess of the MECP Standards, will need to be removed and disposed of at an approved waste disposal facility.

Subsequent to demolition and prior to construction, a test pit program to assess the soil for off-site disposal purposes and at the same time delineate the PAH exceedances identified is recommended.

In accordance with the new Excess Soil Reg.406/19, additional testing of the soil will be required prior to off-site disposal at a receiving site.

Groundwater

It is expected that the small concentrations of benzene present in the groundwater in BH1-21 above MECP Table 7 Standards is a result of the groundwater monitoring well not properly developed and should be retested when it stabilizes.

Monitoring Wells

If the monitoring wells installed on the subject site are not going to be used in the future, or will be destroyed during site redevelopment, they should be abandoned according to Ontario Regulation 903. The wells will be registered with the MECP under this regulation.

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.

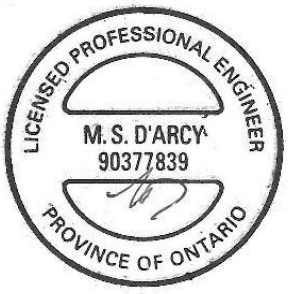
Should any conditions be encountered at the subject site and/or historical information that differ from our findings, we request that we be notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of Claridge Homes. Notification from Claridge Homes and Paterson Group will be required to release this report to any other party.

Paterson Group Inc.

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

Mark D'Arcy, P.Eng., QP$_{ESA}$



Report Distribution:

- Claridge Homes
- Paterson Group

FIGURES

Figure 1 - Key Plan

Drawing PE4247-3 – Test Hole Location Plan

Drawing PE4247-4 – Analytical Testing Plan – Soil (BTEX, PHCs, VOCs)

Drawing PE4247-4A – Cross-section A – A' – Soil (BTEX, PHCs, VOCs)

Drawing PE4247-4B – Cross-section B – B' – Soil (BTEX, PHCs, VOCs)

Drawing PE4247-5 – Analytical Testing Plan – Soil (Metals)

Drawing PE4247-5A – Cross-section A – A' – Soil (Metals)

Drawing PE4247-5B – Cross-section B – B' – Soil (Metals)

Drawing PE4247-6 – Analytical Testing Plan – Soil (PAHs)

Drawing PE4247-6A – Cross-section A – A' – Soil (PAHs)

Drawing PE4247-6B – Cross-section B – B' – Soil (PAHs)

Drawing PE4247-7 – Analytical Testing Plan – Groundwater (BTEX, PHCs, VOCs)

Drawing PE4247-7A – Cross-section A – A' – Groundwater (BTEX, PHCs, VOCs)

Drawing PE4247-7B – Cross-section B – B' – Groundwater (BTEX, PHCs, VOCs)

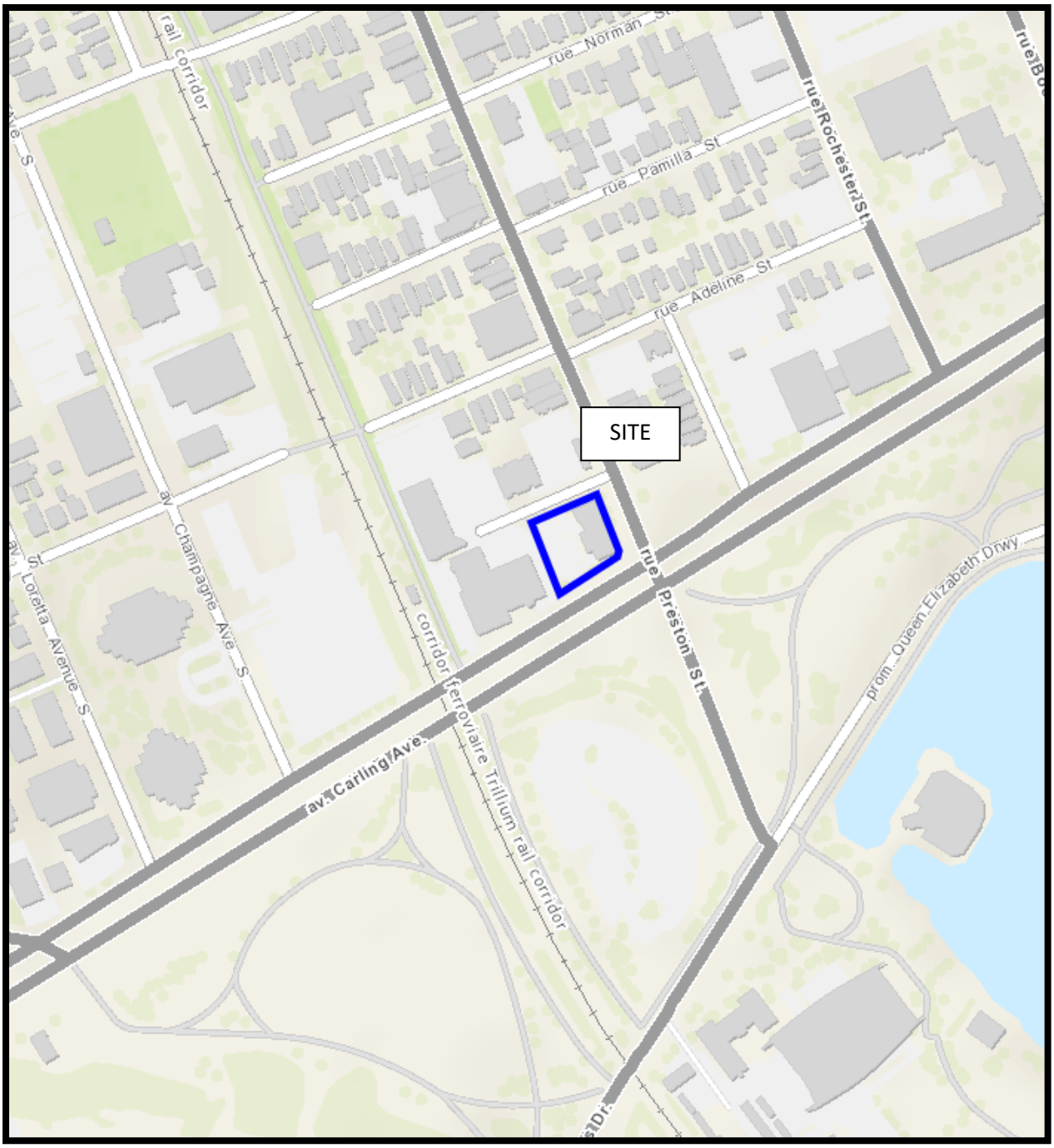


FIGURE 1

KEY PLAN

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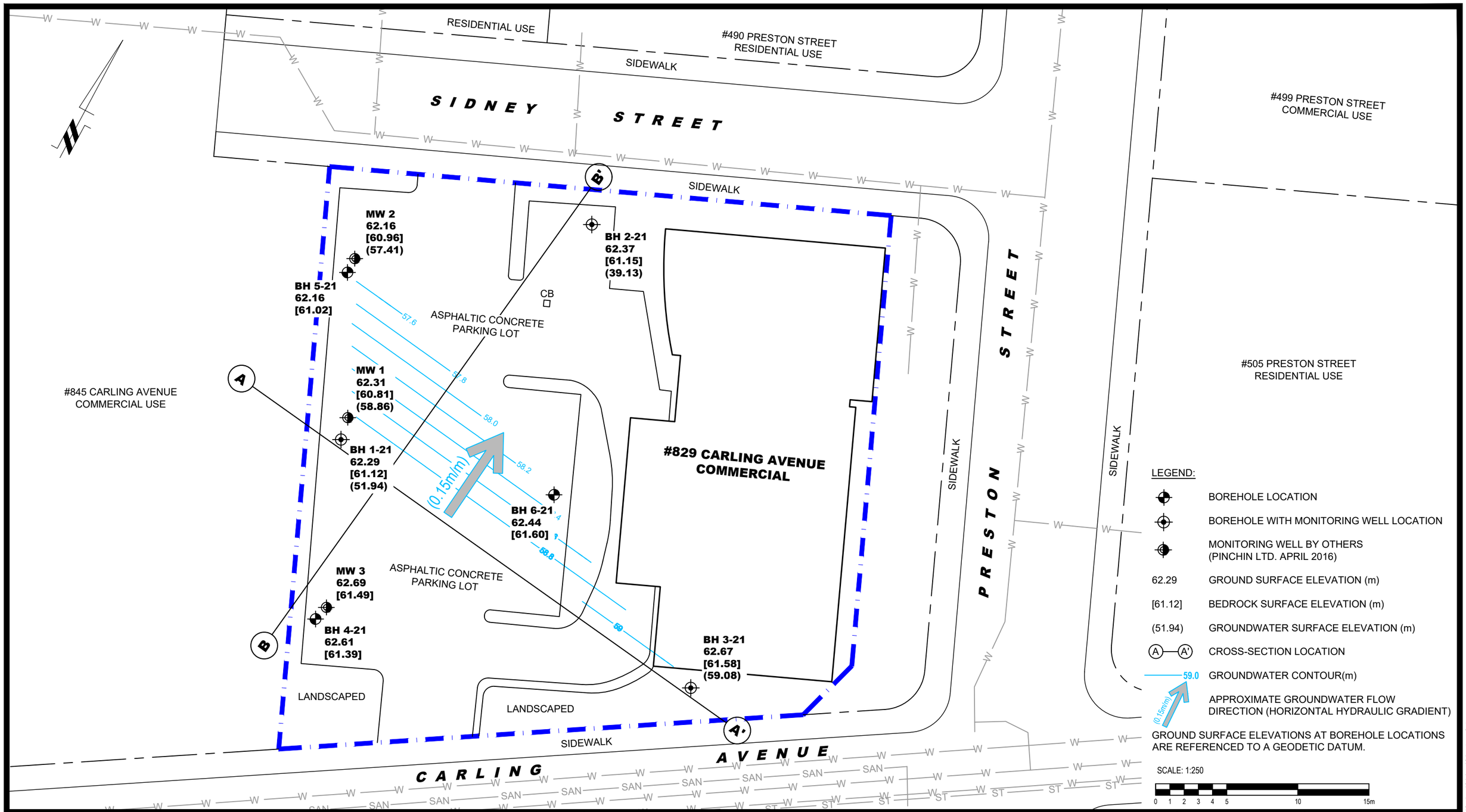

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CLARIDGE HOMES

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
829 CARLING AVENUE

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:250	Date: 04/2021
Drawn by: JM	Report No.: PE4247-1
Checked by: MW	Dwg. No.: PE4247-3
Approved by: MSD	Revision No.:

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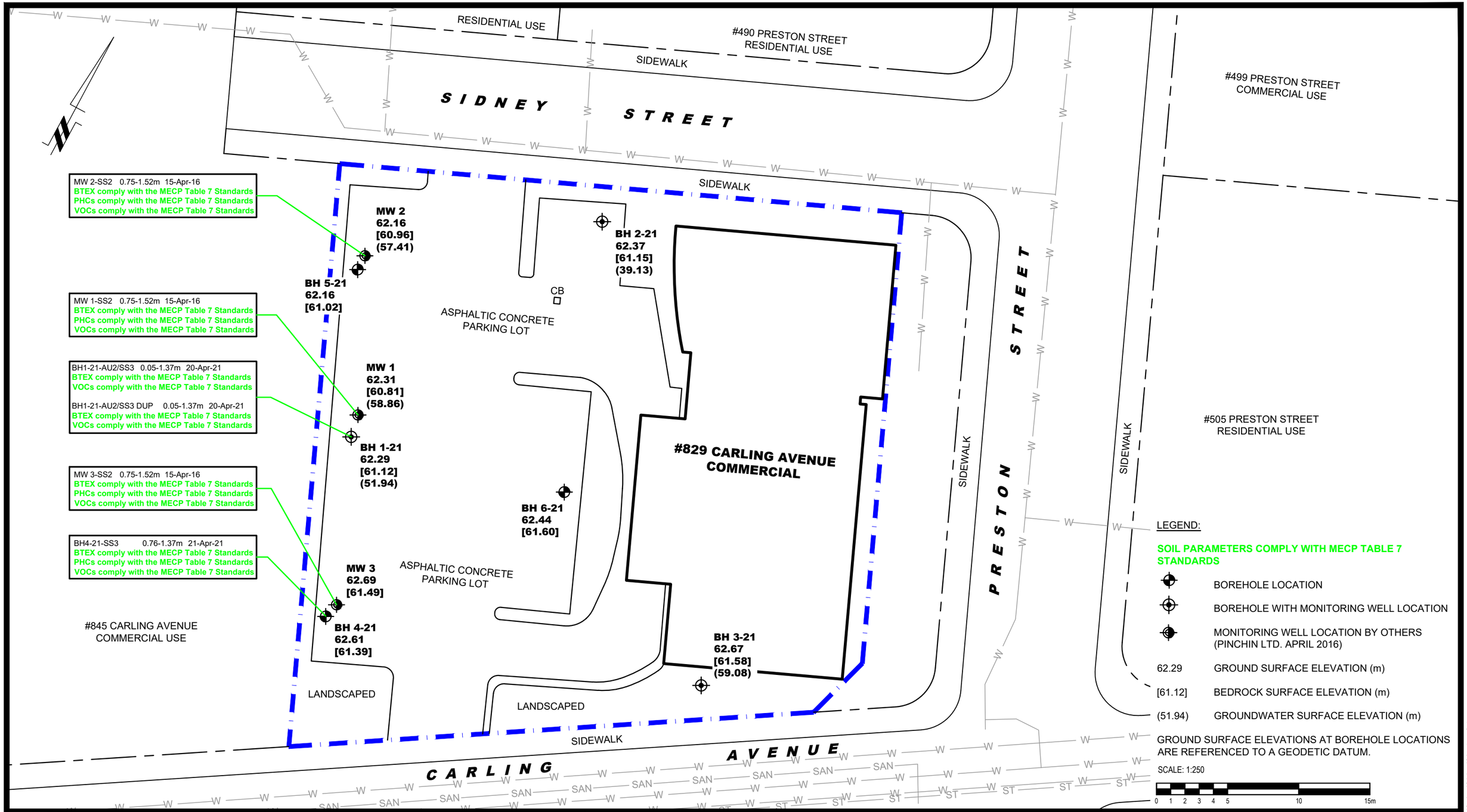

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
829 CARLING AVENUE

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (BTEX, PHCs, VOCs)

Scale: 1:250	Date: 05/2021
Drawn by: MPG	Report No.: PE4247-2
Checked by: MW	Dwg. No.: PE4247-4
Approved by: MSD	Revision No.:

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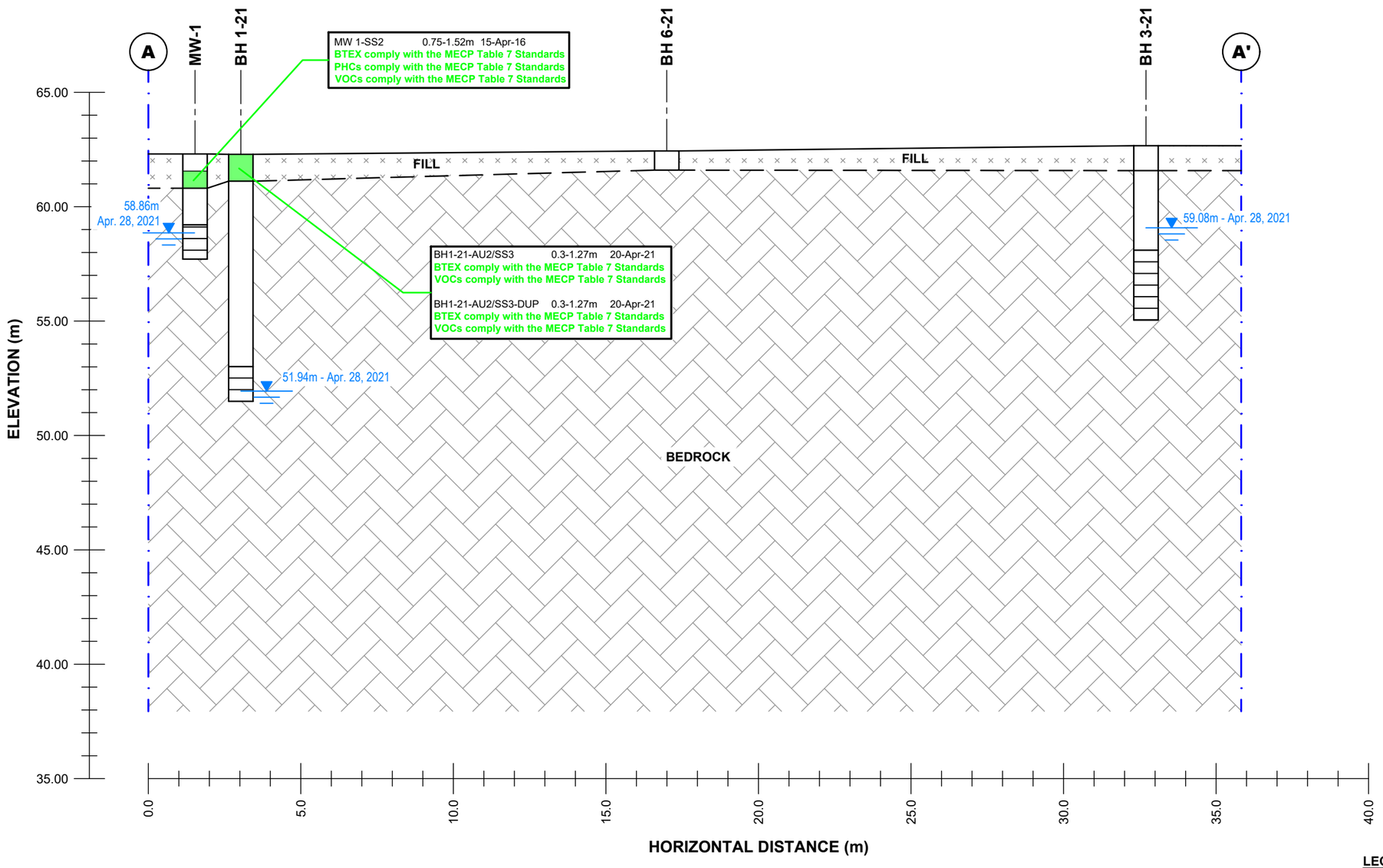

LEGEND:

SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
829 CARLING AVENUE

OTTAWA, ONTARIO

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

Scale: AS SHOWN	Date: 05/2021
Drawn by: MPG	Report No.: PE4247-2
Checked by: MW	Dwg. No.: PE4247-4A
Approved by: MSD	Revision No.:

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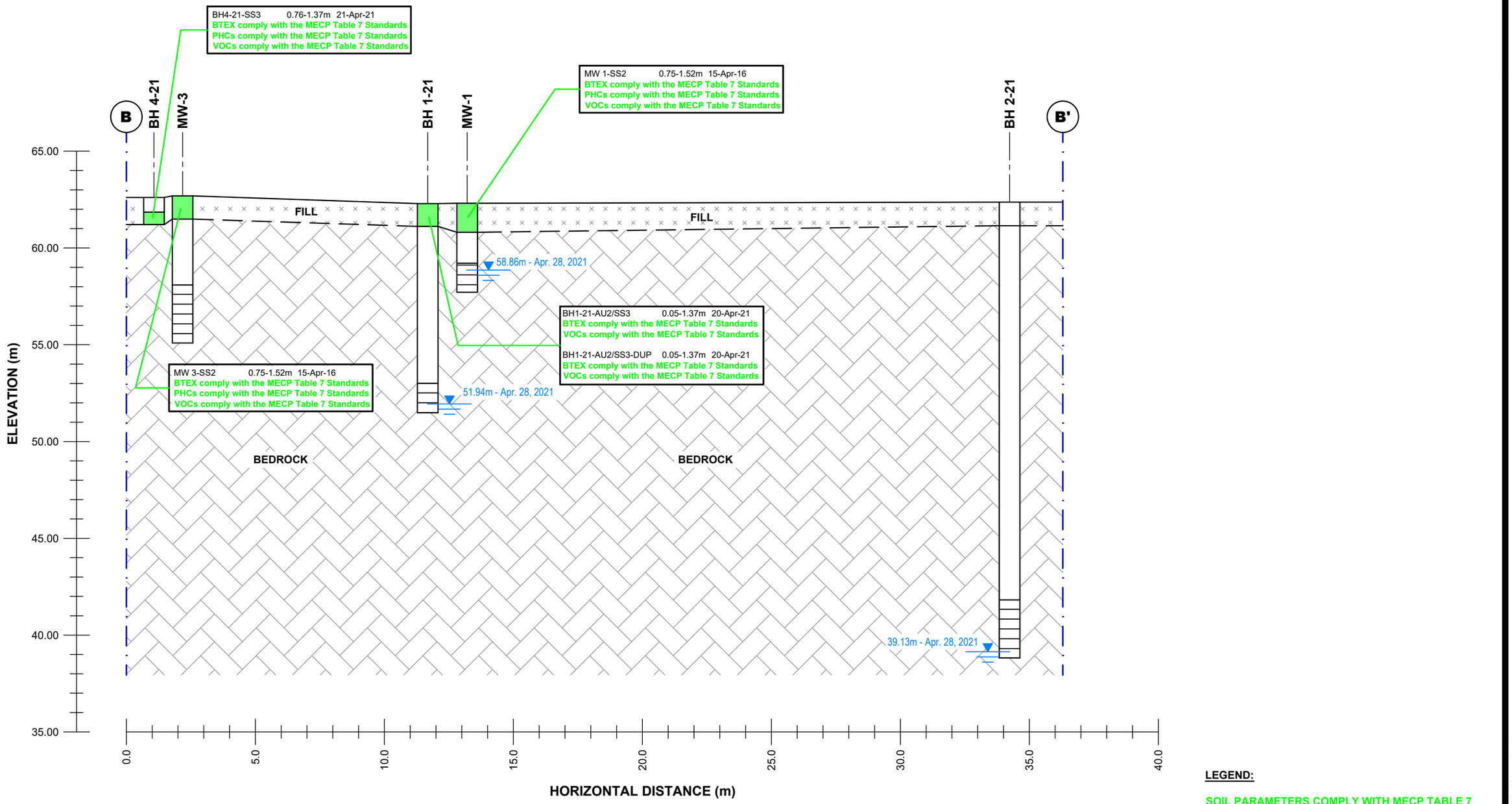

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SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
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Title:

CROSS-SECTION B-B' - SOIL (BTEX, PHCs, VOCs)

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Checked by: MW	Dwg. No.: PE4247-4B
Approved by: MSD	Revision No.:

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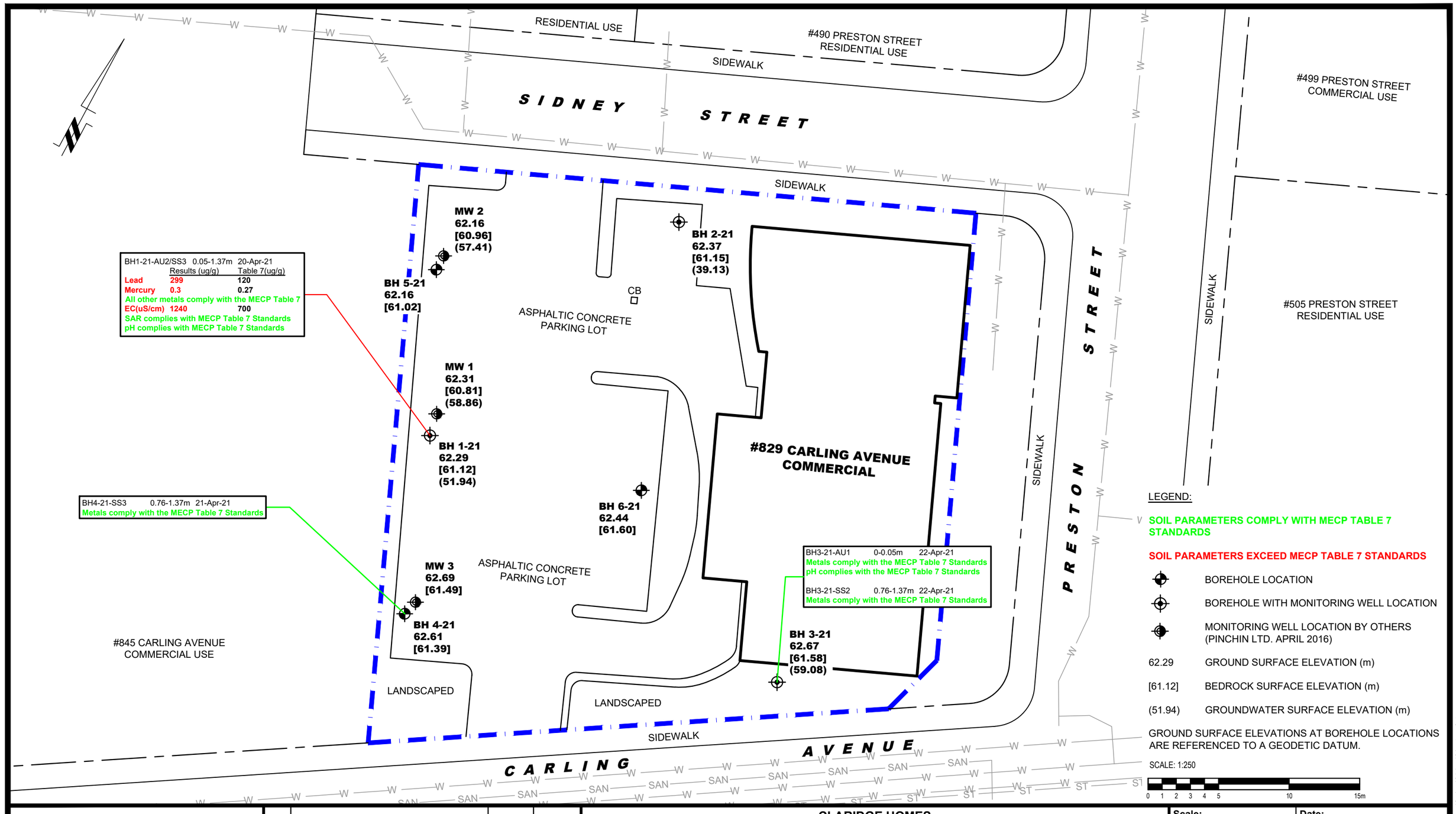

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OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (METALS)

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Drawn by: MPG	Report No.: PE4247-2
Checked by: MW	Dwg. No.: PE4247-5
Approved by: MSD	Revision No.:

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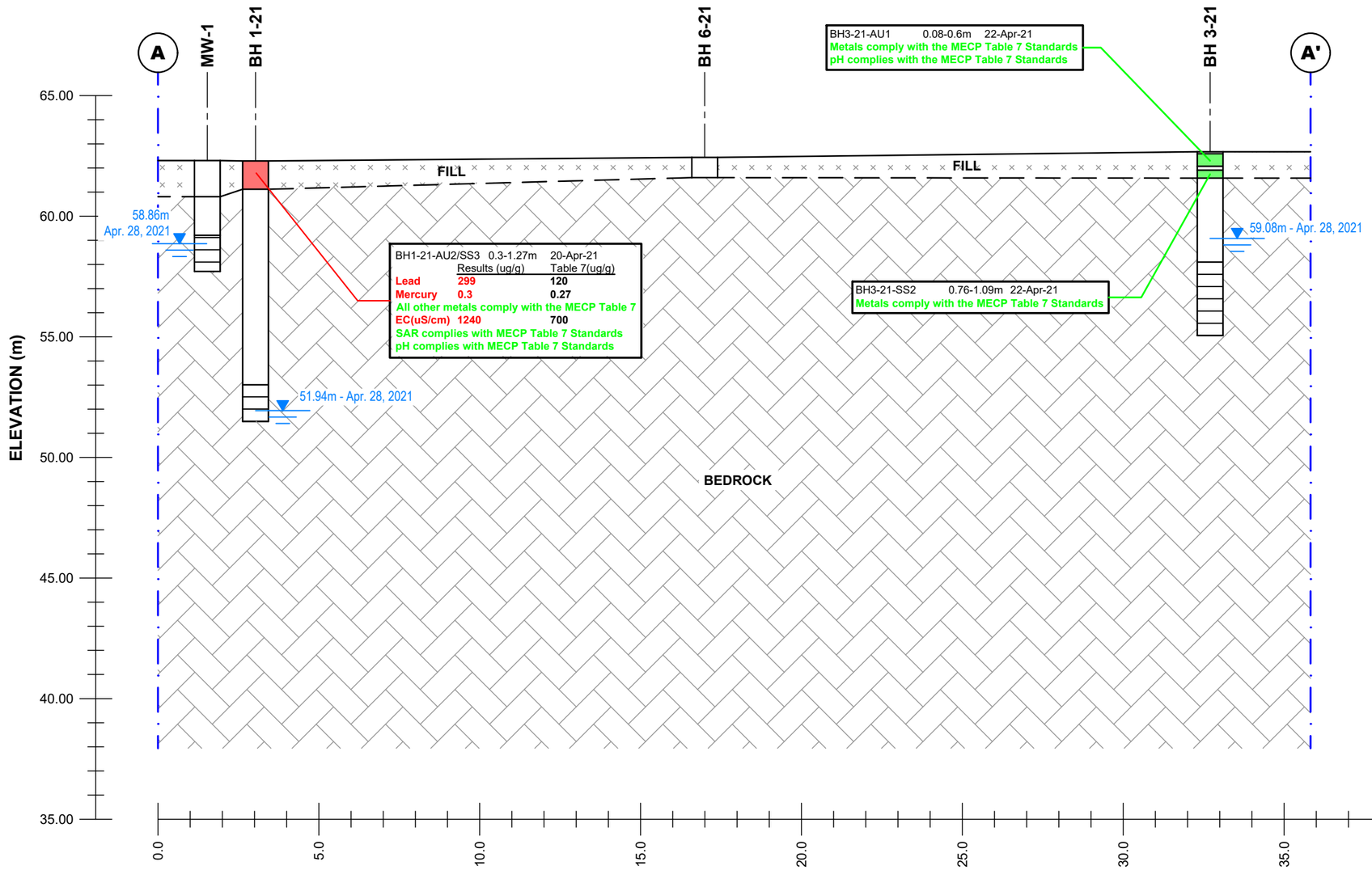

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SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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Title:

CROSS-SECTION A-A' - SOIL (METALS)

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Approved by: MSD	Revision No.:

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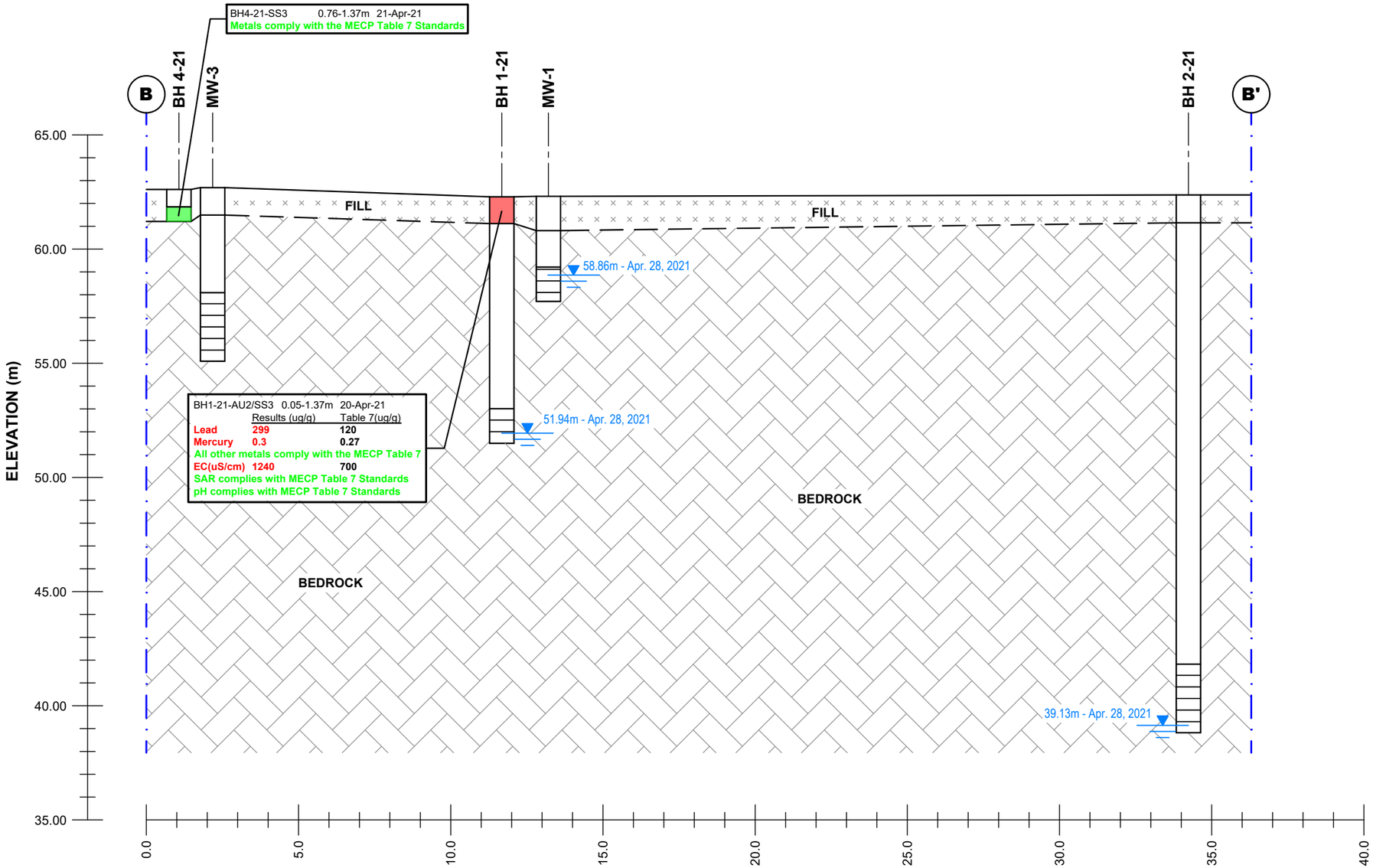

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CROSS-SECTION B-B' - SOIL (METALS)

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Checked by: MW	Dwg. No.: PE4247-5B
Approved by: MSD	Revision No.:

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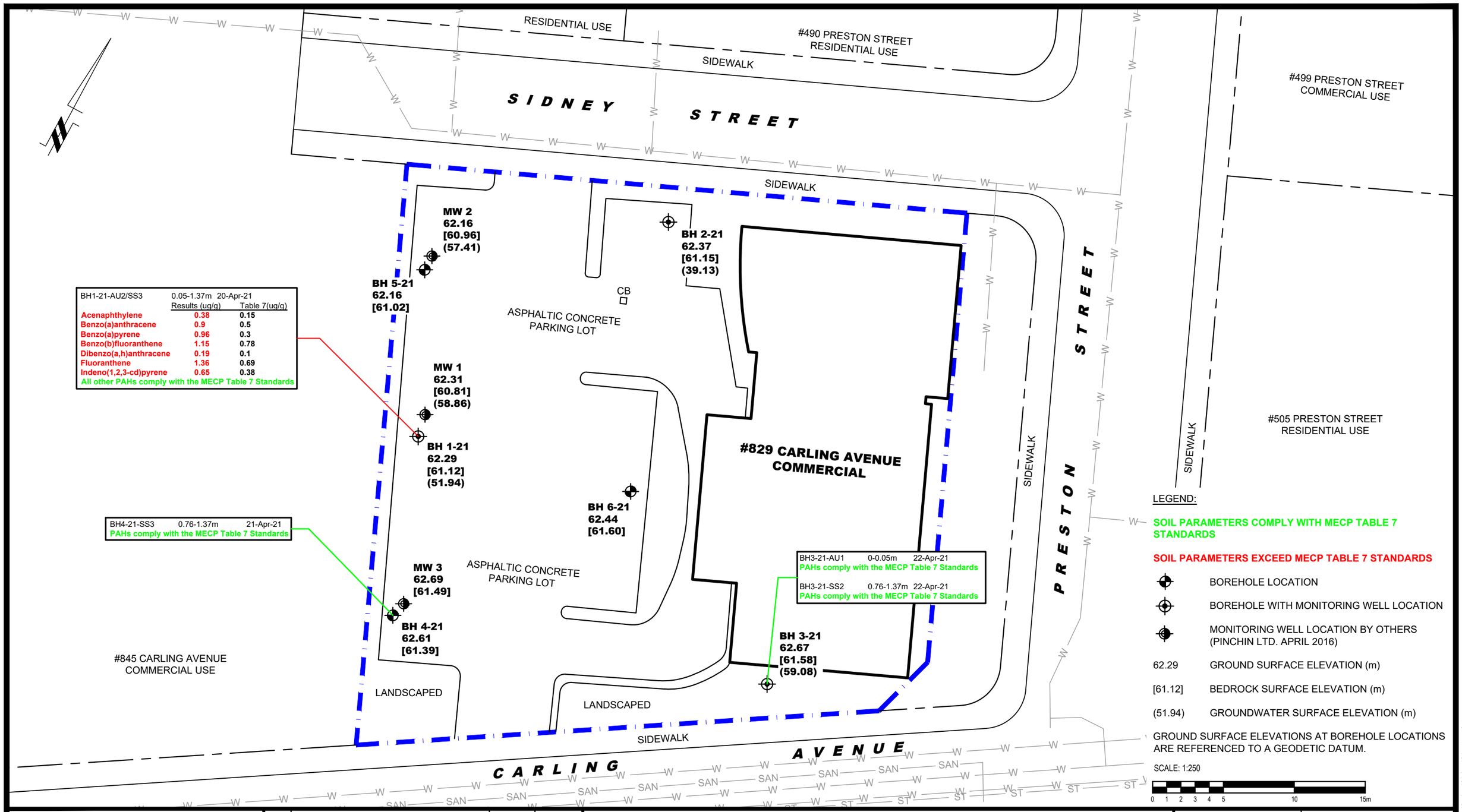

