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Geotechnical Engineering
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January 11, 2024
File: PE4767-LET.04

Inverness Homes

69 Moore Street
Ottawa, Ontario
K0A 2Z0

Attention: **Mr. Joshua Laginski**

Subject: **Phase II Environmental Site Assessment Update
1518, 1524, 1526 Stittsville Main Street
Ottawa, Ontario**

Dear Sir,

Further to your request, Paterson Group Inc. (Paterson) carried out a Phase II – Environmental Site Assessment (ESA) Update for the aforementioned property. This report updates a previous Phase II ESA entitled “Phase II Environmental Site Assessment, 1518, 1524, 1526 Stittsville Main Street, Ottawa, Ontario” prepared by Paterson Group, dated November 23, 2020.

This update report is intended to meet the requirements for an updated Phase II ESA, as per the MECP O.Reg. 153/04, as amended. This report is to be read in conjunction with the 2020 report.

Background Information

Physical Setting

The Phase II Property is located on the southwest side of Stittsville Main Street, approximately 50 m southwest of the intersection of Abbott Street West and Stittsville Main Street, in the City of Ottawa. The Phase II Property is situated in a mixed commercial and residential zone.

The Phase II Property is currently vacant land, with gravel parking along the eastern half of the property. Site drainage consists primarily of surface infiltrations, with some sheet flow along Stittsville Main Street.





The site is relatively flat and at grade with the surrounding properties, while the regional topography slopes downwards in an easterly direction.

It is our understanding that the Phase II Property will be redeveloped with a multi-storey mixed-use building.

Areas of Natural Significance and Water Bodies

No areas of natural significance and/or water bodies are present on the Phase II Property or in the Phase I Study Area.

Past Assessments

- “Phase I & II Environmental Site Assessment, 1524 and 1526 Stittsville Main Street, Ottawa, Ontario,” prepared by Paterson Group Inc. (Paterson), dated November 23, 2011

The 2011 Phase I & II ESA conducted by Paterson assessed properties 1524 and 1526 Stittsville Main Street. Based on a historical review and on-site observations, a historical dry cleaner was identified at 1524 Stittsville Main Street, based on this a Phase II ESA was completed.

A subsurface investigation was conducted in November of 2011. Five (5) boreholes, two (2) of which were instrumented with groundwater monitoring wells, were advanced on the properties. The groundwater monitoring wells were located on the footprint of the former drycleaners (BH2) and the footprint of a former residential structure (BH4). One borehole was located adjacent to the southern commercial building addressed 1528 Stittsville Main Street (BH1), while the remaining boreholes were located throughout the properties for general coverage.

One (1) soil sample collected from BH1 was submitted for PAH analysis, while one (1) sample collected from BH2 and one (1) sample collected from BH4 were submitted for VOC analysis. Based on the analytical test results, no PAH concentrations above the applicable MECP standards were detected in the sample collected from BH1, however, it was noted that fill material was present and consisted of gravel and pieces of coal. A VOC parameter (tetrachloroethylene) was detected in samples collected from BH2 and BH4. The detected tetrachloroethylene concentration for BH2 exceeds the current MECP standards while the concentration for BH4 complies.

Two (2) groundwater samples were collected and submitted for VOC and PHC analysis. Based on the analytical test results, no PHC concentrations were detected in both samples. The sample collected from BH2 and BH_ identified 1,2-dichloroethylene and tetrachloroethylene in exceedance of the MECP standards at that time and detected trichloroethylene that complied with the current MECP standards.



- “Phase I & II Environmental Site Assessment, 1520 Stittsville Main Street, Ottawa, Ontario,” prepared by Paterson Group Inc. (Paterson), dated November 23, 2019

Based on the previously identified historical dry cleaners on the adjacent property, a subsurface investigation was conducted in June of 2019 on 1520 Stittsville Main Street. Three (3) boreholes (BH1, BH2 and BH3), instrumented with groundwater monitoring wells, were advanced on the property. The groundwater monitoring wells were located on the western portion of the property while BH1 was located closest to the location of the former dry cleaners on the adjacent property.

One (1) soil sample was collected from BH2 and submitted for metal analysis. Three (3) samples collected from BH1, BH2 and BH3 were submitted for VOCs analysis. All metals parameters detected in the BH2 sample complied with the MECP Table 3 Standards, however, it was noted that fill material was present and consisted of brown sand and brick. No detectable VOC parameter concentrations were identified in the BH3 sample. Tetrachloroethylene concentrations were found to exceed the MECP Table 3 Standards in the BH1 sample.

Three (3) groundwater samples were collected and submitted for VOCs analysis. Based on the analytical test results, no VOC parameter concentrations were detected in the groundwater samples analyzed. The groundwater complied with the MECP Table 3 Standards.

Based on the findings of the Phase I & II ESA, it was recommended that a remediation be conducted to address the presence of VOCs in the soil.

- “Phase I Environmental Site Assessment, 1520, 1524 and 1526 Stittsville Main Street, Ottawa, Ontario,” prepared by Paterson Group Inc. (Paterson), dated September 17, 2020

The Phase I ESA was completed in general accordance with the Ontario Regulation (O.Reg.) 153/04, as amended. The findings of the Phase I ESA identified the following on-site potentially contaminating activities (PCAs) that resulted in an area of potential environmental concern (APEC):

- APEC 1 – “Former Dry Cleaners” associated with the former presence of a dry cleaners at the property addressed 1520 Stittsville Main Street (PCA#37)
- APEC 2 – “Importation of Fill Material of Unknown Quality” associated with the building footprints of the former site structures, that have been demolished (PCA#30).

A Phase II ESA was recommended to address the aforementioned APEC on the Phase I Property.



- ❑ “Phase II Environmental Site Assessment, 1520, 1524 and 1526 Stittsville Main Street, Ottawa, Ontario,” prepared by Paterson Group Inc. (Paterson), dated September 17, 2020

The Phase II ESA was completed to assess the subsurface conditions based on the former presence of a dry cleaners and the quality of the fill material that had been placed on-site.

The field program was completed in conjunction with a Geotechnical Investigation that consisted of twelve (12) boreholes, three (3) of which were instrumented with groundwater monitoring wells.

The soil profile generally consisted of a layer of fill material, overlying native silty sand and glacial till. Bedrock consisting of limestone interbedded with shale was observed at depths ranging from 4.22 to 5.94 m below the ground surface.

The fill material consisted of a mix of topsoil and/or brown silty sand with crushed stone, and trace amounts of concrete, brick and wood. The fill varied in thickness from 0 to 2.3 m below ground surface.

Six (6) soil samples were submitted for laboratory analysis of metals, PAHs and/or VOCs. All soil samples complied with the MECP Table 3 Standards, with the exception of lead and mercury concentrations identified at BH4-20.

Groundwater samples were recovered from the monitoring wells BH1-20, BH2-20, BH3-20, BH2-19 and BH2. No visual or olfactory signs of contamination were noted in the groundwater. The groundwater samples were submitted for PHCs, VOCs and metals analysis. Concentrations of tetrachloroethylene were identified in all monitoring wells and exceeded the MECP Table 3 Standards. Chloroform was identified in BH2 in excess of the MECP Table 3 Standards, however, the presence of chloroform is considered to be related to the use of municipal water during drilling processes.

Chloroform, tetrachloroethylene and cis-1,2-dichloroethylene were identified to exceed the MECP Table 3 Standards in previous groundwater sampling programs.

Investigation Method

A Supplemental Phase II ESA Investigation was conducted following the original Phase II ESA, to supplement the initial test data. Five boreholes were drilled on the Phase II Property, three of which were instrumented with groundwater monitoring wells on June 16, 2022 by Downing Drilling, under the full-time supervision of Paterson personnel.

All soil samples collected underwent a preliminary screening procedure, which included visual screening for colour and evidence of deleterious fill, as well as screening with a photo ionization detector (PID). The detection limit is 0.1 ppm, with a precision of +/- 2



ppm or 10% of the reading. Fill material consisted of topsoil and/or brown silty sand with gravel and crushed stone. No new environmental concerns were identified during the field screening.

Paterson completed 6 groundwater sampling events including existing and newly installed groundwater monitoring wells in order to update the groundwater quality at the Phase II ESA Property.

Phase II Conceptual Site Model

Potentially Contaminating Activities and Areas of Potential Environmental Concern

Based on the results of the Phase I ESA and the Phase I ESA Update completed for the Phase II ESA Property, the following APECs were identified on the Phase II ESA Property. The APECs are summarized in Table 1.

Table 1: 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 Former Dry Cleaners	Eastern section of 1524 Stittsville Main Street	PCA 37 – <i>“Operation of Dry Cleaning Equipment (where chemicals are used)”</i>	On-Site	VOCs	Soil and/or Groundwater
APEC 2 Fill Material of unknown quality	Former building footprints along easter portion of Phase I Property	PCA 30 – <i>“Importation of Fill Material of Unknown Quality”</i>	On-Site	Metals (Mercury, CrVI) PAHs	Soil

Contaminants of Potential Concern

The contaminants of potential concern (CPCs) identified in the Phase II ESA Property include volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals in soil and/or groundwater.



Physical Setting

Site Stratigraphy

The site stratigraphy of the Phase II ESA Property generally consists of:

- ❑ Fill, consisting of brown silty sand with gravel and crushed stone and/or topsoil, varying in depths from 0 to 2.3 m. The fill material is not expected to be a significant water bearing unit at the Phase II ESA Property. Groundwater was not observed in this stratigraphic unit.
- ❑ Native, brown silty sand, varying in depths from 0.2 to 5.8 m. Groundwater was encountered in this unit and is considered to be an aquifer.
- ❑ Intermittent layer of native glacial till, consisting of brown silty sand with gravel, cobbles and boulders, varying in depths from 3.8 to 5.9 m.
- ❑ Grey limestone interbedded shale bedrock, encountered at a depths of approximately 5.5 to 5.9 m below the existing grade. The upper bedrock is weathered, becoming more competent with depth.

Hydrogeological Setting

The Geological Survey of Canada website on the Urban Geology of the National Capital Area was consulted as part of this assessment. Based on the information from NRCAN, bedrock within the area of the Phase I Property consists of limestone and interbedded dolomite of the Gull River Formation. The overburden consists of glaciofluvial deposits, with a drift thickness of 5 to 10 m. The geological description of the site was generally consistent with the results of the previous subsurface investigations, with overburden encountered between 0 to 5.5.9 m thick.

Based on the 2020 Phase II ESA, and supplemental 2022 groundwater monitoring wells, groundwater water beneath the Phase II Property was inferred to flow in a westerly direction.

Approximate Depth to Bedrock

Bedrock was encountered at approximately 5.5 to 5.9 m below the existing ground surface.

Approximate Depth to Water Table

Depth to the water table at the Phase II Property varied from approximately 2.7 to 5.3 m below existing ground surface based on recent groundwater monitoring events.



Sections 41 and 43.1 of the Regulation

Section 41 of the Regulation (Site Condition Standards, Environmentally Sensitive Areas) does not apply to the Phase II ESA Property. A search of areas of natural significance and features was completed on the Ontario Ministry of Natural Resources (MNR) website as part of the Phase I ESA within the Phase I ESA Study Area (250 m radius from site boundary) and did not reveal any areas of natural significance or environmentally sensitive areas within the Phase I ESA Study Area.

Section 43.1 of the Regulation does not apply to the Phase II ESA Property in that the Phase II Property is not defined as a shallow soil property.

Fill Placement

Fill material is present on-site as the uppermost layer of overburden soil, comprising the eastern half of the property and former building footprints. Visual screening and analytical testing indicate that the fill material in BH4-20 was identified to be contaminated with lead and mercury exceeding the MECP Table 3 Standards.

Existing Buildings and Structures

No buildings or structures are present on the Phase II Property.

Proposed Buildings and Other Structures

The proposed development plans for the property include a multi-storey apartment building with commercial office/restaurant space.

Environmental Condition

Areas Where Contaminants are Present

Based on the analytical test results, fill material exceeding the selected MECP Table 3 Residential Standards for metals (lead and mercury) is present beneath the northeast portion of the Phase II Property. Tetrachloroethylene was identified in the native silty sand along Stittsville Main Street, exceeding the MECP Table 3 Standards. All other VOCs were in compliance with the MECP Table 3 Standards.

Analytical test results for groundwater exceeded the MECP Table 3 Non-Potable Standards for tetrachloroethylene and chloroform on the portion of the Phase II Property fronting Stittsville Main Street. The rear portion of the property, where the proposed residential development will take place is in compliance with the MECP Table 3 Standards.



Types of Contaminants

Based on the analytical test results, the contaminants of concern on the Phase II ESA Property include Metals and VOCs in the soil, and VOCs in the groundwater.

Contaminated Media

Based on the results of the Phase II ESA, soil in the eastern portion of the Phase II Property is contaminated with lead, mercury and tetrachloroethylene, and groundwater is contaminated with tetrachloroethylene and chloroform.

What is Known About Areas where Contaminants are Present

The impacted soil is considered to be related to the demolition of former structures along the eastern portion of the property, as well as its former operations. The source of the impacted groundwater is from the former operation of a dry-cleaning business on the Phase II Property.

Distribution of Contaminants

The impacted soil is considered to be confined to a small strip of the property along Stittsville Main Street, while the impacted groundwater is present throughout the entire eastern half of the Phase II Property. The impacted soil and groundwater is considered to only be present on the proposed commercial portion of the redevelopment property. The residential portion of the Phase II Property is considered to be in compliance.

Discharge of Contaminants

The impacted fill material is considered to be associated with the demolition of former structures. The impacted groundwater is associated with the presence of a former dry-cleaning operation on the property.

Distribution and Migration of Contaminants

Based on the findings of the Phase II ESA, the distribution of VOC contaminants in groundwater appears to be in proximity to the former dry-cleaning operation. Based on the analytical test results from the nearby monitoring wells, it appears that the migration of impacted groundwater is limited to the eastern half of the property. The groundwater within the western half (residential portion) of the property is in compliance with the applicable standards. The impacts associated with the fill material are not considered to have migrated.

Climatic and Meteorological Conditions

In general, climatic and meteorological conditions have the potential to affect contaminant distribution. Two ways by which climatic and meteorological conditions may affect



contaminant distribution include the downward leaching of contaminants by means of infiltration of precipitation, and the migration of contaminants via groundwater levels and/or flow, which may fluctuate seasonally. Based on the results of the subsurface investigation, VOC contaminant distribution is likely to have occurred at the Phase II Property.

Potential for Vapour Intrusion

Currently the Phase II property is vacant and there is no risk related to vapour intrusion on the property. The residential portion of the Phase II property is currently in compliance with the applicable standards and the vapour risk is considered negligible during the redevelopment. The commercial portion of the site is considered to be at a low risk for vapour intrusion due to the nature of the proposed development and operations.

Recommendations

Based on the soil and groundwater test results, impacted soil and groundwater is present on Phase II Property within the commercial portion. Additional soil testing will be required for offsite disposal purposes in compliance with O.Reg. 406/19.

Statement of Limitations

This Phase II – Environmental Site Assessment Update report has been prepared under the supervision of a Qualified Person, in general accordance with Ontario Regulation 153/04, as amended, under the Environmental Protection Act.

The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase II – ESA Update are based on a review of readily available geological, historical and regulatory information and a cursory review made at the time of the field assessment.

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 Inverness Homes. Permission and notification from the above noted party and this firm will be required to release this report to any other party.

We trust that this submission satisfies your current requirements. Should you have any questions please contact the undersigned





Mr. Joshua Laginski

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PE4767-LET.04

Paterson Group Inc.

Joshua Dempsey, B.Sc.

Michael Beaudoin, P.Eng., QP_{ESA}



Report Distribution:

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Appendix

- Figure 1 – Key Plan
- Drawing PE4767-3 – Test Hole Location Plan
- Drawing PE4767-4 – Analytical Testing Plan – Soil
- Drawing PE4767-5 – Analytical Testing Plan – Groundwater
- Soil Profile and Test Data Sheets
- Analytical Test Results
- Laboratory Certificates of Analysis



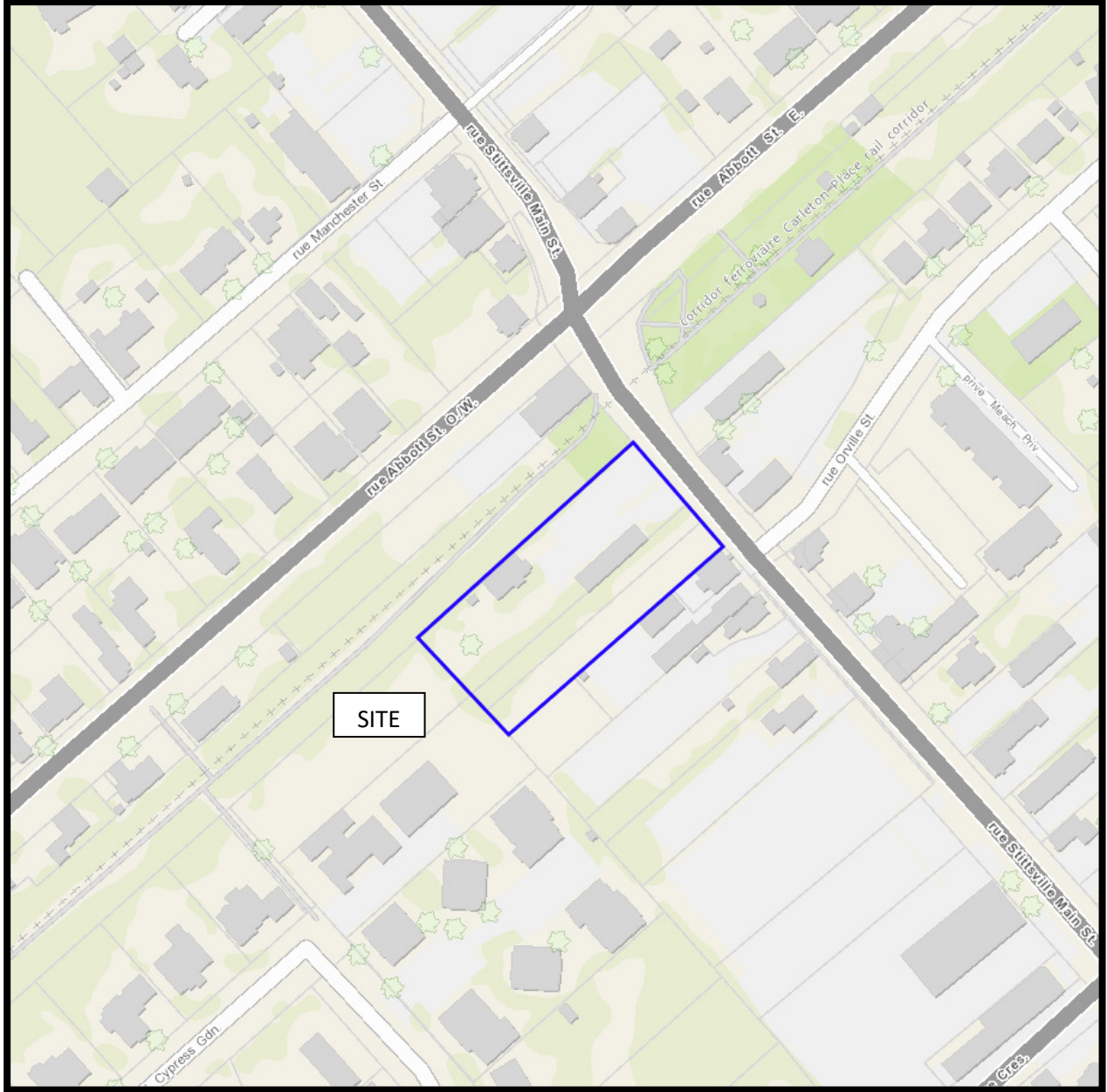
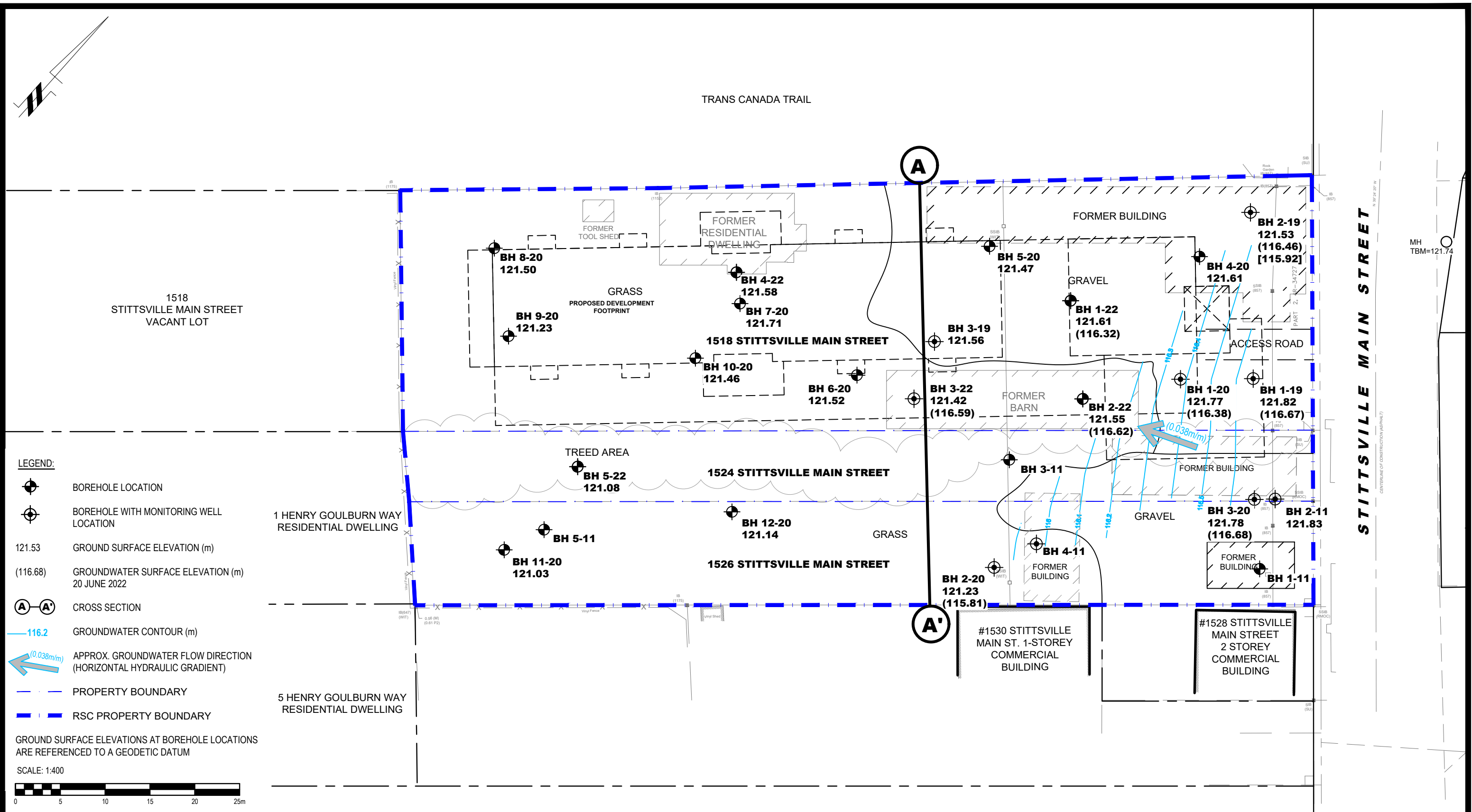


FIGURE 1
KEY PLAN



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NO.	REVISIONS	DATE	INITIAL
1.	2022 BOREHOLES ADDED TO THE PLAN	05/07/2022	MB

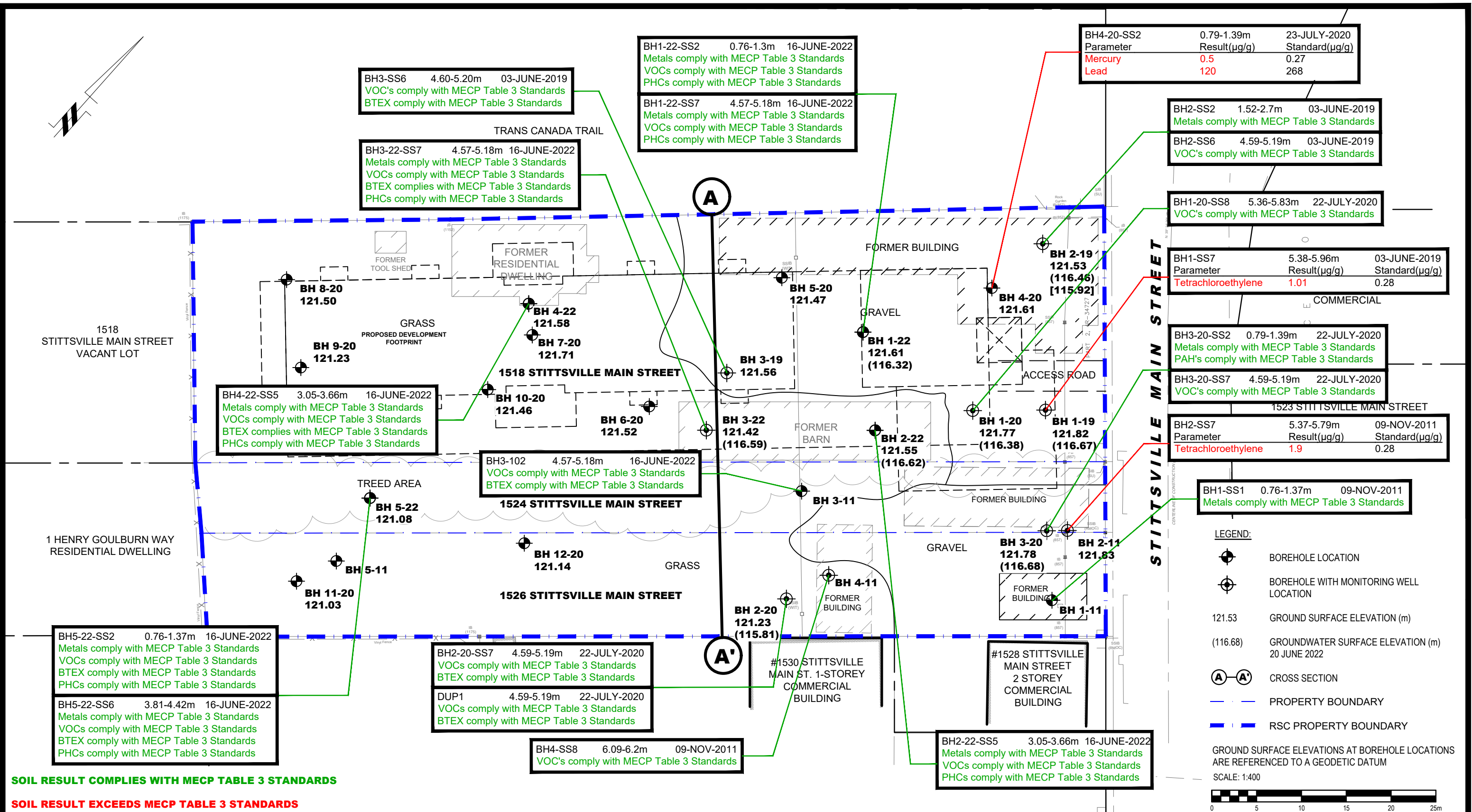
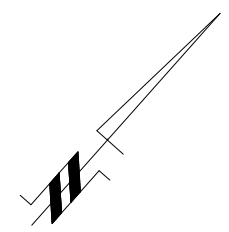
INVERNESS HOMES
PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1518, 1524, 1526 STITTSVILLE MAIN STREET

STITTSVILLE, ONTARIO

TEST HOLE LOCATION PLAN

Scale:	1:400	Date:	08/2022
Drawn by:	MPG	Report No.:	PE4767-2
Checked by:	MSP	Dwg. No.:	PE4767-3
Approved by:	MB	Revision No.:	

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SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

BH4-20-SS2	0.79-1.39m	23-JULY-2020
Parameter	Result(µg/g)	Standard(µg/g)
Mercury	0.5	0.27
Lead	120	268

BH2-SS2	1.52-2.7m	03-JUNE-2019
Metals comply with MECP Table 3 Standards		
BH2-SS6	4.59-5.19m	03-JUNE-2019
VOC's comply with MECP Table 3 Standards		

BH1-20-SS8	5.36-5.83m	22-JULY-2020
VOC's comply with MECP Table 3 Standards		

BH1-SS7	5.38-5.96m	03-JUNE-2019
Parameter	Result(µg/g)	Standard(µg/g)
Tetrachloroethylene	1.01	0.28

BH3-20-SS2	0.79-1.39m	22-JULY-2020
Metals comply with MECP Table 3 Standards		
PAH's comply with MECP Table 3 Standards		
BH3-20-SS7	4.59-5.19m	22-JULY-2020
VOC's comply with MECP Table 3 Standards		

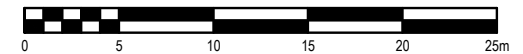
BH2-SS7	5.37-5.79m	09-NOV-2011
Parameter	Result(µg/g)	Standard(µg/g)
Tetrachloroethylene	1.9	0.28

BH1-SS1	0.76-1.37m	09-NOV-2011
Metals comply with MECP Table 3 Standards		

- LEGEND:**
- BOREHOLE LOCATION
 - BOREHOLE WITH MONITORING WELL LOCATION
 - 121.53 GROUND SURFACE ELEVATION (m)
 - (116.68) GROUNDWATER SURFACE ELEVATION (m) 20 JUNE 2022
 - CROSS SECTION
 - PROPERTY BOUNDARY
 - RSC PROPERTY BOUNDARY

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM

SCALE: 1:400



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NO.	REVISIONS	DATE	INITIAL
1.	2022 BOREHOLES ADDED TO THE PLAN	05/07/2022	MB

INVERNESS HOMES

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

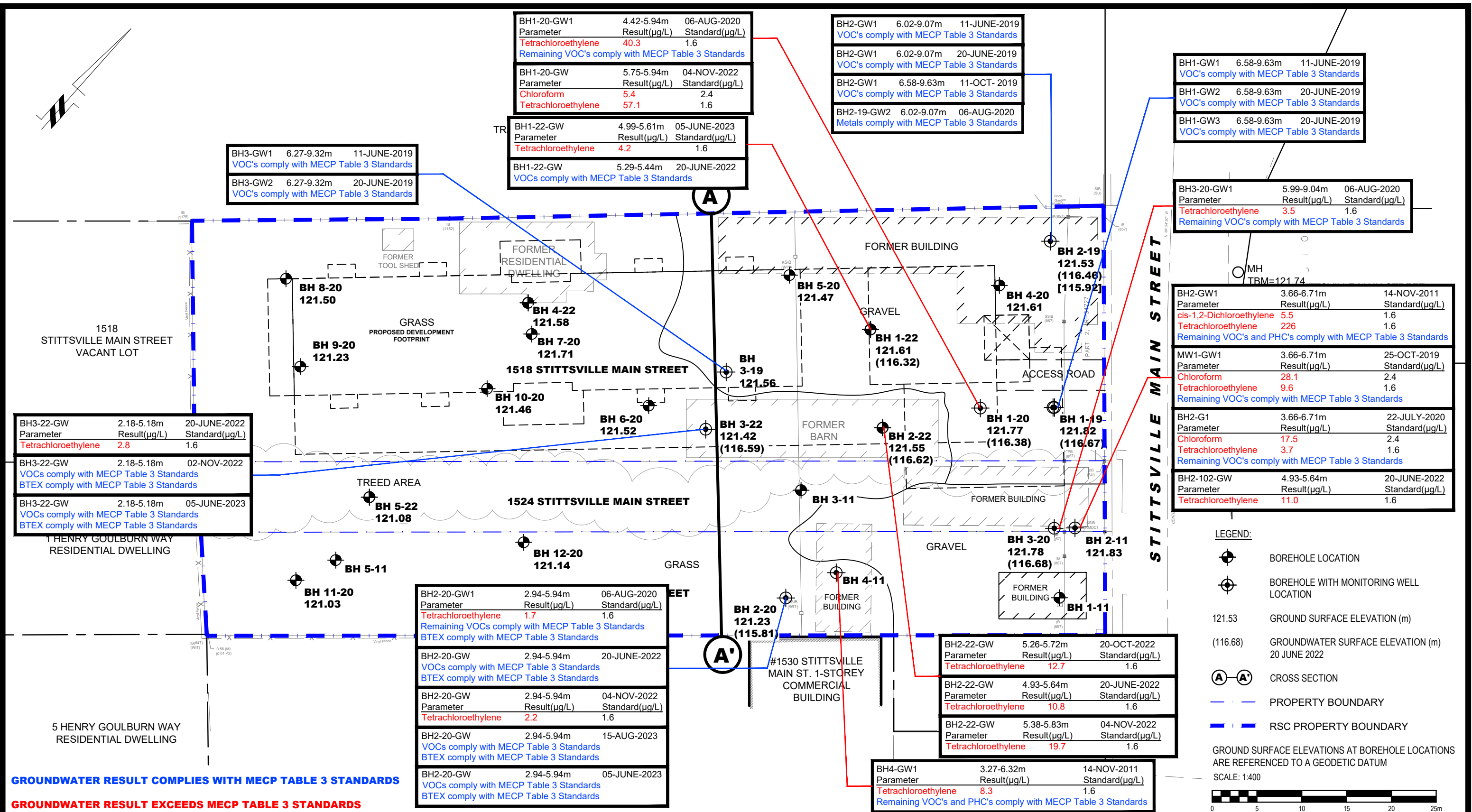
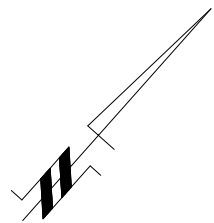
1518, 1524, 1526 STITTSVILLE MAIN STREET

STITTSVILLE, ONTARIO

Title: **ANALYTICAL TETSING PLAN - SOIL**

Scale:	1:400	Date:	10/2020
Drawn by:	MPG	Report No.:	PE4767-2
Checked by:	MSP	Dwg. No.:	PE4767-4
Approved by:	MB	Revision No.:	

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BH3-22-GW	2.18-5.18m	20-JUNE-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	2.8	1.6
VOCs comply with MECP Table 3 Standards		
BTEX comply with MECP Table 3 Standards		
BH3-22-GW	2.18-5.18m	05-JUNE-2023
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	2.8	1.6
VOCs comply with MECP Table 3 Standards		
BTEX comply with MECP Table 3 Standards		

BH3-GW1	6.27-9.32m	11-JUNE-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH3-GW2	6.27-9.32m	20-JUNE-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	57.1	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH1-20-GW1	4.42-5.94m	06-AUG-2020
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH1-20-GW	5.75-5.94m	04-NOV-2022
Parameter	Result(µg/L)	Standard(µg/L)
Chloroform	5.4	2.4
Tetrachloroethylene	57.1	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH1-22-GW	4.99-5.61m	05-JUNE-2023
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	4.2	1.6
VOCs comply with MECP Table 3 Standards		
BH1-22-GW	5.29-5.44m	20-JUNE-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	4.2	1.6
VOCs comply with MECP Table 3 Standards		

BH2-GW1	6.02-9.07m	11-JUNE-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-GW1	6.02-9.07m	20-JUNE-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-GW1	6.58-9.63m	11-OCT-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-19-GW2	6.02-9.07m	06-AUG-2020
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH1-GW1	6.58-9.63m	11-JUNE-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH1-GW2	6.58-9.63m	20-JUNE-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH1-GW3	6.58-9.63m	20-JUNE-2019
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	40.3	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH3-20-GW1	5.99-9.04m	06-AUG-2020
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	3.5	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH2-GW1	3.66-6.71m	14-NOV-2011
Parameter	Result(µg/L)	Standard(µg/L)
cis-1,2-Dichloroethylene	5.5	1.6
Tetrachloroethylene	226	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		
MW1-GW1	3.66-6.71m	25-OCT-2019
Parameter	Result(µg/L)	Standard(µg/L)
Chloroform	28.1	2.4
Tetrachloroethylene	9.6	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH2-G1	3.66-6.71m	22-JULY-2020
Parameter	Result(µg/L)	Standard(µg/L)
Chloroform	17.5	2.4
Tetrachloroethylene	3.7	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-102-GW	4.93-5.64m	20-JUNE-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	11.0	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH2-22-GW	5.26-5.72m	20-OCT-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	12.7	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		
BH2-22-GW	4.93-5.64m	20-JUNE-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	10.8	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		
BH2-22-GW	5.38-5.83m	04-NOV-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	19.7	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		

BH2-20-GW1	2.94-5.94m	06-AUG-2020
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	1.7	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-20-GW	2.94-5.94m	20-JUNE-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	2.2	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-20-GW	2.94-5.94m	04-NOV-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	2.2	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-20-GW	2.94-5.94m	15-AUG-2023
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	2.2	1.6
Remaining VOC's comply with MECP Table 3 Standards		
BH2-20-GW	2.94-5.94m	05-JUNE-2023
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	2.2	1.6
Remaining VOC's comply with MECP Table 3 Standards		

BH2-22-GW	5.26-5.72m	20-OCT-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	12.7	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		
BH2-22-GW	4.93-5.64m	20-JUNE-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	10.8	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		
BH2-22-GW	5.38-5.83m	04-NOV-2022
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	19.7	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		

BH4-GW1	3.27-6.32m	14-NOV-2011
Parameter	Result(µg/L)	Standard(µg/L)
Tetrachloroethylene	8.3	1.6
Remaining VOC's and PHC's comply with MECP Table 3 Standards		

LEGEND:

- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- 121.53 GROUND SURFACE ELEVATION (m)
- (116.68) GROUNDWATER SURFACE ELEVATION (m) 20 JUNE 2022
- CROSS SECTION
- PROPERTY BOUNDARY
- RSC PROPERTY BOUNDARY

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM

SCALE: 1:400

GROUNDWATER RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

GROUNDWATER RESULT EXCEEDS MECP TABLE 3 STANDARDS

9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1.	2022 BOREHOLES ADDED TO THE PLAN	05/07/2022	MB

INVERNESS HOMES

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

1518, 1524, 1526 STITTSVILLE MAIN STREET

ONTARIO

Title: ANALYTICAL TETSING PLAN - GROUNDWATER

Scale:	1:400	Date:	10/2020
Drawn by:	MPG	Report No.:	PE4767-2
Checked by:	MSP	Dwg. No.:	PE4767-5
Approved by:	MSD	Revision No.:	

p:\autocad\drawings\environmental\pe4767-5.dwg (oct 2023).dwg

DATUM Geodetic

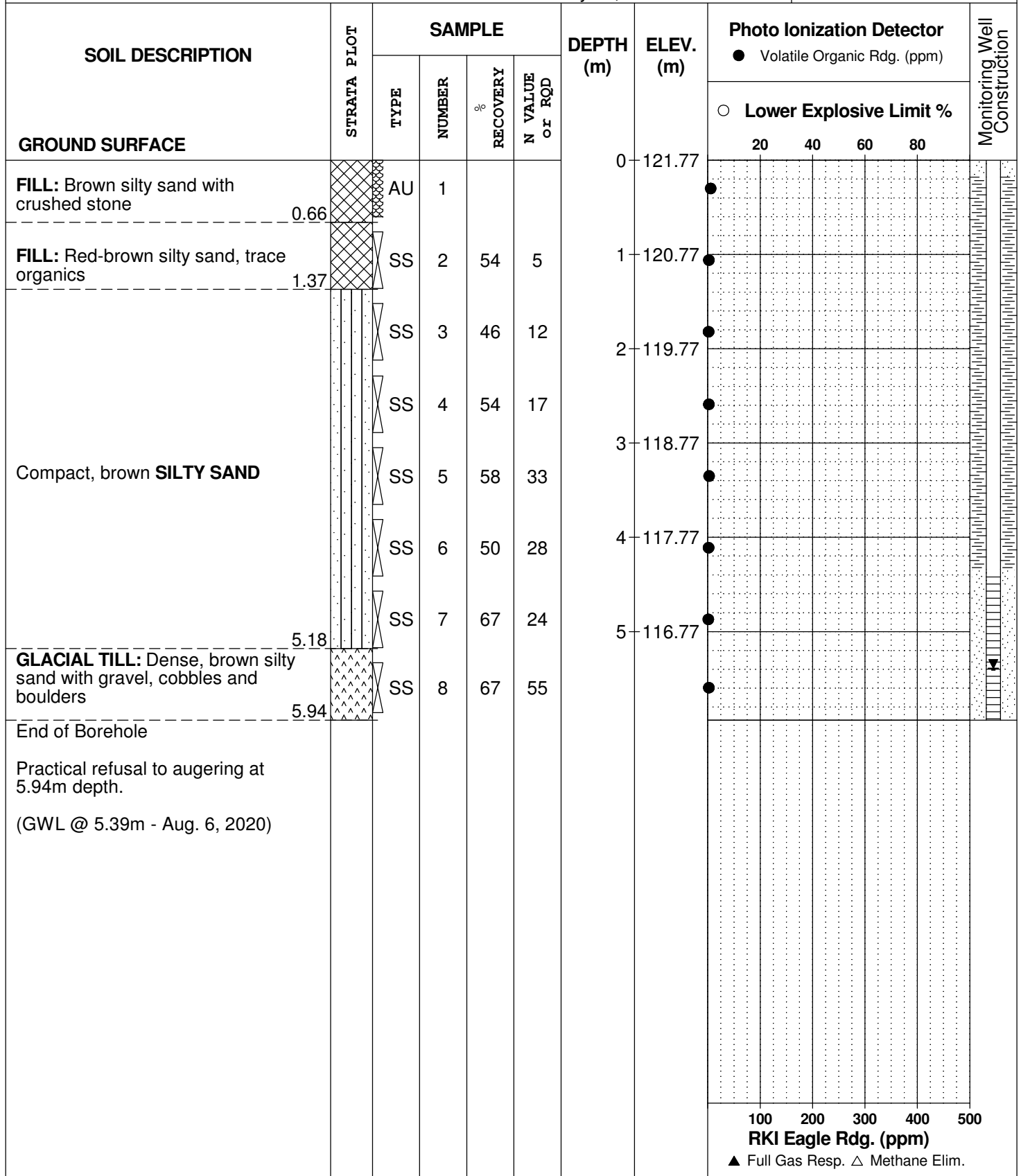
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 22, 2020

FILE NO. **PE4767**

HOLE NO. **BH 1-20**



DATUM Geodetic

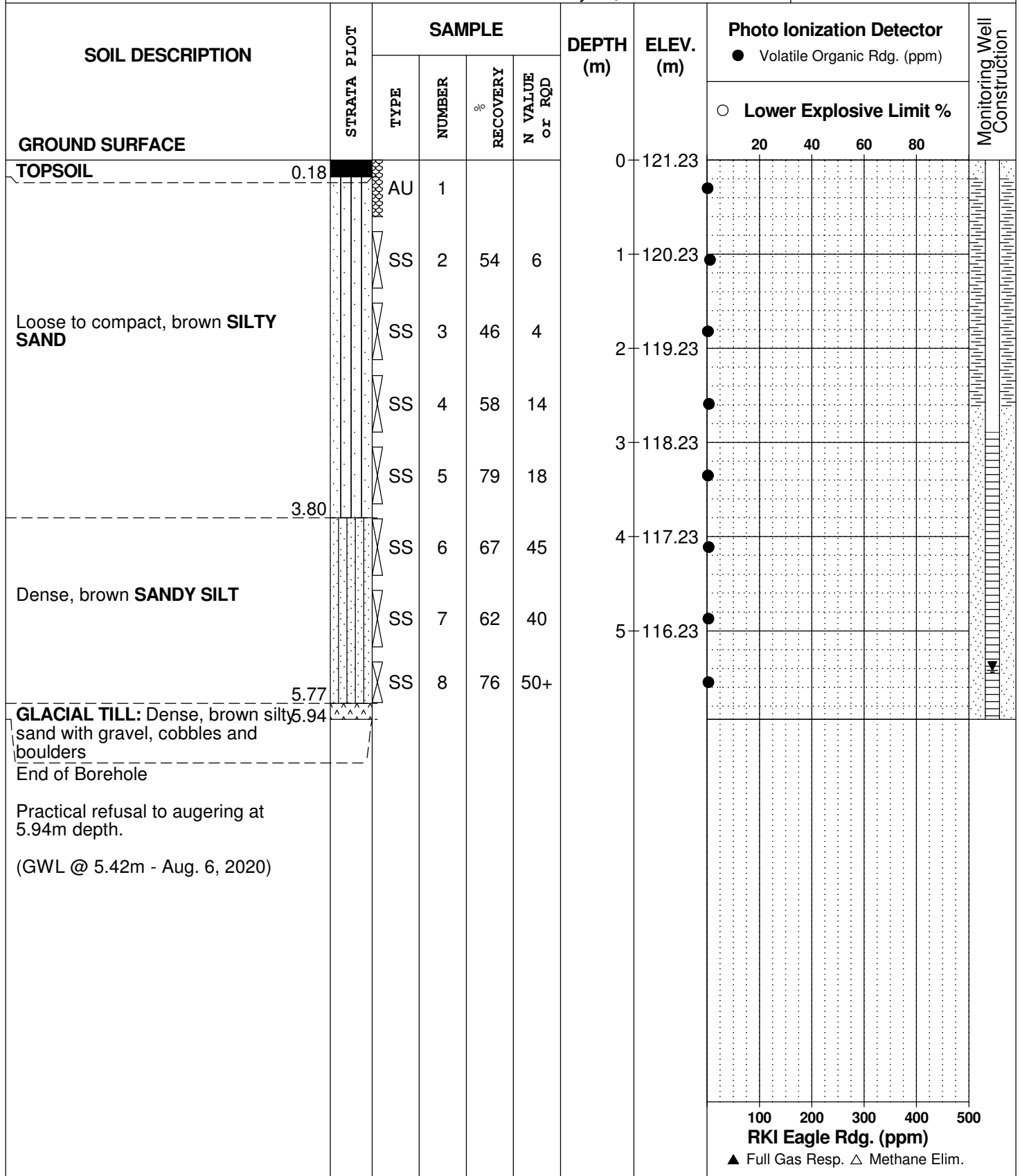
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 22, 2020

FILE NO. **PE4767**

HOLE NO. **BH 2-20**



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

DATUM Geodetic

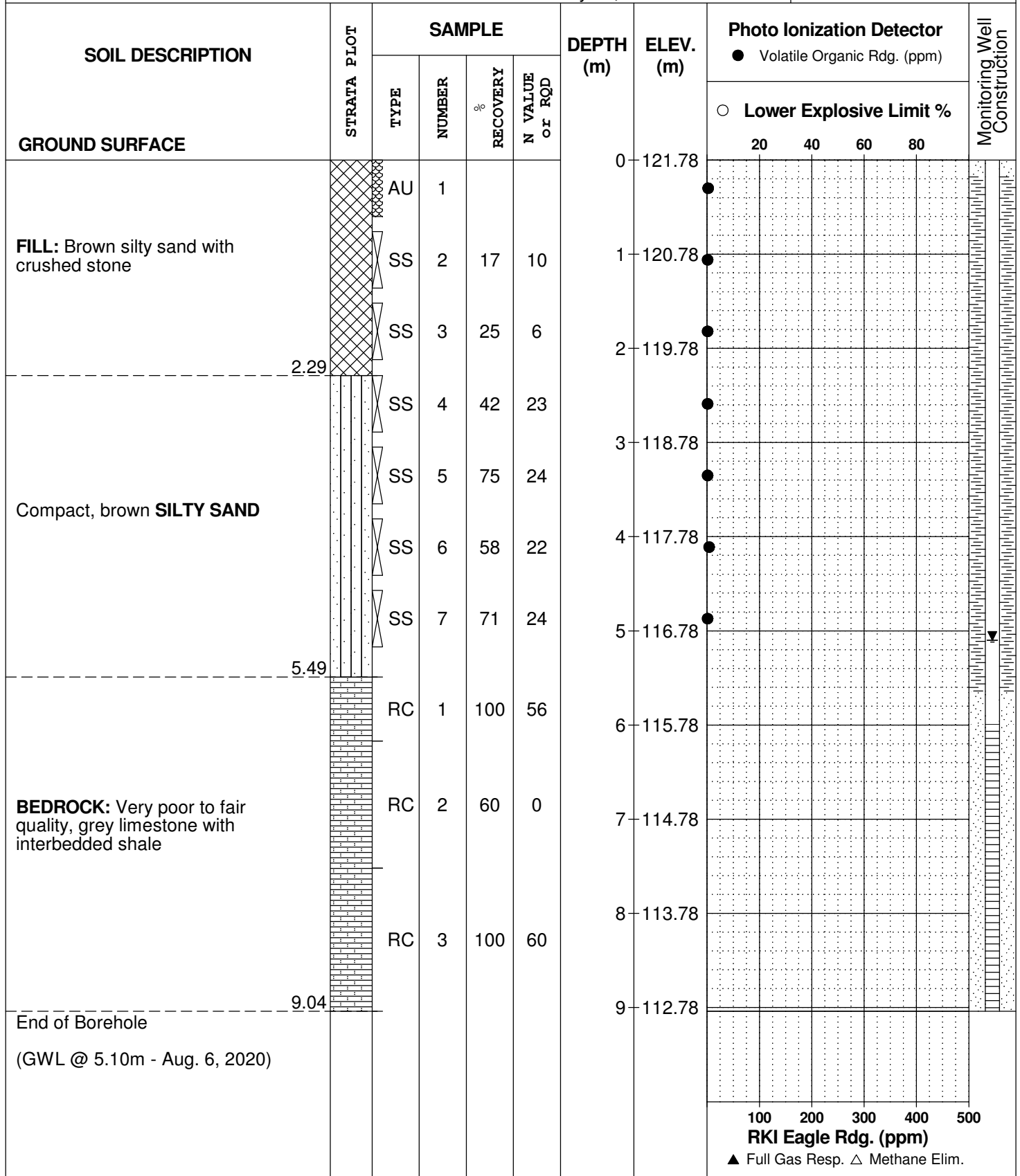
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 22, 2020

FILE NO. **PE4767**

HOLE NO. **BH 3-20**



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

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
1520, 1524 and 1526 Stittsville Main Street
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 22, 2020

FILE NO. **PE4767**

HOLE NO. **BH 4-20**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Photo Ionization Detector				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			● Volatile Organic Rgd. (ppm) ○ Lower Explosive Limit %				
GROUND SURFACE								20	40	60	80	
FILL: Brown sand with gravel	0.53	AU	1			0	121.61					
FILL: Brown silty sand with gravel, some cobbles, concrete, trace brick, wood	2.13	SS	2	29	23	1	120.61					
		SS	3	12	50+	2	119.61					
Compact, brown SILTY SAND	5.18	SS	4	58	16	3	118.61					
		SS	5	54	21	4	117.61					
		SS	6	62	27	5	116.61					
		SS	7	75	21	5	116.61					
End of Borehole												

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

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
1520, 1524 and 1526 Stittsville Main Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. **PE4767**

REMARKS

HOLE NO. **BH 5-20**

BORINGS BY CME-55 Low Clearance Drill

DATE July 22, 2020

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Photo Ionization Detector				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			<input checked="" type="radio"/> Volatile Organic Rgd. (ppm) <input type="radio"/> Lower Explosive Limit %				
GROUND SURFACE								20	40	60	80	
FILL: Brown silty sand with gravel, trace organics	0.38	AU	1			0	121.47					
Compact, brown SILTY SAND		SS	2	54	6	1	120.47					
		SS	3	50	13	2	119.47					
		SS	4	54	20	3	118.47					
		SS	5	79	33	4	117.47					
		SS	6	58	33	4	117.47					
		SS	7	79	28	5	116.47					
End of Borehole	5.18											

100 200 300 400 500

RKI Eagle Rgd. (ppm)

▲ Full Gas Resp. △ Methane Elim.

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 23, 2020

FILE NO. **PE4767**

HOLE NO. **BH 6-20**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Photo Ionization Detector				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			<input checked="" type="radio"/> Volatile Organic Rgd. (ppm) <input type="radio"/> Lower Explosive Limit %				
GROUND SURFACE												
FILL: Brown silty sand with gravel, trace organics	0.38	AU	1			0	121.52					
Compact to dense, brown SILTY SAND		SS	2	54	9	1	120.52					
		SS	3	67	18	2	119.52					
		SS	4	71	28	3	118.52					
		SS	5	62	26	4	117.52					
		SS	6	79	25	4	117.52					
		SS	7	62	31	5	116.52					
	End of Borehole	5.11										
Practical refusal to augering at 5.11m depth.												

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

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
1520, 1524 and 1526 Stittsville Main Street
Ottawa, Ontario

DATUM Geodetic

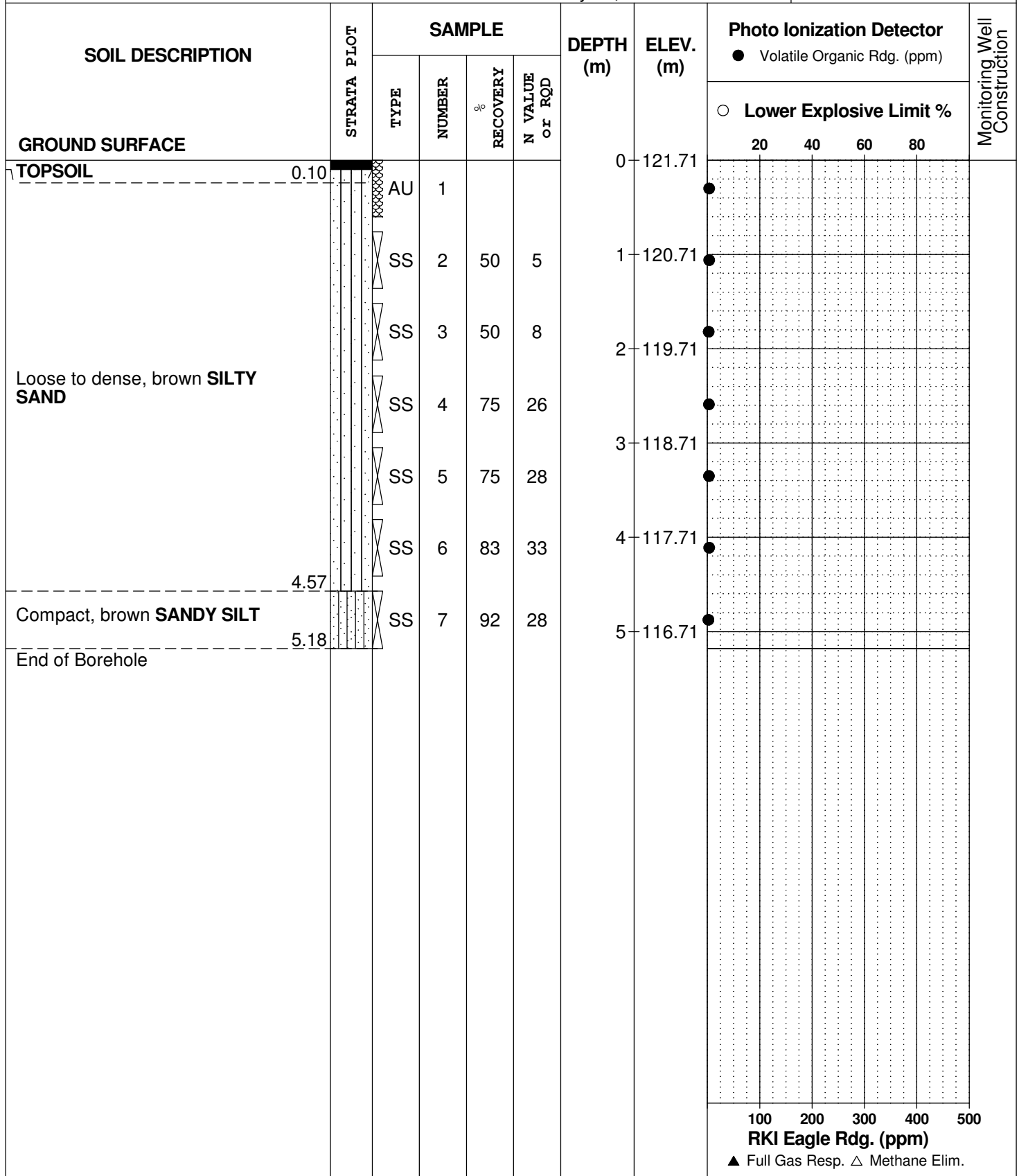
FILE NO. **PE4767**

REMARKS

HOLE NO. **BH 7-20**

BORINGS BY CME-55 Low Clearance Drill

DATE July 23, 2020



SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
1520, 1524 and 1526 Stittsville Main Street
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 23, 2020

FILE NO. **PE4767**

HOLE NO. **BH 8-20**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Photo Ionization Detector				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			● Volatile Organic Rdg. (ppm) ○ Lower Explosive Limit %				
GROUND SURFACE								20	40	60	80	
FILL: Topsoil with sand, some gravel, organics and boulders	0.51	AU	1			0	121.50					
Loose to compact, brown SILTY SAND		SS	2	50	5	1	120.50					
		SS	3	42	3	2	119.50					
		SS	4	50	18	3	118.50					
		SS	5	58	23							
		SS	6	75	50+							
Dense, brown SANDY SILT	3.81											
	4.19											
GLACIAL TILL: Brown silty sand with weathered bedrock	4.22											
End of Borehole												
Practical refusal to augering at 4.22m depth.												
								100	200	300	400	500
								RKI Eagle Rdg. (ppm)				
								▲ Full Gas Resp. △ Methane Elim.				

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
1520, 1524 and 1526 Stittsville Main Street
Ottawa, Ontario

DATUM Geodetic

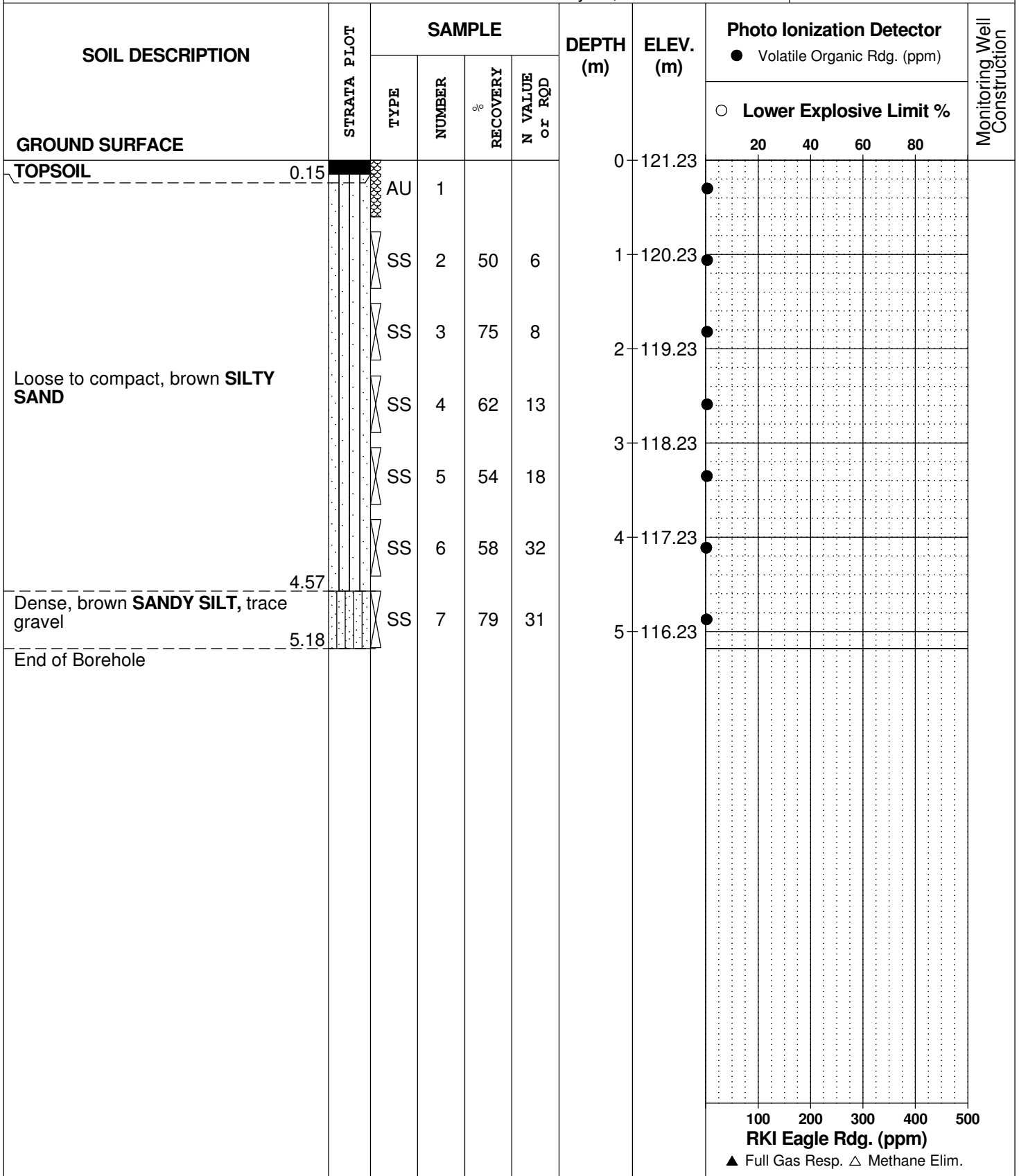
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 23, 2020

FILE NO. **PE4767**

HOLE NO. **BH 9-20**



SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
1520, 1524 and 1526 Stittsville Main Street
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 23, 2020

FILE NO. **PE4767**

HOLE NO. **BH10-20**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Photo Ionization Detector				Monitoring Well Construction	
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			● Volatile Organic Rgd. (ppm) ○ Lower Explosive Limit %					
GROUND SURFACE								20	40	60	80		
TOPSOIL	0.13	AU	1			0	121.46						
Loose, red-brown SILTY SAND , trace gravel		SS	2	58	6	1	120.46						
	1.37	SS	3	50	4	2	119.46						
Loose to compact, brown SILTY SAND		SS	4	58	8	3	118.46						
		SS	5	79	28	4	117.46						
		SS	6	67	30	4	117.46						
Dense, brown SANDY SILT , trace clay	4.57	SS	7	59	50+	5	116.46						
End of Borehole	5.00												
Practical refusal to augering at 5.00m depth.													

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

DATUM Geodetic

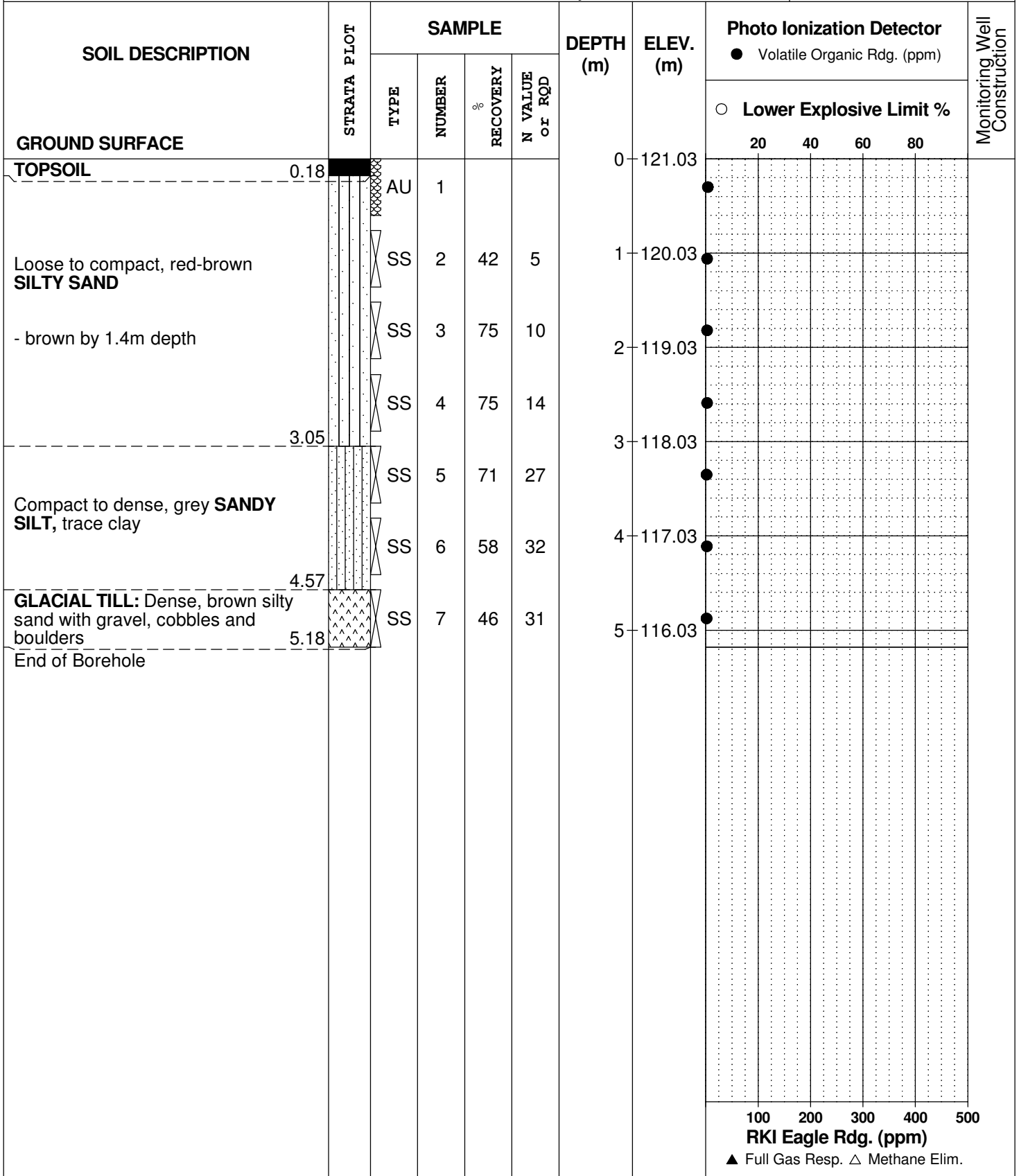
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 22, 2020

FILE NO. **PE4767**

HOLE NO. **BH11-20**



DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE July 22, 2020

FILE NO. **PE4767**

HOLE NO. **BH12-20**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Photo Ionization Detector				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			● Volatile Organic Rdg. (ppm) ○ Lower Explosive Limit %				
GROUND SURFACE								20	40	60	80	
TOPSOIL	0.20	AU	1			0	121.14					
Loose, brown SILTY SAND , some gravel		SS	2	8	8	1	120.14					
	1.52	SS	3	50	5	2	119.14					
Loose to compact, brown SILTY SAND		SS	4	58	10	3	118.14					
	3.81	SS	5	62	18	4	117.14					
GLACIAL TILL: Dense, brown silty sand with weathered bedrock	4.22	SS	6	50	50+	4	117.14					
End of Borehole												
Practical refusal to augering at 4.22m depth.												

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

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
1520, 1524 and 1526 Stittsville Main Street
Ottawa, Ontario

DATUM Geodetic

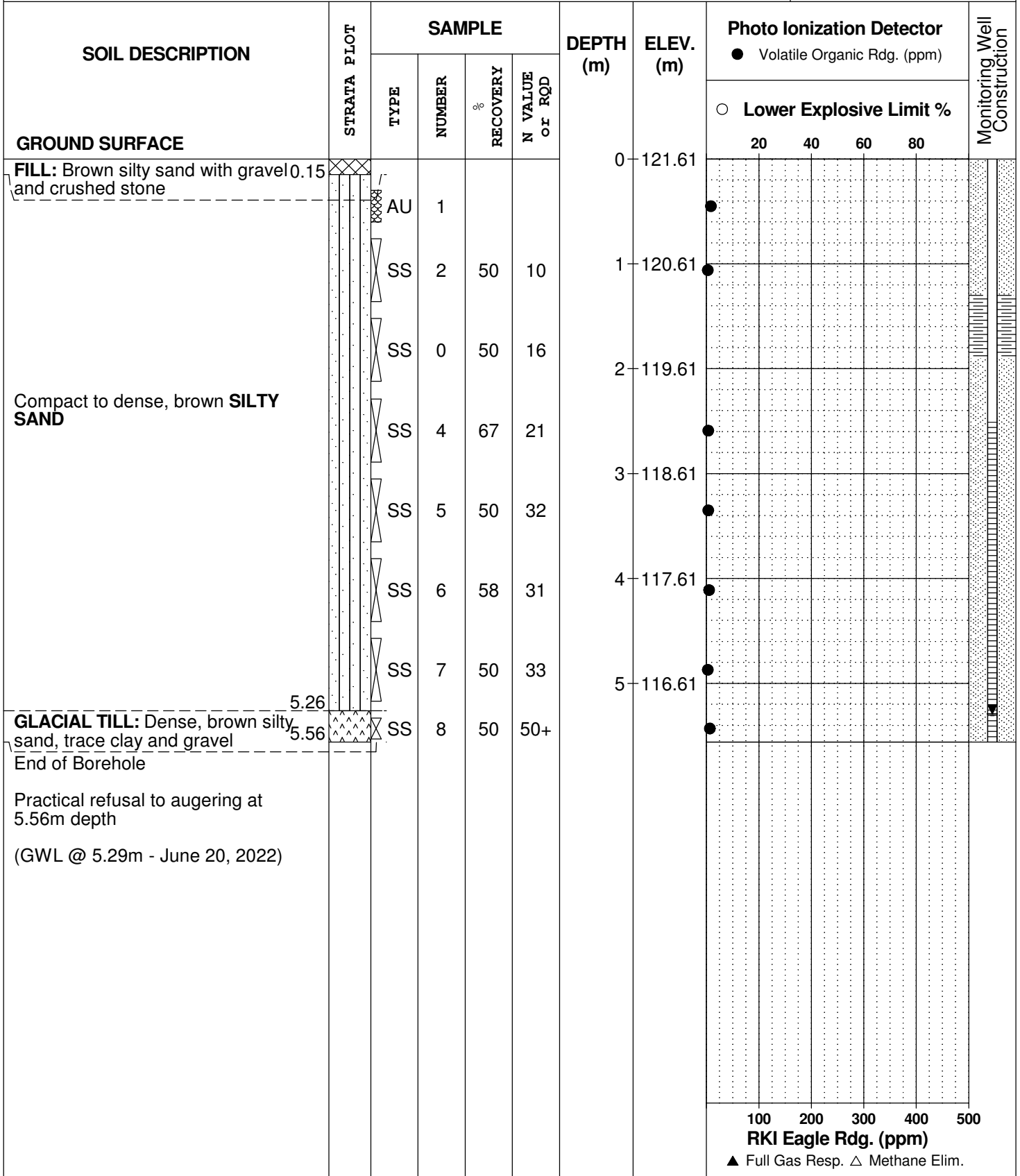
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE June 16, 2022

FILE NO.
PE4767

HOLE NO.
BH 1-22



DATUM Geodetic

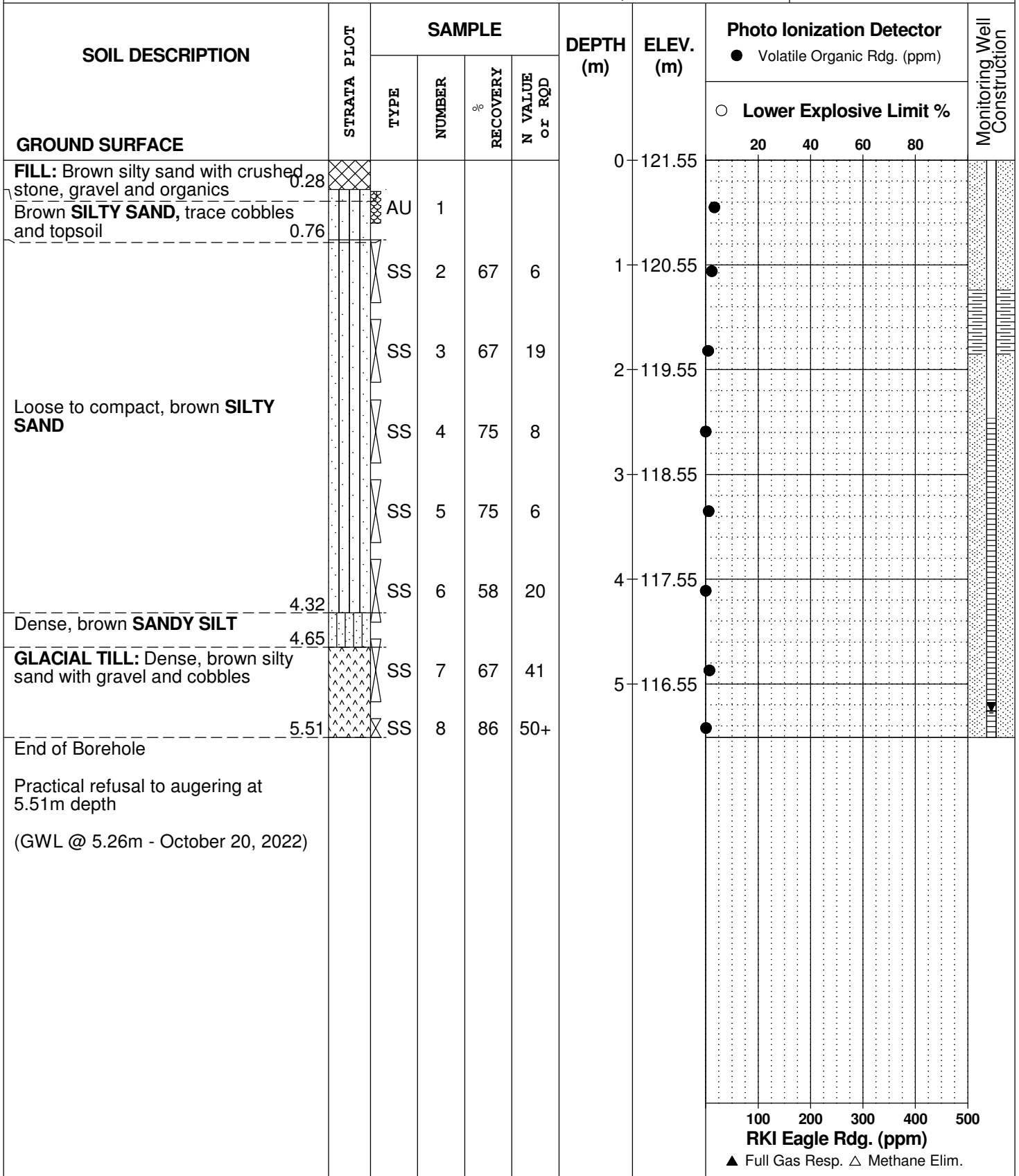
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE June 16, 2022