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
829 CARLING AVENUE

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (PAHs)

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Checked by: MW	Dwg. No.: PE4247-6
Approved by: MSD	Revision No.:

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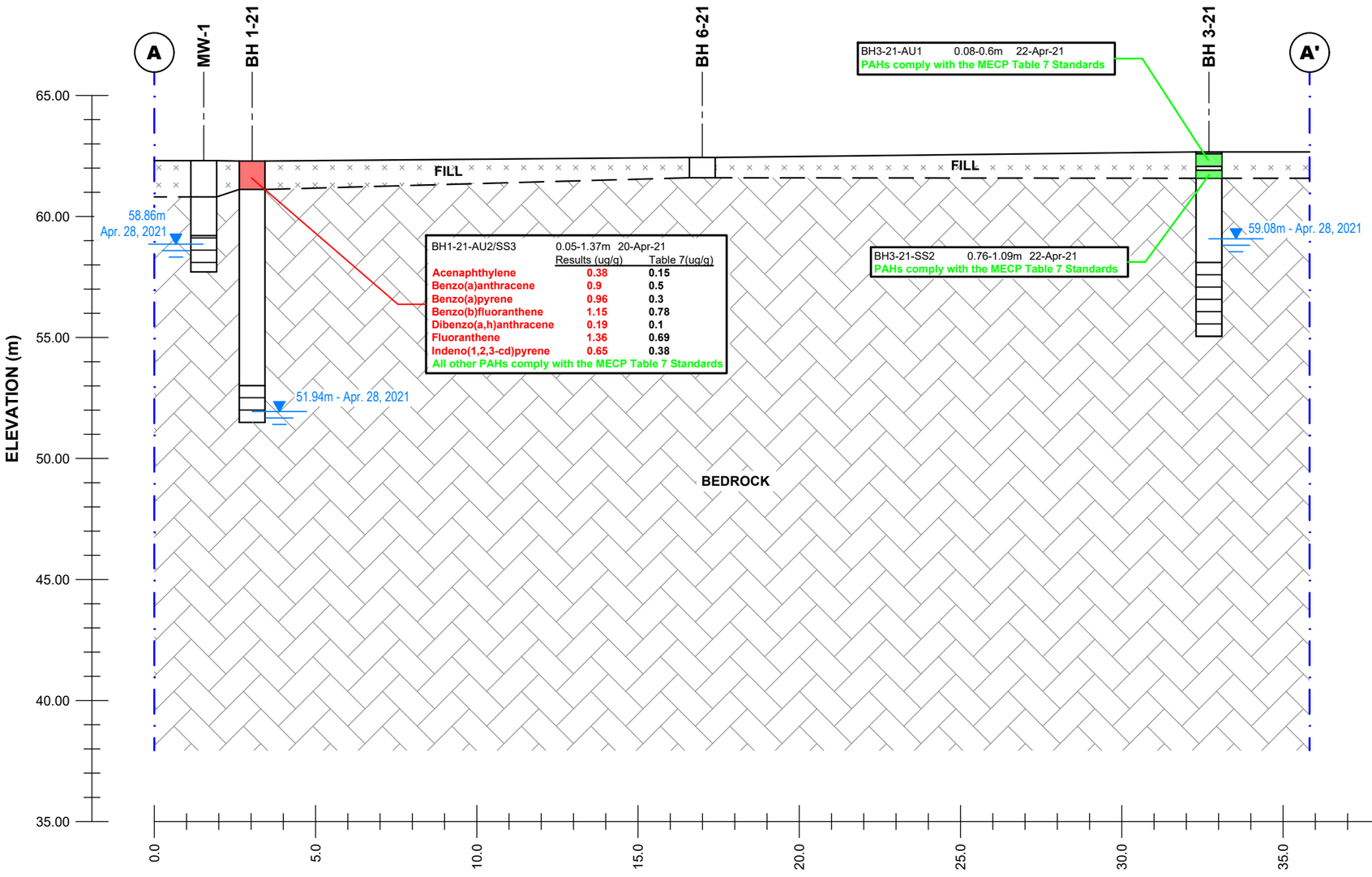

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
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Title:

CROSS-SECTION B-B' - SOIL (PAHs)

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Checked by: MW	Dwg. No.: PE4247-6A
Approved by: MSD	Revision No.:

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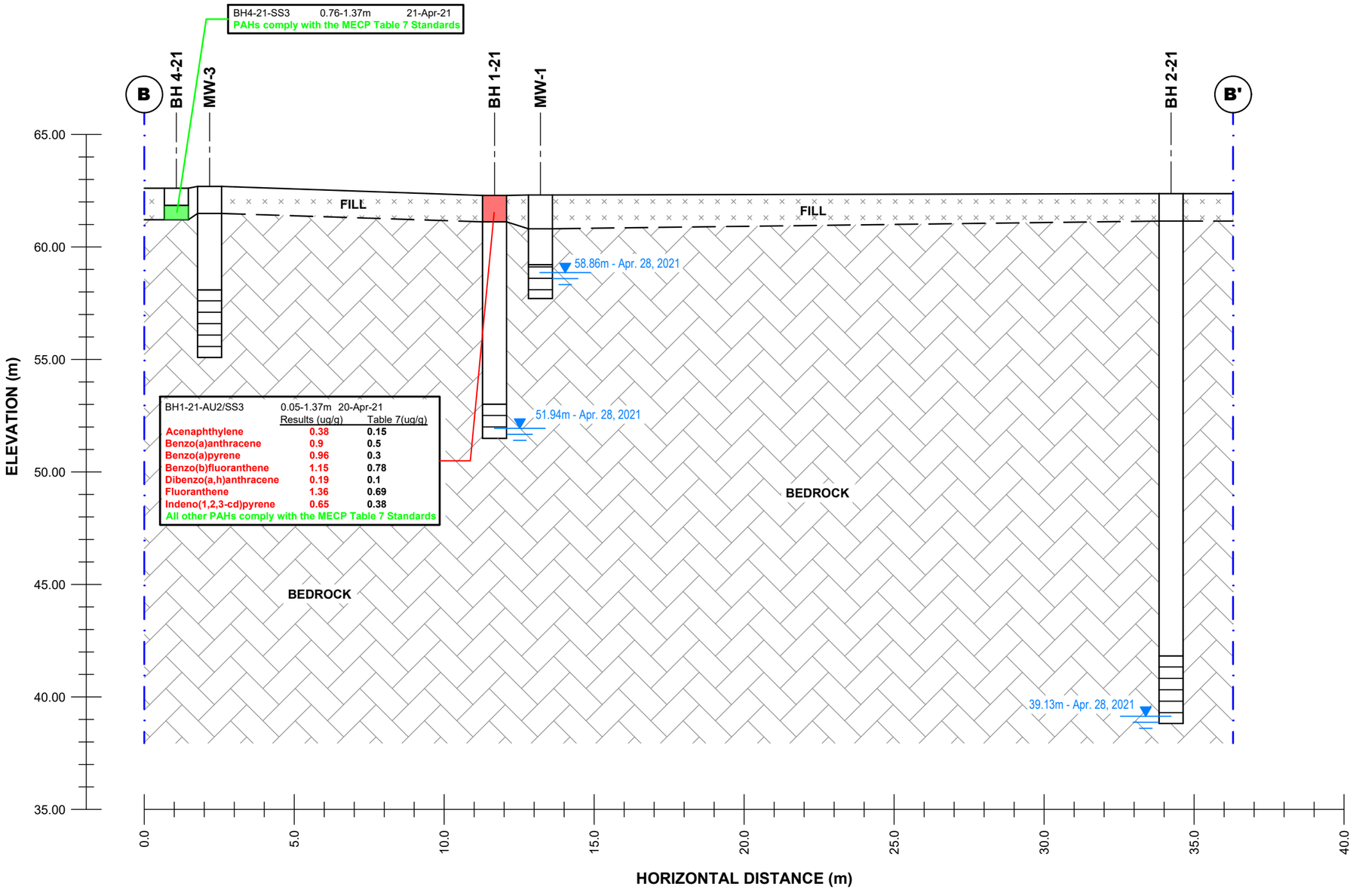

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SOIL PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
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Title:

CROSS-SECTION B-B' - SOIL (PAHs)

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Approved by: MSD	Revision No.:

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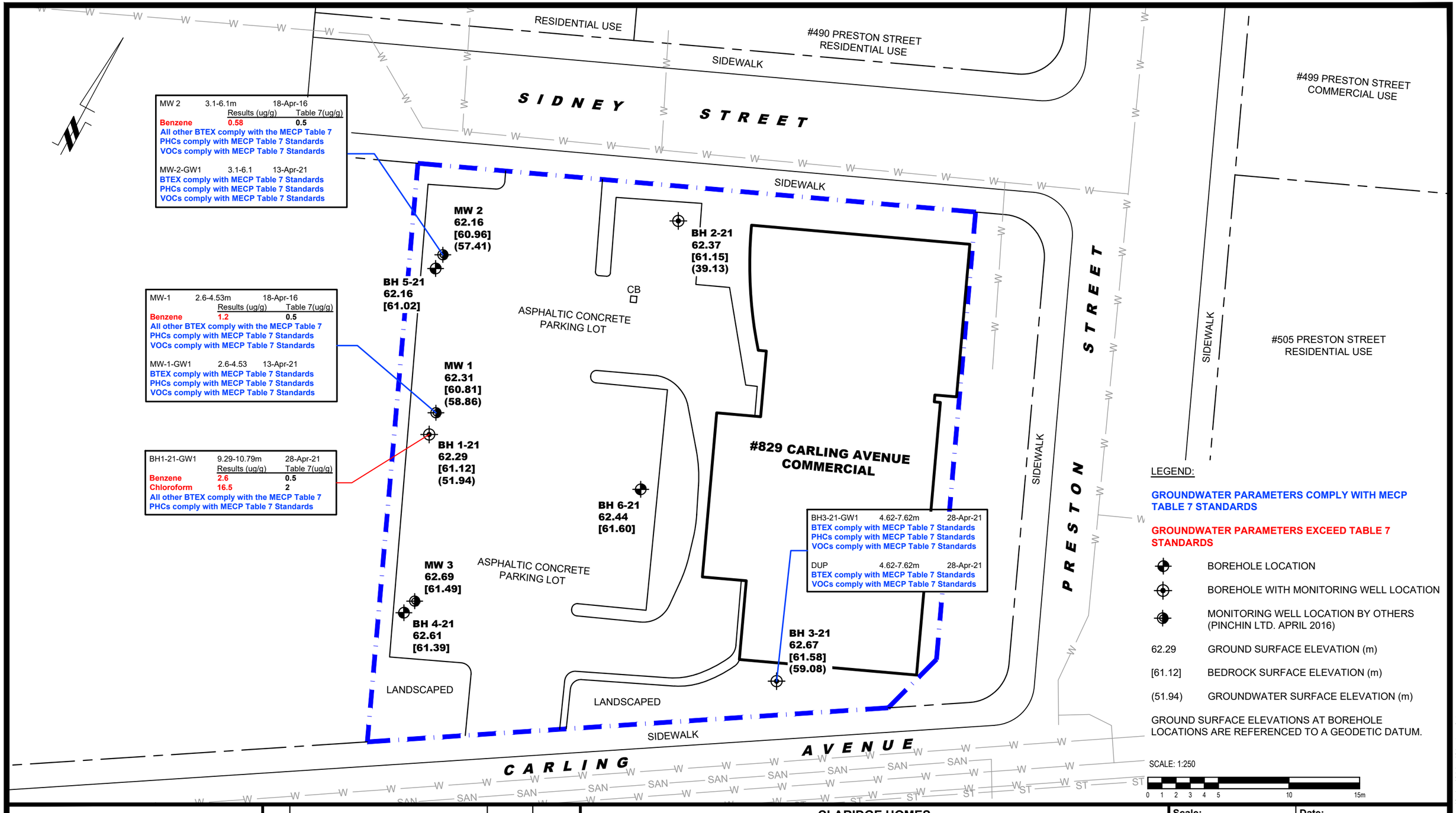

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CLARIDGE HOMES

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
829 CARLING AVENUE

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - GROUNDWATER

Scale: 1:250	Date: 05/2021
Drawn by: MPG	Report No.: PE4247-2
Checked by: MW	Dwg. No.: PE4247-7
Approved by: MSD	Revision No.:

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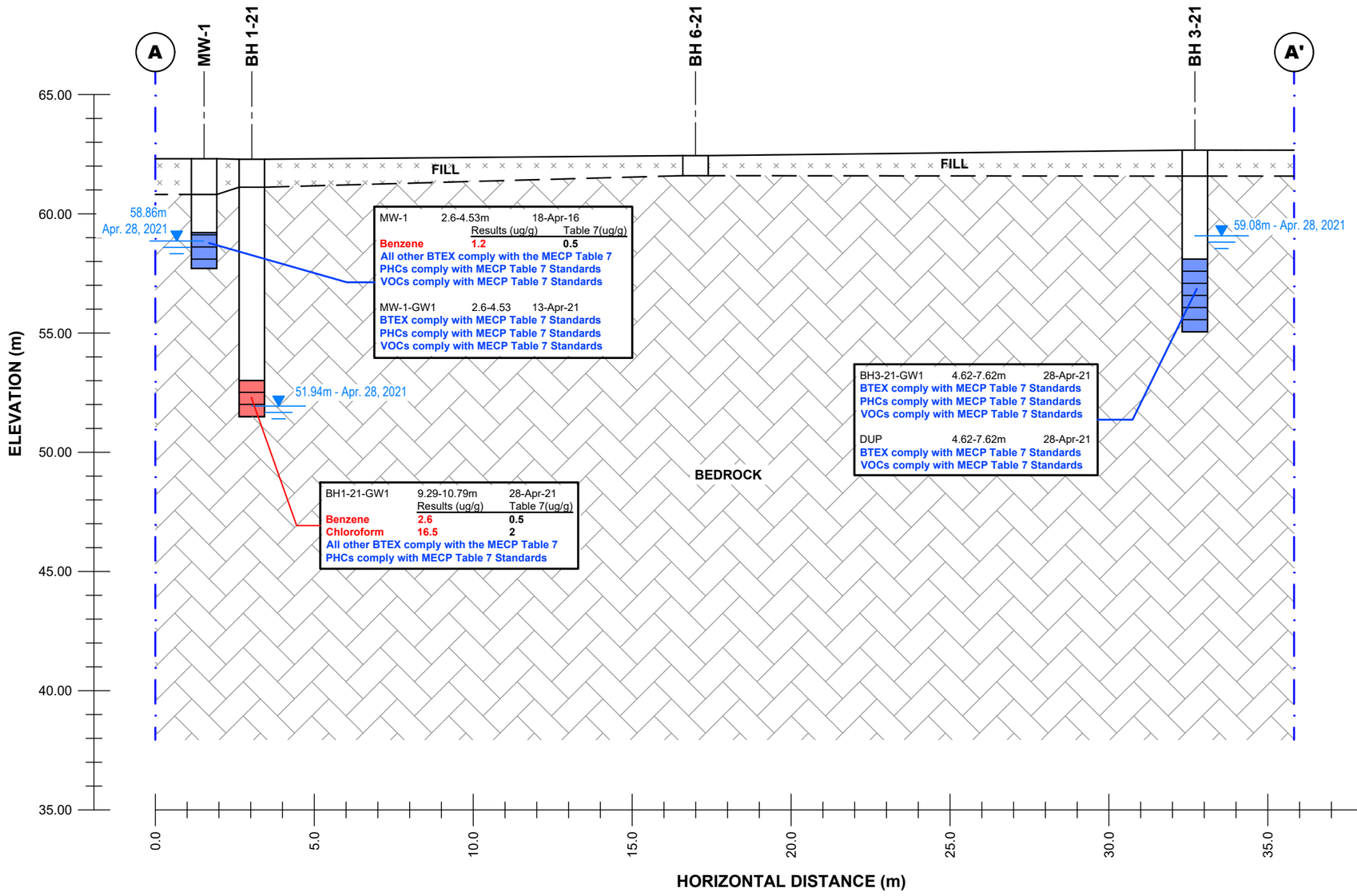

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GROUNDWATER PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

GROUNDWATER PARAMETERS EXCEED MECP TABLE 7 STANDARDS

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CLARIDGE HOMES

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
829 CARLING AVENUE

OTTAWA, ONTARIO

Title:

CROSS-SECTION A-A' - GROUNDWATER

Scale: AS SHOWN	Date: 05/2021
Drawn by: MPG	Report No.: PE4247-2
Checked by: MW	Dwg. No.: PE4247-7A
Approved by: MSD	Revision No.:

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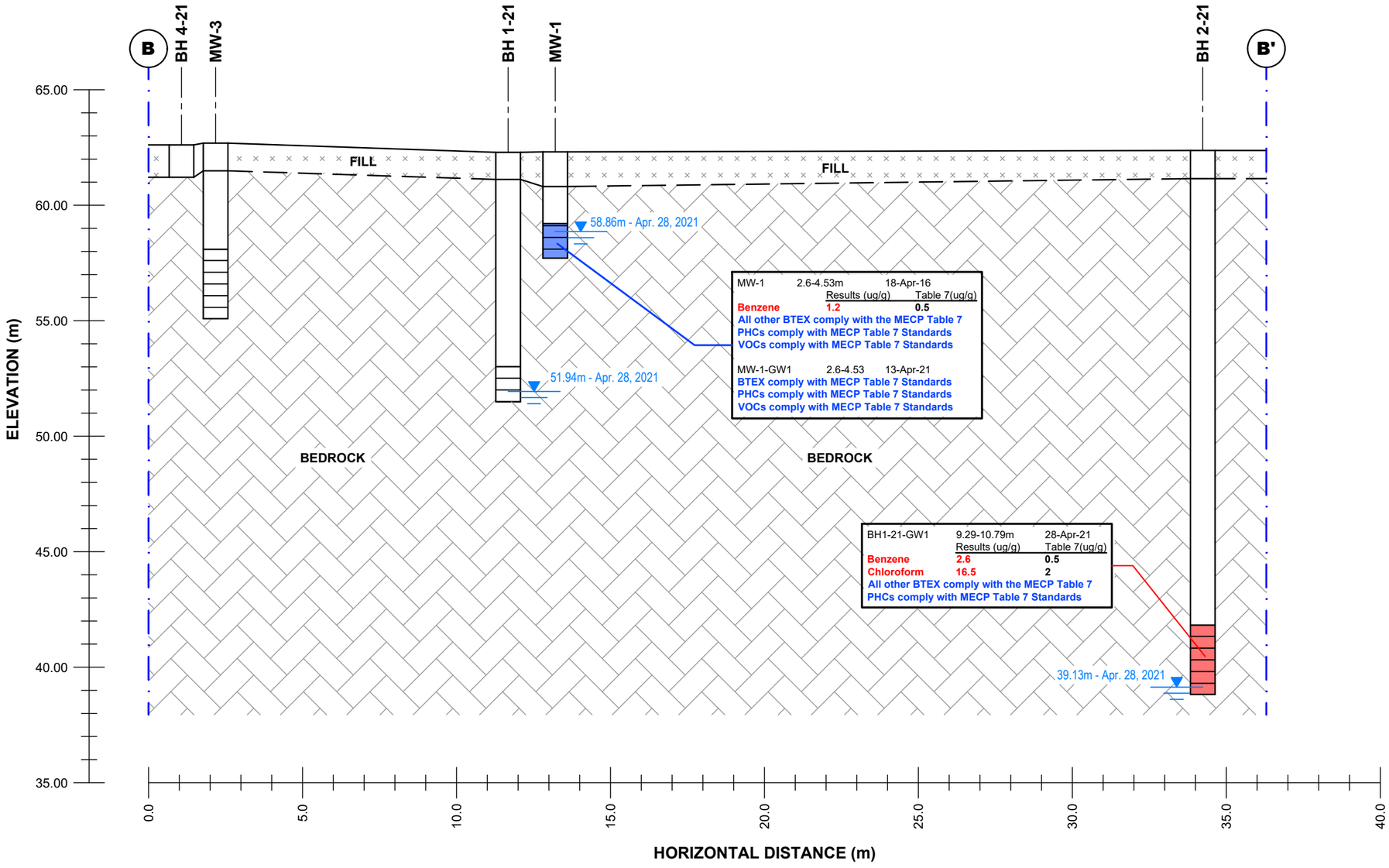

LEGEND:

GROUNDWATER PARAMETERS COMPLY WITH MECP TABLE 7 STANDARDS

GROUNDWATER PARAMETERS EXCEED MECP TABLE 7 STANDARDS

patersongroup
consulting engineers

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

NO.	REVISIONS	DATE	INITIAL
0			

CLARIDGE HOMES

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
829 CARLING AVENUE

OTTAWA, ONTARIO

Title:

CROSS-SECTION B-B' - GROUNDWATER

Scale: AS SHOWN	Date: 05/2021
Drawn by: MPG	Report No.: PE4247-2
Checked by: MW	Dwg. No.: PE4247-7B
Approved by: MSD	Revision No.:

11x17

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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

Paterson Group Inc.

Consulting Engineers
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patersongroup

Sampling & Analysis Plan

Phase II Environmental Site Assessment
829 Carling Avenue
Ottawa, Ontario

Prepared For

Claridge Homes

April 2021

Report: PE4247-SAP

Table of Contents

1.0 SAMPLING PROGRAM

Paterson Group Inc. (Paterson) was commissioned by Vincent Denomme of Claridge Homes to conduct a Phase II Environmental Site Assessment (ESA) for the Phase II ESA Property, addressed 829 Carling Avenue, Ottawa, Ontario.

The Phase II ESA was carried out to address the APECs identified in the Paterson Phase I ESA. The following subsurface investigation program was developed to identify and delineate potential environmental concerns.

Borehole	Location & Rationale	Proposed Depth & Rationale
BH1-21	Assess soil and/or groundwater conditions on and beneath the Phase I Property due to APECs 1, 2 and 3.	Boreholes to be advanced to approximately 10.8 mbgs to intercept water table to install groundwater monitoring well.
BH2-21	Assess soil and groundwater conditions on and beneath the Phase I Property due to APECs 1, 2 and 3.	Boreholes to be advanced to approximately 23 mbgs to install a deep groundwater monitoring well.
BH3-21	Assess soil and groundwater conditions on and beneath the Phase I Property due to APECs 1 and 2.	Boreholes to be advanced to approximately 7.6 mbgs to intercept water table to install groundwater monitoring well.
BH4-21	Assess soil conditions on the Phase I Property due to APECs 1, 2 and 3.	Boreholes to be advanced to approximately 1.4 mbgs.
BH5-21	Assess soil conditions on the Phase I Property due to APECs 1, 2 and 3.	Boreholes to be advanced to approximately 1.5 mbgs.
BH5-21	Assess soil conditions on the Phase I Property due to APECs 1, 2 and 3.	Boreholes to be advanced to approximately 0.9 mbgs.

At each borehole, split-spoon samples of overburden soils will be obtained at 0.76 m (2'6") intervals until groundwater was intercepted. 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 MECP's 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 should be measured using a measuring tape or wheel rather than paced off. Elevations were surveyed at geodetic elevations by Paterson personnel.

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.

PINCHIN

Stratigraphic and Instrumentation Log: MW-1

Pinchin Ltd.
555 Legget Drive, Suite 1001
Kanata, Ontario

Project No.: 111021.002 | ***Logged By:*** RML
Project: Phase II ESA | ***Entered By:*** RML
Client: CIBC Corporate Real Estate | ***Project Manager:*** FD
Location: 829 Carling Ave, Ottawa, ON | ***Drill Date:*** April 15, 2016

Depth (ft / m)	Symbol	Description	Depth (m)	Number	Type	Sample	N-Value	Recovery (%)	Well Completion Details	Vapour Data (% LEL: 20 40 60 80; ppm: 250 750 1250)
0 / 0		Ground Surface								
0 / 0		**ASPHALT**	0.0							
1 / 0		**SANDY GRAVEL FILL** Brown, moist, no odour		1	SS		NA	50		
2 / 1				2	SS		NA	50		Sample submitted for analysis of PHC, VOC and PH.
5 / 1.5		**LIMESTONE BEDROCK**	1.5							
15 / 4.6		End of Borehole	4.6							Water level measured at 3.45 mbgs on April 18, 2016.

CONFIDENTIAL
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Joanne Pannozzo
Metrus Properties Limited
CIBC National Banking Centre Portfolio
9/8/2016 4:11:22 PM

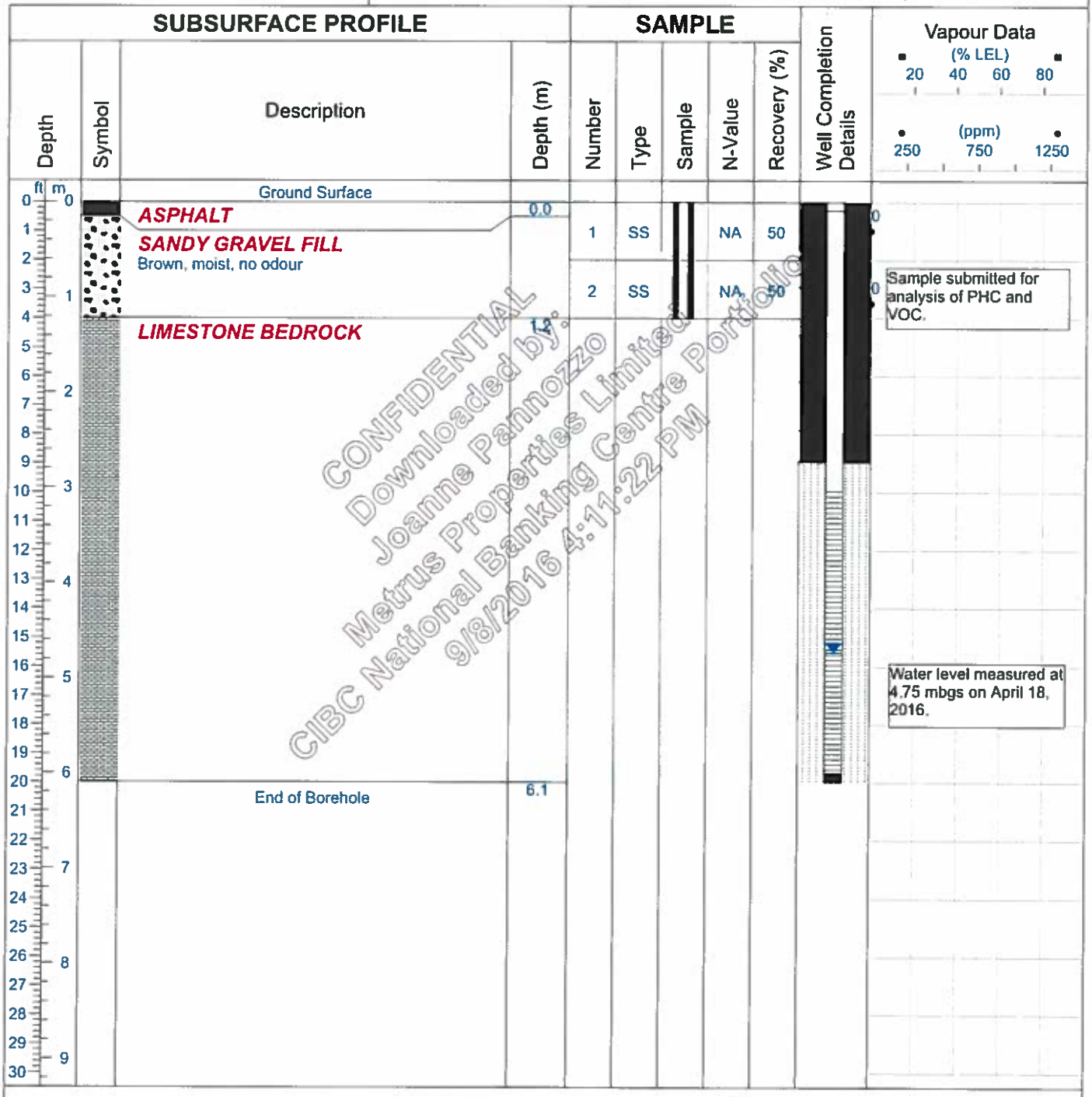
Drilled By: Strata Drilling Group
Drill Method: Geo-Machine
Vapour Instrument: Photoionization Detector
Well Casing Size: 38mm

Datum: NA
Casing Elevation: NM
Ground Elevation: NM
Sheet: 1 of 1

Stratigraphic and Instrumentation Log: MW-2

Pinchin Ltd.
555 Legget Drive, Suite 1001
Kanata, Ontario

Project No.: 111021.002 | ***Logged By:*** RML
Project: Phase II ESA | ***Entered By:*** RML
Client: CIBC Corporate Real Estate | ***Project Manager:*** FD
Location: 829 Carling Ave, Ottawa, ON | ***Drill Date:*** April 15, 2016



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Metrus Properties Limited
CIBC National Banking Centre Portfolio
9/8/2016 4:11:22 PM

Drilled By: Strata Drilling Group
Drill Method: Geo-Machine
Vapour Instrument: Photoionization Detector
Well Casing Size: 38mm

Datum: NA
Casing Elevation: NM
Ground Elevation: NM
Sheet: 1 of 1

Stratigraphic and Instrumentation Log: MW-3

Pinchin Ltd.
555 Legget Drive, Suite 1001
Kanata, Ontario

Project No.: 111021.002 | ***Logged By:*** RML
Project: Phase II ESA | ***Entered By:*** RML
Client: CIBC Corporate Real Estate | ***Project Manager:*** FD
Location: 829 Carling Ave, Ottawa, ON | ***Drill Date:*** April 15, 2016

Depth (ft)	Depth (m)	Symbol	Description	Depth (m)	Number	Type	Sample	N-Value	Recovery (%)	Well Completion Details	Vapour Data (% LEL: 20, 40, 60, 80; ppm: 250, 750, 1250)
0	0		Ground Surface								
			ASPHALT	0.0							
1			***SANDY GRAVEL FILL*** Brown, moist, no odour		1	SS		NA	50	0	
2	1				2	SS		NA	50	0	Sample submitted for analysis of PHC, VOC and PH.
4			***LIMESTONE BEDROCK***	1.2							
10	3										
16	5										Note: Monitoring well dry on April 18, 2016
20	6										
23	7										
25			End of Borehole	7.6							
26	8										
30	9										

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Metrus Properties Limited
CIBC National Banking Centre Portfolio
9/8/2016 4:11:22 PM

Drilled By: Strata Drilling Group | ***Datum:*** NA
Drill Method: Geo-Machine | ***Casing Elevation:*** NM
Vapour Instrument: Photoionization Detector | ***Ground Elevation:*** NM
Well Casing Size: 38mm | ***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
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 1-21

BORINGS BY Track-Mount Power Auger **DATE** April 20, 2021

SOIL DESCRIPTION		STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							0	62.29
Asphaltic concrete	0.05		AU	1				
FILL: Brown silty sand with crushed stone	0.36		AU	2				
	0.76							
FILL: Topsoil with silty clay	1.17		SS	3	50	28	1	61.29
FILL: Brown silty sand with clay and gravel, trace topsoil								
			RC	1	100	62	2	60.29
BEDROCK: Poor quality, grey limestone	3.00						3	59.29
			RC	2	100	88	4	58.29
			RC	3	100	100	5	57.29
							6	56.29
			RC	4	100	100	7	55.29
BEDROCK: Good to excellent quality, grey limestone							8	54.29
			RC	5	100	100	9	53.29
			RC	6	100	100	10	52.29
							11	51.29
			RC	7	100	100	12	50.29
							13	49.29

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

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 1-21

BORINGS BY Track-Mount Power Auger **DATE** April 20, 2021

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									
		RC	8	100	100	13	49.29		
						14	48.29		
		RC	9	100	100				
						15	47.29		
		RC	10	100	100				
						16	46.29		
						17	45.29		
BEDROCK: Good to excellent quality, grey limestone		RC	11	100	100				
						18	44.29		
		RC	12	100	95				
						19	43.29		
						20	42.29		
		RC	13	100	90				
						21	41.29		
		RC	14	100	100				
						22	40.29		
22.61									
End of Borehole									
(GWL @ 10.35m - April 28, 2021)									

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.

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 2-21

BORINGS BY Track-Mount Power Auger **DATE** April 21, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	62.37
Asphaltic concrete 0.08		AU	1				
FILL: Brown silty sand with crushed stone, trace clay		AU	2				
1.22		SS	3	54	20	1	61.37
		RC	1	100	100	2	60.37
		RC	2	100	95	3	59.37
		RC	3	100	100	4	58.37
		RC	4	100	100	5	57.37
BEDROCK: Excellent quality, grey limestone		RC	5	100	100	6	56.37
		RC	6	100	100	7	55.37
		RC	7	100	100	8	54.37
		RC	8	100	100	9	53.37
						10	52.37
						11	51.37
						12	50.37
						13	49.37

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.

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 2-21

BORINGS BY Track-Mount Power Auger **DATE** April 21, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
		RC	9	100	100	13	49.37
						14	48.37
		RC	10	100	100	15	47.37
						16	46.37
		RC	11	100	100	17	45.37
BEDROCK: Excellent quality, grey limestone		RC	12	100	97	18	44.37
						19	43.37
		RC	13	100	100	20	42.37
						21	41.37
		RC	14	100	90	22	40.37
						23	39.37
		RC	15	100	100		
23.55							
End of Borehole							
(GWL @ 23.24m - April 28, 2021)							

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
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 3-21

BORINGS BY Track-Mount Power Auger **DATE** April 22, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	62.67
Concrete 0.08		AU	1				
FILL: Brown silty sand, trace crushed stone 0.91		SS	2	100	5	1	61.67
FILL: Brown silty sand with gravel, some topsoil, trace wood, brick, mortar and concrete 1.09							
BEDROCK: Poor quality, grey limestone - vertical seam from 1.45 to 1.9m depth		RC	1	100	47	2	60.67
2.95						3	59.67
		RC	2	100	93	4	58.67
		RC	3	100	98	5	57.67
		RC	4	100	100	6	56.67
BEDROCK: Excellent quality, grey limestone						7	55.67
		RC	5	100	95	8	54.67
		RC	6	100	10	9	53.67
						10	52.67
		RC	7	100	100	11	51.67
						12	50.67
		RC	8	100	100	13	49.67

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
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 3-21

BORINGS BY Track-Mount Power Auger **DATE** April 22, 2021

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									
		RC	9	100	100	13	49.67		
						14	48.67		
		RC	10	100	100	15	47.67		
						16	46.67		
		RC	11	100	95	17	45.67		
BEDROCK: Excellent quality, grey limestone		RC	12	100	97	18	44.67		
						19	43.67		
		RC	13	100	100	20	42.67		
						21	41.67		
		RC	14	100	85	22	40.67		
		RC	15	100	100	23	39.67		
23.93									
End of Borehole									
(GWL @ 3.59m - April 28, 2021)									

Photo Ionization Detector: ○ 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
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

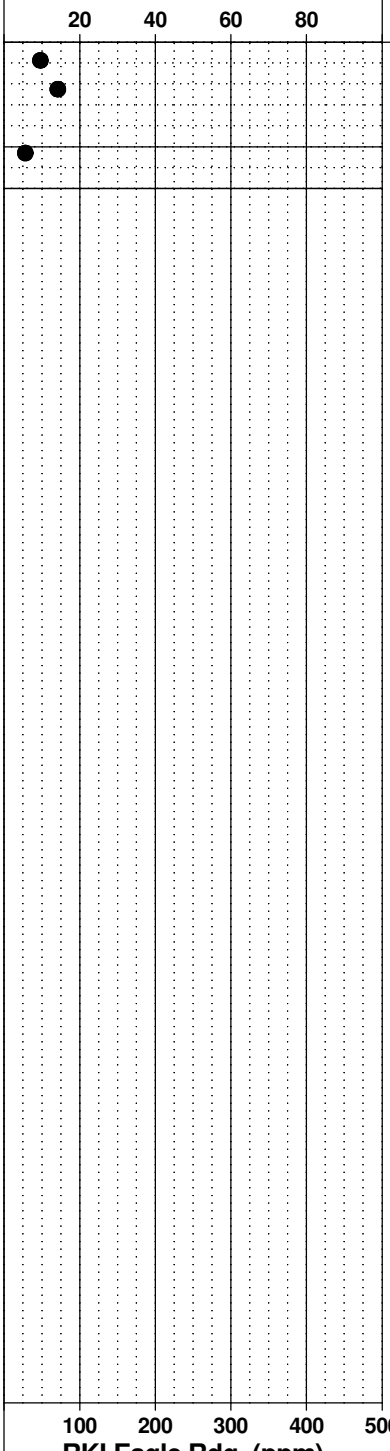
REMARKS

HOLE NO. BH 4-21

BORINGS BY Track-Mount Power Auger **DATE** April 20, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Asphaltic concrete 0.05		AU	1			0	62.61
FILL: Crushed stone with topsoil, some sand		AU	2				
1.22		SS	3	33	14	1	61.61
BEDROCK: Weathered grey limestone 1.40							
End of Borehole							
Practical refusal to augering at 1.40m depth.							