FILE NO.
PE4767

HOLE NO.
BH 2-22



DATUM Geodetic

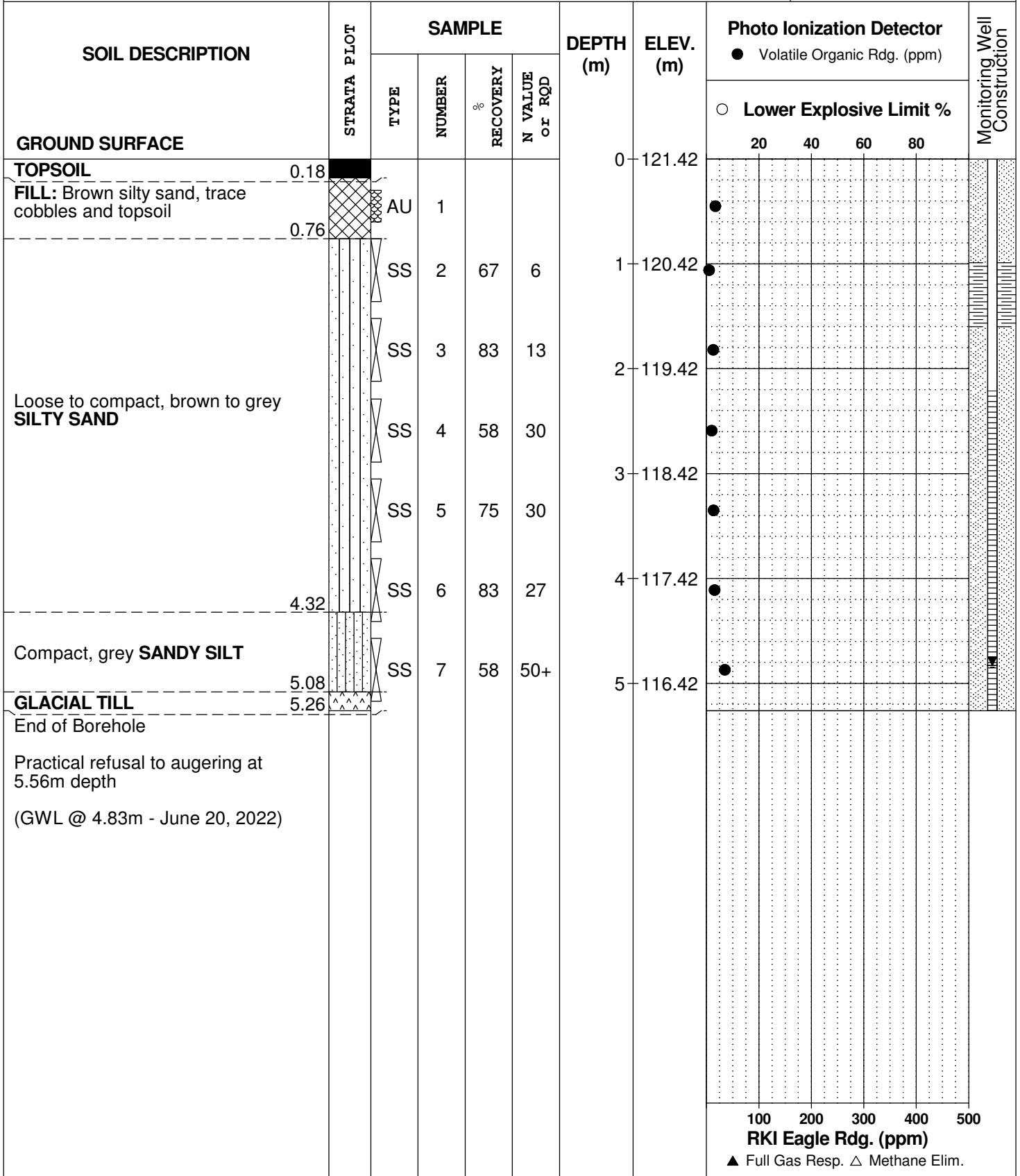
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE June 16, 2022

FILE NO.
PE4767

HOLE NO.
BH 3-22



DATUM Geodetic

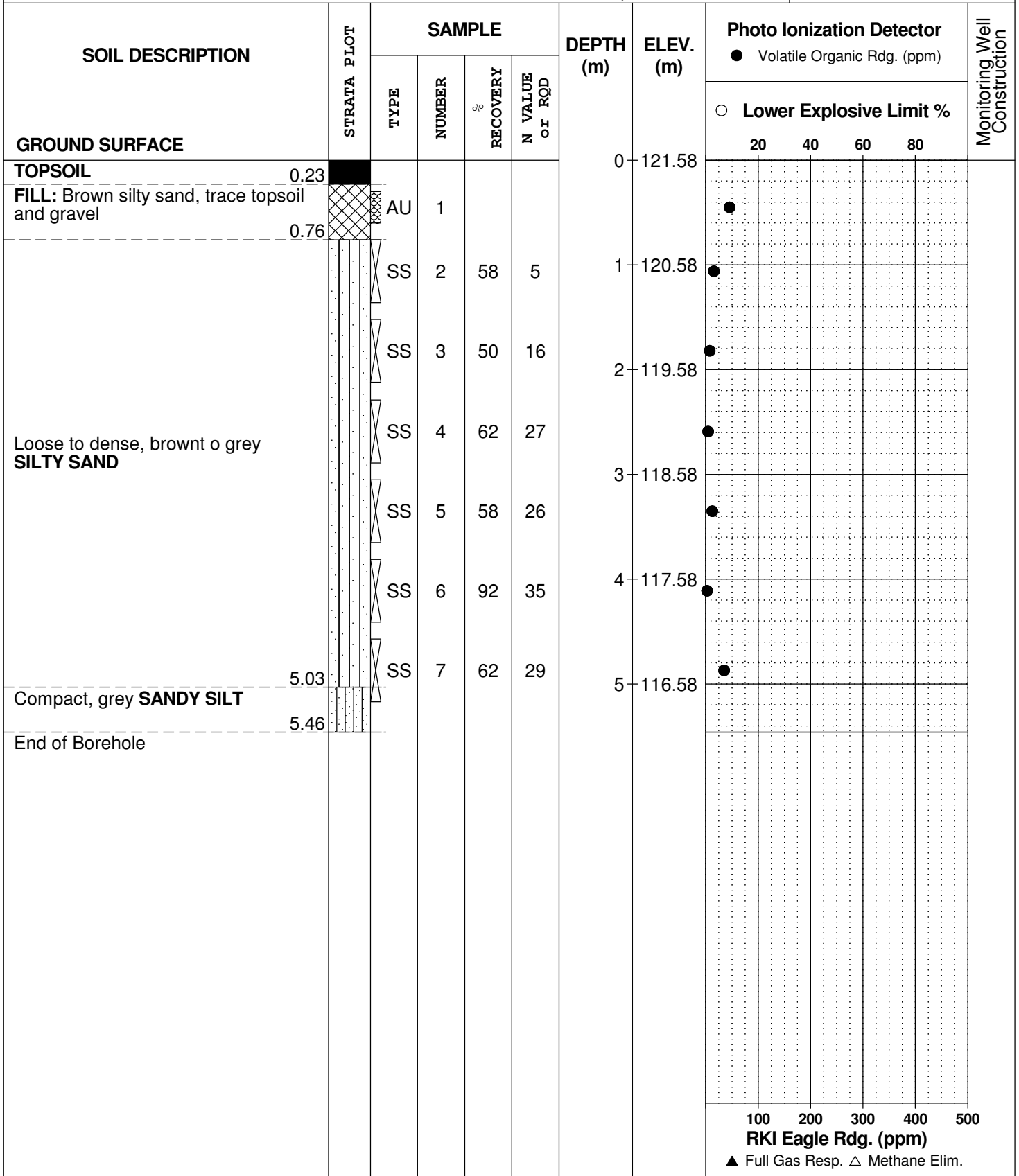
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE June 16, 2022

FILE NO.
PE4767

HOLE NO.
BH 4-22



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

DATUM Geodetic

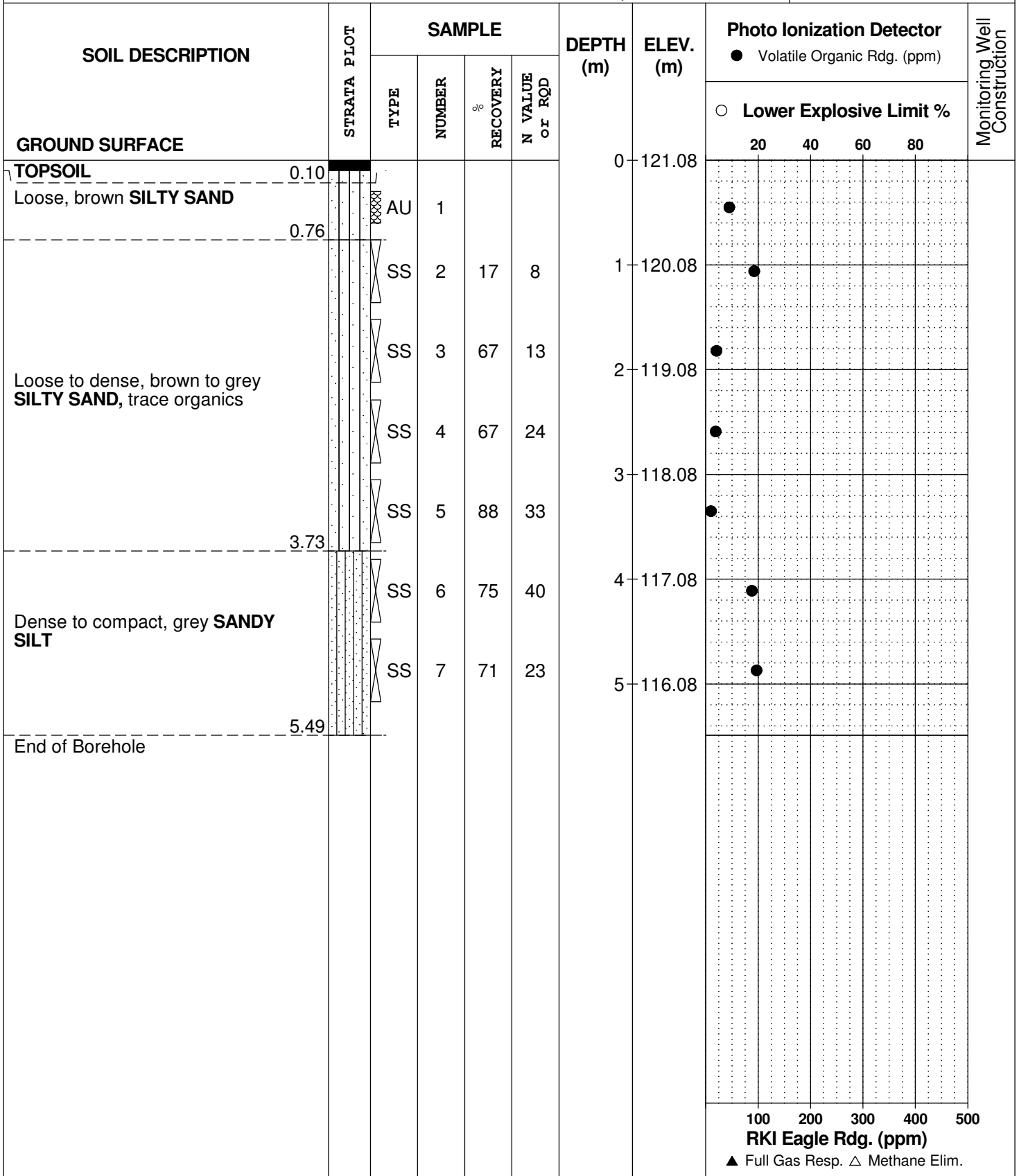
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE June 16, 2022

FILE NO.
PE4767

HOLE NO.
BH 5-22



Parameter	Units	MDL	Regulation	Sample															
				BH1-SS1	BH2-SS7	BH4-SS8	BH1-SS7	BH2-SS2	BH2-SS6	BH3-SS6	BH1-20-SS8	BH2_20-SS7	BH3-20-SS2	BH3-20-SS7	DUP1	BH4-20-SS2	BH1-22-SS2	BH1-22-SS7	
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Residential, coarse	11/09/2011	11/09/2011	11/09/2011	06/03/2011	06/03/2011	06/03/2011	06/03/2011	06/03/2011	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/23/2020	06/16/2020	06/16/2020
Metals																			
Chromium (VI)	ug/g dry	0.2	8 ug/g dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.2)	NA	NA	ND (0.2)	NA	NA
Mercury	ug/g dry	0.1	0.27 ug/g dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA	NA	0.5	NA	NA
Antimony	ug/g dry	1.0	7.5 ug/g dry	NA	NA	NA	NA	ND (1.0)	NA	NA	NA	NA	NA	ND (1.0)	NA	NA	ND (1.0)	ND (1.0)	ND (1.0)
Arsenic	ug/g dry	1.0	18 ug/g dry	NA	NA	NA	NA	2.1	NA	NA	NA	NA	NA	3.2	NA	NA	5.8	1.8	1.3
Barium	ug/g dry	1.0	390 ug/g dry	NA	NA	NA	NA	51.3	NA	NA	NA	NA	NA	198	NA	NA	185	14.0	8.3
Beryllium	ug/g dry	0.5	4 ug/g dry	NA	NA	NA	NA	ND (0.5)	NA	NA	NA	NA	NA	ND (0.5)	NA	NA	ND (0.5)	ND (0.5)	ND (0.5)
Boron	ug/g dry	5.0	120 ug/g dry	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	10.3	NA	NA	10.1	ND (5.0)	ND (5.0)
Cadmium	ug/g dry	0.5	1.2 ug/g dry	NA	NA	NA	NA	ND (0.5)	NA	NA	NA	NA	NA	ND (0.5)	NA	NA	ND (0.5)	ND (0.5)	ND (0.5)
Chromium	ug/g dry	5.0	160 ug/g dry	NA	NA	NA	NA	11.6	NA	NA	NA	NA	NA	14.3	NA	NA	22.9	8.8	6.4
Cobalt	ug/g dry	1.0	22 ug/g dry	NA	NA	NA	NA	3	NA	NA	NA	NA	NA	5.8	NA	NA	5.6	5.5	3.7
Copper	ug/g dry	5.0	140 ug/g dry	NA	NA	NA	NA	15.9	NA	NA	NA	NA	NA	12.4	NA	NA	43.3	12.2	9.3
Lead	ug/g dry	1.0	120 ug/g dry	NA	NA	NA	NA	61.3	NA	NA	NA	NA	NA	13.1	NA	NA	268	3.6	2.5
Molybdenum	ug/g dry	1.0	6.9 ug/g dry	NA	NA	NA	NA	ND (1.0)	NA	NA	NA	NA	NA	ND (1.0)	NA	NA	ND (1.0)	ND (1.0)	ND (1.0)
Nickel	ug/g dry	5.0	100 ug/g dry	NA	NA	NA	NA	5.6	NA	NA	NA	NA	NA	13.1	NA	NA	11.6	8.0	ND (5.0)
Selenium	ug/g dry	1.0	2.4 ug/g dry	NA	NA	NA	NA	ND (1.0)	NA	NA	NA	NA	NA	ND (1.0)	NA	NA	ND (1.0)	ND (1.0)	ND (1.0)
Silver	ug/g dry	0.3	20 ug/g dry	NA	NA	NA	NA	ND (0.3)	NA	NA	NA	NA	NA	ND (0.3)	NA	NA	0.3	ND (0.3)	ND (0.3)
Thallium	ug/g dry	1.0	1 ug/g dry	NA	NA	NA	NA	ND (1.0)	NA	NA	NA	NA	NA	ND (1.0)	NA	NA	ND (1.0)	ND (1.0)	ND (1.0)
Uranium	ug/g dry	1.0	23 ug/g dry	NA	NA	NA	NA	ND (1.0)	NA	NA	NA	NA	NA	ND (1.0)	NA	NA	ND (1.0)	ND (1.0)	ND (1.0)
Vanadium	ug/g dry	10.0	86 ug/g dry	NA	NA	NA	NA	12.5	NA	NA	NA	NA	NA	21.4	NA	NA	23.9	22.3	16.1
Zinc	ug/g dry	20.0	340 ug/g dry	NA	NA	NA	NA	82.9	NA	NA	NA	NA	NA	ND (20.0)	NA	NA	236	ND (20.0)	ND (20.0)
Volatiles																			
Acetone	ug/L	5.0	16 ug/g dry	NA	ND(0.5)	ND(0.5)	ND (0.50)	NA	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	ND (0.50)	ND (0.50)	NA	ND (0.50)	ND (0.50)
Benzene	ug/L	0.5	0.21 ug/g dry	NA	ND(0.02)	ND(0.02)	ND (0.02)	NA	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	ND (0.02)	ND (0.02)	NA	ND (0.02)	ND (0.02)
Bromodichloromethane	ug/L	0.5	13 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Bromoform	ug/L	0.5	0.27 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Bromomethane	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Carbon Tetrachloride	ug/L	0.2	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Chlorobenzene	ug/L	0.5	2.4 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Chloroethane	ug/g dry	0.05		NA	ND(0.05)	ND(0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Chloromethane	ug/g dry	0.05		NA	ND(0.2)	ND(0.2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	ug/L	0.5	9.4 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Dichlorodifluoromethane	ug/L	1.0	16 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2-Dichlorobenzene	ug/L	0.5	3.4 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,3-Dichlorobenzene	ug/L	0.5	4.8 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,4-Dichlorobenzene	ug/L	0.5	0.083 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1-Dichloroethane	ug/L	0.5	3.5 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2-Dichloroethane	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)

Parameter	Units	MDL	Regulation	Sample															
				BH1-SS1	BH2-SS7	BH4-SS8	BH1-SS7	BH2-SS2	BH2-SS6	BH3-SS6	BH1-20-SS8	BH2_20-SS7	BH3-20-SS2	BH3-20-SS7	DUP1	BH4-20-SS2	BH1-22-SS2	BH1-22-SS7	
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Residential, coarse	11/09/2011	11/09/2011	11/09/2011	06/03/2011	06/03/2011	06/03/2011	06/03/2011	06/03/2011	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/22/2020	07/23/2020	06/16/2020	06/16/2020
1,1-Dichloroethylene	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
cis-1,2-Dichloroethylene	ug/L	0.5	3.4 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
trans-1,2-Dichloroethylene	ug/L	0.5	0.084 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2-Dichloropropane	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
cis-1,3-Dichloropropylene	ug/L	0.5		NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
trans-1,3-Dichloropropylene	ug/L	0.5		NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,3-Dichloropropene, total	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Ethylbenzene	ug/L	0.5	2 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Ethylene dibromide (dibromide)	ug/L	0.2	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Hexane	ug/L	1.0	2.8 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	16 ug/g dry	NA	ND(0.5)	ND(0.5)	ND (0.50)	NA	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	ND (0.50)	ND (0.50)	NA	ND (0.50)	ND (0.50)
Methyl Isobutyl Ketone	ug/L	5.0	1.7 ug/g dry	NA	ND(0.5)	ND(0.5)	ND (0.50)	NA	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	ND (0.50)	ND (0.50)	NA	ND (0.50)	ND (0.50)
Methyl tert-butyl ether	ug/L	2.0	0.75 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Methylene Chloride	ug/L	5.0	0.1 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Styrene	ug/L	0.5	0.7 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1,1,2-Tetrachloroethane	ug/L	0.5	0.058 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1,2,2-Tetrachloroethane	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Tetrachloroethylene	ug/L	0.5	0.28 ug/g dry	NA	1.9	0.09	1.01	NA	ND (0.05)	ND (0.05)	0.25	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Toluene	ug/L	0.5	2.3 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2,4-Trichlorobenzene	ug/g dry	0.05	0.36 ug/g dry	NA	ND(0.05)	ND(0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)
1,1,1-Trichloroethane	ug/L	0.5	0.38 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1,2-Trichloroethane	ug/L	0.5	0.05 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Trichloroethylene	ug/L	0.5	0.061 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Trichlorofluoromethane	ug/L	1.0	4 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Vinyl Chloride	ug/L	0.5	0.02 ug/g dry	NA	ND(0.02)	ND(0.02)	ND (0.02)	NA	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	ND (0.02)	ND (0.02)	NA	ND (0.02)	ND (0.02)
m/p-Xylene	ug/L	0.5		NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
o-Xylene	ug/L	0.5		NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Xylenes, total	ug/L	0.5	3.1 ug/g dry	NA	ND(0.05)	ND(0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	ND (0.05)	ND (0.05)
Hydrocarbons																			
F1 PHCs (C6-C10)	ug/g dry	7	55 ug/g dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (7)	ND (7)
F2 PHCs (C10-C16)	ug/g dry	4	98 ug/g dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (4)	ND (4)
F3 PHCs (C16-C34)	ug/g dry	8	300 ug/g dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (8)	ND (8)
F4 PHCs (C34-C50)	ug/g dry	6	2800 ug/g dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (6)	ND (6)
Semi-Volatiles																			
Acenaphthene	ug/g dry	0.02	7.9 ug/g dry	ND(0.02)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.02)	NA	NA	ND (0.02)	NA	NA
Acenaphthylene	ug/g dry	0.02	0.15 ug/g dry	ND(0.02)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.02)	NA	NA	0.07	NA	NA
Anthracene	ug/g dry	0.02	0.67 ug/g dry	ND(0.02)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.02)	NA	NA	0.04	NA	NA
Benzo[a]anthracene	ug/g dry	0.02	0.5 ug/g dry	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.02)	NA	NA	0.12	NA	NA
Benzo[a]pyrene	ug/g dry	0.02	0.3 ug/g dry	ND(0.02)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.02)	NA	NA	0.17	NA	NA
Benzo[b]fluoranthene	ug/g dry	0.02	0.78 ug/g dry	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.02)	NA	NA	0.25	NA	NA

Parameter	Units	MDL	Regulation	Sample					
				BH2-22-SS5	BH3-22-SS7	BH3-102	BH4-22-SS5	BH5-22-SS2	BH5-22-SS6
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Residential, coarse	06/16/2022	06/16/2022	06/16/2022	06/16/2022	06/16/2022	06/16/2022
				2	2	2	2	2	2
Metals									
Chromium (VI)	ug/g dry	0.2	8 ug/g dry	NA	NA	NA	NA	NA	NA
Mercury	ug/g dry	0.1	0.27 ug/g dry	NA	NA	NA	NA	NA	NA
Antimony	ug/g dry	1.0	7.5 ug/g dry	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)
Arsenic	ug/g dry	1.0	18 ug/g dry	1.7	1.6	N/A	1.3	2.0	2.0
Barium	ug/g dry	1.0	390 ug/g dry	11.7	29.9	N/A	14.9	16.9	93.3
Beryllium	ug/g dry	0.5	4 ug/g dry	ND (0.5)	ND (0.5)	N/A	ND (0.5)	ND (0.5)	ND (0.5)
Boron	ug/g dry	5.0	120 ug/g dry	ND (5.0)	ND (5.0)	N/A	ND (5.0)	ND (5.0)	ND (5.0)
Cadmium	ug/g dry	0.5	1.2 ug/g dry	ND (0.5)	ND (0.5)	N/A	ND (0.5)	ND (0.5)	ND (0.5)
Chromium	ug/g dry	5.0	160 ug/g dry	9.2	11.2	N/A	6.1	7.6	19.0
Cobalt	ug/g dry	1.0	22 ug/g dry	5.4	3.6	N/A	3.6	4.3	5.4
Copper	ug/g dry	5.0	140 ug/g dry	11.7	8.6	N/A	9.2	5.7	13.7
Lead	ug/g dry	1.0	120 ug/g dry	2.8	2.6	N/A	3.5	6.8	3.3
Molybdenum	ug/g dry	1.0	6.9 ug/g dry	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)
Nickel	ug/g dry	5.0	100 ug/g dry	6.7	13.9	N/A	5.4	6.3	11.8
Selenium	ug/g dry	1.0	2.4 ug/g dry	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)
Silver	ug/g dry	0.3	20 ug/g dry	ND (0.3)	ND (0.3)	N/A	ND (0.3)	ND (0.3)	ND (0.3)
Thallium	ug/g dry	1.0	1 ug/g dry	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)
Uranium	ug/g dry	1.0	23 ug/g dry	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)
Vanadium	ug/g dry	10.0	86 ug/g dry	27.5	22.6	N/A	15.6	15.6	32.2
Zinc	ug/g dry	20.0	340 ug/g dry	ND (20.0)	ND (20.0)	N/A	ND (20.0)	ND (20.0)	27.2
Volatiles									
Acetone	ug/L	5.0	16 ug/g dry	ND (0.50)	NA	ND (0.50)	NA	ND (0.50)	ND (0.50)
Benzene	ug/L	0.5	0.21 ug/g dry	ND (0.02)	NA	ND (0.02)	NA	ND (0.02)	ND (0.02)
Bromodichloromethane	ug/L	0.5	13 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Bromoform	ug/L	0.5	0.27 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Bromomethane	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Carbon Tetrachloride	ug/L	0.2	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Chlorobenzene	ug/L	0.5	2.4 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Chloroethane	ug/g dry	0.05		NA	NA	NA	NA	NA	NA
Chloroform	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Chloromethane	ug/g dry	0.05		NA	NA	NA	NA	NA	NA
Dibromochloromethane	ug/L	0.5	9.4 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Dichlorodifluoromethane	ug/L	1.0	16 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2-Dichlorobenzene	ug/L	0.5	3.4 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,3-Dichlorobenzene	ug/L	0.5	4.8 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,4-Dichlorobenzene	ug/L	0.5	0.083 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1-Dichloroethane	ug/L	0.5	3.5 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2-Dichloroethane	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)

Parameter	Units	MDL	Regulation	Sample					
				BH2-22-SS5	BH3-22-SS7	BH3-102	BH4-22-SS5	BH5-22-SS2	BH5-22-SS6
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Residential, coarse	06/16/2022	06/16/2022	06/16/2022	06/16/2022	06/16/2022	06/16/2022
				2	2	2	2	2	2
1,1-Dichloroethylene	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
cis-1,2-Dichloroethylene	ug/L	0.5	3.4 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
trans-1,2-Dichloroethylene	ug/L	0.5	0.084 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2-Dichloropropane	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
cis-1,3-Dichloropropylene	ug/L	0.5		ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
trans-1,3-Dichloropropylene	ug/L	0.5		ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,3-Dichloropropene, total	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Ethylbenzene	ug/L	0.5	2 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Ethylene dibromide (dibromide)	ug/L	0.2	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Hexane	ug/L	1.0	2.8 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	16 ug/g dry	ND (0.50)	NA	ND (0.50)	NA	ND (0.50)	ND (0.50)
Methyl Isobutyl Ketone	ug/L	5.0	1.7 ug/g dry	ND (0.50)	NA	ND (0.50)	NA	ND (0.50)	ND (0.50)
Methyl tert-butyl ether	ug/L	2.0	0.75 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Methylene Chloride	ug/L	5.0	0.1 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Styrene	ug/L	0.5	0.7 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1,1,2-Tetrachloroethane	ug/L	0.5	0.058 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1,2,2-Tetrachloroethane	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Tetrachloroethylene	ug/L	0.5	0.28 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Toluene	ug/L	0.5	2.3 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,2,4-Trichlorobenzene	ug/g dry	0.05	0.36 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1,1-Trichloroethane	ug/L	0.5	0.38 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
1,1,2-Trichloroethane	ug/L	0.5	0.05 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Trichloroethylene	ug/L	0.5	0.061 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Trichlorofluoromethane	ug/L	1.0	4 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Vinyl Chloride	ug/L	0.5	0.02 ug/g dry	ND (0.02)	NA	ND (0.02)	NA	ND (0.02)	ND (0.02)
m/p-Xylene	ug/L	0.5		ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
o-Xylene	ug/L	0.5		ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Xylenes, total	ug/L	0.5	3.1 ug/g dry	ND (0.05)	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)
Hydrocarbons									
F1 PHCs (C6-C10)	ug/g dry	7	55 ug/g dry	ND (7)	ND (7)	NA	ND (7)	ND (7)	ND (7)
F2 PHCs (C10-C16)	ug/g dry	4	98 ug/g dry	ND (4)	ND (4)	NA	ND (4)	ND (4)	ND (4)
F3 PHCs (C16-C34)	ug/g dry	8	300 ug/g dry	ND (8)	ND (8)	NA	ND (8)	ND (8)	ND (8)
F4 PHCs (C34-C50)	ug/g dry	6	2800 ug/g dry	ND (6)	ND (6)	NA	ND (6)	ND (6)	ND (6)
Semi-Volatiles									
Acenaphthene	ug/g dry	0.02	7.9 ug/g dry	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/g dry	0.02	0.15 ug/g dry	NA	NA	NA	NA	NA	NA
Anthracene	ug/g dry	0.02	0.67 ug/g dry	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	ug/g dry	0.02	0.5 ug/g dry	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	ug/g dry	0.02	0.3 ug/g dry	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	ug/g dry	0.02	0.78 ug/g dry	NA	NA	NA	NA	NA	NA

Parameter	Units	MDL	Regulation	Sample					
				BH2-22-SS5	BH3-22-SS7	BH3-102	BH4-22-SS5	BH5-22-SS2	BH5-22-SS6
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Residential, coarse	06/16/2022	06/16/2022	06/16/2022	06/16/2022	06/16/2022	06/16/2022
				2	2	2	2	2	2
Benzo[g,h,i]perylene	ug/g dry	0.02	6.6 ug/g dry	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	ug/g dry	0.02	0.78 ug/g dry	NA	NA	NA	NA	NA	NA
Chrysene	ug/g dry	0.02	7 ug/g dry	NA	NA	NA	NA	NA	NA
Dibenzo[a,h]anthracene	ug/g dry	0.02	0.1 ug/g dry	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/g dry	0.02	0.69 ug/g dry	NA	NA	NA	NA	NA	NA
Fluorene	ug/g dry	0.02	62 ug/g dry	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	ug/g dry	0.02	0.38 ug/g dry	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	ug/g dry	0.02	0.99 ug/g dry	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/g dry	0.02	0.99 ug/g dry	NA	NA	NA	NA	NA	NA
Methylnaphthalene (1&2)	ug/g dry	0.04	0.99 ug/g dry	NA	NA	NA	NA	NA	NA
Naphthalene	ug/g dry	0.01	0.6 ug/g dry	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/g dry	0.02	6.2 ug/g dry	NA	NA	NA	NA	NA	NA
Pyrene	ug/g dry	0.02	78 ug/g dry	NA	NA	NA	NA	NA	NA
Biphenyl	ug/g dry	0.03		NA	NA	NA	NA	NA	NA

Parameter	Units	MDL	Regulation	Sample															
				BH2-GW1	BH4-GW1	BH1-GW1	BH2-GW1	BH3-GW1	BH1-GW2	BH2-GW2	BH3-GW2	BH1-GW3	BH2-GW1	MW1-GW1	BH2-G1	BH1-20-GW1	BH2-20-GW1	BH3-20-GW1	
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Non-Potable Groundwater, coarse	11/14/2011	11/14/2011	06/11/2019	06/11/2019	06/11/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	10/11/2019	10/25/2019	7/22/2020	08/06/2020	08/06/2020	08/06/2020
Volatiles																			
Acetone	ug/L	5.0	130000 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND(30)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Benzene	ug/L	0.5	44 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromodichloromethane	ug/L	0.5	85000 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.3)	ND (0.5)	3.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	ug/L	0.5	380 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.4)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromomethane	ug/L	0.5	5.6 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Carbon Tetrachloride	ug/L	0.2	0.79 ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND(0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Chlorobenzene	ug/L	0.5	630 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloroethane	ug/L	1.0		ND (1.0)	ND (1.0)	NA	NA	NA	NA	NA	NA	NA	ND(0.2)	ND (1.0)	NA	NA	NA	NA	NA
Chloroform	ug/L	0.5	2.4 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	28.1	17.5	ND (0.5)	ND (0.5)	ND (0.5)
Chloromethane	ug/L	3.0		ND (3.0)	ND (3.0)	NA	NA	NA	NA	NA	NA	NA	NA	ND (3.0)	NA	NA	NA	NA	NA
Dibromochloromethane	ug/L	0.5	82000 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.3)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dichlorodifluoromethane	ug/L	1.0	4400 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND(0.5)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	ug/L	0.5	4600 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.4)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichlorobenzene	ug/L	0.5	9600 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.4)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	ug/L	0.5	8 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.4)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethane	ug/L	0.5	320 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.4)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethane	ug/L	0.5	1.6 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethylene	ug/L	0.5	1.6 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,2-Dichloroethylene	ug/L	0.5	1.6 ug/L	5.5	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.4)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,2-Dichloroethylene	ug/L	0.5	1.6 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.4)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethylene, total	ug/L	0.5		5.5	ND(0.5)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.5)	NA	NA	NA	NA	NA
1,2-Dichloropropane	ug/L	0.5	16 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,3-Dichloropropylene	ug/L	0.5		ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,3-Dichloropropylene	ug/L	0.5		ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichloropropene, total	ug/L	0.5	5.2 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	0.5	2300 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylene dibromide (dibromide)	ug/L	0.2	0.25 ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND(0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Hexane	ug/L	1.0	51 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND(5)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	470000 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND(10)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Methyl Butyl Ketone (2-Hexanone)	ug/L	10		ND (10.0)	ND (10.0)	NA	NA	NA	NA	NA	NA	NA	NA	ND (10.0)	NA	NA	NA	NA	NA
Methyl Isobutyl Ketone	ug/L	5.0	140000 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND(10)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Methyl tert-butyl ether	ug/L	2.0	190 ug/L	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND(2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Methylene Chloride	ug/L	5.0	610 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND(4.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Styrene	ug/L	0.5	1300 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,1,2-Tetrachloroethane	ug/L	0.5	3.3 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2,2-Tetrachloroethane	ug/L	0.5	3.2 ug/L	ND(0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Tetrachloroethylene	ug/L	0.5	1.6 ug/L	226	8.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND(0.3)	ND (0.5)	9.6	3.7	40.3	1.7	3.5