Photo Ionization Detector
● Volatile Organic Rdg. (ppm)
○ **Lower Explosive Limit %**



▲ 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
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 5-21

BORINGS BY Track-Mount Power Auger **DATE** April 20, 2021

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									
Asphaltic concrete 0.08		AU	1			0	62.16		
FILL: Brown silty sand with crushed stone		AU	2						
- some topsoil, trace clay and rock fragments by 0.8m depth 1.14		SS	3	25	31	1	61.16		
1.45									
BEDROCK: Weathered grey limestone									
End of Borehole									
Practical refusal to augering at 1.45m depth.									

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
829 Carling Avenue
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE4247

REMARKS

HOLE NO. BH 6-21

BORINGS BY Track-Mount Power Auger **DATE** April 21, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	62.44
Asphaltic concrete 0.08		AU	1				
FILL: Brown silty sand with crushed stone 0.84		SS	2	8	50+		
BEDROCK: Weathered, grey limestone 0.91							
End of Borehole							
Practical refusal to augering at 0.91m depth.							

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 relative strength of cohesionless soils is the compactness condition, 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. An SPT N value of "P" denotes that the split-spoon sampler was pushed 300 mm into the soil without the use of a falling hammer.

Compactness Condition	'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 shear vane tests, unconfined compression tests, or occasionally by the Standard Penetration Test (SPT). Note that the typical correlations of undrained shear strength to SPT N value (tabulated below) tend to underestimate the consistency for sensitive silty clays, so Paterson reviews the applicable split spoon samples in the laboratory to provide a more representative consistency value based on tactile examination.

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, S_t, is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil. The classes of sensitivity may be defined as follows:

Low Sensitivity:	$S_t < 2$
Medium Sensitivity:	$2 < S_t < 4$
Sensitive:	$4 < S_t < 8$
Extra Sensitive:	$8 < S_t < 16$
Quick Clay:	$S_t > 16$

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 NQ or larger size core. However, it can be used on smaller core sizes, such as BQ, 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, generally recovered using a piston sampler
G	-	"Grab" sample from test pit or surface materials
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size BQ, NQ, HQ, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

PLASTICITY LIMITS AND GRAIN SIZE DISTRIBUTION

WC%	-	Natural water 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 at 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

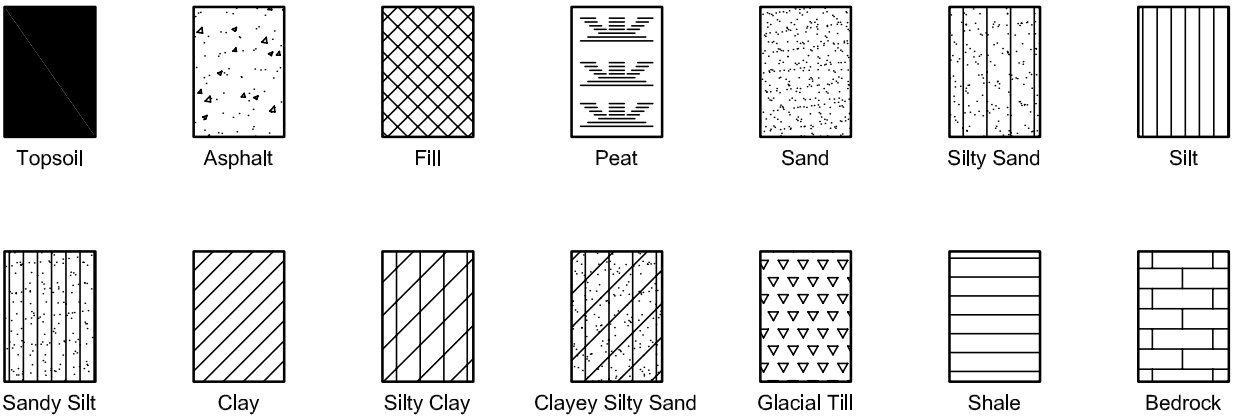
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void 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.

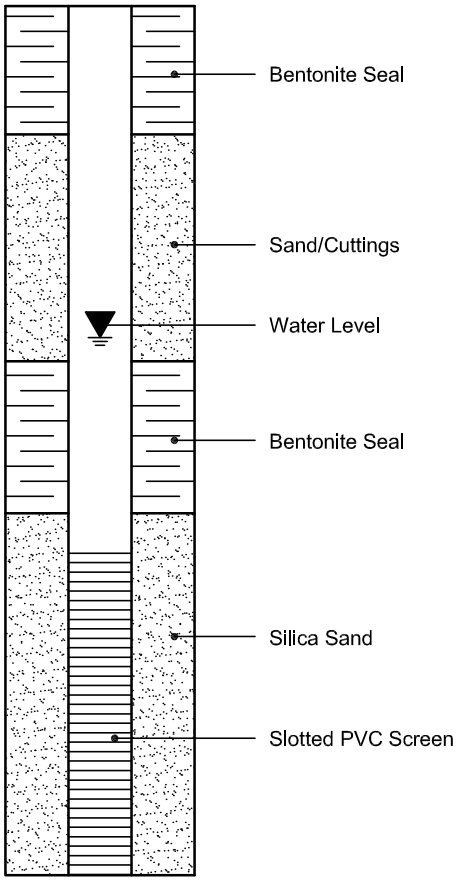
SYMBOLS AND TERMS (continued)

STRATA PLOT

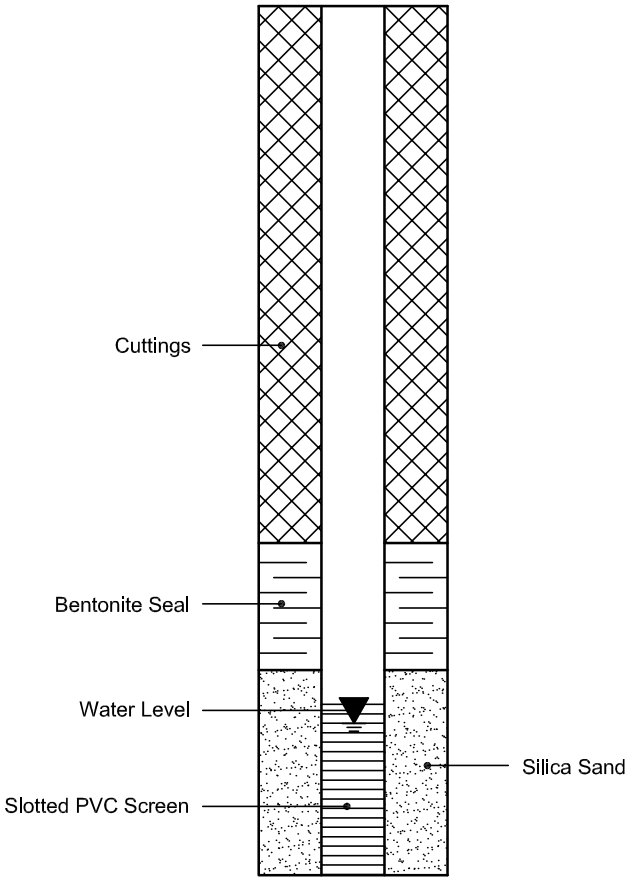


MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



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Your Project #: PII ESA
Site#: 111021.002
Site Location: CARLING AVE
Your C.O.C. #: 544903-04-01

Attention:Ryan Laronde

Pinchin Ltd
Ottawa
555 Legget Dr
Suite 1001 (Tower A)
Kanata, ON
K2K 2X3

Report Date: 2016/04/25
Report #: R3972343
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B677217
Received: 2016/04/19, 11:15

Sample Matrix: Soil
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	3	N/A	2016/04/25		EPA 8260C m
Cyanide (WAD) in Leachates (1)	1	N/A	2016/04/25	CAM SOP-00457	OMOE 3015 m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	4	N/A	2016/04/23	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	4	2016/04/22	2016/04/25	CAM SOP-00316	CCME CWS m
Fluoride by ISE in Leachates (1)	1	2016/04/23	2016/04/25	CAM SOP-00449	SM 22 4500-F- C m
Mercury (TCLP Leachable) (mg/L) (1)	1	N/A	2016/04/22	CAM SOP-00453	EPA 7470A m
Total Metals in TCLP Leachate by ICPMS (1)	1	2016/04/22	2016/04/25	CAM SOP-00447	EPA 6020A m
Ignitability of a Sample (1)	1	2016/04/25	2016/04/25	CAM SOP-00432	EPA 1030 Rev. 0 m
Moisture (1)	4	N/A	2016/04/21	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate(NO3) + Nitrite(NO2) in Leachate (1)	1	N/A	2016/04/25	CAM SOP-00440	SM 22 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM) (1)	1	2016/04/22	2016/04/23	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Leachate (1)	1	2016/04/23	2016/04/23	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT (1)	2	2016/04/21	2016/04/21	CAM SOP-00413	EPA 9045 D m
Sieve, 75um (1)	1	N/A	2016/04/25	CAM SOP-00467	Carter 2nd ed m
TCLP - % Solids (1)	1	2016/04/21	2016/04/22	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid (1)	1	N/A	2016/04/22	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH (1)	1	N/A	2016/04/22	CAM SOP-00401	EPA 1311 Update I m
Volatile Organic Compounds in Soil (1)	3	N/A	2016/04/22	CAM SOP-00228	EPA 8260C m

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Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	2	N/A	2016/04/22		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water (1)	2	N/A	2016/04/24	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 3)	2	2016/04/23	2016/04/24	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds in Water (1)	2	N/A	2016/04/21	CAM SOP-00226	EPA 8260C m

Remarks:

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

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Your Project #: PII ESA
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Report Date: 2016/04/25
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Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B677217
Received: 2016/04/19, 11:15

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

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 Maxxam Analytics 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 Maxxam 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.

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CIBC National Banking Centre Portfolio

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Parnian Baber, Project Manager
Email: pbaber@maxxam.ca
Phone# (613) 274-0573
==

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID			CFE299		CFE301		CFE302		
Sampling Date			2016/04/15		2016/04/15		2016/04/15		
COC Number			544903-04-01		544903-04-01		544903-04-01		
	UNITS	Criteria	MW-1 SS2	QC Batch	MW-2 SS2	QC Batch	MW-3 SS2	RDL	QC Batch
Inorganics									
Moisture	%	-	18	4466763	34	4466683	22	1.0	4466763
BTEX & F1 Hydrocarbons									
F1 (C6-C10)	ug/g	**55**	<10	4468697	<10	4468697	<10	10	4468697
F1 (C6-C10) - BTEX	ug/g	**55**	<10	4468697	<10	4468697	<10	10	4468697
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	**230**	<10	4468834	<10	4468834	<10	10	4468834
F3 (C16-C34 Hydrocarbons)	ug/g	**1700**	<50	4468834	300	4468834	100	50	4468834
F4 (C34-C50 Hydrocarbons)	ug/g	**3300**	<50	4468834	120	4468834	<50	50	4468834
Reached Baseline at C50	ug/g	-	Yes	4468834	Yes	4468834	Yes		4468834
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	101	4468697	102	4468697	101		4468697
4-Bromofluorobenzene	%	-	97	4468697	95	4468697	94		4468697
D10-Ethylbenzene	%	-	105	4468697	104	4468697	101		4468697
D4-1,2-Dichloroethane	%	-	99	4468697	98	4468697	97		4468697
o-Terphenyl	%	-	104	4468834	103	4468834	104		4468834

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID			CFE303		
Sampling Date			2016/04/15		
COC Number			544903-04-01		
	UNITS	**Criteria**	**TCLP**	**RDL**	**QC Batch**
Inorganics					
Moisture	%	-	23	1.0	4467824
BTEX & F1 Hydrocarbons					
Benzene	ug/g	**0.32**	<0.020	0.020	4468697
Toluene	ug/g	**68**	0.021	0.020	4468697
Ethylbenzene	ug/g	**9.5**	<0.020	0.020	4468697
o-Xylene	ug/g	-	<0.020	0.020	4468697
p+m-Xylene	ug/g	-	<0.040	0.040	4468697
Total Xylenes	ug/g	**26**	<0.040	0.040	4468697
F1 (C6-C10)	ug/g	**55**	<10	10	4468697
F1 (C6-C10) - BTEX	ug/g	**55**	<10	10	4468697
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	**230**	<10	10	4468834
F3 (C16-C34 Hydrocarbons)	ug/g	**1700**	67	50	4468834
F4 (C34-C50 Hydrocarbons)	ug/g	**3300**	<50	50	4468834
Reached Baseline at C50	ug/g	-	Yes		4468834
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	-	101		4468697
4-Bromofluorobenzene	%	-	94		4468697
D10-Ethylbenzene	%	-	110		4468697
D4-1,2-Dichloroethane	%	-	97		4468697
o-Terphenyl	%	-	104		4468834

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

O.REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID			CFE299	CFE301	CFE302		
Sampling Date			2016/04/15	2016/04/15	2016/04/15		
COC Number			544903-04-01	544903-04-01	544903-04-01		
	UNITS	Criteria	MW-1 SS2	MW-2 SS2	MW-3 SS2	RDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/g	**0.18**	<0.050	<0.050	<0.050	0.050	4463003

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

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O.REG 558 TCLP INORGANICS PACKAGE (SOIL)

Maxxam ID		CFE303		
Sampling Date		2016/04/15		
COC Number		544903-04-01		
	UNITS	**TCLP**	**RDL**	**QC Batch**
Inorganics				
Leachable Fluoride (F-)	mg/L	0.26	0.10	4470308
Leachable Free Cyanide	mg/L	<0.010	0.010	4470316
Leachable Nitrite (N)	mg/L	<0.10	0.10	4470317
Leachable Nitrate (N)	mg/L	<1.0	1.0	4470317
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	4470317
Metals				
Leachable Mercury (Hg)	mg/L	<0.0010	0.0010	4468656
Leachable Arsenic (As)	mg/L	<0.2	0.2	4468854
Leachable Barium (Ba)	mg/L	0.7	0.2	4468854
Leachable Boron (B)	mg/L	0.2	0.1	4468854
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	4468854
Leachable Chromium (Cr)	mg/L	<0.1	0.1	4468854
Leachable Lead (Pb)	mg/L	<0.1	0.1	4468854
Leachable Selenium (Se)	mg/L	<0.1	0.1	4468854
Leachable Silver (Ag)	mg/L	<0.01	0.01	4468854
Leachable Uranium (U)	mg/L	<0.01	0.01	4468854
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

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O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		CFE303		
Sampling Date		2016/04/15		
COC Number		544903-04-01		
	UNITS	TCLP	RDL	QC Batch
Inorganics				
Final pH	pH	6.16		4468352
Initial pH	pH	8.75		4468352
TCLP - % Solids	%	100	0.2	4468343
TCLP Extraction Fluid	N/A	FLUID 1		4468351

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 558 TCLP PCBS (SOIL)

Maxxam ID		CFE303		
Sampling Date		2016/04/15		
COC Number		544903-04-01		
	UNITS	TCLP	RDL	QC Batch
PCBs				
Leachable Aroclor 1016	ug/L	<3.0	3.0	4469978
Leachable Aroclor 1221	ug/L	<3.0	3.0	4469978
Leachable Aroclor 1242	ug/L	<3.0	3.0	4469978
Leachable Aroclor 1248	ug/L	<3.0	3.0	4469978
Leachable Aroclor 1254	ug/L	<3.0	3.0	4469978
Leachable Aroclor 1260	ug/L	<3.0	3.0	4469978
Leachable Total PCB	ug/L	<3.0	3.0	4469978
Surrogate Recovery (%)				
Leachable Decachlorobiphenyl	%	129		4469978

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RESULTS OF ANALYSES OF SOIL

Maxxam ID		CFE299	CFE300		CFE302	
Sampling Date		2016/04/15	2016/04/15		2016/04/15	
COC Number		544903-04-01	544903-04-01		544903-04-01	
	UNITS	MW-1 SS2	MW-1 GS	RDL	MW-3 SS2	QC Batch
Inorganics						
Available (CaCl2) pH	pH	7.58			7.41	4466630
Miscellaneous Parameters						
Grain Size	%		COARSE	N/A		4469053
Sieve - #200 (<0.075mm)	%		40	1		4469053
Sieve - #200 (>0.075mm)	%		60	1		4469053

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		CFE303		
Sampling Date		2016/04/15		
COC Number		544903-04-01		
	UNITS	TCLP	RDL	QC Batch
Polyaromatic Hydrocarbons				
Leachable Benzo(b/j)fluoranthene	ug/L	<0.20	0.20	4469240
Leachable Naphthalene	ug/L	2.0	0.20	4469240
Leachable Acenaphthylene	ug/L	<0.20	0.20	4469240
Leachable Acenaphthene	ug/L	0.47	0.20	4469240
Leachable Fluorene	ug/L	0.90	0.20	4469240
Leachable Phenanthrene	ug/L	1.4	0.20	4469240
Leachable Anthracene	ug/L	0.21	0.20	4469240
Leachable Fluoranthene	ug/L	0.39	0.20	4469240
Leachable Pyrene	ug/L	0.28	0.20	4469240
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	4469240
Leachable Chrysene	ug/L	<0.20	0.20	4469240
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	4469240
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	4469240
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	4469240
Leachable Dibenz(a,h)anthracene	ug/L	<0.20	0.20	4469240
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	4469240
Leachable 1-Methylnaphthalene	ug/L	5.2	0.20	4469240
Leachable 2-Methylnaphthalene	ug/L	6.5	0.20	4469240
Surrogate Recovery (%)				
Leachable D10-Anthracene	%	107		4469240
Leachable D14-Terphenyl (FS)	%	101		4469240
Leachable D8-Acenaphthylene	%	93		4469240

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID			CFE299	CFE299	CFE301	CFE302		
Sampling Date			2016/04/15	2016/04/15	2016/04/15	2016/04/15		
COC Number			544903-04-01	544903-04-01	544903-04-01	544903-04-01		
	UNITS	Criteria	MW-1 SS2	MW-1 SS2 Lab-Dup	MW-2 SS2	MW-3 SS2	RDL	QC Batch
Volatile Organics								
Acetone (2-Propanone)	ug/g	16	<0.50	<0.50	<0.50	<0.50	0.50	4466776
Benzene	ug/g	0.32	<0.020	<0.020	<0.020	<0.020	0.020	4466776
Bromodichloromethane	ug/g	18	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Bromoform	ug/g	0.61	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Bromomethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Carbon Tetrachloride	ug/g	0.21	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Chlorobenzene	ug/g	2.4	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Chloroform	ug/g	0.47	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Dibromochloromethane	ug/g	13	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,2-Dichlorobenzene	ug/g	6.8	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,3-Dichlorobenzene	ug/g	9.6	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,4-Dichlorobenzene	ug/g	0.2	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Dichlorodifluoromethane (FREON 12)	ug/g	16	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,1-Dichloroethane	ug/g	17	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,2-Dichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,1-Dichloroethylene	ug/g	0.064	<0.050	<0.050	<0.050	<0.050	0.050	4466776
cis-1,2-Dichloroethylene	ug/g	55	<0.050	<0.050	<0.050	<0.050	0.050	4466776
trans-1,2-Dichloroethylene	ug/g	1.3	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,2-Dichloropropane	ug/g	0.16	<0.050	<0.050	<0.050	<0.050	0.050	4466776
cis-1,3-Dichloropropene	ug/g	0.18	<0.030	<0.030	<0.030	<0.030	0.030	4466776
trans-1,3-Dichloropropene	ug/g	0.18	<0.040	<0.040	<0.040	<0.040	0.040	4466776
Ethylbenzene	ug/g	9.5	<0.020	<0.020	<0.020	<0.020	0.020	4466776
Ethylene Dibromide	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Hexane	ug/g	46	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Methylene Chloride(Dichloromethane)	ug/g	1.6	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Methyl Ethyl Ketone (2-Butanone)	ug/g	70	<0.50	<0.50	<0.50	<0.50	0.50	4466776
Methyl Isobutyl Ketone	ug/g	31	<0.50	<0.50	<0.50	<0.50	0.50	4466776
Methyl t-butyl ether (MTBE)	ug/g	11	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Styrene	ug/g	34	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,1,1,2-Tetrachloroethane	ug/g	0.087	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	0.050	4466776

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

CIBC Mellon Trust Company
CIBC Mellon Global Securities Services Company
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CIBC Mellon Fund Services Limited Partnership
CIBC Mellon Global Securities Services Company

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Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID			CFE299	CFE299	CFE301	CFE302		
Sampling Date			2016/04/15	2016/04/15	2016/04/15	2016/04/15		
COC Number			544903-04-01	544903-04-01	544903-04-01	544903-04-01		
	UNITS	Criteria	MW-1 SS2	MW-1 SS2 Lab-Dup	MW-2 SS2	MW-3 SS2	RDL	QC Batch
Tetrachloroethylene	ug/g	4.5	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Toluene	ug/g	68	<0.020	<0.020	<0.020	<0.020	0.020	4466776
1,1,1-Trichloroethane	ug/g	6.1	<0.050	<0.050	<0.050	<0.050	0.050	4466776
1,1,2-Trichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Trichloroethylene	ug/g	0.91	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Trichlorofluoromethane (FREON 11)	ug/g	4	<0.050	<0.050	<0.050	<0.050	0.050	4466776
Vinyl Chloride	ug/g	0.032	<0.020	<0.020	<0.020	<0.020	0.020	4466776
p+m-Xylene	ug/g	-	<0.020	<0.020	<0.020	<0.020	0.020	4466776
o-Xylene	ug/g	-	<0.020	<0.020	<0.020	<0.020	0.020	4466776
Total Xylenes	ug/g	26	<0.020	<0.020	<0.020	<0.020	0.020	4466776
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	-	100	100	100	100		4466776
D10-o-Xylene	%	-	90	90	108	97		4466776
D4-1,2-Dichloroethane	%	-	98	99	98	99		4466776
D8-Toluene	%	-	100	99	99	99		4466776

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

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Site Location: CARLING AVE

MISCELLANEOUS (SOIL)

Maxxam ID		CFE303	
Sampling Date		2016/04/15	
COC Number		544903-04-01	
	UNITS	TCLP	QC Batch
Inorganics			
Ignitability	N/A	NF/NI	4471388
QC Batch = Quality Control Batch			

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O.REG 153 PETROLEUM HYDROCARBONS (WATER)

Maxxam ID		CFE304	CFE305		
Sampling Date		2016/04/18	2016/04/18		
COC Number		544903-04-01	544903-04-01		
	UNITS	MW-1	MW-2	RDL	QC Batch
BTEX & F1 Hydrocarbons					
F1 (C6-C10)	ug/L	<25	<25	25	4470516
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	4470516
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	4469971
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	4469971
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	4469971
Reached Baseline at C50	ug/L	Yes	Yes		4469971
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	104	102		4470516
4-Bromofluorobenzene	%	99	93		4470516
D10-Ethylbenzene	%	108	108		4470516
D4-1,2-Dichloroethane	%	95	95		4470516
o-Terphenyl	%	102	101		4469971

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Client Project #: PII ESA
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O.REG 153 VOLATILE ORGANICS (WATER)

Maxxam ID		CFE304		CFE305		
Sampling Date		2016/04/18		2016/04/18		
COC Number		544903-04-01		544903-04-01		
	UNITS	MW-1	RDL	MW-2	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	<0.57	0.57	<0.57	0.57	4463059
Volatile Organics						
Acetone (2-Propanone)	ug/L	<30 (1)	30	<20	20	4465300
Benzene	ug/L	1.2	0.20	0.58	0.20	4465300
Bromodichloromethane	ug/L	<0.20	0.20	<0.20	0.20	4465300
Bromoform	ug/L	<0.40	0.40	<0.40	0.40	4465300
Bromomethane	ug/L	<1.0	1.0	<1.0	1.0	4465300
Carbon Tetrachloride	ug/L	<0.20	0.20	<0.20	0.20	4465300
Chlorobenzene	ug/L	<0.20	0.20	<0.20	0.20	4465300
Chloroform	ug/L	<0.20	0.20	<0.20	0.20	4465300
Dibromochloromethane	ug/L	<0.40	0.40	<0.40	0.40	4465300
1,2-Dichlorobenzene	ug/L	<0.40	0.40	<0.40	0.40	4465300
1,3-Dichlorobenzene	ug/L	<0.40	0.40	<0.40	0.40	4465300
1,4-Dichlorobenzene	ug/L	<0.40	0.40	<0.40	0.40	4465300
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	<1.0	1.0	4465300
1,1-Dichloroethane	ug/L	<0.20	0.20	<0.20	0.20	4465300
1,2-Dichloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300
1,1-Dichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300
cis-1,2-Dichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300
trans-1,2-Dichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300
1,2-Dichloropropane	ug/L	<0.20	0.20	<0.20	0.20	4465300
cis-1,3-Dichloropropene	ug/L	<0.40	0.40	<0.40	0.40	4465300
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	<0.40	0.40	4465300
Ethylbenzene	ug/L	0.37	0.20	<0.20	0.20	4465300
Ethylene Dibromide	ug/L	<0.40	0.40	<0.40	0.40	4465300
Hexane	ug/L	<1.0	1.0	<1.0	1.0	4465300
Methylene Chloride(Dichloromethane)	ug/L	<1.0	1.0	<1.0	1.0	4465300
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	<10	10	4465300
Methyl Isobutyl Ketone	ug/L	<10	10	<10	10	4465300
Methyl t-butyl ether (MTBE)	ug/L	<0.40	0.40	<0.40	0.40	4465300
Styrene	ug/L	<0.40	0.40	<0.40	0.40	4465300
1,1,1,2-Tetrachloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300
1,1,2,2-Tetrachloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300
Tetrachloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) VOC Analysis: Detection limit was raised due to matrix interferences.

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Client Project #: PII ESA
Site Location: CARLING AVE

O.REG 153 VOLATILE ORGANICS (WATER)

Maxxam ID		CFE304		CFE305		
Sampling Date		2016/04/18		2016/04/18		
COC Number		544903-04-01		544903-04-01		
	UNITS	MW-1	RDL	MW-2	RDL	QC Batch
Toluene	ug/L	4.8	0.40	2.3	0.40	4465300
1,1,1-Trichloroethane	ug/L	<0.20	0.20	<0.20	0.20	4465300
1,1,2-Trichloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300
Trichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300
Trichlorofluoromethane (FREON 11)	ug/L	<0.40	0.40	<0.40	0.40	4465300
Vinyl Chloride	ug/L	<0.40	0.40	<0.40	0.40	4465300
p+m-Xylene	ug/L	3.4	0.20	1.3	0.20	4465300
o-Xylene	ug/L	1.2	0.20	0.44	0.20	4465300
Total Xylenes	ug/L	4.5	0.20	1.7	0.20	4465300
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	100		101		4465300
D4-1,2-Dichloroethane	%	110		111		4465300
D8-Toluene	%	98		98		4465300

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

TEST SUMMARY

Maxxam ID: CFE299
Sample ID: MW-1 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463003	N/A	2016/04/25	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Moisture	BAL	4466763	N/A	2016/04/21	Valentina Kaftani
pH CaCl2 EXTRACT	AT	4466630	2016/04/21	2016/04/21	Neil Dassanayake
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

Maxxam ID: CFE299 Dup
Sample ID: MW-1 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

Maxxam ID: CFE300
Sample ID: MW-1 GS
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	4469053	N/A	2016/04/25	Nimarta Singh

Maxxam ID: CFE301
Sample ID: MW-2 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463003	N/A	2016/04/25	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Moisture	BAL	4466683	N/A	2016/04/21	Valentina Kaftani
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

Maxxam ID: CFE302
Sample ID: MW-3 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463003	N/A	2016/04/25	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Moisture	BAL	4466763	N/A	2016/04/21	Valentina Kaftani
pH CaCl2 EXTRACT	AT	4466630	2016/04/21	2016/04/21	Neil Dassanayake
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

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TEST SUMMARY

Maxxam ID: CFE303
Sample ID: TCLP
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide (WAD) in Leachates	SKAL/CN	4470316	N/A	2016/04/25	Xuanhong Qiu
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Fluoride by ISE in Leachates	ISE	4470308	2016/04/23	2016/04/25	Surinder Rai
Mercury (TCLP Leachable) (mg/L)	CV/AA	4468656	N/A	2016/04/22	Magdalena Carlos
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4468854	2016/04/22	2016/04/25	Arefa Dabhad
Ignitability of a Sample	BAL	4471388	2016/04/25	2016/04/25	Min Yang
Moisture	BAL	4467824	N/A	2016/04/21	Valentina Kaftani
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	4470317	N/A	2016/04/25	Chandra Nandlal
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4469240	2016/04/22	2016/04/23	Jett Wu
Polychlorinated Biphenyl in Leachate	GC/ECD	4469978	2016/04/23	2016/04/23	Svitlana Shaula
TCLP - % Solids	BAL	4468343	2016/04/21	2016/04/22	Jian (Ken) Wang
TCLP - Extraction Fluid		4468351	N/A	2016/04/22	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4468352	N/A	2016/04/22	Jian (Ken) Wang

Maxxam ID: CFE304
Sample ID: MW-1
Matrix: Water

Collected: 2016/04/18
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463059	N/A	2016/04/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4470516	N/A	2016/04/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4469971	2016/04/23	2016/04/24	Jeevaraj Jeevaratrnam
Volatile Organic Compounds in Water	P&T/MS	4465300	N/A	2016/04/21	Blair Gannon

Maxxam ID: CFE305
Sample ID: MW-2
Matrix: Water

Collected: 2016/04/18
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463059	N/A	2016/04/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4470516	N/A	2016/04/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4469971	2016/04/23	2016/04/24	Jeevaraj Jeevaratrnam
Volatile Organic Compounds in Water	P&T/MS	4465300	N/A	2016/04/21	Blair Gannon

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GENERAL COMMENTS

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

Package 1	3.0°C

VOC Analysis: Due to insufficient sample volume, samples required dilution. Detection limits were adjusted accordingly.

Sample CFE303-01 : NF/NI=Non Flammable and Non Ignitable

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4465300	BG1	Matrix Spike	4-Bromofluorobenzene	2016/04/21		97	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/21		94	%	70 - 130
			D8-Toluene	2016/04/21		101	%	70 - 130
			Acetone (2-Propanone)	2016/04/21		92	%	60 - 140
			Benzene	2016/04/21		102	%	70 - 130
			Bromodichloromethane	2016/04/21		98	%	70 - 130
			Bromoform	2016/04/21		94	%	70 - 130
			Bromomethane	2016/04/21		88	%	60 - 140
			Carbon Tetrachloride	2016/04/21		101	%	70 - 130
			Chlorobenzene	2016/04/21		101	%	70 - 130
			Chloroform	2016/04/21		98	%	70 - 130
			Dibromochloromethane	2016/04/21		97	%	70 - 130
			1,2-Dichlorobenzene	2016/04/21		98	%	70 - 130
			1,3-Dichlorobenzene	2016/04/21		100	%	70 - 130
			1,4-Dichlorobenzene	2016/04/21		101	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2016/04/21		97	%	60 - 140
			1,1-Dichloroethane	2016/04/21		98	%	70 - 130
			1,2-Dichloroethane	2016/04/21		92	%	70 - 130
			1,1-Dichloroethylene	2016/04/21		104	%	70 - 130
			cis-1,2-Dichloroethylene	2016/04/21		100	%	70 - 130
			trans-1,2-Dichloroethylene	2016/04/21		101	%	70 - 130
			1,2-Dichloropropane	2016/04/21		99	%	70 - 130
			cis-1,3-Dichloropropene	2016/04/21		102	%	70 - 130
			trans-1,3-Dichloropropene	2016/04/21		97	%	70 - 130
			Ethylbenzene	2016/04/21		102	%	70 - 130
			Ethylene Dibromide	2016/04/21		95	%	70 - 130
			Hexane	2016/04/21		107	%	70 - 130
			Methylene Chloride(Dichloromethane)	2016/04/21		91	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21		95	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/21		94	%	70 - 130
			Methyl t-butyl ether (MTBE)	2016/04/21		93	%	70 - 130
			Styrene	2016/04/21		100	%	70 - 130
			1,1,1,2-Tetrachloroethane	2016/04/21		97	%	70 - 130
			1,1,2,2-Tetrachloroethane	2016/04/21		94	%	70 - 130
			Tetrachloroethylene	2016/04/21		97	%	70 - 130
			Toluene	2016/04/21		101	%	70 - 130
			1,1,1-Trichloroethane	2016/04/21		97	%	70 - 130
			1,1,2-Trichloroethane	2016/04/21		94	%	70 - 130
			Trichloroethylene	2016/04/21		96	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2016/04/21		105	%	70 - 130
			Vinyl Chloride	2016/04/21		103	%	70 - 130
			p+m-Xylene	2016/04/21		101	%	70 - 130
			o-Xylene	2016/04/21		102	%	70 - 130
4465300	BG1	Spiked Blank	4-Bromofluorobenzene	2016/04/21		98	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/21		98	%	70 - 130
			D8-Toluene	2016/04/21		100	%	70 - 130
			Acetone (2-Propanone)	2016/04/21		106	%	60 - 140
			Benzene	2016/04/21		102	%	70 - 130
			Bromodichloromethane	2016/04/21		105	%	70 - 130
			Bromoform	2016/04/21		105	%	70 - 130
			Bromomethane	2016/04/21		90	%	60 - 140
			Carbon Tetrachloride	2016/04/21		102	%	70 - 130
			Chlorobenzene	2016/04/21		101	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Chloroform	2016/04/21		100	%	70 - 130
			Dibromochloromethane	2016/04/21		106	%	70 - 130
			1,2-Dichlorobenzene	2016/04/21		101	%	70 - 130
			1,3-Dichlorobenzene	2016/04/21		98	%	70 - 130
			1,4-Dichlorobenzene	2016/04/21		100	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2016/04/21		100	%	60 - 140
			1,1-Dichloroethane	2016/04/21		99	%	70 - 130
			1,2-Dichloroethane	2016/04/21		100	%	70 - 130
			1,1-Dichloroethylene	2016/04/21		104	%	70 - 130
			cis-1,2-Dichloroethylene	2016/04/21		102	%	70 - 130
			trans-1,2-Dichloroethylene	2016/04/21		99	%	70 - 130
			1,2-Dichloropropane	2016/04/21		104	%	70 - 130
			cis-1,3-Dichloropropene	2016/04/21		107	%	70 - 130
			trans-1,3-Dichloropropene	2016/04/21		102	%	70 - 130
			Ethylbenzene	2016/04/21		100	%	70 - 130
			Ethylene Dibromide	2016/04/21		105	%	70 - 130
			Hexane	2016/04/21		102	%	70 - 130
			Methylene Chloride(Dichloromethane)	2016/04/21		93	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21		110	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/21		109	%	70 - 130
			Methyl t-butyl ether (MTBE)	2016/04/21		106	%	70 - 130
			Styrene	2016/04/21		103	%	70 - 130
			1,1,1,2-Tetrachloroethane	2016/04/21		100	%	70 - 130
			1,1,2,2-Tetrachloroethane	2016/04/21		106	%	70 - 130
			Tetrachloroethylene	2016/04/21		95	%	70 - 130
			Toluene	2016/04/21		98	%	70 - 130
			1,1,1-Trichloroethane	2016/04/21		97	%	70 - 130
			1,1,2-Trichloroethane	2016/04/21		104	%	70 - 130
			Trichloroethylene	2016/04/21		96	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2016/04/21		105	%	70 - 130
			Vinyl Chloride	2016/04/21		104	%	70 - 130
			p+m-Xylene	2016/04/21		99	%	70 - 130
			o-Xylene	2016/04/21		103	%	70 - 130
4465300	BG1	Method Blank	4-Bromofluorobenzene	2016/04/21		97	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/21		98	%	70 - 130
			D8-Toluene	2016/04/21		100	%	70 - 130
			Acetone (2-Propanone)	2016/04/21	<10		ug/L	
			Benzene	2016/04/21	<0.10		ug/L	
			Bromodichloromethane	2016/04/21	<0.10		ug/L	
			Bromoform	2016/04/21	<0.20		ug/L	
			Bromomethane	2016/04/21	<0.50		ug/L	
			Carbon Tetrachloride	2016/04/21	<0.10		ug/L	
			Chlorobenzene	2016/04/21	<0.10		ug/L	
			Chloroform	2016/04/21	<0.10		ug/L	
			Dibromochloromethane	2016/04/21	<0.20		ug/L	
			1,2-Dichlorobenzene	2016/04/21	<0.20		ug/L	
			1,3-Dichlorobenzene	2016/04/21	<0.20		ug/L	
			1,4-Dichlorobenzene	2016/04/21	<0.20		ug/L	
			Dichlorodifluoromethane (FREON 12)	2016/04/21	<0.50		ug/L	
			1,1-Dichloroethane	2016/04/21	<0.10		ug/L	
			1,2-Dichloroethane	2016/04/21	<0.20		ug/L	
			1,1-Dichloroethylene	2016/04/21	<0.10		ug/L	
			cis-1,2-Dichloroethylene	2016/04/21	<0.10		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			trans-1,2-Dichloroethylene	2016/04/21	<0.10		ug/L	
			1,2-Dichloropropane	2016/04/21	<0.10		ug/L	
			cis-1,3-Dichloropropene	2016/04/21	<0.20		ug/L	
			trans-1,3-Dichloropropene	2016/04/21	<0.20		ug/L	
			Ethylbenzene	2016/04/21	<0.10		ug/L	
			Ethylene Dibromide	2016/04/21	<0.20		ug/L	
			Hexane	2016/04/21	<0.50		ug/L	
			Methylene Chloride(Dichloromethane)	2016/04/21	<0.50		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21	<5.0		ug/L	
			Methyl Isobutyl Ketone	2016/04/21	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2016/04/21	<0.20		ug/L	
			Styrene	2016/04/21	<0.20		ug/L	
			1,1,1,2-Tetrachloroethane	2016/04/21	<0.20		ug/L	
			1,1,2,2-Tetrachloroethane	2016/04/21	<0.20		ug/L	
			Tetrachloroethylene	2016/04/21	<0.10		ug/L	
			Toluene	2016/04/21	<0.20		ug/L	
			1,1,1-Trichloroethane	2016/04/21	<0.10		ug/L	
			1,1,2-Trichloroethane	2016/04/21	<0.20		ug/L	
			Trichloroethylene	2016/04/21	<0.10		ug/L	
			Trichlorofluoromethane (FREON 11)	2016/04/21	<0.20		ug/L	
			Vinyl Chloride	2016/04/21	<0.20		ug/L	
			p+m-Xylene	2016/04/21	<0.10		ug/L	
			o-Xylene	2016/04/21	<0.10		ug/L	
			Total Xylenes	2016/04/21	<0.10		ug/L	
4465300	BG1	RPD	Acetone (2-Propanone)	2016/04/21	NC		%	30
			Benzene	2016/04/21	NC		%	30
			Bromodichloromethane	2016/04/21	NC		%	30
			Bromoform	2016/04/21	NC		%	30
			Bromomethane	2016/04/21	NC		%	30
			Carbon Tetrachloride	2016/04/21	NC		%	30
			Chlorobenzene	2016/04/21	NC		%	30
			Chloroform	2016/04/21	NC		%	30
			Dibromochloromethane	2016/04/21	NC		%	30
			1,2-Dichlorobenzene	2016/04/21	NC		%	30
			1,3-Dichlorobenzene	2016/04/21	NC		%	30
			1,4-Dichlorobenzene	2016/04/21	NC		%	30
			Dichlorodifluoromethane (FREON 12)	2016/04/21	NC		%	30
			1,1-Dichloroethane	2016/04/21	NC		%	30
			1,2-Dichloroethane	2016/04/21	NC		%	30
			1,1-Dichloroethylene	2016/04/21	NC		%	30
			cis-1,2-Dichloroethylene	2016/04/21	NC		%	30
			trans-1,2-Dichloroethylene	2016/04/21	NC		%	30
			1,2-Dichloropropane	2016/04/21	NC		%	30
			cis-1,3-Dichloropropene	2016/04/21	NC		%	30
			trans-1,3-Dichloropropene	2016/04/21	NC		%	30
			Ethylbenzene	2016/04/21	NC		%	30
			Ethylene Dibromide	2016/04/21	NC		%	30
			Hexane	2016/04/21	NC		%	30
			Methylene Chloride(Dichloromethane)	2016/04/21	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21	NC		%	30
			Methyl Isobutyl Ketone	2016/04/21	NC		%	30
			Methyl t-butyl ether (MTBE)	2016/04/21	NC		%	30
			Styrene	2016/04/21	NC		%	30

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Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,1,2-Tetrachloroethane	2016/04/21	NC		%	30
			1,1,2,2-Tetrachloroethane	2016/04/21	NC		%	30
			Tetrachloroethylene	2016/04/21	NC		%	30
			Toluene	2016/04/21	NC		%	30
			1,1,1-Trichloroethane	2016/04/21	NC		%	30
			1,1,2-Trichloroethane	2016/04/21	NC		%	30
			Trichloroethylene	2016/04/21	NC		%	30
			Trichlorofluoromethane (FREON 11)	2016/04/21	NC		%	30
			Vinyl Chloride	2016/04/21	NC		%	30
			p+m-Xylene	2016/04/21	NC		%	30
			o-Xylene	2016/04/21	NC		%	30
			Total Xylenes	2016/04/21	NC		%	30
4466630	NYS	Spiked Blank	Available (CaCl2) pH	2016/04/21		98	%	97 - 103
4466630	NYS	RPD	Available (CaCl2) pH	2016/04/21	0.20		%	N/A
4466683	DSR	RPD	Moisture	2016/04/21	2.5		%	20
4466763	DSR	RPD	Moisture	2016/04/21	2.9		%	20
4466776	XJI	Matrix Spike [CFE299-04]	4-Bromofluorobenzene	2016/04/22		100	%	60 - 140
			D10-o-Xylene	2016/04/22		92	%	60 - 130
			D4-1,2-Dichloroethane	2016/04/22		97	%	60 - 140
			D8-Toluene	2016/04/22		102	%	60 - 140
			Acetone (2-Propanone)	2016/04/22		86	%	60 - 140
			Benzene	2016/04/22		88	%	60 - 140
			Bromodichloromethane	2016/04/22		88	%	60 - 140
			Bromoform	2016/04/22		88	%	60 - 140
			Bromomethane	2016/04/22		81	%	60 - 140
			Carbon Tetrachloride	2016/04/22		98	%	60 - 140
			Chlorobenzene	2016/04/22		92	%	60 - 140
			Chloroform	2016/04/22		90	%	60 - 140
			Dibromochloromethane	2016/04/22		89	%	60 - 140
			1,2-Dichlorobenzene	2016/04/22		89	%	60 - 140
			1,3-Dichlorobenzene	2016/04/22		90	%	60 - 140
			1,4-Dichlorobenzene	2016/04/22		91	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2016/04/22		90	%	60 - 140
			1,1-Dichloroethane	2016/04/22		89	%	60 - 140
			1,2-Dichloroethane	2016/04/22		88	%	60 - 140
			1,1-Dichloroethylene	2016/04/22		95	%	60 - 140
			cis-1,2-Dichloroethylene	2016/04/22		88	%	60 - 140
			trans-1,2-Dichloroethylene	2016/04/22		90	%	60 - 140
			1,2-Dichloropropane	2016/04/22		85	%	60 - 140
			cis-1,3-Dichloropropene	2016/04/22		89	%	60 - 140
			trans-1,3-Dichloropropene	2016/04/22		87	%	60 - 140
			Ethylbenzene	2016/04/22		91	%	60 - 140
			Ethylene Dibromide	2016/04/22		84	%	60 - 140
			Hexane	2016/04/22		89	%	60 - 140
			Methylene Chloride(Dichloromethane)	2016/04/22		91	%	60 - 140
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22		85	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/22		79	%	60 - 140
			Methyl t-butyl ether (MTBE)	2016/04/22		88	%	60 - 140
			Styrene	2016/04/22		87	%	60 - 140
			1,1,1,2-Tetrachloroethane	2016/04/22		92	%	60 - 140
			1,1,2,2-Tetrachloroethane	2016/04/22		83	%	60 - 140
			Tetrachloroethylene	2016/04/22		95	%	60 - 140
			Toluene	2016/04/22		89	%	60 - 140

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Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,1-Trichloroethane	2016/04/22		92	%	60 - 140
			1,1,2-Trichloroethane	2016/04/22		86	%	60 - 140
			Trichloroethylene	2016/04/22		90	%	60 - 140
			Trichlorofluoromethane (FREON 11)	2016/04/22		98	%	60 - 140
			Vinyl Chloride	2016/04/22		95	%	60 - 140
			p+m-Xylene	2016/04/22		89	%	60 - 140
			o-Xylene	2016/04/22		90	%	60 - 140
4466776	XJI	Spiked Blank	4-Bromofluorobenzene	2016/04/22		101	%	60 - 140
			D10-o-Xylene	2016/04/22		101	%	60 - 130
			D4-1,2-Dichloroethane	2016/04/22		102	%	60 - 140
			D8-Toluene	2016/04/22		100	%	60 - 140
			Acetone (2-Propanone)	2016/04/22		106	%	60 - 140
			Benzene	2016/04/22		95	%	60 - 130
			Bromodichloromethane	2016/04/22		98	%	60 - 130
			Bromoform	2016/04/22		103	%	60 - 130
			Bromomethane	2016/04/22		87	%	60 - 140
			Carbon Tetrachloride	2016/04/22		104	%	60 - 130
			Chlorobenzene	2016/04/22		99	%	60 - 130
			Chloroform	2016/04/22		98	%	60 - 130
			Dibromochloromethane	2016/04/22		101	%	60 - 130
			1,2-Dichlorobenzene	2016/04/22		97	%	60 - 130
			1,3-Dichlorobenzene	2016/04/22		95	%	60 - 130
			1,4-Dichlorobenzene	2016/04/22		96	%	60 - 130
			Dichlorodifluoromethane (FREON 12)	2016/04/22		101	%	60 - 140
			1,1-Dichloroethane	2016/04/22		96	%	60 - 130
			1,2-Dichloroethane	2016/04/22		101	%	60 - 130
			1,1-Dichloroethylene	2016/04/22		101	%	60 - 130
			cis-1,2-Dichloroethylene	2016/04/22		97	%	60 - 130
			trans-1,2-Dichloroethylene	2016/04/22		96	%	60 - 130
			1,2-Dichloropropane	2016/04/22		94	%	60 - 130
			cis-1,3-Dichloropropene	2016/04/22		97	%	60 - 130
			trans-1,3-Dichloropropene	2016/04/22		93	%	60 - 130
			Ethylbenzene	2016/04/22		96	%	60 - 130
			Ethylene Dibromide	2016/04/22		97	%	60 - 130
			Hexane	2016/04/22		104	%	60 - 130
			Methylene Chloride(Dichloromethane)	2016/04/22		101	%	60 - 130
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22		108	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/22		98	%	60 - 130
			Methyl t-butyl ether (MTBE)	2016/04/22		98	%	60 - 130
			Styrene	2016/04/22		94	%	60 - 130
			1,1,1,2-Tetrachloroethane	2016/04/22		101	%	60 - 130
			1,1,2,2-Tetrachloroethane	2016/04/22		99	%	60 - 130
			Tetrachloroethylene	2016/04/22		98	%	60 - 130
			Toluene	2016/04/22		94	%	60 - 130
			1,1,1-Trichloroethane	2016/04/22		98	%	60 - 130
			1,1,2-Trichloroethane	2016/04/22		98	%	60 - 130
			Trichloroethylene	2016/04/22		95	%	60 - 130
			Trichlorofluoromethane (FREON 11)	2016/04/22		104	%	60 - 130
			Vinyl Chloride	2016/04/22		101	%	60 - 130
			p+m-Xylene	2016/04/22		93	%	60 - 130
			o-Xylene	2016/04/22		95	%	60 - 130
4466776	XJI	Method Blank	4-Bromofluorobenzene	2016/04/22		100	%	60 - 140
			D10-o-Xylene	2016/04/22		101	%	60 - 130

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Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			D4-1,2-Dichloroethane	2016/04/22		101	%	60 - 140
			D8-Toluene	2016/04/22		98	%	60 - 140
			Acetone (2-Propanone)	2016/04/22	<0.50		ug/g	
			Benzene	2016/04/22	<0.020		ug/g	
			Bromodichloromethane	2016/04/22	<0.050		ug/g	
			Bromoform	2016/04/22	<0.050		ug/g	
			Bromomethane	2016/04/22	<0.050		ug/g	
			Carbon Tetrachloride	2016/04/22	<0.050		ug/g	
			Chlorobenzene	2016/04/22	<0.050		ug/g	
			Chloroform	2016/04/22	<0.050		ug/g	
			Dibromochloromethane	2016/04/22	<0.050		ug/g	
			1,2-Dichlorobenzene	2016/04/22	<0.050		ug/g	
			1,3-Dichlorobenzene	2016/04/22	<0.050		ug/g	
			1,4-Dichlorobenzene	2016/04/22	<0.050		ug/g	
			Dichlorodifluoromethane (FREON 12)	2016/04/22	<0.050		ug/g	
			1,1-Dichloroethane	2016/04/22	<0.050		ug/g	
			1,2-Dichloroethane	2016/04/22	<0.050		ug/g	
			1,1-Dichloroethylene	2016/04/22	<0.050		ug/g	
			cis-1,2-Dichloroethylene	2016/04/22	<0.050		ug/g	
			trans-1,2-Dichloroethylene	2016/04/22	<0.050		ug/g	
			1,2-Dichloropropane	2016/04/22	<0.050		ug/g	
			cis-1,3-Dichloropropene	2016/04/22	<0.030		ug/g	
			trans-1,3-Dichloropropene	2016/04/22	<0.040		ug/g	
			Ethylbenzene	2016/04/22	<0.020		ug/g	
			Ethylene Dibromide	2016/04/22	<0.050		ug/g	
			Hexane	2016/04/22	<0.050		ug/g	
			Methylene Chloride(Dichloromethane)	2016/04/22	<0.050		ug/g	
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22	<0.50		ug/g	
			Methyl Isobutyl Ketone	2016/04/22	<0.50		ug/g	
			Methyl t-butyl ether (MTBE)	2016/04/22	<0.050		ug/g	
			Styrene	2016/04/22	<0.050		ug/g	
			1,1,1,2-Tetrachloroethane	2016/04/22	<0.050		ug/g	
			1,1,2,2-Tetrachloroethane	2016/04/22	<0.050		ug/g	
			Tetrachloroethylene	2016/04/22	<0.050		ug/g	
			Toluene	2016/04/22	<0.020		ug/g	
			1,1,1-Trichloroethane	2016/04/22	<0.050		ug/g	
			1,1,2-Trichloroethane	2016/04/22	<0.050		ug/g	
			Trichloroethylene	2016/04/22	<0.050		ug/g	
			Trichlorofluoromethane (FREON 11)	2016/04/22	<0.050		ug/g	
			Vinyl Chloride	2016/04/22	<0.020		ug/g	
			p+m-Xylene	2016/04/22	<0.020		ug/g	
			o-Xylene	2016/04/22	<0.020		ug/g	
			Total Xylenes	2016/04/22	<0.020		ug/g	
4466776	XJI	RPD [CFE299-04]	Acetone (2-Propanone)	2016/04/22	NC		%	50
			Benzene	2016/04/22	NC		%	50
			Bromodichloromethane	2016/04/22	NC		%	50
			Bromoform	2016/04/22	NC		%	50
			Bromomethane	2016/04/22	NC		%	50
			Carbon Tetrachloride	2016/04/22	NC		%	50
			Chlorobenzene	2016/04/22	NC		%	50
			Chloroform	2016/04/22	NC		%	50
			Dibromochloromethane	2016/04/22	NC		%	50
			1,2-Dichlorobenzene	2016/04/22	NC		%	50

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,3-Dichlorobenzene	2016/04/22	NC		%	50
			1,4-Dichlorobenzene	2016/04/22	NC		%	50
			Dichlorodifluoromethane (FREON 12)	2016/04/22	NC		%	50
			1,1-Dichloroethane	2016/04/22	NC		%	50
			1,2-Dichloroethane	2016/04/22	NC		%	50
			1,1-Dichloroethylene	2016/04/22	NC		%	50
			cis-1,2-Dichloroethylene	2016/04/22	NC		%	50
			trans-1,2-Dichloroethylene	2016/04/22	NC		%	50
			1,2-Dichloropropane	2016/04/22	NC		%	50
			cis-1,3-Dichloropropene	2016/04/22	NC		%	50
			trans-1,3-Dichloropropene	2016/04/22	NC		%	50
			Ethylbenzene	2016/04/22	NC		%	50
			Ethylene Dibromide	2016/04/22	NC		%	50
			Hexane	2016/04/22	NC		%	50
			Methylene Chloride(Dichloromethane)	2016/04/22	NC		%	50
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22	NC		%	50
			Methyl Isobutyl Ketone	2016/04/22	NC		%	50
			Methyl t-butyl ether (MTBE)	2016/04/22	NC		%	50
			Styrene	2016/04/22	NC		%	50
			1,1,1,2-Tetrachloroethane	2016/04/22	NC		%	50
			1,1,2,2-Tetrachloroethane	2016/04/22	NC		%	50
			Tetrachloroethylene	2016/04/22	NC		%	50
			Toluene	2016/04/22	NC		%	50
			1,1,1-Trichloroethane	2016/04/22	NC		%	50
			1,1,2-Trichloroethane	2016/04/22	NC		%	50
			Trichloroethylene	2016/04/22	NC		%	50
			Trichlorofluoromethane (FREON 11)	2016/04/22	NC		%	50
			Vinyl Chloride	2016/04/22	NC		%	50
			p+m-Xylene	2016/04/22	NC		%	50
			o-Xylene	2016/04/22	NC		%	50
			Total Xylenes	2016/04/22	NC		%	50
4467824	NS3	RPD	Moisture	2016/04/21	1.8		%	20
4468656	MC	Matrix Spike	Leachable Mercury (Hg)	2016/04/22		113	%	75 - 125
4468656	MC	Leachate Blank	Leachable Mercury (Hg)	2016/04/22	<0.0010		mg/L	
4468656	MC	Spiked Blank	Leachable Mercury (Hg)	2016/04/22		106	%	80 - 120
4468656	MC	Method Blank	Leachable Mercury (Hg)	2016/04/22	<0.0010		mg/L	
4468656	MC	RPD	Leachable Mercury (Hg)	2016/04/22	NC		%	25
4468697	AAI	Matrix Spike	1,4-Difluorobenzene	2016/04/22		101	%	60 - 140
			4-Bromofluorobenzene	2016/04/22		98	%	60 - 140
			D10-Ethylbenzene	2016/04/22		85	%	60 - 140
			D4-1,2-Dichloroethane	2016/04/22		99	%	60 - 140
			Benzene	2016/04/22		99	%	60 - 140
			Toluene	2016/04/22		105	%	60 - 140
			Ethylbenzene	2016/04/22		110	%	60 - 140
			o-Xylene	2016/04/22		114	%	60 - 140
			p+m-Xylene	2016/04/22		102	%	60 - 140
			F1 (C6-C10)	2016/04/22		89	%	60 - 140
4468697	AAI	Spiked Blank	1,4-Difluorobenzene	2016/04/22		102	%	60 - 140
			4-Bromofluorobenzene	2016/04/22		99	%	60 - 140
			D10-Ethylbenzene	2016/04/22		97	%	60 - 140
			D4-1,2-Dichloroethane	2016/04/22		100	%	60 - 140
			Benzene	2016/04/22		101	%	60 - 140
			Toluene	2016/04/22		105	%	60 - 140

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Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Ethylbenzene	2016/04/22		111	%	60 - 140
			o-Xylene	2016/04/22		112	%	60 - 140
			p+m-Xylene	2016/04/22		102	%	60 - 140
			F1 (C6-C10)	2016/04/22		94	%	80 - 120
4468697	AAI	Method Blank	1,4-Difluorobenzene	2016/04/22		101	%	60 - 140
			4-Bromofluorobenzene	2016/04/22		98	%	60 - 140
			D10-Ethylbenzene	2016/04/22		101	%	60 - 140
			D4-1,2-Dichloroethane	2016/04/22		98	%	60 - 140
			Benzene	2016/04/22	<0.020		ug/g	
			Toluene	2016/04/22	<0.020		ug/g	
			Ethylbenzene	2016/04/22	<0.020		ug/g	
			o-Xylene	2016/04/22	<0.020		ug/g	
			p+m-Xylene	2016/04/22	<0.040		ug/g	
			Total Xylenes	2016/04/22	<0.040		ug/g	
			F1 (C6-C10)	2016/04/22	<10		ug/g	
			F1 (C6-C10) - BTEX	2016/04/22	<10		ug/g	
4468697	AAI	RPD	Benzene	2016/04/22	NC		%	50
			Toluene	2016/04/22	NC		%	50
			Ethylbenzene	2016/04/22	NC		%	50
			o-Xylene	2016/04/22	NC		%	50
			p+m-Xylene	2016/04/22	NC		%	50
			Total Xylenes	2016/04/22	NC		%	50
			F1 (C6-C10)	2016/04/22	NC		%	30
			F1 (C6-C10) - BTEX	2016/04/22	NC		%	30
4468834	ZZ	Matrix Spike	o-Terphenyl	2016/04/25		102	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/25		102	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2016/04/25		111	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2016/04/25		104	%	50 - 130
4468834	ZZ	Spiked Blank	o-Terphenyl	2016/04/25		106	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/25		104	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2016/04/25		110	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2016/04/25		105	%	80 - 120
4468834	ZZ	Method Blank	o-Terphenyl	2016/04/25		103	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/25	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2016/04/25	<50		ug/g	
			F4 (C34-C50 Hydrocarbons)	2016/04/25	<50		ug/g	
4468834	ZZ	RPD	F2 (C10-C16 Hydrocarbons)	2016/04/25	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2016/04/25	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2016/04/25	NC		%	30
4468854	ADA	Matrix Spike	Leachable Arsenic (As)	2016/04/25		100	%	80 - 120
			Leachable Barium (Ba)	2016/04/25		NC	%	80 - 120
			Leachable Boron (B)	2016/04/25		NC	%	80 - 120
			Leachable Cadmium (Cd)	2016/04/25		103	%	80 - 120
			Leachable Chromium (Cr)	2016/04/25		98	%	80 - 120
			Leachable Lead (Pb)	2016/04/25		95	%	80 - 120
			Leachable Selenium (Se)	2016/04/25		101	%	80 - 120
			Leachable Silver (Ag)	2016/04/25		101	%	80 - 120
			Leachable Uranium (U)	2016/04/25		97	%	80 - 120
4468854	ADA	Leachate Blank	Leachable Arsenic (As)	2016/04/25	<0.2		mg/L	
			Leachable Barium (Ba)	2016/04/25	<0.2		mg/L	
			Leachable Boron (B)	2016/04/25	<0.1		mg/L	
			Leachable Cadmium (Cd)	2016/04/25	<0.05		mg/L	
			Leachable Chromium (Cr)	2016/04/25	<0.1		mg/L	

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Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable Lead (Pb)	2016/04/25	<0.1		mg/L	
			Leachable Selenium (Se)	2016/04/25	<0.1		mg/L	
			Leachable Silver (Ag)	2016/04/25	<0.01		mg/L	
			Leachable Uranium (U)	2016/04/25	<0.01		mg/L	
4468854	ADA	Spiked Blank	Leachable Arsenic (As)	2016/04/25		100	%	80 - 120
			Leachable Barium (Ba)	2016/04/25		101	%	80 - 120
			Leachable Boron (B)	2016/04/25		95	%	80 - 120
			Leachable Cadmium (Cd)	2016/04/25		97	%	80 - 120
			Leachable Chromium (Cr)	2016/04/25		98	%	80 - 120
			Leachable Lead (Pb)	2016/04/25		97	%	80 - 120
			Leachable Selenium (Se)	2016/04/25		99	%	80 - 120
			Leachable Silver (Ag)	2016/04/25		100	%	80 - 120
			Leachable Uranium (U)	2016/04/25		99	%	80 - 120
4468854	ADA	RPD	Leachable Arsenic (As)	2016/04/25	NC		%	35
			Leachable Barium (Ba)	2016/04/25	NC		%	35
			Leachable Boron (B)	2016/04/25	NC		%	35
			Leachable Cadmium (Cd)	2016/04/25	NC		%	35
			Leachable Chromium (Cr)	2016/04/25	NC		%	35
			Leachable Lead (Pb)	2016/04/25	NC		%	35
			Leachable Selenium (Se)	2016/04/25	NC		%	35
			Leachable Silver (Ag)	2016/04/25	NC		%	35
			Leachable Uranium (U)	2016/04/25	NC		%	35
4469053	NS3	QC Standard	Sieve - #200 (<0.075mm)	2016/04/25		89	%	88 - 91
			Sieve - #200 (>0.075mm)	2016/04/25		11	%	9 - 12
4469053	NS3	RPD	Sieve - #200 (<0.075mm)	2016/04/25	2.0		%	20
			Sieve - #200 (>0.075mm)	2016/04/25	0.82		%	20
4469240	JET	Matrix Spike	Leachable D10-Anthracene	2016/04/23		101	%	50 - 130
			Leachable D14-Terphenyl (FS)	2016/04/23		89	%	50 - 130
			Leachable D8-Acenaphthylene	2016/04/23		96	%	50 - 130
			Leachable Benzo(b/j)fluoranthene	2016/04/23		99	%	50 - 130
			Leachable Naphthalene	2016/04/23		78	%	50 - 130
			Leachable Acenaphthylene	2016/04/23		92	%	50 - 130
			Leachable Acenaphthene	2016/04/23		85	%	50 - 130
			Leachable Fluorene	2016/04/23		93	%	50 - 130
			Leachable Phenanthrene	2016/04/23		94	%	50 - 130
			Leachable Anthracene	2016/04/23		99	%	50 - 130
			Leachable Fluoranthene	2016/04/23		99	%	50 - 130
			Leachable Pyrene	2016/04/23		98	%	50 - 130
			Leachable Benzo(a)anthracene	2016/04/23		100	%	50 - 130
			Leachable Chrysene	2016/04/23		98	%	50 - 130
			Leachable Benzo(k)fluoranthene	2016/04/23		83	%	50 - 130
			Leachable Benzo(a)pyrene	2016/04/23		95	%	50 - 130
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/23		105	%	50 - 130
			Leachable Dibenz(a,h)anthracene	2016/04/23		90	%	50 - 130
			Leachable Benzo(g,h,i)perylene	2016/04/23		95	%	50 - 130
			Leachable 1-Methylnaphthalene	2016/04/23		112	%	50 - 130
			Leachable 2-Methylnaphthalene	2016/04/23		101	%	50 - 130
4469240	JET	Spiked Blank	Leachable D10-Anthracene	2016/04/22		105	%	50 - 130
			Leachable D14-Terphenyl (FS)	2016/04/22		98	%	50 - 130
			Leachable D8-Acenaphthylene	2016/04/22		95	%	50 - 130
			Leachable Benzo(b/j)fluoranthene	2016/04/22		95	%	50 - 130
			Leachable Naphthalene	2016/04/22		81	%	50 - 130
			Leachable Acenaphthylene	2016/04/22		92	%	50 - 130

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable Acenaphthene	2016/04/22		93	%	50 - 130
			Leachable Fluorene	2016/04/22		97	%	50 - 130
			Leachable Phenanthrene	2016/04/22		93	%	50 - 130
			Leachable Anthracene	2016/04/22		102	%	50 - 130
			Leachable Fluoranthene	2016/04/22		100	%	50 - 130
			Leachable Pyrene	2016/04/22		100	%	50 - 130
			Leachable Benzo(a)anthracene	2016/04/22		99	%	50 - 130
			Leachable Chrysene	2016/04/22		98	%	50 - 130
			Leachable Benzo(k)fluoranthene	2016/04/22		92	%	50 - 130
			Leachable Benzo(a)pyrene	2016/04/22		96	%	50 - 130
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/22		110	%	50 - 130
			Leachable Dibenz(a,h)anthracene	2016/04/22		90	%	50 - 130
			Leachable Benzo(g,h,i)perylene	2016/04/22		98	%	50 - 130
			Leachable 1-Methylnaphthalene	2016/04/22		93	%	50 - 130
			Leachable 2-Methylnaphthalene	2016/04/22		85	%	50 - 130
4469240	JET	Method Blank	Leachable D10-Anthracene	2016/04/22		106	%	50 - 130
			Leachable D14-Terphenyl (FS)	2016/04/22		101	%	50 - 130
			Leachable D8-Acenaphthylene	2016/04/22		91	%	50 - 130
			Leachable Benzo(b/j)fluoranthene	2016/04/22	<0.20		ug/L	
			Leachable Naphthalene	2016/04/22	<0.20		ug/L	
			Leachable Acenaphthylene	2016/04/22	<0.20		ug/L	
			Leachable Acenaphthene	2016/04/22	<0.20		ug/L	
			Leachable Fluorene	2016/04/22	<0.20		ug/L	
			Leachable Phenanthrene	2016/04/22	<0.20		ug/L	
			Leachable Anthracene	2016/04/22	<0.20		ug/L	
			Leachable Fluoranthene	2016/04/22	<0.20		ug/L	
			Leachable Pyrene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(a)anthracene	2016/04/22	<0.20		ug/L	
			Leachable Chrysene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(k)fluoranthene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(a)pyrene	2016/04/22	<0.10		ug/L	
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/22	<0.20		ug/L	
			Leachable Dibenz(a,h)anthracene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(g,h,i)perylene	2016/04/22	<0.20		ug/L	
			Leachable 1-Methylnaphthalene	2016/04/22	<0.20		ug/L	
			Leachable 2-Methylnaphthalene	2016/04/22	<0.20		ug/L	
4469240	JET	RPD	Leachable Benzo(b/j)fluoranthene	2016/04/23	NC		%	40
			Leachable Naphthalene	2016/04/23	2.7		%	40
			Leachable Acenaphthylene	2016/04/23	NC		%	40
			Leachable Acenaphthene	2016/04/23	3.3		%	40
			Leachable Fluorene	2016/04/23	0.16		%	40
			Leachable Phenanthrene	2016/04/23	NC		%	40
			Leachable Anthracene	2016/04/23	NC		%	40
			Leachable Fluoranthene	2016/04/23	NC		%	40
			Leachable Pyrene	2016/04/23	NC		%	40
			Leachable Benzo(a)anthracene	2016/04/23	NC		%	40
			Leachable Chrysene	2016/04/23	NC		%	40
			Leachable Benzo(k)fluoranthene	2016/04/23	NC		%	40
			Leachable Benzo(a)pyrene	2016/04/23	NC		%	40
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/23	NC		%	40
			Leachable Dibenz(a,h)anthracene	2016/04/23	NC		%	40
			Leachable Benzo(g,h,i)perylene	2016/04/23	NC		%	40
			Leachable 1-Methylnaphthalene	2016/04/23	3.1		%	40

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable 2-Methylnaphthalene	2016/04/23	2.6		%	40
4469971	JJE	Matrix Spike	o-Terphenyl	2016/04/23		104	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/23		94	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2016/04/23		NC	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2016/04/23		92	%	50 - 130
4469971	JJE	Spiked Blank	o-Terphenyl	2016/04/23		105	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/23		101	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2016/04/23		103	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2016/04/23		101	%	60 - 130
4469971	JJE	Method Blank	o-Terphenyl	2016/04/23		103	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/23	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2016/04/23	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2016/04/23	<200		ug/L	
4469971	JJE	RPD	F2 (C10-C16 Hydrocarbons)	2016/04/24	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2016/04/24	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2016/04/24	NC		%	30
4469978	SVS	Matrix Spike	Leachable Aroclor 1260	2016/04/23		96	%	30 - 130
			Leachable Decachlorobiphenyl	2016/04/23		118	%	30 - 130
			Leachable Total PCB	2016/04/23		96	%	30 - 130
4469978	SVS	Spiked Blank	Leachable Aroclor 1260	2016/04/23		100	%	30 - 130
			Leachable Decachlorobiphenyl	2016/04/23		125	%	30 - 130
			Leachable Total PCB	2016/04/23		100	%	30 - 130
4469978	SVS	Method Blank	Leachable Aroclor 1016	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1221	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1242	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1248	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1254	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1260	2016/04/23	<3.0		ug/L	
			Leachable Decachlorobiphenyl	2016/04/23		120	%	30 - 130
			Leachable Total PCB	2016/04/23	<3.0		ug/L	
4469978	SVS	RPD	Leachable Total PCB	2016/04/23	NC		%	40
4470308	SAU	Matrix Spike	Leachable Fluoride (F-)	2016/04/25		101	%	80 - 120
4470308	SAU	Leachate Blank	Leachable Fluoride (F-)	2016/04/25	<0.10		mg/L	
4470308	SAU	Spiked Blank	Leachable Fluoride (F-)	2016/04/25		99	%	80 - 120
4470308	SAU	Method Blank	Leachable Fluoride (F-)	2016/04/25	<0.10		mg/L	
4470308	SAU	RPD	Leachable Fluoride (F-)	2016/04/25	NC		%	25
4470316	XQI	Matrix Spike	Leachable Free Cyanide	2016/04/25		96	%	80 - 120
4470316	XQI	Leachate Blank	Leachable Free Cyanide	2016/04/25	<0.010		mg/L	
4470316	XQI	Spiked Blank	Leachable Free Cyanide	2016/04/25		99	%	80 - 120
4470316	XQI	Method Blank	Leachable Free Cyanide	2016/04/25	<0.0020		mg/L	
4470316	XQI	RPD	Leachable Free Cyanide	2016/04/25	NC		%	20
4470317	C_N	Matrix Spike	Leachable Nitrite (N)	2016/04/25		100	%	80 - 120
			Leachable Nitrate (N)	2016/04/25		100	%	80 - 120
			Leachable Nitrate + Nitrite (N)	2016/04/25		100	%	80 - 120
4470317	C_N	Leachate Blank	Leachable Nitrite (N)	2016/04/25	<0.10		mg/L	
			Leachable Nitrate (N)	2016/04/25	<1.0		mg/L	
			Leachable Nitrate + Nitrite (N)	2016/04/25	<1.0		mg/L	
4470317	C_N	Spiked Blank	Leachable Nitrite (N)	2016/04/25		104	%	80 - 120
			Leachable Nitrate (N)	2016/04/25		101	%	80 - 120
			Leachable Nitrate + Nitrite (N)	2016/04/25		102	%	80 - 120
4470317	C_N	Method Blank	Leachable Nitrite (N)	2016/04/25	<0.10		mg/L	
			Leachable Nitrate (N)	2016/04/25	<1.0		mg/L	
			Leachable Nitrate + Nitrite (N)	2016/04/25	<1.0		mg/L	

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Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4470317	C_N	RPD	Leachable Nitrite (N)	2016/04/25	NC		%	25
			Leachable Nitrate (N)	2016/04/25	NC		%	25
			Leachable Nitrate + Nitrite (N)	2016/04/25	NC		%	25
4470516	AAI	Matrix Spike	1,4-Difluorobenzene	2016/04/24		100	%	70 - 130
			4-Bromofluorobenzene	2016/04/24		95	%	70 - 130
			D10-Ethylbenzene	2016/04/24		106	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/24		97	%	70 - 130
			F1 (C6-C10)	2016/04/24		85	%	70 - 130
4470516	AAI	Spiked Blank	1,4-Difluorobenzene	2016/04/24		101	%	70 - 130
			4-Bromofluorobenzene	2016/04/24		97	%	70 - 130
			D10-Ethylbenzene	2016/04/24		95	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/24		98	%	70 - 130
			F1 (C6-C10)	2016/04/24		93	%	70 - 130
4470516	AAI	Method Blank	1,4-Difluorobenzene	2016/04/24		101	%	70 - 130
			4-Bromofluorobenzene	2016/04/24		95	%	70 - 130
			D10-Ethylbenzene	2016/04/24		103	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/24		98	%	70 - 130
			F1 (C6-C10)	2016/04/24	<25		ug/L	
			F1 (C6-C10) - BTEX	2016/04/24	<25		ug/L	
4470516	AAI	RPD	F1 (C6-C10)	2016/04/24	NC		%	30
			F1 (C6-C10) - BTEX	2016/04/24	NC		%	30

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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.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

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

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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IMMEDIATE TEST

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6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8

19-Apr-16 11 15
Pamian Baber
B677217
MAF ENV-107

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name	#982 Pinchin Ltd	Company Name		Quotation #	A70927
Attention	Ryan Laronde / Matt Ryan	Attention	Ryan Laronde	P.O. #	
Address	555 Legget Dr Suite 1001 (Tower A) Kanata ON K2K 2X3	Address		Project	PII ESA
Tel	(613) 592-3387 Fax (613) 592-5897	Tel	Fax	Project Name	Carling Ave
Email	rlaronde@pinchin.com	Email	rlaronde@pinchin.com	Site #	111021.002
				Sampled By	

Project Manager: Pamian Baber

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

Regulation 153 (2011): Table 1 / Table 2 / Table 3 / ☑ Table 9; Res/Park / ☑ Ind/Comm / Agri/Other; Medium/Fine / ☑ Coarse / For RSC

Other Regulations: CCME, Reg 558, MISA, PWQO, Other; Sanitary Sewer Bylaw, Storm Sewer Bylaw, Municipality

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

Turnaround Time (TAT) Required: Regular (Standard) TAT: ☒
Job Specific Rush TAT: Date Required April 27

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Analysis marked	# of Bottles	Comments
1		MW-1 SS2	April 15		S	X	6	
2		MW-1 GS	↓			X (Texture)	1	
3		MW-2 SS2	↓		S	X	5	
4		MW-3 SS2	↓		S	X	6	
5		TCLP	↓		S	X (WSI TCLP)	6	
6								
7		MW-1	April 18		GW	X X	4	
8		MW-2	↓		GW	X X	4	
9								
10								

Analyses column headers include: Field Filtered (please circle) Metals / Hg / Cr VI; Petroleum Hydrocarbons; VOCs; PAHs (Water); Reg 153 Metals Pkg (Inc Hg & CrVI); by GC/FID; Texture Sieve 75; Hold; WSI TCLP waste oil

RELINQUISHED BY: (Signature/Print)	Date (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date (YY/MM/DD)	Time
Ryan L.R.A.	April 18/16	12:__	HA	2016/04/18	15:00
				2016/04/19	11 15

Laboratory Use Only: Temperature (°C) on Receipt 5, 1, 3; Custody Seal Present / Intact