Parameter	Units	MDL	Regulation	Sample														
				BH2-19-GW2	BH2-20-GW	BH1-22-GW	BH2-22-GW	BH3-22-GW	BH2-102-GW	BH1-20-GW	BH2-20-GW	BH2-22-GW	BH3-22-GW	BH2-20-GW	BH1-22-GW	BH3-22-GW	DUP	BH2-20-GW
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Non-Potable Groundwater, coarse	08/06/2020	06/20/2022	06/20/2022	06/20/2022	06/20/2022	06/20/2022	11/04/2022	11/04/2022	11/04/2022	11/04/2022	06/05/2023	06/05/2023	06/05/2023	06/05/2023	08/15/2023
Volatiles																		
Acetone	ug/L	5.0	130000 ug/L	NA	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Benzene	ug/L	0.5	44 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromodichloromethane	ug/L	0.5	85000 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	ug/L	0.5	380 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromomethane	ug/L	0.5	5.6 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Carbon Tetrachloride	ug/L	0.2	0.79 ug/L	NA	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Chlorobenzene	ug/L	0.5	630 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloroethane	ug/L	1.0		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/L	0.5	2.4 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	5.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloromethane	ug/L	3.0		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	ug/L	0.5	82000 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dichlorodifluoromethane	ug/L	1.0	4400 ug/L	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	ug/L	0.5	4600 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichlorobenzene	ug/L	0.5	9600 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	ug/L	0.5	8 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethane	ug/L	0.5	320 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethane	ug/L	0.5	1.6 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethylene	ug/L	0.5	1.6 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,2-Dichloroethylene	ug/L	0.5	1.6 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,2-Dichloroethylene	ug/L	0.5	1.6 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethylene, total	ug/L	0.5		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	ug/L	0.5	16 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,3-Dichloropropylene	ug/L	0.5		NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,3-Dichloropropylene	ug/L	0.5		NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichloropropene, total	ug/L	0.5	5.2 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	0.5	2300 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylene dibromide (dibromide)	ug/L	0.2	0.25 ug/L	NA	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Hexane	ug/L	1.0	51 ug/L	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	470000 ug/L	NA	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Methyl Butyl Ketone (2-Hexanone)	ug/L	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Isobutyl Ketone	ug/L	5.0	140000 ug/L	NA	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	NA	NA	NA	NA	ND (5.0)
Methyl tert-butyl ether	ug/L	2.0	190 ug/L	NA	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Methylene Chloride	ug/L	5.0	610 ug/L	NA	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Styrene	ug/L	0.5	1300 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,1,2-Tetrachloroethane	ug/L	0.5	3.3 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2,2-Tetrachloroethane	ug/L	0.5	3.2 ug/L	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Tetrachloroethylene	ug/L	0.5	1.6 ug/L	NA	1.1	1.4	10.8	2.8	11.0	57.1	2.2	19.7	1.5	ND (0.5)	4.2	ND (0.5)	4.1	ND (0.5)

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Rd South
Nepean, ON K2E 7J5
Attn: Mark St. Pierre

Client PO: 30459
Project: PE4767
Custody: 128563

Report Date: 29-Jul-2020
Order Date: 23-Jul-2020

Order #: 2030460

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

Parcel ID	Client ID
2030460-01	BH1-20-SS8
2030460-02	BH2-20-SS7
2030460-03	BH3-20-SS2
2030460-04	BH3-20-SS7

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	24-Jul-20	28-Jul-20
Mercury by CVAA	EPA 7471B - CVAA, digestion	28-Jul-20	29-Jul-20
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	28-Jul-20	28-Jul-20
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	23-Jul-20	27-Jul-20
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	24-Jul-20	26-Jul-20
Solids, %	Gravimetric, calculation	28-Jul-20	28-Jul-20

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

Client ID:	BH1-20-SS8	BH2-20-SS7	BH3-20-SS2	BH3-20-SS7
Sample Date:	22-Jul-20 09:00	22-Jul-20 09:00	22-Jul-20 09:00	22-Jul-20 09:00
Sample ID:	2030460-01	2030460-02	2030460-03	2030460-04
MDL/Units	Soil	Soil	Soil	Soil

Physical Characteristics

% Solids	0.1 % by Wt.	90.7	81.0	97.2	87.4
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Metals

Antimony	1.0 ug/g dry	-	-	<1.0	-
Arsenic	1.0 ug/g dry	-	-	3.2	-
Barium	1.0 ug/g dry	-	-	198	-
Beryllium	0.5 ug/g dry	-	-	<0.5	-
Boron	5.0 ug/g dry	-	-	10.3	-
Cadmium	0.5 ug/g dry	-	-	<0.5	-
Chromium	5.0 ug/g dry	-	-	14.3	-
Chromium (VI)	0.2 ug/g dry	-	-	<0.2	-
Cobalt	1.0 ug/g dry	-	-	5.8	-
Copper	5.0 ug/g dry	-	-	12.4	-
Lead	1.0 ug/g dry	-	-	13.1	-
Mercury	0.1 ug/g dry	-	-	<0.1	-
Molybdenum	1.0 ug/g dry	-	-	<1.0	-
Nickel	5.0 ug/g dry	-	-	13.1	-
Selenium	1.0 ug/g dry	-	-	<1.0	-
Silver	0.3 ug/g dry	-	-	<0.3	-
Thallium	1.0 ug/g dry	-	-	<1.0	-
Uranium	1.0 ug/g dry	-	-	<1.0	-
Vanadium	10.0 ug/g dry	-	-	21.4	-
Zinc	20.0 ug/g dry	-	-	<20.0	-

Volatiles

Acetone	0.50 ug/g dry	<0.50	<0.50	-	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	-	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

	Client ID:	BH1-20-SS8	BH2-20-SS7	BH3-20-SS2	BH3-20-SS7
	Sample Date:	22-Jul-20 09:00	22-Jul-20 09:00	22-Jul-20 09:00	22-Jul-20 09:00
	Sample ID:	2030460-01	2030460-02	2030460-03	2030460-04
	MDL/Units	Soil	Soil	Soil	Soil
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
1,1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Tetrachloroethylene	0.05 ug/g dry	0.25	<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%	116%	-	124%
Dibromofluoromethane	Surrogate	85.4%	85.9%	-	83.2%
Toluene-d8	Surrogate	122%	121%	-	119%
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	-	<0.02	-
Acenaphthylene	0.02 ug/g dry	-	-	<0.02	-

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

	Client ID:	BH1-20-SS8	BH2-20-SS7	BH3-20-SS2	BH3-20-SS7
	Sample Date:	22-Jul-20 09:00	22-Jul-20 09:00	22-Jul-20 09:00	22-Jul-20 09:00
	Sample ID:	2030460-01	2030460-02	2030460-03	2030460-04
	MDL/Units	Soil	Soil	Soil	Soil
Anthracene	0.02 ug/g dry	-	-	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	-	-	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	-	-	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	-	-	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	-	-	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	-	-	<0.02	-
Chrysene	0.02 ug/g dry	-	-	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	<0.02	-
Fluoranthene	0.02 ug/g dry	-	-	<0.02	-
Fluorene	0.02 ug/g dry	-	-	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	<0.04	-
Naphthalene	0.01 ug/g dry	-	-	<0.01	-
Phenanthrene	0.02 ug/g dry	-	-	<0.02	-
Pyrene	0.02 ug/g dry	-	-	<0.02	-
2-Fluorobiphenyl	Surrogate	-	-	121%	-
Terphenyl-d14	Surrogate	-	-	90.4%	-

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

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	1.12		ug/g		83.9	50-140			
Surrogate: Terphenyl-d14	1.26		ug/g		94.6	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						
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						

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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-Hexane	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	3.82		ug/g		119	50-140			
Surrogate: Dibromofluoromethane	2.26		ug/g		70.7	50-140			
Surrogate: Toluene-d8	3.88		ug/g		121	50-140			

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	1.3	1.0	ug/g dry	1.1			14.5	30	
Arsenic	4.0	1.0	ug/g dry	3.7			6.6	30	
Barium	64.5	1.0	ug/g dry	56.9			12.6	30	
Beryllium	0.6	0.5	ug/g dry	0.6			9.7	30	
Boron	7.6	5.0	ug/g dry	6.6			14.6	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	22.6	5.0	ug/g dry	18.5			20.1	30	
Cobalt	7.7	1.0	ug/g dry	6.4			18.0	30	
Copper	20.5	5.0	ug/g dry	16.9			18.9	30	
Lead	16.5	1.0	ug/g dry	14.3			13.9	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	1.1	1.0	ug/g dry	ND			NC	30	
Nickel	18.7	5.0	ug/g dry	15.1			21.3	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	27.0	10.0	ug/g dry	22.3			18.8	30	
Zinc	64.1	20.0	ug/g dry	45.5			NC	30	
Physical Characteristics									
% Solids	87.5	0.1	% by Wt.	81.2			7.4	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	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	0.994		ug/g dry		70.9	50-140			
Surrogate: Terphenyl-d14	1.10		ug/g dry		78.3	50-140			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g dry	ND			NC	50	
Bromoform	ND	0.05	ug/g dry	ND			NC	50	
Bromomethane	ND	0.05	ug/g dry	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
Chloroform	ND	0.05	ug/g dry	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g dry	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	4.78		ug/g dry		114	50-140			
Surrogate: Dibromofluoromethane	3.56		ug/g dry		85.4	50-140			
Surrogate: Toluene-d8	5.18		ug/g dry		124	50-140			

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	44.7	1.0	ug/g	ND	88.5	70-130			
Arsenic	53.6	1.0	ug/g	1.5	104	70-130			
Barium	75.0	1.0	ug/g	22.8	105	70-130			
Beryllium	49.6	0.5	ug/g	ND	98.8	70-130			
Boron	48.7	5.0	ug/g	ND	92.1	70-130			
Cadmium	47.5	0.5	ug/g	ND	94.9	70-130			
Chromium (VI)	3.3	0.2	ug/g	ND	61.5	70-130			QM-05
Chromium	62.6	5.0	ug/g	7.4	111	70-130			
Cobalt	55.6	1.0	ug/g	2.6	106	70-130			
Copper	58.3	5.0	ug/g	6.8	103	70-130			
Lead	54.7	1.0	ug/g	5.7	98.0	70-130			
Mercury	1.68	0.1	ug/g	ND	112	70-130			
Molybdenum	54.3	1.0	ug/g	ND	108	70-130			
Nickel	59.1	5.0	ug/g	6.0	106	70-130			
Selenium	47.8	1.0	ug/g	ND	95.4	70-130			
Silver	54.9	0.3	ug/g	ND	110	70-130			
Thallium	48.2	1.0	ug/g	ND	96.2	70-130			
Uranium	51.6	1.0	ug/g	ND	103	70-130			
Vanadium	65.2	10.0	ug/g	ND	113	70-130			
Zinc	70.8	20.0	ug/g	ND	105	70-130			
Semi-Volatiles									
Acenaphthene	0.123	0.02	ug/g	ND	70.3	50-140			
Acenaphthylene	0.116	0.02	ug/g	ND	66.2	50-140			
Anthracene	0.129	0.02	ug/g	ND	73.9	50-140			
Benzo [a] anthracene	0.137	0.02	ug/g	ND	78.2	50-140			
Benzo [a] pyrene	0.137	0.02	ug/g	ND	78.0	50-140			
Benzo [b] fluoranthene	0.196	0.02	ug/g	ND	112	50-140			
Benzo [g,h,i] perylene	0.118	0.02	ug/g	ND	67.6	50-140			
Benzo [k] fluoranthene	0.177	0.02	ug/g	ND	101	50-140			
Chrysene	0.144	0.02	ug/g	ND	82.5	50-140			
Dibenzo [a,h] anthracene	0.115	0.02	ug/g	ND	65.5	50-140			
Fluoranthene	0.121	0.02	ug/g	ND	68.8	50-140			
Fluorene	0.127	0.02	ug/g	ND	72.7	50-140			
Indeno [1,2,3-cd] pyrene	0.119	0.02	ug/g	ND	67.9	50-140			
1-Methylnaphthalene	0.145	0.02	ug/g	ND	82.9	50-140			
2-Methylnaphthalene	0.178	0.02	ug/g	ND	102	50-140			
Naphthalene	0.131	0.01	ug/g	ND	74.8	50-140			
Phenanthrene	0.123	0.02	ug/g	ND	70.1	50-140			
Pyrene	0.119	0.02	ug/g	ND	68.0	50-140			
Surrogate: 2-Fluorobiphenyl	0.916		ug/g		65.4	50-140			
Surrogate: Terphenyl-d14	1.00		ug/g		71.4	50-140			
Volatiles									
Acetone	5.99	0.50	ug/g	ND	59.9	50-140			
Benzene	2.57	0.02	ug/g	ND	64.2	60-130			
Bromodichloromethane	2.45	0.05	ug/g	ND	61.2	60-130			
Bromoform	4.38	0.05	ug/g	ND	110	60-130			
Bromomethane	2.46	0.05	ug/g	ND	61.5	50-140			
Carbon Tetrachloride	2.51	0.05	ug/g	ND	62.7	60-130			

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chlorobenzene	4.02	0.05	ug/g	ND	101	60-130			
Chloroform	2.45	0.05	ug/g	ND	61.3	60-130			
Dibromochloromethane	4.15	0.05	ug/g	ND	104	60-130			
Dichlorodifluoromethane	2.62	0.05	ug/g	ND	65.4	50-140			
1,2-Dichlorobenzene	3.70	0.05	ug/g	ND	92.5	60-130			
1,3-Dichlorobenzene	3.53	0.05	ug/g	ND	88.3	60-130			
1,4-Dichlorobenzene	3.62	0.05	ug/g	ND	90.6	60-130			
1,1-Dichloroethane	2.84	0.05	ug/g	ND	71.0	60-130			
1,2-Dichloroethane	2.87	0.05	ug/g	ND	71.9	60-130			
1,1-Dichloroethylene	2.52	0.05	ug/g	ND	63.0	60-130			
cis-1,2-Dichloroethylene	2.41	0.05	ug/g	ND	60.2	60-130			
trans-1,2-Dichloroethylene	2.41	0.05	ug/g	ND	60.4	60-130			
1,2-Dichloropropane	3.75	0.05	ug/g	ND	93.9	60-130			
cis-1,3-Dichloropropylene	3.88	0.05	ug/g	ND	97.0	60-130			
trans-1,3-Dichloropropylene	2.51	0.05	ug/g	ND	62.7	60-130			
Ethylbenzene	4.16	0.05	ug/g	ND	104	60-130			
Ethylene dibromide (dibromoethane, 1,2-	4.38	0.05	ug/g	ND	110	60-130			
Hexane	2.47	0.05	ug/g	ND	61.7	60-130			
Methyl Ethyl Ketone (2-Butanone)	6.35	0.50	ug/g	ND	63.5	50-140			
Methyl Isobutyl Ketone	6.60	0.50	ug/g	ND	66.0	50-140			
Methyl tert-butyl ether	5.34	0.05	ug/g	ND	53.4	50-140			
Methylene Chloride	2.52	0.05	ug/g	ND	62.9	60-130			
Styrene	3.85	0.05	ug/g	ND	96.3	60-130			
1,1,1,2-Tetrachloroethane	4.15	0.05	ug/g	ND	104	60-130			
1,1,1,2,2-Tetrachloroethane	4.43	0.05	ug/g	ND	111	60-130			
Tetrachloroethylene	4.00	0.05	ug/g	ND	99.9	60-130			
Toluene	4.05	0.05	ug/g	ND	101	60-130			
1,1,1-Trichloroethane	3.50	0.05	ug/g	ND	87.4	60-130			
1,1,2-Trichloroethane	2.72	0.05	ug/g	ND	68.0	60-130			
Trichloroethylene	3.72	0.05	ug/g	ND	92.9	60-130			
Trichlorofluoromethane	2.72	0.05	ug/g	ND	68.0	50-140			
Vinyl chloride	2.47	0.02	ug/g	ND	61.7	50-140			
m,p-Xylenes	8.32	0.05	ug/g	ND	104	60-130			
o-Xylene	4.30	0.05	ug/g	ND	107	60-130			
Surrogate: 4-Bromofluorobenzene	2.72		ug/g		85.1	50-140			
Surrogate: Dibromofluoromethane	2.46		ug/g		76.8	50-140			
Surrogate: Toluene-d8	2.92		ug/g		91.3	50-140			

Certificate of Analysis

Report Date: 29-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 23-Jul-2020

Client PO: 30459

Project Description: PE4767

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.



2030460

No: 128563

Client Name: Paterson Group	Project Ref: PE 4767	Page ___ of ___
Contact Name: Mark St Pierre	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: 154 Colonnade Road South	PO #: 30459	
Telephone: 613-226-7381	E-mail: mstpierre@patersongroup.ca	Date Required: _____

Regulation 153/04		Other Regulation		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis									
<input type="checkbox"/> Table 1	<input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine	<input type="checkbox"/> REG 558	<input type="checkbox"/> PW00	Matrix	Air Volume	# of Containers	Sample Taken Date	Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm <input checked="" type="checkbox"/> Coarse	<input type="checkbox"/> CCME	<input type="checkbox"/> MISA												
<input checked="" type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input type="checkbox"/> SU-Sani	<input type="checkbox"/> SU-Storm												
<input type="checkbox"/> Table _____	For RSC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Mun: _____	<input type="checkbox"/> Other: _____												
Sample ID/Location Name															
1	BH1-20-SS8	S	2				July 23, 2020			X					
2	BH2-20-SS7	S	2							X					
3	BH3-20-SS2	S	1								X	X	X	X	
4	BH3-20-SS7	S	2							X					
5															
6															
7															
8															
9															
10															

Comments: _____ Method of Delivery: **Parcel**

Relinquished By (Sign):	Received By Driver/Depot: A. J. J. J.	Received at Lab: Juneeporn Dakmai	Verified By:
Relinquished By (Print): Mark St Pierre	Date/Time: 23/07/20 3:40	Date/Time: JUL 23, 2020 04:54	Date/Time: 7-23-20 17:04
Date/Time: July 23, 2020	Temperature: 7.1 °C	Temperature: 30.4 °C	pH Verified: <input type="checkbox"/> By: _____

Certificate of Analysis

Paterson Group Consulting Engineers

28 Concourse Gate, Unit 1
Nepean, ON K2E 7T7

Attn: Mark D'Arcy

Client PO: 11427

Project: PE2459

Custody: 90222

Phone: (613) 226-7381

Fax: (613) 226-6344

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Order #: 1146174

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

Paracel ID	Client ID
1146174-01	BH1-SS1
1146174-02	BH2-SS7
1146174-03	BH4-SS8

Approved By:



Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	11-Nov-11	11-Nov-11
Solids, %	Gravimetric, calculation	11-Nov-11	11-Nov-11
VOCs	EPA 8260 - P&T GC-MS	15-Nov-11	15-Nov-11

P: 1-800-749-1947
E: PARACEL@PARACELLABS.COM

WWW.PARACELLABS.COM

OTTAWA
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8

MISSISSAUGA
6645 Kitimat Rd, Unit #27
Mississauga, ON L5N 6J3

NIAGARA FALLS
5415 Morning Glory Cr.
Niagara Falls, ON L2J 0A3

SARNIA
123 Christina St. N.
Sarnia, ON N7T 5T7

Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Project Description: PE2459

Client ID:	BH1-SS1	BH2-SS7	BH4-SS8	-
Sample Date:	09-Nov-11	09-Nov-11	09-Nov-11	-
Sample ID:	1146174-01	1146174-02	1146174-03	-
MDL/Units	Soil	Soil	Soil	-

Physical Characteristics

% Solids	0.1 % by Wt.	93.6	89.0	88.9	-
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Volatiles

Acetone	0.5 ug/g dry	-	<0.5	<0.5	-
Benzene	0.02 ug/g dry	-	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	-	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	-	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	-	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Chloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	-	<0.05	<0.05	-
Chloromethane	0.2 ug/g dry	-	<0.2	<0.2	-
Dibromochloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dibromoethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloroethylene, total	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	-	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Hexane	0.05 ug/g dry	-	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.5 ug/g dry	-	<0.5	<0.5	-
Methyl Butyl Ketone (2-Hexanone)	2.0 ug/g dry	-	<2.0	<2.0	-
Methyl Isobutyl Ketone	0.5 ug/g dry	-	<0.5	<0.5	-

Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Project Description: PE2459

	MDL/Units	Client ID:	BH1-SS1	BH2-SS7	BH4-SS8	-
		Sample Date:	09-Nov-11	09-Nov-11	09-Nov-11	-
		Sample ID:	1146174-01	1146174-02	1146174-03	-
			Soil	Soil	Soil	-
Methyl tert-butyl ether	0.05 ug/g dry		-	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry		-	<0.05	<0.05	-
Styrene	0.05 ug/g dry		-	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry		-	<0.05	<0.05	-
1,1,1,2,2-Tetrachloroethane	0.05 ug/g dry		-	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry		-	1.9	0.09	-
Toluene	0.05 ug/g dry		-	<0.05	<0.05	-
1,2,4-Trichlorobenzene	0.05 ug/g dry		-	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry		-	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry		-	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry		-	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry		-	<0.05	<0.05	-
1,3,5-Trimethylbenzene	0.05 ug/g dry		-	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry		-	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry		-	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry		-	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry		-	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate		-	92.8%	95.3%	-
Dibromofluoromethane	Surrogate		-	101%	103%	-
Toluene-d8	Surrogate		-	109%	107%	-

Semi-Volatiles

Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.03	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Biphenyl	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	0.03	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-

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Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

	Client ID:	BH1-SS1	BH2-SS7	BH4-SS8	-
	Sample Date:	09-Nov-11	09-Nov-11	09-Nov-11	-
	Sample ID:	1146174-01	1146174-02	1146174-03	-
	MDL/Units	Soil	Soil	Soil	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.02 ug/g dry	<0.02	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	0.04	-	-	-
2-Fluorobiphenyl	Surrogate	98.5%	-	-	-
Terphenyl-d14	Surrogate	90.2%	-	-	-

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Biphenyl	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	0.02	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	1.21	0.01	ug/g		91.0	50-140			
Surrogate: Terphenyl-d14	1.19	0.01	ug/g		89.2	50-140			
Volatiles									
Acetone	ND	0.5	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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.2	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.5	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.0	ug/g						
Methyl Isobutyl Ketone	ND	0.5	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						

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Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	7.39		ug/g		92.3	50-140			
Surrogate: Dibromofluoromethane	8.25		ug/g		103	50-140			
Surrogate: Toluene-d8	8.75		ug/g		109	50-140			

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Physical Characteristics									
% Solids	87.6	0.1	% by Wt.	88.8			1.5	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	0.044	0.02	ug/g dry	0.040			10.1	40	
Benzo [a] pyrene	0.031	0.02	ug/g dry	0.025			19.1	40	
Benzo [b] fluoranthene	0.053	0.02	ug/g dry	0.039			29.5	40	
Benzo [g,h,i] perylene	0.020	0.02	ug/g dry	ND				40	
Benzo [k] fluoranthene	0.031	0.02	ug/g dry	0.029			7.0	40	
Biphenyl	ND	0.02	ug/g dry	ND				40	
Chrysene	0.046	0.02	ug/g dry	0.040			12.4	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	0.076	0.02	ug/g dry	0.061			21.6	40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.02	ug/g dry	ND				40	
Phenanthrene	0.036	0.02	ug/g dry	0.028			24.8	40	
Pyrene	0.071	0.02	ug/g dry	0.060			17.3	40	
Surrogate: 2-Fluorobiphenyl	1.12	0.01	ug/g dry	ND	80.8	50-140			
Surrogate: Terphenyl-d14	0.986	0.01	ug/g dry	ND	71.0	50-140			
Volatiles									
Acetone	ND	0.5	ug/g dry	ND				50	
Benzene	ND	0.02	ug/g dry	ND				50	
Bromodichloromethane	ND	0.05	ug/g dry	ND				50	
Bromoform	ND	0.05	ug/g dry	ND				50	
Bromomethane	ND	0.05	ug/g dry	ND				50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND				50	
Chlorobenzene	ND	0.05	ug/g dry	ND				50	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.2	ug/g dry	ND				50	
Dibromochloromethane	ND	0.05	ug/g dry	ND				50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND				50	
1,2-Dibromoethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND				50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.5	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.0	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.5	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	

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Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,2,4-Trichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND				50	
Trichloroethylene	ND	0.05	ug/g dry	ND				50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND				50	
1,3,5-Trimethylbenzene	ND	0.05	ug/g dry	ND				50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: 4-Bromofluorobenzene	12.4		ug/g dry	ND	131	50-140			
Surrogate: Dibromofluoromethane	8.66		ug/g dry	ND	91.5	50-140			
Surrogate: Toluene-d8	9.28		ug/g dry	ND	98.0	50-140			

Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	0.114	0.02	ug/g	ND	68.2	50-140			
Acenaphthylene	0.113	0.02	ug/g	ND	67.5	50-140			
Anthracene	0.112	0.02	ug/g	ND	67.2	50-140			
Benzo [a] anthracene	0.133	0.02	ug/g	ND	79.9	50-140			
Benzo [a] pyrene	0.123	0.02	ug/g	ND	73.9	50-140			
Benzo [b] fluoranthene	0.114	0.02	ug/g	ND	68.2	50-140			
Benzo [g,h,i] perylene	0.104	0.02	ug/g	ND	62.3	50-140			
Benzo [k] fluoranthene	0.151	0.02	ug/g	ND	90.4	50-140			
Biphenyl	0.115	0.02	ug/g	ND	69.1	50-140			
Chrysene	0.128	0.02	ug/g	ND	77.0	50-140			
Dibenzo [a,h] anthracene	0.112	0.02	ug/g	ND	67.5	50-140			
Fluoranthene	0.114	0.02	ug/g	ND	68.3	50-140			
Fluorene	0.105	0.02	ug/g	ND	63.2	50-140			
Indeno [1,2,3-cd] pyrene	0.102	0.02	ug/g	ND	60.9	50-140			
1-Methylnaphthalene	0.123	0.02	ug/g	ND	74.1	50-140			
2-Methylnaphthalene	0.129	0.02	ug/g	ND	77.6	50-140			
Naphthalene	0.114	0.02	ug/g	ND	68.6	50-140			
Phenanthrene	0.102	0.02	ug/g	ND	61.3	50-140			
Pyrene	0.128	0.02	ug/g	ND	76.7	50-140			
Surrogate: 2-Fluorobiphenyl	1.19	0.01	ug/g		89.5	50-140			
Volatiles									
Acetone	11.7	0.5	ug/g	ND	117	50-140			
Benzene	3.9	0.02	ug/g	ND	97.2	60-130			
Bromodichloromethane	3.7	0.05	ug/g	ND	93.6	60-130			
Bromoform	4.0	0.05	ug/g	ND	99.3	60-130			
Bromomethane	2.1	0.05	ug/g	ND	51.6	50-140			
Carbon Tetrachloride	3.6	0.05	ug/g	ND	90.3	60-130			
Chlorobenzene	5.1	0.05	ug/g	ND	128	60-130			
Chloroethane	2.7	0.05	ug/g	ND	68.2	50-140			
Chloroform	3.7	0.05	ug/g	ND	91.6	60-130			
Chloromethane	2.9	0.2	ug/g	ND	71.9	50-140			
Dibromochloromethane	4.1	0.05	ug/g	ND	103	60-130			
Dichlorodifluoromethane	2.9	0.05	ug/g	ND	73.1	50-140			
1,2-Dibromoethane	4.3	0.05	ug/g	ND	107	60-130			
1,2-Dichlorobenzene	4.3	0.05	ug/g	ND	108	60-130			
1,3-Dichlorobenzene	4.4	0.05	ug/g	ND	111	60-130			
1,4-Dichlorobenzene	4.3	0.05	ug/g	ND	108	60-130			
1,1-Dichloroethane	3.9	0.05	ug/g	ND	98.5	60-130			
1,2-Dichloroethane	3.8	0.05	ug/g	ND	95.2	60-130			
1,1-Dichloroethylene	3.5	0.05	ug/g	ND	87.9	60-130			
cis-1,2-Dichloroethylene	3.8	0.05	ug/g	ND	96.2	60-130			
trans-1,2-Dichloroethylene	3.8	0.05	ug/g	ND	95.0	60-130			
1,2-Dichloropropane	3.4	0.05	ug/g	ND	85.9	60-130			
cis-1,3-Dichloropropylene	3.9	0.05	ug/g	ND	97.0	60-130			
trans-1,3-Dichloropropylene	3.6	0.05	ug/g	ND	91.1	60-130			
Ethylbenzene	4.3	0.05	ug/g	ND	109	60-130			
Hexane	3.1	0.05	ug/g	ND	77.9	60-130			
Methyl Ethyl Ketone (2-Butanone)	11.6	0.5	ug/g	ND	116	50-140			
Methyl Butyl Ketone (2-Hexanone)	12.1	2.0	ug/g	ND	121	50-140			

Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methyl Isobutyl Ketone	10.5	0.5	ug/g	ND	105	50-140			
Methyl tert-butyl ether	9.7	0.05	ug/g	ND	96.6	50-140			
Methylene Chloride	4.1	0.05	ug/g	ND	101	60-130			
Styrene	4.1	0.05	ug/g	ND	103	60-130			
1,1,1,2-Tetrachloroethane	4.1	0.05	ug/g	ND	103	60-130			
1,1,2,2-Tetrachloroethane	3.5	0.05	ug/g	ND	88.2	60-130			
Tetrachloroethylene	3.9	0.05	ug/g	ND	98.5	60-130			
Toluene	3.9	0.05	ug/g	ND	97.7	60-130			
1,2,4-Trichlorobenzene	4.3	0.05	ug/g	ND	108	60-130			
1,1,1-Trichloroethane	3.5	0.05	ug/g	ND	87.4	60-130			
1,1,2-Trichloroethane	4.5	0.05	ug/g	ND	112	60-130			
Trichloroethylene	3.7	0.05	ug/g	ND	92.5	60-130			
Trichlorofluoromethane	3.5	0.05	ug/g	ND	86.7	50-140			
1,3,5-Trimethylbenzene	4.8	0.05	ug/g	ND	121	60-130			
Vinyl chloride	2.6	0.02	ug/g	ND	63.9	50-140			
m,p-Xylenes	8.4	0.05	ug/g	ND	105	60-130			
o-Xylene	4.6	0.05	ug/g	ND	114	60-130			

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 11427

Project Description: PE2459

Report Date: 16-Nov-2011

Order Date: 10-Nov-2011

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

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.

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Eric Leveque

Client PO: 22908
Project: PE4629
Custody: 122297

Report Date: 10-Jun-2019
Order Date: 4-Jun-2019

Order #: 1923237

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

Parcel ID	Client ID
1923237-01	BH1-SS7
1923237-02	BH2-SS2
1923237-03	BH2-SS6
1923237-04	BH3-SS6

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 22908

Report Date: 10-Jun-2019
Order Date: 4-Jun-2019
Project Description: PE4629

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	7-Jun-19	7-Jun-19
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	7-Jun-19	8-Jun-19
Solids, %	Gravimetric, calculation	6-Jun-19	6-Jun-19

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
 Project Description: PE4629

Client ID:	BH1-SS7	BH2-SS2	BH2-SS6	BH3-SS6
Sample Date:	03-Jun-19 09:00	03-Jun-19 09:00	03-Jun-19 09:00	03-Jun-19 09:00
Sample ID:	1923237-01	1923237-02	1923237-03	1923237-04
MDL/Units	Soil	Soil	Soil	Soil

Physical Characteristics

% Solids	0.1 % by Wt.	86.2	86.4	87.2	82.7
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Metals

Antimony	1.0 ug/g dry	-	<1.0	-	-
Arsenic	1.0 ug/g dry	-	2.1	-	-
Barium	1.0 ug/g dry	-	51.3	-	-
Beryllium	0.5 ug/g dry	-	<0.5	-	-
Boron	5.0 ug/g dry	-	5.0	-	-
Cadmium	0.5 ug/g dry	-	<0.5	-	-
Chromium	5.0 ug/g dry	-	11.6	-	-
Cobalt	1.0 ug/g dry	-	3.0	-	-
Copper	5.0 ug/g dry	-	15.9	-	-
Lead	1.0 ug/g dry	-	61.3	-	-
Molybdenum	1.0 ug/g dry	-	<1.0	-	-
Nickel	5.0 ug/g dry	-	5.6	-	-
Selenium	1.0 ug/g dry	-	<1.0	-	-
Silver	0.3 ug/g dry	-	<0.3	-	-
Thallium	1.0 ug/g dry	-	<1.0	-	-
Uranium	1.0 ug/g dry	-	<1.0	-	-
Vanadium	10.0 ug/g dry	-	12.5	-	-
Zinc	20.0 ug/g dry	-	82.9	-	-

Volatiles

Acetone	0.50 ug/g dry	<0.50	-	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
 Project Description: PE4629

	Client ID: Sample Date: Sample ID:	BH1-SS7 03-Jun-19 09:00 1923237-01 Soil	BH2-SS2 03-Jun-19 09:00 1923237-02 Soil	BH2-SS6 03-Jun-19 09:00 1923237-03 Soil	BH3-SS6 03-Jun-19 09:00 1923237-04 Soil
	MDL/Units				
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)	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	1.01	-	<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	80.3%	-	126%	111%
Dibromofluoromethane	Surrogate	75.9%	-	74.8%	137%
Toluene-d8	Surrogate	73.8%	-	79.8%	74.2%

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
Project Description: PE4629

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane)	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
 Project Description: PE4629

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	4.24		ug/g		132	50-140			
Surrogate: Dibromofluoromethane	2.98		ug/g		93.2	50-140			
Surrogate: Toluene-d8	2.83		ug/g		88.5	50-140			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
Project Description: PE4629

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	1.0	1.0	ug/g dry	ND			0.0	30	
Arsenic	1.9	1.0	ug/g dry	ND			12.8	30	
Barium	10.8	1.0	ug/g dry	11.7			8.1	30	
Beryllium	ND	0.5	ug/g dry	ND			0.0	30	
Boron	6.1	5.0	ug/g dry	6.0			0.4	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium	6.2	5.0	ug/g dry	6.6			5.9	30	
Cobalt	3.3	1.0	ug/g dry	3.6			7.5	30	
Copper	ND	5.0	ug/g dry	ND			0.0	30	
Lead	4.0	1.0	ug/g dry	4.3			5.4	30	
Molybdenum	ND	1.0	ug/g dry	ND			0.0	30	
Nickel	6.0	5.0	ug/g dry	6.3			4.7	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.3	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Uranium	ND	1.0	ug/g dry	ND			0.0	30	
Vanadium	11.1	10.0	ug/g dry	12.0			8.0	30	
Zinc	ND	20.0	ug/g dry	ND			0.0	30	
Physical Characteristics									
% Solids	83.4	0.1	% by Wt.	84.1			0.9	25	
Volatiles									
Acetone	ND	0.50	ug/g dry	ND				50	
Benzene	ND	0.02	ug/g dry	ND				50	
Bromodichloromethane	ND	0.05	ug/g dry	ND				50	
Bromoform	ND	0.05	ug/g dry	ND				50	
Bromomethane	ND	0.05	ug/g dry	ND				50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND				50	
Chlorobenzene	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Dibromochloromethane	ND	0.05	ug/g dry	ND				50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND				50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Ethylene dibromide (dibromoethane)	ND	0.05	ug/g dry	ND				50	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND				50	
Trichloroethylene	ND	0.05	ug/g dry	ND				50	

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
Project Description: PE4629

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Trichlorofluoromethane	ND	0.05	ug/g dry	ND				50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
<i>Surrogate: 4-Bromofluorobenzene</i>	5.17		<i>ug/g dry</i>		136	50-140			
<i>Surrogate: Dibromofluoromethane</i>	5.13		<i>ug/g dry</i>		134	50-140			
<i>Surrogate: Toluene-d8</i>	2.96		<i>ug/g dry</i>		77.5	50-140			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
Project Description: PE4629

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	41.7		ug/L	ND	83.2	70-130			
Arsenic	47.2		ug/L	ND	92.7	70-130			
Barium	50.0		ug/L	4.7	90.6	70-130			
Beryllium	45.4		ug/L	ND	90.6	70-130			
Boron	42.7		ug/L	ND	80.5	70-130			
Cadmium	45.0		ug/L	ND	90.0	70-130			
Chromium	50.1		ug/L	ND	95.0	70-130			
Cobalt	47.0		ug/L	1.4	91.2	70-130			
Copper	46.3		ug/L	ND	89.3	70-130			
Lead	47.1		ug/L	1.7	90.7	70-130			
Molybdenum	47.2		ug/L	ND	93.8	70-130			
Nickel	47.8		ug/L	ND	90.6	70-130			
Selenium	44.8		ug/L	ND	89.5	70-130			
Silver	45.0		ug/L	ND	90.0	70-130			
Thallium	45.6		ug/L	ND	91.2	70-130			
Uranium	46.7		ug/L	ND	92.9	70-130			
Vanadium	52.6		ug/L	ND	95.5	70-130			
Zinc	50.2		ug/L	ND	88.6	70-130			
Volatiles									
Acetone	10.8	0.50	ug/g		108	50-140			
Benzene	4.24	0.02	ug/g		106	60-130			
Bromodichloromethane	4.33	0.05	ug/g		108	60-130			
Bromoform	5.00	0.05	ug/g		125	60-130			
Bromomethane	3.49	0.05	ug/g		87.3	50-140			
Carbon Tetrachloride	3.80	0.05	ug/g		94.9	60-130			
Chlorobenzene	3.62	0.05	ug/g		90.6	60-130			
Chloroform	3.74	0.05	ug/g		93.6	60-130			
Dibromochloromethane	4.90	0.05	ug/g		123	60-130			
Dichlorodifluoromethane	3.19	0.05	ug/g		79.9	50-140			
1,2-Dichlorobenzene	3.98	0.05	ug/g		99.4	60-130			
1,3-Dichlorobenzene	3.86	0.05	ug/g		96.5	60-130			
1,4-Dichlorobenzene	3.13	0.05	ug/g		78.2	60-130			
1,1-Dichloroethane	4.34	0.05	ug/g		108	60-130			
1,2-Dichloroethane	3.75	0.05	ug/g		93.7	60-130			
1,1-Dichloroethylene	4.54	0.05	ug/g		113	60-130			
cis-1,2-Dichloroethylene	4.11	0.05	ug/g		103	60-130			
trans-1,2-Dichloroethylene	3.73	0.05	ug/g		93.2	60-130			
1,2-Dichloropropane	4.63	0.05	ug/g		116	60-130			
cis-1,3-Dichloropropylene	3.65	0.05	ug/g		91.3	60-130			
trans-1,3-Dichloropropylene	4.34	0.05	ug/g		108	60-130			
Ethylbenzene	3.53	0.05	ug/g		88.3	60-130			
Ethylene dibromide (dibromoethane)	4.70	0.05	ug/g		118	60-130			
Hexane	4.68	0.05	ug/g		117	60-130			
Methyl Ethyl Ketone (2-Butanone)	12.6	0.50	ug/g		126	50-140			
Methyl Isobutyl Ketone	10.6	0.50	ug/g		106	50-140			
Methyl tert-butyl ether	9.18	0.05	ug/g		91.8	50-140			
Methylene Chloride	4.37	0.05	ug/g		109	60-130			
Styrene	4.10	0.05	ug/g		102	60-130			
1,1,1,2-Tetrachloroethane	4.47	0.05	ug/g		112	60-130			
1,1,1,2,2-Tetrachloroethane	4.96	0.05	ug/g		124	60-130			
Tetrachloroethylene	4.01	0.05	ug/g		100	60-130			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 22908

Report Date: 10-Jun-2019
 Order Date: 4-Jun-2019
Project Description: PE4629

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Toluene	4.20	0.05	ug/g		105	60-130			
1,1,1-Trichloroethane	3.81	0.05	ug/g		95.1	60-130			
1,1,2-Trichloroethane	4.86	0.05	ug/g		122	60-130			
Trichloroethylene	2.88	0.05	ug/g		71.9	60-130			
Trichlorofluoromethane	2.90	0.05	ug/g		72.6	50-140			
Vinyl chloride	3.72	0.02	ug/g		92.9	50-140			
m,p-Xylenes	10.3	0.05	ug/g		129	60-130			
o-Xylene	4.42	0.05	ug/g		110	60-130			
Surrogate: 4-Bromofluorobenzene	3.00		ug/g		93.8	50-140			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 22908

Report Date: 10-Jun-2019
Order Date: 4-Jun-2019
Project Description: PE4629

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.

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 WO: 1923237



Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
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Chain of Custody
(Lab Use Only)

N^o 122297

Page ___ of ___

Client Name: <i>PATERSON GROUP</i>	Project Reference: <i>PE4629</i>	Turnaround Time: <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input checked="" type="checkbox"/> Regular Date Required: _____
Contact Name: <i>ERIC LEVEQUE</i>	Quote #	
Address: <i>154 COLONNADE ROAD SOUTH OTTAWA, ONT K2E 7J5</i>	PO # <i>22908</i>	
Telephone: <i>226-7381</i>	Email Address: <i>eleveque@patersongroup.ca</i>	

Criteria: O. Reg. 153/04 (As Amended) Table 3 RSC Filing O. Reg. 558/00 PWQO CCME SUB (Storm) SUB (Sanitary) Municipality: _____ Other: _____

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

Required Analyses

Parcel Order Number: <i>1923237</i>		Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	C/PV	B (HWS)						
Sample ID/Location Name					Date	Time													
1	<i>BH1-SS7</i>	<i>S</i>		<i>2</i>	<i>June 3/19</i>			<input checked="" type="checkbox"/>											<i>- 120ml + 1 vial - ✓</i>
2	<i>BH2-SS2</i>	<i>S</i>		<i>1</i>	<i>"</i>				<input checked="" type="checkbox"/>										<i>120ml ✓</i>
3	<i>BH2-SS4</i>	<i>S</i>		<i>2</i>	<i>"</i>			<input checked="" type="checkbox"/>											<i>- 120ml + 1 vial - ✓</i>
4	<i>BH3-SS4</i>	<i>S</i>		<i>2</i>	<i>"</i>			<input checked="" type="checkbox"/>											<i>↓ ✓</i>
5																			
6																			
7																			
8																			
9																			
10																			

Comments: _____ Method of Delivery: *Swift*

Relinquished By (Sign): <i>[Signature]</i>	Received by Driver/Depot: <i>J. CHARLE HAREZ</i>	Received at Lab: <i>Suneperm Rohmai</i>	Verified By: <i>[Signature]</i>
Relinquished By (Print): <i>MARK STEIN</i>	Date/Time: _____	Date/Time: <i>July 04, 2019 03:49</i>	Date/Time: <i>06-04-19 (G)</i>
Date/Time: _____	Temperature: _____ °C	Temperature: <i>21.5</i> °C	pH Verified [] By: _____

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Rd South
Nepean, ON K2E 7J5
Attn: Mark St. Pierre

Client PO: 30463
Project: PE4767
Custody: 128568

Report Date: 30-Jul-2020
Order Date: 24-Jul-2020

Order #: 2030589

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

Paracel ID	Client ID
2030589-01	BH4-20-SS2

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 30463

Report Date: 30-Jul-2020
 Order Date: 24-Jul-2020
Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	25-Jul-20	28-Jul-20
Mercury by CVAA	EPA 7471B - CVAA, digestion	30-Jul-20	30-Jul-20
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	30-Jul-20	30-Jul-20
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	25-Jul-20	29-Jul-20
Solids, %	Gravimetric, calculation	30-Jul-20	30-Jul-20

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30463

Project Description: PE4767

Client ID:	BH4-20-SS2	-	-	-
Sample Date:	23-Jul-20 09:00	-	-	-
Sample ID:	2030589-01	-	-	-
MDL/Units	Soil	-	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	93.4	-	-	-
----------	--------------	------	---	---	---

Metals

Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	5.8	-	-	-
Barium	1.0 ug/g dry	185	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	10.1	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	22.9	-	-	-
Chromium (VI)	0.2 ug/g dry	<0.2	-	-	-
Cobalt	1.0 ug/g dry	5.6	-	-	-
Copper	5.0 ug/g dry	43.3	-	-	-
Lead	1.0 ug/g dry	268	-	-	-
Mercury	0.1 ug/g dry	0.5	-	-	-
Molybdenum	1.0 ug/g dry	<1.0	-	-	-
Nickel	5.0 ug/g dry	11.6	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	23.9	-	-	-
Zinc	20.0 ug/g dry	236	-	-	-

Semi-Volatiles

Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	0.07	-	-	-
Anthracene	0.02 ug/g dry	0.04	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	0.12	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	0.17	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.25	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.17	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.12	-	-	-
Chrysene	0.02 ug/g dry	0.13	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.05	-	-	-
Fluoranthene	0.02 ug/g dry	0.24	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30463

Project Description: PE4767

	MDL/Units	Soil	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.15	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	0.09	-	-	-
Pyrene	0.02 ug/g dry	0.20	-	-	-
2-Fluorobiphenyl	Surrogate	89.3%	-	-	-
Terphenyl-d14	Surrogate	92.8%	-	-	-

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30463

Project Description: PE4767

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	0.782		ug/g		58.7	50-140			
Surrogate: Terphenyl-d14	1.24		ug/g		93.0	50-140			

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30463

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	1.3	1.0	ug/g dry	ND			NC	30	
Arsenic	5.4	1.0	ug/g dry	4.9			9.4	30	
Barium	94.6	1.0	ug/g dry	81.1			15.4	30	
Beryllium	0.8	0.5	ug/g dry	0.6			19.6	30	
Boron	11.0	5.0	ug/g dry	8.6			24.5	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	26.7	5.0	ug/g dry	23.4			13.0	30	
Cobalt	9.6	1.0	ug/g dry	8.4			13.1	30	
Copper	24.0	5.0	ug/g dry	21.0			13.3	30	
Lead	20.3	1.0	ug/g dry	18.8			8.0	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	21.4	5.0	ug/g dry	18.9			12.3	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	36.7	10.0	ug/g dry	31.9			13.9	30	
Zinc	76.4	20.0	ug/g dry	67.9			11.7	30	
Physical Characteristics									
% Solids	95.3	0.1	% by Wt.	93.2			2.3	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	0.021	0.02	ug/g dry	0.023			10.0	40	
2-Methylnaphthalene	0.021	0.02	ug/g dry	0.021			1.3	40	
Naphthalene	0.011	0.01	ug/g dry	0.012			7.3	40	
Phenanthrene	ND	0.02	ug/g dry	ND			NC	40	
Pyrene	ND	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	1.30		ug/g dry		83.9	50-140			
Surrogate: Terphenyl-d14	1.49		ug/g dry		96.2	50-140			

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30463

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	50.0	1.0	ug/g	ND	99.8	70-130			
Arsenic	58.9	1.0	ug/g	2.0	114	70-130			
Barium	93.7	1.0	ug/g	32.4	123	70-130			
Beryllium	53.7	0.5	ug/g	ND	107	70-130			
Boron	54.3	5.0	ug/g	ND	102	70-130			
Cadmium	51.8	0.5	ug/g	ND	103	70-130			
Chromium (VI)	4.0	0.2	ug/g	ND	64.5	70-130			QM-05
Chromium	71.6	5.0	ug/g	9.4	125	70-130			
Cobalt	60.8	1.0	ug/g	3.4	115	70-130			
Copper	63.5	5.0	ug/g	8.4	110	70-130			
Lead	62.6	1.0	ug/g	7.5	110	70-130			
Mercury	1.87	0.1	ug/g	ND	124	70-130			
Molybdenum	58.1	1.0	ug/g	ND	116	70-130			
Nickel	64.4	5.0	ug/g	7.6	114	70-130			
Selenium	52.3	1.0	ug/g	ND	104	70-130			
Silver	44.9	0.3	ug/g	ND	89.7	70-130			
Thallium	53.9	1.0	ug/g	ND	108	70-130			
Uranium	58.3	1.0	ug/g	ND	116	70-130			
Vanadium	76.7	10.0	ug/g	12.8	128	70-130			
Zinc	84.3	20.0	ug/g	27.2	114	70-130			
Semi-Volatiles									
Acenaphthene	0.136	0.02	ug/g	ND	70.5	50-140			
Acenaphthylene	0.112	0.02	ug/g	ND	58.0	50-140			
Anthracene	0.124	0.02	ug/g	ND	64.1	50-140			
Benzo [a] anthracene	0.118	0.02	ug/g	ND	61.1	50-140			
Benzo [a] pyrene	0.114	0.02	ug/g	ND	58.8	50-140			
Benzo [b] fluoranthene	0.177	0.02	ug/g	ND	91.6	50-140			
Benzo [g,h,i] perylene	0.125	0.02	ug/g	ND	64.9	50-140			
Benzo [k] fluoranthene	0.154	0.02	ug/g	ND	79.6	50-140			
Chrysene	0.141	0.02	ug/g	ND	73.1	50-140			
Dibenzo [a,h] anthracene	0.122	0.02	ug/g	ND	63.0	50-140			
Fluoranthene	0.128	0.02	ug/g	ND	66.2	50-140			
Fluorene	0.123	0.02	ug/g	ND	63.8	50-140			
Indeno [1,2,3-cd] pyrene	0.120	0.02	ug/g	ND	62.1	50-140			
1-Methylnaphthalene	0.141	0.02	ug/g	0.023	61.1	50-140			
2-Methylnaphthalene	0.175	0.02	ug/g	0.021	79.7	50-140			
Naphthalene	0.166	0.01	ug/g	0.012	79.7	50-140			
Phenanthrene	0.124	0.02	ug/g	ND	64.2	50-140			
Pyrene	0.130	0.02	ug/g	ND	67.3	50-140			
Surrogate: 2-Fluorobiphenyl	0.880		ug/g		57.0	50-140			
Surrogate: Terphenyl-d14	1.15		ug/g		74.7	50-140			

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30463

Project Description: PE4767

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.



1000 St. Laurent Blvd.
Toronto K1G 4J8
9-1947
paracellabs.com
ellabs.com

Parcel Order Number
(Lab Use Only)

2030589

Chain Of Custody
(Lab Use Only)

Nº 128568

Client Name: Paracet Paterson Group	Project Ref: PE 4767	Page <u>1</u> of <u>1</u>
Contact Name: Mark St Pierre	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: 154 Colonnade Road South	PO #: 30463	
Telephone: 613-226-7381	E-mail: mstpierre@patersongroup.ca	
		Date Required: _____

Regulation 153/04		Other Regulation		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis											
<input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine	<input type="checkbox"/> REG 558 <input type="checkbox"/> PWQO	<input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input checked="" type="checkbox"/> Coarse	<input type="checkbox"/> CCME <input type="checkbox"/> MISA	<input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other	<input type="checkbox"/> SU - Sani <input type="checkbox"/> SU - Storm	Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	HB	CrVI	B (HWS)
<input type="checkbox"/> Table _____	Mun: _____	Date	Time														
For RSC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Other: _____															
Sample ID/Location Name																	
1	BH4-20-SS2	S	-	1	July 23 2020							X	X	X	X		
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments: _____

Method of Delivery: Parcel

Relinquished By (Signature):	Received By Driver/Depot: <u>M. J. LOUISE</u>	Received at Lab: <u>Sam</u>	Verified By:
Relinquished By (Print): <u>Mark St Pierre</u>	Date/Time: <u>24/07/20 4:05</u>	Date/Time: <u>July 24, 2020 16:32</u>	Date/Time: <u>7-24-20 17/01</u>
Date/Time: <u>July 24, 2020</u>	Temperature: _____ °C <u>FA</u>	Temperature: <u>16.8</u> °C	pH Verified: <input type="checkbox"/> By: _____

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Rd South
Nepean, ON K2E 7J5
Attn: Mark St. Pierre

Client PO: 30464
Project: PE4767
Custody: 128569

Report Date: 30-Jul-2020
Order Date: 24-Jul-2020

Order #: 2030590

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

Paracel ID	Client ID
2030590-01	Dup1

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30464

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	27-Jul-20	27-Jul-20
Solids, %	Gravimetric, calculation	30-Jul-20	30-Jul-20

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30464

Project Description: PE4767

Client ID:	Dup1	-	-	-
Sample Date:	22-Jul-20 09:00	-	-	-
Sample ID:	2030590-01	-	-	-
MDL/Units	Soil	-	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	80.6	-	-	-
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Volatiles

Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30464

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	7.90		ug/g		98.8	50-140			
Surrogate: Dibromofluoromethane	9.57		ug/g		120	50-140			
Surrogate: Toluene-d8	8.39		ug/g		105	50-140			

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30464

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Physical Characteristics									
% Solids	95.3	0.1	% by Wt.	93.2			2.3	25	
Volatiles									
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g dry	ND			NC	50	
Bromoform	ND	0.05	ug/g dry	ND			NC	50	
Bromomethane	ND	0.05	ug/g dry	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
Chloroform	ND	0.05	ug/g dry	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g dry	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g dry	ND			NC	50	
Hexane	ND	0.05	ug/g dry	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g dry	ND			NC	50	
Styrene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	0.058	0.05	ug/g dry	0.067			15.0	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	0.458	0.05	ug/g dry	0.430			6.3	50	
o-Xylene	0.135	0.05	ug/g dry	0.134			0.7	50	
Surrogate: 4-Bromofluorobenzene	8.27		ug/g dry		98.3	50-140			
Surrogate: Dibromofluoromethane	9.49		ug/g dry		113	50-140			
Surrogate: Toluene-d8	9.15		ug/g dry		109	50-140			

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30464

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	10.8	0.50	ug/g	ND	108	50-140			
Benzene	4.91	0.02	ug/g	ND	123	60-130			
Bromodichloromethane	4.94	0.05	ug/g	ND	123	60-130			
Bromoform	4.56	0.05	ug/g	ND	114	60-130			
Bromomethane	2.59	0.05	ug/g	ND	64.7	50-140			
Carbon Tetrachloride	4.66	0.05	ug/g	ND	117	60-130			
Chlorobenzene	4.90	0.05	ug/g	ND	123	60-130			
Chloroform	5.09	0.05	ug/g	ND	127	60-130			
Dibromochloromethane	4.88	0.05	ug/g	ND	122	60-130			
Dichlorodifluoromethane	3.31	0.05	ug/g	ND	82.7	50-140			
1,2-Dichlorobenzene	4.78	0.05	ug/g	ND	119	60-130			
1,3-Dichlorobenzene	4.78	0.05	ug/g	ND	120	60-130			
1,4-Dichlorobenzene	4.61	0.05	ug/g	ND	115	60-130			
1,1-Dichloroethane	4.88	0.05	ug/g	ND	122	60-130			
1,2-Dichloroethane	4.62	0.05	ug/g	ND	116	60-130			
1,1-Dichloroethylene	5.01	0.05	ug/g	ND	125	60-130			
cis-1,2-Dichloroethylene	4.73	0.05	ug/g	ND	118	60-130			
trans-1,2-Dichloroethylene	4.54	0.05	ug/g	ND	114	60-130			
1,2-Dichloropropane	4.91	0.05	ug/g	ND	123	60-130			
cis-1,3-Dichloropropylene	5.11	0.05	ug/g	ND	128	60-130			
trans-1,3-Dichloropropylene	4.77	0.05	ug/g	ND	119	60-130			
Ethylbenzene	5.06	0.05	ug/g	ND	127	60-130			
Ethylene dibromide (dibromoethane, 1,2-	4.27	0.05	ug/g	ND	107	60-130			
Hexane	4.58	0.05	ug/g	ND	114	60-130			
Methyl Ethyl Ketone (2-Butanone)	11.5	0.50	ug/g	ND	115	50-140			
Methyl Isobutyl Ketone	12.5	0.50	ug/g	ND	125	50-140			
Methyl tert-butyl ether	12.8	0.05	ug/g	ND	128	50-140			
Methylene Chloride	4.17	0.05	ug/g	ND	104	60-130			
Styrene	4.99	0.05	ug/g	ND	125	60-130			
1,1,1,2-Tetrachloroethane	4.68	0.05	ug/g	ND	117	60-130			
1,1,2,2-Tetrachloroethane	4.86	0.05	ug/g	ND	122	60-130			
Tetrachloroethylene	4.76	0.05	ug/g	ND	119	60-130			
Toluene	4.93	0.05	ug/g	ND	123	60-130			
1,1,1-Trichloroethane	4.69	0.05	ug/g	ND	117	60-130			
1,1,2-Trichloroethane	4.40	0.05	ug/g	ND	110	60-130			
Trichloroethylene	5.13	0.05	ug/g	ND	128	60-130			
Trichlorofluoromethane	4.97	0.05	ug/g	ND	124	50-140			
Vinyl chloride	3.45	0.02	ug/g	ND	86.2	50-140			
m,p-Xylenes	9.92	0.05	ug/g	ND	124	60-130			
o-Xylene	4.40	0.05	ug/g	ND	110	60-130			
Surrogate: 4-Bromofluorobenzene	7.94		ug/g		99.3	50-140			
Surrogate: Dibromofluoromethane	9.72		ug/g		122	50-140			
Surrogate: Toluene-d8	7.67		ug/g		95.9	50-140			

Certificate of Analysis

Report Date: 30-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 24-Jul-2020

Client PO: 30464

Project Description: PE4767

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.



Laurent Blvd.
Ari K1G 4J8
-1947
aracellabs.com
labs.com

Parcel Order Number
(Lab Use Only)

2030590

Chain Of Custody
(Lab Use Only)

Nº 128569

Client Name: Paterson Group	Project Ref: PE4767	Page <u> </u> of <u> </u>
Contact Name: Mark St Pierre	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: 154 Colonnade Road South	PO #: 30464	
Telephone: 613-226-7381	E-mail: mstpierre@patersongroup.ca	
		Date Required: _____

Regulation 153/04		Other Regulation		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis										
<input type="checkbox"/> Table 1	<input checked="" type="checkbox"/> Res/Park	<input type="checkbox"/> Med/Fine	<input type="checkbox"/> REG 558	<input type="checkbox"/> PWQO	Matrix	Air Volume	# of Containers	Sample Taken Date Time		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input checked="" type="checkbox"/> Coarse	<input type="checkbox"/> CCME	<input type="checkbox"/> MISA												
<input checked="" type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other		<input type="checkbox"/> SU - Sani	<input type="checkbox"/> SU - Storm												
<input type="checkbox"/> Table _____			Mun: _____													
For RSC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				<input type="checkbox"/> Other: _____												
Sample ID/Location Name																
1	DUP 1			S	-	2	July, 22, 2020			X						
2																
3																
4																
5																
6																
7																
8																
9																
10																

Comments: _____

Method of Delivery: **Parcel**

Relinquished By (Sign):	Received By Driver/Depot: M. FLOUVE	Received at Lab: Stem	Verified By:
Relinquished By (Print): Mark St Pierre	Date/Time: 24/07/20 4:05	Date/Time: Jul 24, 2020 16:22	Date/Time: 7-24-20 17:01
Date/Time: July, 24, 2020	Temperature: °C PA	Temperature: 16.9 °C	pH Verified: <input type="checkbox"/> By: _____

Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Client PO: 55010
Project: PE4767
Custody: 136668

Report Date: 24-Jun-2022
Order Date: 17-Jun-2022

Order #: 2225660

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

Paracel ID	Client ID
2225660-01	BH1-22-SS2
2225660-02	BH1-22-SS7
2225660-03	BH2-22-SS5
2225660-04	BH3-22-SS7
2225660-05	BH3-102
2225660-06	BH4-22-SS5
2225660-07	BH5-22-SS2
2225660-08	BH5-22-SS6

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	22-Jun-22	22-Jun-22
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	23-Jun-22	23-Jun-22
PHC F1	CWS Tier 1 - P&T GC-FID	21-Jun-22	22-Jun-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	20-Jun-22	24-Jun-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	22-Jun-22	22-Jun-22
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	21-Jun-22	22-Jun-22
Solids, %	Gravimetric, calculation	22-Jun-22	23-Jun-22

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Client ID:	BH1-22-SS2	BH1-22-SS7	BH2-22-SS5	BH3-22-SS7
Sample Date:	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00
Sample ID:	2225660-01	2225660-02	2225660-03	2225660-04
MDL/Units	Soil	Soil	Soil	Soil

Physical Characteristics

% Solids	0.1 % by Wt.	97.0	96.6	91.6	80.6
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General Inorganics

pH	0.05 pH Units	7.61	-	7.56	-
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Metals

Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	1.8	1.3	1.7	1.6
Barium	1.0 ug/g dry	14.0	8.3	11.7	29.9
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	<5.0	<5.0	<5.0	<5.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	8.8	6.4	9.2	11.2
Cobalt	1.0 ug/g dry	5.5	3.7	5.4	3.6
Copper	5.0 ug/g dry	12.2	9.3	11.7	8.6
Lead	1.0 ug/g dry	3.6	2.5	2.8	2.6
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	8.0	<5.0	6.7	13.9
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	22.3	16.1	27.5	22.6
Zinc	20.0 ug/g dry	<20.0	<20.0	<20.0	<20.0

Volatiles

Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

	Client ID:	BH1-22-SS2	BH1-22-SS7	BH2-22-SS5	BH3-22-SS7
	Sample Date:	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00
	Sample ID:	2225660-01	2225660-02	2225660-03	2225660-04
	MDL/Units	Soil	Soil	Soil	Soil
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	96.8%	97.8%	101%	-
Dibromofluoromethane	Surrogate	77.6%	76.5%	79.1%	-
Toluene-d8	Surrogate	113%	113%	115%	-
Benzene	0.02 ug/g dry	-	-	-	<0.02
Ethylbenzene	0.05 ug/g dry	-	-	-	<0.05
Toluene	0.05 ug/g dry	-	-	-	<0.05

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

	Client ID:	BH1-22-SS2	BH1-22-SS7	BH2-22-SS5	BH3-22-SS7
	Sample Date:	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00
	Sample ID:	2225660-01	2225660-02	2225660-03	2225660-04
	MDL/Units	Soil	Soil	Soil	Soil
m,p-Xylenes	0.05 ug/g dry	-	-	-	<0.05
o-Xylene	0.05 ug/g dry	-	-	-	<0.05
Xylenes, total	0.05 ug/g dry	-	-	-	<0.05
Toluene-d8	Surrogate	-	-	-	103%

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Client ID:	BH3-102	BH4-22-SS5	BH5-22-SS2	BH5-22-SS6
Sample Date:	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00
Sample ID:	2225660-05	2225660-06	2225660-07	2225660-08
MDL/Units	Soil	Soil	Soil	Soil

Physical Characteristics

% Solids	0.1 % by Wt.	92.0	96.3	90.6	80.2
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Metals

Antimony	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	-	1.3	2.0	2.0
Barium	1.0 ug/g dry	-	14.9	16.9	93.3
Beryllium	0.5 ug/g dry	-	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	-	<5.0	<5.0	<5.0
Cadmium	0.5 ug/g dry	-	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	-	6.1	7.6	19.0
Cobalt	1.0 ug/g dry	-	3.6	4.3	5.4
Copper	5.0 ug/g dry	-	9.2	5.7	13.7
Lead	1.0 ug/g dry	-	3.5	6.8	3.3
Molybdenum	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	-	5.4	6.3	11.8
Selenium	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	-	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	-	15.6	15.6	32.2
Zinc	20.0 ug/g dry	-	<20.0	<20.0	27.2

Volatiles

Acetone	0.50 ug/g dry	<0.50	-	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

	Client ID:	BH3-102	BH4-22-SS5	BH5-22-SS2	BH5-22-SS6
	Sample Date:	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00
	Sample ID:	2225660-05	2225660-06	2225660-07	2225660-08
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	-	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1	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	104%	-	99.1%	106%
Dibromofluoromethane	Surrogate	59.2%	-	81.1%	83.0%
Toluene-d8	Surrogate	91.4%	-	117%	123%
Benzene	0.02 ug/g dry	-	<0.02	-	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	-	-
Toluene	0.05 ug/g dry	-	<0.05	-	-
m,p-Xylenes	0.05 ug/g dry	-	<0.05	-	-

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

	MDL/Units	Client ID: BH3-102	Client ID: BH4-22-SS5	Client ID: BH5-22-SS2	Client ID: BH5-22-SS6
		Sample Date: 16-Jun-22 09:00	Sample Date: 16-Jun-22 09:00	Sample Date: 16-Jun-22 09:00	Sample Date: 16-Jun-22 09:00
		Sample ID: 2225660-05	Sample ID: 2225660-06	Sample ID: 2225660-07	Sample ID: 2225660-08
		Soil	Soil	Soil	Soil
o-Xylene	0.05 ug/g dry	-	<0.05	-	-
Xylenes, total	0.05 ug/g dry	-	<0.05	-	-
Toluene-d8	Surrogate	-	89.9%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g dry	-	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	-	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	-	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	-	<6	<6	<6

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						

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Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	7.67		ug/g		95.9	50-140			
Surrogate: Dibromofluoromethane	4.69		ug/g		58.6	50-140			
Surrogate: Toluene-d8	9.02		ug/g		113	50-140			
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	2.83		ug/g		88.5	50-140			

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.41	0.05	pH Units	7.45			0.5	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	11	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	11	6	ug/g	10			4.6	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	2.9	1.0	ug/g	2.6			9.6	30	
Barium	54.9	1.0	ug/g	51.6			6.1	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	15.4	5.0	ug/g	13.3			14.8	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	22.1	5.0	ug/g	17.9			20.9	30	
Cobalt	5.7	1.0	ug/g	5.2			8.6	30	
Copper	19.8	5.0	ug/g	17.3			13.7	30	
Lead	81.5	1.0	ug/g	67.2			19.2	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	12.6	5.0	ug/g	11.0			13.5	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	22.2	10.0	ug/g	19.0			15.4	30	
Zinc	67.3	20.0	ug/g	60.7			10.2	30	
Physical Characteristics									
% Solids	78.7	0.1	% by Wt.	79.3			0.7	25	
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2)	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	8.12		ug/g		96.8	50-140			
Surrogate: Dibromofluoromethane	5.09		ug/g		60.7	50-140			
Surrogate: Toluene-d8	9.47		ug/g		113	50-140			
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	3.58		ug/g		94.7	50-140			

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	165	7	ug/g	ND	82.5	80-120			
F2 PHCs (C10-C16)	108	4	ug/g	ND	111	60-140			
F3 PHCs (C16-C34)	317	8	ug/g	ND	134	60-140			
F4 PHCs (C34-C50)	212	6	ug/g	10	134	60-140			
Metals									
Antimony	46.3	1.0	ug/g	ND	92.0	70-130			
Arsenic	55.7	1.0	ug/g	1.0	109	70-130			
Barium	82.9	1.0	ug/g	20.6	125	70-130			
Beryllium	57.9	0.5	ug/g	ND	115	70-130			
Boron	58.7	5.0	ug/g	5.3	107	70-130			
Cadmium	50.8	0.5	ug/g	ND	102	70-130			
Chromium	69.9	5.0	ug/g	7.2	126	70-130			
Cobalt	60.3	1.0	ug/g	2.1	116	70-130			
Copper	62.8	5.0	ug/g	6.9	112	70-130			
Lead	81.3	1.0	ug/g	26.9	109	70-130			
Molybdenum	53.8	1.0	ug/g	ND	107	70-130			
Nickel	62.4	5.0	ug/g	ND	116	70-130			
Selenium	49.7	1.0	ug/g	ND	99.1	70-130			
Silver	41.3	0.3	ug/g	ND	82.5	70-130			
Thallium	52.0	1.0	ug/g	ND	104	70-130			
Uranium	45.5	1.0	ug/g	ND	90.8	70-130			
Vanadium	71.7	10.0	ug/g	ND	128	70-130			
Zinc	80.7	20.0	ug/g	24.3	113	70-130			
Volatiles									
Acetone	7.63	0.50	ug/g	ND	76.3	50-140			
Benzene	3.16	0.02	ug/g	ND	79.1	60-130			
Bromodichloromethane	3.73	0.05	ug/g	ND	93.2	60-130			
Bromoform	2.76	0.05	ug/g	ND	68.9	60-130			
Bromomethane	3.99	0.05	ug/g	ND	99.7	50-140			
Carbon Tetrachloride	3.47	0.05	ug/g	ND	86.9	60-130			
Chlorobenzene	3.53	0.05	ug/g	ND	88.3	60-130			
Chloroform	3.26	0.05	ug/g	ND	81.6	60-130			
Dibromochloromethane	2.65	0.05	ug/g	ND	66.3	60-130			
Dichlorodifluoromethane	4.35	0.05	ug/g	ND	109	50-140			
1,2-Dichlorobenzene	3.22	0.05	ug/g	ND	80.5	60-130			
1,3-Dichlorobenzene	3.00	0.05	ug/g	ND	75.1	60-130			
1,4-Dichlorobenzene	3.33	0.05	ug/g	ND	83.3	60-130			
1,1-Dichloroethane	2.72	0.05	ug/g	ND	67.9	60-130			
1,2-Dichloroethane	3.04	0.05	ug/g	ND	76.0	60-130			
1,1-Dichloroethylene	2.87	0.05	ug/g	ND	71.8	60-130			
cis-1,2-Dichloroethylene	2.80	0.05	ug/g	ND	69.9	60-130			
trans-1,2-Dichloroethylene	2.65	0.05	ug/g	ND	66.4	60-130			
1,2-Dichloropropane	2.80	0.05	ug/g	ND	70.0	60-130			
cis-1,3-Dichloropropylene	3.02	0.05	ug/g	ND	75.5	60-130			
trans-1,3-Dichloropropylene	3.04	0.05	ug/g	ND	75.9	60-130			
Ethylbenzene	3.52	0.05	ug/g	ND	88.0	60-130			
Ethylene dibromide (dibromoethane, 1,2-	4.02	0.05	ug/g	ND	100	60-130			
Hexane	4.40	0.05	ug/g	ND	110	60-130			

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methyl Ethyl Ketone (2-Butanone)	6.22	0.50	ug/g	ND	62.2	50-140			
Methyl Isobutyl Ketone	7.03	0.50	ug/g	ND	70.3	50-140			
Methyl tert-butyl ether	8.57	0.05	ug/g	ND	85.7	50-140			
Methylene Chloride	2.87	0.05	ug/g	ND	71.6	60-130			
Styrene	3.16	0.05	ug/g	ND	78.9	60-130			
1,1,1,2-Tetrachloroethane	2.62	0.05	ug/g	ND	65.4	60-130			
1,1,2,2-Tetrachloroethane	2.89	0.05	ug/g	ND	72.3	60-130			
Tetrachloroethylene	3.32	0.05	ug/g	ND	83.0	60-130			
Toluene	3.61	0.05	ug/g	ND	90.2	60-130			
1,1,1-Trichloroethane	2.86	0.05	ug/g	ND	71.4	60-130			
1,1,2-Trichloroethane	2.62	0.05	ug/g	ND	65.5	60-130			
Trichloroethylene	2.93	0.05	ug/g	ND	73.3	60-130			
Trichlorofluoromethane	3.38	0.05	ug/g	ND	84.6	50-140			
Vinyl chloride	4.94	0.02	ug/g	ND	123	50-140			
m,p-Xylenes	6.99	0.05	ug/g	ND	87.4	60-130			
o-Xylene	3.50	0.05	ug/g	ND	87.6	60-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>7.60</i>		<i>ug/g</i>		<i>95.0</i>	<i>50-140</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>6.48</i>		<i>ug/g</i>		<i>81.0</i>	<i>50-140</i>			
<i>Surrogate: Toluene-d8</i>	<i>8.46</i>		<i>ug/g</i>		<i>106</i>	<i>50-140</i>			
Benzene	3.66	0.02	ug/g	ND	91.5	60-130			
Ethylbenzene	3.56	0.05	ug/g	ND	89.0	60-130			
Toluene	3.78	0.05	ug/g	ND	94.6	60-130			
m,p-Xylenes	7.61	0.05	ug/g	ND	95.1	60-130			
o-Xylene	3.95	0.05	ug/g	ND	98.8	60-130			
<i>Surrogate: Toluene-d8</i>	<i>2.92</i>		<i>ug/g</i>		<i>91.2</i>	<i>50-140</i>			

Certificate of Analysis

Report Date: 24-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 17-Jun-2022

Client PO: 55010

Project Description: PE4767

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - Vial- ID reads BH4-22-SS4 and coc reads BH4-22-SS5

Applies to samples: BH4-22-SS5

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.