9/8/6 4/5/6

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

White: Maxxam Yellow: Client

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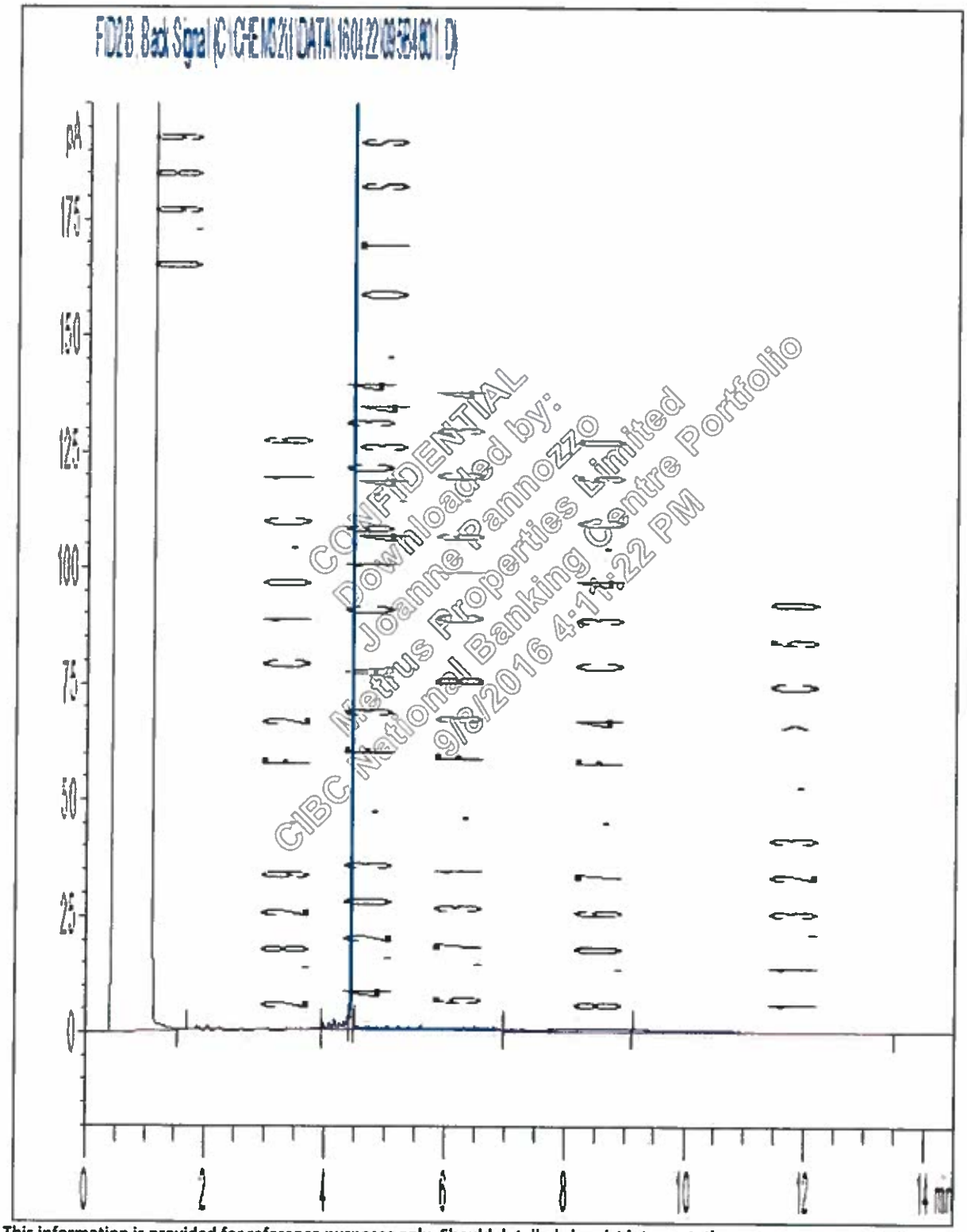
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE299

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-1 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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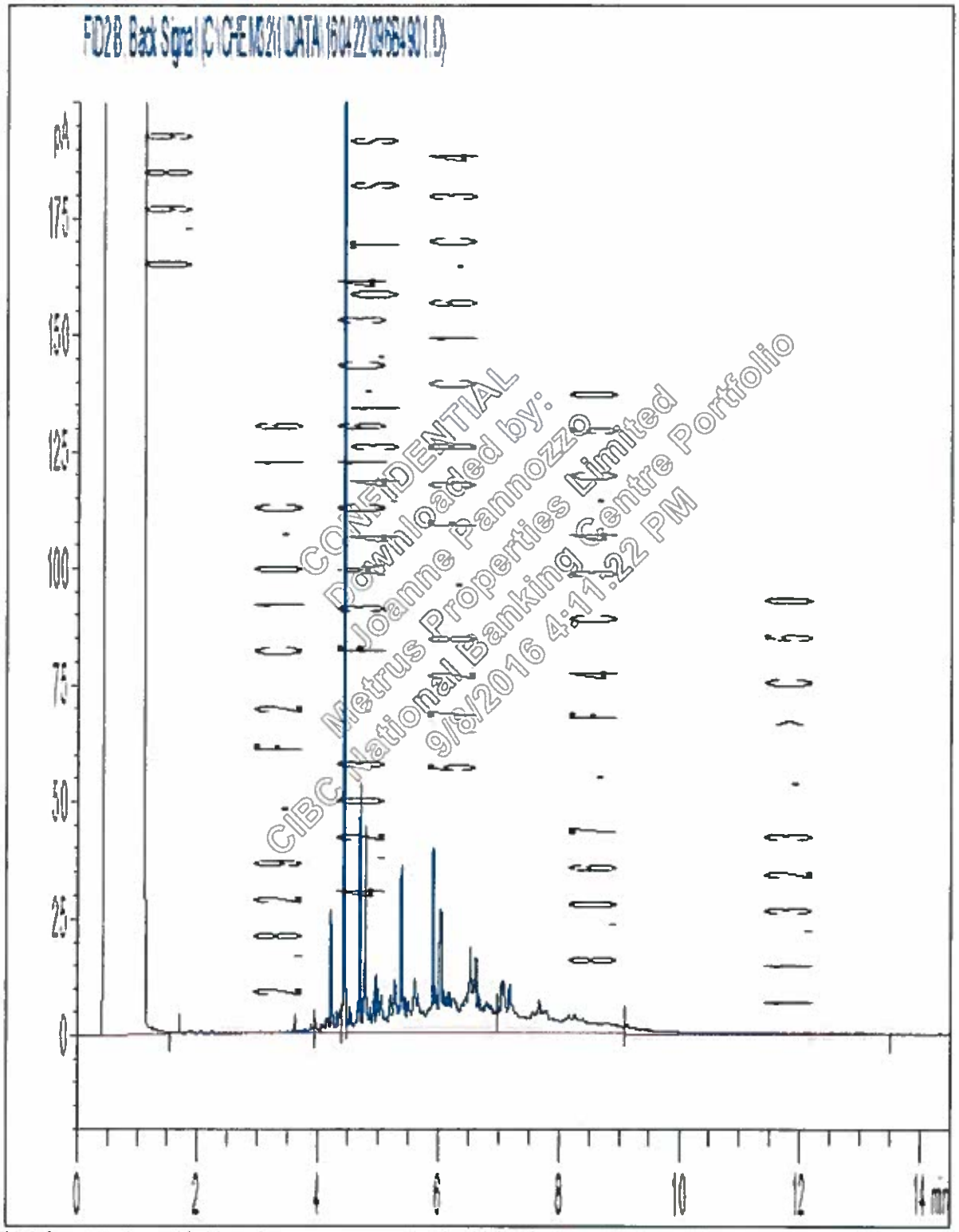
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE301

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-2 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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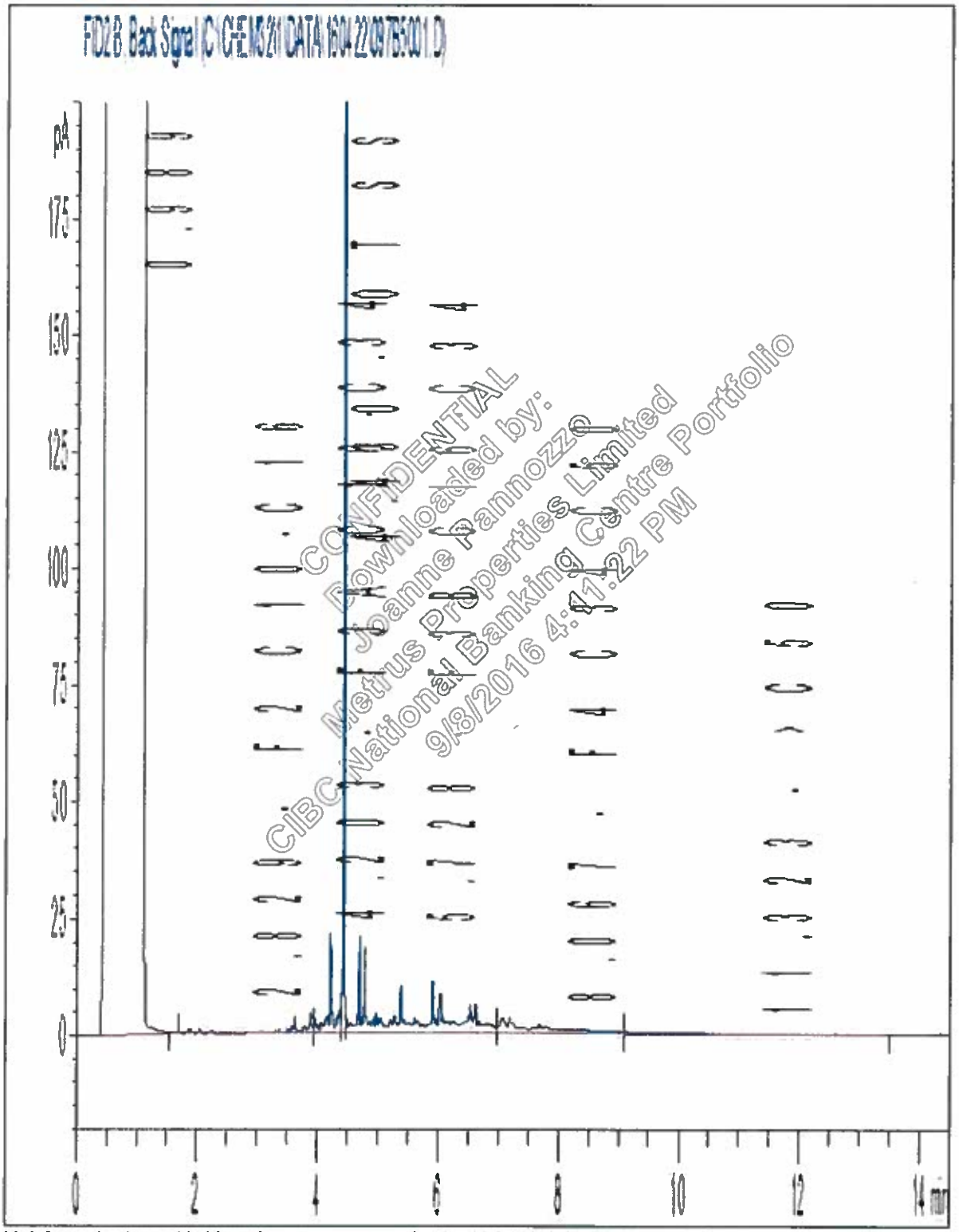
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE302

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-3 S52

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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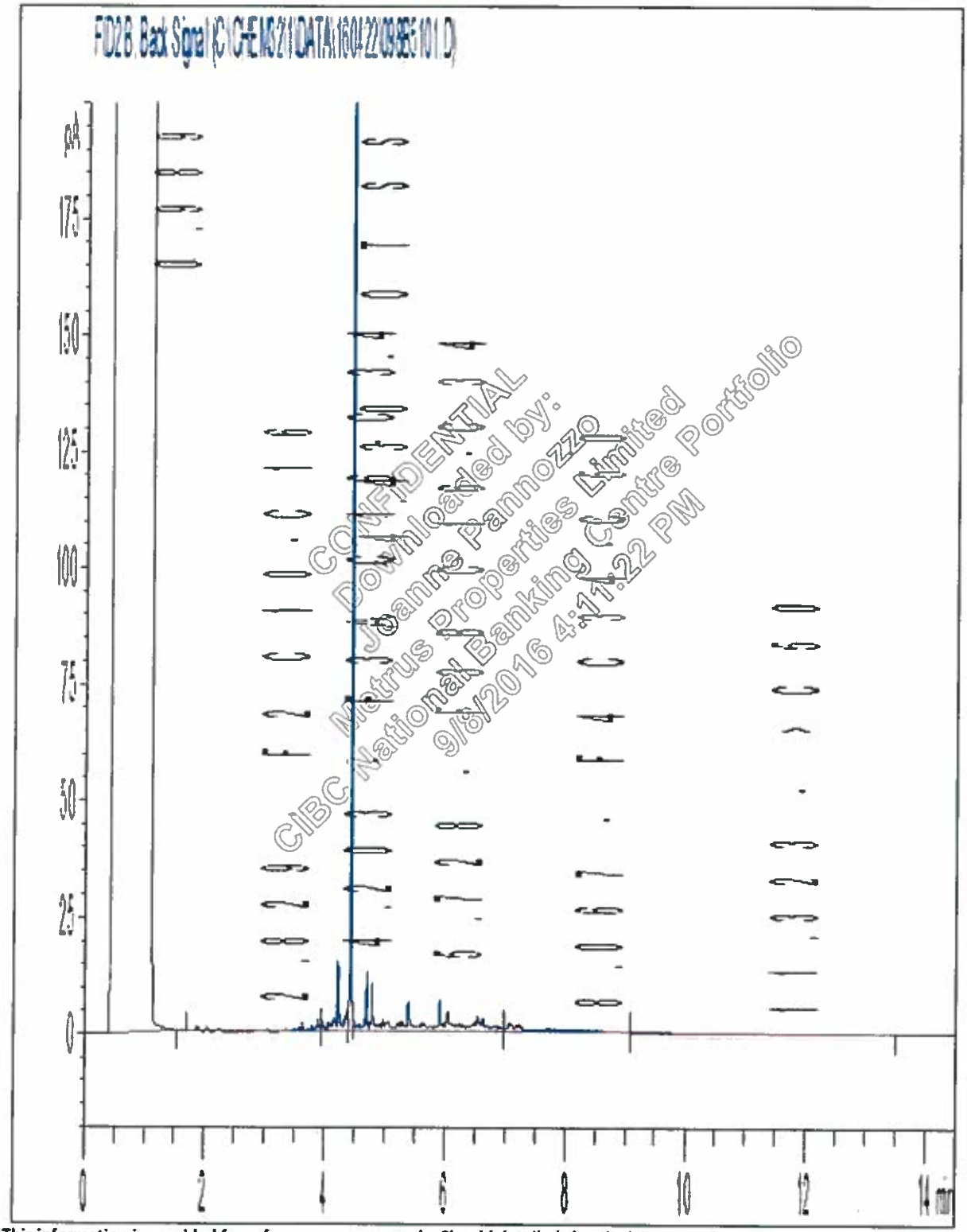
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE303

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: TCLP

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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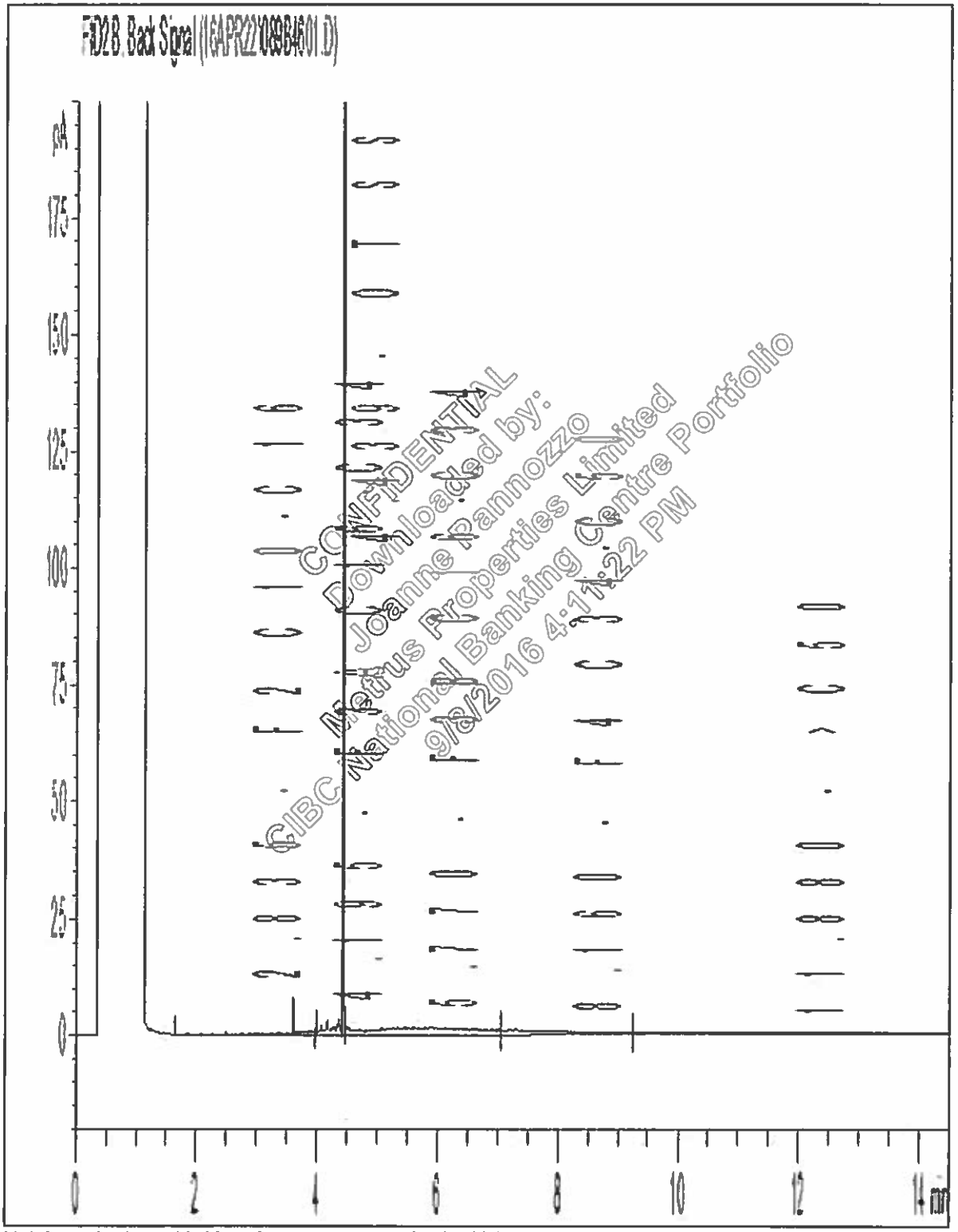
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE304

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-1

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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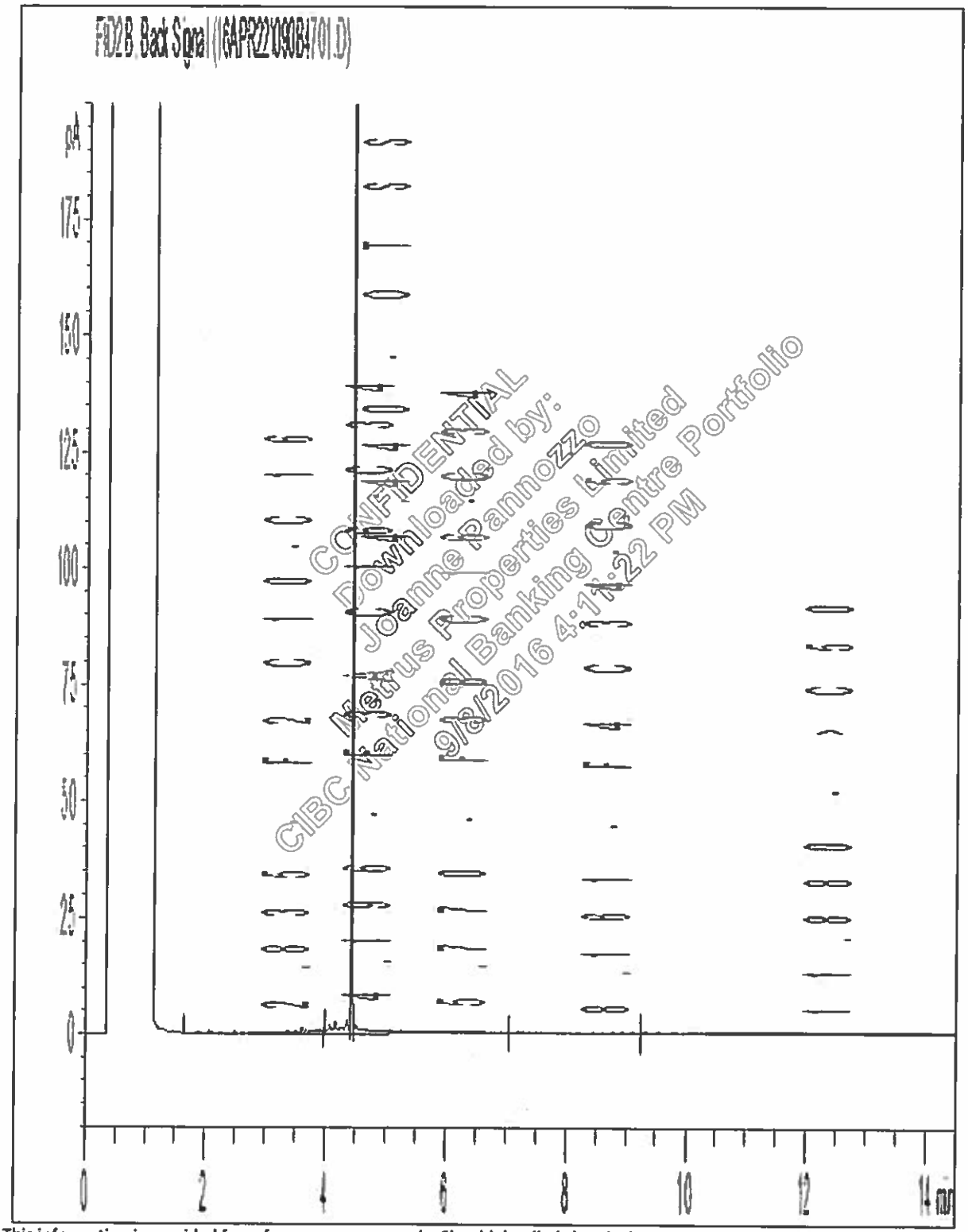
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE305

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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Your Project #: PII ESA
Site#: 111021.002
Site Location: CARLING AVE
Your C.O.C. #: 544903-04-01

Attention:Ryan Laronde

Pinchin Ltd
Ottawa
555 Legget Dr
Suite 1001 (Tower A)
Kanata, ON
K2K 2X3

Report Date: 2016/04/25
Report #: R3972343
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B677217
Received: 2016/04/19, 11:15

Sample Matrix: Soil
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	3	N/A	2016/04/25		EPA 8260C m
Cyanide (WAD) in Leachates (1)	1	N/A	2016/04/25	CAM SOP-00457	OMOE 3015 m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	4	N/A	2016/04/23	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	4	2016/04/22	2016/04/25	CAM SOP-00316	CCME CWS m
Fluoride by ISE in Leachates (1)	1	2016/04/23	2016/04/25	CAM SOP-00449	SM 22 4500-F- C m
Mercury (TCLP Leachable) (mg/L) (1)	1	N/A	2016/04/22	CAM SOP-00453	EPA 7470A m
Total Metals in TCLP Leachate by ICPMS (1)	1	2016/04/22	2016/04/25	CAM SOP-00447	EPA 6020A m
Ignitability of a Sample (1)	1	2016/04/25	2016/04/25	CAM SOP-00432	EPA 1030 Rev. 0 m
Moisture (1)	4	N/A	2016/04/21	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate(NO3) + Nitrite(NO2) in Leachate (1)	1	N/A	2016/04/25	CAM SOP-00440	SM 22 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM) (1)	1	2016/04/22	2016/04/23	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Leachate (1)	1	2016/04/23	2016/04/23	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT (1)	2	2016/04/21	2016/04/21	CAM SOP-00413	EPA 9045 D m
Sieve, 75um (1)	1	N/A	2016/04/25	CAM SOP-00467	Carter 2nd ed m
TCLP - % Solids (1)	1	2016/04/21	2016/04/22	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid (1)	1	N/A	2016/04/22	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH (1)	1	N/A	2016/04/22	CAM SOP-00401	EPA 1311 Update I m
Volatile Organic Compounds in Soil (1)	3	N/A	2016/04/22	CAM SOP-00228	EPA 8260C m

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Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	2	N/A	2016/04/22		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water (1)	2	N/A	2016/04/24	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 3)	2	2016/04/23	2016/04/24	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds in Water (1)	2	N/A	2016/04/21	CAM SOP-00226	EPA 8260C m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

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Your Project #: PII ESA
Site#: 111021.002
Site Location: CARLING AVE
Your C.O.C. #: 544903-04-01

Attention:Ryan Laronde

Pinchin Ltd
Ottawa
555 Legget Dr
Suite 1001 (Tower A)
Kanata, ON
K2K 2X3

Report Date: 2016/04/25
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Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B677217
Received: 2016/04/19, 11:15

(1) This test was performed by Maxxam Analytics 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 Maxxam 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.

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Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Parnian Baber, Project Manager
Email: pbaber@maxxam.ca
Phone# (613) 274-0573

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CFE299	CFE300		CFE301		CFE302			
Sampling Date		2016/04/15	2016/04/15		2016/04/15		2016/04/15			
COC Number		544903-04-01	544903-04-01		544903-04-01		544903-04-01			
	UNITS	MW-1 SS2	MW-1 GS	QC Batch	MW-2 SS2	QC Batch	MW-3 SS2	RDL	QC Batch	MDL
Inorganics										
Moisture	%	18		4466763	34	4466683	22	1.0	4466763	0.50
Available (CaCl2) pH	pH	7.58		4466630			7.41		4466630	
Miscellaneous Parameters										
Grain Size	%		COARSE	4469053				N/A		N/A
Sieve - #200 (<0.075mm)	%		40	4469053				1		N/A
Sieve - #200 (>0.075mm)	%		60	4469053				1		N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CFE303			
Sampling Date		2016/04/15			
COC Number		544903-04-01			
	UNITS	TCLP	RDL	QC Batch	MDL
Inorganics					
Final pH	pH	6.16		4468352	
Leachable Fluoride (F-)	mg/L	0.26	0.10	4470308	0.020
Initial pH	pH	8.75		4468352	
Moisture	%	23	1.0	4467824	0.50
TCLP - % Solids	%	100	0.2	4468343	N/A
TCLP Extraction Fluid	N/A	FLUID 1		4468351	
Leachable Free Cyanide	mg/L	<0.010	0.010	4470316	0.0010
Leachable Nitrite (N)	mg/L	<0.10	0.10	4470317	0.050
Leachable Nitrate (N)	mg/L	<1.0	1.0	4470317	0.20
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	4470317	0.20
Metals					
Leachable Mercury (Hg)	mg/L	<0.0010	0.0010	4468656	0.00010

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		CFE303			
Sampling Date		2016/04/15			
COC Number		544903-04-01			
	UNITS	TCLP	RDL	QC Batch	MDL
Metals					
Leachable Arsenic (As)	mg/L	<0.2	0.2	4468854	0.01
Leachable Barium (Ba)	mg/L	0.7	0.2	4468854	0.01
Leachable Boron (B)	mg/L	0.2	0.1	4468854	0.02
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	4468854	0.0007
Leachable Chromium (Cr)	mg/L	<0.1	0.1	4468854	0.01
Leachable Lead (Pb)	mg/L	<0.1	0.1	4468854	0.001
Leachable Selenium (Se)	mg/L	<0.1	0.1	4468854	0.01
Leachable Silver (Ag)	mg/L	<0.01	0.01	4468854	0.001
Leachable Uranium (U)	mg/L	<0.01	0.01	4468854	0.001

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		CFE303			
Sampling Date		2016/04/15			
COC Number		544903-04-01			
	UNITS	TCLP	RDL	QC Batch	MDL
Polyaromatic Hydrocarbons					
Leachable Benzo(b/j)fluoranthene	ug/L	<0.20	0.20	4469240	0.020
Leachable Naphthalene	ug/L	2.0	0.20	4469240	0.020
Leachable Acenaphthylene	ug/L	<0.20	0.20	4469240	0.020
Leachable Acenaphthene	ug/L	0.47	0.20	4469240	0.020
Leachable Fluorene	ug/L	0.90	0.20	4469240	0.020
Leachable Phenanthrene	ug/L	1.4	0.20	4469240	0.020
Leachable Anthracene	ug/L	0.21	0.20	4469240	0.020
Leachable Fluoranthene	ug/L	0.39	0.20	4469240	0.020
Leachable Pyrene	ug/L	0.28	0.20	4469240	0.020
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	4469240	0.020
Leachable Chrysene	ug/L	<0.20	0.20	4469240	0.020
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	4469240	0.020
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	4469240	0.020
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	4469240	0.020
Leachable Dibenz(a,h)anthracene	ug/L	<0.20	0.20	4469240	0.020
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	4469240	0.020
Leachable 1-Methylnaphthalene	ug/L	5.2	0.20	4469240	0.020
Leachable 2-Methylnaphthalene	ug/L	6.5	0.20	4469240	0.020
Surrogate Recovery (%)					
Leachable D10-Anthracene	%	107		4469240	
Leachable D14-Terphenyl (FS)	%	101		4469240	
Leachable D8-Acenaphthylene	%	93		4469240	

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID			CFE299	CFE301	CFE302			
Sampling Date			2016/04/15	2016/04/15	2016/04/15			
COC Number			544903-04-01	544903-04-01	544903-04-01			
	UNITS	Criteria	MW-1 SS2	MW-2 SS2	MW-3 SS2	RDL	QC Batch	MDL
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	0.18	<0.050	<0.050	<0.050	0.050	4463003	0.010
Volatile Organics								
Acetone (2-Propanone)	ug/g	16	<0.50	<0.50	<0.50	0.50	4466776	0.50
Benzene	ug/g	0.32	<0.020	<0.020	<0.020	0.020	4466776	0.020
Bromodichloromethane	ug/g	18	<0.050	<0.050	<0.050	0.050	4466776	0.050
Bromoform	ug/g	0.61	<0.050	<0.050	<0.050	0.050	4466776	0.050
Bromomethane	ug/g	0.05	<0.050	<0.050	<0.050	0.050	4466776	0.050
Carbon Tetrachloride	ug/g	0.21	<0.050	<0.050	<0.050	0.050	4466776	0.050
Chlorobenzene	ug/g	2.4	<0.050	<0.050	<0.050	0.050	4466776	0.050
Chloroform	ug/g	0.47	<0.050	<0.050	<0.050	0.050	4466776	0.050
Dibromochloromethane	ug/g	13	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,2-Dichlorobenzene	ug/g	6.8	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,3-Dichlorobenzene	ug/g	9.6	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,4-Dichlorobenzene	ug/g	0.2	<0.050	<0.050	<0.050	0.050	4466776	0.050
Dichlorodifluoromethane (FREON 12)	ug/g	16	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,1-Dichloroethane	ug/g	17	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,2-Dichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,1-Dichloroethylene	ug/g	0.064	<0.050	<0.050	<0.050	0.050	4466776	0.050
cis-1,2-Dichloroethylene	ug/g	55	<0.050	<0.050	<0.050	0.050	4466776	0.050
trans-1,2-Dichloroethylene	ug/g	1.3	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,2-Dichloropropane	ug/g	0.16	<0.050	<0.050	<0.050	0.050	4466776	0.050
cis-1,3-Dichloropropene	ug/g	0.18	<0.030	<0.030	<0.030	0.030	4466776	0.030
trans-1,3-Dichloropropene	ug/g	0.18	<0.040	<0.040	<0.040	0.040	4466776	0.040
Ethylbenzene	ug/g	9.5	<0.020	<0.020	<0.020	0.020	4466776	0.020
Ethylene Dibromide	ug/g	0.05	<0.050	<0.050	<0.050	0.050	4466776	0.050
Hexane	ug/g	46	<0.050	<0.050	<0.050	0.050	4466776	0.050
Methylene Chloride(Dichloromethane)	ug/g	1.6	<0.050	<0.050	<0.050	0.050	4466776	0.050
Methyl Ethyl Ketone (2-Butanone)	ug/g	70	<0.50	<0.50	<0.50	0.50	4466776	0.50
Methyl Isobutyl Ketone	ug/g	31	<0.50	<0.50	<0.50	0.50	4466776	0.50
Methyl t-butyl ether (MTBE)	ug/g	11	<0.050	<0.050	<0.050	0.050	4466776	0.050
Styrene	ug/g	34	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,1,1,2-Tetrachloroethane	ug/g	0.087	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.050	<0.050	<0.050	0.050	4466776	0.050

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID			CFE299	CFE301	CFE302			
Sampling Date			2016/04/15	2016/04/15	2016/04/15			
COC Number			544903-04-01	544903-04-01	544903-04-01			
	UNITS	Criteria	MW-1 SS2	MW-2 SS2	MW-3 SS2	RDL	QC Batch	MDL
Tetrachloroethylene	ug/g	4.5	<0.050	<0.050	<0.050	0.050	4466776	0.050
Toluene	ug/g	68	<0.020	<0.020	<0.020	0.020	4466776	0.020
1,1,1-Trichloroethane	ug/g	6.1	<0.050	<0.050	<0.050	0.050	4466776	0.050
1,1,2-Trichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	0.050	4466776	0.050
Trichloroethylene	ug/g	0.91	<0.050	<0.050	<0.050	0.050	4466776	0.050
Trichlorofluoromethane (FREON 11)	ug/g	4	<0.050	<0.050	<0.050	0.050	4466776	0.050
Vinyl Chloride	ug/g	0.032	<0.020	<0.020	<0.020	0.020	4466776	0.020
p+m-Xylene	ug/g	-	<0.020	<0.020	<0.020	0.020	4466776	0.020
o-Xylene	ug/g	-	<0.020	<0.020	<0.020	0.020	4466776	0.020
Total Xylenes	ug/g	26	<0.020	<0.020	<0.020	0.020	4466776	0.020
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	-	100	100	100		4466776	
D10-o-Xylene	%	-	90	108	97		4466776	
D4-1,2-Dichloroethane	%	-	98	98	99		4466776	
D8-Toluene	%	-	100	99	99		4466776	

RDL = Reportable Detection Limit
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Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			CFE299	CFE301	CFE302	CFE303			
Sampling Date			2016/04/15	2016/04/15	2016/04/15	2016/04/15			
COC Number			544903-04-01	544903-04-01	544903-04-01	544903-04-01			
	UNITS	Criteria	MW-1 SS2	MW-2 SS2	MW-3 SS2	TCLP	RDL	QC Batch	MDL
BTEX & F1 Hydrocarbons									
Benzene	ug/g	0.32				<0.020	0.020	4468697	0.020
Toluene	ug/g	68				0.021	0.020	4468697	0.020
Ethylbenzene	ug/g	9.5				<0.020	0.020	4468697	0.020
o-Xylene	ug/g	-				<0.020	0.020	4468697	0.020
p+m-Xylene	ug/g	-				<0.040	0.040	4468697	0.040
Total Xylenes	ug/g	26				<0.040	0.040	4468697	0.040
F1 (C6-C10)	ug/g	55	<10	<10	<10	<10	10	4468697	5.0
F1 (C6-C10) - BTEX	ug/g	55	<10	<10	<10	<10	10	4468697	5.0
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	230	<10	<10	<10	<10	10	4468834	5.0
F3 (C16-C34 Hydrocarbons)	ug/g	1700	<50	300	100	67	50	4468834	5.0
F4 (C34-C50 Hydrocarbons)	ug/g	3300	<50	120	<50	<50	50	4468834	10
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		4468834	
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	101	102	101	101		4468697	
4-Bromofluorobenzene	%	-	97	95	94	94		4468697	
D10-Ethylbenzene	%	-	105	104	101	110		4468697	
D4-1,2-Dichloroethane	%	-	99	98	97	97		4468697	
o-Terphenyl	%	-	104	103	104	104		4468834	

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Ontario Reg. 153/04 (Amended April 15, 2011)
Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Texture

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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		CFE303			
Sampling Date		2016/04/15			
COC Number		544903-04-01			
	UNITS	TCLP	RDL	QC Batch	MDL
PCBs					
Leachable Aroclor 1016	ug/L	<3.0	3.0	4469978	0.20
Leachable Aroclor 1221	ug/L	<3.0	3.0	4469978	0.20
Leachable Aroclor 1242	ug/L	<3.0	3.0	4469978	0.20
Leachable Aroclor 1248	ug/L	<3.0	3.0	4469978	0.20
Leachable Aroclor 1254	ug/L	<3.0	3.0	4469978	0.20
Leachable Aroclor 1260	ug/L	<3.0	3.0	4469978	0.20
Leachable Total PCB	ug/L	<3.0	3.0	4469978	0.20
Surrogate Recovery (%)					
Leachable Decachlorobiphenyl	%	129		4469978	

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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MISCELLANEOUS (SOIL)

Maxxam ID		CFE303		
Sampling Date		2016/04/15		
COC Number		544903-04-01		
	UNITS	TCLP	QC Batch	MDL
Inorganics				
Ignitability	N/A	NF/NI	4471388	

QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		CFE304		CFE305			
Sampling Date		2016/04/18		2016/04/18			
COC Number		544903-04-01		544903-04-01			
	UNITS	MW-1	RDL	MW-2	RDL	QC Batch	MDL
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/L	<0.57	0.57	<0.57	0.57	4463059	0.28
Volatile Organics							
Acetone (2-Propanone)	ug/L	<30 (1)	30	<20	20	4465300	1.0
Benzene	ug/L	1.2	0.20	0.58	0.20	4465300	0.020
Bromodichloromethane	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
Bromoform	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.10
Bromomethane	ug/L	<1.0	1.0	<1.0	1.0	4465300	0.10
Carbon Tetrachloride	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
Chlorobenzene	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.010
Chloroform	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
Dibromochloromethane	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
1,2-Dichlorobenzene	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
1,3-Dichlorobenzene	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
1,4-Dichlorobenzene	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	<1.0	1.0	4465300	0.050
1,1-Dichloroethane	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
1,2-Dichloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
1,1-Dichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
cis-1,2-Dichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
trans-1,2-Dichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
1,2-Dichloropropane	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
cis-1,3-Dichloropropene	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
Ethylbenzene	ug/L	0.37	0.20	<0.20	0.20	4465300	0.010
Ethylene Dibromide	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
Hexane	ug/L	<1.0	1.0	<1.0	1.0	4465300	0.10
Methylene Chloride(Dichloromethane)	ug/L	<1.0	1.0	<1.0	1.0	4465300	0.10
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	<10	10	4465300	0.50
Methyl Isobutyl Ketone	ug/L	<10	10	<10	10	4465300	0.10
Methyl t-butyl ether (MTBE)	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
Styrene	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
1,1,1,2-Tetrachloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
1,1,2,2-Tetrachloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
Tetrachloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) VOC Analysis: Detection limit was raised due to matrix interferences.