Parcel Order Number (Lab Use Only) 2225660	Chain Of Custody (Lab Use Only) No 136668
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Client Name: Paterson	Project Ref: PE4767	Page 1 of 1
Contact Name: Michael Beaudoin	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: 9 Auriga Drive	PO #: 55010	
Telephone: 613-226-7881	E-mail: mbeaudoin@patersongroup.ca	
Date Required: _____		

<input checked="" type="checkbox"/> REG 153/04 <input type="checkbox"/> REG 406/19 Other Regulation <input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine <input type="checkbox"/> REG 558 <input type="checkbox"/> PWOO <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> CCME <input type="checkbox"/> MISA <input checked="" type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> SU - Sani <input type="checkbox"/> SU - Storm <input type="checkbox"/> Table _____ For RSC: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other: _____ Mun: _____		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		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	pH							
				Date	Time															
1 BH1-22-SS2	S		2	June 16/2022		X	X	X					X							
2 BH1-22-SS7	↓		2	↓		X	X	X												
3 BH2-22-SS5	↓		2	↓		X	X	X					X							
4 BH3-22-SS7	↓		1	↓		X		X												
5 BH3-102	↓		1	↓			X													
6 BH4-22-SS5	↓		1	↓		X		X												
7 BH5-22-SS2	↓		2	↓		X	X	X												
8 BH5-22-SS6	↓		2	↓		X	X	X												
9																				
10																				

Comments:		Method of Delivery: PARACEL COURIER	
Relinquished By (Sign): <i>[Signature]</i>	Received By Driver/Depot: <i>[Signature]</i>	Received at Lab: <i>[Signature]</i>	Verified By: <i>[Signature]</i>
Relinquished By (Print): Nurein Seif	Date/Time: 17/06/22 1:42	Date/Time: June 17, 22 17:21	Date/Time: June 18, 22 15:45
Date/Time: June 17/2022	Temperature: _____ °C PA	Temperature: 20.7 °C	pH Verified: <input type="checkbox"/> By: _____

Certificate of Analysis

Paterson Group Consulting Engineers

28 Concourse Gate, Unit 1
Nepean, ON K2E 7T7

Attn: Mark D'Arcy

Client PO: 11990

Project: PE2459

Custody: 85905

Phone: (613) 226-7381

Fax: (613) 226-6344

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

Order #: 1147072

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

Paracel ID	Client ID
1147072-01	BH2-GW1
1147072-02	BH4-GW1

Approved By:



Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 11990

Project Description: PE2459

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	18-Nov-11	18-Nov-11
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	16-Nov-11	17-Nov-11
VOCs	EPA 624 - P&T GC-MS	18-Nov-11	18-Nov-11

P: 1-800-749-1947
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OTTAWA
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8

MISSISSAUGA
6645 Kitimat Rd, Unit #27
Mississauga, ON L5N 6J3

NIAGARA FALLS
5415 Morning Glory Cr.
Niagara Falls, ON L2J 0A3

SARNIA
123 Christina St. N.
Sarnia, ON N7T 5T7

Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11990

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

Project Description: PE2459

Client ID:	BH2-GW1	BH4-GW1	-	-
Sample Date:	14-Nov-11	14-Nov-11	-	-
Sample ID:	1147072-01	1147072-02	-	-
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	-	-
Chloroethane	1.0 ug/L	<1.0	<1.0	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Chloromethane	3.0 ug/L	<3.0	<3.0	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dibromoethane	0.2 ug/L	<0.2	<0.2	-	-
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	5.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethylene, total	0.5 ug/L	5.5	<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	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	-	-
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	-	-

Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11990

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

Project Description: PE2459

	Client ID:	BH2-GW1	BH4-GW1	-	-
	Sample Date:	14-Nov-11	14-Nov-11	-	-
	Sample ID:	1147072-01	1147072-02	-	-
	MDL/Units	Water	Water	-	-
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	226	8.3	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,2,4-Trichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	1.6	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
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	116%	108%	-	-
Dibromofluoromethane	Surrogate	106%	106%	-	-
Toluene-d8	Surrogate	92.3%	97.1%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
F1 + F2 PHCs	125 ug/L	<125	<125	-	-
F3 + F4 PHCs	200 ug/L	<200	<200	-	-

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 11990

Project Description: PE2459

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

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						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dibromoethane	ND	0.2	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-Dichloroethylene, total	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						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	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						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	ND	0.5	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	38.7		ug/L		121	50-140			
Surrogate: Dibromofluoromethane	34.9		ug/L		109	50-140			
Surrogate: Toluene-d8	31.5		ug/L		98.4	50-140			

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 11990

Project Description: PE2459

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

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				30	
F2 PHCs (C10-C16)	ND	100	ug/L	ND				30	
F3 PHCs (C16-C34)	ND	100	ug/L	ND				30	
F4 PHCs (C34-C50)	ND	100	ug/L	ND				30	
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroethane	ND	1.0	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Chloromethane	ND	3.0	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dibromoethane	ND	0.2	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	3.40	0.5	ug/L	3.36			1.2	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
1,2,4-Trichlorobenzene	ND	0.5	ug/L	ND				30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
1,3,5-Trimethylbenzene	ND	0.5	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: 4-Bromofluorobenzene	36.4		ug/L	ND	114	50-140			
Surrogate: Dibromofluoromethane	28.1		ug/L	ND	87.7	50-140			
Surrogate: Toluene-d8	32.1		ug/L	ND	100	50-140			

Certificate of Analysis

 Client: **Paterson Group Consulting Engineers**

Client PO: 11990

Project Description: PE2459

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1570	25	ug/L	ND	78.3	68-117			
F2 PHCs (C10-C16)	1530	100	ug/L	ND	95.8	60-140			
F3 PHCs (C16-C34)	3650	100	ug/L	ND	91.2	60-140			
F4 PHCs (C34-C50)	2320	100	ug/L	ND	96.7	60-140			
Volatiles									
Acetone	104	5.0	ug/L	ND	104	50-140			
Benzene	37.9	0.5	ug/L	ND	94.7	60-130			
Bromodichloromethane	37.1	0.5	ug/L	ND	92.6	60-130			
Bromoform	46.2	0.5	ug/L	ND	116	60-130			
Bromomethane	50.7	0.5	ug/L	ND	127	50-140			
Carbon Tetrachloride	49.8	0.2	ug/L	ND	125	60-130			
Chlorobenzene	34.4	0.5	ug/L	ND	86.0	60-130			
Chloroethane	35.2	1.0	ug/L	ND	88.0	50-140			
Chloroform	36.2	0.5	ug/L	ND	90.4	60-130			
Chloromethane	28.6	3.0	ug/L	ND	71.5	50-140			
Dibromochloromethane	49.8	0.5	ug/L	ND	125	60-130			
Dichlorodifluoromethane	40.3	1.0	ug/L	ND	101	50-140			
1,2-Dibromoethane	46.9	0.2	ug/L	ND	117	60-130			
1,2-Dichlorobenzene	31.9	0.5	ug/L	ND	79.7	60-130			
1,3-Dichlorobenzene	30.0	0.5	ug/L	ND	74.9	60-130			
1,4-Dichlorobenzene	39.4	0.5	ug/L	ND	98.5	60-130			
1,1-Dichloroethane	29.6	0.5	ug/L	ND	74.1	60-130			
1,2-Dichloroethane	33.4	0.5	ug/L	ND	83.6	60-130			
1,1-Dichloroethylene	34.9	0.5	ug/L	ND	87.2	60-130			
cis-1,2-Dichloroethylene	36.0	0.5	ug/L	ND	90.1	60-130			
trans-1,2-Dichloroethylene	38.8	0.5	ug/L	ND	97.0	60-130			
1,2-Dichloropropane	35.4	0.5	ug/L	ND	88.6	60-130			
cis-1,3-Dichloropropylene	34.5	0.5	ug/L	ND	86.3	60-130			
trans-1,3-Dichloropropylene	29.9	0.5	ug/L	ND	74.8	60-130			
Ethylbenzene	36.0	0.5	ug/L	ND	90.0	60-130			
Hexane	38.4	1.0	ug/L	ND	96.1	60-130			
Methyl Ethyl Ketone (2-Butanone)	99.5	5.0	ug/L	ND	99.5	50-140			
Methyl Butyl Ketone (2-Hexanone)	91.0	10.0	ug/L	ND	91.0	50-140			
Methyl Isobutyl Ketone	96.5	5.0	ug/L	ND	96.5	50-140			
Methyl tert-butyl ether	140	2.0	ug/L	ND	140	50-140			
Methylene Chloride	33.3	5.0	ug/L	ND	83.2	60-130			
Styrene	39.3	0.5	ug/L	ND	98.2	60-130			
1,1,1,2-Tetrachloroethane	31.4	0.5	ug/L	ND	78.5	60-130			
1,1,1,2,2-Tetrachloroethane	41.9	0.5	ug/L	ND	105	60-130			
Tetrachloroethylene	33.4	0.5	ug/L	ND	83.6	60-130			
Toluene	36.1	0.5	ug/L	ND	90.2	60-130			
1,2,4-Trichlorobenzene	31.6	0.5	ug/L	ND	79.0	60-130			
1,1,1-Trichloroethane	33.3	0.5	ug/L	ND	83.2	60-130			
1,1,2-Trichloroethane	33.7	0.5	ug/L	ND	84.2	60-130			
Trichloroethylene	34.6	0.5	ug/L	ND	86.4	60-130			
Trichlorofluoromethane	31.9	1.0	ug/L	ND	79.8	60-130			
1,3,5-Trimethylbenzene	45.9	0.5	ug/L	ND	115	60-130			
Vinyl chloride	33.6	0.5	ug/L	ND	83.9	50-140			
m,p-Xylenes	74.1	0.5	ug/L	ND	92.6	60-130			

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Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 11990

Project Description: PE2459

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	33.8	0.5	ug/L	ND	84.6	60-130			
Surrogate: 4-Bromofluorobenzene	26.1		ug/L		81.5	50-140			

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 11990

Project Description: PE2459

Report Date: 21-Nov-2011

Order Date: 15-Nov-2011

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

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.

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Rd South
Nepean, ON K2E 7J5
Attn: Mark St. Pierre

Client PO: 30538
Project: PE4767
Custody: 128606

Report Date: 11-Aug-2020
Order Date: 7-Aug-2020

Order #: 2032461

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

Parcel ID	Client ID
2032461-01	BH1-20-GW1
2032461-02	BH2-20-GW1
2032461-03	BH3-20-GW1
2032461-04	BH2-19-GW2

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - water	MOE E3056 - colourimetric	8-Aug-20	8-Aug-20
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	7-Aug-20	10-Aug-20
Metals, ICP-MS	EPA 200.8 - ICP-MS	10-Aug-20	10-Aug-20
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	7-Aug-20	8-Aug-20

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

	Client ID:	BH1-20-GW1	BH2-20-GW1	BH3-20-GW1	BH2-19-GW2
	Sample Date:	06-Aug-20 09:00	06-Aug-20 09:00	06-Aug-20 09:00	06-Aug-20 09:00
	Sample ID:	2032461-01	2032461-02	2032461-03	2032461-04
	MDL/Units	Water	Water	Water	Water

Metals

Element	MDL/Units	BH1-20-GW1	BH2-20-GW1	BH3-20-GW1	BH2-19-GW2
Mercury	0.1 ug/L	-	-	-	<0.1
Antimony	0.5 ug/L	-	-	-	<0.5
Arsenic	1 ug/L	-	-	-	<1
Barium	1 ug/L	-	-	-	114
Beryllium	0.5 ug/L	-	-	-	<0.5
Boron	10 ug/L	-	-	-	101
Cadmium	0.1 ug/L	-	-	-	<0.1
Chromium	1 ug/L	-	-	-	<1
Chromium (VI)	10 ug/L	-	-	-	<10
Cobalt	0.5 ug/L	-	-	-	<0.5
Copper	0.5 ug/L	-	-	-	<0.5
Lead	0.1 ug/L	-	-	-	<0.1
Molybdenum	0.5 ug/L	-	-	-	1.5
Nickel	1 ug/L	-	-	-	<1
Selenium	1 ug/L	-	-	-	<1
Silver	0.1 ug/L	-	-	-	<0.1
Sodium	200 ug/L	-	-	-	94500
Thallium	0.1 ug/L	-	-	-	<0.1
Uranium	0.1 ug/L	-	-	-	3.4
Vanadium	0.5 ug/L	-	-	-	<0.5
Zinc	5 ug/L	-	-	-	6

Volatiles

Compound	MDL/Units	BH1-20-GW1	BH2-20-GW1	BH3-20-GW1	BH2-19-GW2
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
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	-

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

	Client ID:	BH1-20-GW1	BH2-20-GW1	BH3-20-GW1	BH2-19-GW2
	Sample Date:	06-Aug-20 09:00	06-Aug-20 09:00	06-Aug-20 09:00	06-Aug-20 09:00
	Sample ID:	2032461-01	2032461-02	2032461-03	2032461-04
	MDL/Units	Water	Water	Water	Water
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	-
1,1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Tetrachloroethylene	0.5 ug/L	40.3	1.7	3.5	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2-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	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate	108%	112%	112%	-
Dibromofluoromethane	Surrogate	96.0%	94.4%	94.8%	-
Toluene-d8	Surrogate	102%	102%	102%	-

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
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						

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	86.2		ug/L		108	50-140			
Surrogate: Dibromofluoromethane	76.3		ug/L		95.4	50-140			
Surrogate: Toluene-d8	82.4		ug/L		103	50-140			

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	ND	1	ug/L	ND			NC	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	ND	10	ug/L	ND			NC	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	ND	0.5	ug/L	ND			NC	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	481	200	ug/L	343			NC	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	ND	5	ug/L	ND			NC	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2)	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	83.8		ug/L		105	50-140			
Surrogate: Dibromofluoromethane	76.1		ug/L		95.1	50-140			
Surrogate: Toluene-d8	82.3		ug/L		103	50-140			

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Mercury	3.55	0.1	ug/L	ND	118	70-130			
Antimony	42.1	0.5	ug/L	ND	84.1	80-120			
Arsenic	51.9	1	ug/L	ND	104	80-120			
Barium	50.8	1	ug/L	ND	101	80-120			
Beryllium	52.0	0.5	ug/L	ND	104	80-120			
Boron	48	10	ug/L	ND	93.6	80-120			
Cadmium	51.1	0.1	ug/L	ND	102	80-120			
Chromium (VI)	188	10	ug/L	ND	94.0	70-130			
Chromium	54.8	1	ug/L	ND	109	80-120			
Cobalt	53.1	0.5	ug/L	ND	106	80-120			
Copper	51.8	0.5	ug/L	ND	103	80-120			
Lead	50.3	0.1	ug/L	ND	101	80-120			
Molybdenum	41.1	0.5	ug/L	ND	82.2	80-120			
Nickel	52.8	1	ug/L	ND	105	80-120			
Selenium	53.7	1	ug/L	ND	107	80-120			
Silver	48.1	0.1	ug/L	ND	96.3	80-120			
Sodium	10200	200	ug/L	343	98.2	80-120			
Thallium	46.6	0.1	ug/L	ND	93.2	80-120			
Uranium	45.9	0.1	ug/L	ND	91.8	80-120			
Vanadium	50.9	0.5	ug/L	ND	102	80-120			
Zinc	56	5	ug/L	ND	112	80-120			
Volatiles									
Acetone	79.5	5.0	ug/L	ND	79.5	50-140			
Benzene	38.7	0.5	ug/L	ND	96.6	60-130			
Bromodichloromethane	32.3	0.5	ug/L	ND	80.8	60-130			
Bromoform	49.6	0.5	ug/L	ND	124	60-130			
Bromomethane	33.7	0.5	ug/L	ND	84.4	50-140			
Carbon Tetrachloride	27.0	0.2	ug/L	ND	67.6	60-130			
Chlorobenzene	38.5	0.5	ug/L	ND	96.3	60-130			
Chloroform	34.4	0.5	ug/L	ND	86.0	60-130			
Dibromochloromethane	37.2	0.5	ug/L	ND	92.9	60-130			
Dichlorodifluoromethane	38.6	1.0	ug/L	ND	96.4	50-140			
1,2-Dichlorobenzene	43.8	0.5	ug/L	ND	110	60-130			
1,3-Dichlorobenzene	42.1	0.5	ug/L	ND	105	60-130			
1,4-Dichlorobenzene	43.1	0.5	ug/L	ND	108	60-130			
1,1-Dichloroethane	32.3	0.5	ug/L	ND	80.7	60-130			
1,2-Dichloroethane	43.2	0.5	ug/L	ND	108	60-130			
1,1-Dichloroethylene	30.2	0.5	ug/L	ND	75.4	60-130			
cis-1,2-Dichloroethylene	36.3	0.5	ug/L	ND	90.8	60-130			
trans-1,2-Dichloroethylene	33.3	0.5	ug/L	ND	83.2	60-130			
1,2-Dichloropropane	39.1	0.5	ug/L	ND	97.8	60-130			
cis-1,3-Dichloropropylene	42.5	0.5	ug/L	ND	106	60-130			
trans-1,3-Dichloropropylene	42.6	0.5	ug/L	ND	107	60-130			
Ethylbenzene	37.8	0.5	ug/L	ND	94.6	60-130			
Ethylene dibromide (dibromoethane, 1,2-	35.3	0.2	ug/L	ND	88.4	60-130			
Hexane	30.2	1.0	ug/L	ND	75.4	60-130			
Methyl Ethyl Ketone (2-Butanone)	99.0	5.0	ug/L	ND	99.0	50-140			
Methyl Isobutyl Ketone	107	5.0	ug/L	ND	107	50-140			

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methyl tert-butyl ether	88.2	2.0	ug/L	ND	88.2	50-140			
Methylene Chloride	32.2	5.0	ug/L	ND	80.4	60-130			
Styrene	39.2	0.5	ug/L	ND	97.9	60-130			
1,1,1,2-Tetrachloroethane	37.8	0.5	ug/L	ND	94.4	60-130			
1,1,2,2-Tetrachloroethane	30.7	0.5	ug/L	ND	76.8	60-130			
Tetrachloroethylene	38.3	0.5	ug/L	ND	95.8	60-130			
Toluene	39.4	0.5	ug/L	ND	98.5	60-130			
1,1,1-Trichloroethane	30.3	0.5	ug/L	ND	75.8	60-130			
1,1,2-Trichloroethane	38.2	0.5	ug/L	ND	95.4	60-130			
Trichloroethylene	43.5	0.5	ug/L	ND	109	60-130			
Trichlorofluoromethane	33.4	1.0	ug/L	ND	83.5	60-130			
Vinyl chloride	40.8	0.5	ug/L	ND	102	50-140			
m,p-Xylenes	78.8	0.5	ug/L	ND	98.5	60-130			
o-Xylene	39.9	0.5	ug/L	ND	99.8	60-130			
Surrogate: 4-Bromofluorobenzene	89.1		ug/L		111	50-140			
Surrogate: Dibromofluoromethane	79.4		ug/L		99.2	50-140			
Surrogate: Toluene-d8	79.7		ug/L		99.6	50-140			

Certificate of Analysis

Report Date: 11-Aug-2020

Client: Paterson Group Consulting Engineers

Order Date: 7-Aug-2020

Client PO: 30538

Project Description: PE4767

Qualifier Notes:

Login Qualifiers :

Container(s) - Labeled improperly/insufficient information - Date reads Aug 6th

Applies to samples: BH1-20-GW1, BH2-20-GW1, BH3-20-GW1, BH2-19-GW2

QC Qualifiers :

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

Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mark D'Arcy

Client PO: 57659
Project: PE4767
Custody: 140727

Report Date: 7-Jun-2023
Order Date: 5-Jun-2023

Order #: 2323106

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

Paracel ID	Client ID
2323106-01	BH2-20-GW
2323106-02	BH1-22-GW
2323106-03	BH3-22-GW
2323106-04	DUP

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 07-Jun-2023

Client: Paterson Group Consulting Engineers

Order Date: 5-Jun-2023

Client PO: 57659

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	6-Jun-23	6-Jun-23

Certificate of Analysis

Report Date: 07-Jun-2023

Client: Paterson Group Consulting Engineers

Order Date: 5-Jun-2023

Client PO: 57659

Project Description: PE4767

Client ID:	BH2-20-GW	BH1-22-GW	BH3-22-GW	DUP
Sample Date:	05-Jun-23 00:00	05-Jun-23 00:00	05-Jun-23 00:00	05-Jun-23 00:00
Sample ID:	2323106-01	2323106-02	2323106-03	2323106-04
MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water

Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	<2.0
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	0.5 ug/L	<0.5	4.2	<0.5	4.1
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5

Certificate of Analysis

Report Date: 07-Jun-2023

Client: Paterson Group Consulting Engineers

Order Date: 5-Jun-2023

Client PO: 57659

Project Description: PE4767

	Client ID:	BH2-20-GW	BH1-22-GW	BH3-22-GW	DUP
	Sample Date:	05-Jun-23 00:00	05-Jun-23 00:00	05-Jun-23 00:00	05-Jun-23 00:00
	Sample ID:	2323106-01	2323106-02	2323106-03	2323106-04
	MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
4-Bromofluorobenzene	Surrogate	97.5%	101%	97.0%	99.0%
Dibromofluoromethane	Surrogate	102%	101%	99.2%	102%
Toluene-d8	Surrogate	113%	111%	112%	110%

Certificate of Analysis

Report Date: 07-Jun-2023

Client: Paterson Group Consulting Engineers

Order Date: 5-Jun-2023

Client PO: 57659

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	80.4		ug/L		100	50-140			
Surrogate: Dibromofluoromethane	81.4		ug/L		102	50-140			
Surrogate: Toluene-d8	91.7		ug/L		115	50-140			

Certificate of Analysis

Report Date: 07-Jun-2023

Client: Paterson Group Consulting Engineers

Order Date: 5-Jun-2023

Client PO: 57659

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	79.8		ug/L		99.7	50-140			
Surrogate: Dibromofluoromethane	78.0		ug/L		97.6	50-140			
Surrogate: Toluene-d8	89.5		ug/L		112	50-140			

Certificate of Analysis

Report Date: 07-Jun-2023

Client: Paterson Group Consulting Engineers

Order Date: 5-Jun-2023

Client PO: 57659

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	77.9	5.0	ug/L	ND	77.9	50-140			
Benzene	43.9	0.5	ug/L	ND	110	60-130			
Bromodichloromethane	41.5	0.5	ug/L	ND	104	60-130			
Bromoform	44.1	0.5	ug/L	ND	110	60-130			
Bromomethane	48.5	0.5	ug/L	ND	121	50-140			
Carbon Tetrachloride	45.4	0.2	ug/L	ND	113	60-130			
Chlorobenzene	49.0	0.5	ug/L	ND	123	60-130			
Chloroform	39.6	0.5	ug/L	ND	98.9	60-130			
Dibromochloromethane	48.6	0.5	ug/L	ND	122	60-130			
Dichlorodifluoromethane	48.7	1.0	ug/L	ND	122	50-140			
1,2-Dichlorobenzene	48.4	0.5	ug/L	ND	121	60-130			
1,3-Dichlorobenzene	44.5	0.5	ug/L	ND	111	60-130			
1,4-Dichlorobenzene	43.9	0.5	ug/L	ND	110	60-130			
1,1-Dichloroethane	47.7	0.5	ug/L	ND	119	60-130			
1,2-Dichloroethane	41.0	0.5	ug/L	ND	102	60-130			
1,1-Dichloroethylene	45.0	0.5	ug/L	ND	113	60-130			
cis-1,2-Dichloroethylene	42.4	0.5	ug/L	ND	106	60-130			
trans-1,2-Dichloroethylene	47.8	0.5	ug/L	ND	120	60-130			
1,2-Dichloropropane	43.0	0.5	ug/L	ND	108	60-130			
cis-1,3-Dichloropropylene	47.6	0.5	ug/L	ND	119	60-130			
trans-1,3-Dichloropropylene	48.0	0.5	ug/L	ND	120	60-130			
Ethylbenzene	41.9	0.5	ug/L	ND	105	60-130			
Ethylene dibromide (dibromoethane, 1,2-	46.1	0.2	ug/L	ND	115	60-130			
Hexane	45.8	1.0	ug/L	ND	114	60-130			
Methyl Ethyl Ketone (2-Butanone)	125	5.0	ug/L	ND	125	50-140			
Methyl Isobutyl Ketone	98.4	5.0	ug/L	ND	98.4	50-140			
Methyl tert-butyl ether	109	2.0	ug/L	ND	109	50-140			
Methylene Chloride	46.7	5.0	ug/L	ND	117	60-130			
Styrene	47.5	0.5	ug/L	ND	119	60-130			
1,1,1,2-Tetrachloroethane	42.2	0.5	ug/L	ND	105	60-130			
1,1,2,2-Tetrachloroethane	48.3	0.5	ug/L	ND	121	60-130			
Tetrachloroethylene	46.4	0.5	ug/L	ND	116	60-130			
Toluene	46.6	0.5	ug/L	ND	116	60-130			
1,1,1-Trichloroethane	45.8	0.5	ug/L	ND	114	60-130			
1,1,2-Trichloroethane	40.3	0.5	ug/L	ND	101	60-130			
Trichloroethylene	44.3	0.5	ug/L	ND	111	60-130			
Trichlorofluoromethane	38.1	1.0	ug/L	ND	95.2	60-130			
Vinyl chloride	36.6	0.5	ug/L	ND	91.5	50-140			
m,p-Xylenes	94.3	0.5	ug/L	ND	118	60-130			
o-Xylene	40.1	0.5	ug/L	ND	100	60-130			
Surrogate: 4-Bromofluorobenzene	74.1		ug/L		92.7	50-140			
Surrogate: Dibromofluoromethane	77.5		ug/L		96.9	50-140			
Surrogate: Toluene-d8	75.2		ug/L		94.1	50-140			

Certificate of Analysis

Report Date: 07-Jun-2023

Client: Paterson Group Consulting Engineers

Order Date: 5-Jun-2023

Client PO: 57659

Project Description: PE4767

Qualifier Notes:

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

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Eric Leveque

Client PO: 26895
Project: PE4629
Custody: 122388

Report Date: 17-Jun-2019
Order Date: 11-Jun-2019

Order #: 1924255

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

Parcel ID	Client ID
1924255-01	BH1-GW1
1924255-02	BH2-GW1
1924255-03	BH3-GW1

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: **Paterson Group Consulting Engineers**
Client PO: **26895**

Report Date: 17-Jun-2019
Order Date: 11-Jun-2019
Project Description: **PE4629**

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	14-Jun-19	17-Jun-19

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 26895

Report Date: 17-Jun-2019
 Order Date: 11-Jun-2019
 Project Description: PE4629

Client ID:	BH1-GW1	BH2-GW1	BH3-GW1	-
Sample Date:	11-Jun-19 11:30	11-Jun-19 11:00	11-Jun-19 10:30	-
Sample ID:	1924255-01	1924255-02	1924255-03	-
MDL/Units	Water	Water	Water	-

Volatiles

Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
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)	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	-
1,1,1,2,2-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	<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 26895

Report Date: 17-Jun-2019

Order Date: 11-Jun-2019

Project Description: PE4629

	Client ID:	BH1-GW1	BH2-GW1	BH3-GW1	-
	Sample Date:	11-Jun-19 11:30	11-Jun-19 11:00	11-Jun-19 10:30	-
	Sample ID:	1924255-01	1924255-02	1924255-03	-
	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	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate	113%	108%	112%	-
Dibromofluoromethane	Surrogate	99.0%	97.8%	97.7%	-
Toluene-d8	Surrogate	104%	106%	103%	-

Certificate of Analysis
Client: **Paterson Group Consulting Engineers**
Client PO: **26895**

Report Date: 17-Jun-2019
Order Date: 11-Jun-2019
Project Description: **PE4629**

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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)	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	87.8		ug/L		110	50-140			
Surrogate: Dibromofluoromethane	73.3		ug/L		91.6	50-140			
Surrogate: Toluene-d8	84.1		ug/L		105	50-140			

Certificate of Analysis
Client: **Paterson Group Consulting Engineers**
Client PO: **26895**

Report Date: 17-Jun-2019
Order Date: 11-Jun-2019
Project Description: **PE4629**

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	12.2	0.5	ug/L	12.5			1.9	30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	50.9	0.5	ug/L	50.2			1.4	30	
Ethylene dibromide (dibromoethane)	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	174	2.0	ug/L	183			4.7	30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	190	0.5	ug/L	192			1.3	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	360	0.5	ug/L	374			3.7	30	
o-Xylene	225	0.5	ug/L	228			1.3	30	
Surrogate: 4-Bromofluorobenzene	78.0		ug/L		97.5	50-140			
Surrogate: Dibromofluoromethane	59.7		ug/L		74.7	50-140			
Surrogate: Toluene-d8	84.3		ug/L		105	50-140			

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 26895

Report Date: 17-Jun-2019
 Order Date: 11-Jun-2019
 Project Description: PE4629

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	118	5.0	ug/L		118	50-140			
Benzene	24.0	0.5	ug/L		60.1	60-130			
Bromodichloromethane	24.0	0.5	ug/L		60.0	60-130			
Bromoform	31.1	0.5	ug/L		77.7	60-130			
Bromomethane	22.8	0.5	ug/L		57.0	50-140			
Carbon Tetrachloride	25.2	0.2	ug/L		63.0	60-130			
Chlorobenzene	30.3	0.5	ug/L		75.6	60-130			
Chloroform	39.0	0.5	ug/L		97.4	60-130			
Dibromochloromethane	29.3	0.5	ug/L		73.4	60-130			
Dichlorodifluoromethane	22.0	1.0	ug/L		54.9	50-140			
1,2-Dichlorobenzene	36.6	0.5	ug/L		91.5	60-130			
1,3-Dichlorobenzene	35.9	0.5	ug/L		89.6	60-130			
1,4-Dichlorobenzene	34.9	0.5	ug/L		87.2	60-130			
1,1-Dichloroethane	28.4	0.5	ug/L		71.1	60-130			
1,2-Dichloroethane	24.0	0.5	ug/L		60.0	60-130			
1,1-Dichloroethylene	25.2	0.5	ug/L		63.0	60-130			
cis-1,2-Dichloroethylene	24.1	0.5	ug/L		60.2	60-130			
trans-1,2-Dichloroethylene	24.0	0.5	ug/L		60.0	60-130			
1,2-Dichloropropane	24.0	0.5	ug/L		60.0	60-130			
cis-1,3-Dichloropropylene	30.3	0.5	ug/L		75.7	60-130			
trans-1,3-Dichloropropylene	24.0	0.5	ug/L		60.0	60-130			
Ethylbenzene	30.0	0.5	ug/L		75.0	60-130			
Ethylene dibromide (dibromoethane)	29.7	0.2	ug/L		74.4	60-130			
Hexane	44.9	1.0	ug/L		112	60-130			
Methyl Ethyl Ketone (2-Butanone)	99.4	5.0	ug/L		99.4	50-140			
Methyl Isobutyl Ketone	69.4	5.0	ug/L		69.4	50-140			
Methyl tert-butyl ether	60.4	2.0	ug/L		60.4	50-140			
Methylene Chloride	25.6	5.0	ug/L		64.1	60-130			
Styrene	29.3	0.5	ug/L		73.3	60-130			
1,1,1,2-Tetrachloroethane	39.3	0.5	ug/L		98.2	60-130			
1,1,2,2-Tetrachloroethane	29.2	0.5	ug/L		73.1	60-130			
Tetrachloroethylene	29.8	0.5	ug/L		74.6	60-130			
Toluene	29.4	0.5	ug/L		73.5	60-130			
1,1,1-Trichloroethane	24.0	0.5	ug/L		60.0	60-130			
1,1,2-Trichloroethane	24.0	0.5	ug/L		60.0	60-130			
Trichloroethylene	36.4	0.5	ug/L		91.0	60-130			
Trichlorofluoromethane	24.0	1.0	ug/L		60.0	60-130			
Vinyl chloride	36.3	0.5	ug/L		90.7	50-140			
m,p-Xylenes	64.5	0.5	ug/L		80.6	60-130			
o-Xylene	33.7	0.5	ug/L		84.2	60-130			
Surrogate: 4-Bromofluorobenzene	69.3		ug/L		86.6	50-140			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 26895

Report Date: 17-Jun-2019
Order Date: 11-Jun-2019
Project Description: PE4629

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.



Client Name: <u>Paterson Group</u>	Project Reference: <u>PE4629</u>	Turnaround Time: <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input checked="" type="checkbox"/> Regular Date Required: _____
Contact Name: <u>Eric Leneque</u>	Quote #	
Address: <u>154 Colonnade Rd. S.</u>	PO # <u>26895</u>	
Telephone: <u>613-226-7381</u>	Email Address: <u>eleneque@patersongroup.ca</u>	
Criteria: <input checked="" type="checkbox"/> O. Reg. 153/04 (As Amended) Table ___ <input type="checkbox"/> RSC Filing <input type="checkbox"/> O. Reg. 558/00 <input type="checkbox"/> PWQO <input type="checkbox"/> CCME <input type="checkbox"/> SUB (Storm) <input type="checkbox"/> SUB (Sanitary) Municipality: _____ <input type="checkbox"/> Other: _____		

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)				Required Analyses									
Parcel Order Number: <u>1924255</u>		Matrix	Air Volume	# of Containers	Sample Taken		PHCS FI-F4-BTEX	VOCs	PAHs	Metals by ICP	Hg	CYI	B-GWS
Sample ID/Location Name					Date	Time							
1	BH1-GW	GW		2	Sun 11/19	11:30 am	X						
2	BH2-GW	↓		2	↓	11:00 am	X						
3	BH3-GW	↓		2	↓	10:30 am	X						
4													
5													
6													
7													
8													
9													
10													

Comments: _____ Method of Delivery: Parcel

Relinquished By (Sign): <u>N. Sullivan</u>	Received by Driver/Depot: <u>A. Lewis</u>	Received at Lab: <u>Jumeeporn Bokmai</u>	Verified By: <u>Moh Ali</u>
Relinquished By (Print): <u>Nick Sullivan</u>	Date/Time: <u>11/06/19 3:20</u>	Date/Time: <u>Nov 17, 2019 04:30</u>	Date/Time: <u>06-11-19 17:24</u>
Date/Time: <u>June 11/2019</u>	Temperature: <u>17.1</u>	Temperature: <u>11.8 °C</u>	pH Verified [] by: _____

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Eric Leveque

Client PO: 26954
Project: PE4629
Custody: 122407

Report Date: 24-Jun-2019
Order Date: 20-Jun-2019

Order #: 1925510

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

Parcel ID	Client ID
1925510-01	BH1-GW2
1925510-02	BH2-GW2
1925510-03	BH3-GW2

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: **Paterson Group Consulting Engineers**
Client PO: **26954**

Report Date: 24-Jun-2019
Order Date: 20-Jun-2019
Project Description: **PE4629**

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	21-Jun-19	24-Jun-19

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 26954

Report Date: 24-Jun-2019

Order Date: 20-Jun-2019

Project Description: PE4629

Client ID:	BH1-GW2	BH2-GW2	BH3-GW2	-
Sample Date:	20-Jun-19 09:00	20-Jun-19 09:00	20-Jun-19 09:00	-
Sample ID:	1925510-01	1925510-02	1925510-03	-
MDL/Units	Water	Water	Water	-

Volatiles

Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
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)	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	-
1,1,1,2,2-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	<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 26954

Report Date: 24-Jun-2019

Order Date: 20-Jun-2019

Project Description: PE4629

	Client ID:	BH1-GW2	BH2-GW2	BH3-GW2	-
	Sample Date:	20-Jun-19 09:00	20-Jun-19 09:00	20-Jun-19 09:00	-
	Sample ID:	1925510-01	1925510-02	1925510-03	-
	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	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate	105%	107%	109%	-
Dibromofluoromethane	Surrogate	84.0%	84.2%	87.1%	-
Toluene-d8	Surrogate	101%	102%	102%	-

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 26954

Report Date: 24-Jun-2019
 Order Date: 20-Jun-2019
 Project Description: PE4629

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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)	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	88.2		ug/L		110	50-140			
Surrogate: Dibromofluoromethane	86.3		ug/L		108	50-140			
Surrogate: Toluene-d8	66.0		ug/L		82.5	50-140			

Certificate of Analysis
Client: **Paterson Group Consulting Engineers**
Client PO: **26954**

Report Date: 24-Jun-2019
Order Date: 20-Jun-2019
Project Description: **PE4629**

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND			0.0	30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			0.0	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			0.0	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND			0.0	30	
Ethylene dibromide (dibromoethane)	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			0.0	30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND			0.0	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			0.0	30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND			0.0	30	
Surrogate: 4-Bromofluorobenzene	89.8		ug/L		112	50-140			
Surrogate: Dibromofluoromethane	60.3		ug/L		75.4	50-140			
Surrogate: Toluene-d8	68.4		ug/L		85.4	50-140			

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 26954

Report Date: 24-Jun-2019
 Order Date: 20-Jun-2019
 Project Description: PE4629

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	69.3	5.0	ug/L		69.3	50-140			
Benzene	31.7	0.5	ug/L		79.2	60-130			
Bromodichloromethane	33.6	0.5	ug/L		84.1	60-130			
Bromoform	42.4	0.5	ug/L		106	60-130			
Bromomethane	26.6	0.5	ug/L		66.6	50-140			
Carbon Tetrachloride	44.2	0.2	ug/L		110	60-130			
Chlorobenzene	34.5	0.5	ug/L		86.3	60-130			
Chloroform	31.3	0.5	ug/L		78.3	60-130			
Dibromochloromethane	29.9	0.5	ug/L		74.7	60-130			
Dichlorodifluoromethane	37.6	1.0	ug/L		93.9	50-140			
1,2-Dichlorobenzene	34.3	0.5	ug/L		85.7	60-130			
1,3-Dichlorobenzene	31.4	0.5	ug/L		78.4	60-130			
1,4-Dichlorobenzene	32.0	0.5	ug/L		80.0	60-130			
1,1-Dichloroethane	26.5	0.5	ug/L		66.2	60-130			
1,2-Dichloroethane	29.8	0.5	ug/L		74.5	60-130			
1,1-Dichloroethylene	27.4	0.5	ug/L		68.5	60-130			
cis-1,2-Dichloroethylene	30.8	0.5	ug/L		77.1	60-130			
trans-1,2-Dichloroethylene	29.2	0.5	ug/L		73.0	60-130			
1,2-Dichloropropane	27.4	0.5	ug/L		68.4	60-130			
cis-1,3-Dichloropropylene	28.4	0.5	ug/L		71.0	60-130			
trans-1,3-Dichloropropylene	37.1	0.5	ug/L		92.8	60-130			
Ethylbenzene	34.3	0.5	ug/L		85.7	60-130			
Ethylene dibromide (dibromoethane)	26.3	0.2	ug/L		65.8	60-130			
Hexane	25.3	1.0	ug/L		63.4	60-130			
Methyl Ethyl Ketone (2-Butanone)	82.0	5.0	ug/L		82.0	50-140			
Methyl Isobutyl Ketone	65.5	5.0	ug/L		65.5	50-140			
Methyl tert-butyl ether	78.6	2.0	ug/L		78.6	50-140			
Methylene Chloride	30.5	5.0	ug/L		76.2	60-130			
Styrene	41.4	0.5	ug/L		103	60-130			
1,1,1,2-Tetrachloroethane	37.0	0.5	ug/L		92.6	60-130			
1,1,1,2,2-Tetrachloroethane	37.3	0.5	ug/L		93.3	60-130			
Tetrachloroethylene	40.5	0.5	ug/L		101	60-130			
Toluene	26.3	0.5	ug/L		65.8	60-130			
1,1,1-Trichloroethane	35.3	0.5	ug/L		88.4	60-130			
1,1,2-Trichloroethane	29.4	0.5	ug/L		73.5	60-130			
Trichloroethylene	30.7	0.5	ug/L		76.7	60-130			
Trichlorofluoromethane	31.1	1.0	ug/L		77.8	60-130			
Vinyl chloride	36.8	0.5	ug/L		92.0	50-140			
m,p-Xylenes	79.1	0.5	ug/L		98.8	60-130			
o-Xylene	37.4	0.5	ug/L		93.6	60-130			
Surrogate: 4-Bromofluorobenzene	75.5		ug/L		94.4	50-140			

Certificate of Analysis
Client: **Paterson Group Consulting Engineers**
Client PO: **26954**

Report Date: 24-Jun-2019
Order Date: 20-Jun-2019
Project Description: **PE4629**

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.



Client Name: <u>Paterson Group</u>	Project Reference: <u>PE4629</u>	Turnaround Time: <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input checked="" type="checkbox"/> Regular
Contact Name: <u>Eric Leveque</u>	Quote #	
Address: <u>154 Colonnade Rd. S</u>	PO # <u>26954</u>	
Telephone: <u>(613) 226-7381</u>	Email Address: <u>eleveque@patersongroup.ca</u>	Date Required: _____

Criteria: Reg. 153/04 (As Amended) Table RSC Filing O. Reg. 558/00 PQO CCME SUB (Storm) SUB (Sanitary) Municipality: _____ Other: _____

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

Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken		PERC's F1-F4 + BTEX	VOCs	PAHs	Metals by ICP	Hg	CVP	B (HWS)
				Date	Time							
1 BH1-GW2	GW		2	JUN 20/19	AM		✓					
2 BH2-GW2	GW		2	JUN 20/19	AM		✓					
3 BH3-GW2	GW		2	JUN 20/19	AM		✓					
4												
5												
6												
7												
8												
9												
10												

Comments: _____ Method of Delivery: Paracel

Relinquished By (Sign):	Received by Driver/Depot: <u>A. STOUT</u>	Received at Lab: <u>Sumeetpam Bohmai</u>	Verified By: <u>J. Cannon</u>
Relinquished By (Print): <u>Mark St Pierre</u>	Date/Time: <u>20/06/19 3:10 PM</u>	Date/Time: <u>JUN 20 2019 05:28</u>	Date/Time: <u>21 June 19 1005</u>
Date/Time:	Temperature: _____ °C	Temperature: <u>20.8</u> °C	pH Verified

Client: Paterson Group
154 Colonnade Rd South
Nepean, ON
K2E 7T7
Attention: Mr. Eric Leveque
Invoice to: Paterson Group Inc.
PO#: 26955

Report Number: 1910230
Date Submitted: 2019-06-20
Date Reported: 2019-06-26
Project: PE4629
COC #: 199011
Temperature (C): 14
Custody Seal:

Page 1 of 8

Dear Eric Leveque:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Long Qu, Organics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated

Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at <http://www.cala.ca/scopes/2602.pdf>

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Environment Testing

Client: Paterson Group
 154 Colonnade Rd South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Eric Leveque
 PO#: 26955
 Invoice to: Paterson Group Inc.

Report Number: 1910230
 Date Submitted: 2019-06-20
 Date Reported: 2019-06-26
 Project: PE4629
 COC #: 199011

Volatiles

Lab I.D. 1434567
 Sample Matrix GW153
 Sample Type
 Sample Date 2019-06-20
 Sampling Time
 Sample I.D. BH1-GW3

Analyte	Batch No	MRL	Units	Guideline	
1,3,5-trimethylbenzene	368043	0.3	ug/L		<0.3
Acetone	368045	30	ug/L		<30
Benzene	368043	0.5	ug/L		<0.5
Bromodichloromethane	368043	0.3	ug/L		<0.3
Bromoform	368043	0.4	ug/L		<0.4
Bromomethane	368043	0.5	ug/L		<0.5
Carbon Tetrachloride	368043	0.2	ug/L		<0.2
Chlorobenzene	368043	0.5	ug/L		<0.5
Chloroethane	368043	0.2	ug/L		<0.2
Chloroform	368043	0.5	ug/L		<0.5
Dibromochloromethane	368043	0.3	ug/L		<0.3
Dichlorobenzene, 1,2-	368043	0.4	ug/L		<0.4
Dichlorobenzene, 1,3-	368043	0.4	ug/L		<0.4
Dichlorobenzene, 1,4-	368043	0.4	ug/L		<0.4
Dichlorodifluoromethane	368043	0.5	ug/L		<0.5
Dichloroethane, 1,1-	368043	0.4	ug/L		<0.4
Dichloroethane, 1,2-	368043	0.2	ug/L		<0.2
Dichloroethylene, 1,1-	368043	0.5	ug/L		<0.5
Dichloroethylene, 1,2-cis-	368043	0.4	ug/L		<0.4
Dichloroethylene, 1,2-trans-	368043	0.4	ug/L		<0.4
Dichloropropane, 1,2-	368043	0.5	ug/L		<0.5
Dichloropropene, 1,3-	368043	0.3	ug/L		<0.3
Dichloropropene, 1,3-cis-	368043	0.2	ug/L		<0.2

Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Paterson Group
 154 Colonnade Rd South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Eric Leveque
 PO#: 26955
 Invoice to: Paterson Group Inc.

Report Number: 1910230
 Date Submitted: 2019-06-20
 Date Reported: 2019-06-26
 Project: PE4629
 COC #: 199011

Volatiles

Lab I.D. 1434567
 Sample Matrix GW153
 Sample Type
 Sample Date 2019-06-20
 Sampling Time
 Sample I.D. BH1-GW3

Analyte	Batch No	MRL	Units	Guideline	
Dichloropropene, 1,3-trans-	368043	0.2	ug/L		<0.2
Ethylbenzene	368043	0.5	ug/L		<0.5
Ethylene dibromide	368043	0.2	ug/L		<0.2
Hexane (n)	368043	5	ug/L		<5
Methyl Ethyl Ketone	368045	10	ug/L		<10
Methyl Isobutyl Ketone	368045	10	ug/L		<10
Methyl tert-Butyl Ether (MTBE)	368045	2	ug/L		<2
Methylene Chloride	368043	4.0	ug/L		<4.0
Styrene	368043	0.5	ug/L		<0.5
Tetrachloroethane, 1,1,1,2-	368043	0.5	ug/L		<0.5
Tetrachloroethane, 1,1,2,2-	368043	0.5	ug/L		<0.5
Tetrachloroethylene	368043	0.3	ug/L		<0.3
Toluene	368043	0.5	ug/L		<0.5
Trichloroethane, 1,1,1-	368043	0.4	ug/L		<0.4
Trichloroethane, 1,1,2-	368043	0.4	ug/L		<0.4
Trichloroethylene	368043	0.3	ug/L		<0.3
Trichlorofluoromethane	368043	0.5	ug/L		<0.5
Vinyl Chloride	368043	0.2	ug/L		<0.2
Xylene Mixture	368044	0.5	ug/L		<0.5
Xylene, m/p-	368043	0.4	ug/L		<0.4
Xylene, o-	368043	0.4	ug/L		<0.4

Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Environment Testing

Client: Paterson Group
 154 Colonnade Rd South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Eric Leveque
 PO#: 26955
 Invoice to: Paterson Group Inc.

Report Number: 1910230
 Date Submitted: 2019-06-20
 Date Reported: 2019-06-26
 Project: PE4629
 COC #: 199011

VOCs Surrogates

Lab I.D. 1434567
 Sample Matrix GW153
 Sample Type
 Sample Date 2019-06-20
 Sampling Time
 Sample I.D. BH1-GW3

Analyte	Batch No	MRL	Units	Guideline	
1,2-dichloroethane-d4	368043	0	%		95
4-bromofluorobenzene	368043	0	%		123
Toluene-d8	368043	0	%		96

Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Paterson Group
 154 Colonnade Rd South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Eric Leveque
 PO#: 26955
 Invoice to: Paterson Group Inc.

Report Number: 1910230
 Date Submitted: 2019-06-20
 Date Reported: 2019-06-26
 Project: PE4629
 COC #: 199011

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
368043	Tetrachloroethane, 1,1,1,2-	<0.5 ug/L	115	60-130	112	50-140	0	0-30
368043	Trichloroethane, 1,1,1-	<0.4 ug/L	98	60-130	93	50-140	0	0-30
368043	Tetrachloroethane, 1,1,2,2-	<0.5 ug/L	114	60-130	119	50-140	0	0-30
368043	Trichloroethane, 1,1,2-	<0.4 ug/L	112	60-130	117	50-140	0	0-30
368043	Dichloroethane, 1,1-	<0.4 ug/L	98	60-130	102	50-140	0	0-30
368043	Dichloroethylene, 1,1-	<0.5 ug/L	97	60-130	92	50-140	0	0-30
368043	Dichlorobenzene, 1,2-	<0.4 ug/L	97	60-130	105	50-140	0	0-30
368043	Dichloroethane, 1,2-	<0.2 ug/L	91	60-130	88	50-140	0	0-30
368043	Dichloropropane, 1,2-	<0.5 ug/L	98	60-130	79	50-140	0	0-30
368043	1,3,5-trimethylbenzene	<0.3 ug/L	90	60-130	102	50-140	0	0-30
368043	Dichlorobenzene, 1,3-	<0.4 ug/L	97	60-130	102	50-140	0	0-30
368043	Dichloropropene, 1,3-							
368043	Dichlorobenzene, 1,4-	<0.4 ug/L	86	60-130	94	50-140	0	0-30
368043	Benzene	<0.5 ug/L	84	60-130	82	50-140	0	0-30
368043	Bromodichloromethane	<0.3 ug/L	93	60-130	95	50-140	0	0-30
368043	Bromoform	<0.4 ug/L	100	60-130	106	50-140	0	0-30
368043	Bromomethane	<0.5 ug/L	118	60-130	117	50-140	0	0-30
368043	Dichloroethylene, 1,2-cis-	<0.4 ug/L	88	60-130	86	50-140	0	0-30
368043	Dichloropropene, 1,3-cis-	<0.2 ug/L	108	60-130	108	50-140	0	0-30
368043	Carbon Tetrachloride	<0.2 ug/L	106	60-130	100	50-140	0	0-30
368043	Chloroethane	<0.2 ug/L	116	60-130	120	50-140	0	0-30
368043	Chloroform	<0.5 ug/L	95	60-130	98	50-140	0	0-30
368043	Dibromochloromethane	<0.3 ug/L	98	60-130	91	50-140	0	0-30
368043	Dichlorodifluoromethane	<0.5 ug/L	88	60-130	75	50-140	0	0-30
368043	Methylene Chloride	<4.0 ug/L	82	60-130	86	50-140	0	0-30
368043	Ethylbenzene	<0.5 ug/L	94	60-130	88	50-140	0	0-30
368043	Ethylene dibromide	<0.2 ug/L	108	60-130		50-140		0-30
368043	Hexane (n)	<5 ug/L	110	60-130	101	50-140	0	0-30
368043	Xylene, m/p-	<0.4 ug/L	98	60-130	107	50-140	0	0-30
368043	Chlorobenzene	<0.5 ug/L	89	60-130	87	50-140	0	0-30
368043	Xylene, o-	<0.4 ug/L	100	60-130	111	50-140	0	0-30
368043	Styrene	<0.5 ug/L	90	60-130	108	50-140	0	0-30
368043	Dichloroethylene, 1,2-trans-	<0.4 ug/L	97	60-130	92	50-140	0	0-30

Results relate only to the parameters tested on the samples submitted.
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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Paterson Group
 154 Colonnade Rd South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Eric Leveque
 PO#: 26955
 Invoice to: Paterson Group Inc.

Report Number: 1910230
 Date Submitted: 2019-06-20
 Date Reported: 2019-06-26
 Project: PE4629
 COC #: 199011

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
368043	Dichloropropene, 1,3-trans-	<0.2 ug/L	84	60-130	77	50-140	0	0-30
368043	Tetrachloroethylene	<0.3 ug/L	117	60-130	117	50-140	0	0-30
368043	Toluene	<0.5 ug/L	91	60-130	91	50-140	0	0-30
368043	Trichloroethylene	<0.3 ug/L	102	60-130	97	50-140	0	0-30
368043	Trichlorofluoromethane	<0.5 ug/L	107	60-130	96	50-140	0	0-30
368043	Vinyl Chloride	<0.2 ug/L	116	60-130	105	50-140	0	0-30
368044	Xylene Mixture							
368045	Acetone	<30 ug/L		60-130	75	50-140	0	0-30
368045	Methyl Ethyl Ketone	<10 ug/L		60-130	73	50-140	0	0-30
368045	Methyl Isobutyl Ketone	<10 ug/L		60-130	88	50-140	0	0-30
368045	Methyl tert-Butyl Ether (MTBE)	<2 ug/L	90	60-130	89	50-140	0	0-30

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Report Number: 1910230
 Date Submitted: 2019-06-20
 Date Reported: 2019-06-26
 Project: PE4629
 COC #: 199011

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
368043	Tetrachloroethane, 1,1,1,2-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Trichloroethane, 1,1,1-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Tetrachloroethane, 1,1,2,2-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Trichloroethane, 1,1,2-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloroethane, 1,1-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloroethylene, 1,1-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichlorobenzene, 1,2-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloroethane, 1,2-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloropropane, 1,2-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	1,3,5-trimethylbenzene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichlorobenzene, 1,3-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloropropene,1,3-	GC-MS	2019-06-26	2019-06-26	TJB	EPA 8260
368043	Dichlorobenzene, 1,4-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Benzene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Bromodichloromethane	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Bromoform	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Bromomethane	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloroethylene, 1,2-cis-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloropropene,1,3-cis-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Carbon Tetrachloride	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Chloroethane	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Chloroform	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dibromochloromethane	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichlorodifluoromethane	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Methylene Chloride	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Ethylbenzene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Ethylene dibromide	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Hexane (n)	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Xylene, m/p-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Chlorobenzene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Xylene, o-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Styrene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Dichloroethylene, 1,2-trans-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260

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Client: Paterson Group
 154 Colonnade Rd South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Eric Leveque
 PO#: 26955
 Invoice to: Paterson Group Inc.

Report Number: 1910230
 Date Submitted: 2019-06-20
 Date Reported: 2019-06-26
 Project: PE4629
 COC #: 199011

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
368043	Dichloropropene,1,3-trans-	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Tetrachloroethylene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Toluene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Trichloroethylene	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Trichlorofluoromethane	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368043	Vinyl Chloride	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368044	Xylene Mixture	GC-MS	2019-06-26	2019-06-26	TJB	EPA 8260
368045	Acetone	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368045	Methyl Ethyl Ketone	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368045	Methyl Isobutyl Ketone	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260
368045	Methyl tert-Butyl Ether (MTBE)	GC-MS	2019-06-21	2019-06-25	TJB	EPA 8260

Results relate only to the parameters tested on the samples submitted.
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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Eric Leveque

Client PO: 27506
Project: PE4767
Custody: 51071

Report Date: 21-Oct-2019
Order Date: 15-Oct-2019

Order #: 1942075

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

Parcel ID	Client ID
1942075-01	BH2-GW1

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: **Paterson Group Consulting Engineers**
Client PO: 27506

Report Date: 21-Oct-2019
Order Date: 15-Oct-2019
Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	19-Oct-19	19-Oct-19

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 27506

Report Date: 21-Oct-2019

Order Date: 15-Oct-2019

Project Description: PE4767

Client ID:	BH2-GW1	-	-	-
Sample Date:	11-Oct-19 11:00	-	-	-
Sample ID:	1942075-01	-	-	-
MDL/Units	Water	-	-	-

Volatiles

Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroethane	1.0 ug/L	<1.0	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Chloromethane	3.0 ug/L	<3.0	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dibromoethane	0.2 ug/L	<0.2	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 27506

Report Date: 21-Oct-2019

Order Date: 15-Oct-2019

Project Description: PE4767

	Client ID:	BH2-GW1	-	-	-
	Sample Date:	11-Oct-19 11:00	-	-	-
	Sample ID:	1942075-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	108%	-	-	-
Dibromofluoromethane	Surrogate	85.6%	-	-	-
Toluene-d8	Surrogate	90.8%	-	-	-

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 27506

Report Date: 21-Oct-2019
Order Date: 15-Oct-2019
Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dibromoethane	ND	0.2	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-Dichloroethylene, total	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						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	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						
1,3,5-Trimethylbenzene	ND	0.5	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	94.4		ug/L		118	50-140			
Surrogate: Dibromofluoromethane	69.1		ug/L		86.4	50-140			
Surrogate: Toluene-d8	76.5		ug/L		95.6	50-140			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 27506

Report Date: 21-Oct-2019
Order Date: 15-Oct-2019
Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	1.26	0.5	ug/L	ND			0.0	30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroethane	ND	1.0	ug/L	ND				30	
Chloroform	3.25	0.5	ug/L	4.79			38.3	30	
Chloromethane	ND	3.0	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dibromoethane	ND	0.2	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
1,3,5-Trimethylbenzene	ND	0.5	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: 4-Bromofluorobenzene	87.3		ug/L		109	50-140			
Surrogate: Dibromofluoromethane	73.0		ug/L		91.2	50-140			
Surrogate: Toluene-d8	72.5		ug/L		90.6	50-140			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 27506

Report Date: 21-Oct-2019
 Order Date: 15-Oct-2019
Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	53.7	5.0	ug/L		53.7	50-140			
Benzene	39.4	0.5	ug/L		98.6	60-130			
Bromodichloromethane	30.4	0.5	ug/L		76.1	60-130			
Bromoform	27.4	0.5	ug/L		68.4	60-130			
Bromomethane	38.8	0.5	ug/L		96.9	50-140			
Carbon Tetrachloride	29.1	0.2	ug/L		72.8	60-130			
Chlorobenzene	34.1	0.5	ug/L		85.3	60-130			
Chloroethane	36.8	1.0	ug/L		92.0	50-140			
Chloroform	34.7	0.5	ug/L		86.7	60-130			
Chloromethane	27.6	3.0	ug/L		68.9	50-140			
Dibromochloromethane	26.7	0.5	ug/L		66.8	60-130			
Dichlorodifluoromethane	34.7	1.0	ug/L		86.7	50-140			
1,2-Dibromoethane	29.7	0.2	ug/L		74.2	60-130			
1,2-Dichlorobenzene	30.9	0.5	ug/L		77.3	60-130			
1,3-Dichlorobenzene	30.9	0.5	ug/L		77.4	60-130			
1,4-Dichlorobenzene	32.2	0.5	ug/L		80.6	60-130			
1,1-Dichloroethane	37.6	0.5	ug/L		93.9	60-130			
1,2-Dichloroethane	27.3	0.5	ug/L		68.2	60-130			
1,1-Dichloroethylene	39.7	0.5	ug/L		99.3	60-130			
cis-1,2-Dichloroethylene	39.2	0.5	ug/L		97.9	60-130			
trans-1,2-Dichloroethylene	39.1	0.5	ug/L		97.7	60-130			
1,2-Dichloropropane	38.5	0.5	ug/L		96.2	60-130			
cis-1,3-Dichloropropylene	32.1	0.5	ug/L		80.2	60-130			
trans-1,3-Dichloropropylene	32.1	0.5	ug/L		80.2	60-130			
Ethylbenzene	31.5	0.5	ug/L		78.7	60-130			
Hexane	47.4	1.0	ug/L		119	60-130			
Methyl Ethyl Ketone (2-Butanone)	93.1	5.0	ug/L		93.1	50-140			
Methyl Butyl Ketone (2-Hexanone)	61.2	10.0	ug/L		61.2	50-140			
Methyl Isobutyl Ketone	82.0	5.0	ug/L		82.0	50-140			
Methyl tert-butyl ether	76.4	2.0	ug/L		76.4	50-140			
Methylene Chloride	41.5	5.0	ug/L		104	60-130			
Styrene	31.2	0.5	ug/L		78.0	60-130			
1,1,1,2-Tetrachloroethane	29.5	0.5	ug/L		73.8	60-130			
1,1,2,2-Tetrachloroethane	42.3	0.5	ug/L		106	60-130			
Tetrachloroethylene	31.5	0.5	ug/L		78.7	60-130			
Toluene	33.4	0.5	ug/L		83.5	60-130			
1,1,1-Trichloroethane	29.5	0.5	ug/L		73.8	60-130			
1,1,2-Trichloroethane	39.3	0.5	ug/L		98.2	60-130			
Trichloroethylene	30.1	0.5	ug/L		75.2	60-130			
Trichlorofluoromethane	27.2	1.0	ug/L		68.0	60-130			
1,3,5-Trimethylbenzene	30.3	0.5	ug/L		75.8	60-130			
Vinyl chloride	27.3	0.5	ug/L		68.2	50-140			
m,p-Xylenes	70.8	0.5	ug/L		88.5	60-130			
o-Xylene	31.6	0.5	ug/L		79.0	60-130			
Surrogate: 4-Bromofluorobenzene	81.8		ug/L		102	50-140			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 27506

Report Date: 21-Oct-2019
Order Date: 15-Oct-2019
Project Description: PE4767

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.



Parcel Order Number (Lab Use Only) <i>1942075</i>	Chain Of Custody (Lab Use Only) No 51071
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Client Name: <i>Pateran Group</i>	Project Ref: <i>PE 4767</i>	Page <u>1</u> of <u>1</u>
Contact Name: <i>Eric Leveque</i>	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: <i>154 Colorado Road, Nepean, ON</i>	PO #: <i>27506</i>	
Telephone: <i>613-226-7381</i>	E-mail: <i>e.leveque@paterangroup.ca</i>	

Regulation 153/04		Other Regulation		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis														
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Med/Fine	<input checked="" type="checkbox"/> REG 558	<input type="checkbox"/> PWQO	Matrix	Air Volume	# of Containers	Sample Taken		VOCs										
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> CCME	<input type="checkbox"/> MISA				Date	Time											
<input checked="" type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other		<input type="checkbox"/> SU - Sani	<input type="checkbox"/> SU - Storm																
For RSC: <input type="checkbox"/> Yes <input type="checkbox"/> No		Mun: _____		Other: _____																
Sample ID/Location Name																				
1	<i>BH2 - GW1</i>			<i>GW</i>		<i>2</i>	<i>Oct 11 / 2019</i>	<i>11:00AM</i>	<input checked="" type="checkbox"/>											
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments:			Method of Delivery: <i>Parcel</i>		
Relinquished By (Sign): <i>[Signature]</i>	Received By Driver/Depot: <i>A. Fousie</i>	Received at Lab: <i>Dokmai</i>	Verified By: <i>[Signature]</i>		
Relinquished By (Print): <i>Nicholas Doucette</i>	Date/Time: <i>11/10/19 4:20</i>	Date/Time: <i>Oct 15, 2019 12:28</i>	Date/Time: <i>15 Oct 19 13:15</i>		
Date/Time:	Temperature: _____ °C	Temperature: <i>11.0</i> °C	pH Verified: <input type="checkbox"/> By: <i>NA</i>		

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Rd South
Nepean, ON K2E 7J5
Attn: Mark St. Pierre

Client PO: 30445
Project: PE4767
Custody: 128524

Report Date: 27-Jul-2020
Order Date: 22-Jul-2020

Order #: 2030320

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

Parcel ID	Client ID
2030320-01	BH2-G1

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 27-Jul-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 22-Jul-2020

Client PO: 30445

Project Description: **PE4767**

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	24-Jul-20	25-Jul-20

Certificate of Analysis

Report Date: 27-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Jul-2020

Client PO: 30445

Project Description: PE4767

Client ID:	BH2-G1	-	-	-
Sample Date:	22-Jul-20 09:00	-	-	-
Sample ID:	2030320-01	-	-	-
MDL/Units	Water	-	-	-

Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	17.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	3.7	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 27-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Jul-2020

Client PO: 30445

Project Description: PE4767

	Client ID:	BH2-G1	-	-	-
	Sample Date:	22-Jul-20 09:00	-	-	-
	Sample ID:	2030320-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	103%	-	-	-
Dibromofluoromethane	Surrogate	114%	-	-	-
Toluene-d8	Surrogate	93.8%	-	-	-

Certificate of Analysis

Report Date: 27-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Jul-2020

Client PO: 30445

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	84.9		ug/L		106	50-140			
Surrogate: Dibromofluoromethane	89.5		ug/L		112	50-140			
Surrogate: Toluene-d8	76.3		ug/L		95.4	50-140			

Certificate of Analysis

Report Date: 27-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Jul-2020

Client PO: 30445

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	5.45	0.5	ug/L	6.09			11.1	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	83.6		ug/L		104	50-140			
Surrogate: Dibromofluoromethane	95.1		ug/L		119	50-140			
Surrogate: Toluene-d8	75.9		ug/L		94.9	50-140			

Certificate of Analysis

Report Date: 27-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Jul-2020

Client PO: 30445

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	85.0	5.0	ug/L	ND	85.0	50-140			
Benzene	39.8	0.5	ug/L	ND	99.5	60-130			
Bromodichloromethane	31.5	0.5	ug/L	ND	78.6	60-130			
Bromoform	36.2	0.5	ug/L	ND	90.5	60-130			
Bromomethane	33.7	0.5	ug/L	ND	84.3	50-140			
Carbon Tetrachloride	26.2	0.2	ug/L	ND	65.4	60-130			
Chlorobenzene	32.8	0.5	ug/L	ND	81.9	60-130			
Chloroform	35.0	0.5	ug/L	ND	87.4	60-130			
Dibromochloromethane	26.6	0.5	ug/L	ND	66.4	60-130			
Dichlorodifluoromethane	43.5	1.0	ug/L	ND	109	50-140			
1,2-Dichlorobenzene	28.0	0.5	ug/L	ND	70.0	60-130			
1,3-Dichlorobenzene	27.0	0.5	ug/L	ND	67.6	60-130			
1,4-Dichlorobenzene	27.7	0.5	ug/L	ND	69.2	60-130			
1,1-Dichloroethane	33.0	0.5	ug/L	ND	82.4	60-130			
1,2-Dichloroethane	45.1	0.5	ug/L	ND	113	60-130			
1,1-Dichloroethylene	32.1	0.5	ug/L	ND	80.2	60-130			
cis-1,2-Dichloroethylene	38.4	0.5	ug/L	ND	96.0	60-130			
trans-1,2-Dichloroethylene	34.8	0.5	ug/L	ND	87.1	60-130			
1,2-Dichloropropane	39.8	0.5	ug/L	ND	99.5	60-130			
cis-1,3-Dichloropropylene	40.1	0.5	ug/L	ND	100	60-130			
trans-1,3-Dichloropropylene	35.1	0.5	ug/L	ND	87.8	60-130			
Ethylbenzene	32.8	0.5	ug/L	ND	82.0	60-130			
Ethylene dibromide (dibromoethane, 1,2-	29.5	0.2	ug/L	ND	73.8	60-130			
Hexane	37.6	1.0	ug/L	ND	94.0	60-130			
Methyl Ethyl Ketone (2-Butanone)	108	5.0	ug/L	ND	108	50-140			
Methyl Isobutyl Ketone	109	5.0	ug/L	ND	109	50-140			
Methyl tert-butyl ether	90.0	2.0	ug/L	ND	90.0	50-140			
Methylene Chloride	32.9	5.0	ug/L	ND	82.4	60-130			
Styrene	33.8	0.5	ug/L	ND	84.6	60-130			
1,1,1,2-Tetrachloroethane	32.2	0.5	ug/L	ND	80.4	60-130			
1,1,2,2-Tetrachloroethane	33.0	0.5	ug/L	ND	82.6	60-130			
Tetrachloroethylene	32.3	0.5	ug/L	ND	80.7	60-130			
Toluene	33.2	0.5	ug/L	ND	83.1	60-130			
1,1,1-Trichloroethane	31.0	0.5	ug/L	ND	77.5	60-130			
1,1,2-Trichloroethane	38.9	0.5	ug/L	ND	97.3	60-130			
Trichloroethylene	38.4	0.5	ug/L	ND	96.1	60-130			
Trichlorofluoromethane	35.5	1.0	ug/L	ND	88.8	60-130			
Vinyl chloride	45.1	0.5	ug/L	ND	113	50-140			
m,p-Xylenes	69.3	0.5	ug/L	ND	86.7	60-130			
o-Xylene	34.4	0.5	ug/L	ND	85.9	60-130			
Surrogate: 4-Bromofluorobenzene	81.1		ug/L		101	50-140			
Surrogate: Dibromofluoromethane	93.9		ug/L		117	50-140			
Surrogate: Toluene-d8	74.8		ug/L		93.5	50-140			

Certificate of Analysis

Report Date: 27-Jul-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Jul-2020

Client PO: 30445

Project Description: PE4767

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



Parcel Order Number
(Lab Use Only)

2030320

Chain Of Custody
(Lab Use Only)

No 128524

Client Name: <u>Paterson</u>	Project Ref: <u>PE4767</u>	Page <u>1</u> of <u>1</u>
Contact Name: <u>Mark St Pierre</u>	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: <u>154 Colonnade Road South</u>	PO #: <u>30445</u>	
Telephone: <u>613-226-7381</u>	E-mail: <u>mstpierre@patersongroup.ca</u>	
		Date Required: _____

Regulation 153/04		Other Regulation		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis																			
<input type="checkbox"/> Table 1	<input checked="" type="checkbox"/> Res/Park	<input type="checkbox"/> Med/Fine	<input type="checkbox"/> REG 558	<input type="checkbox"/> PWQO	Matrix	Air Volume	# of Containers	Sample Taken	Date	Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)								
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input checked="" type="checkbox"/> Coarse	<input type="checkbox"/> CCME	<input type="checkbox"/> MISA																				<input type="checkbox"/> SU - Sani	<input type="checkbox"/> SU - Storm
<input checked="" type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other																								
For RSC: <input type="checkbox"/> Yes <input type="checkbox"/> No																									
Sample ID/Location Name																									
1	<u>BH2-2 G1</u>	<u>GW</u>	<u>2</u>	<u>July 22, 2020</u>																					
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Comments:		Method of Delivery: <u>Paracel</u>	
Relinquished By (Sign):	Received By Driver/Depot: <u>A. J. LOUIS</u>	Received at Lab: <u>Sureshram Dohrai</u>	Verified By:
Relinquished By (Print): <u>Mark St Pierre</u>	Date/Time: <u>22/07/20 4:00</u>	Date/Time: <u>07/22/2020 04:40</u>	Date/Time: <u>July 2020, 22 17:26</u>
Date/Time: <u>July 22, 2020</u>	Temperature: <u>17.1</u> °C	Temperature: <u>17.4</u> °C	pH Verified: <input type="checkbox"/> By: _____

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Eric Leveque

Client PO: 27512
Project: PE4767
Custody: 50461

Report Date: 31-Oct-2019
Order Date: 25-Oct-2019

Revised Report

Order #: 1943726

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

Paracel ID	Client ID
1943726-01	MW1-GW1

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 31-Oct-2019

Client: Paterson Group Consulting Engineers

Order Date: 25-Oct-2019

Client PO: 27512

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	29-Oct-19	30-Oct-19

Certificate of Analysis

Report Date: 31-Oct-2019

Client: Paterson Group Consulting Engineers

Order Date: 25-Oct-2019

Client PO: 27512

Project Description: PE4767

Client ID:	MW1-GW1	-	-	-
Sample Date:	25-Oct-19 09:00	-	-	-
Sample ID:	1943726-01	-	-	-
MDL/Units	Water	-	-	-

Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	3.0	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	28.1	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	9.6	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 31-Oct-2019

Client: Paterson Group Consulting Engineers

Order Date: 25-Oct-2019

Client PO: 27512

Project Description: PE4767

	Client ID:	MW1-GW1	-	-	-
	Sample Date:	25-Oct-19 09:00	-	-	-
	Sample ID:	1943726-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	111%	-	-	-
Dibromofluoromethane	Surrogate	87.3%	-	-	-
Toluene-d8	Surrogate	97.8%	-	-	-

Certificate of Analysis

Report Date: 31-Oct-2019

Client: Paterson Group Consulting Engineers

Order Date: 25-Oct-2019

Client PO: 27512

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	93.2		ug/L		116	50-140			
Surrogate: Dibromofluoromethane	60.4		ug/L		75.5	50-140			
Surrogate: Toluene-d8	79.8		ug/L		99.8	50-140			

Certificate of Analysis

Report Date: 31-Oct-2019

Client: Paterson Group Consulting Engineers

Order Date: 25-Oct-2019

Client PO: 27512

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: 4-Bromofluorobenzene	93.1		ug/L		116	50-140			
Surrogate: Dibromofluoromethane	61.8		ug/L		77.2	50-140			
Surrogate: Toluene-d8	81.4		ug/L		102	50-140			

Certificate of Analysis

Report Date: 31-Oct-2019

Client: Paterson Group Consulting Engineers

Order Date: 25-Oct-2019

Client PO: 27512

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	55.4	5.0	ug/L		55.4	50-140			
Benzene	39.8	0.5	ug/L		99.5	60-130			
Bromodichloromethane	29.8	0.5	ug/L		74.6	60-130			
Bromoform	31.9	0.5	ug/L		79.8	60-130			
Bromomethane	37.6	0.5	ug/L		94.0	50-140			
Carbon Tetrachloride	28.7	0.2	ug/L		71.6	60-130			
Chlorobenzene	37.4	0.5	ug/L		93.6	60-130			
Chloroform	31.6	0.5	ug/L		78.9	60-130			
Dibromochloromethane	31.8	0.5	ug/L		79.6	60-130			
Dichlorodifluoromethane	31.7	1.0	ug/L		79.2	50-140			
1,2-Dichlorobenzene	37.4	0.5	ug/L		93.5	60-130			
1,3-Dichlorobenzene	36.8	0.5	ug/L		91.9	60-130			
1,4-Dichlorobenzene	38.5	0.5	ug/L		96.2	60-130			
1,1-Dichloroethane	34.4	0.5	ug/L		86.0	60-130			
1,2-Dichloroethane	27.4	0.5	ug/L		68.5	60-130			
1,1-Dichloroethylene	38.5	0.5	ug/L		96.3	60-130			
cis-1,2-Dichloroethylene	37.2	0.5	ug/L		92.9	60-130			
trans-1,2-Dichloroethylene	39.0	0.5	ug/L		97.4	60-130			
1,2-Dichloropropane	37.9	0.5	ug/L		94.8	60-130			
cis-1,3-Dichloropropylene	33.9	0.5	ug/L		84.7	60-130			
trans-1,3-Dichloropropylene	33.4	0.5	ug/L		83.4	60-130			
Ethylbenzene	37.9	0.5	ug/L		94.8	60-130			
Ethylene dibromide (dibromoethane, 1,2-	35.2	0.2	ug/L		88.0	60-130			
Hexane	44.5	1.0	ug/L		111	60-130			
Methyl Ethyl Ketone (2-Butanone)	82.8	5.0	ug/L		82.8	50-140			
Methyl Isobutyl Ketone	82.6	5.0	ug/L		82.6	50-140			
Methyl tert-butyl ether	73.0	2.0	ug/L		73.0	50-140			
Methylene Chloride	35.8	5.0	ug/L		89.6	60-130			
Styrene	35.4	0.5	ug/L		88.4	60-130			
1,1,1,2-Tetrachloroethane	33.0	0.5	ug/L		82.6	60-130			
1,1,2,2-Tetrachloroethane	46.5	0.5	ug/L		116	60-130			
Tetrachloroethylene	36.6	0.5	ug/L		91.5	60-130			
Toluene	38.6	0.5	ug/L		96.4	60-130			
1,1,1-Trichloroethane	28.7	0.5	ug/L		71.7	60-130			
1,1,2-Trichloroethane	36.4	0.5	ug/L		90.9	60-130			
Trichloroethylene	29.8	0.5	ug/L		74.6	60-130			
Trichlorofluoromethane	27.9	1.0	ug/L		69.8	60-130			
Vinyl chloride	27.4	0.5	ug/L		68.5	50-140			
m,p-Xylenes	85.1	0.5	ug/L		106	60-130			
o-Xylene	35.5	0.5	ug/L		88.8	60-130			
Surrogate: 4-Bromofluorobenzene	83.6		ug/L		105	50-140			

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 27512

Report Date: 31-Oct-2019

Order Date: 25-Oct-2019

Project Description: PE4767

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

Revision 1 This report includes an updated project reference.

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.

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mike Beaudoin

Client PO: 31387
Project: PE4767
Custody: 55031

Report Date: 27-Oct-2020
Order Date: 22-Oct-2020

Order #: 2043572

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

Paracel ID	Client ID
2043572-01	BH2-20-GW

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 27-Oct-2020

Client: **Paterson Group Consulting Engineers**

Order Date: 22-Oct-2020

Client PO: 31387

Project Description: **PE4767**

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	23-Oct-20	23-Oct-20

Certificate of Analysis

Report Date: 27-Oct-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Oct-2020

Client PO: 31387

Project Description: PE4767

Client ID:	BH2-20-GW	-	-	-
Sample Date:	22-Oct-20 09:00	-	-	-
Sample ID:	2043572-01	-	-	-
MDL/Units	Water	-	-	-

Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	1.6	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 27-Oct-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Oct-2020

Client PO: 31387

Project Description: PE4767

	Client ID:	BH2-20-GW	-	-	-
	Sample Date:	22-Oct-20 09:00	-	-	-
	Sample ID:	2043572-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	99.7%	-	-	-
Dibromofluoromethane	Surrogate	89.8%	-	-	-
Toluene-d8	Surrogate	106%	-	-	-

Certificate of Analysis

Report Date: 27-Oct-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Oct-2020

Client PO: 31387

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	78.2		ug/L		97.7	50-140			
Surrogate: Dibromofluoromethane	86.7		ug/L		108	50-140			
Surrogate: Toluene-d8	84.5		ug/L		106	50-140			

Certificate of Analysis

Report Date: 27-Oct-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Oct-2020

Client PO: 31387

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	76.5		ug/L		95.7	50-140			
Surrogate: Dibromofluoromethane	87.8		ug/L		110	50-140			
Surrogate: Toluene-d8	84.9		ug/L		106	50-140			

Certificate of Analysis

Report Date: 27-Oct-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Oct-2020

Client PO: 31387

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	131	5.0	ug/L	ND	131	50-140			
Benzene	47.4	0.5	ug/L	ND	118	60-130			
Bromodichloromethane	46.6	0.5	ug/L	ND	116	60-130			
Bromoform	39.4	0.5	ug/L	ND	98.6	60-130			
Bromomethane	49.8	0.5	ug/L	ND	124	50-140			
Carbon Tetrachloride	47.3	0.2	ug/L	ND	118	60-130			
Chlorobenzene	39.0	0.5	ug/L	ND	97.5	60-130			
Chloroform	41.2	0.5	ug/L	ND	103	60-130			
Dibromochloromethane	41.6	0.5	ug/L	ND	104	60-130			
Dichlorodifluoromethane	49.0	1.0	ug/L	ND	122	50-140			
1,2-Dichlorobenzene	36.9	0.5	ug/L	ND	92.2	60-130			
1,3-Dichlorobenzene	37.4	0.5	ug/L	ND	93.4	60-130			
1,4-Dichlorobenzene	37.1	0.5	ug/L	ND	92.7	60-130			
1,1-Dichloroethane	48.8	0.5	ug/L	ND	122	60-130			
1,2-Dichloroethane	40.0	0.5	ug/L	ND	100	60-130			
1,1-Dichloroethylene	43.8	0.5	ug/L	ND	110	60-130			
cis-1,2-Dichloroethylene	42.7	0.5	ug/L	ND	107	60-130			
trans-1,2-Dichloroethylene	46.1	0.5	ug/L	ND	115	60-130			
1,2-Dichloropropane	46.0	0.5	ug/L	ND	115	60-130			
cis-1,3-Dichloropropylene	47.2	0.5	ug/L	ND	118	60-130			
trans-1,3-Dichloropropylene	47.1	0.5	ug/L	ND	118	60-130			
Ethylbenzene	40.0	0.5	ug/L	ND	100	60-130			
Ethylene dibromide (dibromoethane, 1,2-	38.6	0.2	ug/L	ND	96.6	60-130			
Hexane	49.8	1.0	ug/L	ND	125	60-130			
Methyl Ethyl Ketone (2-Butanone)	130	5.0	ug/L	ND	130	50-140			
Methyl Isobutyl Ketone	123	5.0	ug/L	ND	123	50-140			
Methyl tert-butyl ether	119	2.0	ug/L	ND	119	50-140			
Methylene Chloride	44.2	5.0	ug/L	ND	110	60-130			
Styrene	34.4	0.5	ug/L	ND	85.9	60-130			
1,1,1,2-Tetrachloroethane	37.5	0.5	ug/L	ND	93.8	60-130			
1,1,2,2-Tetrachloroethane	38.8	0.5	ug/L	ND	97.0	60-130			
Tetrachloroethylene	34.8	0.5	ug/L	ND	87.1	60-130			
Toluene	38.9	0.5	ug/L	ND	97.2	60-130			
1,1,1-Trichloroethane	48.5	0.5	ug/L	ND	121	60-130			
1,1,2-Trichloroethane	47.7	0.5	ug/L	ND	119	60-130			
Trichloroethylene	47.1	0.5	ug/L	ND	118	60-130			
Trichlorofluoromethane	45.2	1.0	ug/L	ND	113	60-130			
Vinyl chloride	48.1	0.5	ug/L	ND	120	50-140			
m,p-Xylenes	75.0	0.5	ug/L	ND	93.8	60-130			
o-Xylene	37.8	0.5	ug/L	ND	94.6	60-130			
Surrogate: 4-Bromofluorobenzene	82.2		ug/L		103	50-140			
Surrogate: Dibromofluoromethane	90.9		ug/L		114	50-140			
Surrogate: Toluene-d8	81.8		ug/L		102	50-140			

Certificate of Analysis

Report Date: 27-Oct-2020

Client: Paterson Group Consulting Engineers

Order Date: 22-Oct-2020

Client PO: 31387

Project Description: PE4767

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

Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Client PO: 55096
Project: PE4767
Custody: 136642

Report Date: 29-Jun-2022
Order Date: 24-Jun-2022

Order #: 2226630

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

Paracel ID	Client ID
2226630-01	BH2-22-SS2
2226630-02	BH4-22-SS5
2226630-03	BH5-22-SS7

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 29-Jun-2022

Client: **Paterson Group Consulting Engineers**

Order Date: 24-Jun-2022

Client PO: 55096

Project Description: **PE4767**

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Solids, %	Gravimetric, calculation	28-Jun-22	28-Jun-22
Texture - Coarse Med/Fine	Based on ASTM D2487	28-Jun-22	29-Jun-22

Certificate of Analysis

Report Date: 29-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 24-Jun-2022

Client PO: 55096

Project Description: PE4767

Client ID:	BH2-22-SS2	BH4-22-SS5	BH5-22-SS7	-
Sample Date:	16-Jun-22 09:00	16-Jun-22 09:00	16-Jun-22 09:00	-
Sample ID:	2226630-01	2226630-02	2226630-03	-
MDL/Units	Soil	Soil	Soil	-

Physical Characteristics

% Solids	0.1 % by Wt.	94.9	97.1	80.4	-
>75 um	0.1 %	96.2	96.4	53.0	-
<75 um	0.1 %	3.8	3.6	47.0	-
Texture	0.1 %	Coarse	Coarse	Coarse	-

Certificate of Analysis
 Client: Paterson Group Consulting Engineers
 Client PO: 55096

Report Date: 29-Jun-2022
 Order Date: 24-Jun-2022
 Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Physical Characteristics									
% Solids	65.7	0.1	% by Wt.	66.1			0.6	25	

Certificate of Analysis

Report Date: 29-Jun-2022

Client: Paterson Group Consulting Engineers

Order Date: 24-Jun-2022

Client PO: 55096

Project Description: PE4767

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - Jar ID reads BH5-22-SS7 and coc reads BH7-22-SS7.

Applies to samples: BH5-22-SS7

Sample Qualifiers :

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.



Parcel Order Number (Lab Use Only) <i>2226630</i>	Chain Of Custody (Lab Use Only) No 136642
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Client Name: <i>PATERSON</i>	Project Ref: <i>PE 4767</i>	Page <i>1</i> of <i>1</i>
Contact Name: <i>Michael Beaudoin</i>	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input checked="" type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input type="checkbox"/> Regular
Address: <i>9 Auriga Dr</i>	PO #:	
Telephone: <i>613-226 7381</i>	E-mail: <i>MBeaudoin@patersongroup.ca</i>	
Date Required: _____		

REG 153/04 <input type="checkbox"/> REG 406/19 <input type="checkbox"/>		Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)			Required Analysis											
Table 1	Res/Park	Med/Fine	REG 558	PWQO	Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Grain Size
Table 2	Ind/Comm	Coarse	CCME	MISA				Date	Time								
Table 3	Agri/Other		SU - Sani	SU - Storm													
Table			Mun:	Other:													
For RSC: <input type="checkbox"/> Yes <input type="checkbox"/> No																	
Sample ID/Location Name																	
1	<i>BH2-22-SS2</i>				<i>S</i>		<i>2</i>										<i>X</i>
2	<i>BH4-22-SS5</i>				<i>S</i>		<i>2</i>										<i>X</i>
3	<i>BH7-22-SS7</i>				<i>S</i>		<i>2</i>										<i>X</i>
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments:			Method of Delivery: <i>PARACEL COURIER</i>		
Relinquished By (Sign): <i>B. Wieschner</i>	Received By Driver/Depot: <i>A. Tardif</i>	Received at: <i>24/06/22 16:15</i>	Verified By: <i>Blam</i>		
Relinquished By (Print): <i>Béa Wieschner</i>	Date/Time: <i>24/06/22 3:20</i>	Date/Time: <i>June 24, 22 17:31</i>	Date/Time: <i>June 24, 22 17:31</i>		
Date/Time: <i>24-Jun-22 (1440)</i>	Temperature: <i>17.1</i> °C	Temperature: <i>22.2</i> °C	pH Verified: <input type="checkbox"/>	By: _____	

Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Client PO: 56161
Project: PE4767
Custody:

Report Date: 10-Nov-2022
Order Date: 4-Nov-2022

Order #: 2246085

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

Paracel ID	Client ID
2246085-01	BH1-20-GW

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56161

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	9-Nov-22	9-Nov-22

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56161

Project Description: PE4767

Client ID:	BH1-20-GW	-	-	-
Sample Date:	04-Nov-22 09:00	-	-	-
Sample ID:	2246085-01	-	-	-
MDL/Units	Water	-	-	-

Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	5.4	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	57.1	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56161

Project Description: PE4767

	Client ID:	BH1-20-GW	-	-	-
	Sample Date:	04-Nov-22 09:00	-	-	-
	Sample ID:	2246085-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	131%	-	-	-
Dibromofluoromethane	Surrogate	104%	-	-	-
Toluene-d8	Surrogate	121%	-	-	-

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56161

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	108		ug/L		135	50-140			
Surrogate: Dibromofluoromethane	87.9		ug/L		110	50-140			
Surrogate: Toluene-d8	101		ug/L		127	50-140			

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56161

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	73.1	5.0	ug/L	ND	73.1	50-140			
Benzene	39.8	0.5	ug/L	ND	99.5	60-130			
Bromodichloromethane	42.9	0.5	ug/L	ND	107	60-130			
Bromoform	40.5	0.5	ug/L	ND	101	60-130			
Bromomethane	43.6	0.5	ug/L	ND	109	50-140			
Carbon Tetrachloride	43.2	0.2	ug/L	ND	108	60-130			
Chlorobenzene	42.4	0.5	ug/L	ND	106	60-130			
Chloroform	44.0	0.5	ug/L	ND	110	60-130			
Dibromochloromethane	37.6	0.5	ug/L	ND	94.1	60-130			
Dichlorodifluoromethane	38.1	1.0	ug/L	ND	95.2	50-140			
1,2-Dichlorobenzene	42.0	0.5	ug/L	ND	105	60-130			
1,3-Dichlorobenzene	41.5	0.5	ug/L	ND	104	60-130			
1,4-Dichlorobenzene	37.3	0.5	ug/L	ND	93.2	60-130			
1,1-Dichloroethane	39.8	0.5	ug/L	ND	99.6	60-130			
1,2-Dichloroethane	41.0	0.5	ug/L	ND	103	60-130			
1,1-Dichloroethylene	41.1	0.5	ug/L	ND	103	60-130			
cis-1,2-Dichloroethylene	42.4	0.5	ug/L	ND	106	60-130			
trans-1,2-Dichloroethylene	44.6	0.5	ug/L	ND	112	60-130			
1,2-Dichloropropane	44.8	0.5	ug/L	ND	112	60-130			
cis-1,3-Dichloropropylene	41.7	0.5	ug/L	ND	104	60-130			
trans-1,3-Dichloropropylene	36.1	0.5	ug/L	ND	90.3	60-130			
Ethylbenzene	40.6	0.5	ug/L	ND	101	60-130			
Ethylene dibromide (dibromoethane, 1,2-	40.8	0.2	ug/L	ND	102	60-130			
Hexane	40.8	1.0	ug/L	ND	102	60-130			
Methyl Ethyl Ketone (2-Butanone)	98.7	5.0	ug/L	ND	98.7	50-140			
Methyl Isobutyl Ketone	104	5.0	ug/L	ND	104	50-140			
Methyl tert-butyl ether	112	2.0	ug/L	ND	112	50-140			
Methylene Chloride	44.9	5.0	ug/L	ND	112	60-130			
Styrene	34.7	0.5	ug/L	ND	86.8	60-130			
1,1,1,2-Tetrachloroethane	41.2	0.5	ug/L	ND	103	60-130			
1,1,2,2-Tetrachloroethane	39.8	0.5	ug/L	ND	99.6	60-130			
Tetrachloroethylene	41.2	0.5	ug/L	ND	103	60-130			
Toluene	42.6	0.5	ug/L	ND	107	60-130			
1,1,1-Trichloroethane	42.4	0.5	ug/L	ND	106	60-130			
1,1,2-Trichloroethane	41.7	0.5	ug/L	ND	104	60-130			
Trichloroethylene	43.5	0.5	ug/L	ND	109	60-130			
Trichlorofluoromethane	41.7	1.0	ug/L	ND	104	60-130			
Vinyl chloride	39.6	0.5	ug/L	ND	99.0	50-140			
m,p-Xylenes	76.3	0.5	ug/L	ND	95.4	60-130			
o-Xylene	38.2	0.5	ug/L	ND	95.4	60-130			
Surrogate: 4-Bromofluorobenzene	77.5		ug/L		96.9	50-140			
Surrogate: Dibromofluoromethane	81.9		ug/L		102	50-140			
Surrogate: Toluene-d8	81.1		ug/L		101	50-140			

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56161

Project Description: PE4767

Qualifier Notes:

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

Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Client PO: 56162
Project: PE4767
Custody:

Report Date: 10-Nov-2022
Order Date: 4-Nov-2022

Order #: 2246086

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

Paracel ID	Client ID
2246086-01	BH2-20-GW

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56162

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	9-Nov-22	9-Nov-22

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56162

Project Description: PE4767

Client ID:	BH2-20-GW	-	-	-
Sample Date:	04-Nov-22 09:00	-	-	-
Sample ID:	2246086-01	-	-	-
MDL/Units	Water	-	-	-

Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	2.2	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56162

Project Description: PE4767

	Client ID:	BH2-20-GW	-	-	-
	Sample Date:	04-Nov-22 09:00	-	-	-
	Sample ID:	2246086-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	120%	-	-	-
Dibromofluoromethane	Surrogate	106%	-	-	-
Toluene-d8	Surrogate	129%	-	-	-

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56162

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	108		ug/L		135	50-140			
Surrogate: Dibromofluoromethane	87.9		ug/L		110	50-140			
Surrogate: Toluene-d8	101		ug/L		127	50-140			

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56162

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	73.1	5.0	ug/L	ND	73.1	50-140			
Benzene	39.8	0.5	ug/L	ND	99.5	60-130			
Bromodichloromethane	42.9	0.5	ug/L	ND	107	60-130			
Bromoform	40.5	0.5	ug/L	ND	101	60-130			
Bromomethane	43.6	0.5	ug/L	ND	109	50-140			
Carbon Tetrachloride	43.2	0.2	ug/L	ND	108	60-130			
Chlorobenzene	42.4	0.5	ug/L	ND	106	60-130			
Chloroform	44.0	0.5	ug/L	ND	110	60-130			
Dibromochloromethane	37.6	0.5	ug/L	ND	94.1	60-130			
Dichlorodifluoromethane	38.1	1.0	ug/L	ND	95.2	50-140			
1,2-Dichlorobenzene	42.0	0.5	ug/L	ND	105	60-130			
1,3-Dichlorobenzene	41.5	0.5	ug/L	ND	104	60-130			
1,4-Dichlorobenzene	37.3	0.5	ug/L	ND	93.2	60-130			
1,1-Dichloroethane	39.8	0.5	ug/L	ND	99.6	60-130			
1,2-Dichloroethane	41.0	0.5	ug/L	ND	103	60-130			
1,1-Dichloroethylene	41.1	0.5	ug/L	ND	103	60-130			
cis-1,2-Dichloroethylene	42.4	0.5	ug/L	ND	106	60-130			
trans-1,2-Dichloroethylene	44.6	0.5	ug/L	ND	112	60-130			
1,2-Dichloropropane	44.8	0.5	ug/L	ND	112	60-130			
cis-1,3-Dichloropropylene	41.7	0.5	ug/L	ND	104	60-130			
trans-1,3-Dichloropropylene	36.1	0.5	ug/L	ND	90.3	60-130			
Ethylbenzene	40.6	0.5	ug/L	ND	101	60-130			
Ethylene dibromide (dibromoethane, 1,2-	40.8	0.2	ug/L	ND	102	60-130			
Hexane	40.8	1.0	ug/L	ND	102	60-130			
Methyl Ethyl Ketone (2-Butanone)	98.7	5.0	ug/L	ND	98.7	50-140			
Methyl Isobutyl Ketone	104	5.0	ug/L	ND	104	50-140			
Methyl tert-butyl ether	112	2.0	ug/L	ND	112	50-140			
Methylene Chloride	44.9	5.0	ug/L	ND	112	60-130			
Styrene	34.7	0.5	ug/L	ND	86.8	60-130			
1,1,1,2-Tetrachloroethane	41.2	0.5	ug/L	ND	103	60-130			
1,1,2,2-Tetrachloroethane	39.8	0.5	ug/L	ND	99.6	60-130			
Tetrachloroethylene	41.2	0.5	ug/L	ND	103	60-130			
Toluene	42.6	0.5	ug/L	ND	107	60-130			
1,1,1-Trichloroethane	42.4	0.5	ug/L	ND	106	60-130			
1,1,2-Trichloroethane	41.7	0.5	ug/L	ND	104	60-130			
Trichloroethylene	43.5	0.5	ug/L	ND	109	60-130			
Trichlorofluoromethane	41.7	1.0	ug/L	ND	104	60-130			
Vinyl chloride	39.6	0.5	ug/L	ND	99.0	50-140			
m,p-Xylenes	76.3	0.5	ug/L	ND	95.4	60-130			
o-Xylene	38.2	0.5	ug/L	ND	95.4	60-130			
Surrogate: 4-Bromofluorobenzene	77.5		ug/L		96.9	50-140			
Surrogate: Dibromofluoromethane	81.9		ug/L		102	50-140			
Surrogate: Toluene-d8	81.1		ug/L		101	50-140			

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56162

Project Description: PE4767

Qualifier Notes:

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

Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Client PO: 56163
Project: PE4767
Custody:

Report Date: 10-Nov-2022
Order Date: 4-Nov-2022

Order #: 2246087

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

Parcel ID	Client ID
2246087-01	BH2-22-GW
2246087-02	BH3-22-GW

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56163

Project Description: PE4767

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	9-Nov-22	9-Nov-22

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56163

Project Description: PE4767

	Client ID:	BH2-22-GW	BH3-22-GW	-	-
	Sample Date:	04-Nov-22 09:00	04-Nov-22 09:00	-	-
	Sample ID:	2246087-01	2246087-02	-	-
	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	19.7	1.5	-	-
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: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56163

Project Description: PE4767

	Client ID:	BH2-22-GW	BH3-22-GW	-	-
	Sample Date:	04-Nov-22 09:00	04-Nov-22 09:00	-	-
	Sample ID:	2246087-01	2246087-02	-	-
	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	140%	125%	-	-
Dibromofluoromethane	Surrogate	102%	114%	-	-
Toluene-d8	Surrogate	127%	133%	-	-

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56163

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	108		ug/L		135	50-140			
Surrogate: Dibromofluoromethane	87.9		ug/L		110	50-140			
Surrogate: Toluene-d8	101		ug/L		127	50-140			

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56163

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	73.1	5.0	ug/L	ND	73.1	50-140			
Benzene	39.8	0.5	ug/L	ND	99.5	60-130			
Bromodichloromethane	42.9	0.5	ug/L	ND	107	60-130			
Bromoform	40.5	0.5	ug/L	ND	101	60-130			
Bromomethane	43.6	0.5	ug/L	ND	109	50-140			
Carbon Tetrachloride	43.2	0.2	ug/L	ND	108	60-130			
Chlorobenzene	42.4	0.5	ug/L	ND	106	60-130			
Chloroform	44.0	0.5	ug/L	ND	110	60-130			
Dibromochloromethane	37.6	0.5	ug/L	ND	94.1	60-130			
Dichlorodifluoromethane	38.1	1.0	ug/L	ND	95.2	50-140			
1,2-Dichlorobenzene	42.0	0.5	ug/L	ND	105	60-130			
1,3-Dichlorobenzene	41.5	0.5	ug/L	ND	104	60-130			
1,4-Dichlorobenzene	37.3	0.5	ug/L	ND	93.2	60-130			
1,1-Dichloroethane	39.8	0.5	ug/L	ND	99.6	60-130			
1,2-Dichloroethane	41.0	0.5	ug/L	ND	103	60-130			
1,1-Dichloroethylene	41.1	0.5	ug/L	ND	103	60-130			
cis-1,2-Dichloroethylene	42.4	0.5	ug/L	ND	106	60-130			
trans-1,2-Dichloroethylene	44.6	0.5	ug/L	ND	112	60-130			
1,2-Dichloropropane	44.8	0.5	ug/L	ND	112	60-130			
cis-1,3-Dichloropropylene	41.7	0.5	ug/L	ND	104	60-130			
trans-1,3-Dichloropropylene	36.1	0.5	ug/L	ND	90.3	60-130			
Ethylbenzene	40.6	0.5	ug/L	ND	101	60-130			
Ethylene dibromide (dibromoethane, 1,2-	40.8	0.2	ug/L	ND	102	60-130			
Hexane	40.8	1.0	ug/L	ND	102	60-130			
Methyl Ethyl Ketone (2-Butanone)	98.7	5.0	ug/L	ND	98.7	50-140			
Methyl Isobutyl Ketone	104	5.0	ug/L	ND	104	50-140			
Methyl tert-butyl ether	112	2.0	ug/L	ND	112	50-140			
Methylene Chloride	44.9	5.0	ug/L	ND	112	60-130			
Styrene	34.7	0.5	ug/L	ND	86.8	60-130			
1,1,1,2-Tetrachloroethane	41.2	0.5	ug/L	ND	103	60-130			
1,1,2,2-Tetrachloroethane	39.8	0.5	ug/L	ND	99.6	60-130			
Tetrachloroethylene	41.2	0.5	ug/L	ND	103	60-130			
Toluene	42.6	0.5	ug/L	ND	107	60-130			
1,1,1-Trichloroethane	42.4	0.5	ug/L	ND	106	60-130			
1,1,2-Trichloroethane	41.7	0.5	ug/L	ND	104	60-130			
Trichloroethylene	43.5	0.5	ug/L	ND	109	60-130			
Trichlorofluoromethane	41.7	1.0	ug/L	ND	104	60-130			
Vinyl chloride	39.6	0.5	ug/L	ND	99.0	50-140			
m,p-Xylenes	76.3	0.5	ug/L	ND	95.4	60-130			
o-Xylene	38.2	0.5	ug/L	ND	95.4	60-130			
Surrogate: 4-Bromofluorobenzene	77.5		ug/L		96.9	50-140			
Surrogate: Dibromofluoromethane	81.9		ug/L		102	50-140			
Surrogate: Toluene-d8	81.1		ug/L		101	50-140			

Certificate of Analysis

Report Date: 10-Nov-2022

Client: Paterson Group Consulting Engineers

Order Date: 4-Nov-2022

Client PO: 56163

Project Description: PE4767

Qualifier Notes:

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



St. Laurent Blvd.
Montreal, QC H4L 4J8
514-393-1947
paracel@paracel.com
paracel.com

Parcel Order Number (Lab Use Only) <i>2246087</i>	Chain Of Custody (Lab Use Only)
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Client Name: <i>Peterson Group</i>	Quote #: <i>PE4767</i>	Page <u>3</u> of <u>3</u>
Contact Name: <i>Michael Beaudoin</i>	PO #: <i>56163</i>	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: <i>9 Auriga Drive</i>	E-mail: <i>mbeaudoin@petersongroup.ca</i>	
Telephone:	Date Required: _____	

<input checked="" type="checkbox"/> REG 153/04 <input type="checkbox"/> REG 406/19 Other Regulation <input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine <input type="checkbox"/> REG 558 <input type="checkbox"/> PWQO <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> CCME <input type="checkbox"/> MISA <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> SU - Sani <input type="checkbox"/> SU - Storm <input type="checkbox"/> Table _____ For RSC: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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		PHCs F-1-F4+BTEX	VOCS	PAHs	Metals by ICP	Hg	CrVI	B (HWS)								
					Date	Time															
1	<i>BH2-27-GW</i>	<i>GW</i>		<i>?</i>	<i>Mon</i>	<i>4</i>		<input checked="" type="checkbox"/>													
2	<i>BH3-22-GW</i>	<i>GW</i>		<i>?</i>	<i>Mon</i>	<i>4</i>		<input checked="" type="checkbox"/>													
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Comments:			Method of Delivery: <i>Walk-In</i>		
Relinquished By (Sign): <i>[Signature]</i>	Received By Driver/Depot:	Received at Lab: <i>Sandra Domaris</i>	Verified By: <i>[Signature]</i>		
Relinquished By (Print): <i>Mohammed Ramadan</i>	Date/Time:	Date/Time: <i>Nov 4 4:55</i>	Date/Time: <i>Nov 7 2013 1337</i>		
Date/Time: <i>Nov 4</i>	Temperature: _____ °C	Temperature: <i>17</i>	pH Verified: <input type="checkbox"/> By: <i>NA</i>		

Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Client PO: 58152
Project: PE4767
Custody: 140018

Report Date: 17-Aug-2023
Order Date: 15-Aug-2023

Order #: 2333193

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

Parcel ID	Client ID
2333193-01	BH2-20-GW

Approved By:



Dale Robertson, BSc

Laboratory Director

Certificate of Analysis

Report Date: 17-Aug-2023

Client: **Paterson Group Consulting Engineers**

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: **PE4767**

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	16-Aug-23	16-Aug-23

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Client ID:	BH2-20-GW	-	-	-	-
Sample Date:	15-Aug-23 15:40	-	-	-	-
Sample ID:	2333193-01	-	-	-	-
Matrix:	Ground Water	-	-	-	-
MDL/Units					

Volatiles

Acetone	5 ug/L	<5.0	-	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-	-
Dichlorodifluoromethane	1 ug/L	<1.0	-	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-	-
Ethylene dibromide (dibromoethane)	0.2 ug/L	<0.2	-	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-	-
Hexane	1 ug/L	<1.0	-	-	-	-

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Client ID:	BH2-20-GW	-	-	-	-
Sample Date:	15-Aug-23 15:40	-	-	-	-
Sample ID:	2333193-01	-	-	-	-
Matrix:	Ground Water	-	-	-	-
MDL/Units					

Volatiles

Methyl Ethyl Ketone (2-Butanone)	5 ug/L	<5.0	-	-	-	-
Methyl Isobutyl Ketone	5 ug/L	<5.0	-	-	-	-
Methyl tert-butyl ether	2 ug/L	<2.0	-	-	-	-
Methylene Chloride	5 ug/L	<5.0	-	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-	-
Trichlorofluoromethane	1 ug/L	<1.0	-	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-	-
Toluene-d8	Surrogate	92.5%	-	-	-	-
Dibromofluoromethane	Surrogate	105%	-	-	-	-
4-Bromofluorobenzene	Surrogate	94.6%	-	-	-	-

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
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					

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
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	72.2		%	90.2	50-140			
Surrogate: Dibromofluoromethane	80.9		%	101	50-140			
Surrogate: Toluene-d8	76.4		%	95.5	50-140			

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	4.61	0.5	ug/L	4.97			7.5	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	9.87	0.5	ug/L	9.62			2.6	30	
Dibromochloromethane	4.76	0.5	ug/L	4.83			1.5	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	

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	77.1		%		96.4	50-140			
Surrogate: Dibromofluoromethane	82.9		%		104	50-140			
Surrogate: Toluene-d8	74.6		%		93.2	50-140			

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	116	5.0	ug/L	ND	116	50-140			
Benzene	31.6	0.5	ug/L	ND	78.9	60-130			
Bromodichloromethane	43.8	0.5	ug/L	ND	110	60-130			
Bromoform	39.5	0.5	ug/L	ND	98.8	60-130			
Bromomethane	32.3	0.5	ug/L	ND	80.8	50-140			
Carbon Tetrachloride	32.4	0.2	ug/L	ND	81.0	60-130			
Chlorobenzene	36.3	0.5	ug/L	ND	90.7	60-130			
Chloroform	30.9	0.5	ug/L	ND	77.2	60-130			
Dibromochloromethane	38.8	0.5	ug/L	ND	96.9	60-130			
Dichlorodifluoromethane	30.3	1.0	ug/L	ND	75.6	50-140			
1,2-Dichlorobenzene	45.3	0.5	ug/L	ND	113	60-130			
1,3-Dichlorobenzene	36.6	0.5	ug/L	ND	91.4	60-130			
1,4-Dichlorobenzene	40.5	0.5	ug/L	ND	101	60-130			
1,1-Dichloroethane	33.1	0.5	ug/L	ND	82.8	60-130			
1,2-Dichloroethane	34.0	0.5	ug/L	ND	85.0	60-130			
1,1-Dichloroethylene	34.6	0.5	ug/L	ND	86.5	60-130			
cis-1,2-Dichloroethylene	32.3	0.5	ug/L	ND	80.8	60-130			
trans-1,2-Dichloroethylene	33.7	0.5	ug/L	ND	84.2	60-130			
1,2-Dichloropropane	32.8	0.5	ug/L	ND	81.9	60-130			
cis-1,3-Dichloropropylene	32.0	0.5	ug/L	ND	79.9	60-130			
trans-1,3-Dichloropropylene	33.5	0.5	ug/L	ND	83.7	60-130			
Ethylbenzene	33.4	0.5	ug/L	ND	83.6	60-130			
Ethylene dibromide (dibromoethane, 1,2-)	36.5	0.2	ug/L	ND	91.2	60-130			
Hexane	34.2	1.0	ug/L	ND	85.6	60-130			
Methyl Ethyl Ketone (2-Butanone)	89.9	5.0	ug/L	ND	89.9	50-140			
Methyl Isobutyl Ketone	72.7	5.0	ug/L	ND	72.7	50-140			
Methyl tert-butyl ether	78.3	2.0	ug/L	ND	78.3	50-140			
Methylene Chloride	35.8	5.0	ug/L	ND	89.6	60-130			
Styrene	33.0	0.5	ug/L	ND	82.6	60-130			
1,1,1,2-Tetrachloroethane	36.2	0.5	ug/L	ND	90.6	60-130			

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,2,2-Tetrachloroethane	32.0	0.5	ug/L	ND	80.0	60-130			
Tetrachloroethylene	44.5	0.5	ug/L	ND	111	60-130			
Toluene	34.3	0.5	ug/L	ND	85.8	60-130			
1,1,1-Trichloroethane	33.1	0.5	ug/L	ND	82.8	60-130			
1,1,2-Trichloroethane	32.5	0.5	ug/L	ND	81.4	60-130			
Trichloroethylene	31.3	0.5	ug/L	ND	78.4	60-130			
Trichlorofluoromethane	33.1	1.0	ug/L	ND	82.8	60-130			
Vinyl chloride	33.7	0.5	ug/L	ND	84.2	50-140			
m,p-Xylenes	68.9	0.5	ug/L	ND	86.1	60-130			
o-Xylene	31.7	0.5	ug/L	ND	79.3	60-130			
Surrogate: 4-Bromofluorobenzene	69.9		%		87.3	50-140			
Surrogate: Dibromofluoromethane	78.3		%		97.8	50-140			
Surrogate: Toluene-d8	72.3		%		90.4	50-140			

Certificate of Analysis

Report Date: 17-Aug-2023

Client: Paterson Group Consulting Engineers

Order Date: 15-Aug-2023

Client PO: 58152

Project Description: PE4767

Qualifier Notes:

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

Any use of these results implies your agreement that our total liability 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.



Paracel Order Number
(Lab Use Only)

Chain Of Custody
(Lab Use Only)

No 140018

Client Name: PATERSON Project Ref: PE4676 Page 1 of 1

Contact Name: MICHAEL BEAUDOIN Quote #:

Address: 9 AUNIGA DA NEPEAN, ON- PO #:

Telephone: 613 226 7381 E-mail: MBEAUDOIN@PATERSONGROUP.CA

Turnaround Time
 1 day 3 day
 2 day Regular
 Date Required: _____

REG 153/04 <input checked="" type="checkbox"/> REG 406/19 <input type="checkbox"/>		Other Regulation		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis																			
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Med/Fine	<input type="checkbox"/> REG 558	<input type="checkbox"/> PWQO	Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CWI	B (HWS)									
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> CCME	<input type="checkbox"/> MISA																			Date	Time	
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other		<input type="checkbox"/> SU - Sani	<input type="checkbox"/> SU - Storm																					
Mun: _____				Other: _____																					
Sample ID/Location Name																									
1	<u>BH2-20-GW</u>				<u>GW</u>	<u>2</u>	<u>2</u>	<u>AUG 15/23</u>	<u>3:40p</u>		<u>X</u>														
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Comments: _____

Relinquished By (Sign): [Signature] Received By (Sign): [Signature] Method of Delivery: [Signature]

Relinquished By (Print): Dominic Lamoy Date/Time: AUG 15/23 4:12 Received at Lab: HP Verified By: [Signature]

Date/Time: AUG 15/2023 Temperature: 19.1 °C Date/Time: Aug 16/23, 11:05 Date/Time: Aug 16/2023 11:01

Temperature: 9.5 °C pH Verified: By: NA