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VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		CFE304		CFE305			
Sampling Date		2016/04/18		2016/04/18			
COC Number		544903-04-01		544903-04-01			
	UNITS	MW-1	RDL	MW-2	RDL	QC Batch	MDL
Toluene	ug/L	4.8	0.40	2.3	0.40	4465300	0.010
1,1,1-Trichloroethane	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
1,1,2-Trichloroethane	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
Trichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	4465300	0.050
Trichlorofluoromethane (FREON 11)	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.10
Vinyl Chloride	ug/L	<0.40	0.40	<0.40	0.40	4465300	0.050
p+m-Xylene	ug/L	3.4	0.20	1.3	0.20	4465300	0.010
o-Xylene	ug/L	1.2	0.20	0.44	0.20	4465300	0.010
Total Xylenes	ug/L	4.5	0.20	1.7	0.20	4465300	0.010
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	100		101		4465300	
D4-1,2-Dichloroethane	%	110		111		4465300	
D8-Toluene	%	98		98		4465300	

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CFE304	CFE305			
Sampling Date		2016/04/18	2016/04/18			
COC Number		544903-04-01	544903-04-01			
	UNITS	MW-1	MW-2	RDL	QC Batch	MDL
BTEX & F1 Hydrocarbons						
F1 (C6-C10)	ug/L	<25	<25	25	4470516	20
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	4470516	20
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	4469971	50
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	4469971	70
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	4469971	50
Reached Baseline at C50	ug/L	Yes	Yes		4469971	
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	104	102		4470516	
4-Bromofluorobenzene	%	94	93		4470516	
D10-Ethylbenzene	%	108	108		4470516	
D4-1,2-Dichloroethane	%	95	95		4470516	
o-Terphenyl	%	102	101		4469971	

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TEST SUMMARY

Maxxam ID: CFE299
Sample ID: MW-1 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463003	N/A	2016/04/25	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Moisture	BAL	4466763	N/A	2016/04/21	Valentina Kaftani
pH CaCl2 EXTRACT	AT	4466630	2016/04/21	2016/04/21	Neil Dassanayake
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

Maxxam ID: CFE299 Dup
Sample ID: MW-1 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

Maxxam ID: CFE300
Sample ID: MW-1 GS
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	4469053	N/A	2016/04/25	Nimarta Singh

Maxxam ID: CFE301
Sample ID: MW-2 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463003	N/A	2016/04/25	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Moisture	BAL	4466683	N/A	2016/04/21	Valentina Kaftani
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

Maxxam ID: CFE302
Sample ID: MW-3 SS2
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463003	N/A	2016/04/25	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Moisture	BAL	4466763	N/A	2016/04/21	Valentina Kaftani
pH CaCl2 EXTRACT	AT	4466630	2016/04/21	2016/04/21	Neil Dassanayake
Volatile Organic Compounds in Soil	GC/MS	4466776	N/A	2016/04/22	Xueming Jiang

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TEST SUMMARY

Maxxam ID: CFE303
Sample ID: TCLP
Matrix: Soil

Collected: 2016/04/15
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide (WAD) in Leachates	SKAL/CN	4470316	N/A	2016/04/25	Xuanhong Qiu
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4468697	N/A	2016/04/23	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4468834	2016/04/22	2016/04/25	Zhiyue (Frank) Zhu
Fluoride by ISE in Leachates	ISE	4470308	2016/04/23	2016/04/25	Surinder Rai
Mercury (TCLP Leachable) (mg/L)	CV/AA	4468656	N/A	2016/04/22	Magdalena Carlos
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4468854	2016/04/22	2016/04/25	Arefa Dabhad
Ignitability of a Sample	BAL	4471388	2016/04/25	2016/04/25	Min Yang
Moisture	BAL	4467824	N/A	2016/04/21	Valentina Kaftani
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	4470317	N/A	2016/04/25	Chandra Nandlal
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4469240	2016/04/22	2016/04/23	Jett Wu
Polychlorinated Biphenyl in Leachate	GC/ECD	4469978	2016/04/23	2016/04/23	Svitlana Shaula
TCLP - % Solids	BAL	4468343	2016/04/21	2016/04/22	Jian (Ken) Wang
TCLP - Extraction Fluid		4468351	N/A	2016/04/22	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4468352	N/A	2016/04/22	Jian (Ken) Wang

Maxxam ID: CFE304
Sample ID: MW-1
Matrix: Water

Collected: 2016/04/18
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463059	N/A	2016/04/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4470516	N/A	2016/04/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4469971	2016/04/23	2016/04/24	Jeevaraj Jeevaratrnam
Volatile Organic Compounds in Water	P&T/MS	4465300	N/A	2016/04/21	Blair Gannon

Maxxam ID: CFE305
Sample ID: MW-2
Matrix: Water

Collected: 2016/04/18
Shipped:
Received: 2016/04/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	4463059	N/A	2016/04/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4470516	N/A	2016/04/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4469971	2016/04/23	2016/04/24	Jeevaraj Jeevaratrnam
Volatile Organic Compounds in Water	P&T/MS	4465300	N/A	2016/04/21	Blair Gannon

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GENERAL COMMENTS

VOC Analysis: Due to insufficient sample volume, samples required dilution. Detection limits were adjusted accordingly.

Sample CFE303-01 : NF/NI=Non Flammable and Non Ignitable

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4465300	BG1	Matrix Spike	4-Bromofluorobenzene	2016/04/21		97	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/21		94	%	70 - 130
			D8-Toluene	2016/04/21		101	%	70 - 130
			Acetone (2-Propanone)	2016/04/21		92	%	60 - 140
			Benzene	2016/04/21		102	%	70 - 130
			Bromodichloromethane	2016/04/21		98	%	70 - 130
			Bromoform	2016/04/21		94	%	70 - 130
			Bromomethane	2016/04/21		88	%	60 - 140
			Carbon Tetrachloride	2016/04/21		101	%	70 - 130
			Chlorobenzene	2016/04/21		101	%	70 - 130
			Chloroform	2016/04/21		98	%	70 - 130
			Dibromochloromethane	2016/04/21		97	%	70 - 130
			1,2-Dichlorobenzene	2016/04/21		98	%	70 - 130
			1,3-Dichlorobenzene	2016/04/21		100	%	70 - 130
			1,4-Dichlorobenzene	2016/04/21		101	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2016/04/21		97	%	60 - 140
			1,1-Dichloroethane	2016/04/21		98	%	70 - 130
			1,2-Dichloroethane	2016/04/21		92	%	70 - 130
			1,1-Dichloroethylene	2016/04/21		104	%	70 - 130
			cis-1,2-Dichloroethylene	2016/04/21		100	%	70 - 130
			trans-1,2-Dichloroethylene	2016/04/21		101	%	70 - 130
			1,2-Dichloropropane	2016/04/21		99	%	70 - 130
			cis-1,3-Dichloropropene	2016/04/21		102	%	70 - 130
			trans-1,3-Dichloropropene	2016/04/21		97	%	70 - 130
			Ethylbenzene	2016/04/21		102	%	70 - 130
			Ethylene Dibromide	2016/04/21		95	%	70 - 130
			Hexane	2016/04/21		107	%	70 - 130
			Methylene Chloride(Dichloromethane)	2016/04/21		91	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21		95	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/21		94	%	70 - 130
			Methyl t-butyl ether (MTBE)	2016/04/21		93	%	70 - 130
			Styrene	2016/04/21		100	%	70 - 130
			1,1,1,2-Tetrachloroethane	2016/04/21		97	%	70 - 130
			1,1,2,2-Tetrachloroethane	2016/04/21		94	%	70 - 130
			Tetrachloroethylene	2016/04/21		97	%	70 - 130
			Toluene	2016/04/21		101	%	70 - 130
			1,1,1-Trichloroethane	2016/04/21		97	%	70 - 130
			1,1,2-Trichloroethane	2016/04/21		94	%	70 - 130
			Trichloroethylene	2016/04/21		96	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2016/04/21		105	%	70 - 130
			Vinyl Chloride	2016/04/21		103	%	70 - 130
			p+m-Xylene	2016/04/21		101	%	70 - 130
			o-Xylene	2016/04/21		102	%	70 - 130
4465300	BG1	Spiked Blank	4-Bromofluorobenzene	2016/04/21		98	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/21		98	%	70 - 130
			D8-Toluene	2016/04/21		100	%	70 - 130
			Acetone (2-Propanone)	2016/04/21		106	%	60 - 140
			Benzene	2016/04/21		102	%	70 - 130
			Bromodichloromethane	2016/04/21		105	%	70 - 130
			Bromoform	2016/04/21		105	%	70 - 130
			Bromomethane	2016/04/21		90	%	60 - 140
			Carbon Tetrachloride	2016/04/21		102	%	70 - 130
			Chlorobenzene	2016/04/21		101	%	70 - 130

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Chloroform	2016/04/21		100	%	70 - 130
			Dibromochloromethane	2016/04/21		106	%	70 - 130
			1,2-Dichlorobenzene	2016/04/21		101	%	70 - 130
			1,3-Dichlorobenzene	2016/04/21		98	%	70 - 130
			1,4-Dichlorobenzene	2016/04/21		100	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2016/04/21		100	%	60 - 140
			1,1-Dichloroethane	2016/04/21		99	%	70 - 130
			1,2-Dichloroethane	2016/04/21		100	%	70 - 130
			1,1-Dichloroethylene	2016/04/21		104	%	70 - 130
			cis-1,2-Dichloroethylene	2016/04/21		102	%	70 - 130
			trans-1,2-Dichloroethylene	2016/04/21		99	%	70 - 130
			1,2-Dichloropropane	2016/04/21		104	%	70 - 130
			cis-1,3-Dichloropropene	2016/04/21		107	%	70 - 130
			trans-1,3-Dichloropropene	2016/04/21		102	%	70 - 130
			Ethylbenzene	2016/04/21		100	%	70 - 130
			Ethylene Dibromide	2016/04/21		105	%	70 - 130
			Hexane	2016/04/21		102	%	70 - 130
			Methylene Chloride(Dichloromethane)	2016/04/21		93	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21		110	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/21		109	%	70 - 130
			Methyl t-butyl ether (MTBE)	2016/04/21		106	%	70 - 130
			Styrene	2016/04/21		103	%	70 - 130
			1,1,1,2-Tetrachloroethane	2016/04/21		100	%	70 - 130
			1,1,2,2-Tetrachloroethane	2016/04/21		106	%	70 - 130
			Tetrachloroethylene	2016/04/21		95	%	70 - 130
			Toluene	2016/04/21		98	%	70 - 130
			1,1,1-Trichloroethane	2016/04/21		97	%	70 - 130
			1,1,2-Trichloroethane	2016/04/21		104	%	70 - 130
			Trichloroethylene	2016/04/21		96	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2016/04/21		105	%	70 - 130
			Vinyl Chloride	2016/04/21		104	%	70 - 130
			p+m-Xylene	2016/04/21		99	%	70 - 130
			o-Xylene	2016/04/21		103	%	70 - 130
4465300	BG1	Method Blank	4-Bromofluorobenzene	2016/04/21		97	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/21		98	%	70 - 130
			D8-Toluene	2016/04/21		100	%	70 - 130
			Acetone (2-Propanone)	2016/04/21	<10		ug/L	
			Benzene	2016/04/21	<0.10		ug/L	
			Bromodichloromethane	2016/04/21	<0.10		ug/L	
			Bromoform	2016/04/21	<0.20		ug/L	
			Bromomethane	2016/04/21	<0.50		ug/L	
			Carbon Tetrachloride	2016/04/21	<0.10		ug/L	
			Chlorobenzene	2016/04/21	<0.10		ug/L	
			Chloroform	2016/04/21	<0.10		ug/L	
			Dibromochloromethane	2016/04/21	<0.20		ug/L	
			1,2-Dichlorobenzene	2016/04/21	<0.20		ug/L	
			1,3-Dichlorobenzene	2016/04/21	<0.20		ug/L	
			1,4-Dichlorobenzene	2016/04/21	<0.20		ug/L	
			Dichlorodifluoromethane (FREON 12)	2016/04/21	<0.50		ug/L	
			1,1-Dichloroethane	2016/04/21	<0.10		ug/L	
			1,2-Dichloroethane	2016/04/21	<0.20		ug/L	
			1,1-Dichloroethylene	2016/04/21	<0.10		ug/L	
			cis-1,2-Dichloroethylene	2016/04/21	<0.10		ug/L	

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A Bureau Veritas Group Company

Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			trans-1,2-Dichloroethylene	2016/04/21	<0.10		ug/L	
			1,2-Dichloropropane	2016/04/21	<0.10		ug/L	
			cis-1,3-Dichloropropene	2016/04/21	<0.20		ug/L	
			trans-1,3-Dichloropropene	2016/04/21	<0.20		ug/L	
			Ethylbenzene	2016/04/21	<0.10		ug/L	
			Ethylene Dibromide	2016/04/21	<0.20		ug/L	
			Hexane	2016/04/21	<0.50		ug/L	
			Methylene Chloride(Dichloromethane)	2016/04/21	<0.50		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21	<5.0		ug/L	
			Methyl Isobutyl Ketone	2016/04/21	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2016/04/21	<0.20		ug/L	
			Styrene	2016/04/21	<0.20		ug/L	
			1,1,1,2-Tetrachloroethane	2016/04/21	<0.20		ug/L	
			1,1,2,2-Tetrachloroethane	2016/04/21	<0.20		ug/L	
			Tetrachloroethylene	2016/04/21	<0.10		ug/L	
			Toluene	2016/04/21	<0.20		ug/L	
			1,1,1-Trichloroethane	2016/04/21	<0.10		ug/L	
			1,1,2-Trichloroethane	2016/04/21	<0.20		ug/L	
			Trichloroethylene	2016/04/21	<0.10		ug/L	
			Trichlorofluoromethane (FREON 11)	2016/04/21	<0.20		ug/L	
			Vinyl Chloride	2016/04/21	<0.20		ug/L	
			p+m-Xylene	2016/04/21	<0.10		ug/L	
			o-Xylene	2016/04/21	<0.10		ug/L	
			Total Xylenes	2016/04/21	<0.10		ug/L	
4465300	BG1	RPD - Sample/Sample Dup	Acetone (2-Propanone)	2016/04/21	NC		%	30
			Benzene	2016/04/21	NC		%	30
			Bromodichloromethane	2016/04/21	NC		%	30
			Bromoform	2016/04/21	NC		%	30
			Bromomethane	2016/04/21	NC		%	30
			Carbon Tetrachloride	2016/04/21	NC		%	30
			Chlorobenzene	2016/04/21	NC		%	30
			Chloroform	2016/04/21	NC		%	30
			Dibromochloromethane	2016/04/21	NC		%	30
			1,2-Dichlorobenzene	2016/04/21	NC		%	30
			1,3-Dichlorobenzene	2016/04/21	NC		%	30
			1,4-Dichlorobenzene	2016/04/21	NC		%	30
			Dichlorodifluoromethane (FREON 12)	2016/04/21	NC		%	30
			1,1-Dichloroethane	2016/04/21	NC		%	30
			1,2-Dichloroethane	2016/04/21	NC		%	30
			1,1-Dichloroethylene	2016/04/21	NC		%	30
			cis-1,2-Dichloroethylene	2016/04/21	NC		%	30
			trans-1,2-Dichloroethylene	2016/04/21	NC		%	30
			1,2-Dichloropropane	2016/04/21	NC		%	30
			cis-1,3-Dichloropropene	2016/04/21	NC		%	30
			trans-1,3-Dichloropropene	2016/04/21	NC		%	30
			Ethylbenzene	2016/04/21	NC		%	30
			Ethylene Dibromide	2016/04/21	NC		%	30
			Hexane	2016/04/21	NC		%	30
			Methylene Chloride(Dichloromethane)	2016/04/21	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2016/04/21	NC		%	30
			Methyl Isobutyl Ketone	2016/04/21	NC		%	30
			Methyl t-butyl ether (MTBE)	2016/04/21	NC		%	30
			Styrene	2016/04/21	NC		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,1,1,2-Tetrachloroethane	2016/04/21	NC		%	30
			1,1,2,2-Tetrachloroethane	2016/04/21	NC		%	30
			Tetrachloroethylene	2016/04/21	NC		%	30
			Toluene	2016/04/21	NC		%	30
			1,1,1-Trichloroethane	2016/04/21	NC		%	30
			1,1,2-Trichloroethane	2016/04/21	NC		%	30
			Trichloroethylene	2016/04/21	NC		%	30
			Trichlorofluoromethane (FREON 11)	2016/04/21	NC		%	30
			Vinyl Chloride	2016/04/21	NC		%	30
			p+m-Xylene	2016/04/21	NC		%	30
			o-Xylene	2016/04/21	NC		%	30
			Total Xylenes	2016/04/21	NC		%	30
4466630	NYS	Spiked Blank	Available (CaCl2) pH	2016/04/21		98	%	97 - 103
4466630	NYS	RPD - Sample/Sample Dup	Available (CaCl2) pH	2016/04/21	0.20		%	N/A
4466683	DSR	RPD - Sample/Sample Dup	Moisture	2016/04/21	2.5		%	20
4466763	DSR	RPD - Sample/Sample Dup	Moisture	2016/04/21	2.9		%	20
4466776	XJI	Matrix Spike	4-Bromofluorobenzene	2016/04/22		100	%	60 - 140
			D10-o-Xylene	2016/04/22		92	%	60 - 130
			D4-1,2-Dichloroethane	2016/04/22		97	%	60 - 140
			D8-Toluene	2016/04/22		102	%	60 - 140
4466776	XJI	Matrix Spike(CFE299)	Acetone (2-Propanone)	2016/04/22		86	%	60 - 140
			Benzene	2016/04/22		88	%	60 - 140
			Bromodichloromethane	2016/04/22		88	%	60 - 140
			Bromoform	2016/04/22		88	%	60 - 140
			Bromomethane	2016/04/22		81	%	60 - 140
			Carbon Tetrachloride	2016/04/22		98	%	60 - 140
			Chlorobenzene	2016/04/22		92	%	60 - 140
			Chloroform	2016/04/22		90	%	60 - 140
			Dibromochloromethane	2016/04/22		89	%	60 - 140
			1,2-Dichlorobenzene	2016/04/22		89	%	60 - 140
			1,3-Dichlorobenzene	2016/04/22		90	%	60 - 140
			1,4-Dichlorobenzene	2016/04/22		91	%	60 - 140
			Dichlorodifluoromethane (FREON 12)	2016/04/22		90	%	60 - 140
			1,1-Dichloroethane	2016/04/22		89	%	60 - 140
			1,2-Dichloroethane	2016/04/22		88	%	60 - 140
			1,1-Dichloroethylene	2016/04/22		95	%	60 - 140
			cis-1,2-Dichloroethylene	2016/04/22		88	%	60 - 140
			trans-1,2-Dichloroethylene	2016/04/22		90	%	60 - 140
			1,2-Dichloropropane	2016/04/22		85	%	60 - 140
			cis-1,3-Dichloropropene	2016/04/22		89	%	60 - 140
			trans-1,3-Dichloropropene	2016/04/22		87	%	60 - 140
			Ethylbenzene	2016/04/22		91	%	60 - 140
			Ethylene Dibromide	2016/04/22		84	%	60 - 140
			Hexane	2016/04/22		89	%	60 - 140
			Methylene Chloride(Dichloromethane)	2016/04/22		91	%	60 - 140
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22		85	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/22		79	%	60 - 140
			Methyl t-butyl ether (MTBE)	2016/04/22		88	%	60 - 140
			Styrene	2016/04/22		87	%	60 - 140
			1,1,1,2-Tetrachloroethane	2016/04/22		92	%	60 - 140
			1,1,2,2-Tetrachloroethane	2016/04/22		83	%	60 - 140
			Tetrachloroethylene	2016/04/22		95	%	60 - 140
			Toluene	2016/04/22		89	%	60 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,1,1-Trichloroethane	2016/04/22		92	%	60 - 140
			1,1,2-Trichloroethane	2016/04/22		86	%	60 - 140
			Trichloroethylene	2016/04/22		90	%	60 - 140
			Trichlorofluoromethane (FREON 11)	2016/04/22		98	%	60 - 140
			Vinyl Chloride	2016/04/22		95	%	60 - 140
			p+m-Xylene	2016/04/22		89	%	60 - 140
			o-Xylene	2016/04/22		90	%	60 - 140
4466776	XJI	Spiked Blank	4-Bromofluorobenzene	2016/04/22		101	%	60 - 140
			D10-o-Xylene	2016/04/22		101	%	60 - 130
			D4-1,2-Dichloroethane	2016/04/22		102	%	60 - 140
			D8-Toluene	2016/04/22		100	%	60 - 140
			Acetone (2-Propanone)	2016/04/22		106	%	60 - 140
			Benzene	2016/04/22		95	%	60 - 130
			Bromodichloromethane	2016/04/22		98	%	60 - 130
			Bromoform	2016/04/22		103	%	60 - 130
			Bromomethane	2016/04/22		87	%	60 - 140
			Carbon Tetrachloride	2016/04/22		104	%	60 - 130
			Chlorobenzene	2016/04/22		99	%	60 - 130
			Chloroform	2016/04/22		98	%	60 - 130
			Dibromochloromethane	2016/04/22		101	%	60 - 130
			1,2-Dichlorobenzene	2016/04/22		97	%	60 - 130
			1,3-Dichlorobenzene	2016/04/22		95	%	60 - 130
			1,4-Dichlorobenzene	2016/04/22		96	%	60 - 130
			Dichlorodifluoromethane (FREON 12)	2016/04/22		101	%	60 - 140
			1,1-Dichloroethane	2016/04/22		96	%	60 - 130
			1,2-Dichloroethane	2016/04/22		101	%	60 - 130
			1,1-Dichloroethylene	2016/04/22		101	%	60 - 130
			cis-1,2-Dichloroethylene	2016/04/22		97	%	60 - 130
			trans-1,2-Dichloroethylene	2016/04/22		96	%	60 - 130
			1,2-Dichloropropane	2016/04/22		94	%	60 - 130
			cis-1,3-Dichloropropene	2016/04/22		97	%	60 - 130
			trans-1,3-Dichloropropene	2016/04/22		93	%	60 - 130
			Ethylbenzene	2016/04/22		96	%	60 - 130
			Ethylene Dibromide	2016/04/22		97	%	60 - 130
			Hexane	2016/04/22		104	%	60 - 130
			Methylene Chloride(Dichloromethane)	2016/04/22		101	%	60 - 130
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22		108	%	60 - 140
			Methyl Isobutyl Ketone	2016/04/22		98	%	60 - 130
			Methyl t-butyl ether (MTBE)	2016/04/22		98	%	60 - 130
			Styrene	2016/04/22		94	%	60 - 130
			1,1,1,2-Tetrachloroethane	2016/04/22		101	%	60 - 130
			1,1,2,2-Tetrachloroethane	2016/04/22		99	%	60 - 130
			Tetrachloroethylene	2016/04/22		98	%	60 - 130
			Toluene	2016/04/22		94	%	60 - 130
			1,1,1-Trichloroethane	2016/04/22		98	%	60 - 130
			1,1,2-Trichloroethane	2016/04/22		98	%	60 - 130
			Trichloroethylene	2016/04/22		95	%	60 - 130
			Trichlorofluoromethane (FREON 11)	2016/04/22		104	%	60 - 130
			Vinyl Chloride	2016/04/22		101	%	60 - 130
			p+m-Xylene	2016/04/22		93	%	60 - 130
			o-Xylene	2016/04/22		95	%	60 - 130
4466776	XJI	Method Blank	4-Bromofluorobenzene	2016/04/22		100	%	60 - 140
			D10-o-Xylene	2016/04/22		101	%	60 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			D4-1,2-Dichloroethane	2016/04/22		101	%	60 - 140
			D8-Toluene	2016/04/22		98	%	60 - 140
			Acetone (2-Propanone)	2016/04/22	<0.50		ug/g	
			Benzene	2016/04/22	<0.020		ug/g	
			Bromodichloromethane	2016/04/22	<0.050		ug/g	
			Bromoform	2016/04/22	<0.050		ug/g	
			Bromomethane	2016/04/22	<0.050		ug/g	
			Carbon Tetrachloride	2016/04/22	<0.050		ug/g	
			Chlorobenzene	2016/04/22	<0.050		ug/g	
			Chloroform	2016/04/22	<0.050		ug/g	
			Dibromochloromethane	2016/04/22	<0.050		ug/g	
			1,2-Dichlorobenzene	2016/04/22	<0.050		ug/g	
			1,3-Dichlorobenzene	2016/04/22	<0.050		ug/g	
			1,4-Dichlorobenzene	2016/04/22	<0.050		ug/g	
			Dichlorodifluoromethane (FREON 12)	2016/04/22	<0.050		ug/g	
			1,1-Dichloroethane	2016/04/22	<0.050		ug/g	
			1,2-Dichloroethane	2016/04/22	<0.050		ug/g	
			1,1-Dichloroethylene	2016/04/22	<0.050		ug/g	
			cis-1,2-Dichloroethylene	2016/04/22	<0.050		ug/g	
			trans-1,2-Dichloroethylene	2016/04/22	<0.050		ug/g	
			1,2-Dichloropropane	2016/04/22	<0.050		ug/g	
			cis-1,3-Dichloropropene	2016/04/22	<0.030		ug/g	
			trans-1,3-Dichloropropene	2016/04/22	<0.040		ug/g	
			Ethylbenzene	2016/04/22	<0.020		ug/g	
			Ethylene Dibromide	2016/04/22	<0.050		ug/g	
			Hexane	2016/04/22	<0.050		ug/g	
			Methylene Chloride(Dichloromethane)	2016/04/22	<0.050		ug/g	
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22	<0.50		ug/g	
			Methyl Isobutyl Ketone	2016/04/22	<0.50		ug/g	
			Methyl t-butyl ether (MTBE)	2016/04/22	<0.050		ug/g	
			Styrene	2016/04/22	<0.050		ug/g	
			1,1,1,2-Tetrachloroethane	2016/04/22	<0.050		ug/g	
			1,1,2,2-Tetrachloroethane	2016/04/22	<0.050		ug/g	
			Tetrachloroethylene	2016/04/22	<0.050		ug/g	
			Toluene	2016/04/22	<0.020		ug/g	
			1,1,1-Trichloroethane	2016/04/22	<0.050		ug/g	
			1,1,2-Trichloroethane	2016/04/22	<0.050		ug/g	
			Trichloroethylene	2016/04/22	<0.050		ug/g	
			Trichlorofluoromethane (FREON 11)	2016/04/22	<0.050		ug/g	
			Vinyl Chloride	2016/04/22	<0.020		ug/g	
			p+m-Xylene	2016/04/22	<0.020		ug/g	
			o-Xylene	2016/04/22	<0.020		ug/g	
			Total Xylenes	2016/04/22	<0.020		ug/g	
4466776	XJI	RPD - Sample/Sample Dup	Acetone (2-Propanone)	2016/04/22	NC		%	50
			Benzene	2016/04/22	NC		%	50
			Bromodichloromethane	2016/04/22	NC		%	50
			Bromoform	2016/04/22	NC		%	50
			Bromomethane	2016/04/22	NC		%	50
			Carbon Tetrachloride	2016/04/22	NC		%	50
			Chlorobenzene	2016/04/22	NC		%	50
			Chloroform	2016/04/22	NC		%	50
			Dibromochloromethane	2016/04/22	NC		%	50
			1,2-Dichlorobenzene	2016/04/22	NC		%	50

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Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,3-Dichlorobenzene	2016/04/22	NC		%	50
			1,4-Dichlorobenzene	2016/04/22	NC		%	50
			Dichlorodifluoromethane (FREON 12)	2016/04/22	NC		%	50
			1,1-Dichloroethane	2016/04/22	NC		%	50
			1,2-Dichloroethane	2016/04/22	NC		%	50
			1,1-Dichloroethylene	2016/04/22	NC		%	50
			cis-1,2-Dichloroethylene	2016/04/22	NC		%	50
			trans-1,2-Dichloroethylene	2016/04/22	NC		%	50
			1,2-Dichloropropane	2016/04/22	NC		%	50
			cis-1,3-Dichloropropene	2016/04/22	NC		%	50
			trans-1,3-Dichloropropene	2016/04/22	NC		%	50
			Ethylbenzene	2016/04/22	NC		%	50
			Ethylene Dibromide	2016/04/22	NC		%	50
			Hexane	2016/04/22	NC		%	50
			Methylene Chloride(Dichloromethane)	2016/04/22	NC		%	50
			Methyl Ethyl Ketone (2-Butanone)	2016/04/22	NC		%	50
			Methyl Isobutyl Ketone	2016/04/22	NC		%	50
			Methyl t-butyl ether (MTBE)	2016/04/22	NC		%	50
			Styrene	2016/04/22	NC		%	50
			1,1,1,2-Tetrachloroethane	2016/04/22	NC		%	50
			1,1,2,2-Tetrachloroethane	2016/04/22	NC		%	50
			Tetrachloroethylene	2016/04/22	NC		%	50
			Toluene	2016/04/22	NC		%	50
			1,1,1-Trichloroethane	2016/04/22	NC		%	50
			1,1,2-Trichloroethane	2016/04/22	NC		%	50
			Trichloroethylene	2016/04/22	NC		%	50
			Trichlorofluoromethane (FREON 11)	2016/04/22	NC		%	50
			Vinyl Chloride	2016/04/22	NC		%	50
			p+m-Xylene	2016/04/22	NC		%	50
			o-Xylene	2016/04/22	NC		%	50
			Total Xylenes	2016/04/22	NC		%	50
4467824	NS3	RPD - Sample/Sample Dup	Moisture	2016/04/21	1.8		%	20
4468656	MC	Matrix Spike	Leachable Mercury (Hg)	2016/04/22		113	%	75 - 125
4468656	MC	Leachate Blank	Leachable Mercury (Hg)	2016/04/22	<0.0010		mg/L	
4468656	MC	Spiked Blank	Leachable Mercury (Hg)	2016/04/22		106	%	80 - 120
4468656	MC	Method Blank	Leachable Mercury (Hg)	2016/04/22	<0.0010		mg/L	
4468656	MC	RPD - Sample/Sample Dup	Leachable Mercury (Hg)	2016/04/22	NC		%	25
4468697	AAI	Matrix Spike	1,4-Difluorobenzene	2016/04/22		101	%	60 - 140
			4-Bromofluorobenzene	2016/04/22		98	%	60 - 140
			D10-Ethylbenzene	2016/04/22		85	%	60 - 140
			D4-1,2-Dichloroethane	2016/04/22		99	%	60 - 140
			Benzene	2016/04/22		99	%	60 - 140
			Toluene	2016/04/22		105	%	60 - 140
			Ethylbenzene	2016/04/22		110	%	60 - 140
			o-Xylene	2016/04/22		114	%	60 - 140
			p+m-Xylene	2016/04/22		102	%	60 - 140
			F1 (C6-C10)	2016/04/22		89	%	60 - 140
4468697	AAI	Spiked Blank	1,4-Difluorobenzene	2016/04/22		102	%	60 - 140
			4-Bromofluorobenzene	2016/04/22		99	%	60 - 140
			D10-Ethylbenzene	2016/04/22		97	%	60 - 140
			D4-1,2-Dichloroethane	2016/04/22		100	%	60 - 140
			Benzene	2016/04/22		101	%	60 - 140
			Toluene	2016/04/22		105	%	60 - 140

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Ethylbenzene	2016/04/22		111	%	60 - 140
			o-Xylene	2016/04/22		112	%	60 - 140
			p+m-Xylene	2016/04/22		102	%	60 - 140
			F1 (C6-C10)	2016/04/22		94	%	80 - 120
4468697	AAI	Method Blank	1,4-Difluorobenzene	2016/04/22		101	%	60 - 140
			4-Bromofluorobenzene	2016/04/22		98	%	60 - 140
			D10-Ethylbenzene	2016/04/22		101	%	60 - 140
			D4-1,2-Dichloroethane	2016/04/22		98	%	60 - 140
			Benzene	2016/04/22	<0.020		ug/g	
			Toluene	2016/04/22	<0.020		ug/g	
			Ethylbenzene	2016/04/22	<0.020		ug/g	
			o-Xylene	2016/04/22	<0.020		ug/g	
			p+m-Xylene	2016/04/22	<0.040		ug/g	
			Total Xylenes	2016/04/22	<0.040		ug/g	
			F1 (C6-C10)	2016/04/22	<10		ug/g	
			F1 (C6-C10) - BTEX	2016/04/22	<10		ug/g	
4468697	AAI	RPD - Sample/Sample Dup	Benzene	2016/04/22	NC		%	50
			Toluene	2016/04/22	NC		%	50
			Ethylbenzene	2016/04/22	NC		%	50
			o-Xylene	2016/04/22	NC		%	50
			p+m-Xylene	2016/04/22	NC		%	50
			Total Xylenes	2016/04/22	NC		%	50
			F1 (C6-C10)	2016/04/22	NC		%	30
			F1 (C6-C10) - BTEX	2016/04/22	NC		%	30
4468834	ZZ	Matrix Spike	o-Terphenyl	2016/04/25		102	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/25		102	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2016/04/25		111	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2016/04/25		104	%	50 - 130
4468834	ZZ	Spiked Blank	o-Terphenyl	2016/04/25		106	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/25		104	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2016/04/25		110	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2016/04/25		105	%	80 - 120
4468834	ZZ	Method Blank	o-Terphenyl	2016/04/25		103	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/25	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2016/04/25	<50		ug/g	
			F4 (C34-C50 Hydrocarbons)	2016/04/25	<50		ug/g	
4468834	ZZ	RPD - Sample/Sample Dup	F2 (C10-C16 Hydrocarbons)	2016/04/25	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2016/04/25	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2016/04/25	NC		%	30
4468854	ADA	Matrix Spike	Leachable Arsenic (As)	2016/04/25		100	%	80 - 120
			Leachable Barium (Ba)	2016/04/25		NC	%	80 - 120
			Leachable Boron (B)	2016/04/25		NC	%	80 - 120
			Leachable Cadmium (Cd)	2016/04/25		103	%	80 - 120
			Leachable Chromium (Cr)	2016/04/25		98	%	80 - 120
			Leachable Lead (Pb)	2016/04/25		95	%	80 - 120
			Leachable Selenium (Se)	2016/04/25		101	%	80 - 120
			Leachable Silver (Ag)	2016/04/25		101	%	80 - 120
			Leachable Uranium (U)	2016/04/25		97	%	80 - 120
4468854	ADA	Leachate Blank	Leachable Arsenic (As)	2016/04/25	<0.2		mg/L	
			Leachable Barium (Ba)	2016/04/25	<0.2		mg/L	
			Leachable Boron (B)	2016/04/25	<0.1		mg/L	
			Leachable Cadmium (Cd)	2016/04/25	<0.05		mg/L	
			Leachable Chromium (Cr)	2016/04/25	<0.1		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Leachable Lead (Pb)	2016/04/25	<0.1		mg/L	
			Leachable Selenium (Se)	2016/04/25	<0.1		mg/L	
			Leachable Silver (Ag)	2016/04/25	<0.01		mg/L	
			Leachable Uranium (U)	2016/04/25	<0.01		mg/L	
4468854	ADA	Spiked Blank	Leachable Arsenic (As)	2016/04/25		100	%	80 - 120
			Leachable Barium (Ba)	2016/04/25		101	%	80 - 120
			Leachable Boron (B)	2016/04/25		95	%	80 - 120
			Leachable Cadmium (Cd)	2016/04/25		97	%	80 - 120
			Leachable Chromium (Cr)	2016/04/25		98	%	80 - 120
			Leachable Lead (Pb)	2016/04/25		97	%	80 - 120
			Leachable Selenium (Se)	2016/04/25		99	%	80 - 120
			Leachable Silver (Ag)	2016/04/25		100	%	80 - 120
			Leachable Uranium (U)	2016/04/25		99	%	80 - 120
4468854	ADA	RPD - Sample/Sample Dup	Leachable Arsenic (As)	2016/04/25	NC		%	35
			Leachable Barium (Ba)	2016/04/25	NC		%	35
			Leachable Boron (B)	2016/04/25	NC		%	35
			Leachable Cadmium (Cd)	2016/04/25	NC		%	35
			Leachable Chromium (Cr)	2016/04/25	NC		%	35
			Leachable Lead (Pb)	2016/04/25	NC		%	35
			Leachable Selenium (Se)	2016/04/25	NC		%	35
			Leachable Silver (Ag)	2016/04/25	NC		%	35
			Leachable Uranium (U)	2016/04/25	NC		%	35
4469053	NS3	QC Standard	Sieve - #200 (<0.075mm)	2016/04/25		89	%	88 - 91
			Sieve - #200 (>0.075mm)	2016/04/25		11	%	9 - 12
4469053	NS3	RPD - Sample/Sample Dup	Sieve - #200 (<0.075mm)	2016/04/25	2.0		%	20
			Sieve - #200 (>0.075mm)	2016/04/25	0.82		%	20
4469240	JET	Matrix Spike	Leachable D10-Anthracene	2016/04/23		101	%	50 - 130
			Leachable D14-Terphenyl (FS)	2016/04/23		89	%	50 - 130
			Leachable D8-Acenaphthylene	2016/04/23		96	%	50 - 130
			Leachable Benzo(b/j)fluoranthene	2016/04/23		99	%	50 - 130
			Leachable Naphthalene	2016/04/23		78	%	50 - 130
			Leachable Acenaphthylene	2016/04/23		92	%	50 - 130
			Leachable Acenaphthene	2016/04/23		85	%	50 - 130
			Leachable Fluorene	2016/04/23		93	%	50 - 130
			Leachable Phenanthrene	2016/04/23		94	%	50 - 130
			Leachable Anthracene	2016/04/23		99	%	50 - 130
			Leachable Fluoranthene	2016/04/23		99	%	50 - 130
			Leachable Pyrene	2016/04/23		98	%	50 - 130
			Leachable Benzo(a)anthracene	2016/04/23		100	%	50 - 130
			Leachable Chrysene	2016/04/23		98	%	50 - 130
			Leachable Benzo(k)fluoranthene	2016/04/23		83	%	50 - 130
			Leachable Benzo(a)pyrene	2016/04/23		95	%	50 - 130
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/23		105	%	50 - 130
			Leachable Dibenz(a,h)anthracene	2016/04/23		90	%	50 - 130
			Leachable Benzo(g,h,i)perylene	2016/04/23		95	%	50 - 130
			Leachable 1-Methylnaphthalene	2016/04/23		112	%	50 - 130
			Leachable 2-Methylnaphthalene	2016/04/23		101	%	50 - 130
4469240	JET	Spiked Blank	Leachable D10-Anthracene	2016/04/22		105	%	50 - 130
			Leachable D14-Terphenyl (FS)	2016/04/22		98	%	50 - 130
			Leachable D8-Acenaphthylene	2016/04/22		95	%	50 - 130
			Leachable Benzo(b/j)fluoranthene	2016/04/22		95	%	50 - 130
			Leachable Naphthalene	2016/04/22		81	%	50 - 130
			Leachable Acenaphthylene	2016/04/22		92	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Leachable Acenaphthene	2016/04/22		93	%	50 - 130
			Leachable Fluorene	2016/04/22		97	%	50 - 130
			Leachable Phenanthrene	2016/04/22		93	%	50 - 130
			Leachable Anthracene	2016/04/22		102	%	50 - 130
			Leachable Fluoranthene	2016/04/22		100	%	50 - 130
			Leachable Pyrene	2016/04/22		100	%	50 - 130
			Leachable Benzo(a)anthracene	2016/04/22		99	%	50 - 130
			Leachable Chrysene	2016/04/22		98	%	50 - 130
			Leachable Benzo(k)fluoranthene	2016/04/22		92	%	50 - 130
			Leachable Benzo(a)pyrene	2016/04/22		96	%	50 - 130
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/22		110	%	50 - 130
			Leachable Dibenz(a,h)anthracene	2016/04/22		90	%	50 - 130
			Leachable Benzo(g,h,i)perylene	2016/04/22		98	%	50 - 130
			Leachable 1-Methylnaphthalene	2016/04/22		93	%	50 - 130
			Leachable 2-Methylnaphthalene	2016/04/22		85	%	50 - 130
4469240	JET	Method Blank	Leachable D10-Anthracene	2016/04/22		106	%	50 - 130
			Leachable D14-Terphenyl (FS)	2016/04/22		101	%	50 - 130
			Leachable D8-Acenaphthylene	2016/04/22		91	%	50 - 130
			Leachable Benzo(b/j)fluoranthene	2016/04/22	<0.20		ug/L	
			Leachable Naphthalene	2016/04/22	<0.20		ug/L	
			Leachable Acenaphthylene	2016/04/22	<0.20		ug/L	
			Leachable Acenaphthene	2016/04/22	<0.20		ug/L	
			Leachable Fluorene	2016/04/22	<0.20		ug/L	
			Leachable Phenanthrene	2016/04/22	<0.20		ug/L	
			Leachable Anthracene	2016/04/22	<0.20		ug/L	
			Leachable Fluoranthene	2016/04/22	<0.20		ug/L	
			Leachable Pyrene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(a)anthracene	2016/04/22	<0.20		ug/L	
			Leachable Chrysene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(k)fluoranthene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(a)pyrene	2016/04/22	<0.10		ug/L	
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/22	<0.20		ug/L	
			Leachable Dibenz(a,h)anthracene	2016/04/22	<0.20		ug/L	
			Leachable Benzo(g,h,i)perylene	2016/04/22	<0.20		ug/L	
			Leachable 1-Methylnaphthalene	2016/04/22	<0.20		ug/L	
			Leachable 2-Methylnaphthalene	2016/04/22	<0.20		ug/L	
4469240	JET	RPD - Sample/Sample Dup	Leachable Benzo(b/j)fluoranthene	2016/04/23	NC		%	40
			Leachable Naphthalene	2016/04/23	2.7		%	40
			Leachable Acenaphthylene	2016/04/23	NC		%	40
			Leachable Acenaphthene	2016/04/23	3.3		%	40
			Leachable Fluorene	2016/04/23	0.16		%	40
			Leachable Phenanthrene	2016/04/23	NC		%	40
			Leachable Anthracene	2016/04/23	NC		%	40
			Leachable Fluoranthene	2016/04/23	NC		%	40
			Leachable Pyrene	2016/04/23	NC		%	40
			Leachable Benzo(a)anthracene	2016/04/23	NC		%	40
			Leachable Chrysene	2016/04/23	NC		%	40
			Leachable Benzo(k)fluoranthene	2016/04/23	NC		%	40
			Leachable Benzo(a)pyrene	2016/04/23	NC		%	40
			Leachable Indeno(1,2,3-cd)pyrene	2016/04/23	NC		%	40
			Leachable Dibenz(a,h)anthracene	2016/04/23	NC		%	40
			Leachable Benzo(g,h,i)perylene	2016/04/23	NC		%	40
			Leachable 1-Methylnaphthalene	2016/04/23	3.1		%	40

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Leachable 2-Methylnaphthalene	2016/04/23	2.6		%	40
4469971	JJE	Matrix Spike	o-Terphenyl	2016/04/23		104	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/23		94	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2016/04/23		NC	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2016/04/23		92	%	50 - 130
4469971	JJE	Spiked Blank	o-Terphenyl	2016/04/23		105	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/23		101	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2016/04/23		103	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2016/04/23		101	%	60 - 130
4469971	JJE	Method Blank	o-Terphenyl	2016/04/23		103	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2016/04/23	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2016/04/23	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2016/04/23	<200		ug/L	
4469971	JJE	RPD - Sample/Sample Dup	F2 (C10-C16 Hydrocarbons)	2016/04/24	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2016/04/24	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2016/04/24	NC		%	30
4469978	SVS	Matrix Spike	Leachable Aroclor 1260	2016/04/23		96	%	30 - 130
			Leachable Decachlorobiphenyl	2016/04/23		118	%	30 - 130
			Leachable Total PCB	2016/04/23		96	%	30 - 130
4469978	SVS	Spiked Blank	Leachable Aroclor 1260	2016/04/23		100	%	30 - 130
			Leachable Decachlorobiphenyl	2016/04/23		125	%	30 - 130
			Leachable Total PCB	2016/04/23		100	%	30 - 130
4469978	SVS	Method Blank	Leachable Aroclor 1016	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1221	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1242	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1248	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1254	2016/04/23	<3.0		ug/L	
			Leachable Aroclor 1260	2016/04/23	<3.0		ug/L	
			Leachable Decachlorobiphenyl	2016/04/23		120	%	30 - 130
			Leachable Total PCB	2016/04/23	<3.0		ug/L	
4469978	SVS	RPD - Sample/Sample Dup	Leachable Total PCB	2016/04/23	NC		%	40
4470308	SAU	Matrix Spike	Leachable Fluoride (F-)	2016/04/25		101	%	80 - 120
4470308	SAU	Leachate Blank	Leachable Fluoride (F-)	2016/04/25	<0.10		mg/L	
4470308	SAU	Spiked Blank	Leachable Fluoride (F-)	2016/04/25		99	%	80 - 120
4470308	SAU	Method Blank	Leachable Fluoride (F-)	2016/04/25	<0.10		mg/L	
4470308	SAU	RPD - Sample/Sample Dup	Leachable Fluoride (F-)	2016/04/25	NC		%	25
4470316	XQI	Matrix Spike	Leachable Free Cyanide	2016/04/25		96	%	80 - 120
4470316	XQI	Leachate Blank	Leachable Free Cyanide	2016/04/25	<0.010		mg/L	
4470316	XQI	Spiked Blank	Leachable Free Cyanide	2016/04/25		99	%	80 - 120
4470316	XQI	Method Blank	Leachable Free Cyanide	2016/04/25	<0.0020		mg/L	
4470316	XQI	RPD - Sample/Sample Dup	Leachable Free Cyanide	2016/04/25	NC		%	20
4470317	C_N	Matrix Spike	Leachable Nitrite (N)	2016/04/25		100	%	80 - 120
			Leachable Nitrate (N)	2016/04/25		100	%	80 - 120
			Leachable Nitrate + Nitrite (N)	2016/04/25		100	%	80 - 120
4470317	C_N	Leachate Blank	Leachable Nitrite (N)	2016/04/25	<0.10		mg/L	
			Leachable Nitrate (N)	2016/04/25	<1.0		mg/L	
			Leachable Nitrate + Nitrite (N)	2016/04/25	<1.0		mg/L	
4470317	C_N	Spiked Blank	Leachable Nitrite (N)	2016/04/25		104	%	80 - 120
			Leachable Nitrate (N)	2016/04/25		101	%	80 - 120
			Leachable Nitrate + Nitrite (N)	2016/04/25		102	%	80 - 120
4470317	C_N	Method Blank	Leachable Nitrite (N)	2016/04/25	<0.10		mg/L	
			Leachable Nitrate (N)	2016/04/25	<1.0		mg/L	
			Leachable Nitrate + Nitrite (N)	2016/04/25	<1.0		mg/L	

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4470317	C_N	RPD - Sample/Sample Dup	Leachable Nitrite (N)	2016/04/25	NC		%	25
			Leachable Nitrate (N)	2016/04/25	NC		%	25
			Leachable Nitrate + Nitrite (N)	2016/04/25	NC		%	25
4470516	AAI	Matrix Spike	1,4-Difluorobenzene	2016/04/24		100	%	70 - 130
			4-Bromofluorobenzene	2016/04/24		95	%	70 - 130
			D10-Ethylbenzene	2016/04/24		106	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/24		97	%	70 - 130
			F1 (C6-C10)	2016/04/24		85	%	70 - 130
4470516	AAI	Spiked Blank	1,4-Difluorobenzene	2016/04/24		101	%	70 - 130
			4-Bromofluorobenzene	2016/04/24		97	%	70 - 130
			D10-Ethylbenzene	2016/04/24		95	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/24		98	%	70 - 130
			F1 (C6-C10)	2016/04/24		93	%	70 - 130
4470516	AAI	Method Blank	1,4-Difluorobenzene	2016/04/24		101	%	70 - 130
			4-Bromofluorobenzene	2016/04/24		95	%	70 - 130
			D10-Ethylbenzene	2016/04/24		103	%	70 - 130
			D4-1,2-Dichloroethane	2016/04/24		98	%	70 - 130
			F1 (C6-C10)	2016/04/24	<25		ug/L	
			F1 (C6-C10) - BTEX	2016/04/24	<25		ug/L	
4470516	AAI	RPD - Sample/Sample Dup	F1 (C6-C10)	2016/04/24	NC		%	30
			F1 (C6-C10) - BTEX	2016/04/24	NC		%	30

N/A = Not Applicable

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

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

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Maxxam Job #: B677217
Report Date: 2016/04/25

Pinchin Ltd
Client Project #: PII ESA
Site Location: CARLING AVE

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

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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IMMEDIATE TEST

Maxxam Analytics — 19-Apr-16 11:15 — Parnian Baber — B677217 — MAF ENV-107

INVOICE TO:	REPORT TO:	PROJECT INFORMATION
Company Name: #982 Pinchin Ltd	Company Name:	Quotation #: A70927
Attention: Ryan Laronde / Matt Ryan	Attention: Ryan Laronde	P.O. #:
Address: 555 Legget Dr Suite 1001 (Tower A), Kanata ON K2K 2X3	Address:	Project: PII ESA
Tel: (613) 592-3387 Fax: (613 592-5697	Tel: Fax:	Project Name: Carling Ave
Email: rlaronde@pinchin.com	rlaronde@pinchin.com	Site #: 111021 002
		Sampled By:

Bottle Order #: 544803 — Project Manager: Parnian Baber — C#544803-04-01

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM 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 4

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)? YES

Turnaround Time (TAT) Required

Please provide advance notice for rush projects

Regular (Standard) TAT: ☒

Job Specific Rush TAT (if applies to entire submission) — Date Required: Apr 21 — Time Required: — Rush Confirmation Number: — Analyst to fill in

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	# of Bottles	Comments
1		MW-1 SS2	17 April 16		S	6	
2		MW-1 GS				1	
3		MW-2 SS2			S	5	
4		MW-3 SS2				6	
5		TCLP			S	6	
6							
7		MW-1	April 18			4	
8		MW-2				4	
9							
10							CN +16

* RELINQUISHED BY (Signature/Print)	Date (YY/MM/DD)	Time	RECEIVED BY (Signature/Print)	Date (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sent	Temperature °C on Receipt	Custody Seal	Yes	No
Ryan Rel	April 18/16	12:00		2016/04/18	15 h			5,1,3	Present		
				2016/04/19	11:15				Intact		

* IMPORTANT: FAILURE TO COMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS — SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o a Maxxam Analytics

9/8/16 4:15:16

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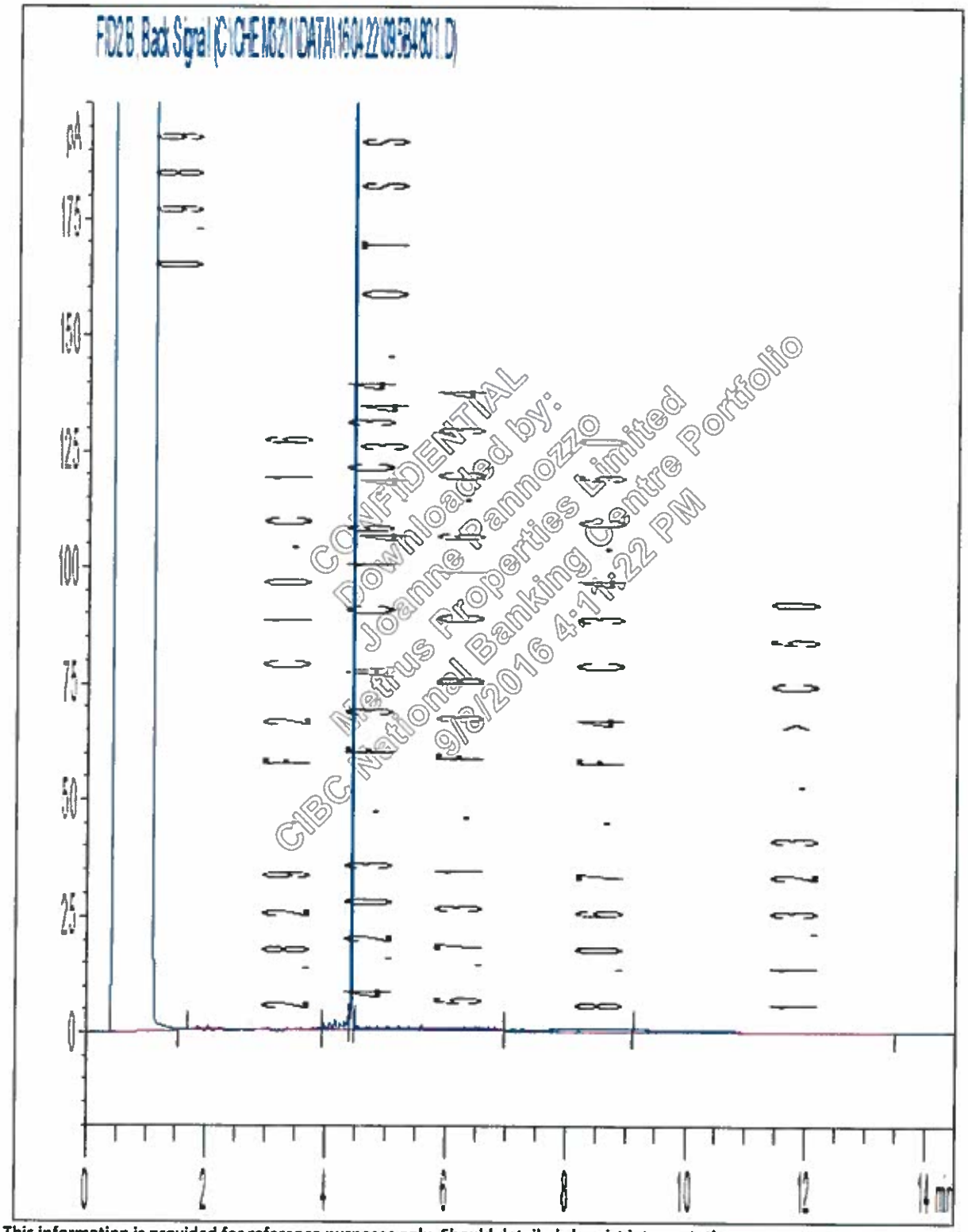
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE299

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-1 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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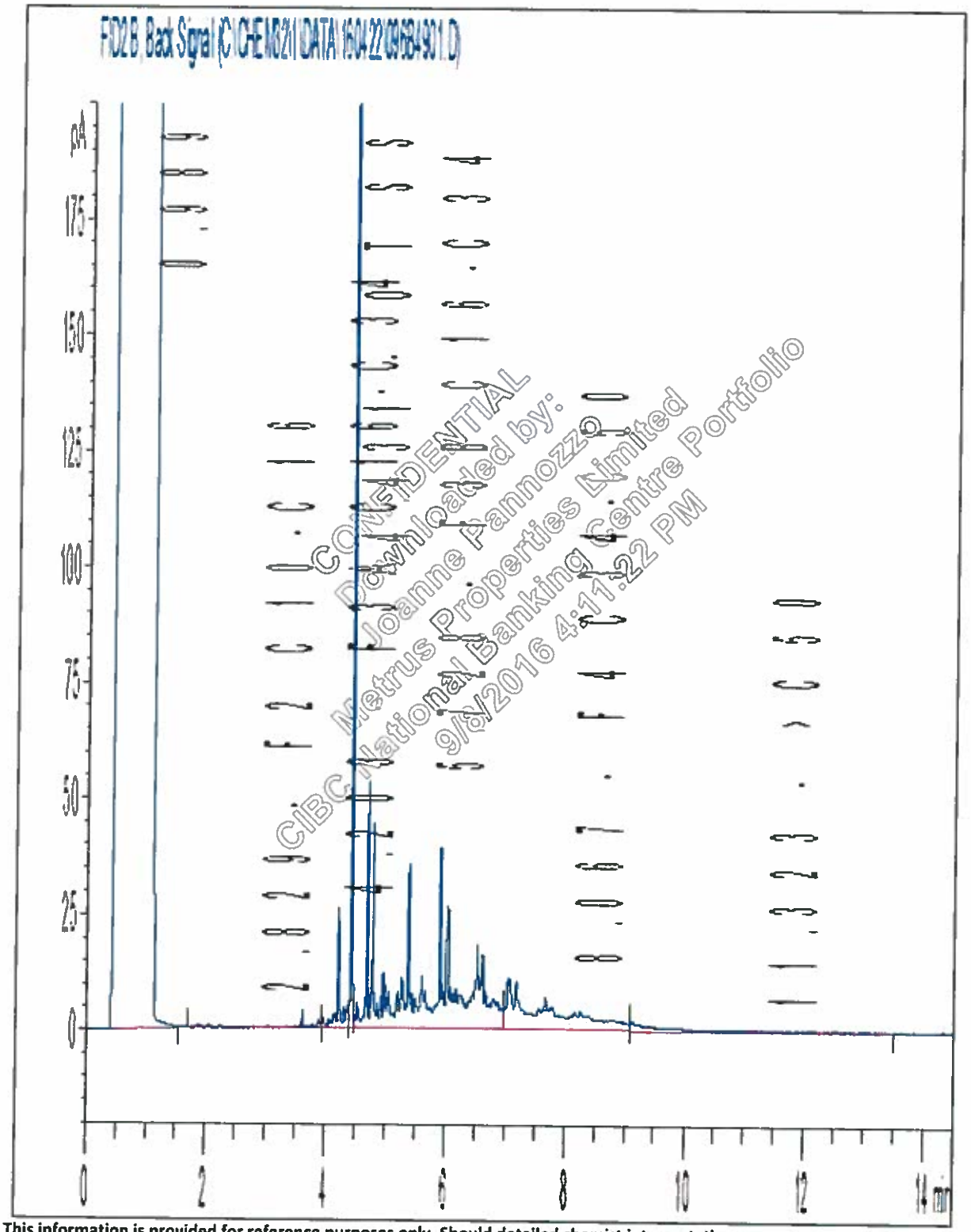
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE301

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-2 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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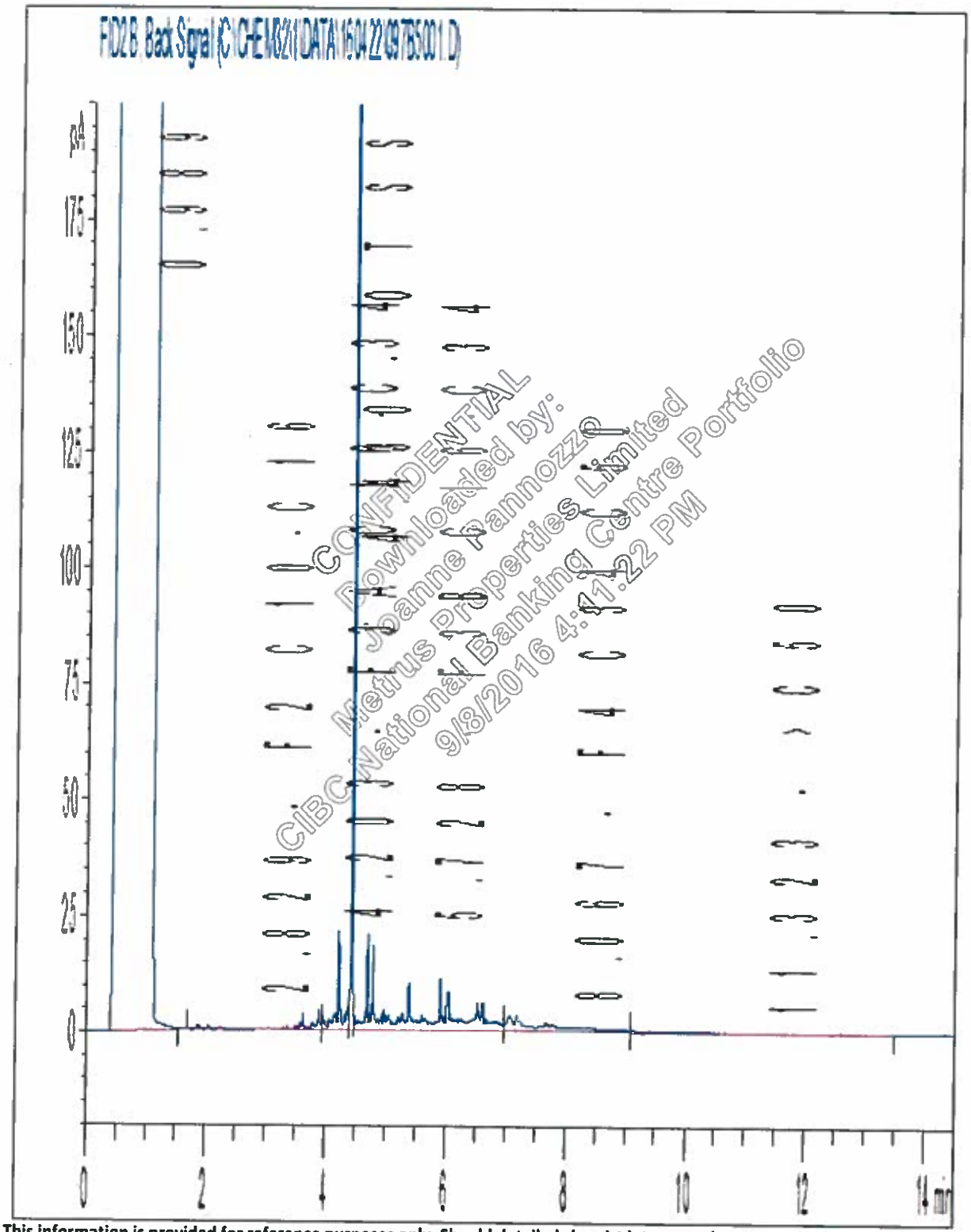
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE302

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-3 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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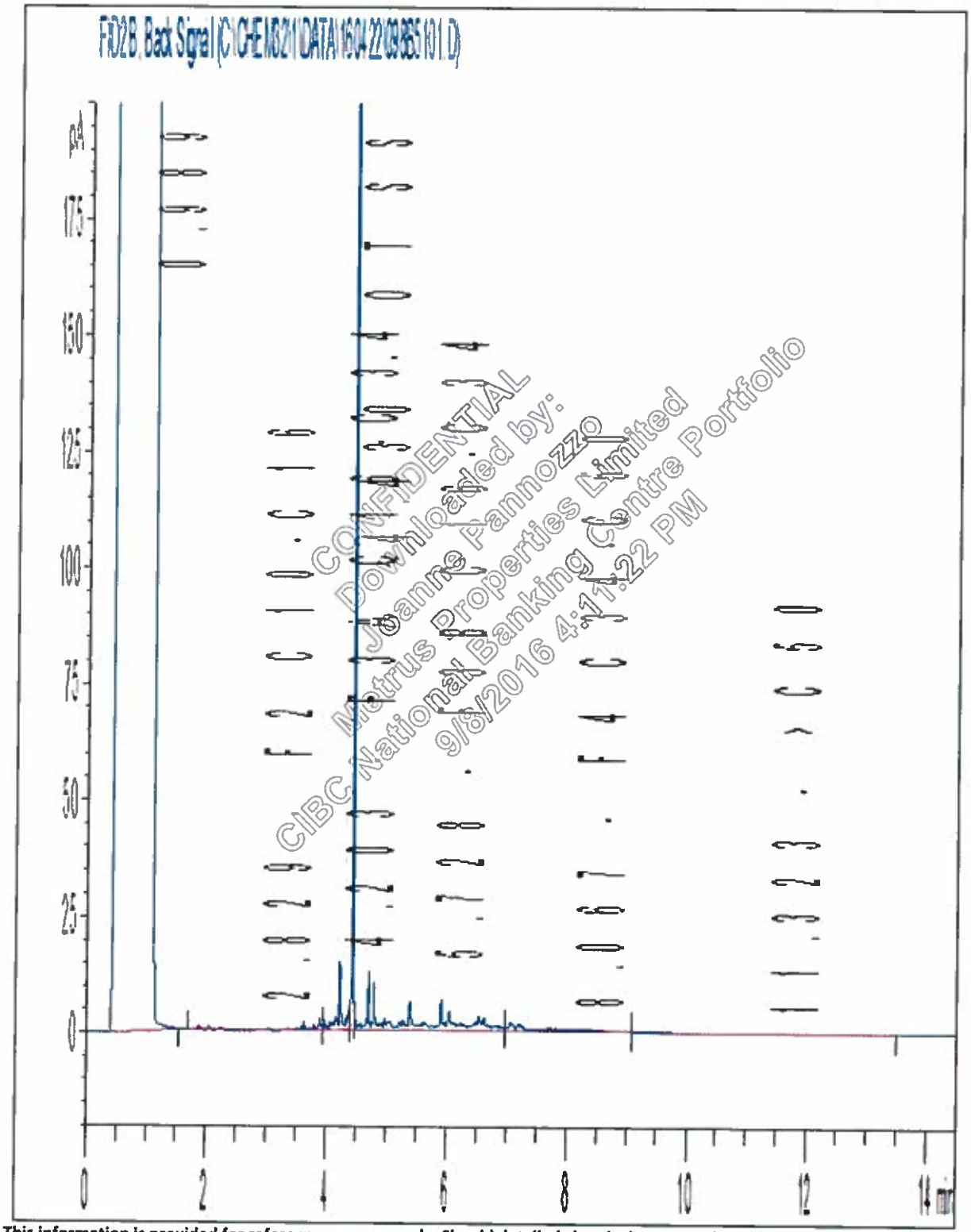
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE303

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: TCLP

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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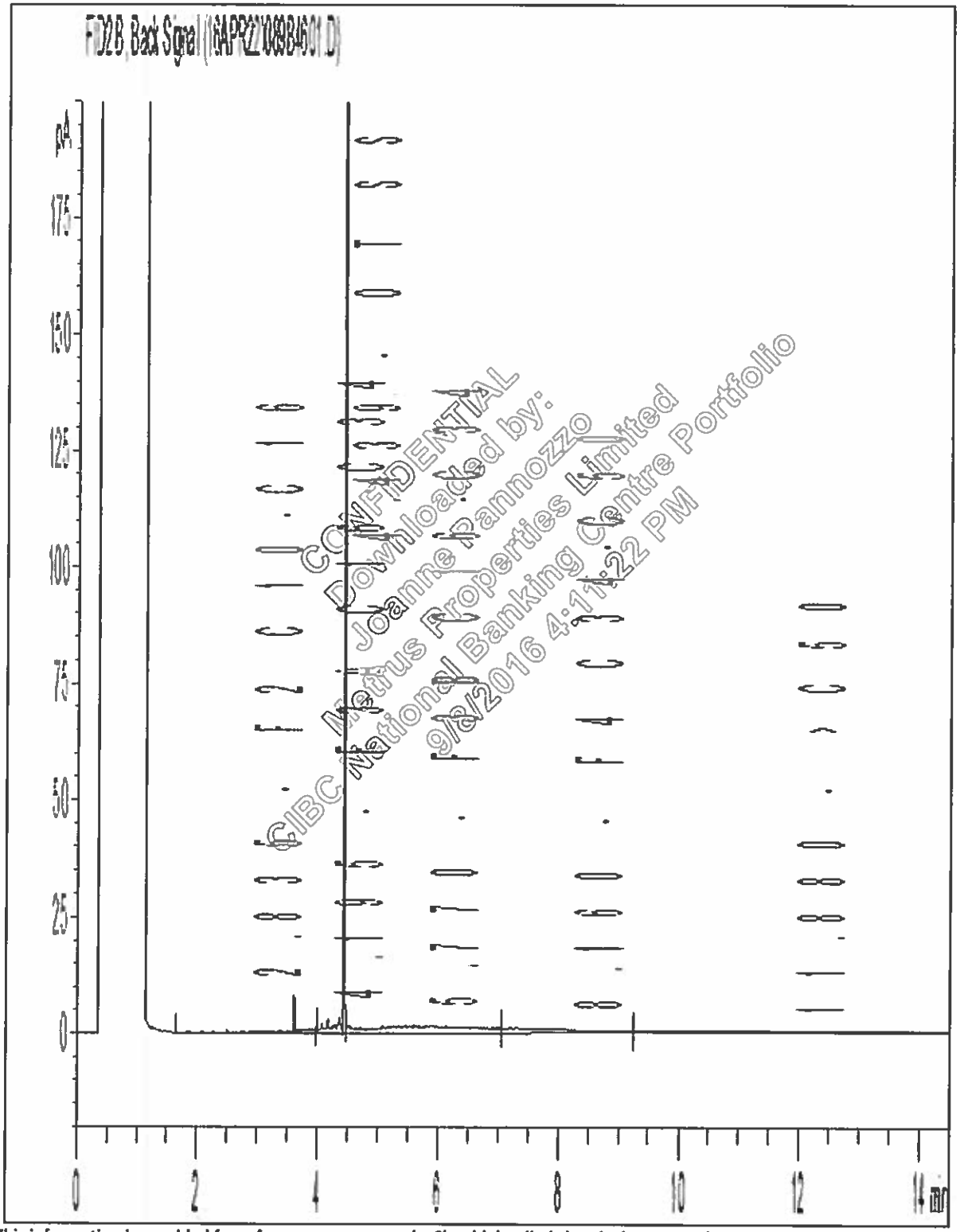
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE304

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-1

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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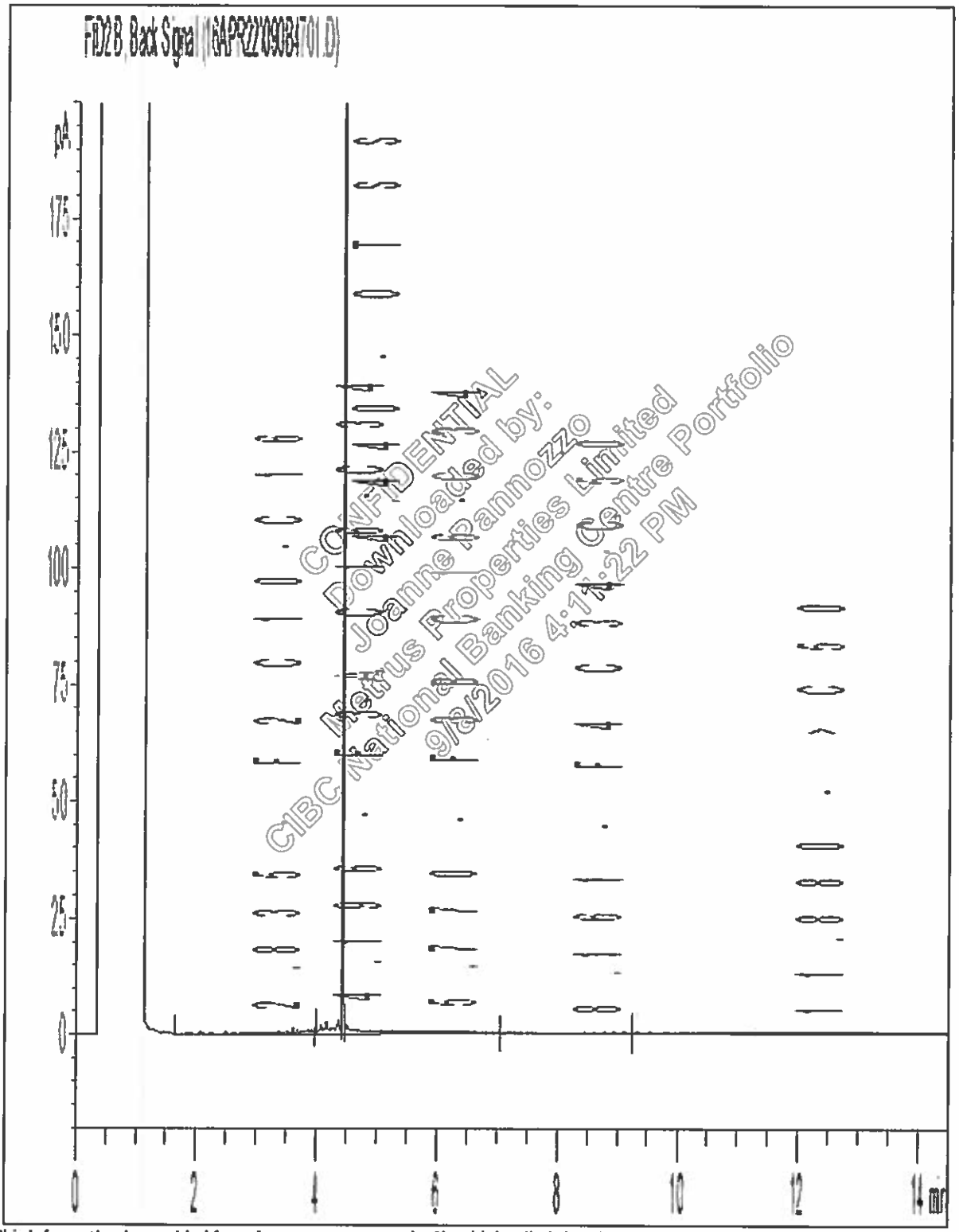
Maxxam Job #: B677217
Report Date: 2016/04/25
Maxxam Sample: CFE305

Pinchin Ltd
Client Project #: PII ESA
Project name: CARLING AVE
Client ID: MW-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 33066
Project: PE4247
Custody: 131075

Report Date: 27-Apr-2021
Order Date: 21-Apr-2021

Order #: 2117385

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

Paracel ID	Client ID
2117385-01	BH1-AU2/SS3
2117385-02	BH4-SS3
2117385-03	DUP

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Report Date: 27-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 21-Apr-2021

Client PO: 33066

Project Description: PE4247

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	22-Apr-21	22-Apr-21
Conductivity	MOE E3138 - probe @25 °C, water ext	27-Apr-21	27-Apr-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	27-Apr-21	27-Apr-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	26-Apr-21	26-Apr-21
PHC F1	CWS Tier 1 - P&T GC-FID	23-Apr-21	24-Apr-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	22-Apr-21	24-Apr-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	26-Apr-21	26-Apr-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	25-Apr-21	26-Apr-21
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	23-Apr-21	24-Apr-21
SAR	Calculated	27-Apr-21	27-Apr-21
Solids, %	Gravimetric, calculation	23-Apr-21	24-Apr-21

Certificate of Analysis

Report Date: 27-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 21-Apr-2021

Client PO: 33066

Project Description: PE4247

	Client ID:	BH1-AU2/SS3	BH4-SS3	DUP	-
	Sample Date:	20-Apr-21 09:00	20-Apr-21 09:00	20-Apr-21 09:00	-
	Sample ID:	2117385-01	2117385-02	2117385-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	72.3	80.9	76.4	-
General Inorganics					
SAR	0.01 N/A	3.55	-	-	-
Conductivity	5 uS/cm	1240	-	-	-
pH	0.05 pH Units	7.64	-	-	-
Metals					
Antimony	1.0 ug/g dry	1.0	<1.0	-	-
Arsenic	1.0 ug/g dry	14.8	6.5	-	-
Barium	1.0 ug/g dry	287	149	-	-
Beryllium	0.5 ug/g dry	0.6	0.8	-	-
Boron	5.0 ug/g dry	14.2	15.4	-	-
Cadmium	0.5 ug/g dry	0.6	<0.5	-	-
Chromium	5.0 ug/g dry	23.6	27.7	-	-
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	-	-
Cobalt	1.0 ug/g dry	6.8	8.3	-	-
Copper	5.0 ug/g dry	50.8	18.4	-	-
Lead	1.0 ug/g dry	299	33.3	-	-
Mercury	0.1 ug/g dry	0.3	<0.1	-	-
Molybdenum	1.0 ug/g dry	2.6	1.0	-	-
Nickel	5.0 ug/g dry	16.3	20.2	-	-
Selenium	1.0 ug/g dry	1.6	<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	24.7	34.2	-	-
Zinc	20.0 ug/g dry	248	100	-	-
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	-

Certificate of Analysis

Report Date: 27-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 21-Apr-2021

Client PO: 33066

Project Description: PE4247

	Client ID:	BH1-AU2/SS3	BH4-SS3	DUP	-
	Sample Date:	20-Apr-21 09:00	20-Apr-21 09:00	20-Apr-21 09:00	-
	Sample ID:	2117385-01	2117385-02	2117385-03	-
	MDL/Units	Soil	Soil	Soil	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	119%	108%	112%	-
Dibromofluoromethane	Surrogate	97.9%	90.5%	97.7%	-

Certificate of Analysis

Report Date: 27-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 21-Apr-2021

Client PO: 33066

Project Description: PE4247

	Client ID:	BH1-AU2/SS3	BH4-SS3	DUP	-
	Sample Date:	20-Apr-21 09:00	20-Apr-21 09:00	20-Apr-21 09:00	-
	Sample ID:	2117385-01	2117385-02	2117385-03	-
	MDL/Units	Soil	Soil	Soil	-
Toluene-d8	Surrogate	107%	113%	130%	-
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	-	13	-	-
F4 PHCs (C34-C50)	6 ug/g dry	-	15	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	0.07	<0.02	-	-
Acenaphthylene	0.02 ug/g dry	0.38	0.04	-	-
Anthracene	0.02 ug/g dry	0.24	0.02	-	-
Benzo [a] anthracene	0.02 ug/g dry	0.90	0.04	-	-
Benzo [a] pyrene	0.02 ug/g dry	0.96	0.06	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	1.15	0.07	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.67	0.06	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.57	0.04	-	-
Chrysene	0.02 ug/g dry	1.01	0.07	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.19	<0.02	-	-
Fluoranthene	0.02 ug/g dry	1.36	0.08	-	-
Fluorene	0.02 ug/g dry	0.09	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.65	0.06	-	-
1-Methylnaphthalene	0.02 ug/g dry	0.31	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	0.43	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	0.74	<0.04	-	-
Naphthalene	0.01 ug/g dry	0.45	<0.01	-	-
Phenanthrene	0.02 ug/g dry	0.80	0.02	-	-
Pyrene	0.02 ug/g dry	1.40	0.08	-	-
2-Fluorobiphenyl	Surrogate	74.7%	64.6%	-	-
Terphenyl-d14	Surrogate	100%	107%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.04*		*ug/g*		*77.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.31*		*ug/g*		*98.1*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*3.52*		*ug/g*		*110*	*50-140*			
Surrogate: Dibromofluoromethane	*3.05*		*ug/g*		*95.4*	*50-140*			
Surrogate: Toluene-d8	*4.32*		*ug/g*		*135*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.80	0.01	N/A	0.82			2.5	30	
Conductivity	286	5	uS/cm	294			2.8	5	
pH	7.43	0.05	pH Units	7.30			1.8	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g dry	1.0			NC	30	
Arsenic	1.7	1.0	ug/g dry	1.8			2.3	30	
Barium	13.6	1.0	ug/g dry	15.6			13.8	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 (VI)	0.8	0.2	ug/g dry	0.9			12.2	35	
Chromium	8.3	5.0	ug/g dry	8.6			2.8	30	
Cobalt	2.7	1.0	ug/g dry	2.8			4.2	30	
Copper	6.4	5.0	ug/g dry	7.1			9.9	30	
Lead	3.1	1.0	ug/g dry	3.7			17.7	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	5.2	5.0	ug/g dry	5.5			5.4	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	14.7	10.0	ug/g dry	15.0			1.7	30	
Zinc	63.1	20.0	ug/g dry	69.6			9.8	30	
Physical Characteristics									
% Solids	82.7	0.1	% by Wt.	85.5			3.4	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Chrysene	ND	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Fluorene	ND	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	0.301	0.02	ug/g dry	0.330			9.2	40	
2-Methylnaphthalene	0.660	0.02	ug/g dry	0.717			8.3	40	
Naphthalene	0.788	0.01	ug/g dry	0.890			12.2	40	
Phenanthrene	0.021	0.02	ug/g dry	0.023			8.8	40	
Pyrene	ND	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.08*		*ug/g dry*		*70.7*	*50-140*			
Surrogate: Terphenyl-d14	*1.11*		*ug/g dry*		*73.1*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*3.62*		*ug/g dry*		*108*	*50-140*			
Surrogate: Dibromofluoromethane	*3.35*		*ug/g dry*		*99.6*	*50-140*			
Surrogate: Toluene-d8	*3.52*		*ug/g dry*		*105*	*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)	194	7	ug/g	ND	97.2	80-120			
F2 PHCs (C10-C16)	93	4	ug/g	ND	100	60-140			
F3 PHCs (C16-C34)	250	8	ug/g	ND	110	60-140			
F4 PHCs (C34-C50)	173	6	ug/g	ND	120	60-140			
Metals									
Antimony	48.9	1.0	ug/g	ND	96.9	70-130			
Arsenic	51.1	1.0	ug/g	ND	101	70-130			
Barium	55.7	1.0	ug/g	6.3	99.0	70-130			
Beryllium	51.9	0.5	ug/g	ND	104	70-130			
Boron	48.9	5.0	ug/g	ND	95.6	70-130			
Cadmium	49.1	0.5	ug/g	ND	98.1	70-130			
Chromium (VI)	6.1	0.2	ug/g	0.9	72.5	70-130			
Chromium	54.4	5.0	ug/g	ND	102	70-130			
Cobalt	51.2	1.0	ug/g	1.1	100	70-130			
Copper	50.7	5.0	ug/g	ND	95.8	70-130			
Lead	48.4	1.0	ug/g	1.5	93.8	70-130			
Mercury	1.60	0.1	ug/g	ND	107	70-130			
Molybdenum	49.3	1.0	ug/g	ND	98.0	70-130			
Nickel	50.6	5.0	ug/g	ND	96.9	70-130			
Selenium	49.4	1.0	ug/g	ND	98.4	70-130			
Silver	48.1	0.3	ug/g	ND	96.2	70-130			
Thallium	48.7	1.0	ug/g	ND	97.4	70-130			
Uranium	48.9	1.0	ug/g	ND	97.5	70-130			
Vanadium	56.9	10.0	ug/g	ND	102	70-130			
Zinc	71.8	20.0	ug/g	27.8	88.0	70-130			
Semi-Volatiles									
Acenaphthene	0.145	0.02	ug/g	ND	76.0	50-140			
Acenaphthylene	0.159	0.02	ug/g	ND	83.2	50-140			
Anthracene	0.135	0.02	ug/g	ND	70.9	50-140			
Benzo [a] anthracene	0.119	0.02	ug/g	ND	62.5	50-140			
Benzo [a] pyrene	0.138	0.02	ug/g	ND	72.3	50-140			
Benzo [b] fluoranthene	0.161	0.02	ug/g	ND	84.3	50-140			
Benzo [g,h,i] perylene	0.133	0.02	ug/g	ND	70.0	50-140			
Benzo [k] fluoranthene	0.158	0.02	ug/g	ND	82.9	50-140			
Chrysene	0.153	0.02	ug/g	ND	80.0	50-140			
Dibenzo [a,h] anthracene	0.122	0.02	ug/g	ND	63.8	50-140			
Fluoranthene	0.152	0.02	ug/g	ND	79.9	50-140			
Fluorene	0.166	0.02	ug/g	ND	87.1	50-140			
Indeno [1,2,3-cd] pyrene	0.128	0.02	ug/g	ND	67.1	50-140			
1-Methylnaphthalene	0.601	0.02	ug/g	0.330	142	50-140			QM-06
2-Methylnaphthalene	1.14	0.02	ug/g	0.717	222	50-140			QM-06
Naphthalene	1.23	0.01	ug/g	0.890	176	50-140			QM-06
Phenanthrene	0.167	0.02	ug/g	0.023	75.6	50-140			
Pyrene	0.148	0.02	ug/g	ND	77.6	50-140			
Surrogate: 2-Fluorobiphenyl	*0.969*		*ug/g*		*63.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.41*		*ug/g*		*92.4*	*50-140*			
Volatiles									
Acetone	11.1	0.50	ug/g	ND	111	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	3.59	0.02	ug/g	ND	89.8	60-130			
Bromodichloromethane	3.73	0.05	ug/g	ND	93.3	60-130			
Bromoform	3.87	0.05	ug/g	ND	96.8	60-130			
Bromomethane	3.95	0.05	ug/g	ND	98.8	50-140			
Carbon Tetrachloride	3.59	0.05	ug/g	ND	89.7	60-130			
Chlorobenzene	3.58	0.05	ug/g	ND	89.5	60-130			
Chloroform	3.74	0.05	ug/g	ND	93.5	60-130			
Dibromochloromethane	3.78	0.05	ug/g	ND	94.5	60-130			
Dichlorodifluoromethane	4.47	0.05	ug/g	ND	112	50-140			
1,2-Dichlorobenzene	3.55	0.05	ug/g	ND	88.7	60-130			
1,3-Dichlorobenzene	3.47	0.05	ug/g	ND	86.9	60-130			
1,4-Dichlorobenzene	3.70	0.05	ug/g	ND	92.5	60-130			
1,1-Dichloroethane	3.59	0.05	ug/g	ND	89.7	60-130			
1,2-Dichloroethane	3.72	0.05	ug/g	ND	92.9	60-130			
1,1-Dichloroethylene	3.47	0.05	ug/g	ND	86.7	60-130			
cis-1,2-Dichloroethylene	3.36	0.05	ug/g	ND	84.0	60-130			
trans-1,2-Dichloroethylene	3.59	0.05	ug/g	ND	89.7	60-130			
1,2-Dichloropropane	3.67	0.05	ug/g	ND	91.7	60-130			
cis-1,3-Dichloropropylene	3.50	0.05	ug/g	ND	87.6	60-130			
trans-1,3-Dichloropropylene	3.48	0.05	ug/g	ND	86.9	60-130			
Ethylbenzene	3.58	0.05	ug/g	ND	89.5	60-130			
Ethylene dibromide (dibromoethane, 1,2-	3.75	0.05	ug/g	ND	93.8	60-130			
Hexane	3.92	0.05	ug/g	ND	97.9	60-130			
Methyl Ethyl Ketone (2-Butanone)	9.13	0.50	ug/g	ND	91.3	50-140			
Methyl Isobutyl Ketone	9.26	0.50	ug/g	ND	92.6	50-140			
Methyl tert-butyl ether	9.33	0.05	ug/g	ND	93.3	50-140			
Methylene Chloride	3.46	0.05	ug/g	ND	86.5	60-130			
Styrene	3.29	0.05	ug/g	ND	82.3	60-130			
1,1,1,2-Tetrachloroethane	3.93	0.05	ug/g	ND	98.2	60-130			
1,1,2,2-Tetrachloroethane	3.35	0.05	ug/g	ND	83.8	60-130			
Tetrachloroethylene	3.78	0.05	ug/g	ND	94.6	60-130			
Toluene	3.88	0.05	ug/g	ND	96.9	60-130			
1,1,1-Trichloroethane	3.64	0.05	ug/g	ND	90.9	60-130			
1,1,2-Trichloroethane	3.66	0.05	ug/g	ND	91.4	60-130			
Trichloroethylene	3.63	0.05	ug/g	ND	90.8	60-130			
Trichlorofluoromethane	3.74	0.05	ug/g	ND	93.6	50-140			
Vinyl chloride	3.73	0.02	ug/g	ND	93.2	50-140			
m,p-Xylenes	7.20	0.05	ug/g	ND	90.0	60-130			
o-Xylene	3.77	0.05	ug/g	ND	94.3	60-130			
Surrogate: 4-Bromofluorobenzene	*3.04*		*ug/g*		*95.0*	*50-140*			
Surrogate: Dibromofluoromethane	*3.19*		*ug/g*		*99.8*	*50-140*			
Surrogate: Toluene-d8	*3.13*		*ug/g*		*97.8*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - Moisture taken from sample BH1-AU2/SS3.

Applies to samples: DUP

QC Qualifiers :

QM-06 : Due to noted non-homogeneity of the QC sample matrix, the spike recoveries were out side the accepted range. Batch data accepted based on other 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.

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: 2117385

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2117385	№ 131075

Client Name: PATERSON GROUP
Contact Name: MARK D'ARCY
Address: 154 COLONNADE Rd. S. OTTAWA, ONT.
Telephone: (613) 226-7381

Project Ref: ~~PE~~ PE4247
Quote #:
PO #: 33066
E-mail: MDARCY@PATERSONGROUP.CA

Page __ of __

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)

	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)	pH	EC/SAR				
1	BH1-AU2/SS3	S	\	2	APR 20/21	\		✓	✓	✓	✓	✓		✓	✓				
2	BH4-SS3	S	\	2	↓	\	✓	✓	✓	✓	✓	✓							
3	DUP	S	\	1		\		✓											
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign):	Received By Driver/Depot: A. TESSIER	Received at Lab: Shreeparna Bhaumik	Verified By:
Relinquished By (Print):	Date/Time: 21/04/21 21:40	Date/Time: APR 21, 2021 02:52	Date/Time: April 21, 2021 15:34
Date/Time:	Temperature: °C	Temperature: 14.9°C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 33053
Project: PE4247
Custody: 131437

Report Date: 28-Apr-2021
Order Date: 23-Apr-2021

Order #: 2117635

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

Paracel ID	Client ID
2117635-02	BH3-21-AU1
2117635-03	BH3-21-SS2

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Report Date: 28-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 23-Apr-2021

Client PO: 33053

Project Description: PE4247

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	23-Apr-21	26-Apr-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	28-Apr-21	28-Apr-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	27-Apr-21	27-Apr-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	27-Apr-21	27-Apr-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	24-Apr-21	28-Apr-21
Solids, %	Gravimetric, calculation	24-Apr-21	24-Apr-21

Certificate of Analysis

Report Date: 28-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 23-Apr-2021

Client PO: 33053

Project Description: PE4247

	Client ID:	BH3-21-AU1	BH3-21-SS2	-	-
	Sample Date:	21-Apr-21 09:00	21-Apr-21 09:00	-	-
	Sample ID:	2117635-02	2117635-03	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	92.6	86.4	-	-
General Inorganics					
pH	0.05 pH Units	8.61	-	-	-
Metals					
Antimony	1.0 ug/g dry	2.7	1.3	-	-
Arsenic	1.0 ug/g dry	1.5	1.4	-	-
Barium	1.0 ug/g dry	18.0	31.7	-	-
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	7.0	8.2	-	-
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	-	-
Cobalt	1.0 ug/g dry	3.3	3.4	-	-
Copper	5.0 ug/g dry	9.2	8.9	-	-
Lead	1.0 ug/g dry	38.3	16.5	-	-
Mercury	0.1 ug/g dry	<0.1	<0.1	-	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	-	-
Nickel	5.0 ug/g dry	<5.0	5.9	-	-
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	17.9	14.5	-	-
Zinc	20.0 ug/g dry	29.8	36.5	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	-	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	-	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	-	-

Certificate of Analysis

Report Date: 28-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 23-Apr-2021

Client PO: 33053

Project Description: PE4247

	Client ID:	BH3-21-AU1	BH3-21-SS2	-	-
	Sample Date:	21-Apr-21 09:00	21-Apr-21 09:00	-	-
	Sample ID:	2117635-02	2117635-03	-	-
	MDL/Units	Soil	Soil	-	-
Fluoranthene	0.02 ug/g dry	0.03	0.04	-	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	-	-
Pyrene	0.02 ug/g dry	0.03	0.04	-	-
2-Fluorobiphenyl	Surrogate	79.2%	78.9%	-	-
Terphenyl-d14	Surrogate	120%	130%	-	-

Certificate of Analysis

Report Date: 28-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 23-Apr-2021

Client PO: 33053

Project Description: PE4247

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 (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.39*		*ug/g*		*104*	*50-140*			
Surrogate: Terphenyl-d14	*1.39*		*ug/g*		*104*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.38	0.05	pH Units	7.39			0.1	2.3	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	2.2	1.0	ug/g dry	2.3			1.8	30	
Barium	182	1.0	ug/g dry	185			1.9	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron	15.8	5.0	ug/g dry	16.8			5.7	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	0.3	0.2	ug/g dry	0.5			NC	35	
Chromium	16.6	5.0	ug/g dry	17.2			3.9	30	
Cobalt	4.7	1.0	ug/g dry	4.7			0.6	30	
Copper	7.8	5.0	ug/g dry	8.3			6.2	30	
Lead	6.9	1.0	ug/g dry	7.0			1.3	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	1.1	1.0	ug/g dry	ND			NC	30	
Nickel	11.3	5.0	ug/g dry	11.7			3.2	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	15.5	10.0	ug/g dry	15.6			0.9	30	
Zinc	20.4	20.0	ug/g dry	20.7			1.8	30	
Physical Characteristics									
% Solids	76.0	0.1	% by Wt.	75.0			1.3	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Chrysene	ND	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Fluorene	ND	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
Naphthalene	ND	0.01	ug/g dry	ND			NC	40	
Phenanthrene	ND	0.02	ug/g dry	ND			NC	40	
Pyrene	ND	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.48*		*ug/g dry*		*83.3*	*50-140*			
Surrogate: Terphenyl-d14	*1.63*		*ug/g dry*		*91.6*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	42.9	1.0	ug/g	ND	85.6	70-130			
Arsenic	50.3	1.0	ug/g	ND	98.9	70-130			
Barium	115	1.0	ug/g	74.1	81.6	70-130			
Beryllium	45.7	0.5	ug/g	ND	91.0	70-130			
Boron	48.7	5.0	ug/g	6.7	83.9	70-130			
Cadmium	44.0	0.5	ug/g	ND	88.0	70-130			
Chromium (VI)	0.2	0.2	ug/g	ND	69.0	70-130			QM-05
Chromium	57.8	5.0	ug/g	6.9	102	70-130			
Cobalt	52.2	1.0	ug/g	1.9	101	70-130			
Copper	49.0	5.0	ug/g	ND	91.4	70-130			
Lead	43.7	1.0	ug/g	2.8	81.7	70-130			
Mercury	1.66	0.1	ug/g	ND	111	70-130			
Molybdenum	48.3	1.0	ug/g	ND	95.8	70-130			
Nickel	51.6	5.0	ug/g	ND	93.9	70-130			
Selenium	43.9	1.0	ug/g	ND	87.5	70-130			
Silver	42.9	0.3	ug/g	ND	85.8	70-130			
Thallium	42.3	1.0	ug/g	ND	84.6	70-130			
Uranium	43.5	1.0	ug/g	ND	86.9	70-130			
Vanadium	59.1	10.0	ug/g	ND	106	70-130			
Zinc	51.3	20.0	ug/g	ND	86.0	70-130			
Semi-Volatiles									
Acenaphthene	0.179	0.02	ug/g	ND	80.8	50-140			
Acenaphthylene	0.157	0.02	ug/g	ND	70.7	50-140			
Anthracene	0.173	0.02	ug/g	ND	77.8	50-140			
Benzo [a] anthracene	0.166	0.02	ug/g	ND	74.6	50-140			
Benzo [a] pyrene	0.162	0.02	ug/g	ND	72.8	50-140			
Benzo [b] fluoranthene	0.184	0.02	ug/g	ND	82.7	50-140			
Benzo [g,h,i] perylene	0.162	0.02	ug/g	ND	72.9	50-140			
Benzo [k] fluoranthene	0.159	0.02	ug/g	ND	71.8	50-140			
Chrysene	0.189	0.02	ug/g	ND	84.9	50-140			
Dibenzo [a,h] anthracene	0.171	0.02	ug/g	ND	76.8	50-140			
Fluoranthene	0.164	0.02	ug/g	ND	73.8	50-140			
Fluorene	0.164	0.02	ug/g	ND	73.8	50-140			
Indeno [1,2,3-cd] pyrene	0.166	0.02	ug/g	ND	74.7	50-140			
1-Methylnaphthalene	0.147	0.02	ug/g	ND	66.0	50-140			
2-Methylnaphthalene	0.154	0.02	ug/g	ND	69.1	50-140			
Naphthalene	0.179	0.01	ug/g	ND	80.8	50-140			
Phenanthrene	0.153	0.02	ug/g	ND	68.7	50-140			
Pyrene	0.161	0.02	ug/g	ND	72.6	50-140			
Surrogate: 2-Fluorobiphenyl	*1.58*		*ug/g*		*89.1*	*50-140*			
Surrogate: Terphenyl-d14	*1.94*		*ug/g*		*109*	*50-140*			

Qualifier Notes:

QC Qualifiers :

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

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

PARACEL LABORATORIES LTD.

Paracel ID: 2117635

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2117635	№ 131437

Client Name: PATERSON	Project Ref: PE4247
Contact Name: MARK D'ARCY	Quote #:
Address: 154 Colonnade Road	PO #: 33053
Telephone: 613-226-7381	E-mail: mdarcy@patersongroup.ca

Page 1 of 1

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)	pH						
1	BH2-21-SS3	S		2	April 21/2021				HOLD											✓
2	BH3-21-AU1	S		1	April 21/2021				✓	✓	✓	✓		✓						✓
3	BH3-21-SS2	S		1	April 21/2021				✓	✓	✓	✓								✓
4	BH6-21-SS2	S		2	April 21/2021				HOLD											✓
5																				
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign):	Received By Driver/Depot: A. SLOUSE	Received at Lab: Umeepam Dhiman
Relinquished By (Print): Joshua Dempsey	Date/Time: 23/04/21 3:00	Date/Time: APR 23, 2021 03:37
Date/Time: April 23/2021	Temperature: °C FR	Temperature: 16.2 °C
		Verified By:
		Date/Time: April 23, 2021 16:66
		pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 32922
Project: PE4247
Custody: 131456

Report Date: 20-Apr-2021
Order Date: 14-Apr-2021

Order #: 2116387

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

Paracel ID	Client ID
2116387-01	MW1-GW1
2116387-02	MW2-GW1

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Report Date: 20-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 14-Apr-2021

Client PO: 32922

Project Description: PE4247

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	15-Apr-21	16-Apr-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	16-Apr-21	20-Apr-21
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	15-Apr-21	16-Apr-21

Certificate of Analysis

Report Date: 20-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 14-Apr-2021

Client PO: 32922

Project Description: PE4247

	Client ID:	MW1-GW1	MW2-GW1	-	-
	Sample Date:	13-Apr-21 09:00	13-Apr-21 09:00	-	-
	Sample ID:	2116387-01	2116387-02	-	-
	MDL/Units	Water	Water	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 20-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 14-Apr-2021

Client PO: 32922

Project Description: PE4247

	Client ID:	MW1-GW1	MW2-GW1	-	-
	Sample Date:	13-Apr-21 09:00	13-Apr-21 09:00	-	-
	Sample ID:	2116387-01	2116387-02	-	-
	MDL/Units	Water	Water	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	97.2%	93.8%	-	-
Dibromofluoromethane	Surrogate	101%	97.7%	-	-
Toluene-d8	Surrogate	101%	99.9%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-

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	*76.8*		*ug/L*		*96.0*	*50-140*			
Surrogate: Dibromofluoromethane	*74.0*		*ug/L*		*92.4*	*50-140*			
Surrogate: Toluene-d8	*82.2*		*ug/L*		*103*	*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	7.36	0.5	ug/L	8.41			13.3	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	4.20	0.5	ug/L	5.62			28.9	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	*81.0*		*ug/L*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*81.4*		*ug/L*		*102*	*50-140*			
Surrogate: Toluene-d8	*80.4*		*ug/L*		*100*	*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)	1260	100	ug/L	ND	78.9	60-140			
F3 PHCs (C16-C34)	4120	100	ug/L	ND	105	60-140			
F4 PHCs (C34-C50)	2560	100	ug/L	ND	103	60-140			
Volatiles									
Acetone	101	5.0	ug/L	ND	101	50-140			
Benzene	35.7	0.5	ug/L	ND	89.2	60-130			
Bromodichloromethane	33.0	0.5	ug/L	ND	82.6	60-130			
Bromoform	37.8	0.5	ug/L	ND	94.5	60-130			
Bromomethane	45.8	0.5	ug/L	ND	114	50-140			
Carbon Tetrachloride	31.6	0.2	ug/L	ND	79.0	60-130			
Chlorobenzene	40.8	0.5	ug/L	ND	102	60-130			
Chloroform	32.6	0.5	ug/L	ND	81.4	60-130			
Dibromochloromethane	34.7	0.5	ug/L	ND	86.6	60-130			
Dichlorodifluoromethane	45.9	1.0	ug/L	ND	115	50-140			
1,2-Dichlorobenzene	40.4	0.5	ug/L	ND	101	60-130			
1,3-Dichlorobenzene	41.1	0.5	ug/L	ND	103	60-130			
1,4-Dichlorobenzene	40.7	0.5	ug/L	ND	102	60-130			
1,1-Dichloroethane	32.7	0.5	ug/L	ND	81.7	60-130			
1,2-Dichloroethane	30.6	0.5	ug/L	ND	76.6	60-130			
1,1-Dichloroethylene	41.0	0.5	ug/L	ND	102	60-130			
cis-1,2-Dichloroethylene	34.7	0.5	ug/L	ND	86.8	60-130			
trans-1,2-Dichloroethylene	35.7	0.5	ug/L	ND	89.2	60-130			
1,2-Dichloropropane	35.2	0.5	ug/L	ND	88.0	60-130			
cis-1,3-Dichloropropylene	37.3	0.5	ug/L	ND	93.2	60-130			
trans-1,3-Dichloropropylene	33.8	0.5	ug/L	ND	84.6	60-130			
Ethylbenzene	38.1	0.5	ug/L	ND	95.2	60-130			
Ethylene dibromide (dibromoethane, 1,2-	37.9	0.2	ug/L	ND	94.7	60-130			
Hexane	35.7	1.0	ug/L	ND	89.3	60-130			
Methyl Ethyl Ketone (2-Butanone)	95.8	5.0	ug/L	ND	95.8	50-140			
Methyl Isobutyl Ketone	97.1	5.0	ug/L	ND	97.1	50-140			
Methyl tert-butyl ether	87.0	2.0	ug/L	ND	87.0	50-140			
Methylene Chloride	40.6	5.0	ug/L	ND	102	60-130			
Styrene	41.1	0.5	ug/L	ND	103	60-130			
1,1,1,2-Tetrachloroethane	38.7	0.5	ug/L	ND	96.8	60-130			
1,1,2,2-Tetrachloroethane	37.5	0.5	ug/L	ND	93.7	60-130			
Tetrachloroethylene	40.7	0.5	ug/L	ND	102	60-130			
Toluene	38.9	0.5	ug/L	ND	97.2	60-130			
1,1,1-Trichloroethane	31.9	0.5	ug/L	ND	79.8	60-130			
1,1,2-Trichloroethane	35.2	0.5	ug/L	ND	88.1	60-130			
Trichloroethylene	38.1	0.5	ug/L	ND	95.2	60-130			
Trichlorofluoromethane	45.1	1.0	ug/L	ND	113	60-130			
Vinyl chloride	44.1	0.5	ug/L	ND	110	50-140			
m,p-Xylenes	74.9	0.5	ug/L	ND	93.7	60-130			
o-Xylene	39.9	0.5	ug/L	ND	99.7	60-130			
Surrogate: 4-Bromofluorobenzene	*79.8*		*ug/L*		*99.8*	*50-140*			
Surrogate: Dibromofluoromethane	*78.7*		*ug/L*		*98.4*	*50-140*			
Surrogate: Toluene-d8	*77.8*		*ug/L*		*97.2*	*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: 2116387

Paracel Order Number (Lab Use Only): 2116387

Chain Of Custody (Lab Use Only) № 131456

Client Name: Paterson	Project Ref: PE 4247
Contact Name: Mark D'Arcy	Quote #:
Address: 154 Colonnade	PO #: 32922
Telephone: 613 226 7381	E-mail: MDArcy@Patersongroup.ca

Page __ of __

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 ___ For RSC: ☐ Yes ☐ No

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

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

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)						
1	MW1-GW1	GW		3	Apr 13 2021		✓	✓											
2	MW2-GW1	GW		3	↓		✓	✓											
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): GPat	Received By Driver/Depot: M. Devise	Received at Lab: Sumeepom Dohmai	Verified By: SCet
Relinquished By (Print): Grant Paterson	Date/Time: 14/04/21 1:42	Date/Time: APR 14, 2021 02.55	Date/Time: Apr 14/20 5:16p
Date/Time: Apr 14 2021	Temperature: °C PH.	Temperature: 7.0 °C	pH Verified: ☐ By: N/A

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 30926
Project: PE4247
Custody: 131521

Report Date: 6-May-2021
Order Date: 30-Apr-2021

Order #: 2118598

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

Paracel ID	Client ID
2118598-01	BH1-GW1
2118598-02	BH3-GW1
2118598-03	DUP

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Report Date: 06-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 30-Apr-2021

Client PO: 30926

Project Description: PE4247

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	3-May-21	4-May-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	5-May-21	6-May-21
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	3-May-21	4-May-21

Certificate of Analysis

Report Date: 06-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 30-Apr-2021

Client PO: 30926

Project Description: PE4247

	Client ID:	BH1-GW1	BH3-GW1	DUP	-
	Sample Date:	30-Apr-21 09:00	30-Apr-21 09:00	30-Apr-21 09:00	-
	Sample ID:	2118598-01	2118598-02	2118598-03	-
	MDL/Units	Water	Water	Water	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	2.6	<0.5	<0.5	-
Bromodichloromethane	0.5 ug/L	0.9	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	16.5	0.5	0.6	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	-
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	-
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	6.4	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-

Certificate of Analysis

Report Date: 06-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 30-Apr-2021

Client PO: 30926

Project Description: PE4247

	Client ID:	BH1-GW1	BH3-GW1	DUP	-
	Sample Date:	30-Apr-21 09:00	30-Apr-21 09:00	30-Apr-21 09:00	-
	Sample ID:	2118598-01	2118598-02	2118598-03	-
	MDL/Units	Water	Water	Water	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	0.6	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	0.6	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate	103%	108%	108%	-
Dibromofluoromethane	Surrogate	98.8%	98.8%	105%	-
Toluene-d8	Surrogate	104%	105%	104%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-

Certificate of Analysis

Report Date: 06-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 30-Apr-2021

Client PO: 30926

Project Description: PE4247

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	*87.3*		*ug/L*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*81.8*		*ug/L*		*102*	*50-140*			
Surrogate: Toluene-d8	*84.3*		*ug/L*		*105*	*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	0.53			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	1.40	0.5	ug/L	1.35			3.6	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	*89.0*		*ug/L*		*111*	*50-140*			
Surrogate: Dibromofluoromethane	*83.7*		*ug/L*		*105*	*50-140*			
Surrogate: Toluene-d8	*83.7*		*ug/L*		*105*	*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)	2160	25	ug/L	ND	108	68-117			
F2 PHCs (C10-C16)	1470	100	ug/L	ND	91.6	60-140			
F3 PHCs (C16-C34)	3860	100	ug/L	ND	98.5	60-140			
F4 PHCs (C34-C50)	2310	100	ug/L	ND	93.2	60-140			
Volatiles									
Acetone	110	5.0	ug/L	ND	110	50-140			
Benzene	37.9	0.5	ug/L	ND	94.8	60-130			
Bromodichloromethane	45.9	0.5	ug/L	ND	115	60-130			
Bromoform	41.8	0.5	ug/L	ND	104	60-130			
Bromomethane	36.1	0.5	ug/L	ND	90.3	50-140			
Carbon Tetrachloride	38.6	0.2	ug/L	ND	96.4	60-130			
Chlorobenzene	44.4	0.5	ug/L	ND	111	60-130			
Chloroform	45.6	0.5	ug/L	ND	114	60-130			
Dibromochloromethane	44.8	0.5	ug/L	ND	112	60-130			
Dichlorodifluoromethane	40.7	1.0	ug/L	ND	102	50-140			
1,2-Dichlorobenzene	32.9	0.5	ug/L	ND	82.2	60-130			
1,3-Dichlorobenzene	45.7	0.5	ug/L	ND	114	60-130			
1,4-Dichlorobenzene	38.5	0.5	ug/L	ND	96.2	60-130			
1,1-Dichloroethane	43.5	0.5	ug/L	ND	109	60-130			
1,2-Dichloroethane	44.6	0.5	ug/L	ND	112	60-130			
1,1-Dichloroethylene	41.4	0.5	ug/L	ND	104	60-130			
cis-1,2-Dichloroethylene	44.5	0.5	ug/L	ND	111	60-130			
trans-1,2-Dichloroethylene	44.5	0.5	ug/L	ND	111	60-130			
1,2-Dichloropropane	40.5	0.5	ug/L	ND	101	60-130			
cis-1,3-Dichloropropylene	44.0	0.5	ug/L	ND	110	60-130			
trans-1,3-Dichloropropylene	35.4	0.5	ug/L	ND	88.5	60-130			
Ethylbenzene	43.0	0.5	ug/L	ND	108	60-130			
Ethylene dibromide (dibromoethane, 1,2-	43.8	0.2	ug/L	ND	109	60-130			
Hexane	45.0	1.0	ug/L	ND	112	60-130			
Methyl Ethyl Ketone (2-Butanone)	96.3	5.0	ug/L	ND	96.3	50-140			
Methyl Isobutyl Ketone	108	5.0	ug/L	ND	108	50-140			
Methyl tert-butyl ether	99.8	2.0	ug/L	ND	99.8	50-140			
Methylene Chloride	39.6	5.0	ug/L	ND	99.0	60-130			
Styrene	42.9	0.5	ug/L	ND	107	60-130			
1,1,1,2-Tetrachloroethane	41.1	0.5	ug/L	ND	103	60-130			
1,1,2,2-Tetrachloroethane	43.8	0.5	ug/L	ND	110	60-130			
Tetrachloroethylene	41.6	0.5	ug/L	ND	104	60-130			
Toluene	35.5	0.5	ug/L	ND	88.8	60-130			
1,1,1-Trichloroethane	42.3	0.5	ug/L	ND	106	60-130			
1,1,2-Trichloroethane	42.8	0.5	ug/L	ND	107	60-130			
Trichloroethylene	45.0	0.5	ug/L	ND	112	60-130			
Trichlorofluoromethane	40.1	1.0	ug/L	ND	100	60-130			
Vinyl chloride	44.2	0.5	ug/L	ND	111	50-140			
m,p-Xylenes	90.3	0.5	ug/L	ND	113	60-130			
o-Xylene	44.0	0.5	ug/L	ND	110	60-130			
Surrogate: 4-Bromofluorobenzene	*69.3*		*ug/L*		*86.6*	*50-140*			
Surrogate: Dibromofluoromethane	*79.8*		*ug/L*		*99.7*	*50-140*			
Surrogate: Toluene-d8	*71.2*		*ug/L*		*89.0*	*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 LTD

Paracel ID: 2118598

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2118598	№ 131521

Client Name: Paterson Group	Project Ref: PE4247	Page 1 of 1
Contact Name: Mark D'Arcy	Quote #:	Turnaround Time
Address: 154 Colonnade Rd. S.	PO #: 30926	☐ 1 day ☐ 3 day
	E-mail: mdarcy@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	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	BH1-GW1	GW		3	April 30/21	am	X	X											
2	BH3-GW1	〃		3	〃	〃	X	X											
3	Dup	〃		2	〃	〃		X											
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign): D Latta	Received By Driver/Depot: M. DeLouse	Received at Lab: Shreeparna Dhruvaj	Verified By: BS
Relinquished By (Print): Derek Latta	Date/Time: 30/04/21 2:53	Date/Time: April 30, 2021 04:40	Date/Time: April 30, 2021 17:46
Date/Time: April 30 2021	Temperature: °C PH	Temperature: 10.9 °C	pH Verified: ☐ By: