



# Phase Two Environmental Site Assessment – Midland Bay Landing 420 Bayshore Drive, Midland, Ontario

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Prepared for:           The Town of Midland



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## List of Acronyms

APEC	-	area of potential environmental concern
AST	-	aboveground storage tank
mbgs	-	metres below ground surface
BH	-	borehole
BTEX	-	benzene, toluene, ethylbenzene, and xylenes
COPC	-	contaminants of potential concern
EC	-	electrical conductivity
ESA	-	Environmental Site Assessment
FIP	-	fire insurance plan
LNAPL	-	Light non-aqueous phase liquids
Ministry	-	Ministry of the Environment, Conservation and Parks
MW	-	monitoring well
O.Reg.	-	Ontario Regulation
PAHs	-	polycyclic aromatic hydrocarbons
PCA	-	potentially contaminating activity
PCBs	-	Polychlorinated biphenyls
PHCs	-	petroleum hydrocarbons
ppm	-	parts per million
RSC	-	Record of Site Condition
SAR	-	sodium adsorption ratio
SCS	-	Site Condition Standards
UST	-	underground storage tank
VC	-	vinyl chloride
VOCs	-	volatile organic compounds



## 1.0 Executive Summary

The Corporation of the Town of Midland retained Cambium Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property at 420 Bayshore Drive in Midland, Ontario (Site). The Phase Two ESA will be used to support filing a Record of Site Condition under Section 168.3.1 of Part XV.1 of the *Environmental Protection Act*.

The roughly 14.6 ha Site is on the north side of Bayshore Drive and extends from William Street to Queen Street in Midland, Ontario.

A Phase One ESA identified 25 potentially contaminating activities (PCAs) within the Phase One Study Area. These PCAs contributed to 20 areas of potential environmental concern (APECs).

To investigate the APECs, Cambium and others completed the following investigations:

- Excavated 52 test pits to depths ranging from 0.6 m to 5.2 mbgs and collected 24 surface soil samples
- Advanced 98 boreholes, to depths ranging from 1.5 m to 21.8 mbgs, with 36 monitoring wells
- Collected sediment and surface water samples along three transects adjacent to the Site and at one reference transect
- Submitted soil, groundwater, sediment, and surface water samples for analysis of various contaminants of potential concern, pH, and grain size

This Phase Two ESA identified the following:

- PHC impacts were present in soil and groundwater. Soil impacts extended across the entire Site, and groundwater impacts were localized along the west side of the Site, extending to the west property boundary.
- BTEX impacts extended across the entire Site. There were no BTEX impacts in groundwater.



- VOC impacts (TCE) were present in soil and groundwater and were localized to a small area on the west portion of the Site.
- PAH impacts were present in soil and extended across eastern half of the Site. There were no PAH impacts in groundwater.
- Metals impacts were present in soil and extended across a large portion of the Site. There were no metals impacts in groundwater.

A Record of Site Condition cannot be filed for the Site on the basis of a Phase Two ESA.

Human health and ecological risks will need to be evaluated and risk management measures identified using a risk assessment prior to filing a Record of Site Condition.



## **2.0 Introduction**

The Corporation of the Town of Midland (Client) retained Cambium Inc. (Cambium) to complete a Phase Two Environmental Site Assessment (ESA) of the property at 420 Bayshore Drive in Midland, Ontario (Site or Phase Two Property).

The proposed future use of the Site is mixed commercial/residential and parkland. Based on a review of historical property use and correspondence with the Ministry (MOECC, 2017), a change in land use to a more sensitive use will occur on parts of the Site. These parts of the Site are subject to Section 168.3.1 of Part XV.1 of the Environmental Protection Act, which requires a Record of Site Condition (RSC) be filed in the Environmental Site Registry when a change to a more sensitive land use occurs.

It is the Client's intention to file an RSC for the terrestrial portion of the Phase Two Property; therefore, this Phase Two ESA was prepared consistent with Ontario Regulation (O.Reg.) 153/04. The report headings, format, and content follow the requirements of O.Reg. 153/04. Additional sections have been added for the purpose of improving report clarity and completeness.

Site description, ownership, future land use, and applicable soil and groundwater standards are discussed in the following sub-sections.

### **2.1 Site Description**

The Site is on the north side of Bayshore Drive and extends from William Street to Queen Street in Midland, Ontario in the County of Simcoe. Site information is summarized below. The Phase Two Property location is shown on Figure 1. A plan of survey is provided in Appendix A.





### Site Information

<b>Municipal Address</b>	420 Bayshore Drive, Ontario
<b>Historical Land Use</b>	Mixed industrial and parkland
<b>Current Land Use</b>	Vacant former industrial and parkland
<b>Future Land Use</b>	Mixed commercial and residential/parkland
<b>PIN</b>	58452-0553 (LT)
<b>Roll No.</b>	437402000227500
<b>Universal Transverse Mercator Coordinates*</b>	Zone 17T 588386 m E, 4956586 m N
<b>Legal Description</b>	<b>420 Bayshore Drive – PIN 58452-0553 (LT)</b> Part Lots 107 & 108, Part Water Lot Lying in Front Lot 108, Water Lot C & D Concession 2 Tay; Water Lots 1 to 12, Part Lots 1 to 12 N/S Frank Street, Part Charles Street, Part George Street & Part Lindsay Street Plan 349; Part Charles Street, Part George Street & Part Lindsay Street, Closed North of CNR Plan 724 Being Part 1 51R40291; Town of Midland.
<b>Site Area</b>	≈14.6 ha (36 acres)

\* The Universal Transverse Mercator measurements were obtained from Google Earth Pro.

## 2.2 Property Ownership

Property owner and contact information is provided below.

Property Owner	Contact Information
The Corporation of the Town of Midland 575 Dominion Avenue, Midland, Ontario L4R 1R2	Wes Crown Director of Planning and Building Services Phone: (705) 526-4275 x2216 Email: wcrown@midland.ca

## 2.3 Current and Proposed Future Uses

For the purpose of summarizing current and historical property use and identifying on-site potentially contaminating activities (PCAs) in the Phase One ESA (Cambium, 2018), the Site was divided into the following four areas as shown on Figure 2.

### Area 1

- Former Unimin Canada Ltd. (Unimin) plant property
- Fenced and secured
- Unimin operated an aggregate processing plant (silica sand products)
- Plant closed in 2012; plant removed in 2013
- The Town of Midland purchased this land in 2014

### Area 2

- Vacant lands used as informal/impromptu open space area with multiple trails and pedestrian access to waterfront/water's edge
- Lands are not fenced and have never been signed as private
- Last known industrial use was coal docks and coal storage, which were removed 30 or more years ago. Unimin's previous owner (Indusmin) purchased these vacant lands so that they would not have immediate neighbours.
- Area 2 had industrial uses prior to the coal docks that included rail spur lines, and lumber and gristmills.
- The Town of Midland purchased this land in 2014

### Area 3

- Area 3 is a small portion of Area 2 where passenger boats (Miss Midland and Serendipity Princess) are dry docked over the winter.
- Dry docking for +/- 15 years through lease with previous owner (Unimin)
- Leases have continued under Town of Midland ownership

## Area 4

- Area 4 is a roughly 1.21 ha (3 acre) portion of Area 2 that Town previously leased (since 2002) from Unimin for use as a parking lot, park, boat launch (summer), and snow mobile access to the lake (winter).
- These uses have continued since the purchase of Area 2 in 2014. The park was renamed Midland Bay Landing Park in 2014.

Details regarding the historical and current uses of these areas was provided to the Ministry (Midland, 2017) for comment on interim temporary uses prior to redevelopment. The Ministry (MOECC, 2017) responded that:

- Areas 1 and 3 would be deemed industrial use and would require an RSC before utilization for a more sensitive use.
- The Area 2 lands have been used as parkland for 30+ years, and as such, an RSC would not be required to continue this use or change the use to residential.
- The Area 4 lands have been and are continuing to be used as parkland, and as such, an RSC would not be required to continue this use or change the use to residential.

The proposed future use of the Site is mixed commercial/residential and parkland. A conceptual land use plan (Midland, 2013) is provided as Figure 3.

## 2.4 Applicable Site Condition Standards

O.Reg. 153/04, Records of Site Condition – Part XV.1 under the *Environmental Protection Act* specifies acceptable limits of contaminants in soil, groundwater, and sediment in the *Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act* (MOECC, 2011). These standards are presented in tables (Tables 1 to 9) defined by groundwater use (i.e., potable or non-potable) and type of remediation (full depth or stratified). Each table presents chemical-specific site condition standards (SCS) based on property use (agricultural, residential/parkland/ institutional, or industrial/community/commercial), grain-texture (medium/fine-textured or coarse-textured).

Selection of the applicable SCS considered the following characteristics specific to the Site:



- Current and proposed property use
- Soil characteristics
- Environmental sensitivity, including:
  - Soil pH
  - Proximity to areas of natural significance
- Proximity of water bodies
- Groundwater use

### **Intended Property-Use**

The proposed future use of the Site is mixed commercial/residential and parkland. Therefore, the applicable land use category was residential/parkland/institutional (RPI).

### **Soil Characteristics**

Investigations completed at the Site have identified a complex overburden stratigraphic profile that includes fill (crushed rock, and silty sand and sand with variable gravel content, and cobble and boulders), discontinuous localized peat and organic silt layers, clay, till (silty sand to sandy silt), sand, and sand and gravel.

Based on grain size distribution testing completed by Pinchin (2014), Stantec (2014) and PML (2017) coarse-textured soil was considered applicable since the unconfined aquifer at the Site is present within both the fine and coarse-textured soil. Grain size analysis results are included in Appendix B.

### **Environmentally Sensitive Areas**

The O.Reg.153/04 generic SCS cannot be used at properties that are within, include, or are proximate (i.e., within 30 m) to an area of natural significance, when soil pH is not within the allowable ranges for surface (5 to 9) and/or sub-surface soils (5 to 11), or if a Qualified Person (QP) is of the opinion that it is appropriate to apply Section 41 of the regulation.

### **Areas of Natural and Scientific Interest**

Based on a site sensitivity search completed as per the requirements of Section 41 of O.Reg.153/04, no areas of natural significance as defined by the regulation, were identified on



or within 30 m of the Site. Therefore, the Site was not considered an environmentally sensitive area and the generic SCS were applicable.

#### Soil pH

Seventy-five soil samples were submitted for laboratory analysis by Pinchin (2014) and Stantec (2014) to assess soil pH at the Site. Except for one surface soil sample, soil pH results were within the allowable ranges for surface and sub-surface soil. Five additional soil samples collected by Cambium (2019) within 2 m of the original sample, including one sample collected at the original location and depth, were within the acceptable range for surface soil. Therefore, the single low pH sample result in the Stantec data was considered spurious and was removed from the dataset. The generic SCS were considered applicable.

#### Qualified Person Opinion

Geologic and hydrogeological parameters that influence the derivation of the O.Reg.153/04 generic SCS were compared to site-specific data and the generic values used in the derivation of the SCS. The site-specific parameters were consistent with the defaults; therefore, in the QP's opinion the generic SCS are applicable.

#### **Proximity of Water Bodies and Shallow Bedrock**

SCS are defined for properties that are within 30 m of a water body or at which bedrock is less than 2 mbgs.

The Site extends into Midland Bay to the north and is therefore considered within 30 m of a water body. The generic SCS established for properties within 30 m of a water body (i.e., Tables 8 or 9) were considered applicable for the Site.

Subsurface investigations completed at the Site by PML (2017) and Cambium did not encounter bedrock to a maximum depth of about 22 mbgs. Pinchin (2014) indicated that bedrock was encountered at depths ranging from 2.9 to 7.5 mbgs; however, Stantec (2014) speculated that the inferred bedrock reported by Pinchin was refusal on boulders or cobbles. The QP concurs with this opinion; therefore, the generic SCS established for properties with shallow soil (i.e., Tables 6 and 7) were not applicable.



### **Shallow Groundwater and Groundwater Use**

Groundwater levels measured by Cambium in 2018 and 2019 ranged from 0.34 to 4.41 mbgs. Generally, the depth to groundwater is less than 2 mbgs except for the west side of the Site and close to the south property line on the eastern side of the Site.

For groundwater at a property to be considered non-potable, all properties within 250 m of the property must be supplied by a municipal drinking water system that does not obtain its water from a groundwater source.

The Town of Midland obtains drinking water from a series of 10 operational groundwater wells. The nearest to the Site is Well #17, which is about 1,200 m west of the Site, west of Midland Bay. This well, along with five others, is within the Vinden Flume well field, which is under the direct influence of surface water sources (Midland, 2017).

Cambium contracted ERIS to provide a database report for the Phase One study area (ERIS, 2018). The ERIS report did not identify drinking water wells on or within 250 m of the Site.

A review of the mapping provided by the Source Protection Information Atlas (MOECC, 2018) indicated the Site is within an area categorized as Highly Vulnerable Aquifer (score 6) and Significant Groundwater Recharge Area (score 6). In addition, a small segment of land at the northwest corner of the Site is within an area mapped as Wellhead Protection Area D (score 4), which represents a 25 year travel time for groundwater migration to a well.

The Town of Midland and the County of Simcoe were notified by letters dated June 15, 2018 of the intention to apply non-potable groundwater standards at the Site. Neither the Town nor the County responded with an objection within 30 days; therefore, consistent with Section 35(3)(e), non-potable SCS are considered acceptable to both. These letters were resent on March 20, 2019 and again no response was received from either party.

### **Applicable Generic Site Condition Standards**

Based on the foregoing, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition, were considered appropriate for use at the Site.

Shallow groundwater is present on the Site; therefore, the Table 7 GW2 criteria were used to identify volatile COCs in groundwater.





### **3.0 Background Information**

#### **3.1 Physical Setting**

Dearden and Stanton Ltd. (DLS, 2015) prepared a topographic survey of the Site (Appendix A). Review of the survey indicated that the Site slopes down to the north toward Midland Bay. The Site includes part of Midland Bay as indicated on the topographic survey. Surface elevation at the water's edge is about 176 m increasing to about 180 m along most of Bayshore Drive. A steep slope is present in the area from George Street to Edgehill Drive where the elevation increases to a maximum of about 185 m. Topography increases regionally to the south and west with contours generally following the shoreline of Midland Bay (Simcoe, 2018).

The Site is within the Simcoe Uplands physiographic region (Chapman & Putnam, 1984), characterized by sand plains with localized clay and till plains. In the general area, the overburden is coarse-textured lacustrine deposits of sand and gravel with minor silt and clay (OGS, 2010). The soils overlie Gull River formation limestone (OGS, 2007). A review of Ministry water well records (MOECP, 2018) for boreholes within 200 m of the Site indicated that the local stratigraphy consisted of sand gravel, silt, and clay till with boulders. Limestone bedrock was encountered at about 30 mbgs in a well to the west of Midland Bay.

No areas of natural significance, as defined by O.Reg. 153/04, were identified on or within 30 m of the Site.

#### **3.2 Past Investigations**

Relevant information from the available reports is summarized below by report. Summaries of the Pinchin reports are copied, with minor editorial changes, from the Stantec (2014a) Supplemental Phase Two ESA report since the Stantec report and this Phase Two ESA were authored by the same QP<sub>ESA</sub>.

In addition, Cambium conducted a Phase One ESA at the Site in May 2018 (Cambium, 2018) Information from the Phase One ESA is incorporated throughout this report.



## **Phase One ESAs (Pinchin, 2014a; 2012a; 2012b)**

Pinchin indicated that the Phase I ESA was completed in general accordance with the Canadian Standards Association (CSA) standard Z768-01 for Phase I ESAs (reaffirmed in 2012) and consistent with Part VII and Schedule D of O.Reg. 153/04. The Phase I ESA included a review of readily available historical and regulatory records, a site reconnaissance, interviews, and an evaluation of information and reporting.

Unimin purchased a portion (Lots 107 and 108) of the Site in June 1969. The water lots in front of lot 108, concession 2 and water lots 1 to 12, and Frank Street Plan 349 were purchased by Unimin in September 1990. The west portion (420 Bayshore Drive) of the Site was previously developed with six industrial buildings and the east portion (288 Bayshore Drive) of the subject property was historically operated as an industrial property that included a coal dock, and railway lines and sidings. The east portion of the Site was converted to parkland by Unimin in approximately 2003.

Pinchin reviewed previous Phase I ESAs prepared in 2012 for the separate parcels comprising the Site. These Phase I ESAs were also prepared by Pinchin. Their review identified the following:

### **288 Bayshore Drive**

- Approximately 8.1 ha (20 acres) in area. Ground surface cover was grass, shrubs, trees, and a small paved parking area.
- Utilized as a park with parking and boat docking areas. The property was free of permanent structures or buildings.
- The west portion was leased and used to store two large boats during the winter months.
- FIPs dated 1917 and 1946 indicated that the property was operated as a coal dock with railway sidings for the coal company on the adjacent property (420 Bayshore Drive) to the west.
- Pinchin recommended a Phase II ESA at the property.

### **420 Bayshore Drive**



- The property was occupied by Unimin, a producer of non-metallic industrial minerals.
- Six buildings were present on the property: single-storey office and warehouse/storage for on-site machinery maintenance parts; eight-storey mill building; six-storey dryer building; two-storey change room, lunch room and lab; single-storey maintenance shop; and a three-storey building used in the milling process.
- Operations consisted of receiving raw materials (silica quartz) by ship, storage on the dock on the north portion of the property, milling to flour sized product, silo storage of product, and shipping by truck.
- A 2,260 L diesel fuel above ground storage tank (AST) was located on the central portion of the property. A former 5,000 L AST was reported by the site representative.
- A UST was located on the northwest portion of the property in 1946.
- Rail sidings were present on the property from at least 1911 to 1965. A railway line was located approximately 5 m south of the property.
- Pinchin recommended a Phase II ESA at the property.

Based on their review of available information for the Site, Pinchin identified the following on-site and off-site PCAs with the potential to contribute to APECs.

**On the subject property:**

- Gasoline and associated products stored in fixed tanks
- Port activities, including operation and maintenance of wharves and docks
- Rail yards, tracks and spurs

**Off-site**

- Garages and maintenance and repair of railcars, marine vehicles, and aviation vehicles
- Gasoline and associated products stored in fixed tanks

Pinchin identified nine APECs at the Site related to the PCAs. The PCAs had the potential to result in soil and/or groundwater impacts at the Site by contaminants of potential concern



(COPCs) including petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), metals, and pH.

Pinchin recommended that a Phase II ESA be conducted at the Site “to determine the location and concentration of one or more contaminants in the land or water on, in or under the property”. Pinchin also recommended “that a geophysical survey be conducted to confirm or deny the presence of historical USTs on the Site”.

### **Phase Two ESA (Pinchin, 2014b)**

The Phase Two ESA included the advancement of six test pits (TP01 to TP06) to depths ranging from 2.0 m to 4.0 m below ground surface (mbgs) and 20 boreholes (BH01 to BH20) to depths ranging from approximately 2.9 m to 7.6 mbgs. Eleven of the boreholes (BH02, BH03, BH06, BH08, BH09, BH10, BH12, BH15, BH17, BH18, and BH20) were instrumented with monitoring wells.

One or more soil samples from test pits TP02 to TP05 and one soil sample from each of boreholes BH01 to BH20 were analyzed for PHC, PAHs, VOCs, metals, and pH to assess the COPCs identified by the Phase One ESA. Based on review of the test pit and borehole logs, the analyzed soil samples were generally selected for analysis on the basis of field vapor screening results (i.e., samples with highest vapors submitted for analysis). In addition, three borehole soil samples were analyzed for grain size. A groundwater sample from each the monitoring wells was analyzed for PHC, PAHs, VOCs, and metals. The findings of the Phase Two ESA (with Cambium commentary in *italics*) indicated the following:

- Pinchin compared the soil and groundwater analysis results to the Table 9 Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition (MOECC, 2011) due to the proximity of the Site to Georgian Bay.
- The soil profile consisted of fill (sand and gravel, sand and/or silt with occasional cobbles, brick, coal, glass, and metal debris) to a maximum depth of 2.0 mbgs. The fill was underlain by native sandy to clayey silt to the maximum depth of the investigation. The inferred overburden/bedrock interface was encountered at depths ranging from 2.9 m to 7.5 mbgs.



- The depth to groundwater ranged from 1.07 m (BH002) to 4.08 mbgs (BH17) on July 3, 2013 (approximately two weeks after completion of the wells). Groundwater flow direction was generally to the northwest toward Midland Bay.
- Based on a an assumed porosity of 20% to 25%, an horizontal hydraulic gradient of 0.0066, and an hydraulic conductivity of  $1.13 \times 10^{-6}$  m/s (based on rising head tests), Pinchin calculated an average linear groundwater flow velocity ranging from 0.94 m to 1.17 m/yr.
- Greater than one third of the overburden soils at the Site were coarse-textured as defined by O.Reg. 153/04. *Two of three samples analyzed for grain size indicated that the samples were medium/fine-textured. Based on review of the soil descriptions for these samples, it appears that only the fill materials at the Site are coarse-textured.*
- Barium was present at a concentration greater than the Table 9 SCS in two soil samples (TP02 and BH08). These samples were collected in the native soil. *Other than the soil samples analyzed at BH12 and BH14, which were along the north property line near APEC #4 (former port activities – dock), all of the analyzed soil samples were collected within the native overburden soils.*
- PHC F3 and/or F2 were present at concentrations greater than the Table 9 SCS in two soil samples. *These samples were collected in the fill (BH12) and native overburden soil (BH14).*
- PAH concentrations were greater than the Table 9 SCS in three soil samples (TP02, BH12, and BH14). *Other than TP02, these samples were collected in the native overburden soil.*
- VOCs (benzene, ethylbenzene, toluene, and xylenes) were present in two soil samples (BH12 and BH14) at concentrations greater than the Table 9 SCS. *These samples were collected in the fill (BH12) and native overburden soil (BH14).*
- Groundwater analysis results met the Table 9 SCS for VOCs, PHCs, PAHs, and metals.
- Non-aqueous phase liquids (NAPL) were not present in the on-site monitoring wells. *The tops of the well screens in BH02, BH06, BH08, BH09, BH10, BH18, and BH20 were*



*installed below the water table. This was not considered significant, however, as PHCs were not detected in the analyzed groundwater samples.*

Pinchin concluded that VOCs, PHCs, PAHs, and metals impacted soil was present at the Site, and recommended that a Remedial Action Plan (RAP) be developed to delineate and remediate the identified impacts.

### **Remedial Action Plan (Pinchin, 2013b)**

The Remedial Action Plan (RAP) summarized the findings of the Phase Two ESA (Pinchin, 2014b) and outlined a scope of work to complete a remedial excavation and verification soil sampling program at the Site to address the identified soil impacts. The RAP indicated that the extent of soil contaminants on the Site was not known, and that subsequent work at the Site should include a Supplemental Phase Two ESA comprising eight to ten test pits to delineate further the extent of impacts.

Based on the available information regarding the distribution of soil contaminants at the Site, Pinchin estimated that roughly 1,000 metric tonnes of soil would require removal from the Site prior to filing an RSC.

### **Supplemental Phase Two ESA (Stantec, 2014a)**

Stantec conducted a Supplemental Phase Two ESA in 2014 to provide additional data in support of remediation/risk assessment and eventual filing of an RSC for the Site. The Supplemental Phase Two ESA included: collection of soil samples from 14 boreholes, nine test pits, four stockpiles, and four surface sampling locations; mapping the extent of surficial coal deposits; and characterization of sediment and surface water.

Soil, sediment, and surface water samples were collected for analysis of one or more of BTEX, PHCs, PAHs, VOCs, polychlorinated biphenyls (PCBs), metals and inorganics, sodium adsorption ratio (SAR), electrical conductivity (EC), pH, and grain size. Stantec considered the following standards applicable at the Site:

- The Table 9 SCS for use in a non-potable groundwater condition and a residential/parkland/institutional/industrial/commercial/community property use with coarse-textured soils for areas within 30 m of Midland Bay.





- The Table 3 SCS for use in a non-potable groundwater condition and a residential/parkland/institutional property use with coarse-textured soils for areas greater than 30 m from Midland Bay.

The findings of the Supplemental Phase Two ESA were as follows:

- The soil profile generally consisted of sand and gravel fill and silty sand. Bedrock was not encountered to a maximum investigation depth of about 7.5 m mbgs.
- BTEX, PHC F1, F2, and F3, antimony, cyanide, anthracene, benzo(a)pyrene, benzo(b/j)fluoranthene, methylnaphthalene, naphthalene, hexane and EC were present in soil at concentrations greater than the Table 9 SCS as sample locations within 30 m of Midland Bay.
- BTEX, PHC F1 and F4, antimony, arsenic, copper, lead, selenium, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, methylnaphthalene, naphthalene, phenanthrene, cyanide, acetone, and hexane were present in soil at concentrations greater than the Table 3 SCS as sample locations greater than 30 m from Midland Bay.
- Cadmium, copper, chromium (total), lead, nickel, silver, zinc, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k) fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3 cd)pyrene, phenanthrene, and pyrene were present in sediment at concentrations greater than the sediment standards (MOECC, 2011).
- Copper or zinc concentrations exceeded the Provincial Water Quality Objectives (MOEE, 1995) interim guidelines in surface water samples collected in Midland Bay adjacent to the Site.

### **Benthic Invertebrate Assessment (Stantec, 2014b)**

Stantec conducted a benthic sampling program along the south shore of Midland Bay adjacent to the Site. The program was designed to characterize the benthic invertebrate community and

use the data to characterize water and sediment quality. Benthic macroinvertebrate samples were collected along four transects oriented perpendicular to the shoreline.

T1 – at the passenger boat launch, immediately east of the former Unimin plant

T2 – 360 m east of the passenger boat launch, near a breakwater structure

T3 – 240 m east of the breakwater, near the Midland Bay Landing Park water access

TR – reference transect 275 m east of the park, 879 m east of the boat launch

Benthic sample collection was attempted 10 m from shore, 20 m from shore and 30 m from shore along each transect. Transects TR, T3 and T1, had very coarse substrates in the nearshore area, preventing the collection of benthic samples at 10 m from shore.

Stantec concluded the benthic communities along the Midland Bay shoreline were indicative of long-term impacts from a variety of sources, including nearby, historical, industrial practices and invasive aquatic species. An analysis of the benthic community data suggested that water quality for all stations was impaired and there was evidence of eutrophication. With respect to benthic community:

- Transect T1 had the greatest diversity and the highest proportion and number of pollution-sensitive taxa, suggesting it was the least impacted transect in the survey. The benthic communities at transect T1 and the reference transect were similar. The data indicated there was evidence of pollution stress at transect T1 and the reference transect.
- Transect T2 had the highest total organic carbon (TOC) and coarsest substrate primarily as a result of the large proportion of coal within the sediment. This station also had the fewest pollution sensitive organisms and was dominated by the most pollution-tolerant taxa.
- The invasive Zebra and Quagga mussels were present in appreciable numbers at all transects, and were the predominant organisms at transect T3.

### **Geo-Environmental Investigation (PML, 2017)**

Peto MacCallum Ltd. (PML) conducted a geo-environmental investigation at the Site in 2015 to characterize subsurface conditions. PML advanced 42 boreholes across the Site. Samples of



fill and native soil were collected from 12 boreholes for environmental analyses. Standpipes were installed in 13 of the boreholes.

Relevant information from the report is summarized as follows.

- 288 Bayshore drive was vacant and covered with trees and other vegetation. Some walking trails/paths were present.
- 420 Bayshore Drive was occupied by a few small sheds and predominately covered in crushed stone/rock that mounded 2 m to 5 m high.
- The site is gently rolling and generally grades up from the water level (elevation 176.3 m at the time of the investigation), to about 180 m to 181 m in the western two-thirds and 178 m to 179 m in the eastern third of the Site. Relief is about 5 m in general, except for a topographic rise near the central part of the Site adjacent to Bayshore Drive.
- The Site is characterized by deep fill reflecting the reclaimed land along the shoreline with shallower fill noted farther inland. The underlying native soils is generally till, sand, or sand and gravel with localized layers of peat, organic silt, and clay. Bedrock was not encountered to the maximum depth (21.8 mbgs) of investigation.
- Grain size results indicated that the Till and sand layers were medium/fine-textured, and that the sand and gravel layer was coarse-textured.
- Depth to groundwater measured in the standpipes about two months after installation ranged from 0.7 m to 3.1 mbgs (179.9 m to 175.0 m).
- Fill/soil samples were analyzed for BTEX, PHCs, PAHs, and metals and inorganics. PML compared the results to the Table 8 SCS for use within 30 m of a water body in a potable groundwater condition and industrial/commercial/community land use. *Cambium compared the results to the Table 9 and Table 3 SCS and identified the following:*
  - *The concentration of arsenic exceeded the Table 3 SCS at one sample location more than 30 m from Midland Bay.*
  - *The concentration of arsenic exceeded the Table 9 SCS at one sample location less than 30 m from Midland Bay.*



Three samples of the crushed rock remaining on the former Unimin plant property met the Table 9 SCS for metals and inorganics.



## **4.0 Scope of the Investigation**

### **4.1 Overview of the Site Investigation**

The general objective of the Phase Two ESA was a review and evaluation of results from previous investigations (discussed in Section 3.2) to determine the extent and concentration of contaminants of concern (COCs) in the land or water on, in or under the phase two property. This objective was achieved by developing an understanding of the geological and hydrogeological conditions at the phase two property and conducting supplemental field investigations of select COCs. The Phase Two ESA included a soil and groundwater investigation based the findings of the Phase One ESA and previous investigations.

The proposed scope of work for the Phase Two ESA was based on the requirements of O.Reg. 153/04. The Phase Two ESA investigation included sampling of soil and groundwater. Based on a review of previous investigations, the COCs are PHCs, VOCs, PAHs, and metals. Maxxam Analytics (Maxxam) was retained for the analytical program. Maxxam is an analytical laboratory accredited by the Canadian Association of Laboratory Accreditation Inc. (CALA). The Phase Two ESA was subject to a Quality Assurance/Quality Control (QA/QC) program, including blind duplicate soil and groundwater samples and trip blanks as outlined in the Sampling and Analysis Plan (SAP) in Appendix C. The SAP was developed to assess APECs identified by the Phase One ESA and further assess the COCs.

Cambium coordinated and supervised all subcontractors and sub-consultants required to complete the Phase Two ESA, including utility locators and a licensed well drilling contractor. Cambium retained an accredited laboratory for analysis of soil and groundwater samples. Prior to conducting any field work, Cambium prepared a Site Health and Safety Plan (HASP) tailored to the known and possible contaminants on-site, physical site hazards and the type of work scheduled to be conducted. Included in the HASP was a detailed map showing the transportation route to the nearest hospital, emergency contact numbers, and other pertinent information required for site work on potentially contaminated sites. All persons entering the Site as contractors or otherwise were required to review the document and sign off prior to their admission.



Prior to any subsurface investigation, Cambium arranged for underground services to be located and marked by public and private utility companies. Private utility locating company Utility Marx was at the Site on June 20, 2018 to provide clearance for buried services at all proposed borehole locations.

## **4.2 Media Investigated**

The Phase Two ESA investigated both soil and groundwater quality. The investigation of sediment and surface water was completed during a previous investigation (Stantec, 2014a).

Soil quality at the Site was investigated through dual tube or split spoon sampling. The chosen drilling methods were selected based on sample depth, subsurface conditions, and monitoring well requirements.

Groundwater samples were collected using either an inertial foot valve or low-flow peristaltic pump with dedicated tubing installed in each of the monitoring wells. The low-flow sampling methodology minimizes the velocity of the formation water entering the well screen and reduces the amount of sediment entrained in the collected groundwater samples, as the drawdown is kept to a minimum by adjusting the pumping rate accordingly. Where a consistent drawdown could not be maintained, a peristaltic pump was used when collecting VOCs to limit agitation of the water column. Refer to sampling locations on Figure 9 and borehole logs in Appendix D.

## **4.3 Phase One Conceptual Site Model**

The following descriptions and discussion supplement the attached Figure 4 to Figure 6, which comprise the Phase One Conceptual Site Model (CSM). The purpose of the CSM is to assist the QP in illustrating the results of the Phase One ESA and to provide a basis for further work, if required.

### **4.3.1 Site Description**

The Site is on the north side of Bayshore Drive and extends from William Street to Queen Street in Midland, Ontario in the County of Simcoe. The legal description of the Site is *Part Lots 107 & 108, Part Water Lot Lying in Front Lot 108, Water Lot C & D Concession 2 Tay;*



*Water Lots 1 to 12, Part Lots 1 to 12 N/S Frank Street, Part Charles Street, Part George Street & Part Lindsay Street Plan 349; Part Charles Street, Part George Street & Part Lindsay Street, Closed North of CNR Plan 724 Being Part 1 51R40291; Town of Midland.* The Property Identification Number (PIN) is 58452-0553 (LT). The Universal Transverse Mercator (UTM) coordinates for the centroid for the Site are Zone 17 T, 588386 m east and 4956586 m north. The roughly 14.6 ha Site is bound by Midland Bay to the north, Bayshore Drive to the south, residential land use to the east, commercial/industrial land use to the west.

#### **4.3.2 Existing Buildings and Structures**

There is a marine rail system and a small shed, housing a motor and pulley, within a chain-link fenced enclosure on the central portion of the Site. All other historical structures have been removed.

Concrete and sheet pile retaining structures are present along portions of the west side of the terrestrial area of the Site.

#### **4.3.3 Water Bodies and Areas of Natural Significance**

The Site extends into Midland Bay; therefore, the Site is within 30 m of a water body, as defined in O.Reg. 153/04.

The Site was not considered an Area of Natural Significance, as defined in Section 1 of O.Reg. 153/04.

#### **4.3.4 Drinking Water Wells**

The Phase One study area is municipally serviced for drinking water. No drinking water wells were observed on the Site and no records of drinking water wells at the Site were identified by the records review.

A search of the Ministry Water Well Information System by ERIS identified nine records for on-site wells and nine water well records within the Phase One study area ranging from about 25 m to 300 m from the Site. The wells were identified as observation wells, and monitoring and test holes.

#### **4.3.5 Potentially Contaminating Activities**

Based on the records review, site reconnaissance, and interviews, 25 PCAs (15 on-site and 10 off-site) were identified within the Phase One Study Area. Refer to Table 1 for PCA details, and Figure 4 (off-site) and Figure 5 (on-site) for PCA locations.

#### **4.3.6 Areas of Potential Environmental Concern**

As required by O.Reg. 153/04, all on-site PCAs resulted in an APEC. Based on a review of potential to result in contamination at the Site, five of the off-site PCAs contributed to APECs. Refer to Table 2 for APEC details and Figure 6 for APEC locations.

#### **4.3.7 Contaminants of Potential Concern**

COPCs were identified for each PCA contributing to an APEC. The COPCs specific to each APEC are summarized in Table 2. PHCs, VOCs, PAHs, metals, and PCBs were identified as COPCs related to the current and historical on and off-site PCAs.

#### **4.3.8 Contaminant Distribution and Transport**

No underground utilities were identified on, in, or under the Site. Contaminant distribution and transport may be influenced by the presence of utility trenches that were historically present on the Site. Water level data reviewed for the Site indicates that the water table is within a fill or sand layer, which would likely have similar properties as trench backfill. Therefore it is considered unlikely that preferential migration of contaminants would occur via historical utility trenches.

No specific climatic or meteorological conditions were observed that may influence the distribution or migration of contaminants.

#### **4.3.9 Geological and Hydrogeological Setting**

Review of a topographic survey indicated that the Site slopes down to the north toward Midland Bay. Surface elevation at the water's edge is about 176 m increasing to about 180 m along most of Bayshore Drive. A steep slope is present in the area from George Street to Edgehill Drive where the elevation increases to a maximum of about 185 m. The topography





increases regionally to the south and west with contours generally following the shoreline of Midland Bay (Simcoe, 2018).

The Site is within the Simcoe Uplands physiographic region (Chapman & Putnam, 1984), characterized by sand plains with localized clay and till plains. In the general area, the overburden is coarse-textured lacustrine deposits of sand and gravel with minor silt and clay (OGS, 2010). The soils overlie Gull River formation limestone (OGS, 2007). A review of Ministry water well records (MOECP, 2018) for boreholes within 200 m of the Site indicated that the local stratigraphy consisted of sand gravel, silt, and clay till with boulders. Limestone bedrock was encountered at about 30 mbgs in a well to the west of Midland Bay.

A geotechnical investigation identified the following soil profile at the Site (PML, 2017):

- A 0.3 m to 2 m thick layer of topsoil was present in the central and western parts of the Site.
- Fill was encountered in all boreholes at surface or below the discontinuous topsoil. The fill was deepest toward the northern part of the Site along Midland Bay, with shallower fill toward Bayshore Drive. The fill depth ranged typically ranged from 4 m to 5.5 mbgs (171.8 to 175.8 m) along the shoreline, with local areas as shallow as 2.1 m and as deep as 8.5 mbgs (169.1 to 176.8). Inland the fill extended to depths ranging from 0.7 m to 4.0 mbgs. (174.8 to 179.0).

In the western portion of the Site, crushed rock was present at the surface of many of the boreholes. Below this, and across the rest of the Site, the fill generally comprised sand with some silt or silty sand, with variable gravel content and cobble and boulders. Trace organics, wood pieces, brick pieces, and peat inclusions were noted locally.

- A localized peat layer was contacted immediately under the fill in the central part of the Site. The peat layer was less than 1 m thick.
- A discontinuous organic silt layer was encountered in west and central areas of the Site below the fill and/or peat and extended to 4.0 to 5.5 mbgs (174.3 m to 176.8 m).

- Silty clay was encountered predominantly in the western half of the Site below the fill. The unit extended to 2.1 to 8.0 mbgs (171.8 m to 177.6 m). Locally in the eastern part of the Site, the layer extended to 9.3 mbgs (168.3 m).
- Sand deposits/layers were encountered in almost every borehole, often in multiple layers in the same borehole. The sand was typically encountered below 174 m, locally as high as elevation 179 m. The unit contained trace to some silt and gravel, locally grading to silty sand. Cobbles and boulders were noted locally.
- Sand and gravel layers /deposits were also encountered across the Site, occurring in almost every borehole, and sometimes in multiple layers in the same borehole.
- Till was interlayered with the sand, and sand and gravel layers throughout the Site. The till consisted of a silty sand/sandy silt matrix, with trace to some gravel and trace clay, to gravelly silty sand, trace clay. Cobbles and boulders were noted.
- Auger refusal was encountered across the site resulting in multiple attempts for several of the boreholes. Where encountered it was believed refusal was on boulders within the fill, till, sand and/or in the sand and gravel deposits, since the follow-up attempts typically did not encounter refusal at the same depth.

Pinchin (2014b) indicated that groundwater flow was northerly toward Midland Bay.

Groundwater elevations at that time ranged from 165.95 m to 179.17 m with an estimated horizontal hydraulic gradient of 0.0066. Hydraulic conductivity values measured using rising head conductivity tests ranged from  $7.9 \times 10^{-7}$  m/s to  $1.4 \times 10^{-6}$  m/s with a geometric mean of  $1.13 \times 10^{-6}$  m/s. Using an assumed porosity range of 20% to 25%, average groundwater flow velocity ranges from 0.98 m to 1.17 m/yr.

#### **4.3.10 Uncertainty or Absence of Information**

All aspects of the Phase One ESA were conducted consistent with O.Reg. 153/04, and as such, the Site was investigated thoroughly to the best of the assessor's abilities. As access to the entire Site was possible, and adequate historical information was available through the interviewee's and records review, uncertainty or absence of information is not expected. While the placement of historical on and off-site structures and PCAs based on FIPs may be of low



accuracy, investigations completed during the Phase Two ESA can account for this uncertainty with increased investigation and sample locations.

#### **4.4 Deviations from Sampling and Analysis Plan**

Sample IDs SS18-03 and SS18-04 were not used due to labelling errors. The intended scope was completed and accordingly, there was no deviation from the SAP.

#### **4.5 Impediments**

No physical impediments or denial of access was encountered during the Phase Two ESA.



## **5.0 Investigation Method**

### **5.1 General**

The following sections provide a description of the subsurface investigation conducted from May 5, 2018 to September 24, 2019. Soil and groundwater samples were analyzed for one or more of the COPCs: PHC F1-F4/BTEX, VOCs, PAHs, PCBs, and metals.

As previously referenced in Section 2.4, the applicable SCS for the evaluation of soil and groundwater quality at the Site is Table 9 (Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition). Residential property use and coarse grained soils were selected to determine concentration exceedances for the analyzed parameters.

### **5.2 Drilling and Excavating**

On June 26 and 27, August 13 and 14, November 12 to 14, December 5 to 7, 2018, and September 18 to 20, 2019, Cambium completed the drilling component of the subsurface investigation program. Under full-time supervision of Cambium personnel, drilling was completed by Strata Drilling Group (Strata), Walker Drilling Ltd. (Walker), or Profile Drilling Inc. (Profile), qualified and licensed well contractors in accordance with O.Reg. 903. On June 26 and 27, and November 12 to 14, 2018, Strata advanced 26 boreholes to a maximum depth of 8.5 mbgs, using a track-mounted Geoprobe 7822DT drill rig. On December 5 to 7, 2018, Walker advanced four boreholes to a maximum depth of 10.4 mbgs using a track-mounted D120 drill rig. On September 18 to 20, 2019, Profile advanced two boreholes to a maximum depth of 10.7 mbgs using a track-mounted Mobile B60 drilling rig. Fourteen of the boreholes were instrumented with groundwater monitoring wells (BH18-01, BH18-05 to BH18-07, BH18-11 to BH18-13, BH18-15 to BH18-19, BH19-01, and BH19-02).

On August 13 and 14, 2018, under full-time supervision of Cambium personnel, Jim Bertram & Sons Construction Inc. excavated 19 test pits to a maximum depth of 5.2 mbgs, using a Cat® 323F excavator.



The drilling and test pit locations were selected to assess APECs identified by the Phase One ESA and further assess the COPCs. Drilling and test pit locations are shown on Figure 9.

### 5.3 Soil: Sampling

During the drilling and test pit programs, soil samples were collected continuously. Each sample was handled solely by the Cambium field technician using dedicated nitrile gloves to reduce the potential for cross-contamination. No soil samples were collected during the advancement of BH19-01 and BH19-02.

Twenty surficial soil samples were collected on July 11, August 13 and 14, November 12, and December 6 and 7, 2018. Each sample was handled solely by the Cambium field technician using dedicated nitrile gloves to reduce the potential for cross-contamination.

Soil samples were logged for soil type, moisture content, presence of odour, and signs of impacts such as staining, consistent with standard geotechnical and environmental soil descriptions and nomenclature. A portion of each soil sample was placed in a dedicated polyethylene sample bag and field screened using an RKI Eagle 2 portable gas detector for concentrations of combustible soil vapour (CSV) and organic vapour (OV), calibrated to hexane and isobutylene, respectively. The field screening observations were used to determine which samples to submit for laboratory analysis.

Samples were collected consistent with the *Guidance on Sampling and Analytical Methods for use at Contaminated Sites in Ontario* (MOE, 1996) and O.Reg. 153/04. Samples to be submitted for analysis of VOCs and/or PHC F1 were collected using a pre-calibrated syringe sampler and methanol preserved vial.

### 5.4 Field Screening Measurements

Olfactory and visual observations of the soil samples were documented immediately upon extraction for soil characteristics and potential indicators of environmental contamination. The samples placed in plastic sample bags and sealed, were used to determine if any vapours were present in the soil headspace. Each sample was measured for concentrations of CSV and OV using an Eagle 2 portable gas detector, calibrated to hexane and isobutylene, respectively. After agitating the sample, the peak reading was recorded by inserting the meter



probe into the sample bag. Refer to the borehole logs in Appendix D for the recorded vapour readings.

## 5.5 Groundwater: Monitoring Well Installation

Monitoring wells were installed in fourteen of the boreholes advanced on June 26 and 27, November 12 and 13, December 6 and 7, 2018, and September 18 to 20, 2019. The monitoring wells were constructed using 50 mm inner diameter, flush threaded PVC well pipe with a 1.5 or 3.0 m section of screen at the base of the well. Pre-packed silica sand screens were installed in three boreholes (BH18-13, BH18-16, BH18-19) and washed silica sand filter pack was brought to 0.3 m above the top of the screens in eleven boreholes (BH18-01, BH18-05 to BH18-07, BH18-11, BH18-12, BH18-15, BH18-17, BH18-18, and BH19-01 and BH19-02). The wells were completed with bentonite (seal) to at least 0.3 mbgs. The monitoring wells were completed with monument style steel protective covers.

On July 12, 2018, 10 well volumes of groundwater was purged from six monitoring wells (BH18-01, BH18-05, BH18-06, BH18-07, BH18-11, and BH18-12) installed by Cambium in June 2018. On December 7 and 13, 2018, roughly 10 well volumes of groundwater, if available, was purged from an additional six monitoring wells (BH18-13, BH18-15, BH18-16, BH18-17, BH18-18, and BH18-19) installed by Cambium in November and December 2018. More than 750 L of groundwater was purged from monitoring well BH18-15 to account for 500 L of potable water introduced during drilling, in addition to 10 well volumes of groundwater purged to develop the well. On September 20 and 23, 2019, BH19-01 and BH19-02 were purged dry two times due to slow recharge.

The wells were developed to remove sediment from the wells, stabilize and grade the filter pack, improve connectivity between the well and the formation, and restore groundwater that may have been disturbed during the drilling process to ensure that groundwater samples are representative of true formation water.

Refer to the borehole logs in Appendix D for details regarding the monitoring well installation.



## 5.6 Groundwater: Field Measurement of Water Quality Parameters

Groundwater samples collected for analysis were field-tested for pH, temperature, conductivity, dissolved oxygen, and oxidation-reduction potential (ORP).

## 5.7 Groundwater: Sampling

As per O.Reg. 153/04, all groundwater sampling was conducted consistent with the regulation by or under the supervision of a QP.

Cambium staff completed groundwater sampling on the following dates:

- May 28 to 30, 2018 - 11 existing monitoring wells (BH101, BH102, BH103, BH105, BH107, BH111, BH113, BH114, BH117, BH120, and BH123) installed by Pinchin
- August 28, 2018 - six new monitoring wells (BH18-01, BH18-05, BH18-06, BH18-07, BH18-11, and BH18-12)
- December 13 and 14, 2018 - six monitoring wells (BH18-13, BH18-15, BH18-16, BH18-17, BH18-18, and BH18-19) and select existing wells installed by Pinchin
- January 16 and February 15, 2019 - re-sampling select new wells
- September 24, 2019 – two new monitoring wells (BH19-01 and BH19-02)

Prior to all sampling events, the depth to groundwater was measured at each of the monitoring wells using an interface probe, which can accurately measure the depth to groundwater and the thickness of non-aqueous phase liquids (DNAPL & LNAPL).

Prior to sampling on May 28 to 30, 2018, roughly 10 well volumes of groundwater, if available, was purged from 11 monitoring wells installed by Pinchin in 2014 (BH101, BH102, BH103, BH105, BH107, BH111, BH113, BH114, BH117, BH120, and BH123) to remove stagnant water and to ensure the samples are representative of true formation water.

Prior to sampling in August 2018, December 2018, January 2019, and February 2019, each monitoring well was purged of three well volumes or was purged dry one time, immediately prior to sample collection.



The volume of water to be purged from each well was calculated on-site during the monitoring events using the measured water levels and the well diameter.

Samples from each well were collected using either a low-flow peristaltic pump or an inertial foot valve, with dedicated tubing installed in each of the monitoring wells. The low-flow sampling methodology minimizes the velocity of the formation water entering the well screen and reduces the amount of sediment entrained in the collected groundwater samples, as the drawdown is kept to a minimum by adjusting the pumping rate accordingly. Groundwater samples requiring filtration were field filtered using an in-line filter attached to the end of the polyethylene tubing.

Technicians wore nitrile sample gloves while collecting the groundwater samples and replaced the glove set between each sample location. All samples requiring laboratory analysis were placed in a cooler and maintained at less than 10°C prior to and during transport to the laboratory. Laboratory analytical results are discussed in Section 6.0; laboratory Certificates of Analysis are included in Appendix E.

## **5.8 Sediment: Sampling**

The investigation of sediment was completed by Stantec (Stantec, 2014) and is summarized in Section 3.2.

## **5.9 Surface Water: Sampling**

The investigation of surface water was completed by Stantec (Stantec, 2014) and is discussed in Section 3.2.

## **5.10 Analytical Testing**

All samples submitted for chemical analysis were placed in a cooler and kept at less than 10°C for transport to Maxxam in Mississauga, Ontario.

Soil and groundwater samples, including duplicate samples, were submitted for analysis of one or more of the following parameters: PHCs/BTEX, VOCs, PAHs, PCBs, metals, EC, SAR, and pH. Additionally, trip blanks were submitted for analysis of VOCs.





The analysis results are discussed in Section 6.0. Copies of the laboratory Certificates of Analysis as received from Maxxam are included in Appendix E.

### **5.11 Residue Management Procedures**

Soil cuttings from the drilling program and purged groundwater were stored in steel drums on the Site.

### **5.12 Elevation Surveying**

On September 25, 2018 and January 16, 2019, Cambium surveyed the location and elevation of the new monitoring wells using a Topcon RTK enabled HiPer II GPS system with an FC-25 field controller. The monitoring wells were surveyed relative to the known elevation of an existing monitoring well. The surveyed elevations, along with groundwater measurements, were used to determine the direction of groundwater flow at the Site. A summary of the monitoring well elevation data is provided in Table 3.

### **5.13 Quality Assurance and Quality Control Measures**

As part of the QA/QC program, blind duplicate soil and groundwater samples were submitted in conjunction with the original sample for each sampling event for comparison purposes, at a minimum rate of one duplicate sample for every 10 samples submitted. Blind duplicate samples were collected at the same time as the original sample and placed into a separate container; split sampling methodology was used to ensure that the sampling was completed in exactly the same way for both original and duplicate samples. Refer to Section 6.10 for the results of the QA/QC program.

A trip blank was prepared by Maxxam and was submitted for analysis of VOCs with samples submitted on May 31, August 29, December 17, 2018, January 21, and February 19, 2019. A trip blank is a sample of laboratory grade water that has negligible or immeasurable amounts of the substance of interest, and is transported to and from the sampling location, and carried through the entire sampling and analytical process.



All equipment and tools used to obtain soil samples was cleaned with Alconox<sup>®</sup> and distilled water before the collection of each sample. Technicians wore dedicated nitrile gloves which were replaced between samples.

## 6.0 Review and Evaluation

### 6.1 Geology

The following soil profile was encountered, with increasing depth, during subsurface investigations completed from 2014 to 2017, and during the Phase Two ESA:

- A 0.6 to 8.5 m thick layer of fill was encountered across the Site. The fill consisted of:
  - A 0.3 m to 2 m thick layer of topsoil was present in the central and western parts of the Site. Quartzite aggregate was encountered at surface on the western portion of the Site to about 1.5 m below ground surface (mbgs).
  - Brown sand, sand and gravel or silty sand fill was encountered in all boreholes at surface or below the discontinuous topsoil or quartzite aggregate. Trace organics, wood pieces, brick pieces, and peat inclusions were noted in some areas. The fill was deepest toward the northern part of the Site along Midland Bay and typically ranged from 4 m to 5.5 mbgs with local areas as shallow as 2.1 mbgs and as deep as 8.5 mbgs. The fill was shallower toward Bayshore Drive ranging from 0.6 m to 4.0 mbgs.
  - A discontinuous woody (peat) layer was encountered beneath the fill generally in the central part of the Site. The fill/peat ranged in thickness from approximately 0.5 m to 3.2 m. Coal was encountered below ground surface in some locations in the central area of the Site.
- Silty clay was encountered predominantly in the western half of the Site below the fill. The unit extended to 2.1 to 8.0 mbgs. Locally in the eastern part of the Site, the layer extended to 9.3 mbgs.
- Brown to grey sand and gravel to sand was encountered in all the boreholes and test pits. Varying amounts of silt were present. The sand and gravel or sand was observed at varying depths across the Site to the full depths of the boreholes or test pits.



- A brown to grey silty sand to sandy silt was encountered below the sand and gravel unit. Varying amounts of gravel were present. This unit extended to the maximum sampling depth of the investigation (7.5 mbgs).
- PML (2017) noted that auger refusal was encountered across the site resulting in multiple attempts for several of the boreholes. During Cambium's subsurface investigations, refusal using direct-push was also encountered across the Site. It is likely that refusal was the result of boulders within the fill, till, sand and/or in the sand and gravel deposits, since follow-up attempts at nearby locations typically did not encounter refusal at the same depth.

Bedrock was not encountered during subsurface investigations. A review of water well records (MECP, 2018) indicated that limestone bedrock was encountered at about 30 mbgs in a well to the west of Midland Bay.

## 6.2 Groundwater: Elevations and Flow Direction

Water level data was collected from monitoring wells installed in 2013 by Pinchin and in 2018 and 2019 by Cambium. To evaluate groundwater-flow direction and hydrogeological characteristics, the monitoring wells were classified as shallow or deep based on installation depth of the well screen.

Shallow Wells: BH101, BH102, BH103, BH105, BH107, BH111, BH113, BH114, BH117, BH120, BH123, BH18-01, BH18-05, BH18-06, BH18-07, BH18-11, BH18-12, BH18-13, BH18-16, BH18-18

Deep Wells: BH18-15, BH18-17, BH18-19, BH19-01, and BH19-02

Water levels data was available for select wells for May 28, 2018, August 28, 2018, December 13, 2018, February 15, 2019, and September 23, 2019. Water level data is provided in Table 4. Minimum, maximum, and average water depth to the water table are summarized below.



	Shallow Wells	Deep Wells
Minimum (mbgs)	0.34	1.26
Maximum (mbgs)	4.41	4.32
Average (mbgs)	1.91	2.40

The water level (WL) data was used to calculate groundwater elevations. Elevation data is summarized below. Groundwater elevations (GWE) were calculated as follows.

$$GWE = \text{Top of Casing Elevation} - \text{WL Depth below Top of Casing}$$

### Summary of Groundwater Elevation Data

	Shallow	Deep
Highest (masl)	179.74	177.98
Lowest (masl)	176.54	176.81
Average (masl)	177.76	177.47

masl – metres above sea level

February 2019 elevation data was used to generate flow direction figures for shallow groundwater (Figure 7) and deep (Figure 8) groundwater. Groundwater flow direction in both the shallow and deeper wells was northerly toward Midland Bay.

Pinchin's (2014) similarly indicated that the shallow groundwater flow was northerly toward Midland Bay. Groundwater elevations at that time ranged from 175.95 m to 179.17 masl.

### 6.3 Groundwater: Hydraulic Gradients

Pinchin (2014) reported a horizontal hydraulic gradient of 0.0066 m/m. Hydraulic conductivity values measured using rising head conductivity tests ranged from  $7.9 \times 10^{-7}$  m/s to  $1.4 \times 10^{-6}$  m/s with a geometric mean of  $1.13 \times 10^{-6}$  m/s. Assuming a porosity range of 20% to 25%, Pinchin calculated an average groundwater flow velocity ranging from 0.98 m to 1.17 m per year.

The average hydraulic gradient for the shallow groundwater in August 2018 and February 2019 was 0.02 m/m on the west side of the Site and 0.01 m/m on the east side of the Site. The horizontal hydraulic gradient for the deeper groundwater in February 2019 was 0.01 m/m.



Vertical hydraulic gradients were assessed using the December 2018 and February 2019 water level data for clustered monitoring wells BH18-07/BH18-17, BH18-01/BH18-19, and BH18-11/BH18-15. The average vertical hydraulic gradient was 0.037 m/m at BH18-07/BH18-17, 0.311 m/m at BH18-01/BH18-19, and 0.207 m/m at BH18-11/BH18-15. The gradient was downward at all three well clusters.

Cambium conducted rising and falling head slug tests at four monitoring wells. The slug test results are summarized below. Assuming a porosity range of 20% to 25%, hydraulic gradient of 0.02, and a mean hydraulic conductivity of  $6.9 \times 10^{-6}$ , the average groundwater flow velocity ranges from 17 m to 22 m per year.

Well ID	Description	Hydraulic Conductivity K (m/s)
BH18-05	Screened in clay	$1.8 \times 10^{-6}$
BH18-07	Screened in silt and sand	$5.9 \times 10^{-6}$
BH18-12	Screened across silt and sand layers	$2.8 \times 10^{-6}$
BH113	Screened across silty sand, sand and gravel, and sandy clay layers	$7.7 \times 10^{-5}$
Geometric Mean		$6.9 \times 10^{-6}$

#### 6.4 Fine-Medium Soil Texture

Pinchin (2014) reported grain size results for three soil samples collected from 0.5 to 2.9 mbgs. The results indicated that two samples collected from native soils identified as sand and sandy clay, were medium/fine textured. A sample collected from the fill was coarse-textured.

Stantec (2014) reported grain size results for three soil samples. Stantec stated that grain size analysis and field observations indicated that the predominant soil type was coarse-textured sand and gravel.

PML (2017) reported grain size results for five soil samples collected from 2.3 to 7.9 mbgs. The results indicated that the silty clay layer encountered below the fill was medium/fine textured. Silty sand, sand, and sand and gravel layers encountered below the fill were coarse textured.

Overall, the grain size results indicated that more than one third of the soil at the Site, measured by volume, is coarse textured.



## 6.5 Soil: Field Screening

Soil samples were field screened for CSV and OV using an RKI Eagle 2. Refer to the detailed borehole logs in Appendix D for the field screening results. Field screening results were used to select samples for analysis of PHCs and VOCs.

## 6.6 Soil Quality

The submission and analysis of soil samples obtained during the subsurface investigation was discussed in Section 5.10. One or more samples from each borehole were submitted for analysis of BTEX, PHC F1-F4, VOCs, PAHs, PCBs, metals, EC, SAR, and pH. Soil analysis results are summarized in Table 6 (BTEX/PHCs), Table 7 (VOCs excluding BTEX), Table 8 (PAHs), Table 9 (Metals), Table 10 (Inorganics), and Table 11 (PCBs). Laboratory Certificates of Analysis are included in Appendix E.

### 6.6.1 Petroleum-Related Parameters

Cambium submitted 52 soil samples and nine duplicate samples, for analysis of BTEX and PHC F1-F4. Additionally, Cambium submitted 12 soil samples and one duplicate sample for analysis of only BTEX.

PHC impacts extend across a sizable portion of the Site and extend from 178.6 m south of the marine railway enclosure to 174.1 m on the northwest side of the Site and 173 m on the southeast side of the Site. The lateral distribution of PHC impacts is shown on Figure 11a. The vertical extent of PHCs impacts is shown on Figure 11b and Figure 11c.

BTEX impacts extend across the entire Site and extend to 172.8 m. The lateral distribution of BTEX impacts is shown on Figure 12a. The vertical extent of BTEX impacts is shown on Figure 12b and Figure 12c.

### 6.6.2 Volatile Organic Compounds (excluding BTEX)

Cambium submitted seven soil samples and three duplicate samples, for analysis of VOCs.

VOC impacts are localized to a small area on the southwest side of the Site and extend to 175 m. The lateral distribution of VOC impacts is shown on Figure 13a. The vertical extent of VOC impacts is shown on Figure 13b and Figure 13c.



Seventy-two samples collected from 2013 to 2018 have been submitted for analysis of VOCs. Acetone and n-hexane were reported at concentrations greater than the Table 9 SCS in four and five soil samples, respectively. The remaining soil samples contained concentrations of acetone and n-hexane less than the reportable detection limit (RDL). It is also noted that the exceedances were reported by one of two laboratories used for this project. As acetone and n-hexane are used by the laboratory and were not detected at nearby sampling locations, it was the QP's opinion that the acetone and n-hexane detected in the soil samples was introduced upon receipt of the samples at the laboratory and are not a contaminant of concern at the Site.

### **6.6.3 Polycyclic Aromatic Hydrocarbons**

Cambium submitted 30 soil samples and four duplicate samples for analysis of PAHs.

PAH impacts extend across a sizable portion of Areas 2, 3 and 4 and extend to 173 m along the north side of the Site and 174.5 m along the south side of the Site. The lateral distribution of PAH impacts is shown on Figure 14a. The vertical extent of PAH impacts is shown on Figure 14b and Figure 14c.

### **6.6.4 Metals**

Cambium submitted 27 soil samples and four duplicate samples for analysis of metals.

Metals impacts extend across a sizable portion of the Site and extend to 172.2 m on the northwest corner of the Site and 175.9 m along the south side of the Site. The lateral distribution of metals impacts is shown on Figure 15a. The vertical extent of metals impacts is shown on Figure 15b and Figure 15c.

### **6.6.5 Polychlorinated Biphenyls**

Cambium submitted one soil sample and one duplicate sample for analysis of PCBs. PCBs were not detected. The detection limit met the Table 9 SCS. PCB results are shown on Figure 16.





## **6.6.6 Electrical Conductivity and Sodium Absorption Ratio**

Cambium submitted 26 soil samples and four duplicate samples for analysis of EC and/or SAR.

EC exceeded the Table 9 SCS at select locations across the Site. It was the QP's opinion that the exceedances were due to the current and/or former use of salt for the purpose of traffic and pedestrian safety under conditions of snow/ice on the adjacent roadways. Accordingly, EC is not a COC.

EC and SAR results are not shown on a figure as they are not considered COCs.

## **6.6.7 pH**

Seventy-five soil samples were submitted for laboratory analysis by Pinchin (2014) and Stantec (2014) to assess soil pH at the Site. Except for one surface soil sample, soil pH results were within the allowable ranges for surface and sub-surface soil.

As discussed in Section 2.4, five additional soil samples collected by Cambium (2019) within 2 m of the original sample, including one sample collected at the original location and depth, were within the acceptable range for surface soil. Therefore, the single low pH sample result in the Stantec data was considered spurious and was removed from the dataset and the generic SCS were considered applicable.

## **6.7 Groundwater Quality**

The submission and analysis of groundwater samples obtained during the subsurface investigation was discussed in Section 5.10. One or more samples from each monitoring well were submitted for analysis of PHC F1-F4/BTEX, VOCs, PAHs, metals, chloride, sodium, and PCBs. Summaries of the groundwater analysis results are included in Table 12 (BTEX/PHCs), Table 13 (VOCs excluding BTEX), Table 14 (PAHs), Table 15 (Metals and Inorganics), and Table 16 (PCBs). Laboratory Certificates of Analysis are included in Appendix E.



### **6.7.1 Petroleum-Related Parameters**

Cambium submitted 15 groundwater samples and two duplicate samples for analysis of BTEX and PHC F1-F4. Additionally, Cambium submitted 16 groundwater samples and three duplicate samples for analysis of only BTEX.

The PHC impacts in groundwater are localized along the west side of the Site, extending laterally to the west property boundary and vertically to 170.6 m. The distribution of PHC impacts is shown in plan view on Figure 17a. The vertical extent of PHC impacts is shown on Figure 17b. The location of the PHC impacts suggests they are related to the historical presence of fuel storage USTs (APECs D, E, and F).

All groundwater samples analyzed for BTEX met the Table 9 SCS. BTEX results are shown on Figure 18.

### **6.7.2 Volatile Organic Compounds (excluding BTEX)**

Cambium submitted 13 groundwater samples and two duplicate samples for analysis of VOCs.

The VOC impacts in groundwater are localized within Area 1 and extend to 172.3 m. The lateral distribution of VOC impacts is shown on Figure 19a. The vertical extent of VOC impacts is shown on Figure 19b. The location of the VOC impacts suggests they are related to the historical Paint Shed (APEC H).

### **6.7.3 Polycyclic Aromatic Hydrocarbons**

Cambium submitted 13 groundwater samples and two duplicate samples for analysis of PAHs. All groundwater samples analyzed for PAHs met the Table 9 SCS. PAH results are shown on Figure 20.

### **6.7.4 Metals**

Cambium submitted 17 groundwater samples and three duplicate samples for analysis of metals. All groundwater samples analyzed for metals met the Table 9 SCS. Metals results are shown on Figure 21.

### **6.7.5 Polychlorinated Biphenyls**

Cambium submitted two groundwater samples and two duplicate samples for analysis of PCBs. All groundwater samples analyzed for PCBs met the Table 9 SCS. PCB results are shown on Figure 21.

### **6.7.6 Chloride and Sodium**

Cambium submitted 17 groundwater samples and three duplicate samples for analysis of chloride and/or sodium. All groundwater samples analyzed for chloride and sodium met the Table 9 SCS. Sodium and chloride results are not shown on a figure as they are not considered COCs.

## **6.8 Sediment Quality**

An investigation of sediment quality was completed by Stantec (Stantec, 2014). Ten samples and one duplicate sample were submitted for analysis of BTEX, PHC F1-F4, PAHs, and metals. Summaries of the sediment analysis results are included in Table 17 (BTEX/PHCs), Table 18 (PAHs), and Table 19 (Metals).

## **6.9 Surface Water Quality**

An investigation of surface water quality was completed by Stantec (Stantec, 2014). Five samples and one duplicate sample were submitted for analysis of one or more: BTEX, PHC F1-F4, PAHs, metals, calcium and/or magnesium. Summaries of the surface water analysis results are included in Table 20 (BTEX/PHCs), Table 21 (PAHs), and Table 22 (Metals and Inorganics).

## **6.10 Quality Assurance and Quality Control Results**

Twenty duplicate soil samples and seven duplicate groundwater samples were submitted for analysis.

Where analytical parameters were detected in both the parent and the duplicate samples at more than five times the detection limits, relative percent difference (RPD) was calculated to assess the precision of the analytical data. Based on acceptable RPDs for laboratory



duplicates (MOE, 2011) and to account for added sampling and handling variability, the results were evaluated compared to data quality objectives (DQOs) of 60% or less for soil and 40% or less for groundwater. RPD values were calculated as follows:

$$RPD(\%) = \frac{|x_1 - x_2|}{x_m} \times 100\%$$

Where:  $x_1$  = parent sample result

$x_2$  = duplicate sample result

$x_m$  = arithmetic mean of initial and duplicate sample results

### 6.10.1 Soil QA/QC

RPDs for soil met the DQO, with the following exceptions.

- BH18-06 (3.5-3.8 m)
  - Benzene – 113%
  - Toluene – 106%
  - Xylenes – 92%
- BH18-11 (4.6-5.2 m)
  - PHC F2 – 95%
- BH18-09 (3.0-3.5 m)
  - Barium – 79%
  - Cobalt – 93%
  - Copper – 112%
  - Lead – 164%
  - Nickel – 94%
  - Uranium – 68%
- BH18-17 (2.9-3.4 m)
  - Uranium – 65%
- TP18-15 (3.5 m)
  - Barium – 84%
  - Beryllium – 98%
  - Chromium – 71%
  - Cobalt – 140%
  - Copper – 83%
  - Nickel – 117%
  - Uranium – 116%
  - Vanadium – 74%
  - Zinc – 129%
  - SAR – 136%



The variances in RPD for the above soil samples are attributed to heterogeneity in the samples.

For the listed parameters in BH18-06 and BH18-11, the concentrations in both the parent sample and the duplicate exceed Table 9 SCS. However, the concentrations are considerably less than the maximum concentrations observed on the Site and accordingly, the elevated RPDs are not a concern.

For the listed parameters in BH18-09, with the exception of lead, and BH18-17, both the parent sample and the duplicate met the Table 9 SCS and accordingly, the elevated RPDs are not a concern. The concentration of lead exceeded the Table 9 SCS in the parent sample only; however, as the concentration is considerably less than the maximum concentration observed on the Site, the elevated RPD is not a concern.

Review of the Certificates of Analysis in the Pinchin and Stantec reports did not identify significant QC issues with the potential to affect the interpretation of the analytical data or the identification of soil COCs at the Phase Two Property.

### **6.10.2 Groundwater QA/QC**

RPDs for all groundwater QA/QC samples met the DQO.

A trip blank was submitted for analysis of VOCs with groundwater samples submitted on May 31, August 29, December 17, 2018, January 21, and February 19, 2019. The trip blanks were submitted as part of the QA/QC program to monitor whether VOCs may have been introduced into a sample during transport to and from the analytical laboratory. VOCs were not detected in in the trip blanks at typical laboratory RDLs.

Review of the Certificates of Analysis in the Pinchin and Stantec reports did not identify significant QC issues with the potential to affect the interpretation of the analytical data or the identification of groundwater COCs at the Phase Two Property.

### **6.10.3 Sediment and Surface Water QA/QC**

Review of the Certificates of Analysis in the Pinchin and Stantec reports did not identify significant QC issues with the potential to affect the interpretation of the analytical data or the identification of sediment or surface water COCs at the Phase Two Property.

### **6.10.4 QA/QC Summary**

Certificates of Analysis received for each sample submitted to Maxxam have been included in Appendix E. All laboratory Certificates of Analysis pursuant to clause 47 (2) (b) of O.Reg. 153/04, are in compliance with subsection 47(3) of the regulation.

Based on the results of the QA/QC program, the analytical results discussed herein can be interpreted with confidence.

## **6.11 Phase Two Conceptual Site Model**

As per Table 1 of Schedule E of O.Reg. 153/04, a Phase Two Conceptual Site Model (CSM) is required assist the qualified person(s) (QP) in illustrating the results of the Phase Two ESA, demonstrating the current condition of the Phase Two Property, or where remedial actions have been undertaken, the condition of the Phase Two Property before the remedial actions were undertaken. The following sections provide the requisite narrative that accompanies Figure 2 to Figure 24b.

### **6.11.1 APECs, PCAs, and Structures**

Cambium (2018) identified 25 PCAs, 15 on-site and 10 off-site, within the Phase One ESA study area. Cambium assessed the PCAs for their risk of contamination to the Site. This assessment resulted in 20 PCAs that contribute to areas of potential environmental concern (APECs). The PCAs, APECs, and subsurface utilities and structures on and around the Site are discussed in the following sections. PCAs and APECs are summarized in Table 1 and Table 2, respectively.



### 6.11.1.1 PCAs

The following on-site and off-site PCAs were identified by the Phase One ESA. Surrounding property use and off-site PCA locations are shown on Figure 4. On-site PCA locations are shown on Figure 5.

- PCA #1 On-site rail lines, spurs, and sidings (PCA #46 - Rail Yards, Tracks and Spurs).
- PCA #2 On-site storage of coal (Other PCA - Coal Storage).
- PCA #3 On-site transformer use – east portion of 288 Bayshore Drive (PCA #55 - Transformer Manufacturing, Processing and Use).
- PCA #4 On-site storage of gasoline in an underground storage tank (UST) to north of sawmill/joiner shop building (PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #5 On-site storage of fuel oil in USTs to the south of the sawmill/joiner shop building (PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #6 On-site storage of fuel oil in USTs to the east of the former furnace shop building (PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #7 On-site port activities related to off-loading of coal and Unimin aggregates (PCA #44 - Port Activities, including Operation and Maintenance of Wharves and Docks).
- PCA #8 On-site painting activities (PCA #39 - Paints Manufacturing, Processing and Bulk Storage).
- PCA #9 On-site machine shop activities (PCA #34 - Metal Fabrication).
- PCA #10 On-site furnace/smithing shop activities (PCA #33 - Metal Treatment, Coating, Plating and Finishing).
- PCA #11 On-site oil house (PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #12 Industrial activities at the Midland Boat Works to the west (PCA #7 - Boat Manufacturing).



- PCA #13 Industrial activities at the Midland Engine Works and Manton Foundry (machine shop) to the south (PCA #34 - Metal Fabrication).
- PCA #14 Importation of fill material of unknown quality to the Site (PCA #30 - Importation of Fill Material of Unknown Quality).
- PCA #15 On-site storage of PCBs – northeast corner of 420 Bayshore Drive (Area 1) (PCA #55 - Transformer Manufacturing, Processing and Use).
- PCA #16 Waste management activities at 200 Bay Street (PCA #58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners).
- PCA #17 Repair of marine vehicles at 171 Midland Avenue (PCA #27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles).
- PCA #18 Port activities at 171 Midland Avenue (PCA #44 - Port Activities, including Operation and Maintenance of Wharves and Docks).
- PCA #19 Storage of fuel in fixed tanks at 171 Midland Avenue (PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #20 Storage of fuel in fixed tanks at 475 Bay Street (PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #21 Operation of transportation systems at 475 Bay Street (PCA #52 - Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems).
- PCA #22 Fuel release at 202 King Street (Other PCA - Fuel Spill).
- PCA #23 Presence of contaminated sediment at Midland Public Harbour (PCA #44 - Port Activities, including Operation and Maintenance of Wharves and Docks).
- PCA #24 On-site transformer use – within and south of the main Unimin building (PCA #55 - Transformer Manufacturing, Processing and Use).





PCA #25 Operation of transportation systems and fuelling within the Marine Railway enclosure (PCA #52 - Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems).

#### 6.11.1.2 Areas of Potential Environmental Concern

The following APECs were identified at the Site. The APECs are shown on Figure 6.

**APEC A (PCA 46 - Rail Yards, Tracks and Spurs)** – Former rail sidings traversed the Site from east to west and the Grand Trunk Railway main line and spur lines were along the south side of the Site were identified as a concern. Soil and groundwater underlying the Site are potentially affected by the former rail sidings, main line, and spurs. COPCs are PHCs, PAHs, and metals.

**APEC B (Other PCA - Coal storage)** - Playfair Coal Dock formerly occupied the eastern portion of the Site (Area 2). Soil underlying Area 2 is potentially affected by the former coal storage. COPCs are PAHs and metals.

**APEC C (PCA 55 - Transformer Manufacturing, Processing and Use)** – A transformer house was along the east side of Area 2. Soil underlying the former transformer house is potentially affected by the former transformer use. COPCs are PCBs.

**APEC D (PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks)** – A gasoline UST was north of the sawmill/joiner shop building in Area 1. Soil and groundwater around and underlying the former UST are potentially affected by the storage and use of gasoline in the UST. COPCs are BTEX, PHCs, and metals.

**APEC E (PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks)** - Fuel oil USTs were south of the sawmill/joiner shop building in Area 1. Soil and groundwater around and underlying the former USTs are potentially affected by the storage and use of fuel oil in the USTs. COPCs are BTEX and PHCs.

**APEC F (PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks)** - Fuel oil USTs were east of the furnace shop building in Area 1. Soil and groundwater around and underlying the former USTs are potentially affected by the storage and use of fuel oil in the USTs. COPCs are BTEX and PHCs.



**APEC G (PCA 44 - Port Activities, including Operation and Maintenance of Wharves and Docks)** - On-site port activities related to off-loading of coal and Unimin aggregates. Surface water and sediment on the northwest and northeast corners of Area 1 and on the northeast corner of Area 2 are potentially affected by former port activities. COPCs are PHCs, PAHs, and metals.

**APEC H (PCA 39 - Paints Manufacturing, Processing and Bulk Storage)** – A paint shop was along the north side of Area 1. Soil and groundwater underlying the former shop are potentially affected by paint activities. COPCs are VOCs and metals.

**APEC I (PCA 34 - Metal Fabrication)** – A punch/machine shop was in the middle portion of Area 1. Soil and groundwater underlying the former shop are potentially affected by machining activities. COPCs are VOCs and metals.

**APEC J (PCA 33 - Metal Treatment, Coating, Plating and Finishing)** – A furnace shop was in the southwest corner of Area 1. Soil underlying the former shop is potentially affected by metal treatment activities. COPCs are metals.

**APEC K (PCA 7 - Boat Manufacturing; PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles)** - Midland Boat Works, a boat manufacturer was at 171 Midland Avenue and Central Marine, which repairs marine vehicles, is currently at 171 Midland Avenue. Groundwater underlying the west property boundary is potentially affected by former boat manufacturing and current marine vehicle repair activities west of the Site. COPCs are VOCs, PHCs, and metals.

**APEC L (PCA 34 - Metal Fabrication)** - Midland Engine Works and Manton Foundry, both machine shops, were at 174 Manly Street. Groundwater at the south property boundary is potentially affected by former machine shops south of the Site. COPCs are VOCs, PHCs, and metals.

**APEC M (PCA 55 - Transformer Manufacturing, Processing and Use)** - On-site storage of PCBs in northeast corner of Area 1. Soil underlying the former storage area is potentially affected by leaks or spills of PCBs from the storage containers. COPCs are PCBs.

**APEC N (PCA 30 - Importation of Fill Material of Unknown Quality)** - Importation of fill material of unknown quality to the Site. Previous environmental reports indicate that soil across



the Site is affected by the presence of fill material. Previous environmental reports indicate that groundwater across the Site is not affected by the presence of fill material. COPCs are PHCs, PAHs, metals, electrical conductivity, and SAR.

**APEC O (PCA 55 - Transformer Manufacturing, Processing and Use)** - On-site transformer use within and south of the main Unimin building. Soil underlying the former main Unimin building and south of the former building is potentially affected by the use of transformers. COPCs are PCBs.

**APEC P (PCA 44 - Port Activities, including Operation and Maintenance of Wharves and Docks)** - Port activities at 171 Midland Avenue. Surface water and sediment along the north side of the Site are potentially affected by port activities west of the Site. COPCs are PHCs, PAHs, and metals.

**APEC Q (PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks)** - Storage of fuel in fixed tanks at 171 Midland Avenue. Groundwater underlying the southwest property boundary is potentially affected by fuel stored and used in fixed tanks west of the Site. COPCs are BTEX, PHCs, and metals.

**APEC R (PCA 52 - Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems)** - Operation of transportation systems and fuelling within the Marine Railway enclosure. Soil and groundwater underlying the west side of the marine railway enclosure are potentially affected by storage, maintenance, and fueling of passenger boats, and the motor and pulley equipment used for the marine rail system. COPCs are BTEX, PHCs, and metals.

**APEC S (PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks)** – An oil house was on the west side of Area 1. Soil and groundwater underlying the former oil house are potentially affected by the storage and use of the oil. COPCs are PHCs.

#### 6.11.1.3 Subsurface Structures and Utilities

Underground utilities are present along the south property boundary, in the marine railway enclosure, and on the east side of the Site. The depth to these utilities is not known.



Underground utilities are also present south of the Site beneath Bayshore Drive. On-site underground utilities include:

- Buried electrical on the south property boundary and east property boundary for street lighting
- Buried electrical on the north side of the marine railway enclosure
- A buried storm sewer lateral line entering the southwest side of the Site

Additional buried utilities were historically present at the Site as disconnected electrical wires were observed on the west side of the Site. The depth to historical utilities is not known.

Contaminants from on- and off-site sources could potentially migrate along utility corridors given that the water table is within the depth typical of utility trenches.

#### 6.11.1.4 Proposed Structures

The Site will be redeveloped for mixed residential, commercial, and parkland use with low-rise and mid-rise commercial/residential condominium units. The conceptual future land use is shown on Figure 2.

Volatile COCs are present in soil and groundwater at the Site. These COCs may migrate to indoor air under the proposed redevelopment scenario.

### 6.11.2 Physical Setting

The following subsections describe the physical setting of the Phase Two Property.

#### 6.11.2.1 Stratigraphy

The Site is within the Simcoe Uplands physiographic region (Chapman & Putnam, 1984), characterized by sand plains with localized clay and till plains. In the general area, the overburden is coarse-textured lacustrine deposits of sand and gravel with minor silt and clay (OGS, 2010). The soils overlie Gull River formation limestone (OGS, 2007).

The following soil profile was encountered, with increasing depth, during subsurface investigations completed from 2014 to 2017, and during the Phase Two ESA:

- A 0.6 to 8.5 m thick layer of fill was encountered across the Site. The fill consisted of:

- A 0.3 m to 2 m thick layer of topsoil was present in the central and western parts of the Site. Quartzite aggregate was encountered at surface on the western portion of the Site to about 1.5 m below ground surface (mbgs).
- Brown sand, sand and gravel or silty sand fill was encountered in all boreholes at surface or below the discontinuous topsoil or quartzite aggregate. Trace organics, wood pieces, brick pieces, and peat inclusions were noted in some areas. The fill was deepest toward the northern part of the Site along Midland Bay and typically ranged from 4 m to 5.5 mbgs with local areas as shallow as 2.1 mbgs and as deep as 8.5 mbgs. The fill was shallower toward Bayshore Drive ranging from 0.6 m to 4.0 mbgs.
- A discontinuous woody (peat) layer was encountered beneath the fill generally in the central part of the Site. The fill/peat ranged in thickness from approximately 0.5 m to 3.2 m. Coal was encountered below ground surface in some locations in the middle area of the Site.
- Silty clay was encountered predominantly in the western half of the Site below the fill. The unit extended to 2.1 to 8.0 mbgs. Locally in the eastern part of the Site, the layer extended to 9.3 mbgs.
- Brown to grey sand and gravel to sand was encountered in all the boreholes and test pits. Varying amounts of silt were present. The sand and gravel or sand was observed at varying depths across the Site to the full depths of the boreholes or test pits.
- A brown to grey silty sand to sandy silt was encountered below the sand and gravel unit. Varying amounts of gravel were present. This unit extended to the maximum sampling depth of the investigation (7.5 mbgs).
- A geotechnical investigation (PML, 2017) noted that auger refusal was encountered across the site resulting in multiple attempts for several of the boreholes. During Cambium's subsurface investigations, refusal using direct-push drilling was also encountered across the Site. It is likely that refusal was the result of boulders within the fill, till, sand and/or in the sand and gravel deposits, since follow-up attempts at nearby locations typically did not encounter refusal at the same depth.



Bedrock was not encountered during subsurface investigations. A review of Ministry water well records (MECP, 2018) indicated that limestone bedrock was encountered at about 30 mbgs in a well to the west of Midland Bay.

### 6.11.2.2 Hydrogeology

#### 6.11.2.2.1 Groundwater Elevations and Flow Direction

Water level data was collected from monitoring wells installed in 2013 by Pinchin and in 2018 and 2019 by Cambium. To evaluate groundwater-flow direction and hydrogeological characteristics, the monitoring wells were classified as shallow or deep based on installation depth of the well screen.

**Shallow Wells:** BH101, BH102, BH103, BH105, BH107, BH111, BH113, BH114, BH117, BH120, BH123, BH18-01, BH18-05, BH18-06, BH18-07, BH18-11, BH18-12, BH18-13, BH18-16, BH18-18

**Deep Wells:** BH18-15, BH18-17, BH18-19, BH19-01, BH19-02

Water level data was available for select wells for May 28, 2018, August 28, 2018, December 13, 2018, February 15, 2019, and September 23, 2019. Minimum, maximum, and average water depth to the water table are summarized below.

	Shallow Wells	Deep Wells
<b>Minimum (mbgs)</b>	0.34	1.26
<b>Maximum (mbgs)</b>	4.41	4.32
<b>Average (mbgs)</b>	1.91	2.40

The water level (WL) data was used to calculate groundwater elevations. Elevation data is summarized below. Groundwater elevations (GWE) were calculated as follows.

$$GWE = \text{Top of Casing Elevation} - \text{WL Depth below Top of Casing}$$

#### Summary of Groundwater Elevation Data

	Shallow	Deep
<b>Highest (masl)</b>	179.74	177.98
<b>Lowest (masl)</b>	176.54	176.81



	<b>Shallow</b>	<b>Deep</b>
<b>Highest (masl)</b>	179.74	177.98
<b>Average (masl)</b>	177.76	177.47

masl – metres above sea level

February 2019 elevation data was used to generate flow direction figures for shallow (Figure 7) and deep (Figure 8) groundwater. Groundwater flow direction in both the shallow and deeper wells was northerly toward Midland Bay.

Pinchin (2014) similarly indicated that the shallow groundwater flow was northerly toward Midland Bay. Shallow groundwater elevations at that time ranged from 175.95 m to 179.17 masl.

The generally shallow depth to groundwater, coarse soil texture, and the proximity to Midland Bay suggests that the current and historical presence of buried utilities would have limited effect on groundwater flow conditions and contaminant migration at the Site. It is unlikely that utility trenches provided a preferential pathway as trench fill likely had a similar hydraulic conductivity as on-site fill material, which is present across the Site.

It is considered unlikely that climatic or meteorological fluctuations have significantly influenced direction or contaminant distribution. The main influence on both is considered proximity to Midland Bay.

#### 6.11.2.2.2 Soil Texture

Pinchin (2014) reported grain size results for three soil samples collected from 0.5 to 2.9 mbgs. The results indicated that two samples collected from native soils identified as sand and sandy clay, were medium/fine textured. A sample collected from the fill was coarse-textured.

Stantec (2014) reported grain size results for three soil samples. Stantec stated that grain size analysis and field observations indicated that the predominant soil type was coarse-textured sand and gravel.

PML (2017) reported grain size results for five soil samples collected from 2.3 to 7.9 mbgs. The results indicated that the silty clay layer encountered below the fill was medium/fine



textured. Silty sand, sand, and sand and gravel layers encountered below the fill were coarse textured.

Overall, the grain size results indicated that more than one third of the soil at the Site, measured by volume, is coarse textured.

#### 6.11.2.2.3 Lateral and Vertical Hydraulic Gradients

Pinchin (2014) reported a horizontal hydraulic gradient of 0.0066 m/m. Hydraulic conductivity values measured using rising head conductivity tests ranged from  $7.9 \times 10^{-7}$  m/s to  $1.4 \times 10^{-6}$  m/s with a geometric mean of  $1.13 \times 10^{-6}$  m/s. Assuming a porosity range of 20% to 25%, Pinchin calculated an average groundwater flow velocity ranging from 0.98 m to 1.17 m per year.

The average hydraulic gradient for the shallow groundwater in August 2018 and February 2019 was 0.02 m/m on the west side of the Site and 0.01 m/m on the east side of the Site. The horizontal hydraulic gradient for the deeper groundwater in February 2019 was 0.01 m/m.

Vertical hydraulic gradients were assessed using the December 2018 and February 2019 water level data for clustered monitoring wells BH18-07/BH18-17, BH18-01/BH18-19, and BH18-11/BH18-15. The average vertical hydraulic gradient was 0.037 m/m at BH18-07/BH18-17, 0.311 m/m at BH18-01/BH18-19, and 0.207 m/m at BH18-11/BH18-15. The gradient was downward at all three well clusters.

Cambium conducted rising and falling head slug tests at four monitoring wells. The slug test results are summarized below. Assuming a porosity range of 20% to 25%, hydraulic gradient of 0.02, and a mean hydraulic conductivity of  $6.9 \times 10^{-6}$ , the average groundwater flow velocity ranges from 17 m to 22 m per year.





Well ID	Description	Hydraulic Conductivity K (m/s)
BH18-05	Screened in clay	$1.8 \times 10^{-6}$
BH18-07	Screened in silt and sand	$5.9 \times 10^{-6}$
BH18-12	Screened across silt and sand layers	$2.8 \times 10^{-6}$
BH113	Screened across silty sand, sand and gravel, and sandy clay layers	$7.7 \times 10^{-5}$
Geometric Mean		$6.9 \times 10^{-6}$

### 6.11.3 Applicable Site Condition Standards

O.Reg. 153/04, Records of Site Condition – Part XV.1 under the *Environmental Protection Act* specifies acceptable limits of contaminants in soil, groundwater, and sediment in the *Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act* (MOECC, 2011). These standards are presented in tables (Tables 1 to 9) defined by groundwater use (potable or non-potable) and type of remediation (full depth or stratified). Each table presents chemical-specific site condition standards (SCS) based on property use (agricultural, residential/parkland/ institutional, or industrial/community/ commercial), grain-texture (medium/fine-textured or coarse-textured).

Selection of the applicable SCS considered the following site-specific characteristics:

- Current and intended property use
- Soil characteristics
- Environmental sensitivity, including:
  - Soil pH
  - Proximity to areas of natural significance
- Proximity to water bodies
- Groundwater use

#### Intended Property-Use

The proposed future use of the Site is mixed commercial/residential and parkland. Therefore, the applicable land use category was residential/parkland/institutional (RPI).

## **Soil Characteristics**

Investigations completed at the Site have identified a complex overburden stratigraphic profile that includes fill (crushed rock, and silty sand and sand with variable gravel content, and cobble and boulders), discontinuous localized peat and organic silt layers, clay, till (sand and sand and gravel), sand, and sand and gravel.

Based on grain size distribution testing completed by Pinchin (2014), Stantec (2014), and PML (2017) coarse-textured soil was considered applicable since the unconfined aquifer at the Site is present within both the fine and coarse-textured soil.

## **Environmentally Sensitive Areas**

The O.Reg.153/04 generic SCS cannot be used at properties that are within, include, or are proximate (i.e., within 30 m) to an area of natural significance, when soil pH is not within the allowable ranges for surface (5 to 9) and/or sub-surface soils (5 to 11), or if a Qualified Person (QP) is of the opinion that it is appropriate to apply Section 41 of the regulation.

### Areas of Natural and Scientific Interest

Based on a site sensitivity search completed as per the requirements of Section 41 of O.Reg.153/04, no areas of natural significance as defined by the regulation, were identified on or within 30 m of the Site. Therefore, the Site was not considered an environmentally sensitive area and the generic SCS were applicable.

### Soil pH

Seventy-five soil samples were submitted for laboratory analysis by Pinchin (2014) and Stantec (2014) to assess soil pH at the Site. Except for one surface soil sample, soil pH results were within the allowable ranges for surface and sub-surface soil. Five additional soil samples collected by Cambium (2019) within 2 m of the original sample, including one sample collected at the original location and depth, were within the acceptable range for surface soil. Therefore, the single low pH sample result in the Stantec data was considered spurious and was removed from the dataset. Therefore, the generic SCS were considered applicable.

### Qualified Person Opinion

Geologic and hydrogeological parameters that influence the derivation of the O.Reg.153/04 generic SCS were compared to site-specific data and the generic values used in the derivation



of the SCS. The site-specific parameters were consistent with the defaults; therefore, it was the QP's opinion that the generic SCS were applicable.

### **Proximity of Water Bodies and Shallow Bedrock**

SCS are defined for properties that are within 30 m of a water body or at which bedrock is less than 2 mbgs.

The Site extends into Midland Bay to the north and is therefore considered within 30 m of a water body. The generic SCS established for properties within 30 m of a water body (i.e., Tables 8 or 9) were considered applicable for the Site.

Subsurface investigations completed at the Site by PML (2017) and Cambium did not encounter bedrock to a maximum depth of about 22 mbgs. Pinchin (2014) indicated that bedrock was encountered at depths ranging from 2.9 to 7.5 mbgs; however, Stantec (2014) speculated that the inferred bedrock reported by Pinchin was refusal on boulders or cobbles. Cambium concurs with this opinion; therefore, the generic SCS established for properties with shallow soil (i.e., Tables 6 and 7) were not applicable.

### **Shallow Groundwater and Groundwater Use**

Groundwater levels measured by Cambium in 2018 and 2019 ranged from 0.34 to 4.41 mbgs. Generally, the depth to groundwater is less than 2 mbgs except for the west side of the Site and close to the south property line on the eastern side of the Site.

For groundwater at a property to be considered non-potable, all properties within 250 m of the property must be supplied by a municipal drinking water system that does not obtain its water from a groundwater source.

The Town of Midland obtains drinking water from a series of 10 operational groundwater wells. The nearest to the Site is Well #17, which is about 1,200 m west of the Site, west of Midland Bay. This well, along with five others, is within the Vinden Flume well field, which is under the direct influence of surface water sources (Midland, 2017).

Cambium contracted ERIS to provide a database report for the Phase One study area (ERIS, 2018). The ERIS report did not identify drinking water wells on or within 250 m of the Site.



A review of the mapping provided by the Source Protection Information Atlas (MOECC, 2018) indicated the Site is within an area categorized as Highly Vulnerable Aquifer (score 6) and Significant Groundwater Recharge Area (score 6). In addition, land at the northwest corner of the Site is within an area mapped as Wellhead Protection Area D (score 4), which represents a 25 year travel time for groundwater migration to a well.

The Town of Midland and the County of Simcoe were notified by letters dated June 15, 2018 of the intention to apply non-potable groundwater standards at the Site. Neither the Town nor the County responded with an objection within 30 days; therefore, in accordance with Section 35(3)(e), non-potable SCS are considered acceptable to both. These letters were resent on March 20, 2019.

#### **Applicable Generic Site Condition Standards**

Based on the foregoing, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition, were considered appropriate for use at the Site.

Shallow groundwater is present on the Site; therefore, the Table 7 GW2 criteria were considered to identify volatile COCs.

#### **6.11.4 Soil Quality**

Soil analysis results are discussed by APEC and relative to elevation in masl. Analysis results and extent of impacts, if required, are shown on the figures listed below.

- Figure 11a Soil Results – PHCs
- Figure 11b Cross-Sections A-A' and B-B' Cross-Gradient PHCs in Soil
- Figure 11c Cross-Sections C-C' to G-G' Along-Gradient PHCs in Soil
- Figure 12a Soil Results – BTEX
- Figure 12b Cross-Sections A-A' and B-B' Cross-Gradient BTEX in Soil
- Figure 12c Cross-Sections C-C' to G-G' Along-Gradient BTEX in Soil
- Figure 13a Soil Results – VOCs
- Figure 13b Cross-Sections A-A' and B-B' Cross-Gradient VOCs in Soil
- Figure 13c Cross-Sections C-C' to G-G' Along-Gradient VOCs in Soil
- Figure 14a Soil Results – PAHs



- Figure 14b Cross-Sections A-A' and B-B' Cross-Gradient PAHs in Soil
- Figure 14c Cross-Sections C-C' to G-G' Along-Gradient PAHs in Soil
- Figure 15a Soil Results – Metals
- Figure 15b Cross-Sections A-A' and B-B' Cross-Gradient Metals in Soil
- Figure 15c Cross-Sections C-C' to G-G' Along-Gradient Metals in Soil
- Figure 16 Soil Results – PCBs

#### 6.11.4.1 APEC A – Former on-site rail line, spurs, and sidings

Numerous samples were collected from locations across the Site to assess soil quality for PHCs, VOCs, PAHs, and metals. The identified impacts in soil are delineated both laterally and vertically.

PHC impacts extend across a sizable portion of the Site and extend from 178.6 m south of the marine railway enclosure to 174.1 m on the northwest side of the Site and 173 m on the southeast side of the Site.

BTEX impacts cover the entire Site and extend to 172.8 m.

VOC impacts, excluding BTEX, are localized to a small area on the west portion of the Site and extend to 175 m.

PAH impacts extend across a sizable portion of Areas 2, 3 and 4 and extend to 177.1 m on the northwest corner of the Site and 174.5 m along the south side of the Site.

Metals impacts extend across a sizable portion of the Site and extend to 172.2 m on the northwest corner of the Site and 175.9 m along the south side of the Site.

#### 6.11.4.2 APEC B – Former on-site coal storage

Numerous samples were collected from locations across Area 2 to assess soil quality for PAHs and metals.

The PAH and metals impact in soil are delineated both laterally and vertically. Laterally, the PAH impacts extend across a sizable portion of Areas 2 and extend beyond, both to the east and west. In Area 2, the PAH impacts extend to 173 m along the north side of the Site and 174.5 m along the south side of the Site.



The metal impacts extend across the northeast and southwest portions of Area 2 and extend east and west.

#### 6.11.4.3 APECs C, M, O – Former on-site transformers/PCBs storage

Nineteen soil samples were collected to assess soil quality for PCBs. PCBs were not detected at concentrations greater than the reported detection limit (RDL), which was less than the Table 9 SCS.

#### 6.11.4.4 APEC D – Former on-site gasoline UST

BH18-07 and BH18-17 were advanced within the area of the former gasoline UST to assess soil quality for BTEX, PHCs, and metals.

The BTEX, PHC, and metals impacts in soil are delineated laterally and vertically. Laterally, BTEX, PHC, and metals impacts extend beyond APEC D and across significant portions of the Site. Within APEC D, PHC impacts extend to 175.9 m, and BTEX and metal impacts extend to 173 m.

#### 6.11.4.5 APECs E & F – Former on-site fuel oil USTs

BH18-01, BH18-05, BH18-19, and BH18-21 were advanced within the areas of the former fuel oil USTs to assess soil quality for BTEX and PHCs.

BTEX and PHC impacts in soil are delineated laterally and vertically. Laterally, BTEX and PHC impacts extend beyond APECs E and F. PHC impacts extend across a sizable portion of the Site and BTEX impacts extend across the entire Site. Vertically, BTEX and PHC impacts extend to 173.2 m and 175.9 m, respectively, within APECs E and F.

#### 6.11.4.6 APEC G – Former on-site port activities

The Phase One CSM did not identify the potential for soil impacts related to former port activities along the north side of the Site.



#### 6.11.4.7 APEC H – Former on-site paint shop

BH18-11, BH18-15 and S2 were advanced within the area of the former paint shop to assess soil quality for VOCs and/or metals. VOC impacts (TCE) are localized to a small area on the southwest side of the Site and extend to 175 m. Metals met the Table 9 SCS at S2.

#### 6.11.4.8 APEC I – Former on-site punch/machine shop

TP05, BH18-04, BH103 and BH107 were advanced within the footprint of the former punch/machine shop to assess soil quality for VOCs and metals. VOCs and metals met the Table 9 SCS in soil samples collected at these sample locations.

#### 6.11.4.9 APEC J – Former on-site furnace shop

TP6 and BH14-04 were advanced within the area of the former furnace shop to assess soil quality for metals. Metals met the Table 9 SCS in soil samples collected at these sample locations.

#### 6.11.4.10 APEC K – Former boat manufacturing/Current marine repairs to the west

The Phase One CSM did not identify the potential for soil impacts related to historical boat manufacturing or current marine vehicle repair activities immediately west of the Site at 171 Midland Avenue.

#### 6.11.4.11 APEC L – Former machine shops to the south

The Phase One CSM did not identify the potential for soil impacts related to former machine shops at 174 Manly Street.

#### 6.11.4.12 APEC N – On-site fill of unknown quality

Numerous samples were collected from locations across the Site to assess soil quality for PHCs, PAHs, and metals and inorganics. PHC, PAH, and metals impacts in soil are delineated laterally and vertically.

The PHC impacts extend across a sizable portion of the Site and extend from 178.6 m south of the marine railway enclosure to 174.1 m on the north side of the Site and 173 m on the south side of the Site.



The PAH impacts extend across a sizable portion of Areas 2, 3 and 4 of the Site and extend to a 177.1 m at the northwest corner of the Site and 174.5 m along the south side of the Site.

The metals impacts extend across a sizable portion of the Site and extend to 172.7 m on the northwest corner of the Site and 175.9 m along the south side of the Site.

#### 6.11.4.13 APEC P – Port activities to the west

The Phase One CSM did not identify the potential for soil impacts related to port activities immediately west of the Site at 171 Midland Avenue.

#### 6.11.4.14 APEC Q – Fuel storage to the west

The Phase One CSM did not identify the potential for soil impacts related to storage of fuel in fixed tanks (aboveground storage tanks with secondary containment) to the west of the Site at 171 Midland Avenue.

#### 6.11.4.15 APEC R – Marine railway enclosure

Numerous samples were collected from the west side of Area 3 to assess soil quality for BTEX, PHCs, and metals. The BTEX, PHC, and metals impacts in soil are delineated laterally and vertically.

Four soil samples were submitted for analysis of PHCs to assess soil quality within APEC R. All samples met the Table 9 SCS.

Seven soil samples were submitted for analysis of BTEX to assess soil quality within APEC R. The concentrations of BTEX in two surface soil samples exceeded the Table 9 SCS. BTEX impacts extend across the entire Site. Vertically, BTEX impacts extend to 174.1 m within APEC R.

Eleven soil samples were submitted for analysis of metals to assess soil quality within APEC R. Metals concentrations in four soil samples exceeded the Table 9 SCS. The metal impacts extend across APEC R and to the east and west to include a substantial portion of the Site. Vertically, metals impacts extend to within APEC R.





#### 6.11.4.16 APEC S – Former on-site oil house

BH18-06 was advanced within the footprint of the former oil house to assess soil quality for BTEX, PHCs and metals. Two soil samples were submitted for analysis of BTEX, PHCs and one soil sample was submitted for analysis of metals to assess soil quality within APEC S.

BTEX and PHC impacts extend across APEC S and to the east and west to include a sizable portion of the Site. Vertically, BTEX and PHC impacts extend to 176.4 m within APEC S.

Metals impacts extend across APEC S and to the east and west to include a sizable portion of the Site. Vertically, metals impacts extend to 177.5 m within APEC S.

### 6.11.5 Groundwater Quality

Groundwater results are discussed by APEC. Groundwater samples analyzed for BTEX, PAHs, metals, and PCBs met the Table 9 SCS and are not discussed further. Samples analyzed for BTEX, PAHs, metals, and PCBs were collected at locations and depths considered appropriate to assess the APECs. Analysis results and extent of impacts, if required, are shown on the figures listed below.

- Figure 17a Groundwater Results – PHCs
- Figure 17b Cross-Sections PHCs in Groundwater
- Figure 18 Groundwater Results – BTEX
- Figure 19a Groundwater Results – VOCs
- Figure 19b Cross-Sections VOCs in Groundwater
- Figure 20 Groundwater Results – PAHs
- Figure 21 Groundwater Results – Metals
- Figure 22 Groundwater Results – PCBs

#### 6.11.5.1 APEC A – Former on-site rail line, spurs, and sidings

Numerous samples were collected from locations across the Site to assess groundwater quality for PHCs, VOCs, PAHs, and metals.

The PHC and VOC impacts in groundwater are delineated laterally and vertically within APEC A.



The PHC impacts in groundwater are localized along the west side of the Site, extending laterally to the west property boundary and vertically to 170.6 m. The location of the PHC impacts suggests they are more likely related to the historical presence of fuel storage USTs (APECs D, E, and F).

The VOC impacts in groundwater are localized within Area 1 and extend to 172.3 m. The location of the VOC impacts suggests they are more likely related to the historical Paint Shed (APEC H).

#### 6.11.5.2 APEC B – Former on-site coal storage

The Phase One CSM did not identify the potential for groundwater impacts related to former on-site coal storage. While PAHs and metals impact potentially related to coal storage were present in soil within APEC B, groundwater samples from wells within APEC B met the Table 9 SCS for PAHs and metals.

#### 6.11.5.3 APECs C, M, O – Former on-site transformers/PCB storage

The Phase One CSM did not identify the potential for groundwater impacts related to former on-site transformers or PCBs storage. This opinion is validated by the absence of PCB impacts at all soil sample locations within these APECs and by groundwater PCB results at three sample locations.

#### 6.11.5.4 APEC D – Former on-site gasoline UST

BH18-07, BH18-17, and BH19-02 were advanced within the area of the former gasoline UST to assess groundwater quality for BTEX, PHCs, and metals.

PHC concentrations exceeded the Table 9 SCS.

Laterally, PHC impacts extend beyond APEC D. Vertically, PHC impacts extend to 172 m.

#### 6.11.5.5 APECs E & F – Former on-site fuel oil USTs

BH18-01, BH18-05, BH18-19, and BH19-01 were advanced within the areas of the former fuel oil USTs to assess groundwater quality for BTEX and PHCs.

PHC concentrations met the Table 9 SCS within APEC E.



#### 6.11.5.6 APEC G – Former on-site port activities

The Phase One CSM did not identify the potential for groundwater impacts related to the former on-site port activities.

#### 6.11.5.7 APEC H – Former on-site paint shop

BH18-11 and BH18-15 were advanced within the area of the former paint shop to assess groundwater quality for VOCs and metals.

VOC impacts in groundwater are localized to the area of the former on-site paint shop and extend vertically to 172.3 m.

#### 6.11.5.8 APEC I – Former on-site punch/machine shop

BH103 and BH107 were advanced within the area of the former punch/machine shop to assess groundwater quality for VOCs and metals.

VOC met the Table 9 SCS within APEC I.

#### 6.11.5.9 APEC J – Former on-site furnace shop

The Phase One CSM did not identify the potential for groundwater impacts related to the former on-site furnace shop.

#### 6.11.5.10 APEC K – Former boat manufacturing/Current marine repairs to the west

BH18-01, BH18-19, and BH102 were advanced within APEC K to assess groundwater quality for BTEX, PHCs, VOCs, and metals.

BTEX, PHCs, VOCs, and metals met the Table 9 SCS within APEC K.

#### 6.11.5.11 APEC L – Former machine shops to the south

BH101 and BH18-05 were advanced along the south side of the Site to assess groundwater quality for PHCs, VOCs, and metals.

PHCs, VOCs, and metals met the Table 9 SCS within APEC L.



#### 6.11.5.12 APEC N – On-site fill of unknown quality

Various sample locations across the Site were assessed for COCs indicative of impacts related to fill materials (e.g., PHCs, PAHs, and metals). PAHs and metals met the Table 9 SCS at all locations. While PHCs exceeded the Table 9 SCS at locations along the west side of the Site, it is considered likely that these impacts are related to the historical presence of fuel storage tanks on the Site. Further, while metals and PAHs were present in soil at concentrations exceeding the applicable SCS across the Site, neither exceeded the Table 9 SCS in groundwater indicating that soil leaching to groundwater is not a pathway of concern.

#### 6.11.5.13 APEC P – Port activities to the west

The Phase One CSM did not identify the potential for groundwater impacts related to the port activities to the west.

#### 6.11.5.14 APEC Q – Fuel storage to the west

BH18-01, BH18-19, and BH102 were advanced along the west side of the Site to assess groundwater quality for BTEX, PHCs, and metals.

While PHCs were present in groundwater at concentrations exceeding the Table 9 SCS along the west side of the Site, these impacts are more likely related to the former on-site storage of fuels in USTs rather than storage in ASTs with secondary containment on the adjacent property.

#### 6.11.5.15 APEC R – Marine railway enclosure

BH113 and BH114 were advanced along the west side of Area 3 to assess groundwater quality for BTEX, PHCs and metals.

PHC concentrations met the Table 9 SCS within APEC S.

#### 6.11.5.16 APEC S – Former on-site oil house

BH18-06 was advanced within the area of the former oil house to assess groundwater quality for BTEX, PHCs, and metals.

PHC concentrations met the Table 9 SCS within APEC S.

### 6.11.6 Sediment Quality

Stantec (2014) conducted a sediment and benthic invertebrate sampling program along the south shore of Midland Bay adjacent to the Site. The program was designed to characterize the benthic invertebrate community and use the data to characterize sediment quality. Benthic macroinvertebrate samples were collected along four transects oriented perpendicular to the shoreline.

T1 – at the marine railway enclosure

T2 – 360 m east of the marine railway enclosure, near a breakwater structure

T3 – 240 m east of the breakwater, near the Midland Bay Landing Park water access (Area 4)

TR – reference transect 275 m east of the park

Benthic sample collection was attempted 10 m from shore, 20 m from shore and 30 m from shore along each transect. Transects TR, T3 and T1, had very coarse substrates in the nearshore area, preventing the collection of benthic samples at 10 m from shore.

Stantec concluded the benthic communities along the Midland Bay shoreline were indicative of long-term impacts from a variety of sources, including nearby, historical industrial practices and invasive aquatic species. An analysis of the benthic community data suggested that water quality for all stations was impaired and there was evidence of eutrophication. With respect to benthic community:

- Transect T1 had the greatest diversity and the highest proportion and number of pollution-sensitive taxa, suggesting it was the least impacted transect in the survey. The benthic communities at transect T1 and the reference transect were similar. The data indicated there was evidence of pollution stress at transect T1 and the reference transect.
- Transect T2 had the highest total organic carbon (TOC) and coarsest substrate primarily because of the coal within the sediment. This station also had the fewest pollution sensitive organisms and was dominated by the most pollution-tolerant taxa.

The invasive Zebra and Quagga mussels were present in appreciable numbers at all transects, and were the predominant organisms at transect T3. Parameters that exceeded the sediment standards are shown on Figure 6 in Appendix F.



Sediment samples were collected at nine locations to assess sediment quality for BTEX, PHCs, PAHs, and metals. Numerous PAHs were present in sediment at concentrations greater than the O.Reg. 153/04 sediment standards. Parameters that exceeded the sediment standards are shown on Figure 6 in Appendix F.

### **6.11.7 Surface Water Quality**

Surface water was potentially impacted by port activities west of the Site at 171 Midland Avenue (APEC P) and former on-site port activities (APEC T). Stantec (2014) completed an assessment of surface water.

Samples were collected from three near shore locations to assess surface water quality for BTEX, PHCs, PAHs, and metals. Concentrations of copper (in a duplicate sample only) and zinc exceeded the PWQO in two near shore surface water samples, TS3-1 and TS1-1, respectively. Zinc was not detected in a second sample collected at TS1-1 and copper was not detected in the parent sample at TS3-1. Contaminant concentrations exceeding the Provincial Water Quality Objectives (PWQO) are shown on Figure 7 in Appendix F.

## **6.12 Human Health and Ecological CSM**

Based on the site characterization, contaminants of concern exceeding the applicable Table 9 and 7 SCS were identified in soil and groundwater, respectively. There are multiple sources identified for both the soil and groundwater impacts.

Based on a review of site characteristics (e.g., soil profile, depth to groundwater, contaminant type and distribution, etc.), Cambium identified potential exposure pathways and receptors for human health and ecological receptors. These exposure pathways and receptors are discussed in the following sections.

### **6.12.1 Human Health Exposure Model**

The human health CSM describes the potential exposure pathways that are likely to be present for various human receptors at the Site. The human health CSM provides a basis for examining potential health risks in a human health risk assessment. The human health CSMs,

without and with risk management measures (RMMs), are presented as Figure 23a and Figure 23b, respectively, and discussed below.

In the absence of RMM, the following exposure pathways are considered applicable for one or more of the current and future on-site receptors:

- Direct contact with soil, sediment, or groundwater
- Incidental ingestion of soil, sediment, surface water, or groundwater
- Ingestion of impacted food from possible community garden
- Inhalation of soil particulate
- Inhalation of volatiles from groundwater in outdoor air
- Inhalation of volatiles from groundwater in indoor air (future use only).

Based on the future commercial/residential/parkland land use for the Site, possible receptors at the Site are:

- Resident (all age groups)
- Site visitor/trespasser (all age groups)
- Adult indoor worker (long-term adult/teen employee)
- Adult outdoor worker (long-term adult/teen employee)
- Subsurface worker (adult/teen construction worker)
- Maintenance worker (short-term adult/teen)

### **6.12.2 Ecological Exposure Model**

The ecological CSM describes the potential exposure pathways that are likely to be present for various ecological receptors at the Site. The ecological CSM provides a basis for examining potential risks in an ecological risk assessment. The ecological CSMs, without and with RMMs, are presented as Figure 24a and Figure 24b, respectively, and discussed below.

Ecological receptors at the Site are assumed to have direct contact with surface soil, sediment, shallow groundwater, or surface water. In the absence of RMM, the following exposure



pathways are considered applicable for one or more of the potential on-site ecological receptors:

- Direct contact with soil, sediment, groundwater, or surface water
- Uptake of groundwater
- Ingestion of soil, sediment, or surface water
- Ingestion of impacted food

Based on the current and future commercial/residential/parkland land use for the Site, possible ecological receptors at the Site are:

- Terrestrial soil invertebrates and plants
- Birds, mammals, and reptiles
- Aquatic receptors within Midland Bay



## 7.0 Conclusions

The subsurface investigation program was conducted from May 5, 2018 to September 24, 2019. COCs were identified in soil, sediment, and groundwater at concentrations at concentrations greater than the applicable SCS. Therefore, an RSC cannot be filed on the basis of the Phase Two ESA.

## 7.1 Signatures

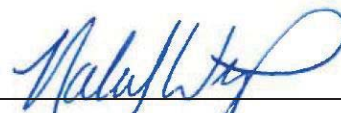
This Phase Two ESA was completed by Mr. Nick Young, M.Eng., P.Geo., QP<sub>ESA</sub> and Ms. Natalie Wright, P.Eng., as per O.Reg. 153/04. Information presented in this report is true and accurate to the best of the assessors' knowledge.

Respectfully submitted,

**Cambium Inc.**



Nick Young, M.Eng., P.Geo.  
Senior Project Manager



Natalie Wright, P.Eng., PMP  
Project Coordinator

## 8.0 References

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## 9.0 Standard Limitations

### Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

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### Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

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
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## Figures

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**PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE  
TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario**

**LEGEND**

-  Highway
-  Major Road
-  Railroad
-  Watercourse
-  Water Area
-  Provincial Park
-  Federal Protected Area
-  Built-Up Area
-  Wooded Area

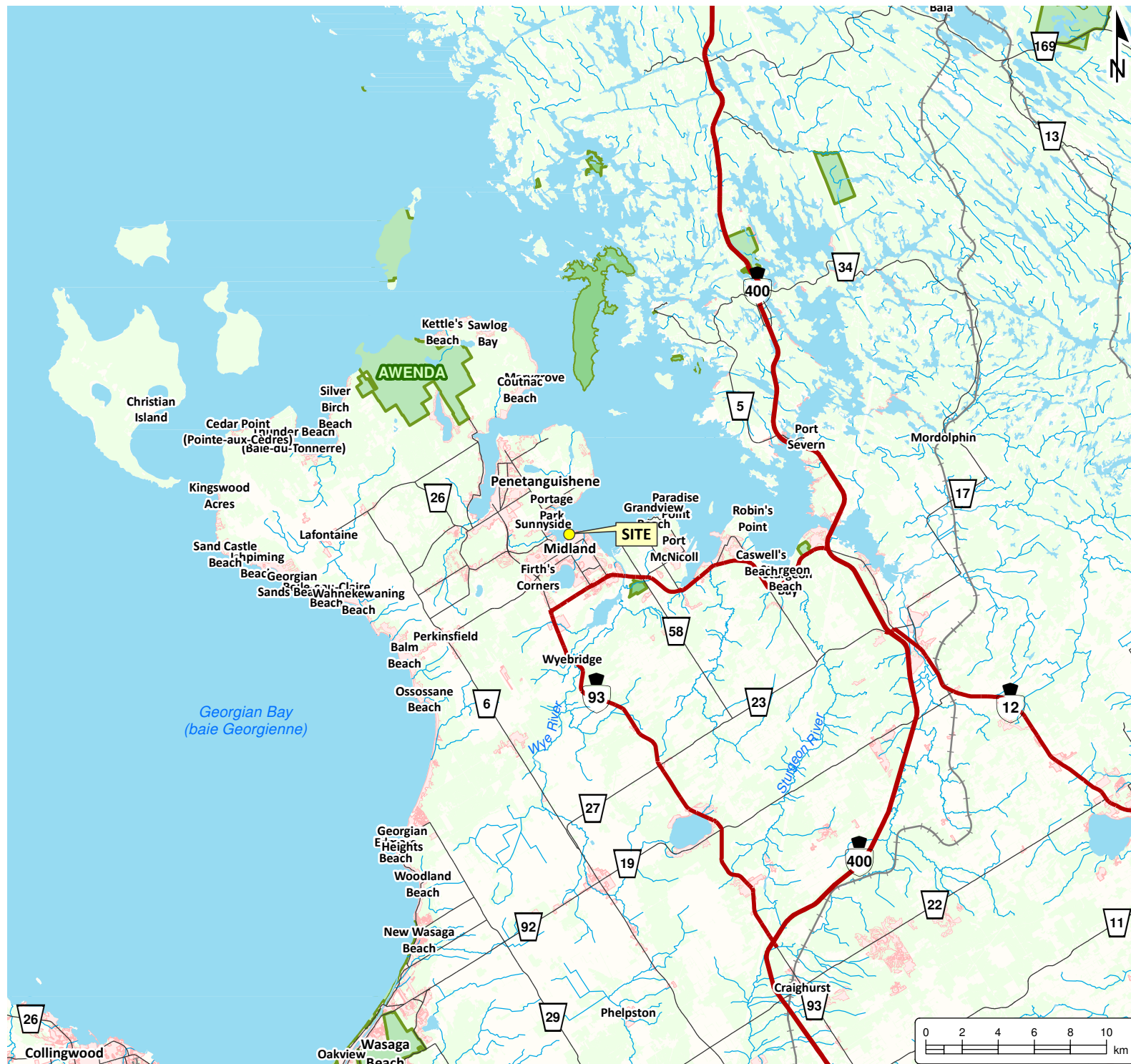
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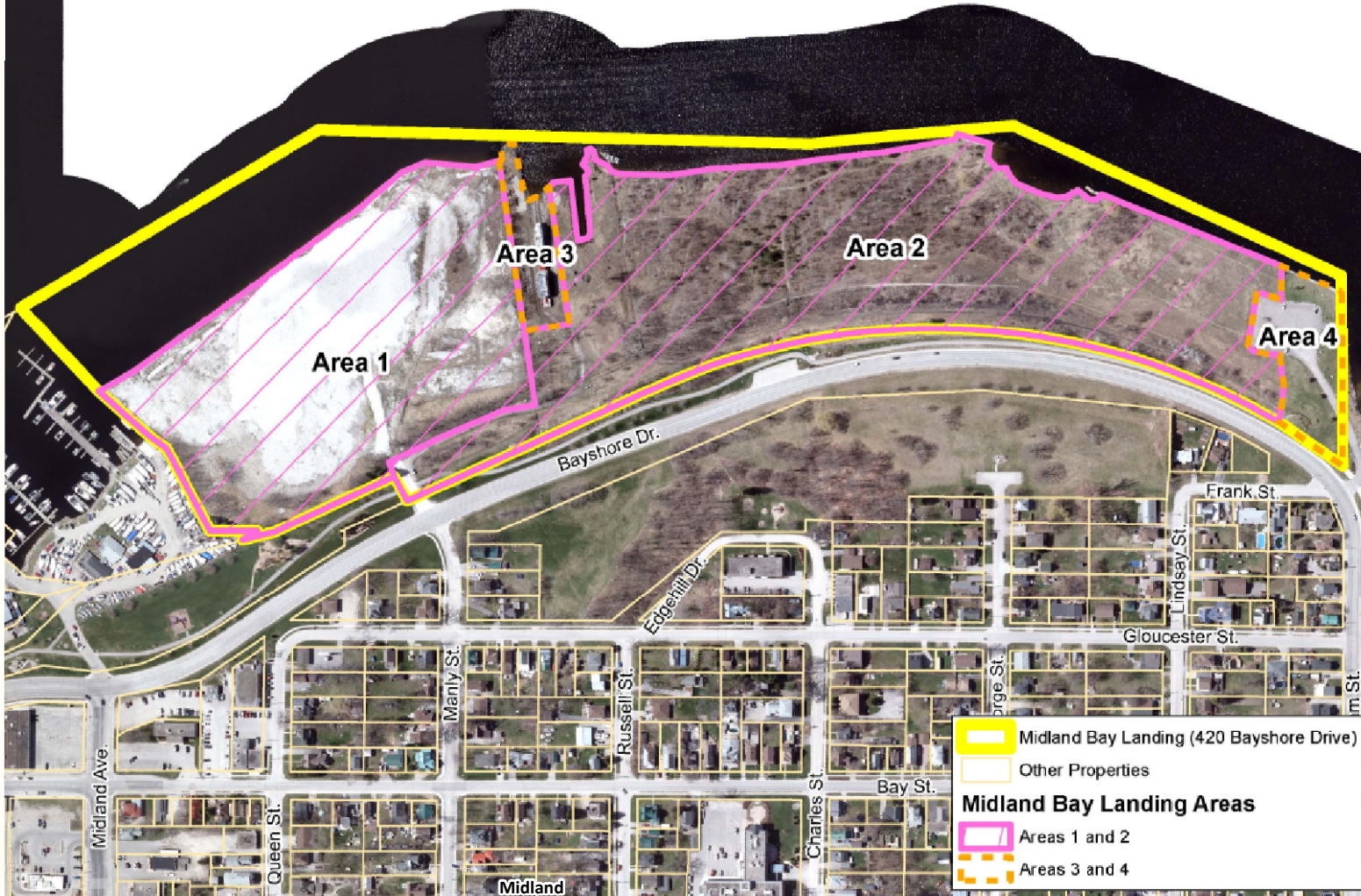
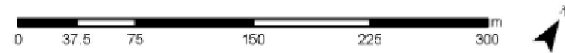
**SITE LOCATION PLAN**





Project No.: 6820-001	Date: March 2019
Scale: 1:300,000	Rev.: NAD 1983 UTM Zone 17N
Created by: TLC	Checked by: NJY
Figure: 1	



O:\GIS\project\_L\MC\6820-001 Midland Bay Landing\2019-02-05 P2 Fig 1 - Site Location Plan.mxd





 Midland Bay Landing (420 Bayshore Drive)  
 Other Properties  
**Midland Bay Landing Areas**  
 Areas 1 and 2  
 Areas 3 and 4

**PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE  
TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario**

**LEGEND**

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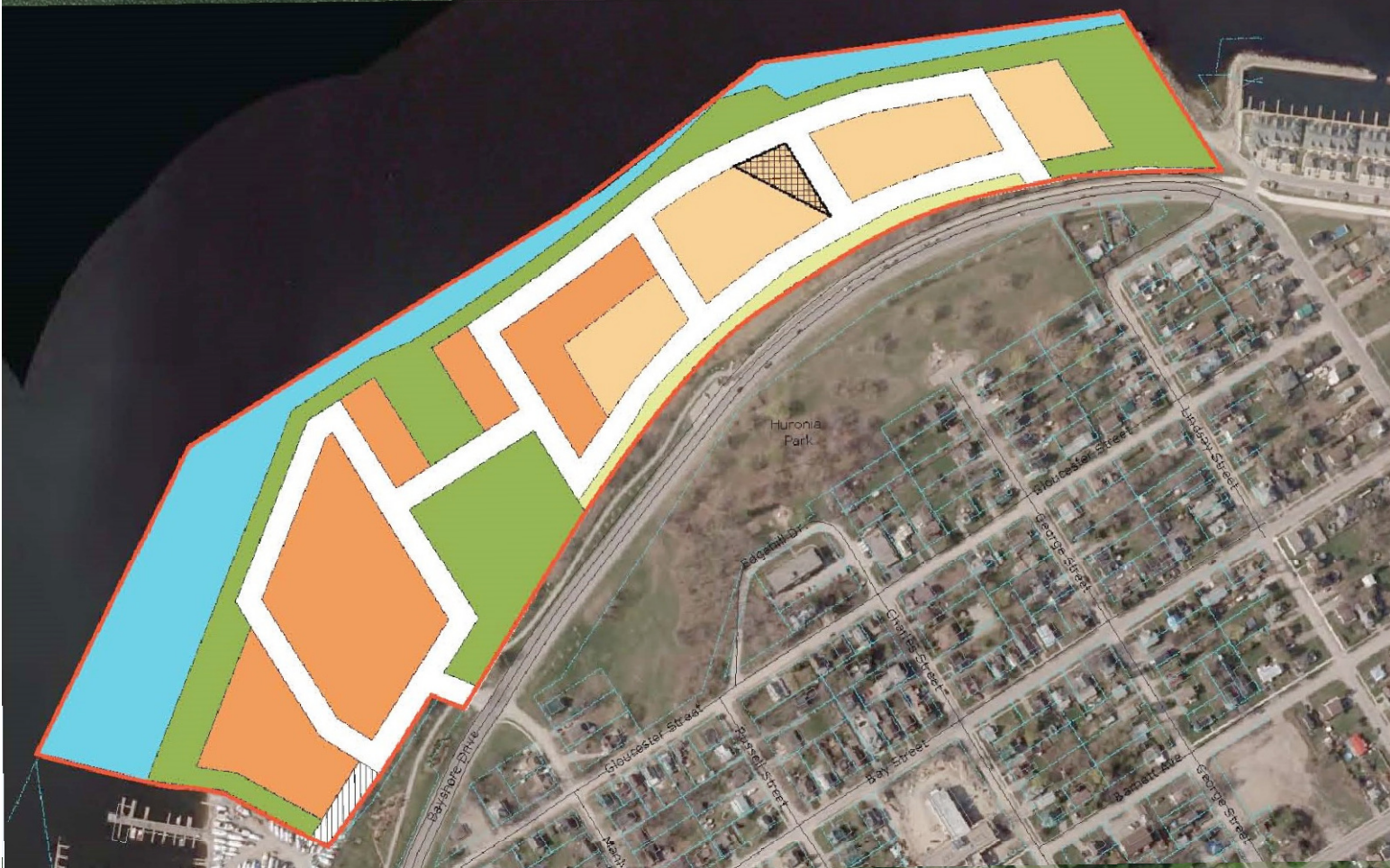
**HISTORICAL AND CURRENT  
LAND USE PLAN**

Project No.: 6820-001	Date: March 2019
Scale: N/A	Rev.: N/A
Created by: TLC	Checked by: NJY
Figure: <b>2</b>	





**PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE  
TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario**



**LEGEND**

- Land Use Framework Plan**
- Unimin Boundaries
  - Street Right-of-Way
  - Potential Street Right-of-Way
  - Water Lot
  - Park
  - Open Space
  - Waterfront Mixed-Use 1
  - Waterfront Mixed-Use 2
  - Potential Park

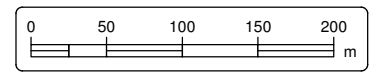
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**CONCEPTUAL FUTURE  
LAND USE PLAN**

Project No.: 6820-001	Date: March 2019	
Scale: 1:5,000	Projection: NAD 1983 UTM Zone 17N	
Created by: TLC	Checked by: NJY	Figure: <b>3</b>





**PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT  
MIDLAND BAY LANDING**  
CORPORATION OF THE  
TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario

- LEGEND**
- Potentially Contaminating Activity
  - Contour 5m Interval
  - Study
  - Property Line
  - Inferred Groundwater Flow Direction

**LAND USE**

**Notes:**  
 - Subject Property (approx.) was obtained from Dearden and Stanton Ltd. Dwg. No.: E-2429.  
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**CONCEPTUAL SITE MODEL  
PHASE ONE STUDY AREA**

Project No.: 6820-001	Date: October 2019
Scale: 1:5,000	Rev.: NAD 1983 UTM Zone 17N
Created by: TLC	Checked by: NJY
Figure: 4	






C:\GIS\project\_MXD\68016899\820-001 Midland Bay Landing\2019-10-09 P2 Fig 4 - Conceptual Site Model - Phase One Study Area.mxd



**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
**MIDLAND BAY LANDING**  
 CORPORATION OF THE TOWN OF MIDLAND  
 420 Bayshore Drive, Midland, Ontario

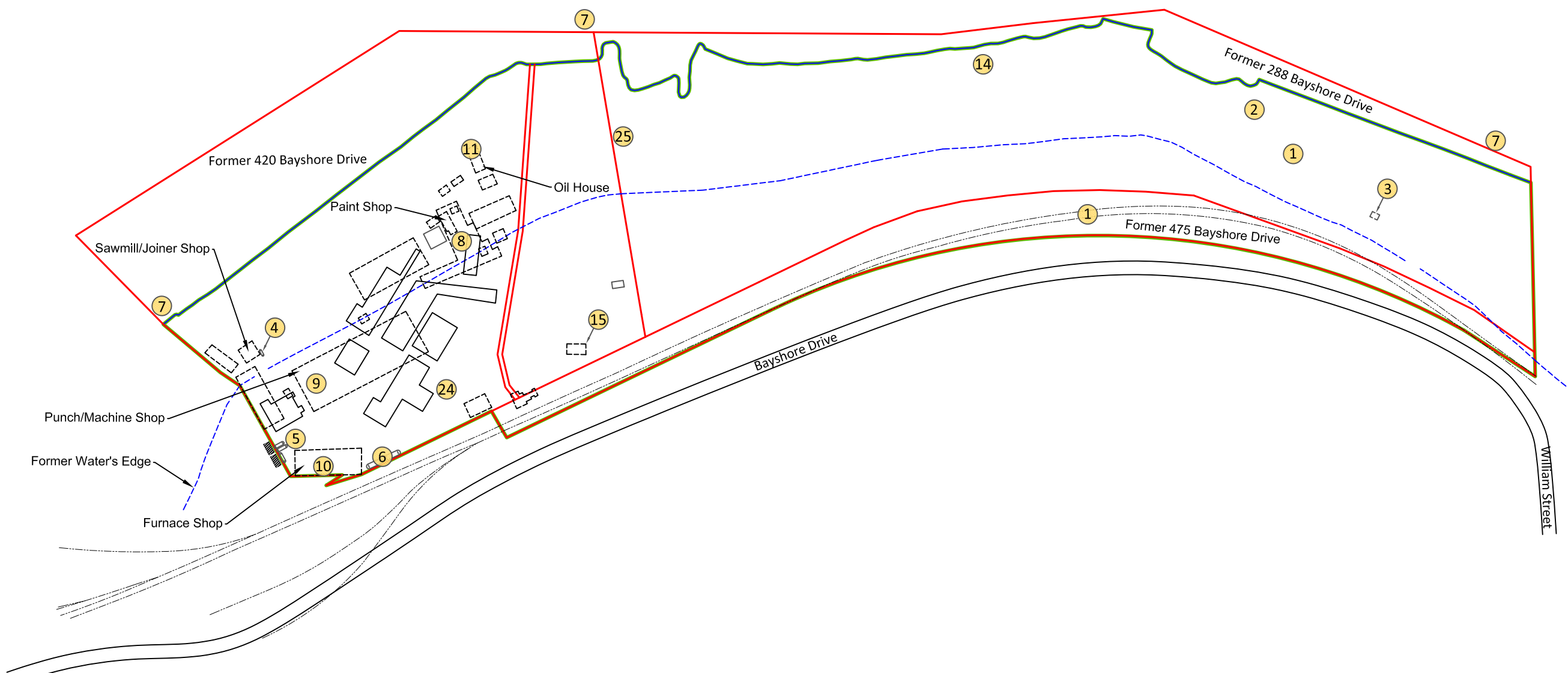
**LEGEND**

- WATER'S EDGE (Feb. 17, 2015)
- - - ORIGINAL WATER'S EDGE (APPROXIMATE)
- PROPERTY LINE
- PHASE TWO ESA PROPERTY
- - - FORMER RAIL LINE
-  UNDERGROUND STORAGE TANK
-  ABOVE GROUND STORAGE TANK
-  POTENTIALLY CONTAMINATING ACTIVITY

**BUILDING FOOTPRINTS**

-  RECENT
-  FROM 1917 AND 1946 FIRE INSURANCE PLANS

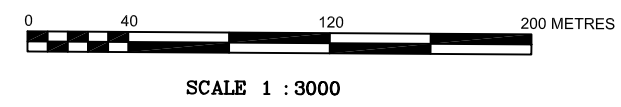
M I D L A N D   B A Y   o f   G E O R G I A N   B A Y  
 WATER LEVEL ELEVATION 175.850m  
 (FEBRUARY 17, 2015)



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**CONCEPTUAL SITE MODEL**  
**PHASE ONE PROPERTY**

Project No.: 6820-001	Date: October 2019
Horizontal Scale: 1:3,000	Vertical Scale: N/A
Drawn By: TLC	Checked By: NJY
Figure: 5	



P:\0600 to 8999\6820-001\_Midland Bay Landing\GIS\Drawings\CAD\2019\15a\_L05P Phase Two Figure 5.dwg



**PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT  
MIDLAND BAY LANDING**  
CORPORATION OF THE  
TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario




**LEGEND**

- Contour 5m Interval
- Study Area
- Present Day Subject Property (approx.)

**Areas of Potential Environmental Concern:**

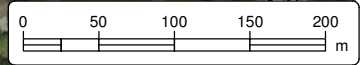
- APEC A
- APEC B
- APEC C
- APEC D
- APEC E
- APEC F
- APEC G
- APEC H
- APEC I
- APEC J
- APEC K
- APEC L
- APEC M
- APEC N
- APEC O
- APEC P
- APEC Q
- APEC R
- APEC S

**Notes:**  
 - Subject Property (approx.) was obtained from Dearden and Stanton Ltd. Dwg. No.: E-2429.  
 - Base mapping features are © Queen's Printer of Ontario, 2017 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).  
 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.  
 - Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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**CONCEPTUAL SITE MODEL  
AREAS OF POTENTIAL  
ENVIRONMENTAL CONCERN**













Project No.: 6820-001	Date: March 2019
Scale: 1:5,000	Rev.: NAD 1983 UTM Zone 17N
Created by: TLC	Checked by: NJY
Figure: 6	

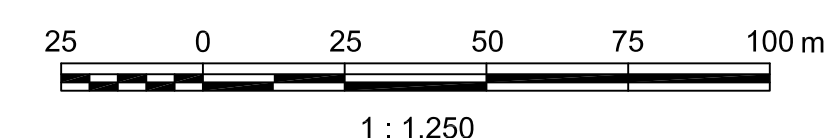
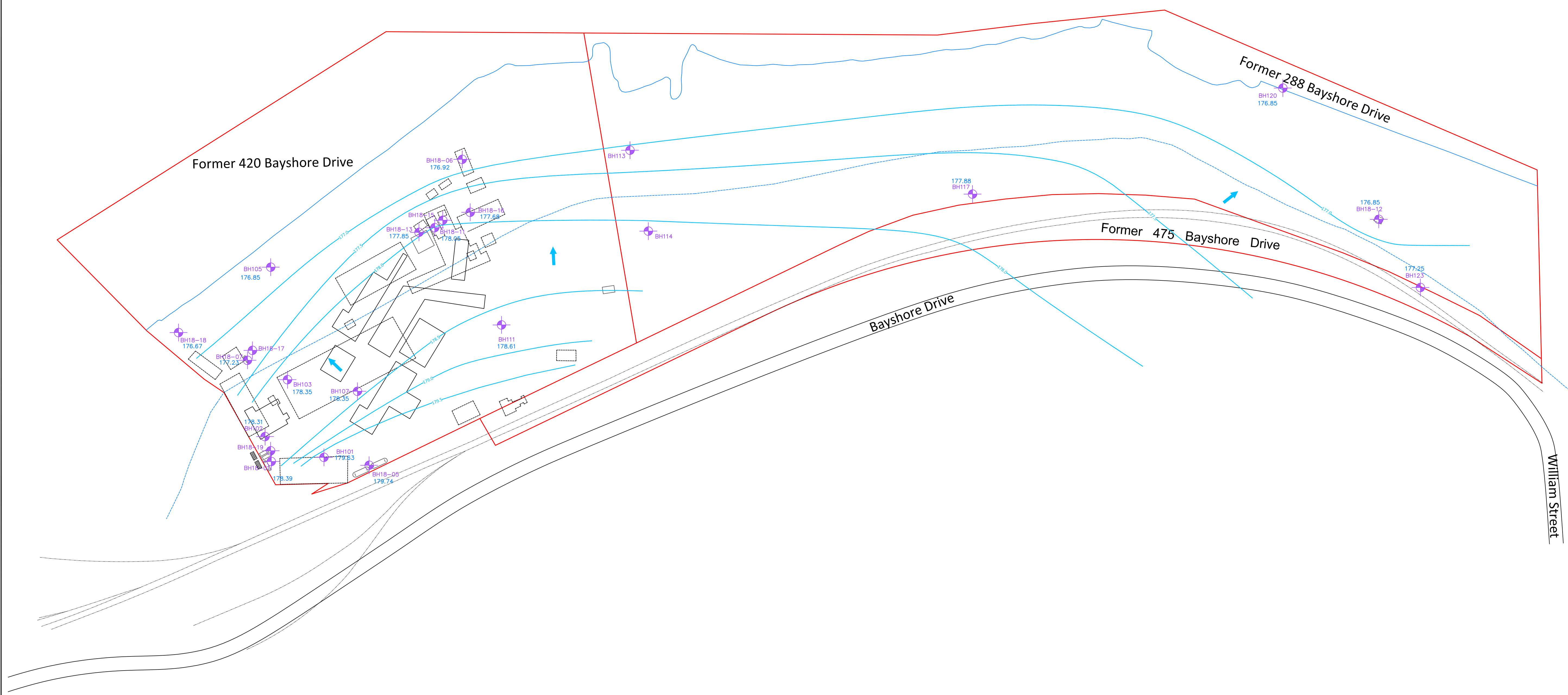
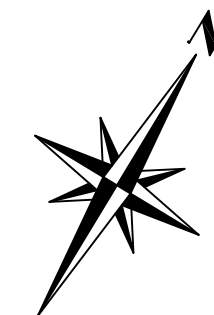



C:\GIS\project\_MXDs\6820-001 Midland Bay Landing\2019-02-05 P2 Fig 6 - Conceptual Site Model - Areas of Potential Environmental Concern.mxd



LEGEND

-  MONITORING WELL
-  176.87 SHALLOW GROUNDWATER ELEVATION
-  SHALLOW GROUNDWATER CONTOUR
-  SHALLOW GROUNDWATER FLOW DIRECTION
-  WATER'S EDGE (Feb. 17, 2015)
-  ORIGINAL WATER'S EDGE (APPROXIMATE)
-  PROPERTY LINE
-  FORMER RAIL LINE
-  UNDERGROUND STORAGE TANK
-  AST
- BUILDING FOOTPRINTS**
-  RECENT
-  FROM 1917 AND 1948 FIRE INSURANCE PLANS















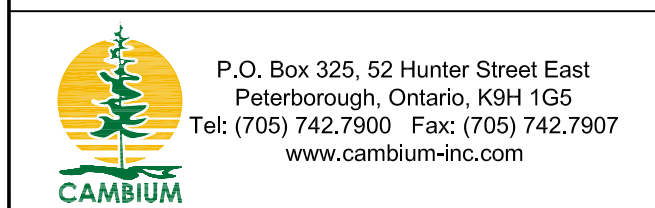
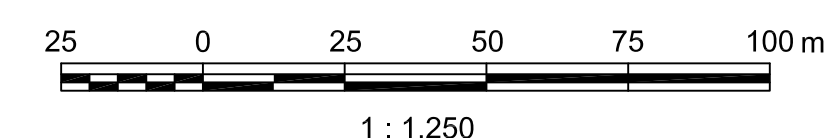
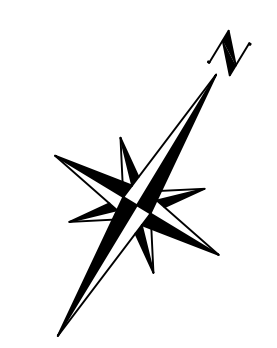
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GROUNDWATER ELEVATIONS  
SHALLOW WELLS - February 15, 2019

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	7		

LEGEND

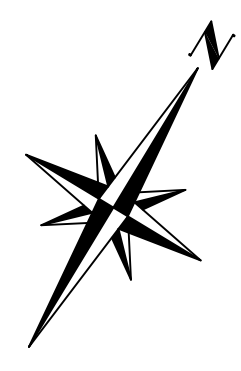
-  MONITORING WELL
-  DEEP GROUNDWATER ELEVATION  
(February 15, 2019)
-  DEEP GROUNDWATER CONTOUR  
(February 15, 2019)
-  DEEP GROUNDWATER FLOW DIRECTION  
(February 15, 2019)
-  WATER'S EDGE (Feb. 17, 2015)
-  ORIGINAL WATER'S EDGE (APPROXIMATE)
-  PROPERTY LINE
-  FORMER RAIL LINE
-  UNDERGROUND STORAGE TANK
-  AST
- BUILDING FOOTPRINTS**
-  RECENT
-  FROM 1917 AND 1946 FIRE  
INSURANCE PLANS



GROUNDWATER ELEVATIONS  
DEEP WELLS - February 15, 2019

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	8		



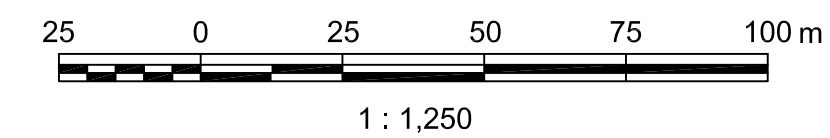
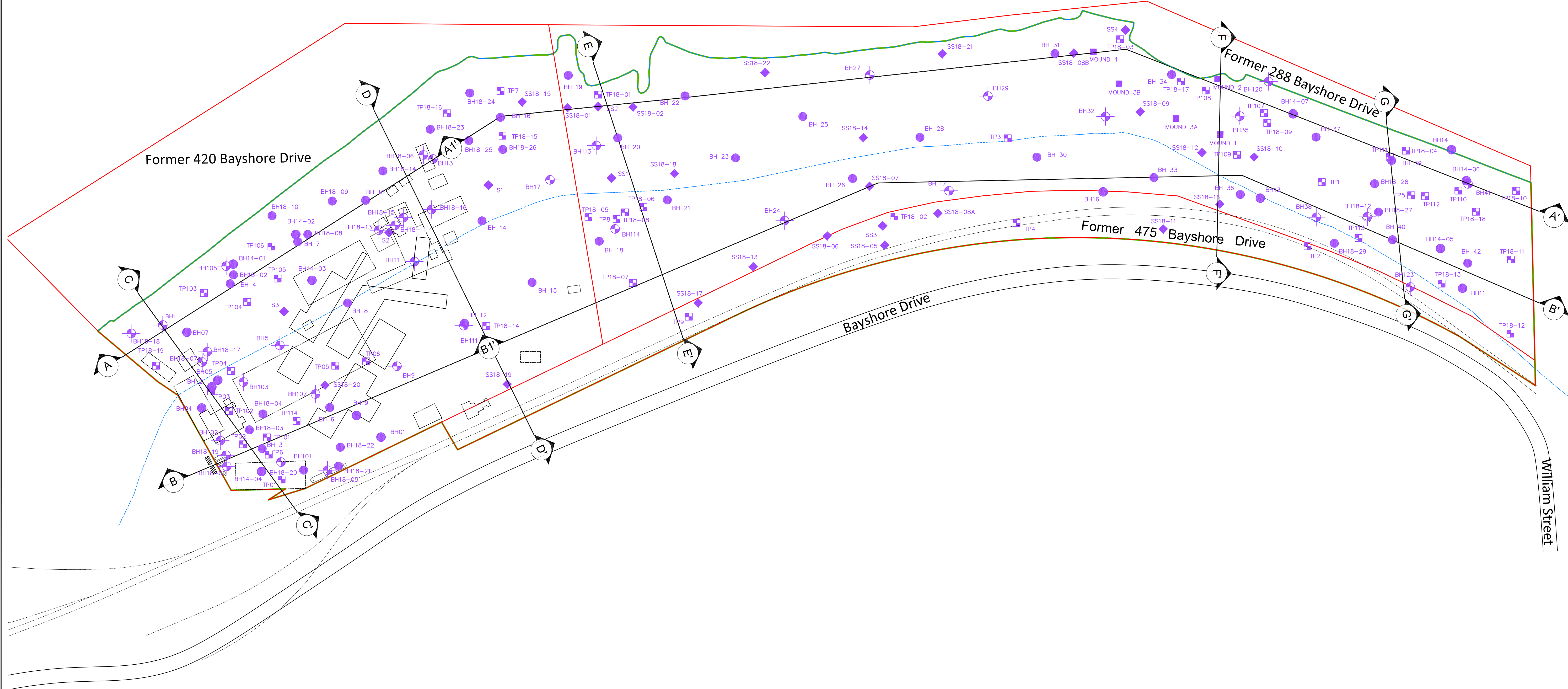
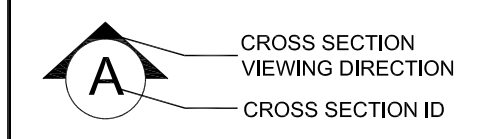


M I D L A N D   B A Y   O F   G E O R G I A N   B A Y

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario

LEGEND

- MONITORING WELL
  - BOREHOLE
  - TEST PIT
  - SURFICIAL SOIL SAMPLE
  - MOUND
  - WATER'S EDGE (Feb. 17, 2015)
  - ORIGINAL WATER'S EDGE (APPROXIMATE)
  - PROPERTY LINE
  - PHASE TWO ESA PROPERTY
  - FORMER RAIL LINE
  - UNDERGROUND STORAGE TANK
  - AST
- BUILDING FOOTPRINTS**
- RECENT
  - FROM 1917 AND 1946 FIRE INSURANCE PLANS



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CROSS - SECTION LOCATIONS

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	9		

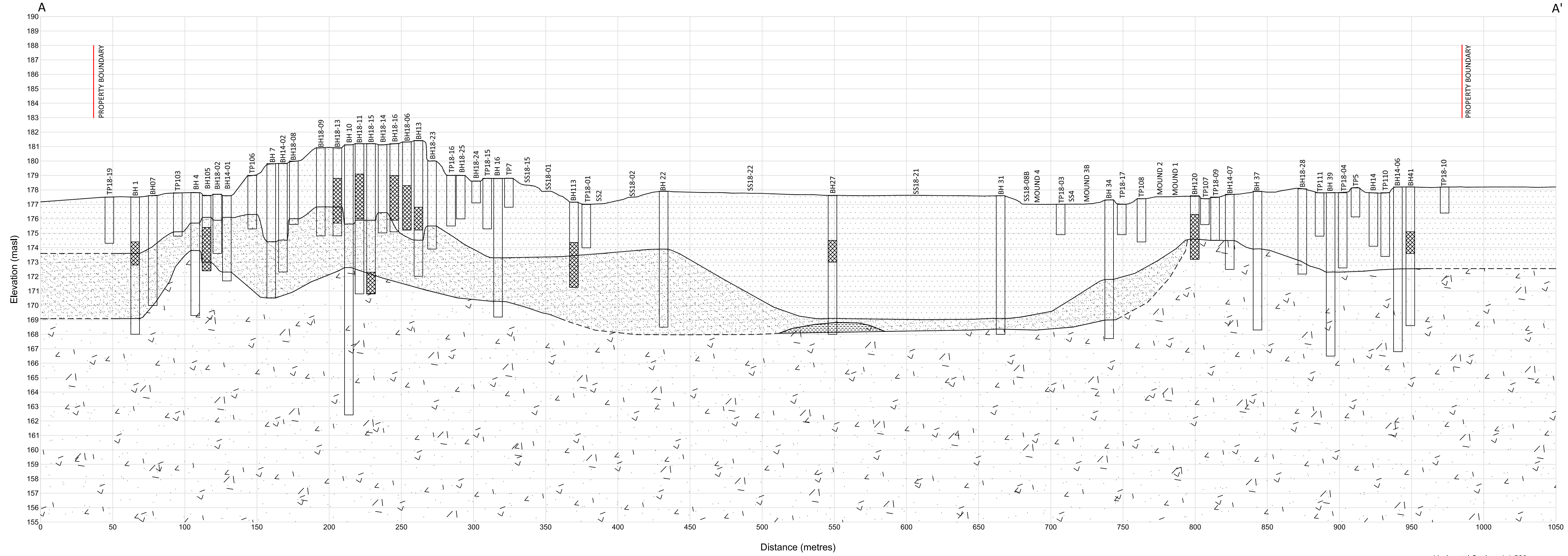


**LEGEND**

- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Well Screen

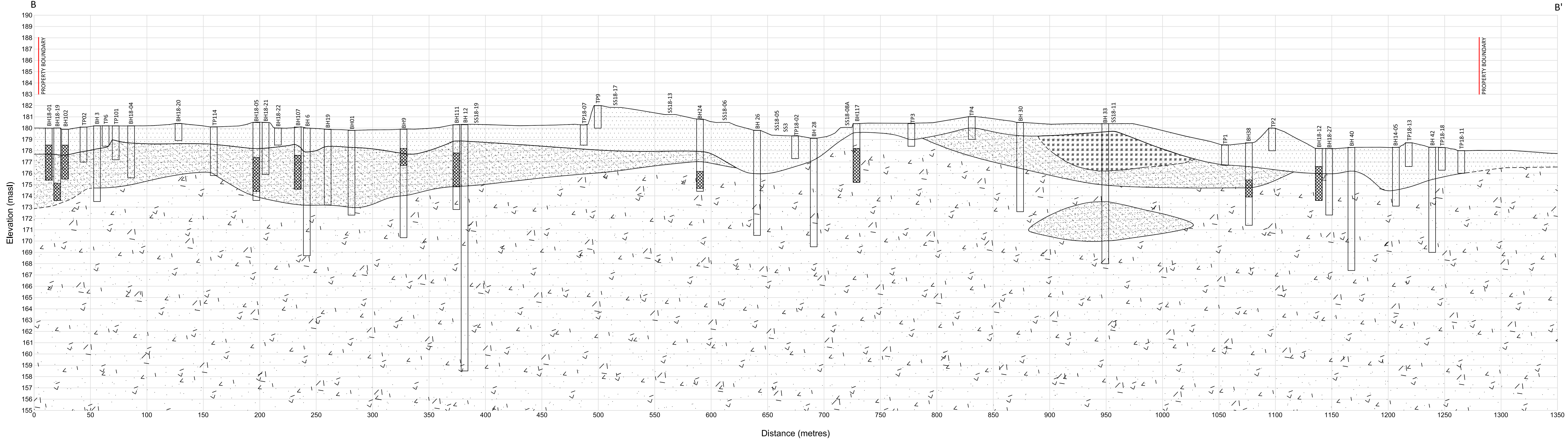
NOTE:  
SS AND MOUND LABELS DENOTE SURFACE SOIL  
SAMPLE LOCATIONS.

Cross - Section A-A'



Horizontal Scale = 1:1,500  
Vertical Scale = 1:150

Cross - Section B-B'



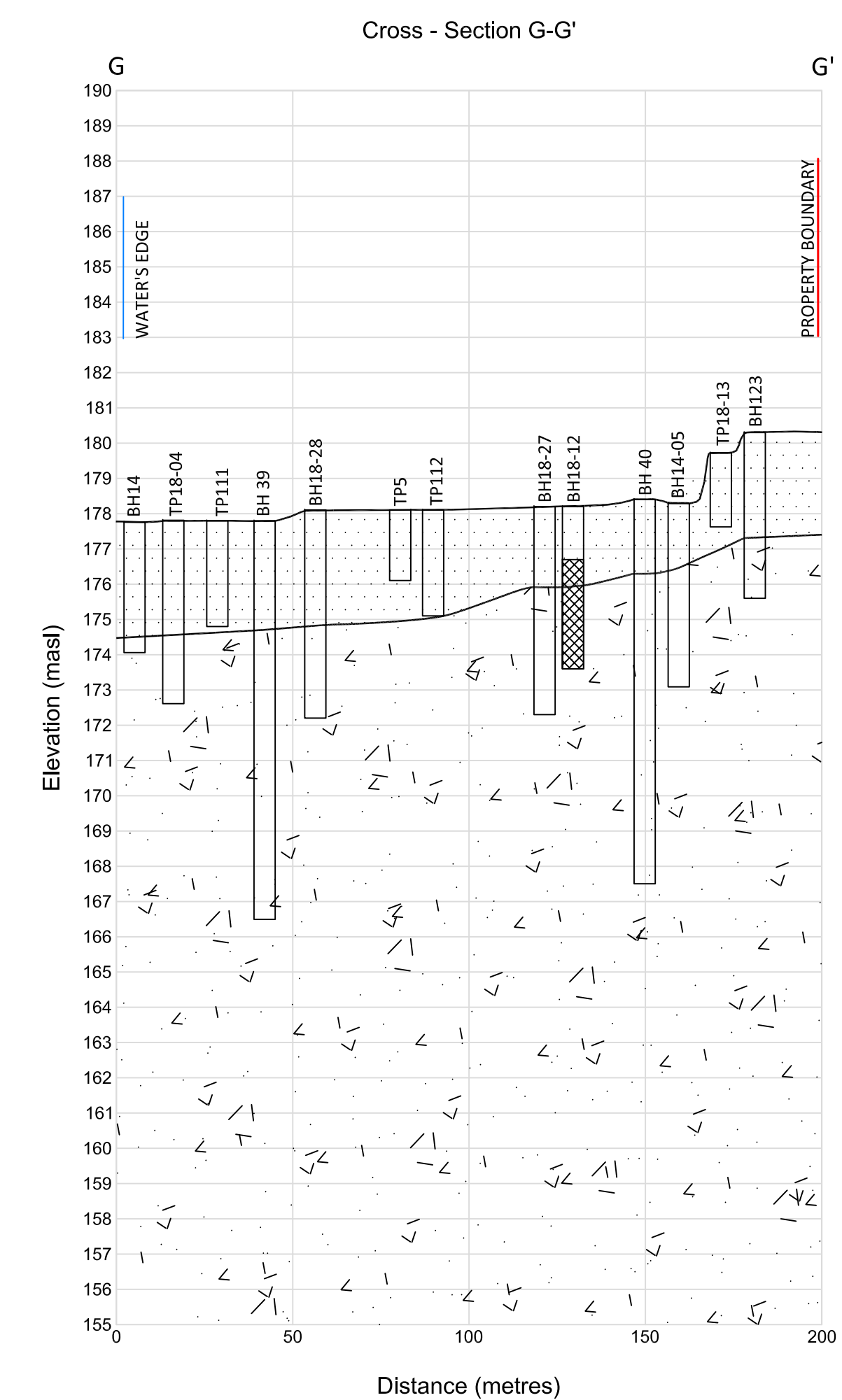
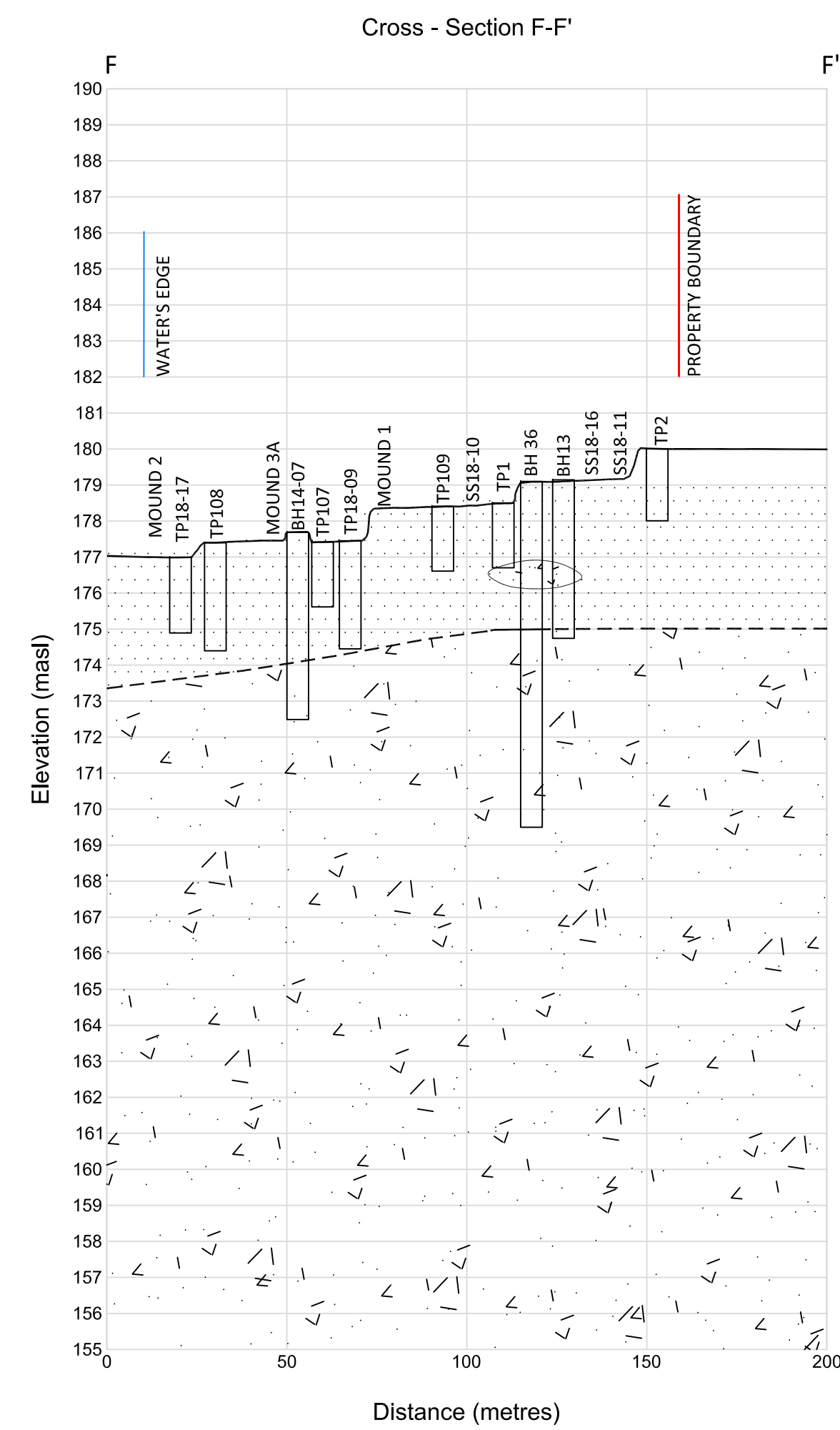
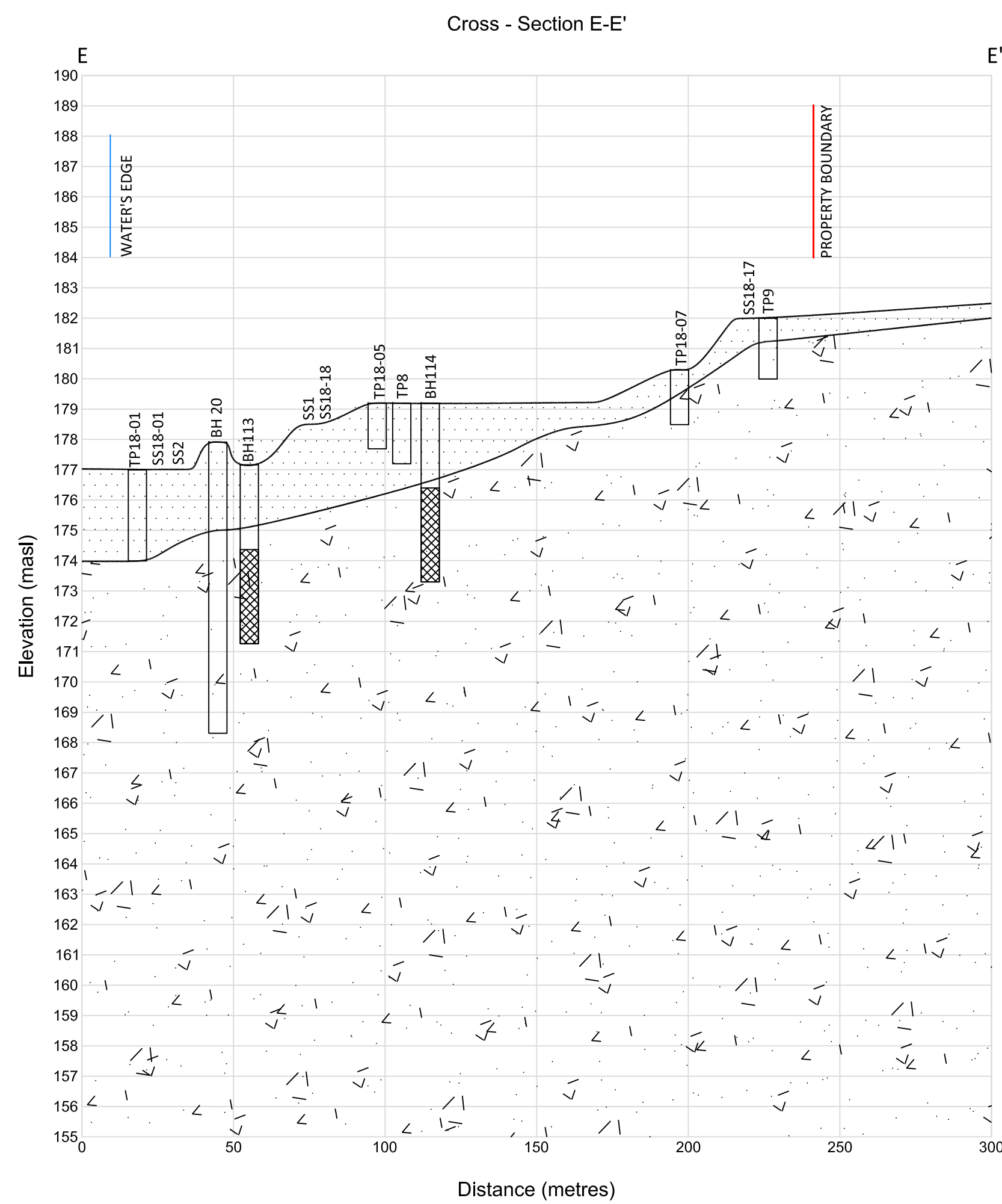
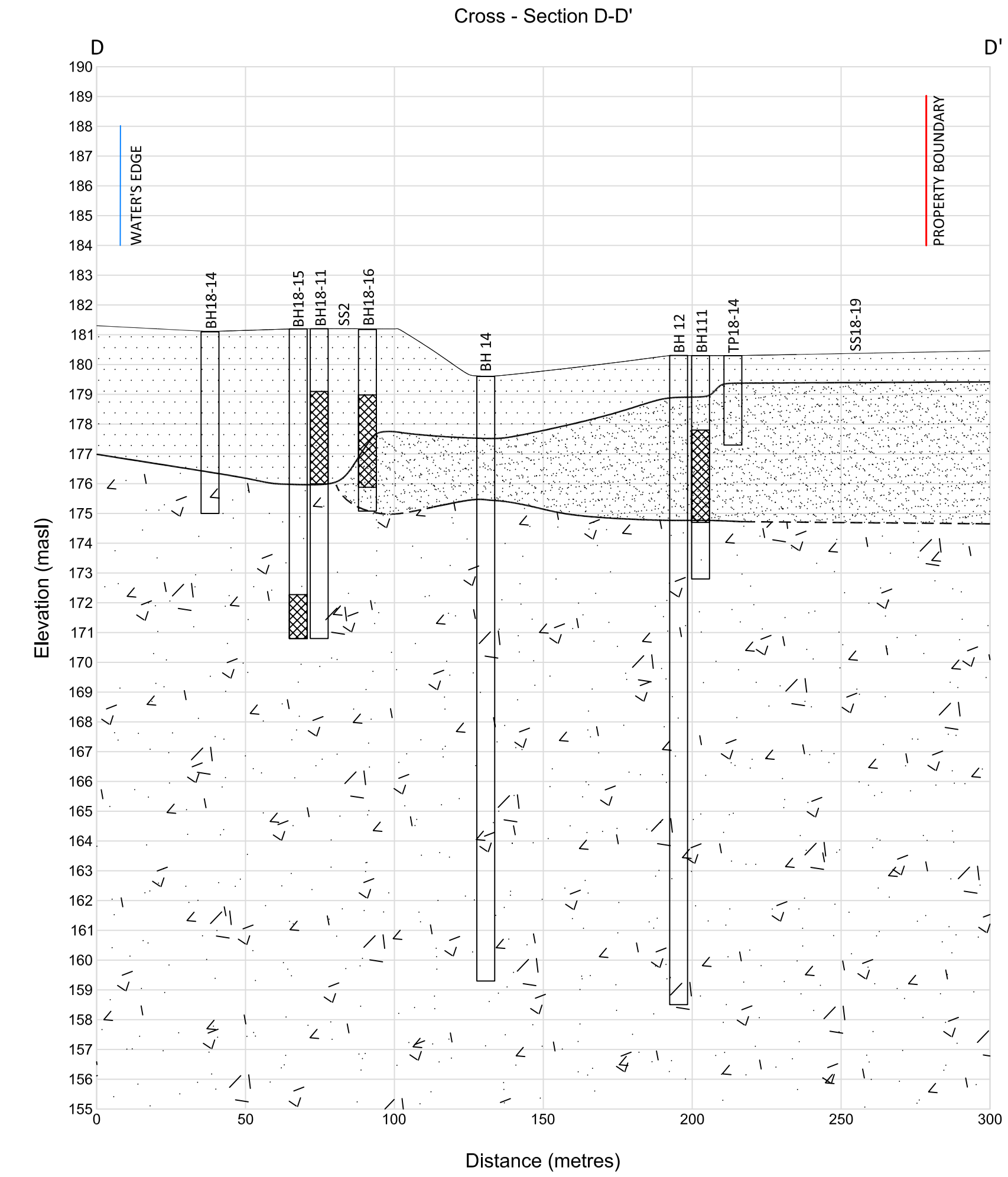
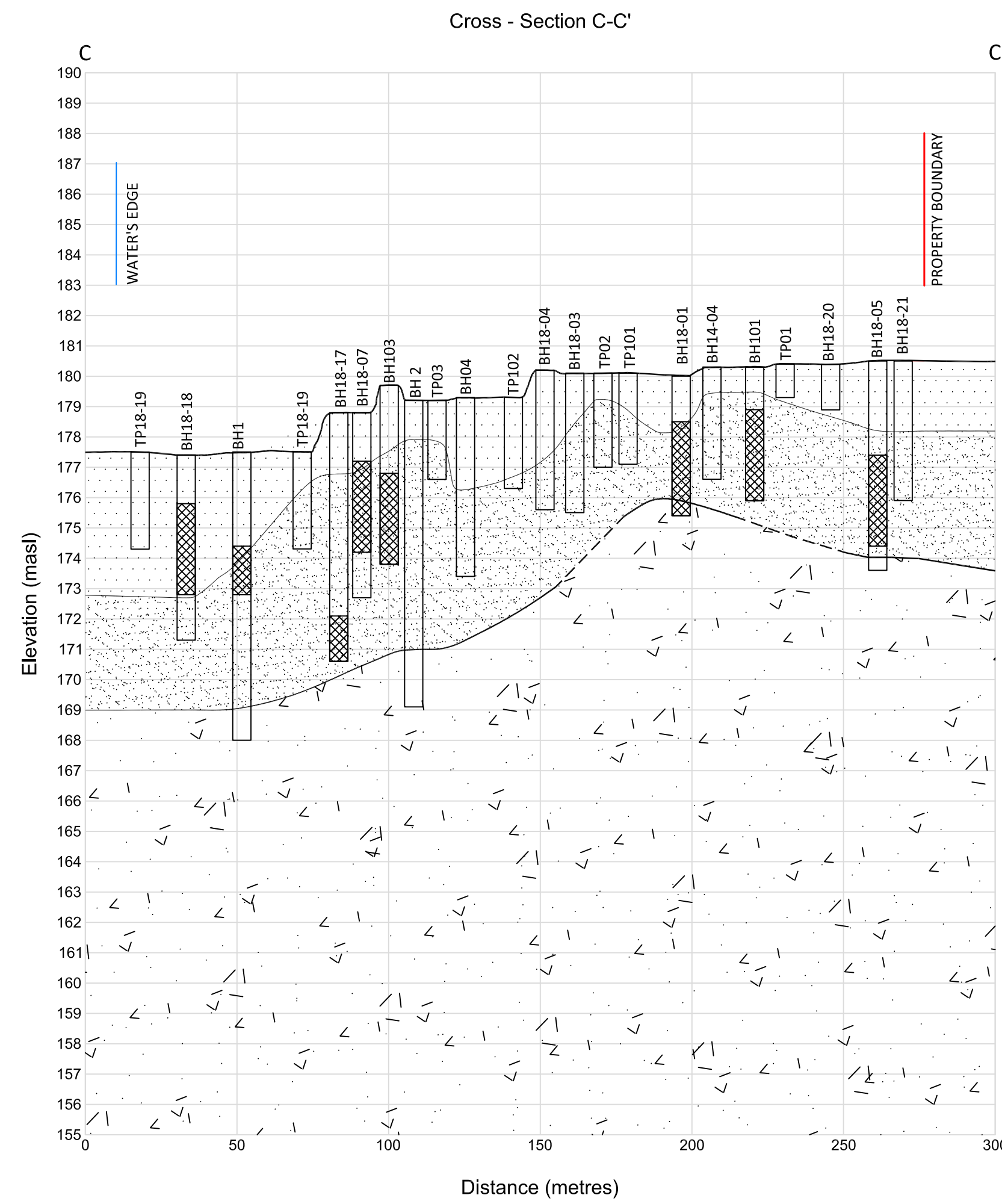
Horizontal Scale = 1:1,750  
Vertical Scale = 1:175



LEGEND

- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Well Screen

NOTE:  
SS AND MOUND LABELS DENOTE SURFACE SOIL  
SAMPLE LOCATIONS.





M I D L A N D B A Y O F G E O R G I A N B A Y

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario

Sample Location	TP03	TP04	TP05	TP101	TP102	TP107	TP108	TP109	TP110	TP111	TP112	TP113	TP114	BH01	BH101	BH102	BH04	BH05	BH103	BH07	BH105	BH114	BH113	BH11	BH120								
Sample Date	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13	4-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	17-Jun-13	17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13
Sample Depth (m)	1.5	2.5	2.0	3.5	2.0	3.0	1.8	3.0	1.2	1.8	1.8	3.0	1.8	3.0	1.8	3.0	1.8	3.7	1.8	4.3	5.94 - 6.71	3.66 - 4.42	2.13 - 2.90	2.90 - 3.66	2.13 - 2.90	4.42 - 5.18	2.90 - 3.66	2.90 - 3.66	2.90 - 3.66	4.42 - 5.18	5.18 - 5.94	0.51 - 1.37	

Sample Location	BH13	BH123	BH16	BH117	BH107	BH19	BH111	BH14-01	BH14-02	BH14-04	BH14-05	BH14-06	BH14-07	MOUND 2	MOUND 3A	MOUND 3B	MOUND 4	TP1	TP2	TP3	TP3	TP4	TP5	TP6	TP7	TP8	TP9	SS1	SS2	BH 28	BH18-01			
Sample Date	19-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	20-Jun-13	20-Jun-13	20-Jun-13	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	30-Apr-14	30-Apr-14	26-May-15	26-May-15	26-Jun-18		
Sample Depth (m)	2.90 - 3.66	2.90 - 3.66	1.37 - 2.13	2.13 - 2.90	4.42 - 5.18	5.94 - 6.71	1.37 - 2.13	0.8 - 1.4	3.0 - 3.7	3.0 - 3.7	1.5 - 2.1	3.8 - 4.4	3.0 - 3.7	5.3 - 6.1	4.6 - 5.2	0-0.15	0-0.15	0-0.15	1.4 - 1.8	1.4 - 1.8	0.6 - 1.2	1.4 - 1.8	1.4 - 1.8	1.4 - 1.8	1.2 - 1.8	1.4 - 1.8	0.6 - 1.2	1.4 - 1.8	1.4 - 2	0-0.15	0-0.15	0-0.6	2.3-2.9	3.0 - 3.8

Sample Location	BH18-02	BH18-03	BH18-04	BH18-05	BH18-07	BH18-08	BH18-12	BH18-15	BH18-18	BH18-19	BH18-21	BH18-23	BH18-24	BH18-27	BH18-28	BH18-29	SS18-05	SS18-08A	SS18-08B	SS18-09	SS18-14	SS18-15	SS18-18	SS18-20	SS18-22	TP18-02	TP18-03	TP18-04	TP18-09	TP18-10	TP18-13	TP18-14	TP18-16	TP18-18		
Sample Date	27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	26-Jun-18	26-Jun-18	27-Jun-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	14-Nov-18	14-Nov-18	6-Dec-18	6-Dec-18	6-Dec-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	14-Aug-18	13-Aug-18	12-Nov-18	7-Dec-18	6-Dec-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	13-Aug-18	13-Aug-18	14-Aug-18	
Sample Depth (m)	0.4 - 0.6	2.2 - 2.6	3.6 - 4.3	3.6 - 4.3	6.1 - 6.5	4.6 - 5.3	4.0 - 4.4	5.3 - 6.1	7.0 - 7.6	0.9 - 1.5	4.6 - 4.9	5.2 - 5.5	4.3 - 4.6	3.5 - 3.8	0 - 0.61	3.8 - 4.1	3.8 - 4.4	5.3 - 5.9	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	2.0	2.0	4.0	3.0	0.0 - 0.6	1.5 - 2.1	3.0	3.5	1.2 - 1.8

**LEGEND**

- MONITORING WELL
- BOREHOLE
- TEST PIT
- SURFICIAL SOIL SAMPLE
- MOUND
- WATER'S EDGE (Feb. 17, 2015)
- ORIGINAL WATER'S EDGE (APPROXIMATE)
- PROPERTY LINE
- FORMER RAIL LINE
- UNDERGROUND STORAGE TANK
- AST
- PARAMETERS TESTED MEET TABLE 9 SCS
- PARAMETERS TESTED EXCEED TABLE 9 SCS
- EXTENT OF IMPACT

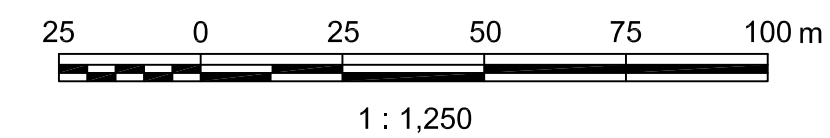
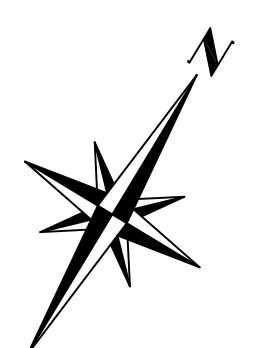
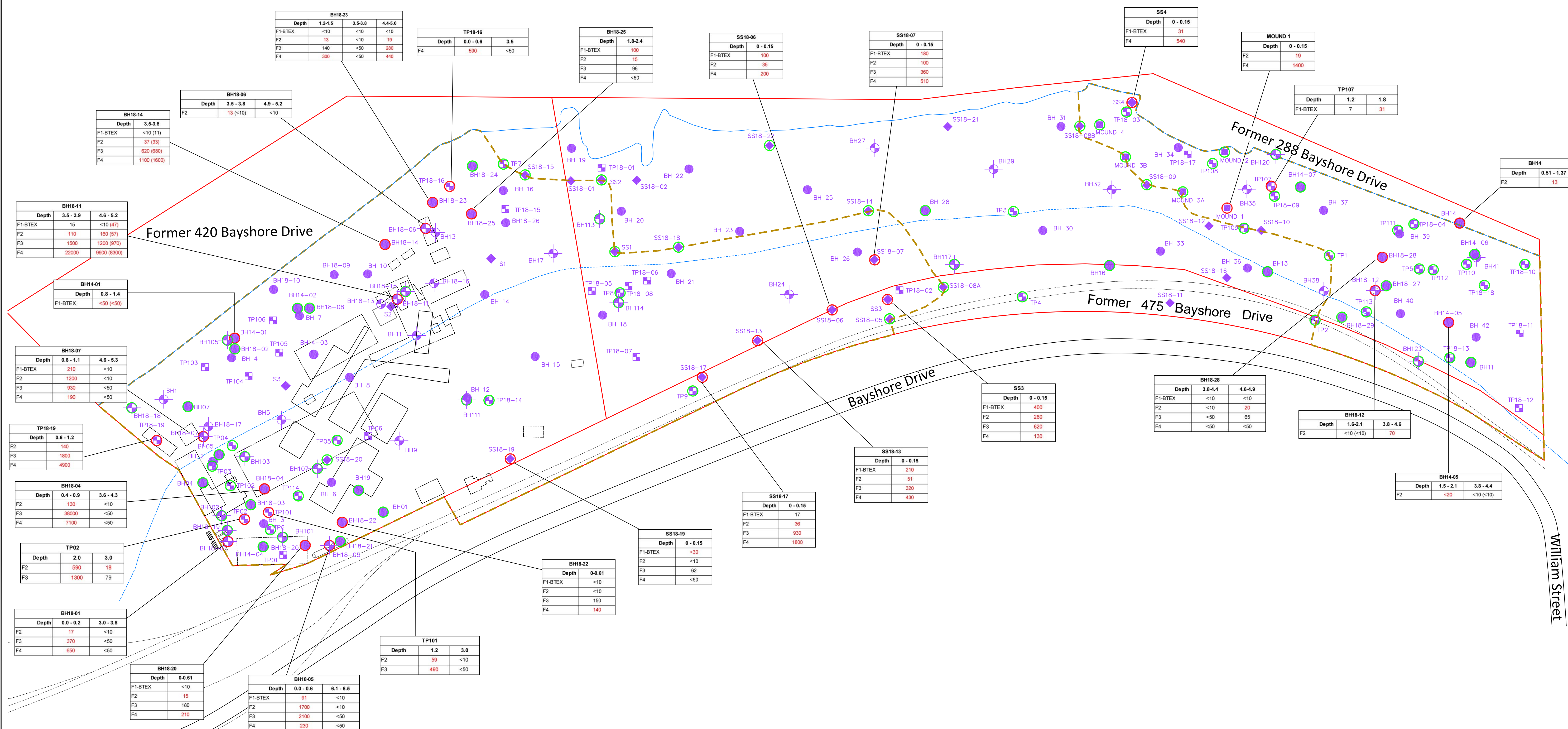
**BUILDING FOOTPRINTS**

- RECENT
- FROM 1917 AND 1946 FIRE INSURANCE PLANS

**Table 9 SCS**

F1-BTEX	25
F2	10
F3	240
F4	120

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).



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**SOIL RESULTS - PHCs**

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	11a		



LEGEND

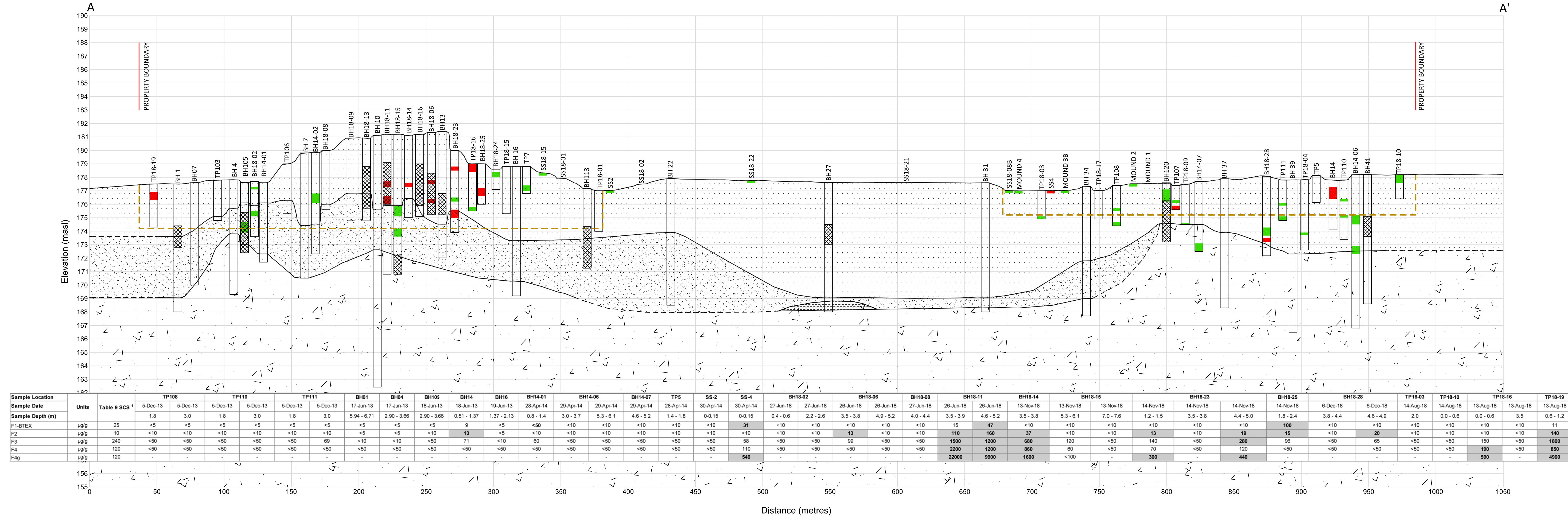
- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standards
- Parameters Tested Exceed Table 9 Standards
- Well Screen

NOTE: SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS	
F1-BTEX	25
F2	10
F3	240
F4	120

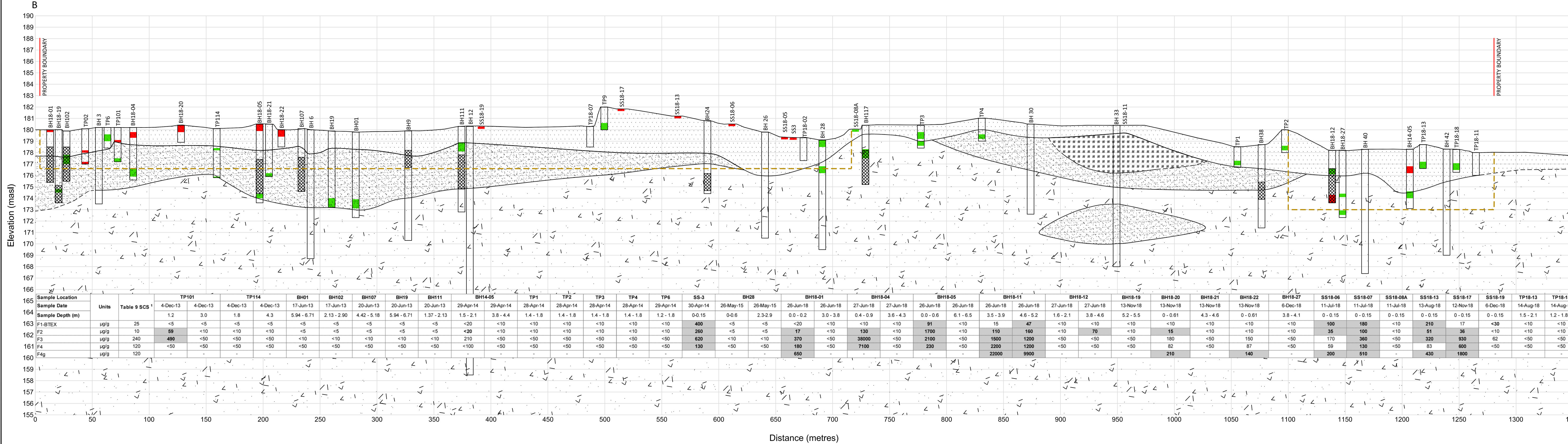
Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).

Cross - Section A-A'

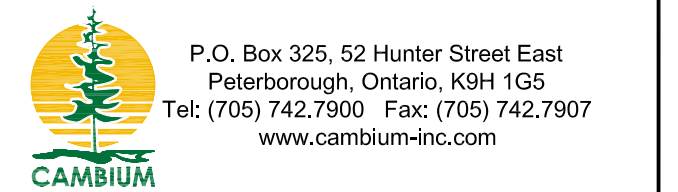


Horizontal Scale = 1:1,500  
Vertical Scale = 1:150

Cross - Section B-B'



Horizontal Scale = 1:1,750  
Vertical Scale = 1:175



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www.camium-inc.com

CROSS - SECTIONS A-A' AND B-B'  
CROSS - GRADIENT PHCS IN SOIL

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	As Shown	Vertical Exaggeration:	As Shown
Drawn By:	TLC	Checked By:	NJY
Figure:	11b		



LEGEND

- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standards
- Parameters Tested Exceed Table 9 Standards
- Well Screen

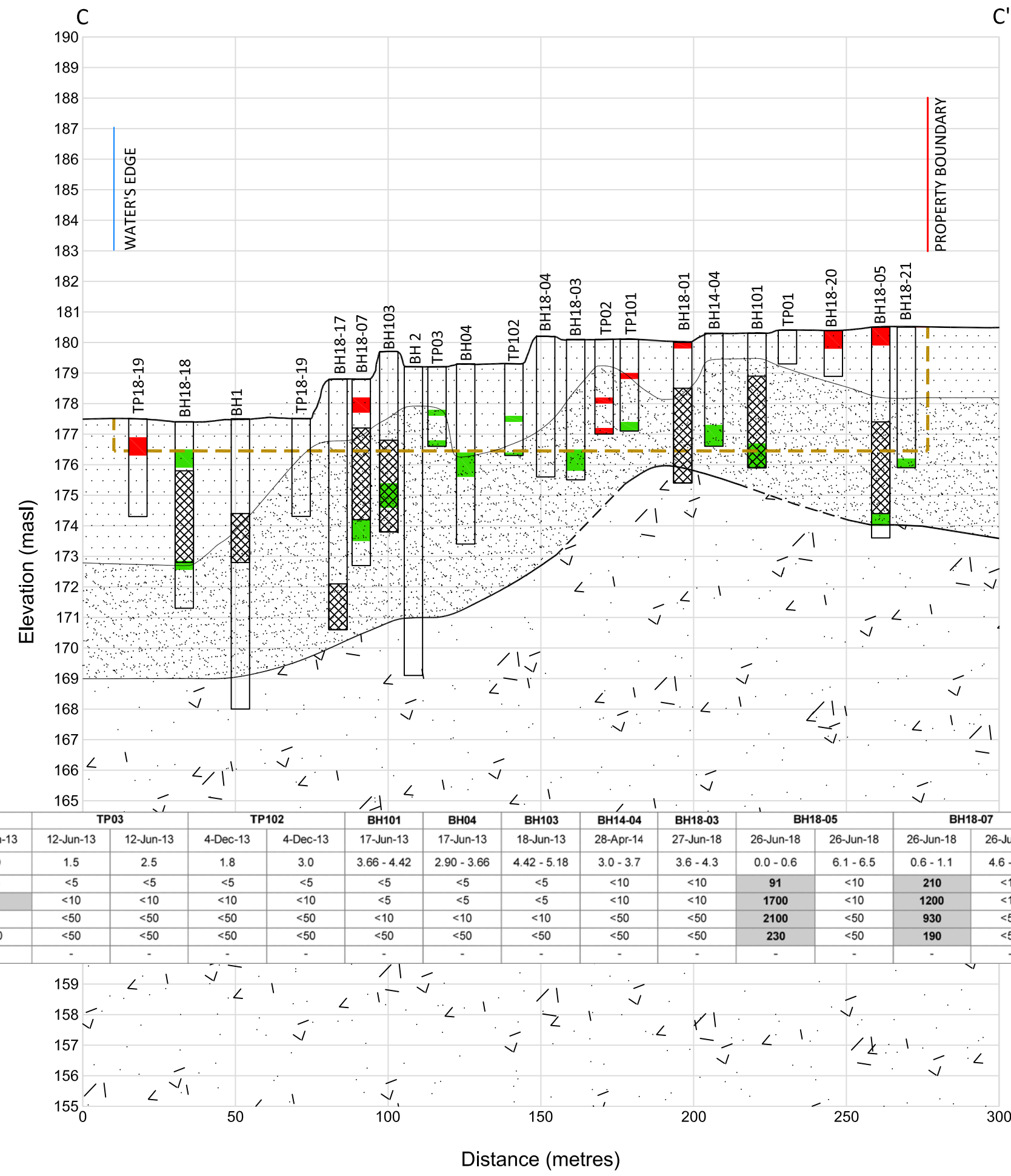
NOTE:  
SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS

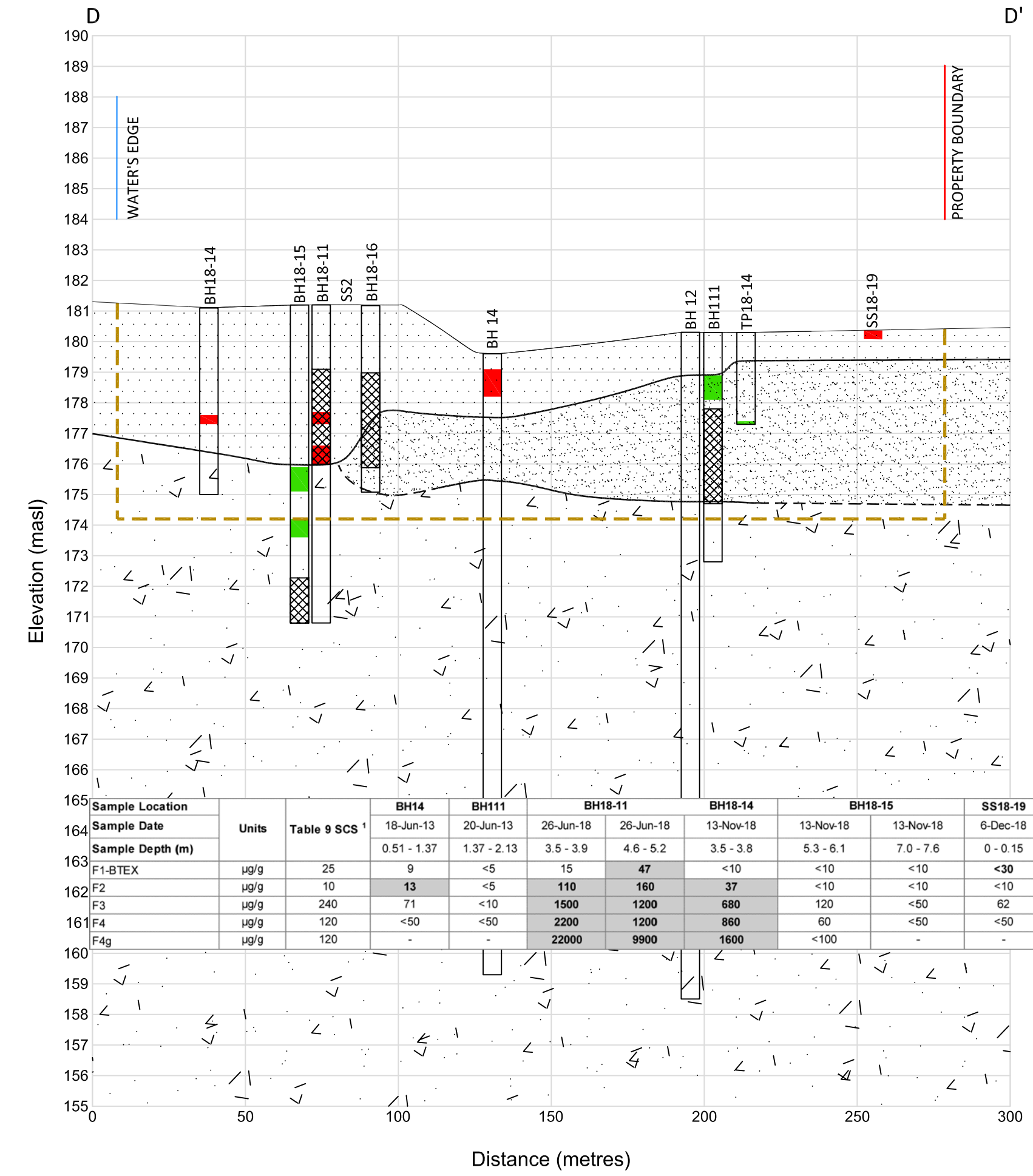
F1-BTEX	25
F2	10
F3	240
F4	120

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).

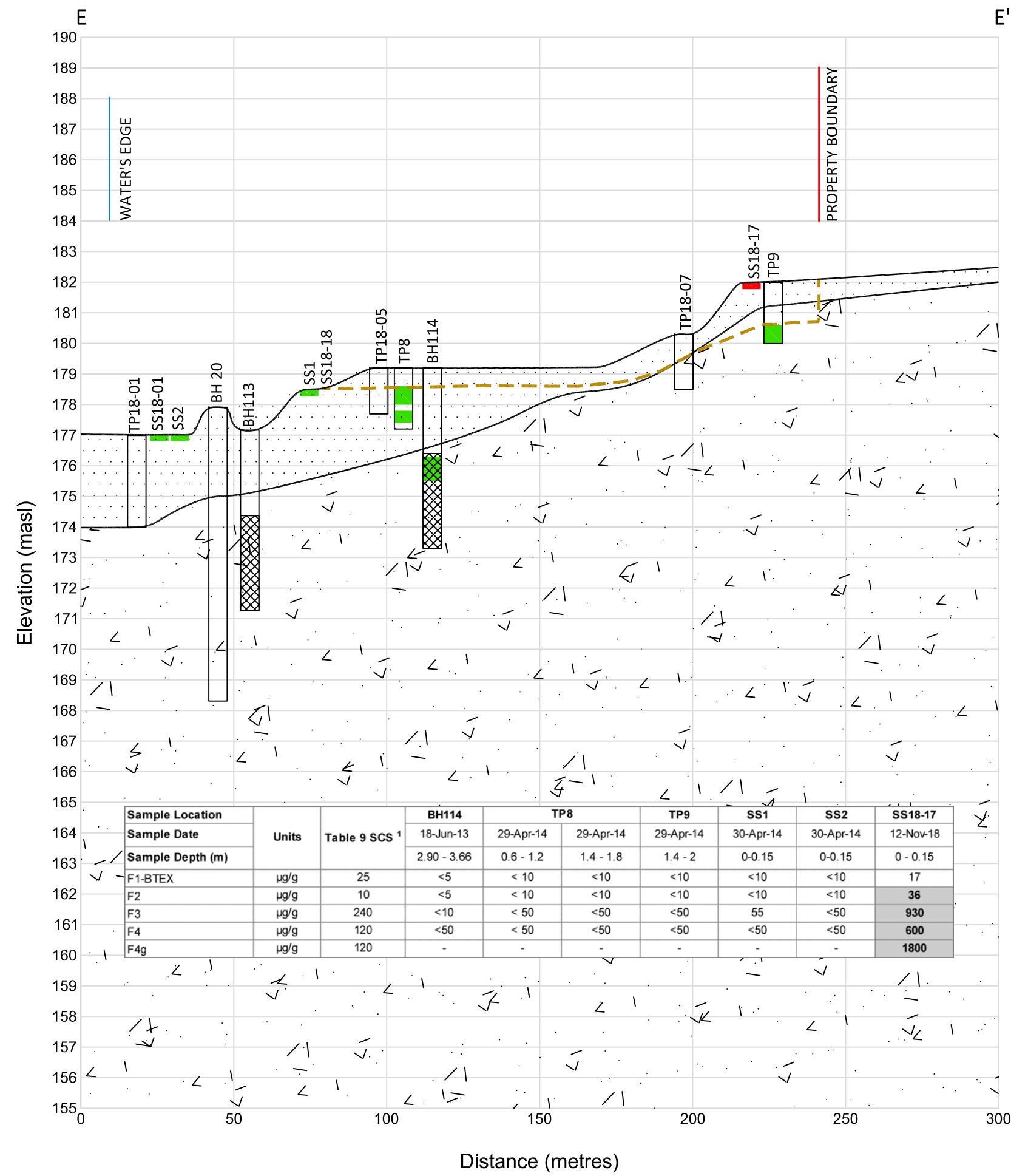
Cross - Section C-C'



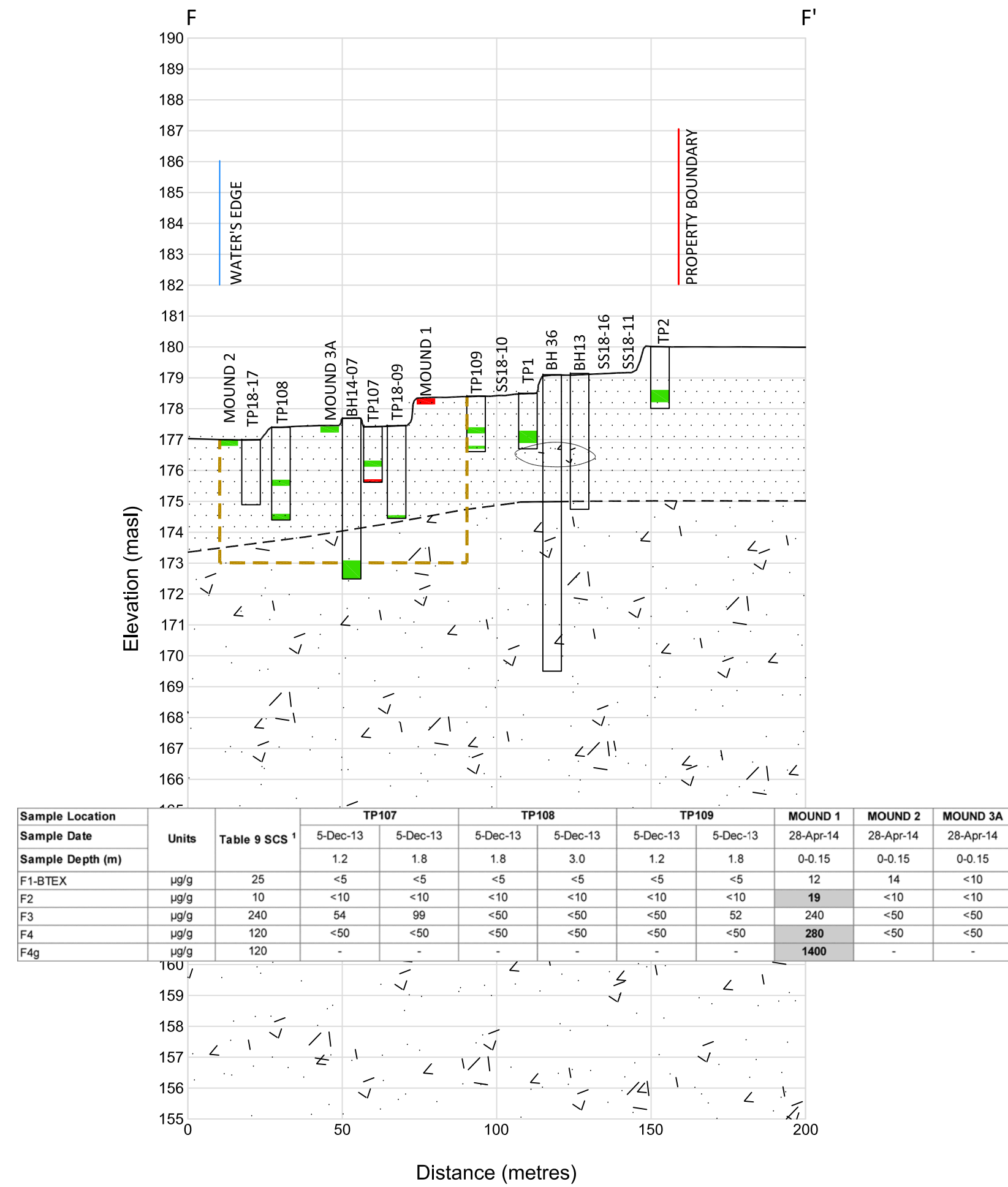
Cross - Section D-D'



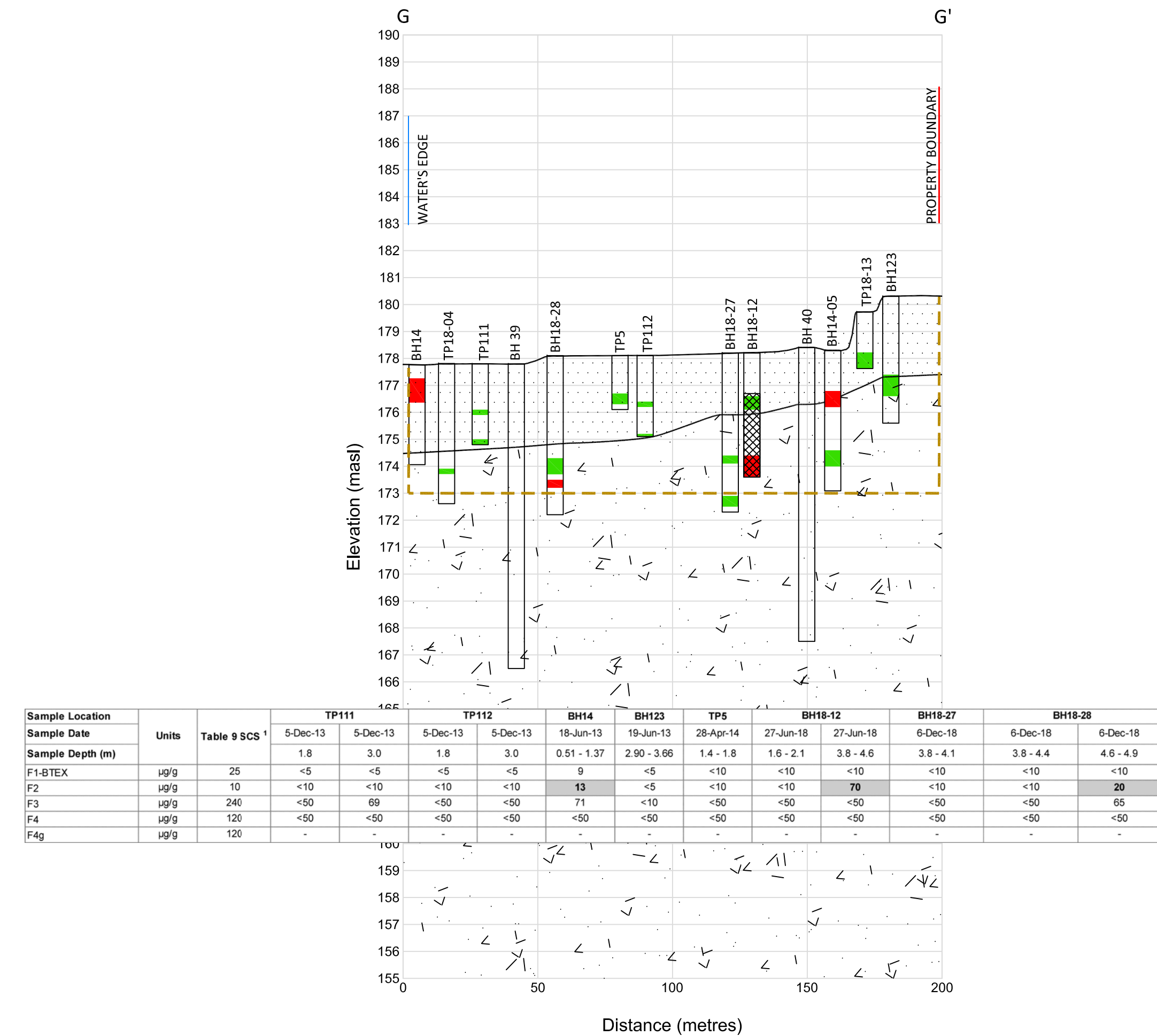
Cross - Section E-E'



Cross - Section F-F'



Cross - Section G-G'





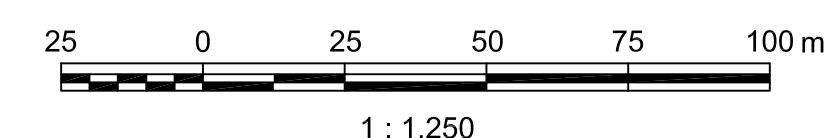
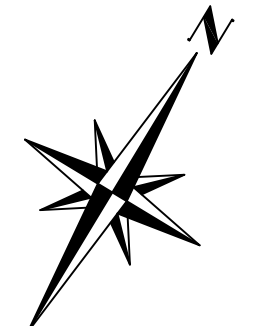
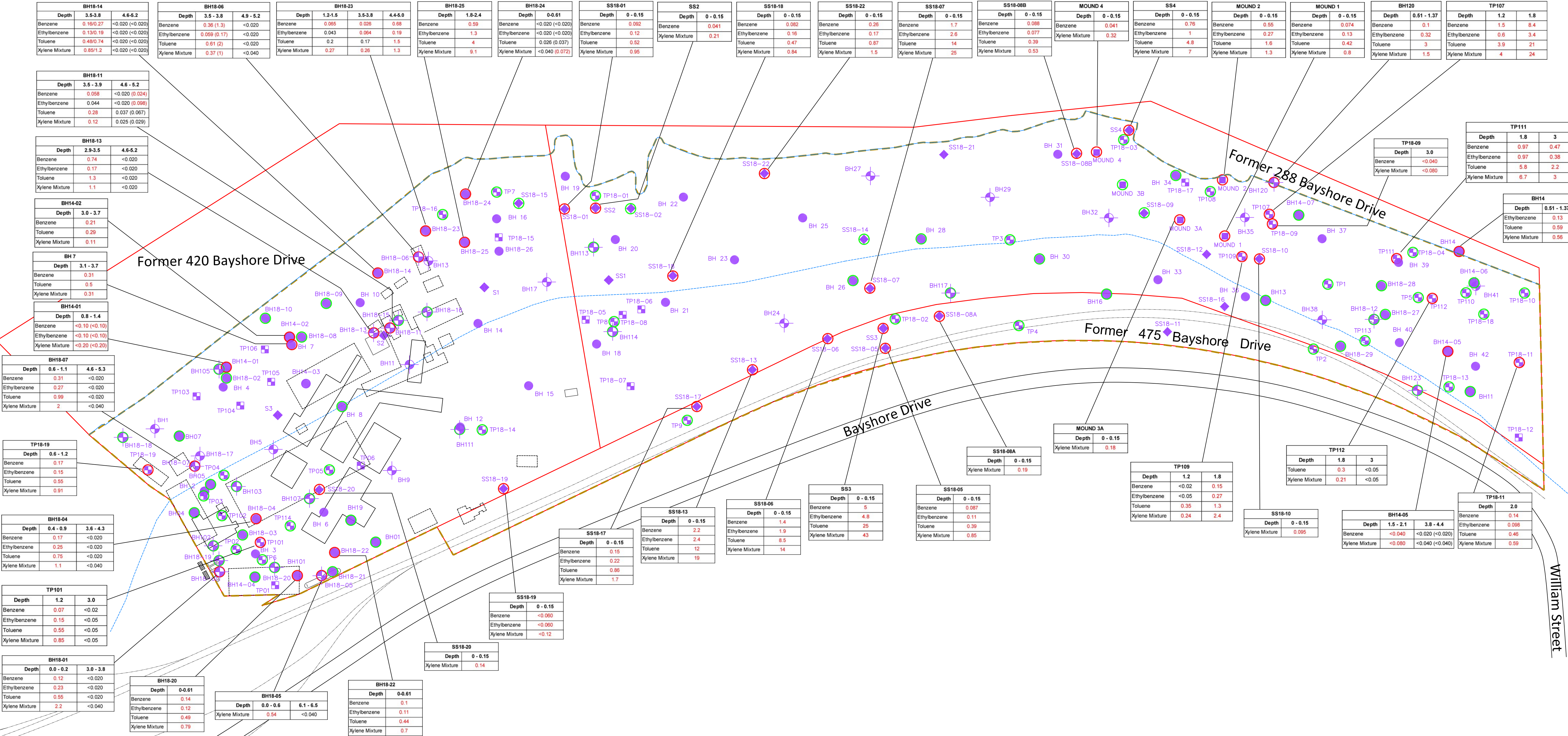
M I D L A N D B A Y O F G E O R G I A N B A Y

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT  
MIDLAND BAY LANDING CORPORATION OF THE TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario

Sample Location	TP02	TP03	TP04	TP05	TP101	TP102	TP108	TP110	TP112	TP113	TP114	BH01	BH101	BH102	BH04	BH05	BH103	BH07	BH105	BH114	BH113	BH11	BH13	BH123	BH16	BH117	BH107	BH19	BH111							
Sample Date	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13	4-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	17-Jun-13	17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	20-Jun-13	20-Jun-13	20-Jun-13						
Sample Depth (m)	2.0	3.0	1.5	2.5	2.0	3.5	2.0	3.0	1.8	3.0	1.8	3.0	1.8	3.0	1.8	3.7	1.8	4.3	5.94 - 6.71	3.66 - 4.42	2.13 - 2.90	2.90 - 3.66	2.13 - 2.90	4.42 - 5.18	2.90 - 3.66	2.90 - 3.66	2.90 - 3.66	4.42 - 5.18	5.18 - 5.94	2.90 - 3.66	2.90 - 3.66	1.37 - 2.13	2.13 - 2.90	4.42 - 5.18	5.94 - 6.71	1.37 - 2.13

Sample Location	BH14-04	BH14-05	BH14-06	BH14-07	MOUND 3B	TP1	TP2	TP3	TP3	TP4	TP5	TP6	TP7	TP8	TP9	SS1	BH 8	BH 26	BH 28	BH 30	BH 34	BH18-01	BH18-02	BH18-03	BH18-04	BH18-05	BH18-06	BH18-07	BH18-08								
Sample Date	28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	30-Apr-14	20-May-15	25-May-15	25-May-15	26-May-15	26-May-15	11-Jun-15	11-Jun-15	27-May-15	26-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18	27-Jun-18
Sample Depth (m)	3.0 - 3.7	3.8 - 4.4	3.0 - 3.7	5.3 - 6.1	4.6 - 5.2	0-0.15	1.4 - 1.8	1.4 - 1.8	0.6 - 1.2	1.4 - 1.8	1.4 - 1.8	1.4 - 1.8	1.2 - 1.8	1.4 - 1.8	1.4 - 2	0-0.15	3.1 - 3.7	0.0 - 0.6	2.3 - 2.9	0-0.6	2.3-2.9	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	3.0 - 3.8	0.4 - 0.6	2.2 - 2.6	3.6 - 4.3	3.6 - 4.3	6.1 - 6.5	4.9 - 5.2	4.6 - 5.3	4.0 - 4.4				

Sample Location	BH18-09	BH18-10	BH18-11	BH18-12	BH18-13	BH18-14	BH18-15	BH18-16	BH18-18	BH18-19	BH18-21	BH18-24	BH18-27	BH18-28	BH18-29	SS18-02	SS18-09	SS18-14	SS18-15	TP18-01	TP18-02	TP18-03	TP18-04	TP18-10	TP18-13	TP18-14	TP18-16	TP18-18							
Sample Date	27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	26-Jun-18	27-Jun-18	27-Jun-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	14-Jul-18	11-Jul-18	14-Aug-18	13-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18	14-Aug-18				
Sample Depth (m)	3.0 - 3.5	3.5 - 4.1	3.0 - 3.6	3.6 - 4.2	4.6 - 5.2	1.6 - 2.1	3.8 - 4.6	4.6 - 5.2	4.6 - 5.2	5.3 - 6.1	7.0 - 7.6	4.6 - 5.2	0.9 - 1.5	4.6 - 4.9	5.2 - 5.5	4.3 - 4.6	0 - 0.61	3.8 - 4.1	3.8 - 4.4	4.6 - 4.9	5.3 - 5.9	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	3.0	2.0	2.0	4.0	0.0 - 0.6	1.5 - 2.1	3.0	0.0 - 0.6	3.5	1.2 - 1.8 m



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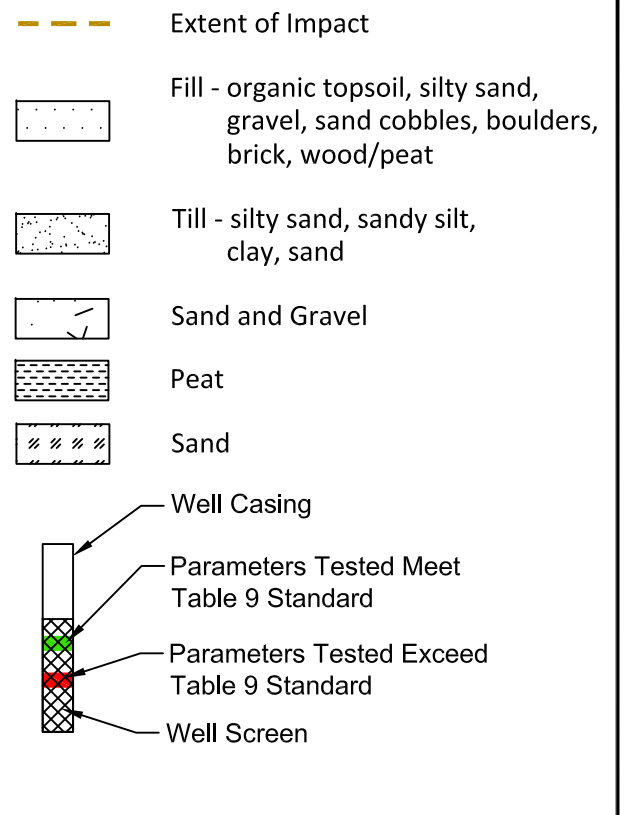
SOIL RESULTS - BTEX

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	12a		



PHASE TWO ENVIRONMENTAL SITE ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario

LEGEND



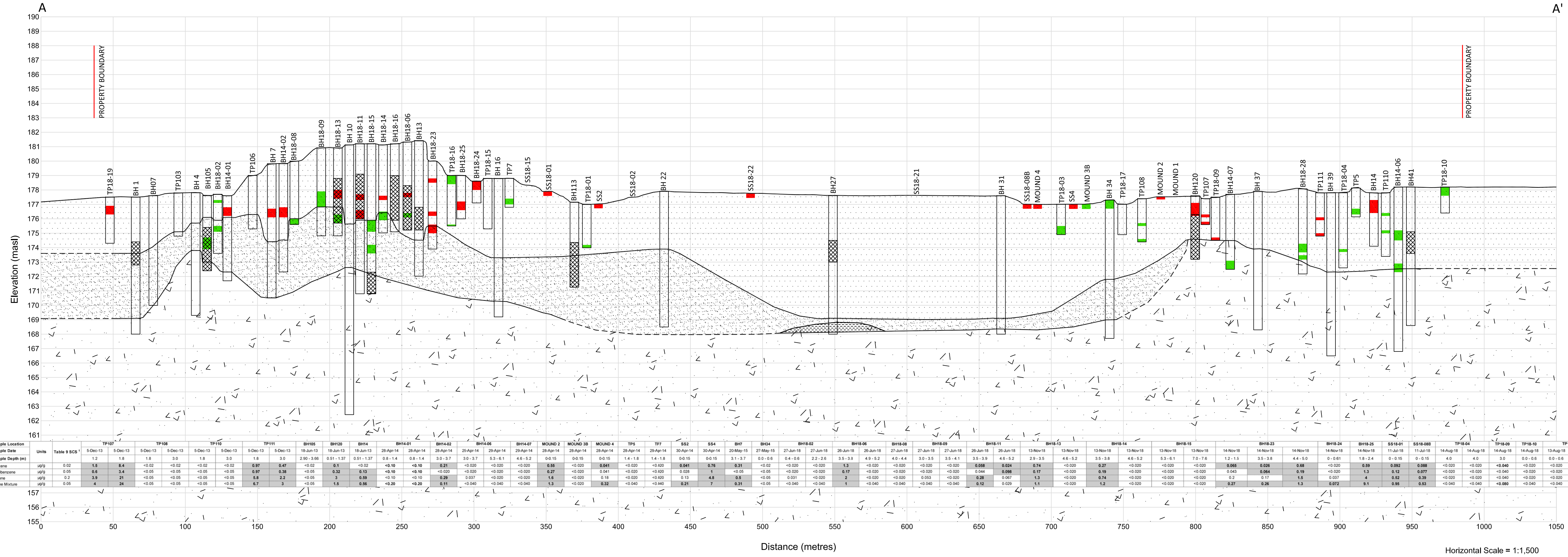
NOTE: SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS

Benzene	0.02
Ethylbenzene	0.05
Toluene	0.2
Xylene Mixture	0.05

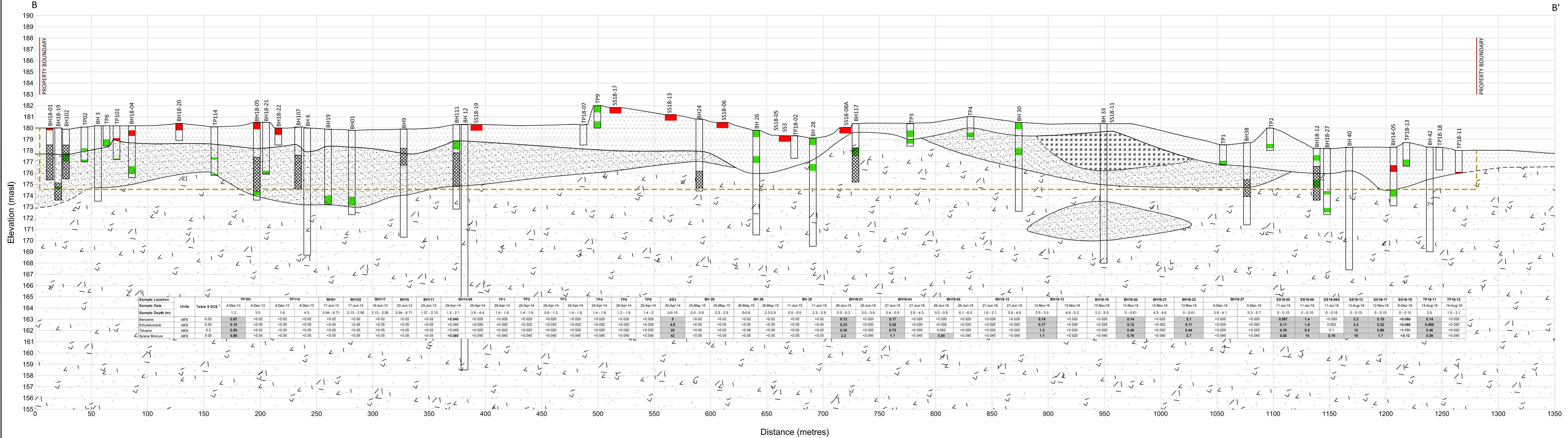
Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).

Cross - Section A-A'



Horizontal Scale = 1:1,500  
Vertical Scale = 1:150

Cross - Section B-B'



Horizontal Scale = 1:1,750  
Vertical Scale = 1:175



LEGEND

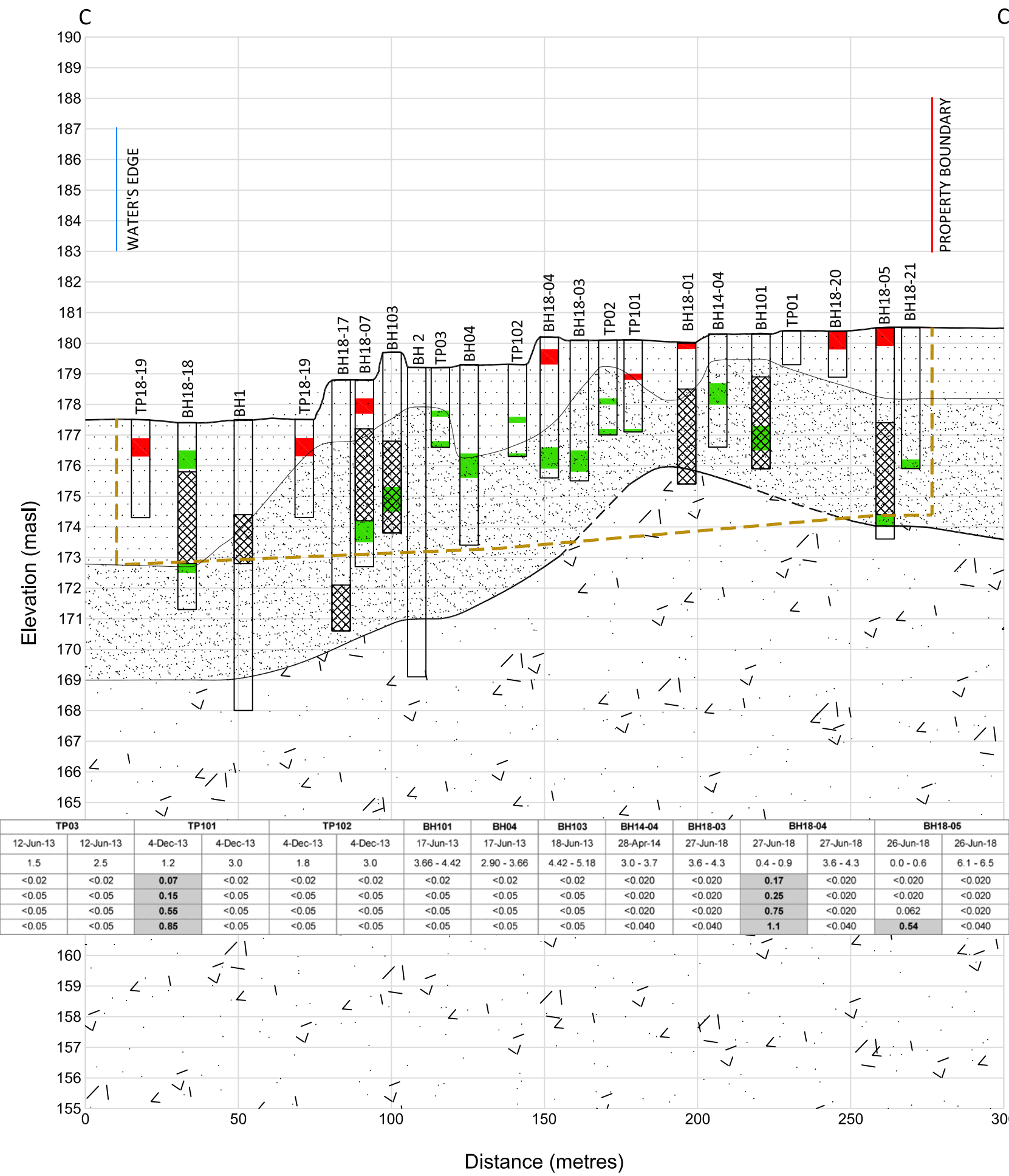
- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

NOTE: SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS	
Benzene	0.02
Ethylbenzene	0.05
Toluene	0.2
Xylene Mixture	0.05

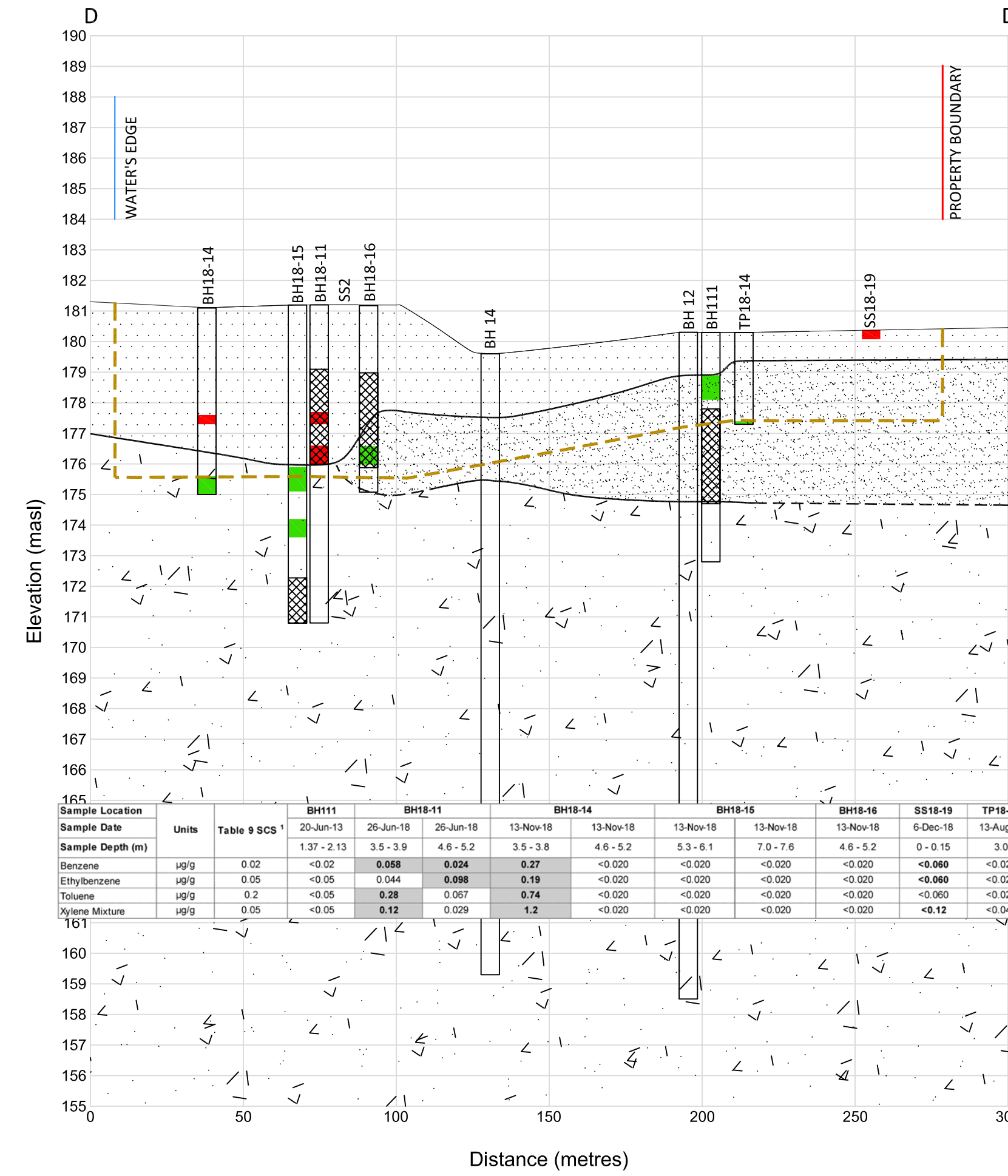
Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).

Cross - Section C-C'



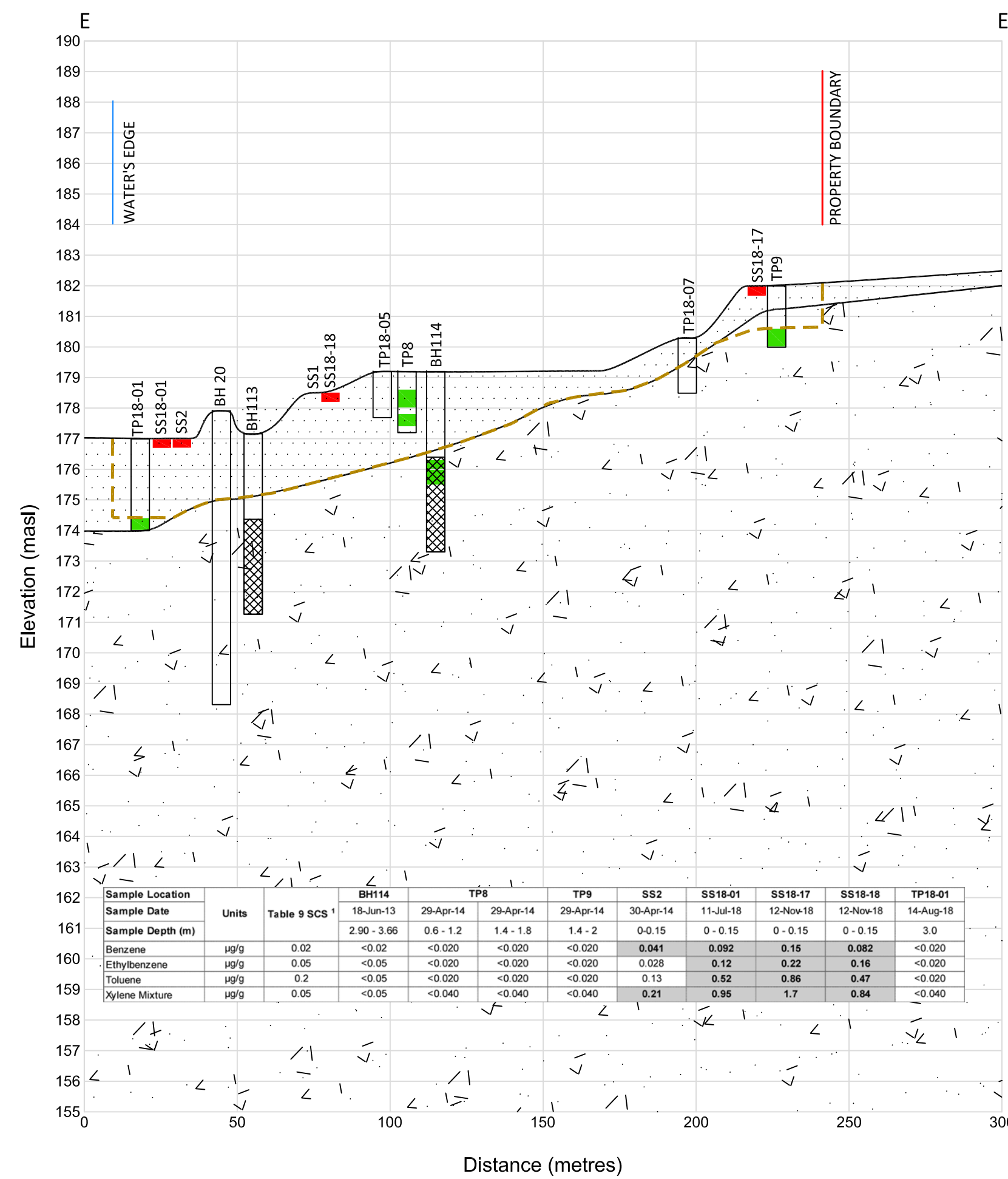
Sample Location	Units	Table 9 SCS	TP02	TP03	TP101	TP102	BH101	BH04	BH103	BH14-04	BH18-03	BH18-04	BH18-05	BH18-07	BH18-19	BH18-20	BH18-21	TP18-19						
Sample Date			12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13	17-Jun-13	18-Jun-13	28-Apr-14	27-Jun-13	26-Jun-18	26-Jun-18	26-Jun-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Aug-18						
Sample Depth (m)			2.0	3.0	1.5	2.5	1.2	3.0	3.69 - 4.42	2.90 - 3.66	4.42 - 5.18	3.0 - 3.7	3.6 - 4.3	0.4 - 0.9	3.6 - 4.3	0.0 - 0.6	6.1 - 6.5	0.6 - 1.1	4.6 - 5.3	5.2 - 5.5	0 - 0.61	4.3 - 4.6	0.6 - 1.2	
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.31	<0.02	<0.02	0.14	<0.02	0.17	<0.02
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	<0.05	<0.05	0.12	<0.05	0.14	<0.05
Toluene	µg/g	0.2	<0.05	<0.05	<0.05	0.65	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.99	<0.05	<0.05	0.49	<0.05	0.55	<0.05
Xylene Mixture	µg/g	0.05	<0.05	<0.05	<0.05	0.86	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.1	<0.05	<0.05	0.84	<0.05	0.91	<0.05

Cross - Section D-D'



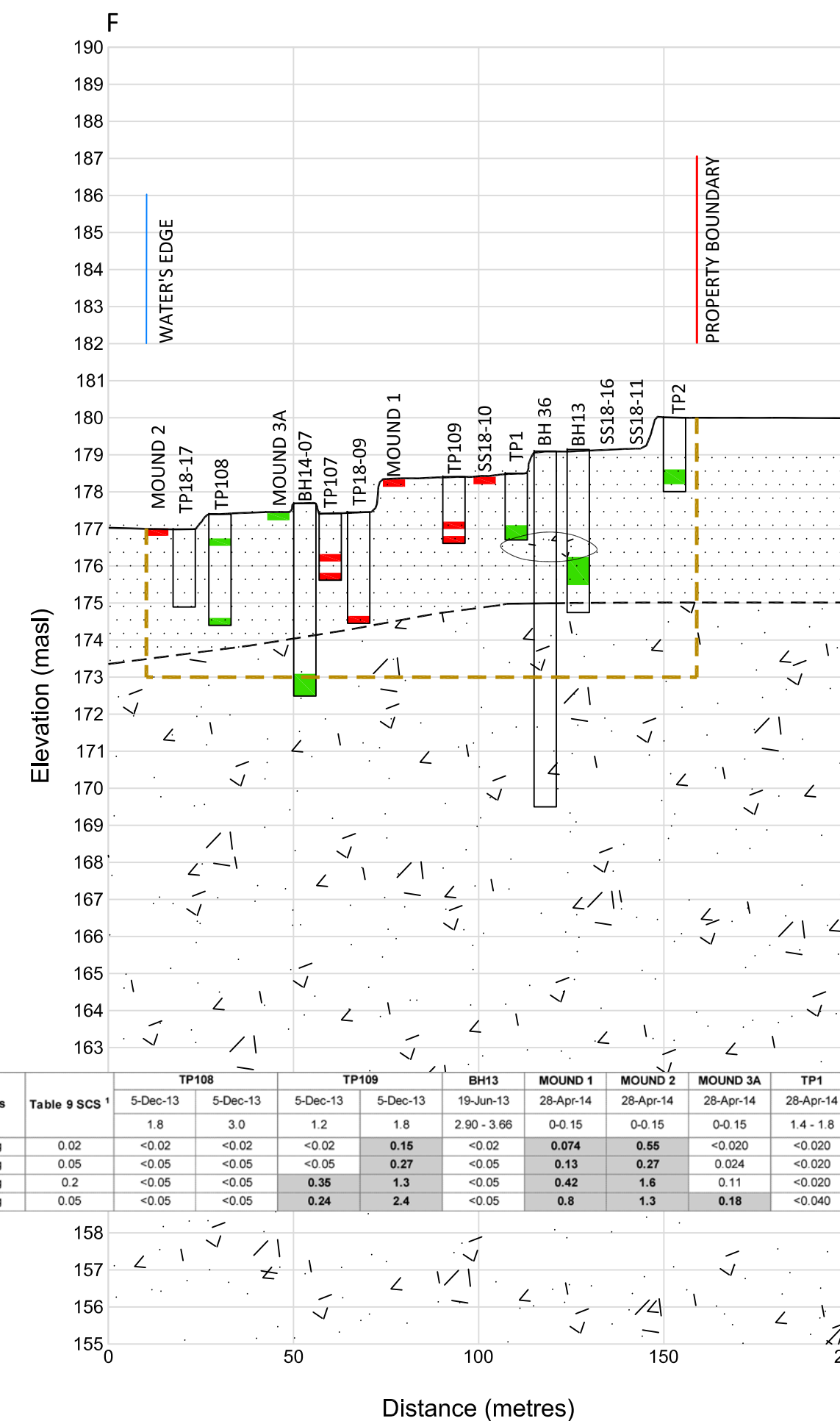
Sample Location	Units	Table 9 SCS	BH111	BH18-11	BH18-14	BH18-15	BH18-16	BH18-19	SS18-19	TP18-14
Sample Date			20-Jun-13	20-Jun-18	20-Jun-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Aug-18
Sample Depth (m)			1.37 - 2.13	3.5 - 3.9	4.6 - 5.2	3.5 - 3.8	4.6 - 5.2	5.3 - 6.1	7.0 - 7.6	4.6 - 5.2
Benzene	µg/g	0.02	<0.02	0.08	0.04	0.27	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	0.05	<0.05	0.04	0.09	0.19	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	<0.05	0.28	0.07	0.74	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	<0.05	0.12	0.029	1.2	<0.05	<0.05	<0.05	<0.05

Cross - Section E-E'



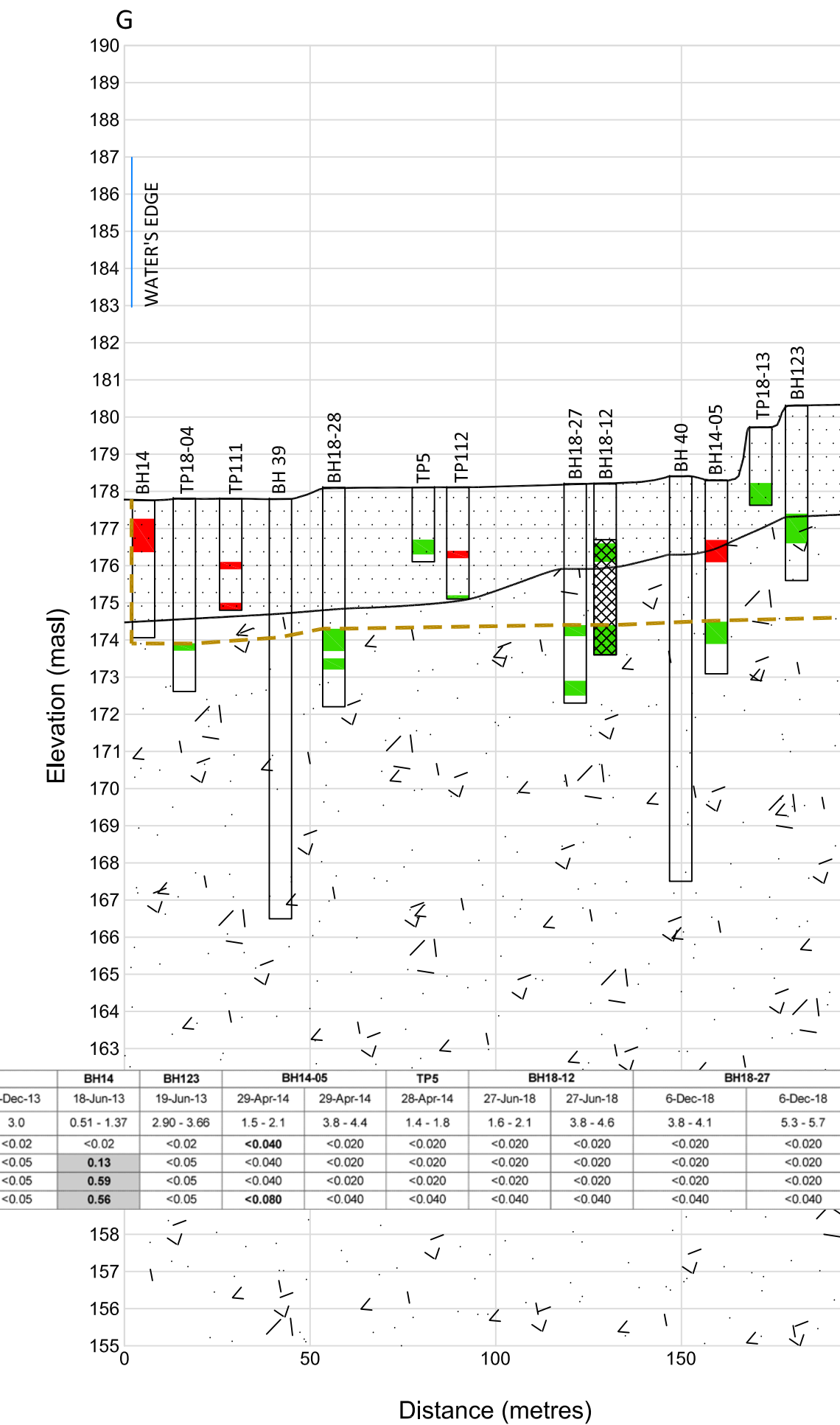
Sample Location	Units	Table 9 SCS	BH114	TP8	TP9	SS2	SS18-01	SS18-17	SS18-18	TP18-01
Sample Date			19-Jun-13	29-Apr-14	29-Apr-14	30-Apr-14	11-Jun-18	12-Nov-18	12-Nov-18	14-Aug-18
Sample Depth (m)			2.90 - 3.66	0.6 - 1.2	1.4 - 1.8	1.4 - 2	0 - 0.15	0 - 0.15	0 - 0.15	3.0
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	0.041	0.092	0.16	0.082
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.028	0.12	0.22	0.16
Toluene	µg/g	0.2	<0.05	<0.05	<0.05	<0.05	0.13	0.52	0.96	0.47
Xylene Mixture	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.21	0.96	1.7	0.84

Cross - Section F-F'



Sample Location	Units	Table 9 SCS	TP108	TP109	BH13	MOUND 1	MOUND 2	MOUND 3A	TP1	TP2	SS18-10
Sample Date			5-Dec-13	5-Dec-13	5-Dec-13	19-Jun-13	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	11-Jun-18
Sample Depth (m)			1.8	3.0	1.2	1.8	2.90 - 3.66	0.0 - 0.15	0.0 - 0.15	1.4 - 1.8	1.4 - 1.8
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	0.16	<0.02	0.074	0.06	<0.02	<0.02
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	0.27	<0.05	0.13	0.27	0.04	<0.05
Toluene	µg/g	0.2	<0.05	<0.05	0.35	1.3	<0.05	0.42	1.6	0.11	<0.05
Xylene Mixture	µg/g	0.05	<0.05	<0.05	0.24	2.4	<0.05	0.8	1.3	0.18	<0.05

Cross - Section G-G'



Sample Location	Units	Table 9 SCS	TP112	BH14	BH123	BH14-05	TP5	BH18-12	BH18-27	BH18-28	BH18-29	TP18-04
Sample Date			5-Dec-13	5-Dec-13	19-Jun-13	19-Jun-13	29-Apr-14	29-Apr-14	29-Apr-14	27-Jun-18	6-Dec-18	6-Dec-18
Sample Depth (m)			1.8	3.0	0.1 - 1.37	2.90 - 3.66	1.5 - 2.1	3.8 - 4.4	1.4 - 1.8	1.6 - 2.1	3.8 - 4.4	3.8 - 4.4
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05



M I D L A N D B A Y O F G E O R G I A N B A Y

PHASE TWO ENVIRONMENTAL  
SITE ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE  
TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario

Sample Location	TP02	TP03	TP04	TP05	TP101	TP102	TP107	TP108	TP109	TP110	TP111	TP112	TP113	TP114	BH01	BH101
Sample Date	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	17-Jun-13
Sample Depth (m)	2.0	3.0	1.5	2.5	3.5	2.0	1.2	3.0	1.8	1.8	3.0	1.2	1.8	3.0	5.94 - 6.71	3.66-4.42

Sample Location	BH102	BH04	BH05	BH103	BH07	BH105	BH114	BH113	BH11	BH120	BH13	BH14	BH123	BH16	BH117	BH107	BH19	BH111	MOUND 3A	MOUND 3B	MOUND 4	SS1	SS2	BH18-13	BH18-14	BH18-15	BH18-16	TP18-02	TP18-03	
Sample Date	17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	20-Jun-13	20-Jun-13	20-Jun-13	28-Apr-14	28-Apr-14	28-Apr-14	30-Apr-14	30-Apr-14	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	14-Aug-18	14-Aug-18
Sample Depth (m)	2.13-2.90	2.90-3.66	2.13-2.90	4.42-5.18	2.90-3.66	2.90-3.66	2.90-3.66	4.42-5.18	5.18-5.94	0.51-1.37	2.90-3.66	0.51-1.37	2.90-3.66	1.37-2.13	2.13-2.90	4.42-5.18	5.94-6.71	1.37-2.13	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	4.6 - 5.2	4.6 - 5.2	5.3 - 6.1	7.0 - 7.6	4.6 - 5.2	2.0	2.0

LEGEND

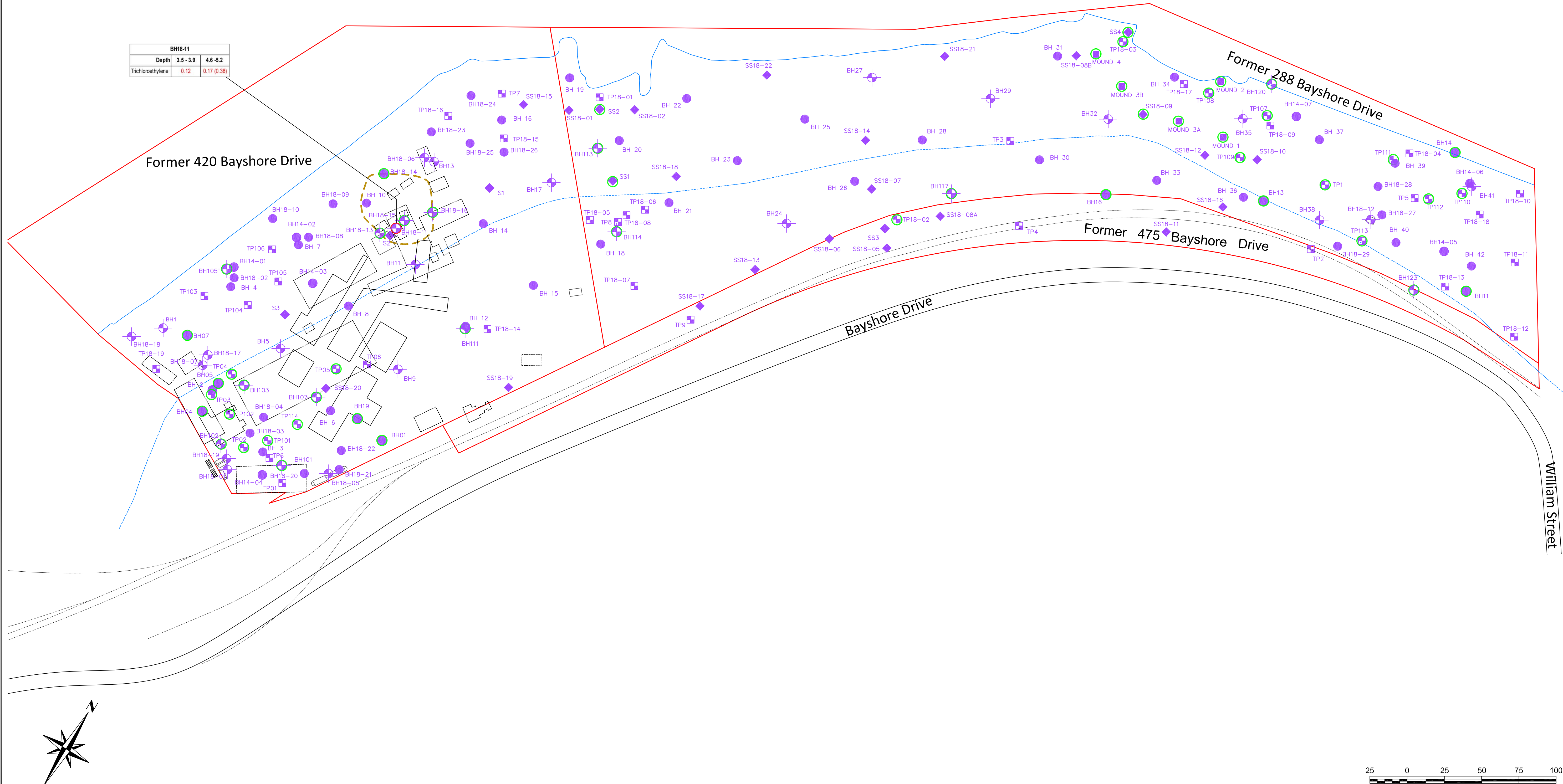
- MONITORING WELL
- BOREHOLE
- TEST PIT
- SURFICIAL SOIL SAMPLE
- MOUND
- WATER'S EDGE (Feb. 17, 2015)
- ORIGINAL WATER'S EDGE (APPROXIMATE)
- PROPERTY LINE
- FORMER RAIL LINE
- UNDERGROUND STORAGE TANK
- AST
- PARAMETERS TESTED MEET TABLE 9 SCS
- PARAMETERS TESTED EXCEED TABLE 9 SCS
- EXTENT OF IMPACT
- BUILDING FOOTPRINTS
  - RECENT
  - FROM 1917 AND 1948 FIRE INSURANCE PLANS

Table 9 SCS

Trichloroethylene	0.05
-------------------	------

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).

BH18-11	
Depth	3.5 - 3.9 4.6 - 5.2
Trichloroethylene	0.12 0.17 (0.38)



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SOIL RESULTS - VOCs

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	13a		



LEGEND

- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

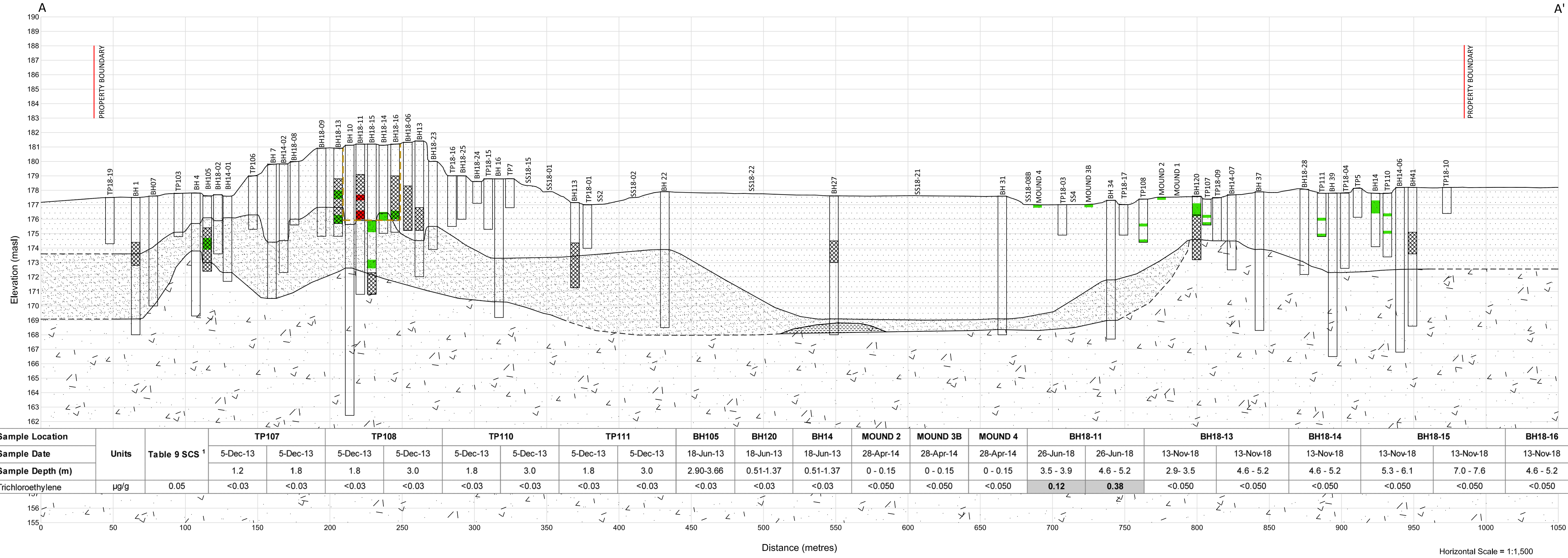
NOTE:  
SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS

Acetone	0.5
n-Hexane	0.05
Trichloroethylene	0.05

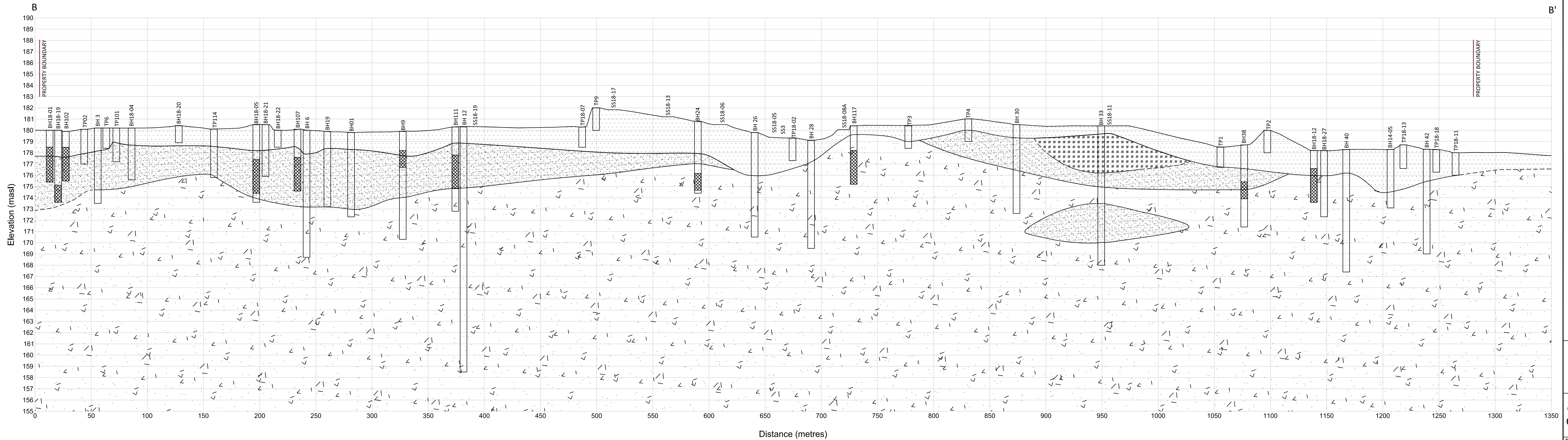
Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).

Cross - Section A-A'



Horizontal Scale = 1:1,500  
Vertical Scale = 1:150

Cross - Section B-B'



Horizontal Scale = 1:1,750  
Vertical Scale = 1:175

CROSS - SECTIONS A-A' AND B-B'  
CROSS - GRADIENT VOCs IN SOIL

Project No.: 6820-001	Date: October 2019
Horizontal Scale: As Shown	Vertical Scale: As Shown
Drawn By: TLC	Checked By: NJY
Figure: 13b	



LEGEND

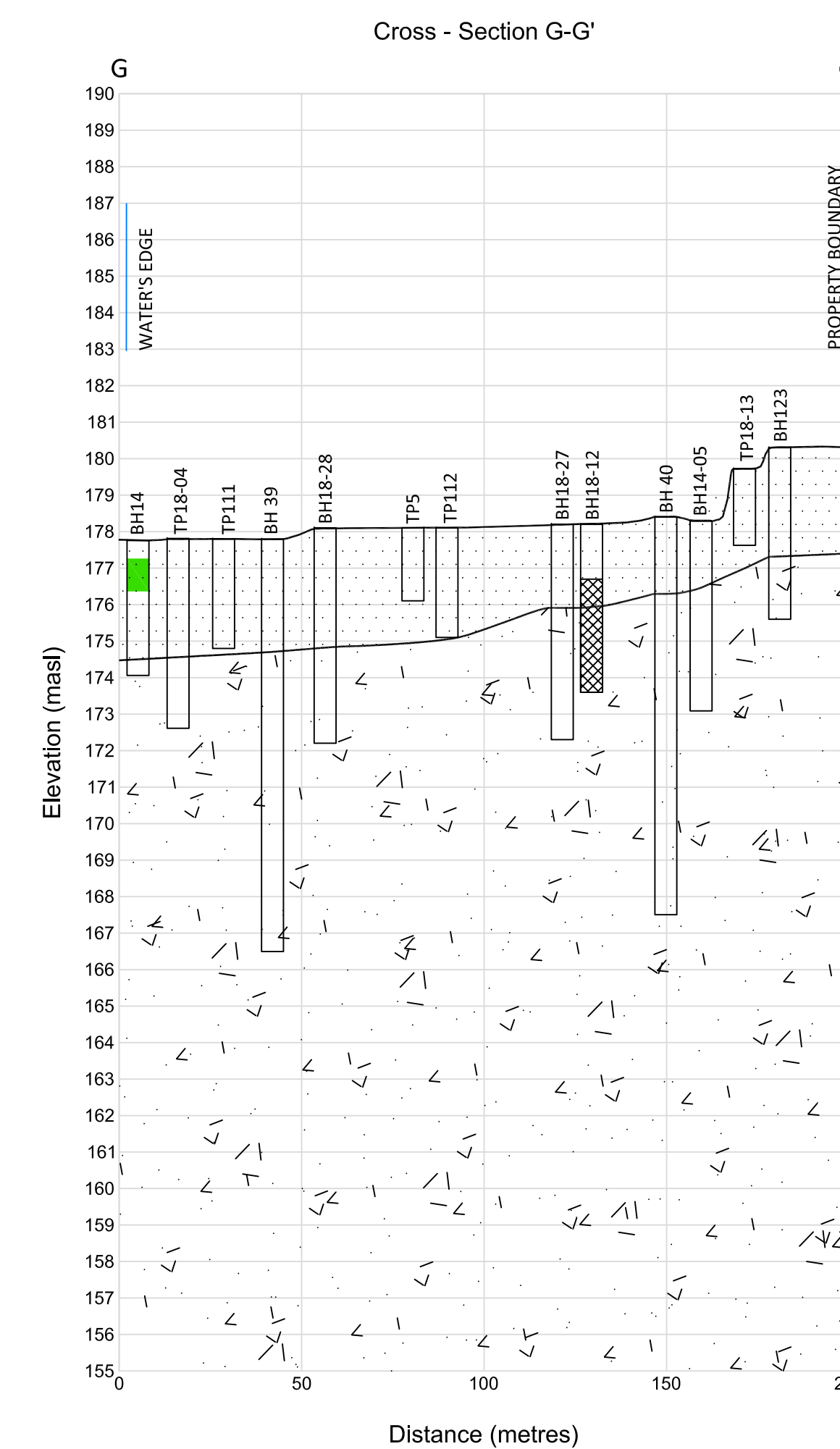
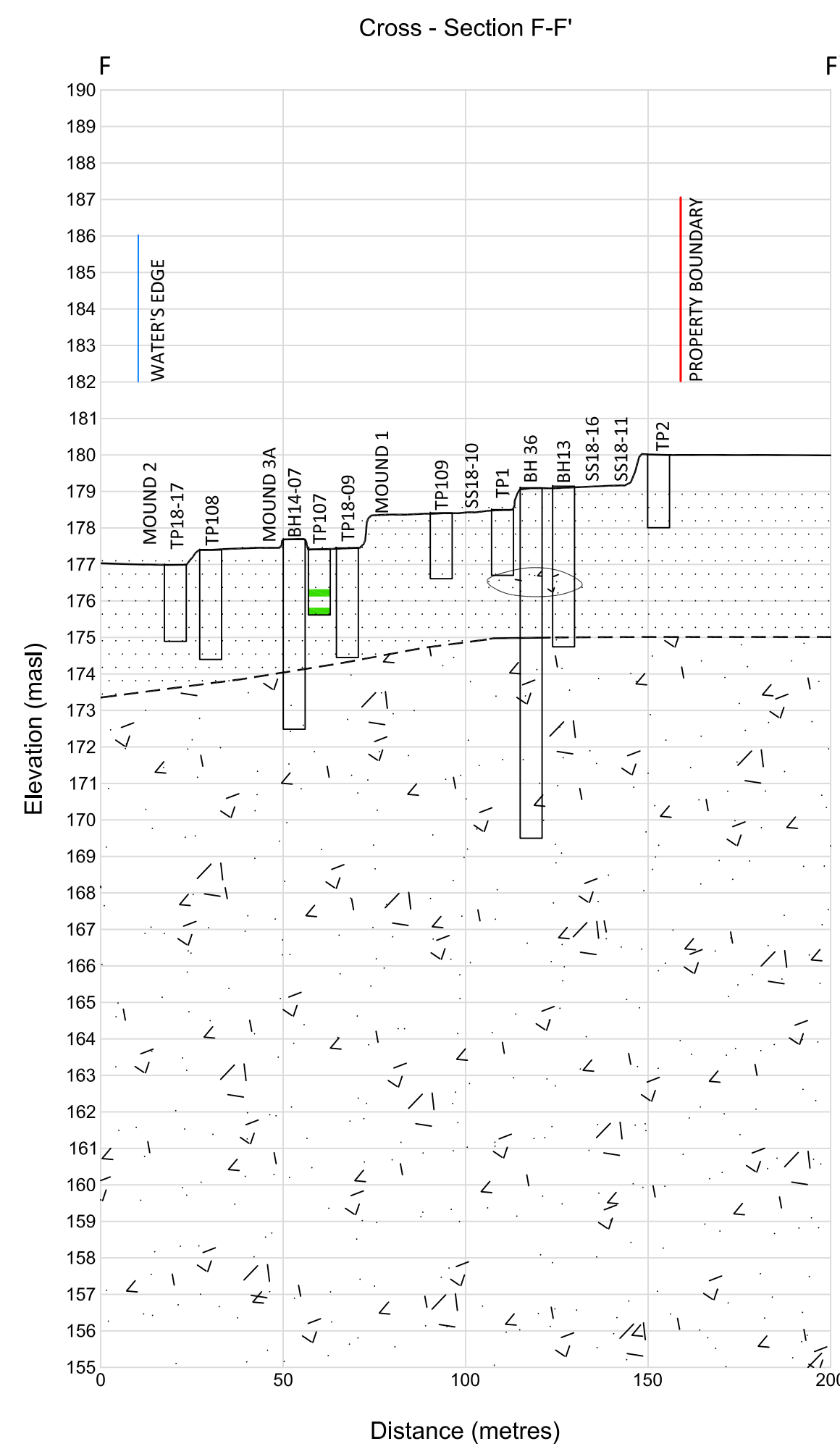
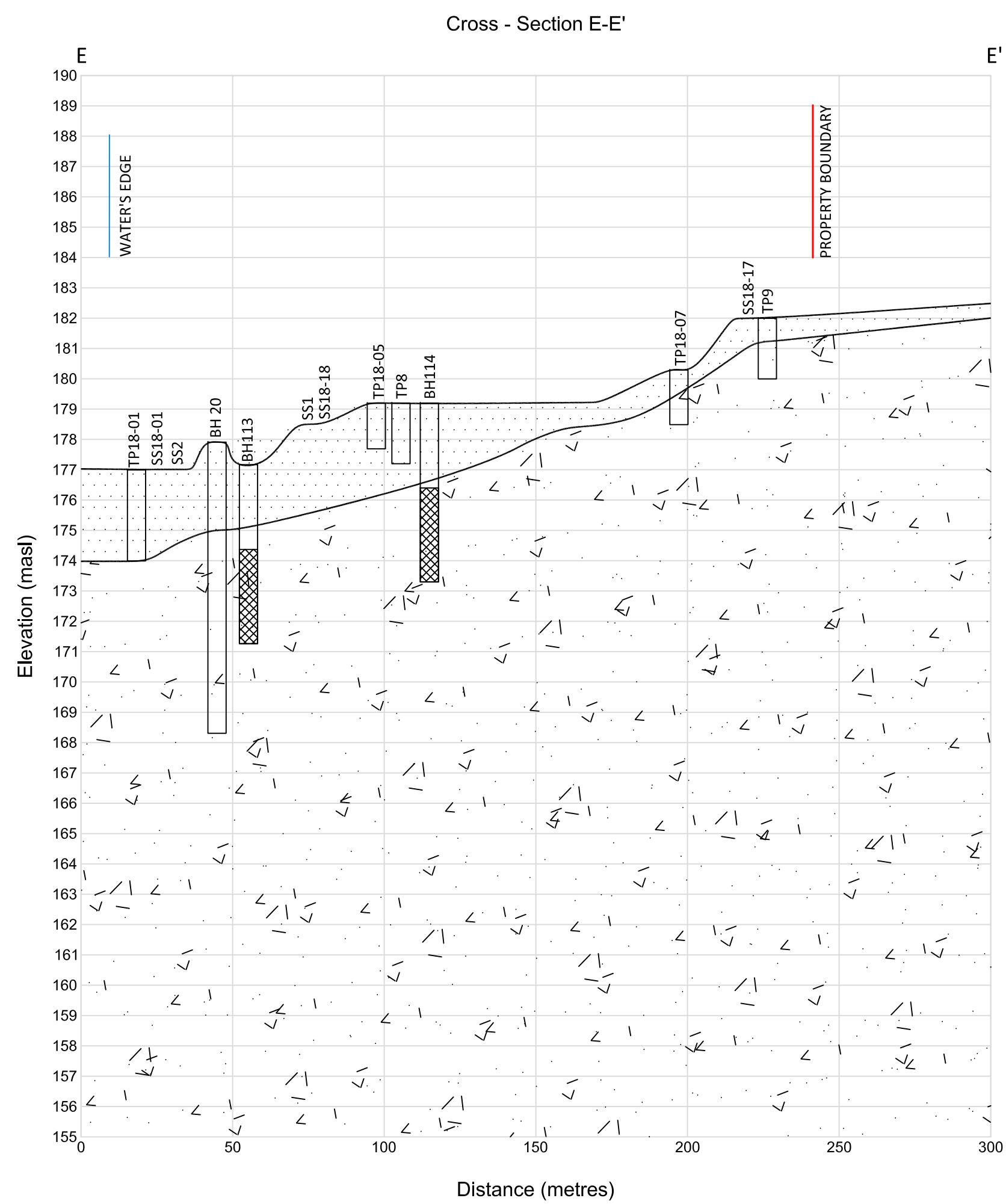
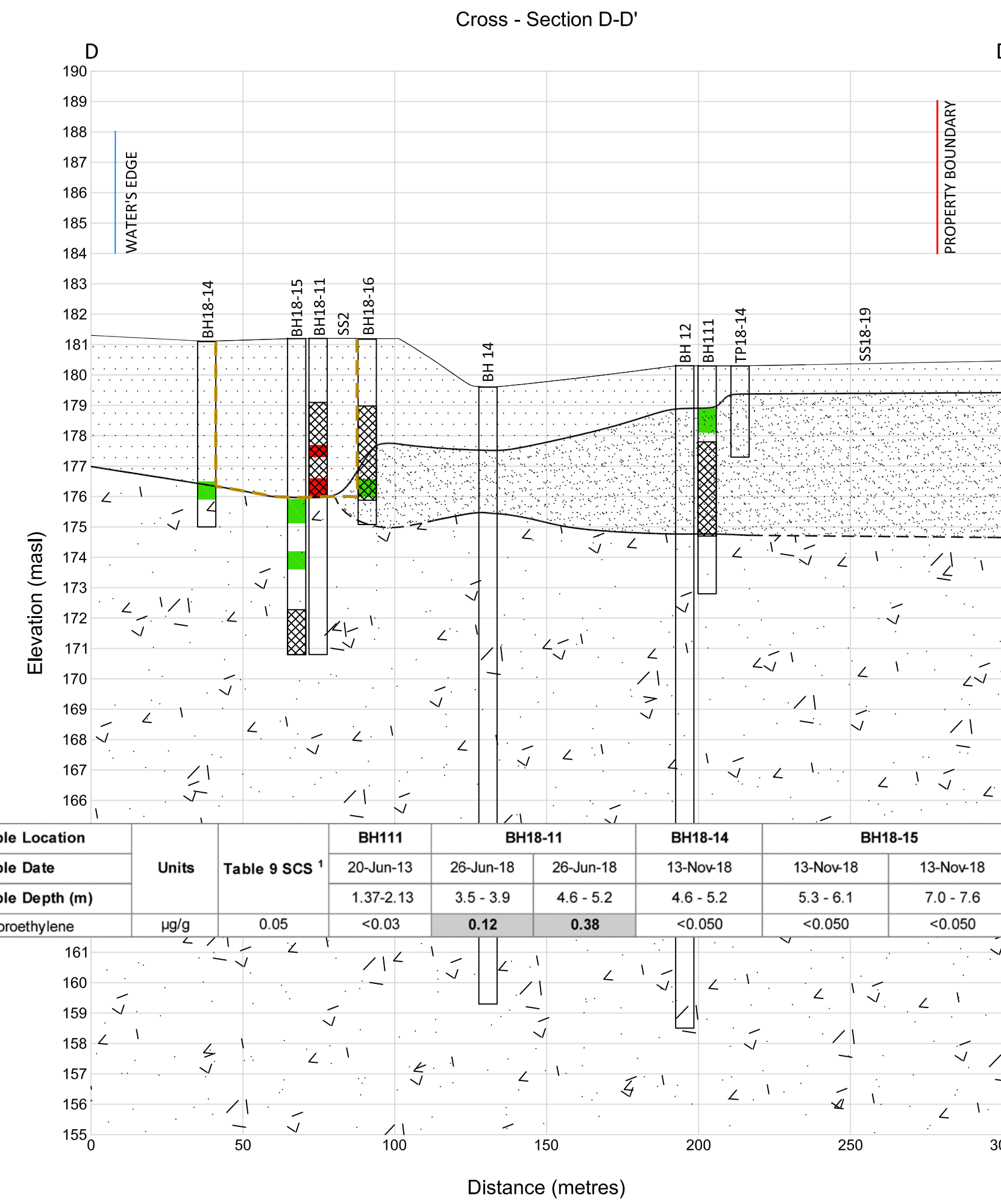
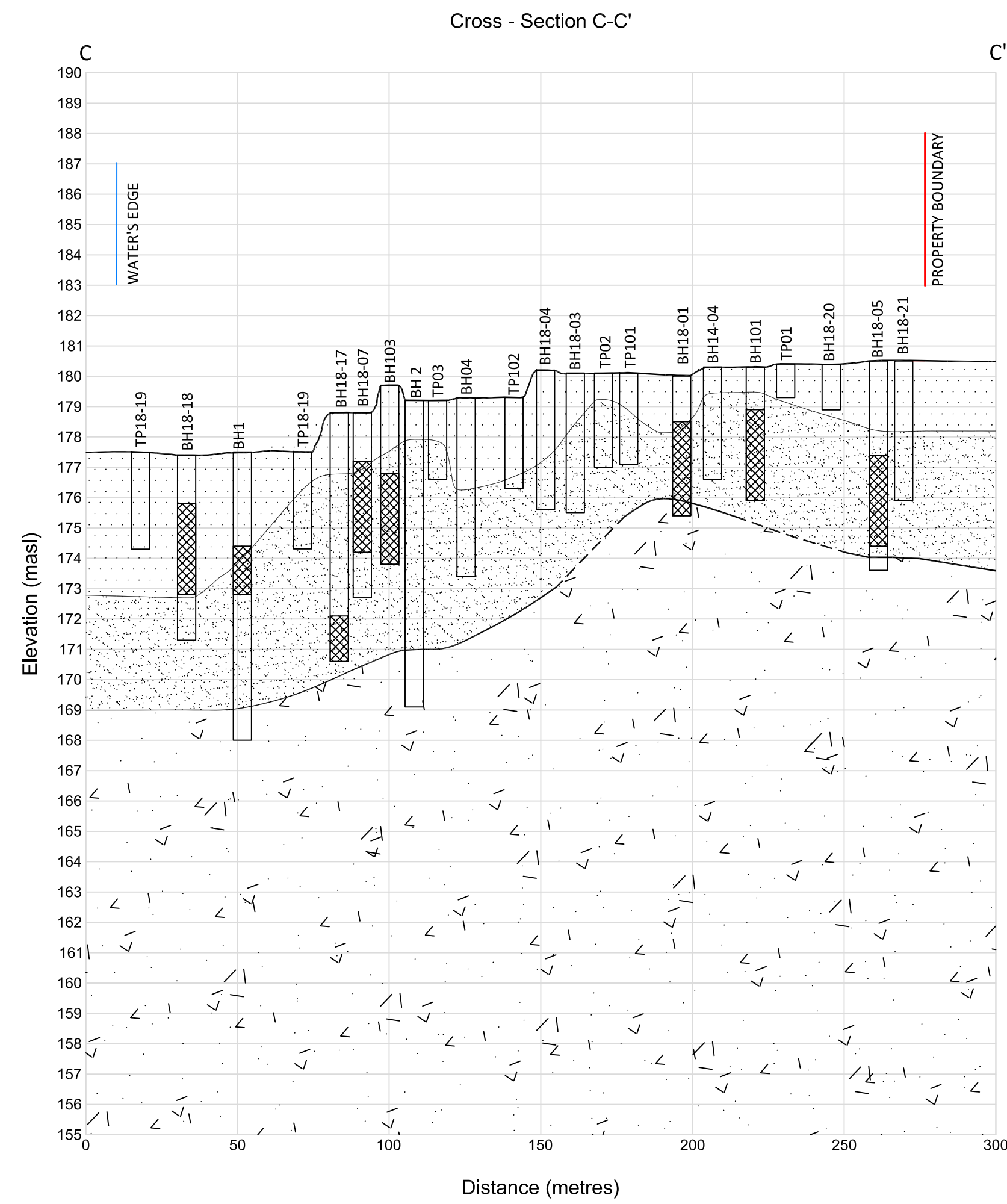
- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

NOTE:  
SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS

Trichloroethylene	0.05
-------------------	------

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).





M I D L A N D B A Y O F G E O R G I A N B A Y

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT MIDLAND BAY LANDING CORPORATION OF THE TOWN OF MIDLAND 420 Bayshore Drive, Midland, Ontario

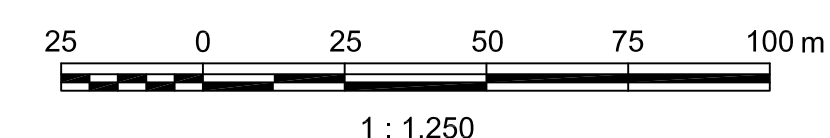
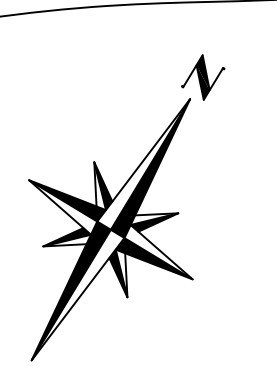
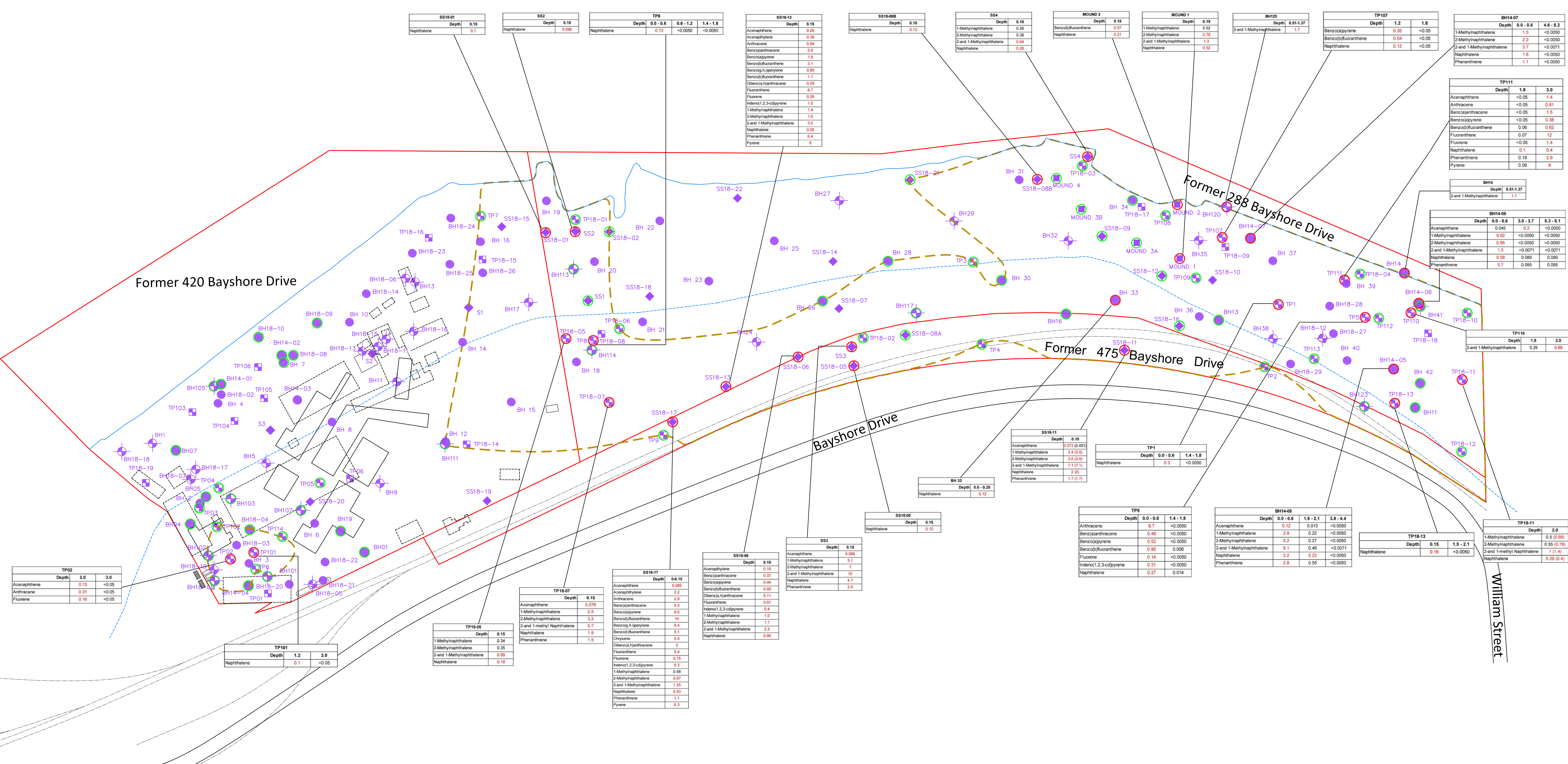
Table with 27 columns: Sample Location (TP02 to TP114, BH01 to BH114, MOUND 1 to MOUND 3), Sample Date, Sample Depth (m). Rows show data for various sample locations and dates.

Table with 26 columns: Sample Location (TP2 to TP9, SS1 to SS4, BH8 to BH42, BH18-01 to BH18-10, SS18-02 to SS18-16, TP18-01 to TP18-13), Sample Date, Sample Depth (m). Rows show data for various sample locations and dates.

LEGEND: MONITORING WELL, BOREHOLE, TEST PIT, SURFICIAL SOIL SAMPLE, MOUND, WATER'S EDGE (Feb. 17, 2015), ORIGINAL WATER'S EDGE (APPROXIMATE), PROPERTY LINE, FORMER RAIL LINE, UNDERGROUND STORAGE TANK, AST, PARAMETERS TESTED MEET TABLE 9 SCS, PARAMETERS TESTED EXCEED TABLE 9 SCS, BUILDING FOOTPRINTS, RECENT, FROM 1917 AND 1946 FIRE, INSURANCE PLANS.

Table 9 SCS: Table listing 17 PAHs and their corresponding SCS values. Includes Acenaphthene (0.072), Acenaphthylene (0.093), Anthracene (0.22), Benz(a)anthracene (0.36), Benzo(a)pyrene (0.3), Benzo(b)fluoranthene (0.47), Benzo(g,h,i)perylene (0.68), Benzo(k)fluoranthene (0.48), Chrysene (2.8), Dibenzo(a,h)anthracene (0.1), Fluoranthene (0.56), Fluorene (0.12), Indeno(1,2,3-cd)pyrene (0.23), 1-Methylnaphthalene (0.59), 2-Methylnaphthalene (0.59), Naphthalene (0.09), Phenanthrene (0.69), Pyrene (1).

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).



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SOIL RESULTS - PAHS

Table with 2 columns: Project No. (6820-001), Date (October 2019), Horizontal Scale (1:1,250), Vertical Scale (N/A), Drawn By (TLC), Checked By (NJY), Figure (14a).







**LEGEND**

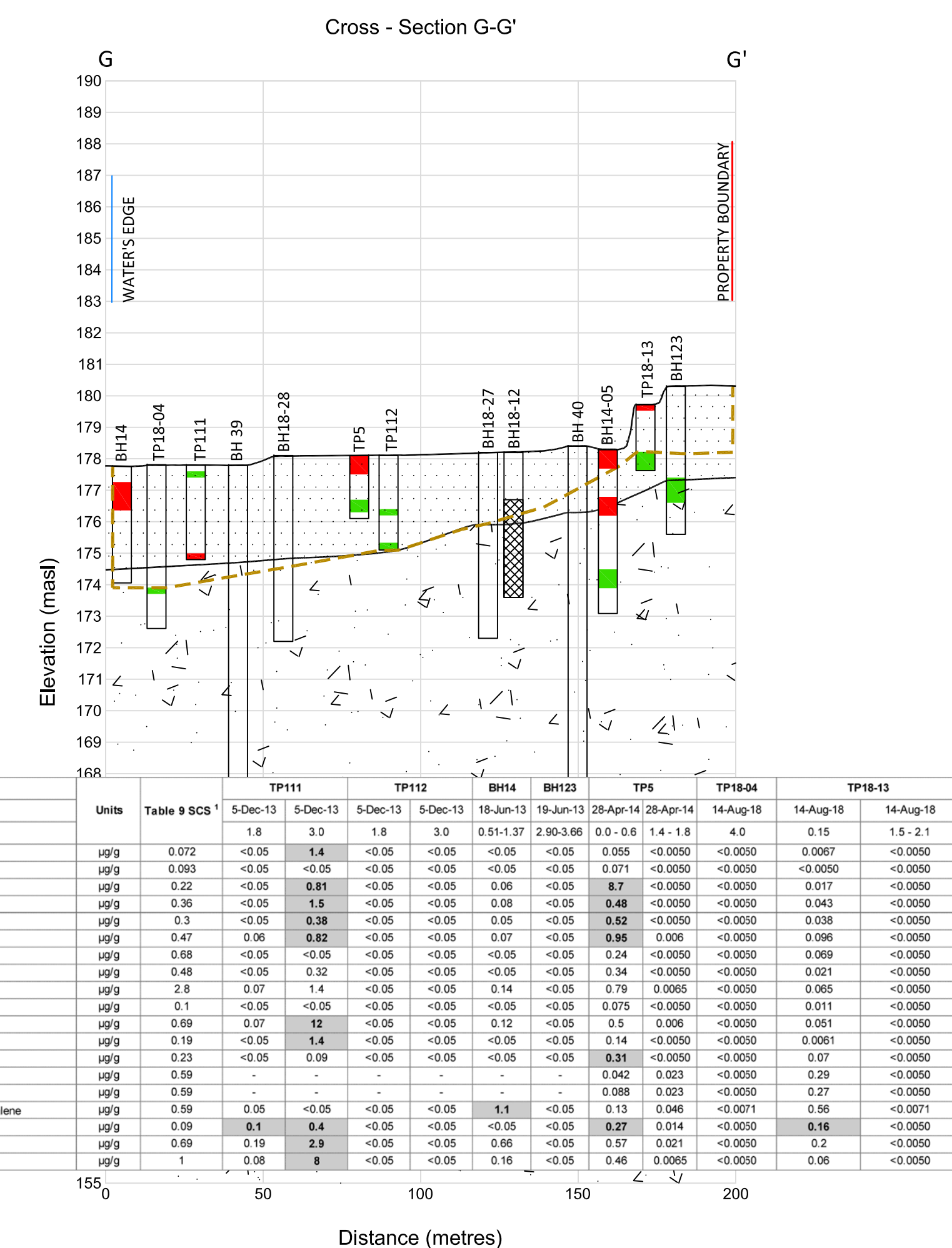
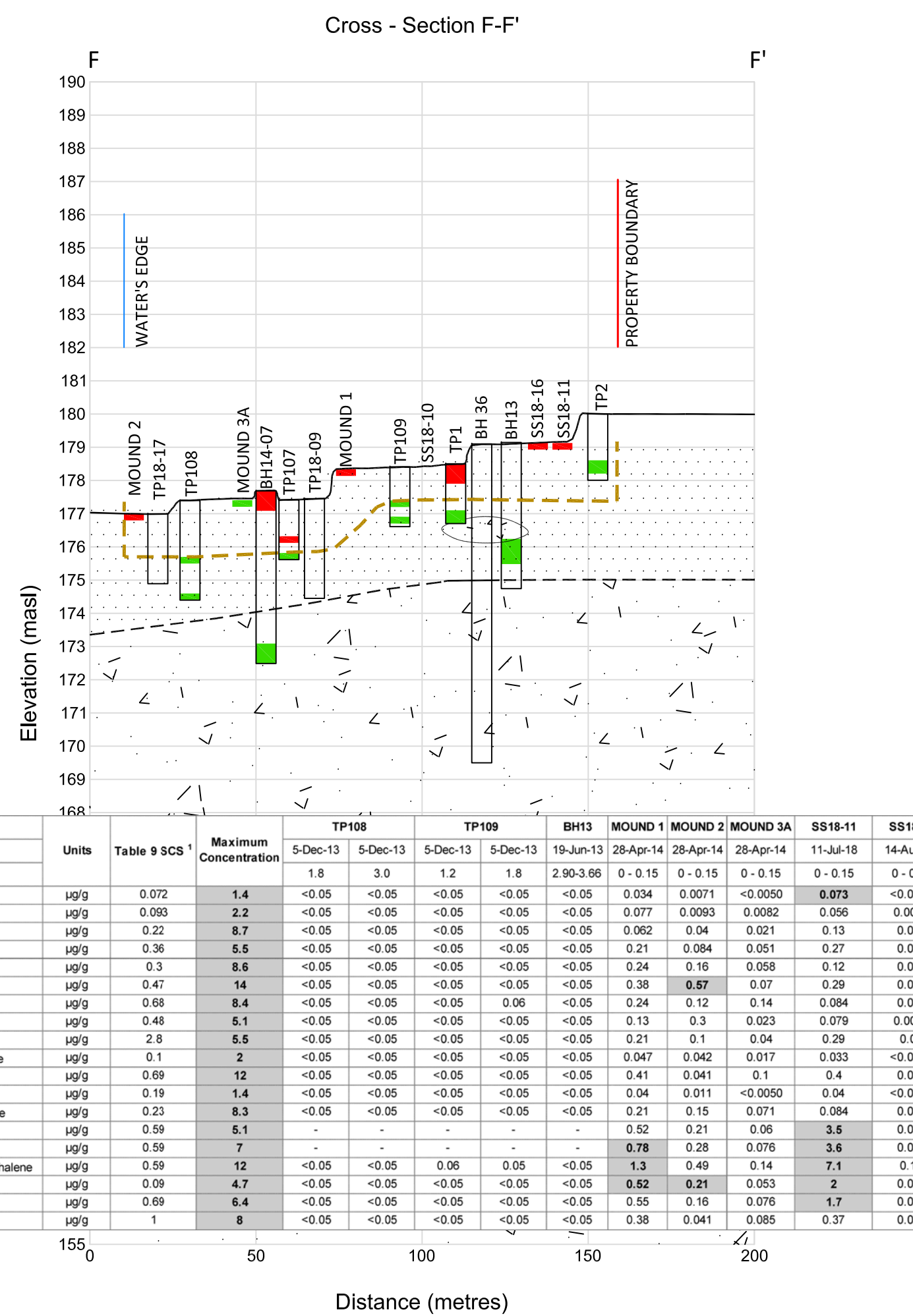
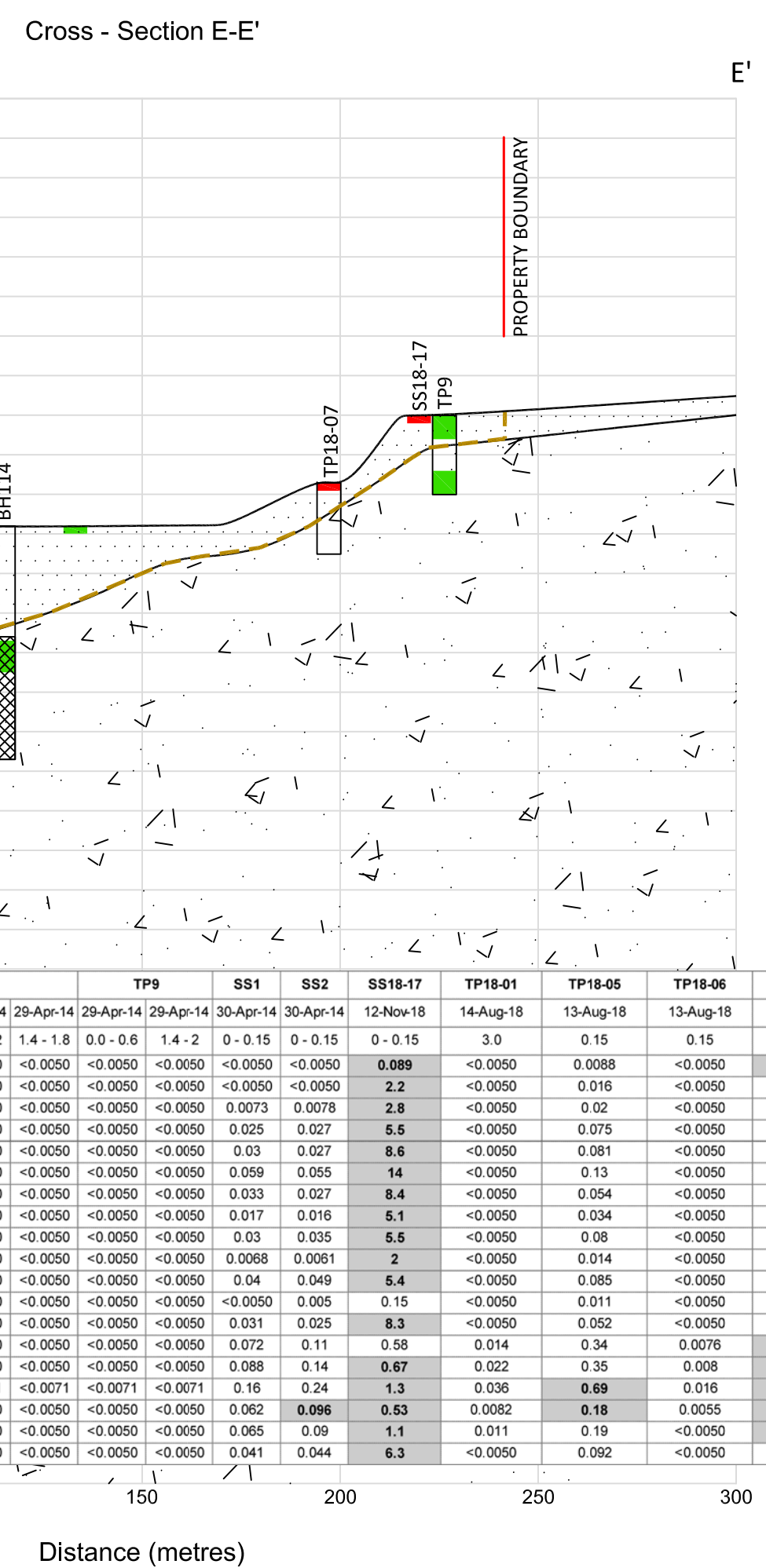
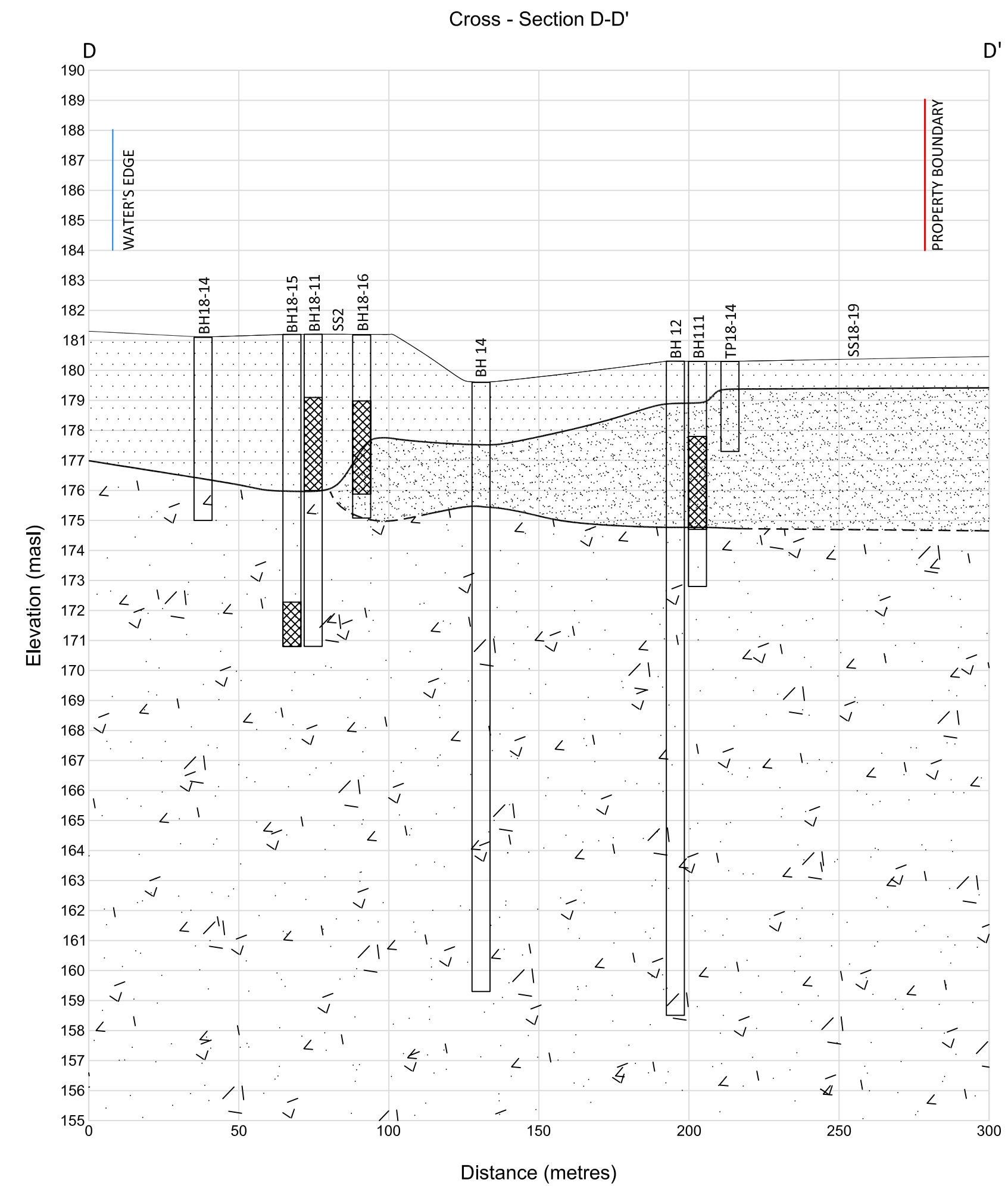
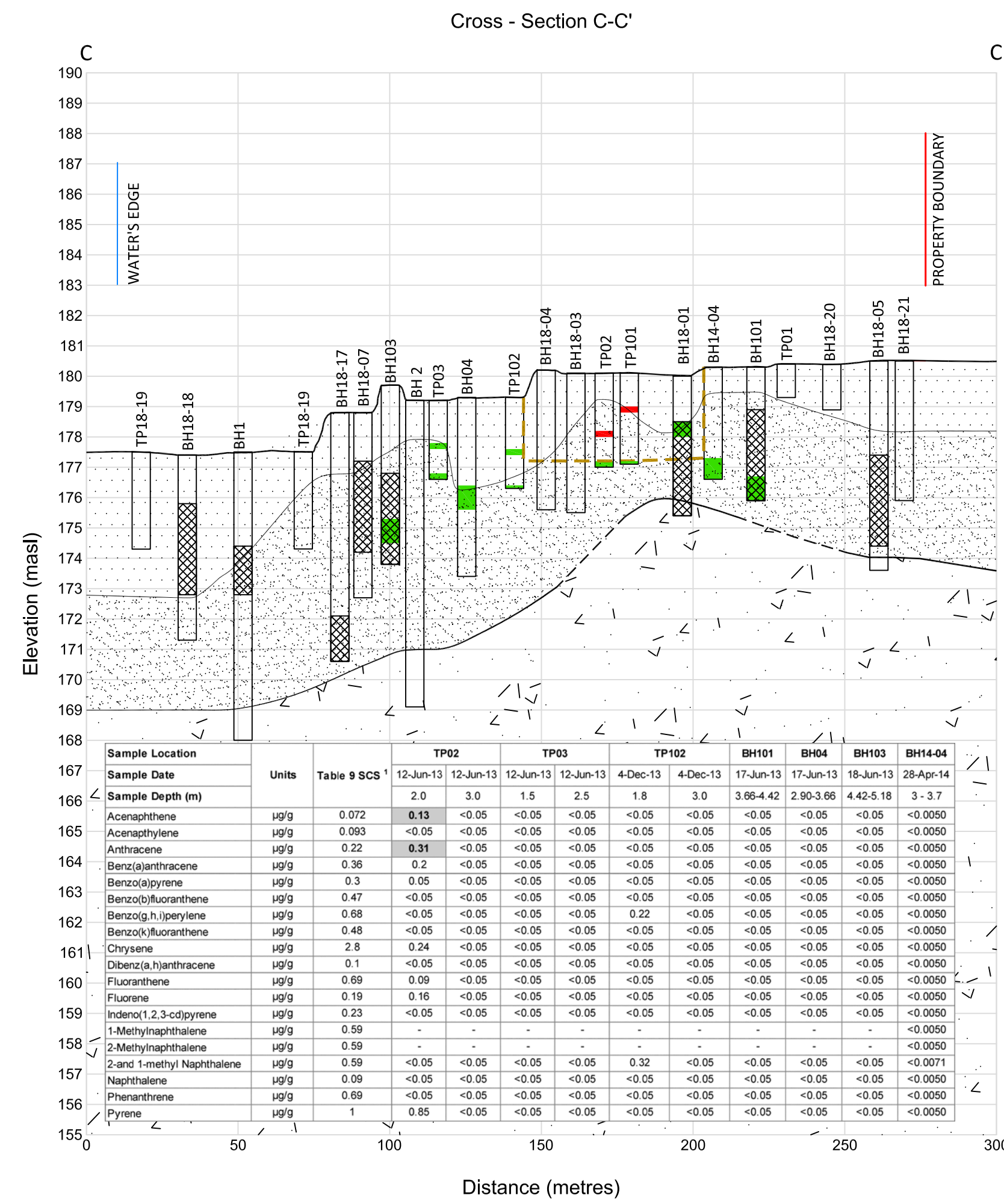
- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

NOTE:  
SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

**Table 9 SCS**

Acenaphthene	0.072
Acenaphthylene	0.093
Anthracene	0.22
Benzo(a)anthracene	0.36
Benzo(a)pyrene	0.3
Benzo(b)fluoranthene	0.47
Benzo(g,h,i)perylene	0.68
Benzo(k)fluoranthene	0.48
Chrysene	2.8
Dibenz(a,h)anthracene	0.1
Fluoranthene	0.56
Fluorene	0.12
Indeno(1,2,3-cd)pyrene	0.23
1-Methylnaphthalene	0.59
2-Methylnaphthalene	0.59
2 and 1-Methylnaphthalene	0.59
Naphthalene	0.09
Phenanthrene	0.69
Pyrene	1

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).





M I D L A N D B A Y O F G E O R G I A N B A Y

Sample Location	TP02	TP03	TP04	TP05	TP101	TP102	TP103	TP113	TP114	BH01	BH101	BH102	BH04	BH05	BH103	BH07	BH114	BH113	BH11	BH120	BH13	BH14	BH123	BH16	BH117					
Sample Date	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	5-Dec-13	5-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	17-Jun-13	17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13				
Sample Depth (m)	3.0	1.5	2.5	2.0	3.5	2.0	3.0	1.8	3.0	3.0	1.8	3.7	1.8	4.3	5.94 - 6.71	3.66 - 4.42	2.13 - 2.90	2.90 - 3.66	2.13 - 2.90	4.42 - 5.18	2.90 - 3.66	2.90 - 3.66	4.42 - 5.18	5.18 - 5.94	0.51 - 1.37	2.90 - 3.66	0.51 - 1.37	2.90 - 3.66	1.37 - 2.13	2.13 - 2.90

Sample Location	BH107	BH19	BH111	BH14-01	BH14-03	BH14-04	BH14-05	BH14-06	MOUND 3	MOUND 4	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9											
Sample Date	20-Jun-13	20-Jun-13	20-Jun-13	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14										
Sample Depth (m)	4.42 - 5.18	5.94 - 6.71	1.37 - 2.13	0.8 - 1.4	5.3 - 5.9	6.9 - 7.5	3.0 - 3.7	0.0 - 0.6	0.0 - 0.6	0 - 0.15	0 - 0.15	0 - 0.15	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 2.0

Sample Location	SS4	BH 8	BH 16	BH 22	BH 26	BH 30	S1	S2	S3	BH18-01	BH18-04	BH18-09	BH18-10	BH18-17	BH18-26	SS18-01	SS18-02	SS18-05	SS18-08A	SS18-08B	SS18-09	SS18-10	SS18-18	TP18-01	TP18-02	TP18-09	TP18-16	TP18-17	
Sample Date	30-Apr-14	21-May-15	22-May-15	25-May-15	25-May-15	25-May-15	11-Jun-15	11-Jun-15	2-Jun-15	2-Jun-15	2-Jun-15	26-Jun-18	27-Jun-18	27-Jun-18	12-Nov-18	14-Nov-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	12-Nov-18	14-Aug-18	14-Aug-18	14-Aug-18	13-Aug-18	13-Aug-18	14-Aug-18
Sample Depth (m)	0 - 0.15	3.1 - 3.7	0.0 - 0.6	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	2.0 - 2.6	1.5 - 1.8	3.5 - 4.1	3.6 - 4.2	2.9 - 3.4	4.4 - 5.0	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15

LEGEND

- MONITORING WELL
- BOREHOLE
- TEST PIT
- SURFICIAL SOIL SAMPLE
- MOUND
- WATER'S EDGE (Feb. 17, 2015)
- ORIGINAL WATER'S EDGE (APPROXIMATE)
- PROPERTY LINE
- FORMER RAIL LINE
- UNDERGROUND STORAGE TANK
- AST
- PARAMETERS TESTED MEET TABLE 9 SCS
- PARAMETERS TESTED EXCEED TABLE 9 SCS
- EXTENT OF IMPACT

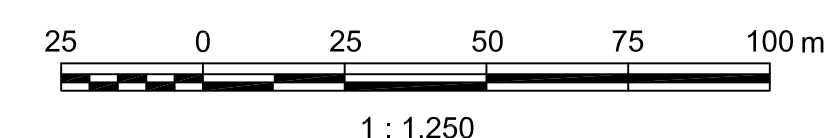
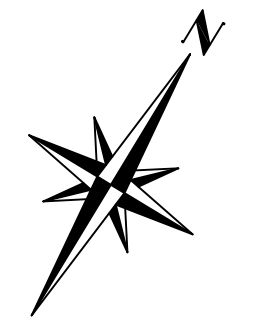
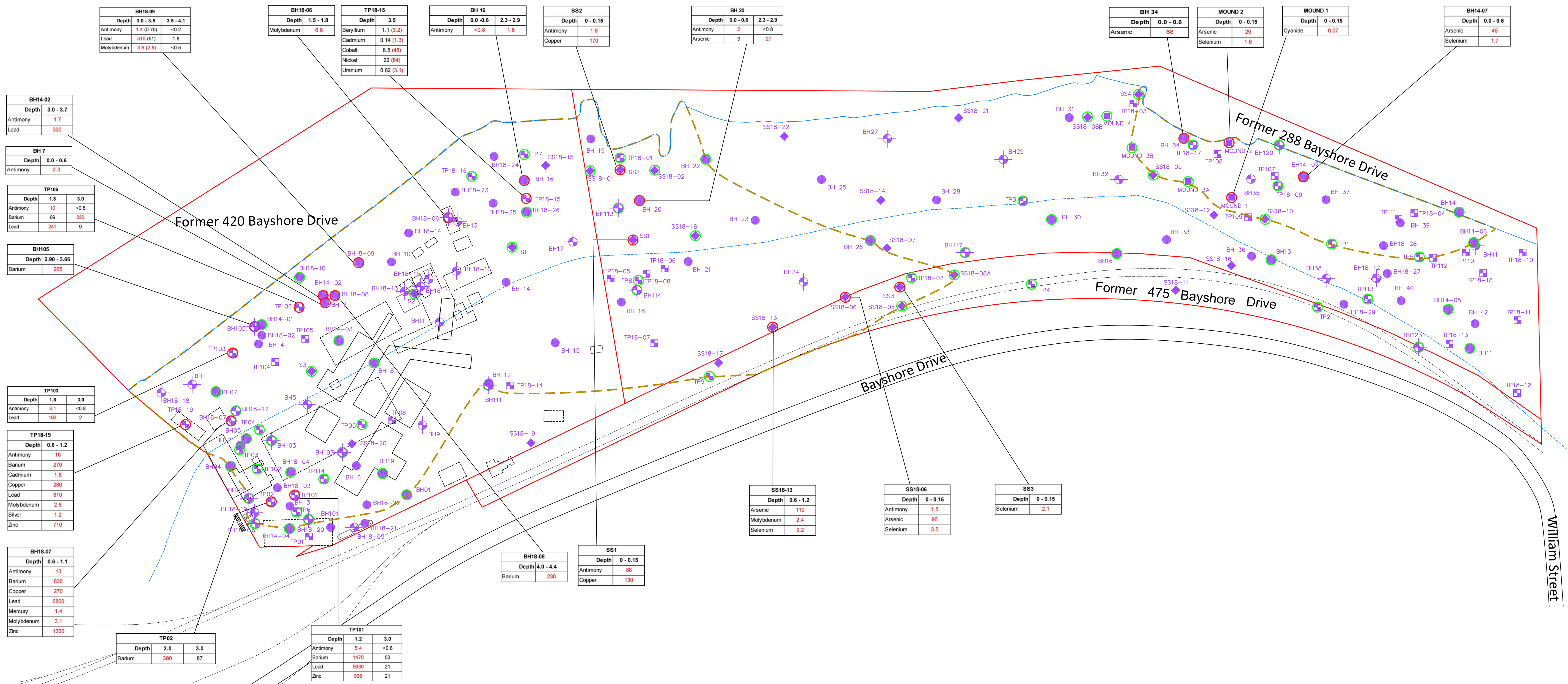
BUILDING FOOTPRINTS

- RECENT
- FROM 1917 AND 1946 FIRE INSURANCE PLANS

Table 9 SCS

Antimony	1.3
Arsenic	18
Barium	220
Cadmium	1.2
Cobalt	22
Copper	92
Cyanide	0.051
Lead	120
Mercury	0.27
Molybdenum	2
Nickel	82
Selenium	1.5
Silver	0.5
Zinc	290

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).



SOIL RESULTS - METALS

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
		Figure:	15a



LEGEND

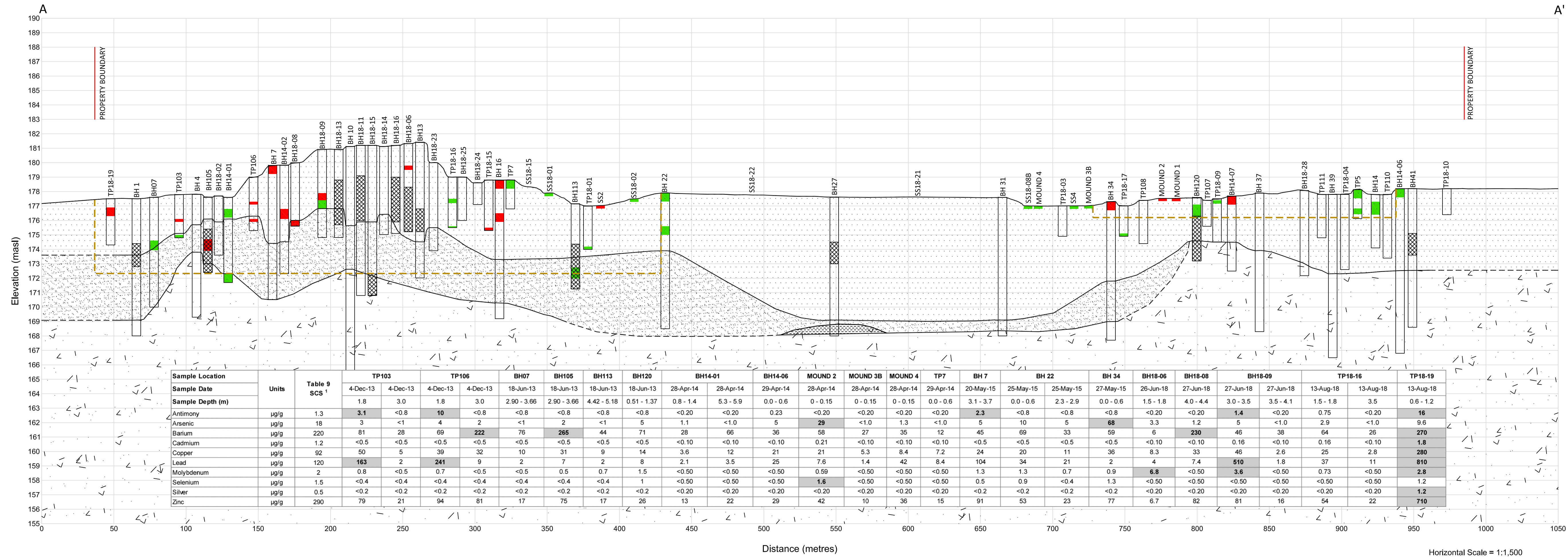
- Extent of impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

NOTE: SS and MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS

Antimony	1.3
Arsenic	18
Barium	220
Cadmium	1.2
Cobalt	22
Copper	92
Cyanide	0.051
Lead	120
Mercury	0.27
Molybdenum	2
Nickel	82
Selenium	1.5
Silver	0.5
Zinc	290

Cross - Section A-A'



Cross - Section B-B'

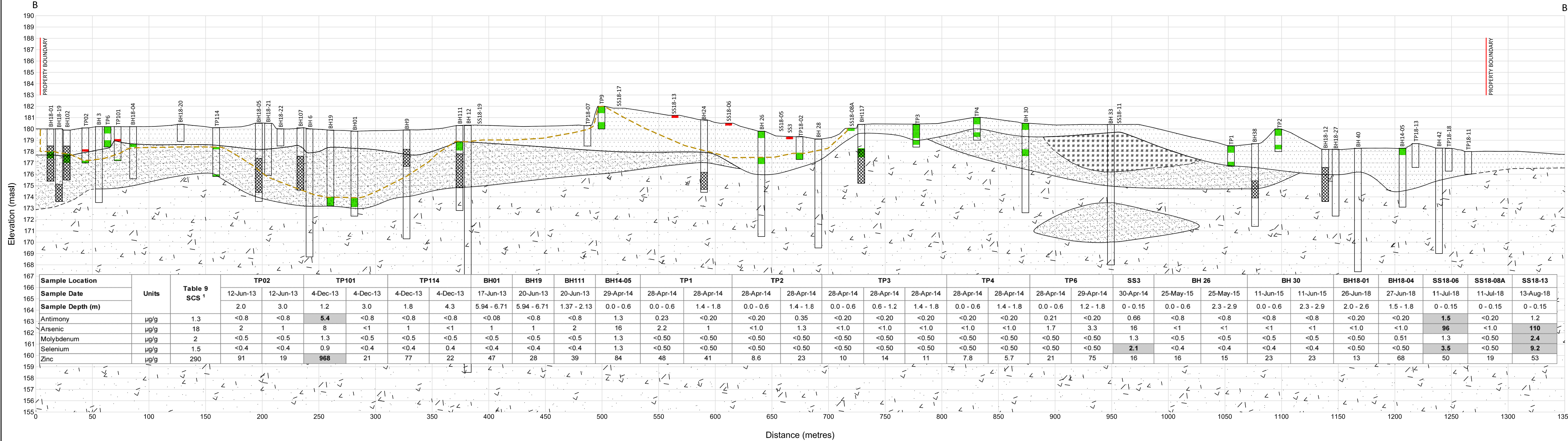


Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).



CROSS - SECTIONS A-A' AND B-B'  
CROSS - GRADIENT METALS IN SOIL

Project No.: 6820-001	Date: October 2019
Horizontal Scale: As Shown	Vertical Scale: As Shown
Drawn By: TLC	Checked By: NJY
Figure: 15b	

Horizontal Scale = 1:1,750  
Vertical Scale = 1:175



LEGEND

- Extent of impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

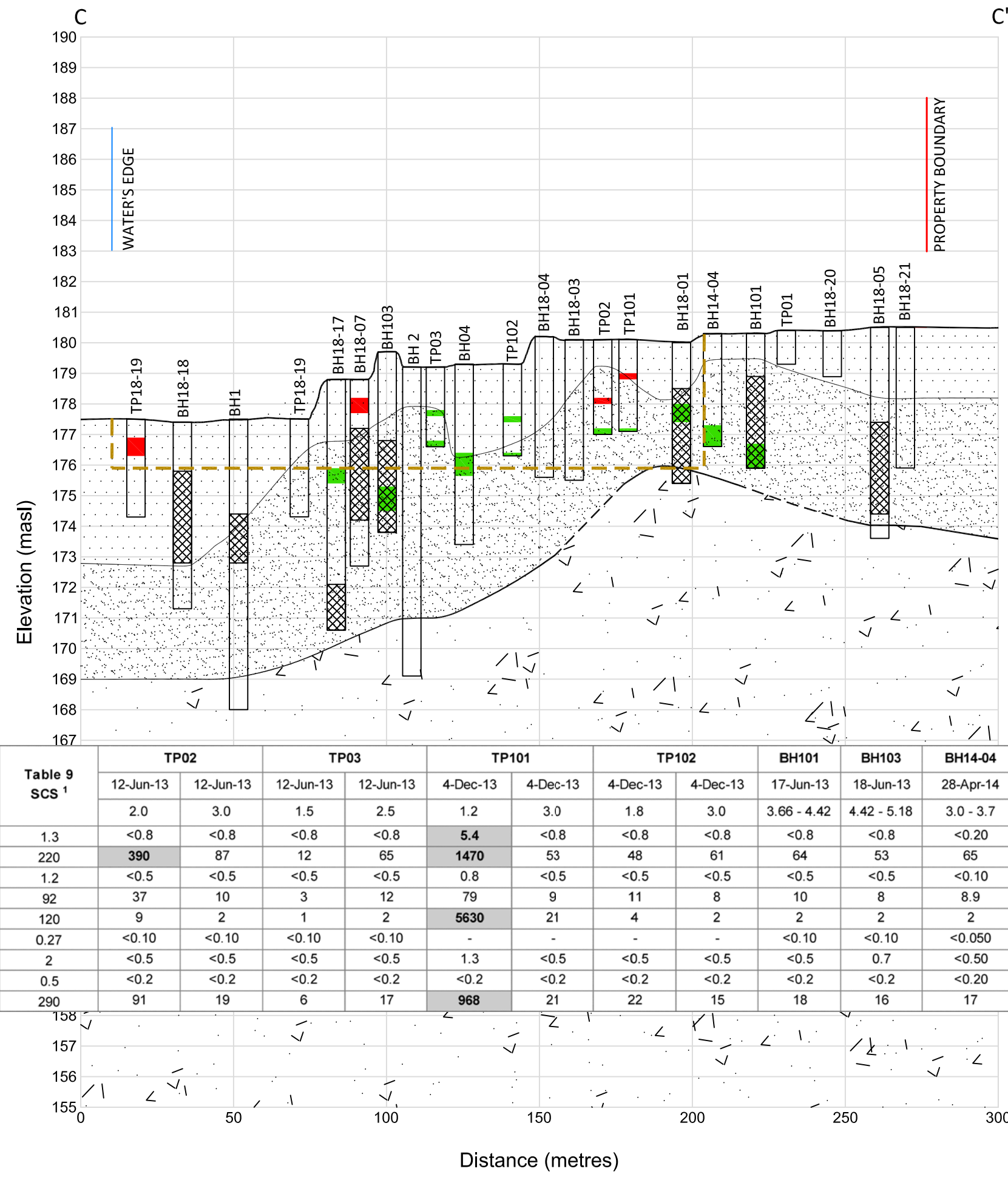
NOTE: SS AND MOUND SAMPLES WITH NO RESULTS SHOWN WERE NOT ANALYZED FOR THE PARAMETER(S) REPORTED.

Table 9 SCS

Antimony	1.3
Arsenic	18
Barium	220
Cadmium	1.2
Cobalt	22
Copper	92
Cyanide	0.051
Lead	120
Mercury	0.27
Molybdenum	2
Nickel	82
Selenium	1.5
Silver	0.5
Zinc	290

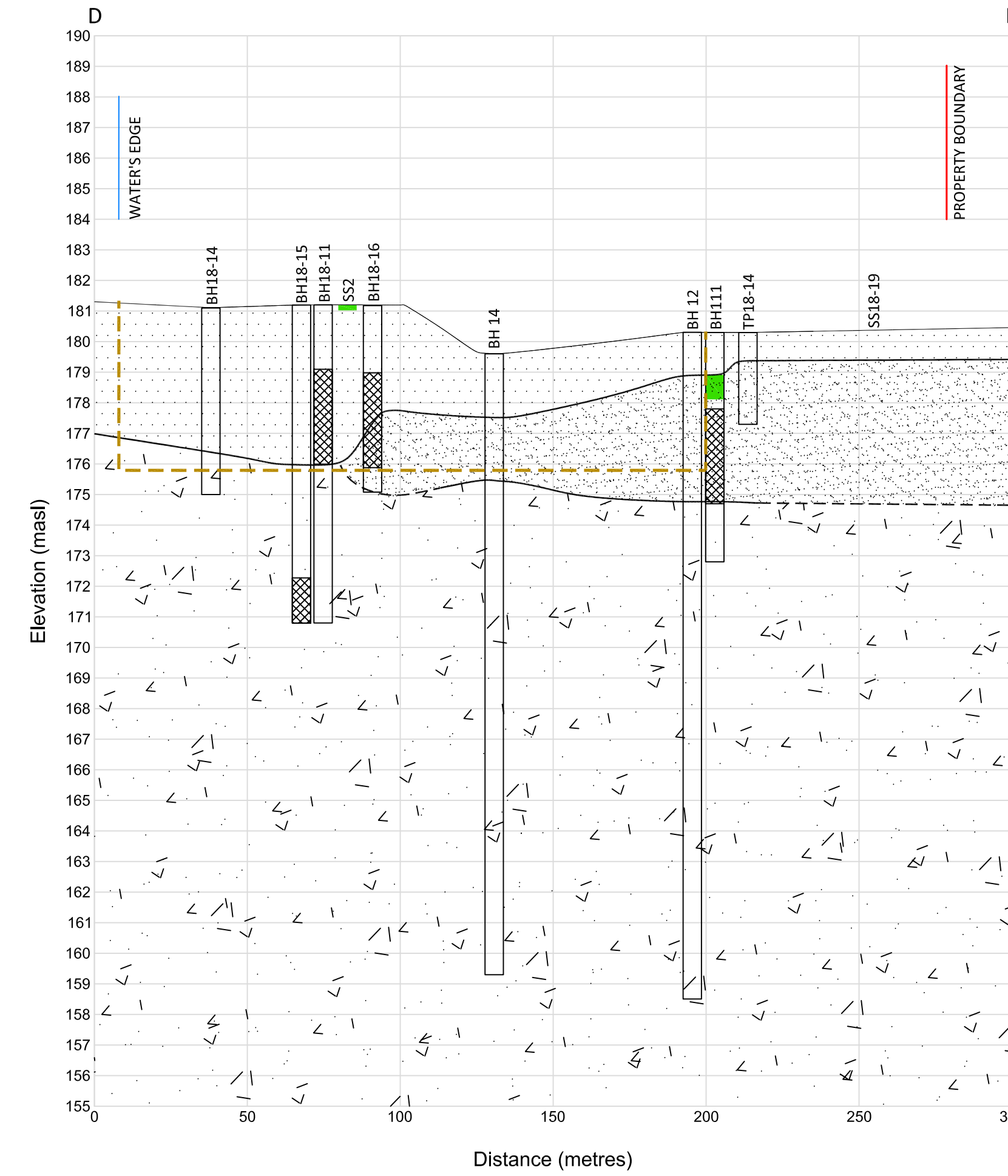
Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).

Cross - Section C-C'

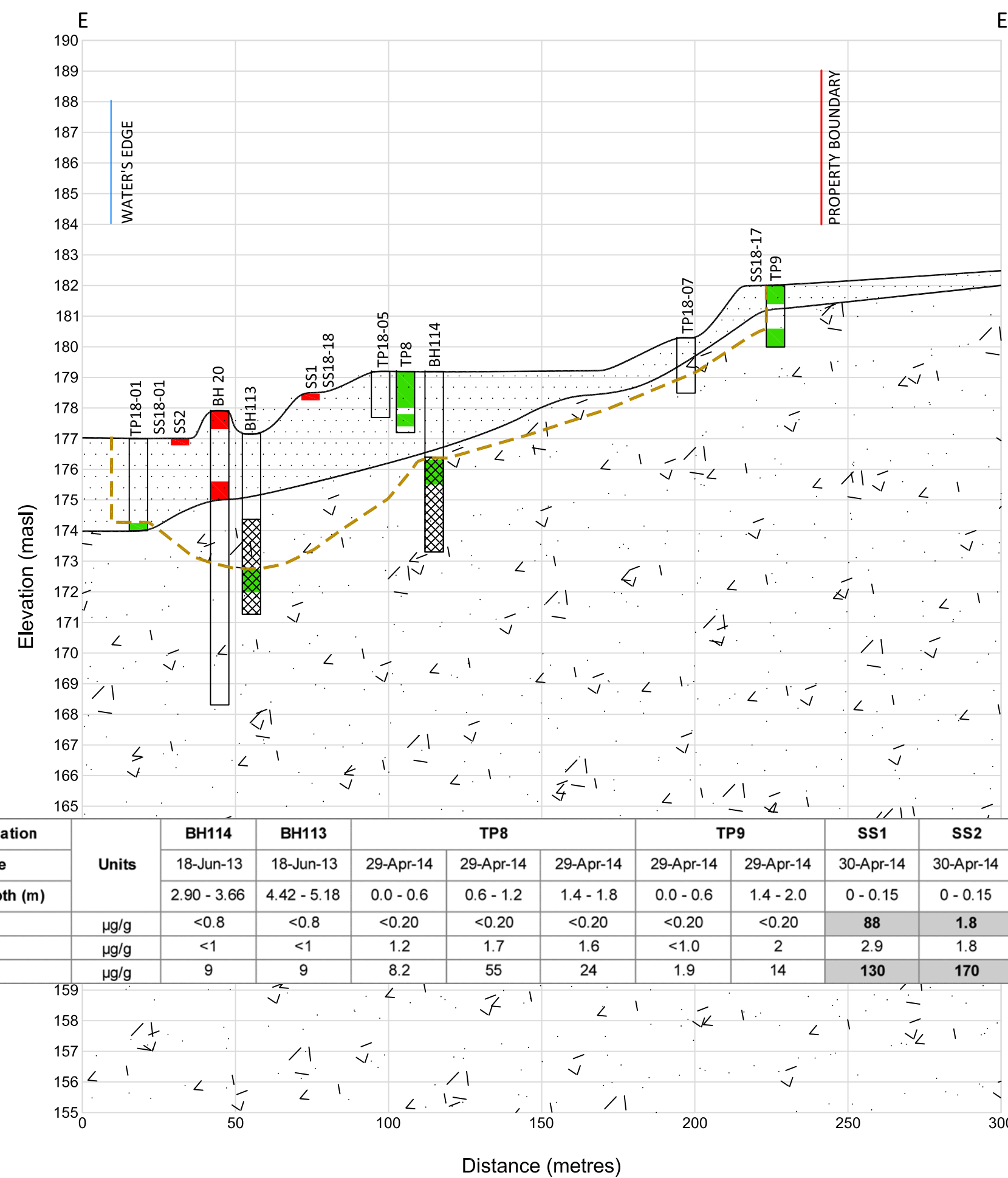


Sample Location	Units	Table 9 SCS <sup>1</sup>	TP02		TP03		TP101		TP102		BH101		BH103		BH104		BH107		BH108		TP18-19	
			12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	18-Jun-13	28-Apr-14	26-Jun-18	12-Nov-18	13-Aug-18						
Sample Date			2.0	3.0	1.5	2.5	1.2	3.0	1.8	3.0	3.66 - 4.42	4.42 - 5.18	3.0 - 3.7	0.6 - 1.1	2.9 - 3.4	0.6 - 1.2						
Sample Depth (m)			2.0	3.0	1.5	2.5	1.2	3.0	1.8	3.0	3.66 - 4.42	4.42 - 5.18	3.0 - 3.7	0.6 - 1.1	2.9 - 3.4	0.6 - 1.2						
Antimony	µg/g	1.3	<0.8	<0.8	<0.8	<0.8	5.4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.20	13	<0.20	16						
Barium	µg/g	220	390	87	12	66	1470	53	48	61	64	53	65	830	120	270						
Cadmium	µg/g	1.2	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.10	1.8						
Copper	µg/g	92	37	10	3	12	79	9	11	8	10	8	8.9	270	10	280						
Lead	µg/g	120	9	2	1	2	5630	21	4	2	2	2	2	6800	3	810						
Mercury	µg/g	0.27	<0.10	<0.10	<0.10	<0.10	-	-	-	-	<0.10	<0.10	<0.050	1.4	<0.050	-						
Molybdenum	µg/g	2	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	0.7	<0.50	3.1	<0.50	2.8						
Silver	µg/g	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	0.37	<0.20	1.2						
Zinc	µg/g	290	91	19	6	17	968	21	22	15	18	16	17	1300	26	710						

Cross - Section D-D'

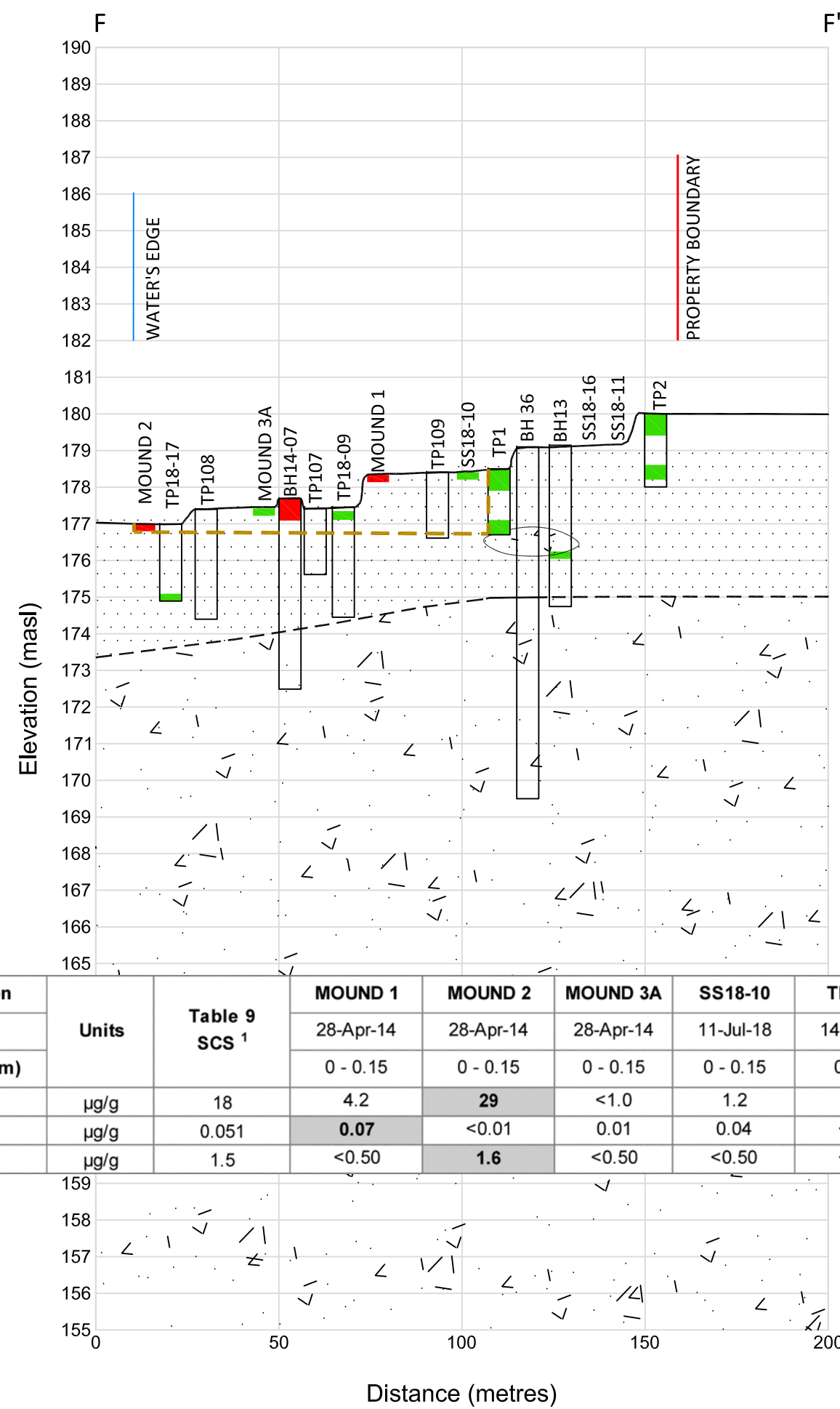


Cross - Section E-E'



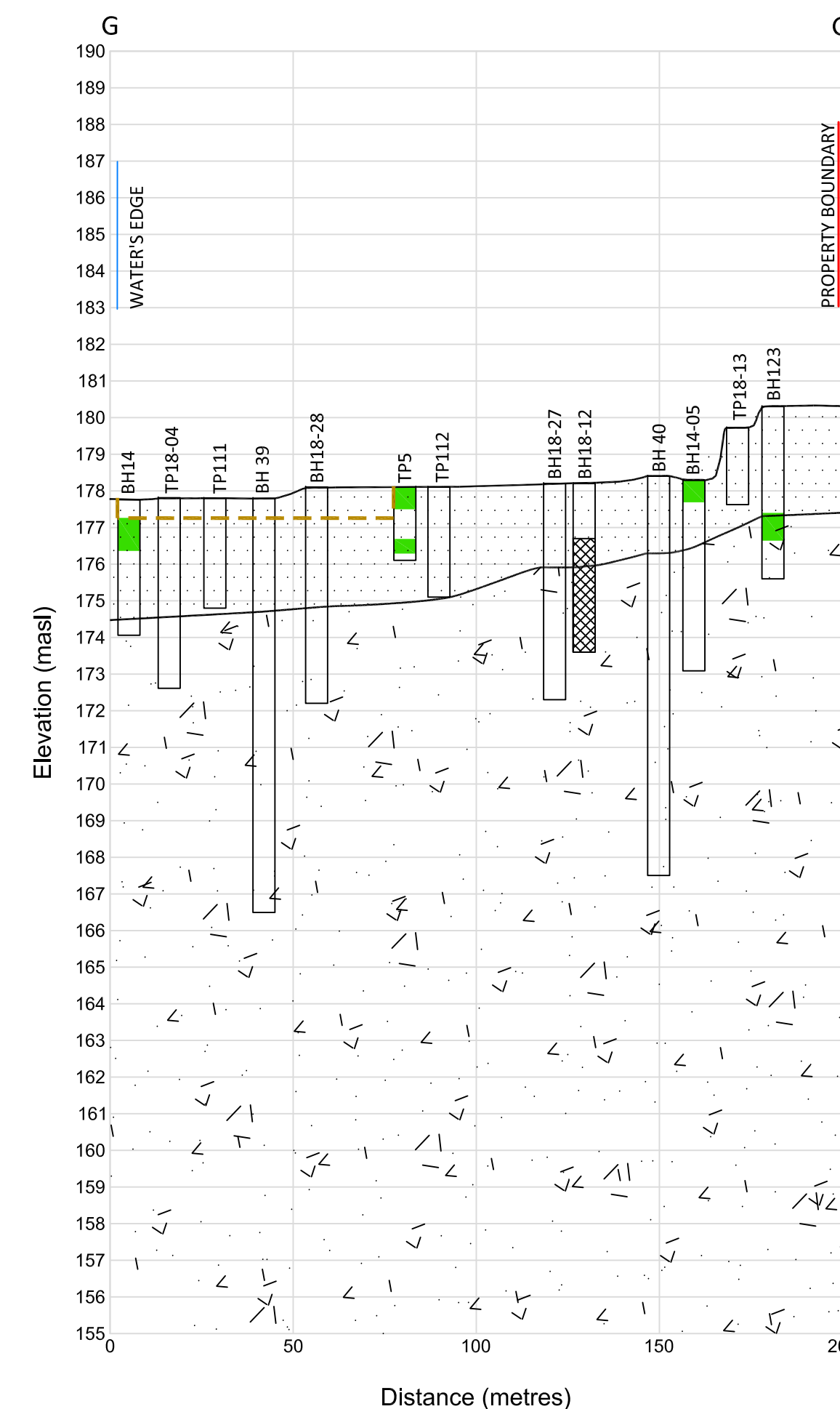
Sample Location	Units	Table 9 SCS <sup>1</sup>	BH114		BH113		TP8		TP9		SS1		SS2		BH 20	
			18-Jun-13	18-Jun-13	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	30-Apr-14	30-Apr-14	22-May-15	22-May-15				
Sample Date			2.90 - 3.66	4.42 - 5.18	0.0 - 0.6	0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 2.0	0 - 0.15	0 - 0.15	0.0 - 0.6	0.0 - 0.6	2.3 - 2.9		
Sample Depth (m)			2.90 - 3.66	4.42 - 5.18	0.0 - 0.6	0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 2.0	0 - 0.15	0 - 0.15	0.0 - 0.6	0.0 - 0.6	2.3 - 2.9		
Antimony	µg/g	<0.8	<0.8	<0.20	<0.20	<0.20	<0.20	88	1.8	2	<0.8					
Arsenic	µg/g	<1	<1	1.2	1.7	1.6	<1.0	2	2.9	1.8	9	27				
Copper	µg/g	9	9	8.2	55	24	1.9	14	130	170	22	35				

Cross - Section F-F'

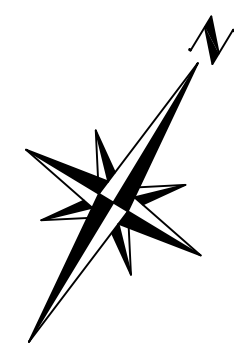


Sample Location	Units	Table 9 SCS <sup>1</sup>	MOUND 1		MOUND 2		MOUND 3A		SS18-10		TP18-09		TP18-17	
			28-Apr-14	28-Apr-14	28-Apr-14	11-Jul-18	14-Aug-18	14-Aug-18						
Sample Date			0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0.15 m	0.15 m	2.0			
Sample Depth (m)			0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0.15 m	0.15 m	2.0			
Arsenic	µg/g	18	4.2	29	<1.0	1.2	1.2	<1.0						
Cyanide	µg/g	0.051	0.07	<0.01	0.01	0.04	<0.01	<0.01						
Selenium	µg/g	1.5	<0.50	1.6	<0.50	<0.50	<0.50	<0.50						

Cross - Section G-G'







M I D L A N D B A Y O F G E O R G I A N B A Y

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE TOWN OF MIDLAND  
420 Bayshore Drive, Midland, Ontario

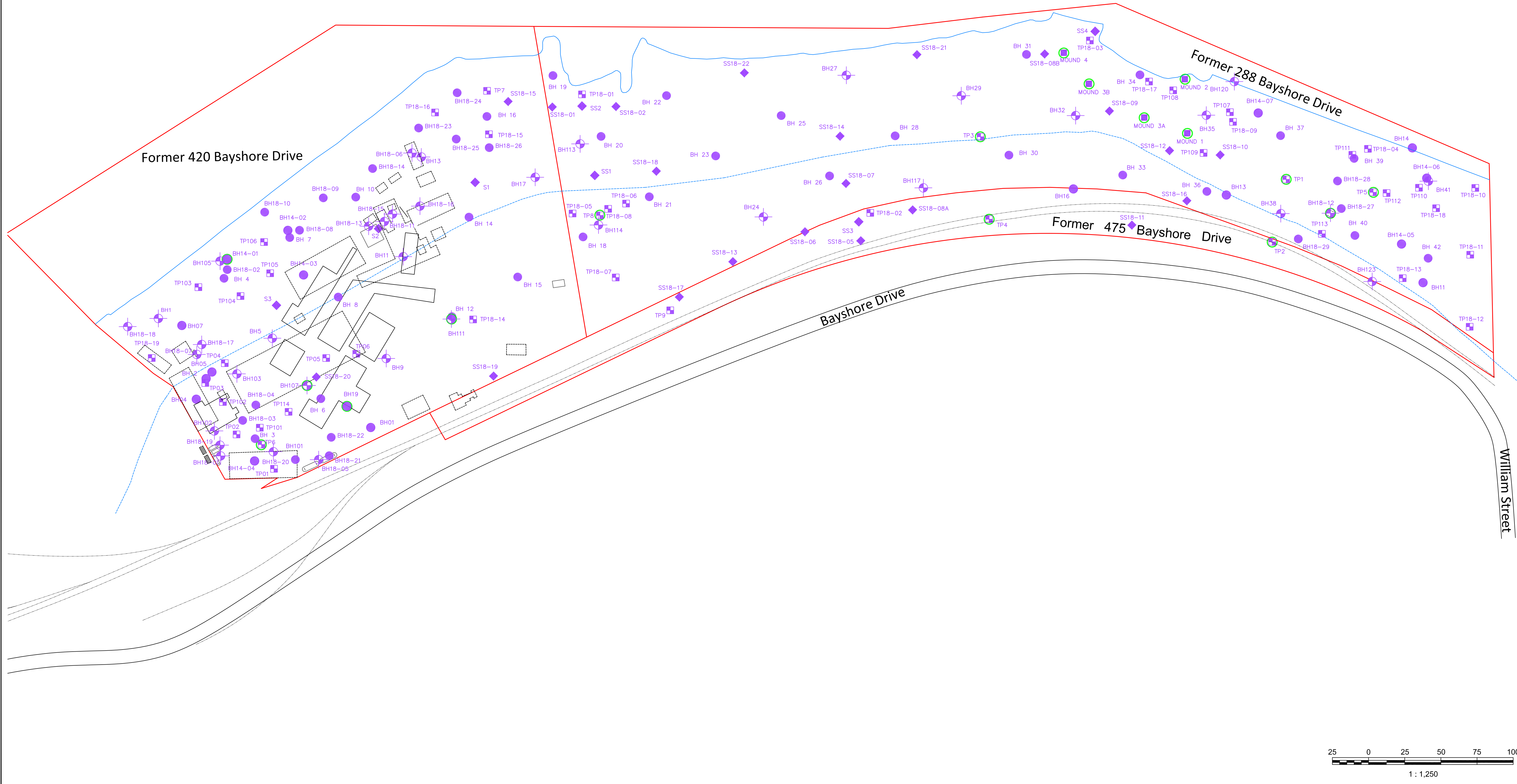
LEGEND

- MONITORING WELL
  - BOREHOLE
  - TEST PIT
  - SURFICIAL SOIL SAMPLE
  - MOUND
  - WATER'S EDGE (Feb. 17, 2015)
  - ORIGINAL WATER'S EDGE (APPROXIMATE)
  - PROPERTY LINE
  - FORMER RAIL LINE
  - UNDERGROUND STORAGE TANK
  - AST
  - PARAMETERS TESTED MEET TABLE 9 SCS
  - PARAMETERS TESTED EXCEED TABLE 9 SCS
  - EXTENT OF IMPACT
- BUILDING FOOTPRINTS**
- RECENT
  - FROM 1917 AND 1946 FIRE INSURANCE PLANS

Table 9 SCS

F1-BTEX	25
F2	10
F3	240
F4	120

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).



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Peterborough, Ontario, K9H 1G5  
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www.cambium-inc.com

SOIL RESULTS - PCBs

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	16		



Sample Location	BH101		BH102		BH103		BH105		BH107		BH111		BH113		BH114		BH117	
Sample Date	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	29-May-18	3-Jul-13	28-May-18	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	30-May-18	30-May-18	3-Jul-13	30-May-18	3-Jul-13	29-May-18

Sample Location	BH120		BH123		BH18-01		BH18-05		BH18-06		BH18-11		BH18-12		BH18-13		BH18-17		BH18-18		BH18-19		BH19-01		BH19-02	
Sample Date	3-Jul-13	29-May-18	3-Jul-13	29-May-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	15-Feb-19	15-Feb-19	13-Dec-18	15-Feb-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19

Well ID	Top of Screen (masl)	Bottom of Screen (masl)
BH101	178.96	175.86
BH102	178.63	175.53
BH103	176.94	173.84
BH105	175.47	172.37
BH114	176.35	173.25
BH113	176.25	173.15
BH120	176.27	173.17
BH123	178.71	175.61
BH117	179.52	176.42
BH107	177.77	174.67
BH111	177.87	174.77
BH18-01	178.49	175.39
BH18-05	177.49	174.39
BH18-06	178.34	175.24
BH18-07	177.31	174.21
BH18-11	179.16	176.06
BH18-12	176.74	173.64
BH18-13	178.76	175.66
BH18-15	172.31	170.81
BH18-16	179.18	176.08
BH18-17	172.08	170.58
BH18-18	175.94	172.84
BH18-19	175.07	173.57

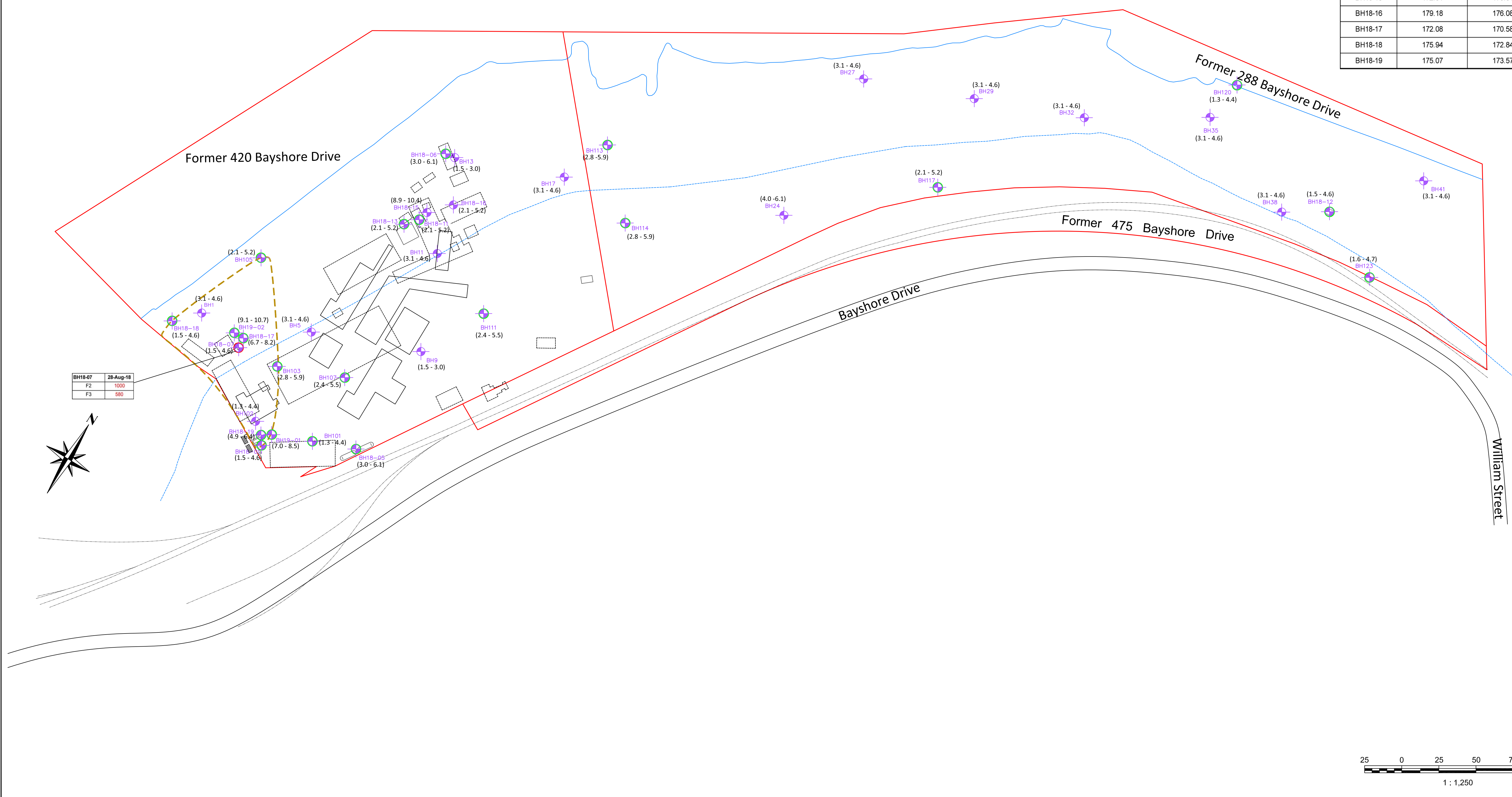
**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
**MIDLAND BAY LANDING**  
 CORPORATION OF THE TOWN OF MIDLAND  
 420 Bayshore Drive, Midland, Ontario

- LEGEND**
- (1.6 - 4.7) SCREEN INTERVAL IN METRES BELOW GROUND SURFACE
  - MONITORING WELL
  - BOREHOLE
  - TEST PIT
  - SURFICIAL SOIL SAMPLE
  - MOUND
  - WATER'S EDGE (Feb. 17, 2015)
  - ORIGINAL WATER'S EDGE (APPROXIMATE)
  - PROPERTY LINE
  - FORMER RAIL LINE
  - UNDERGROUND STORAGE TANK
  - AST
  - PARAMETERS TESTED MEET TABLE 9 SCS
  - PARAMETERS TESTED EXCEED TABLE 9 SCS
  - EXTENT OF IMPACT
  - BUILDING FOOTPRINTS
  - RECENT
  - FROM 1917 AND 1946 FIRE INSURANCE PLANS

NOTE:  
 BH18-13, BH18-19, BH19-01 AND BH19-02 ANALYZED FOR ONLY PHC F1

Table 9 SCS	
F2	150
F3	500

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).



Well ID	Sample Date
BH18-07	28-Aug-18
F2	1000
F3	500

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**GROUNDWATER RESULTS - PHCs**

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	17a		



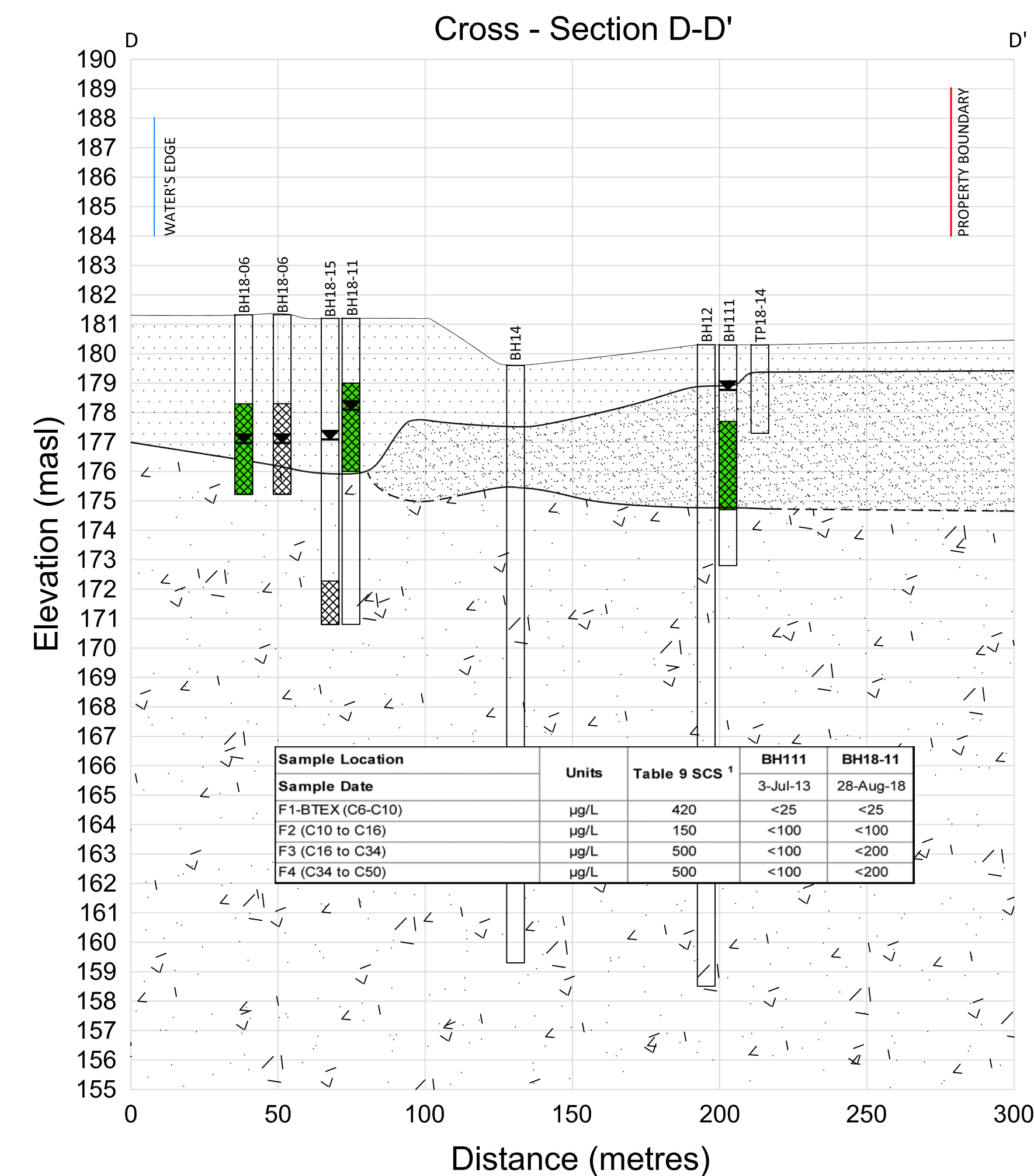
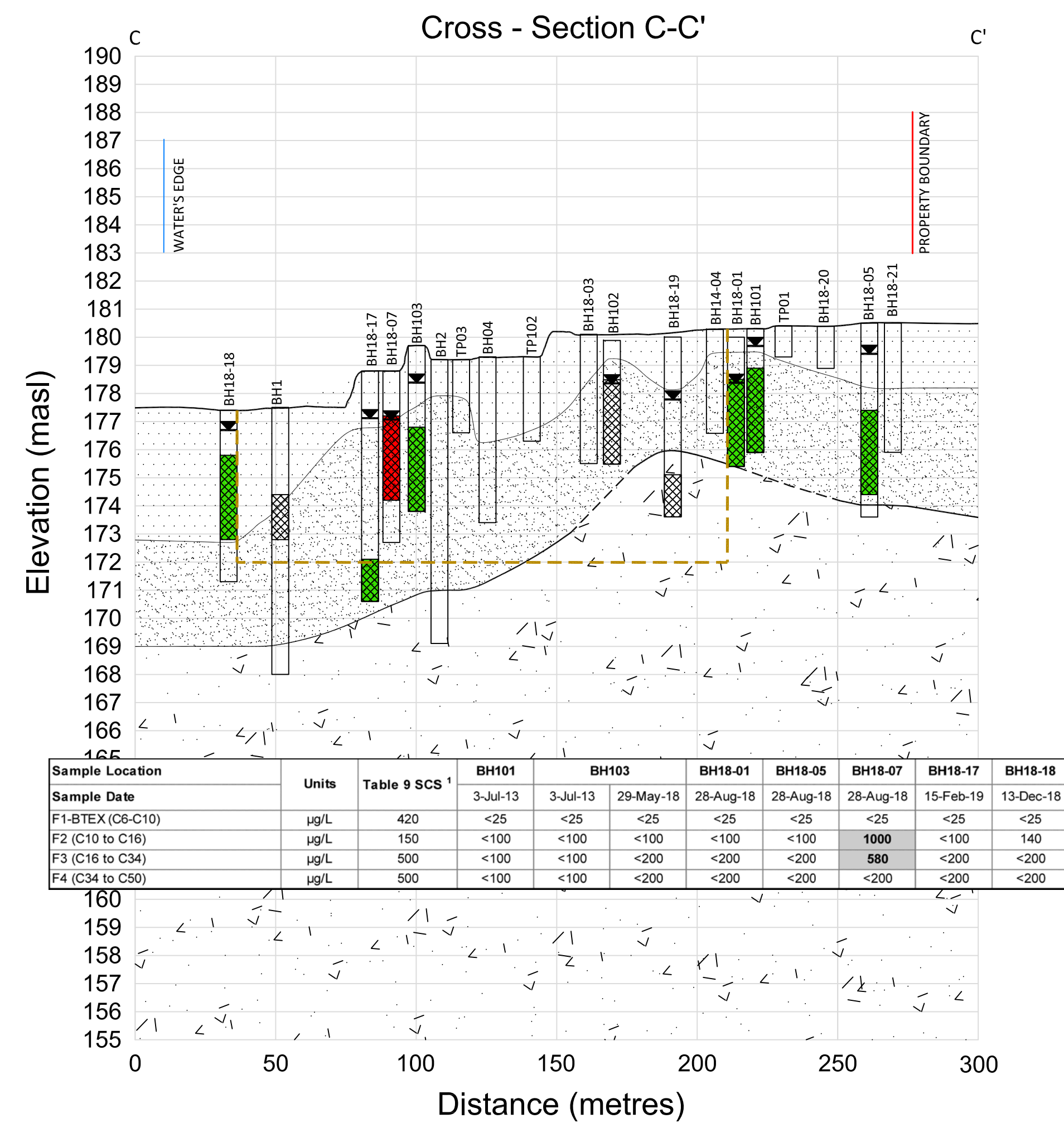
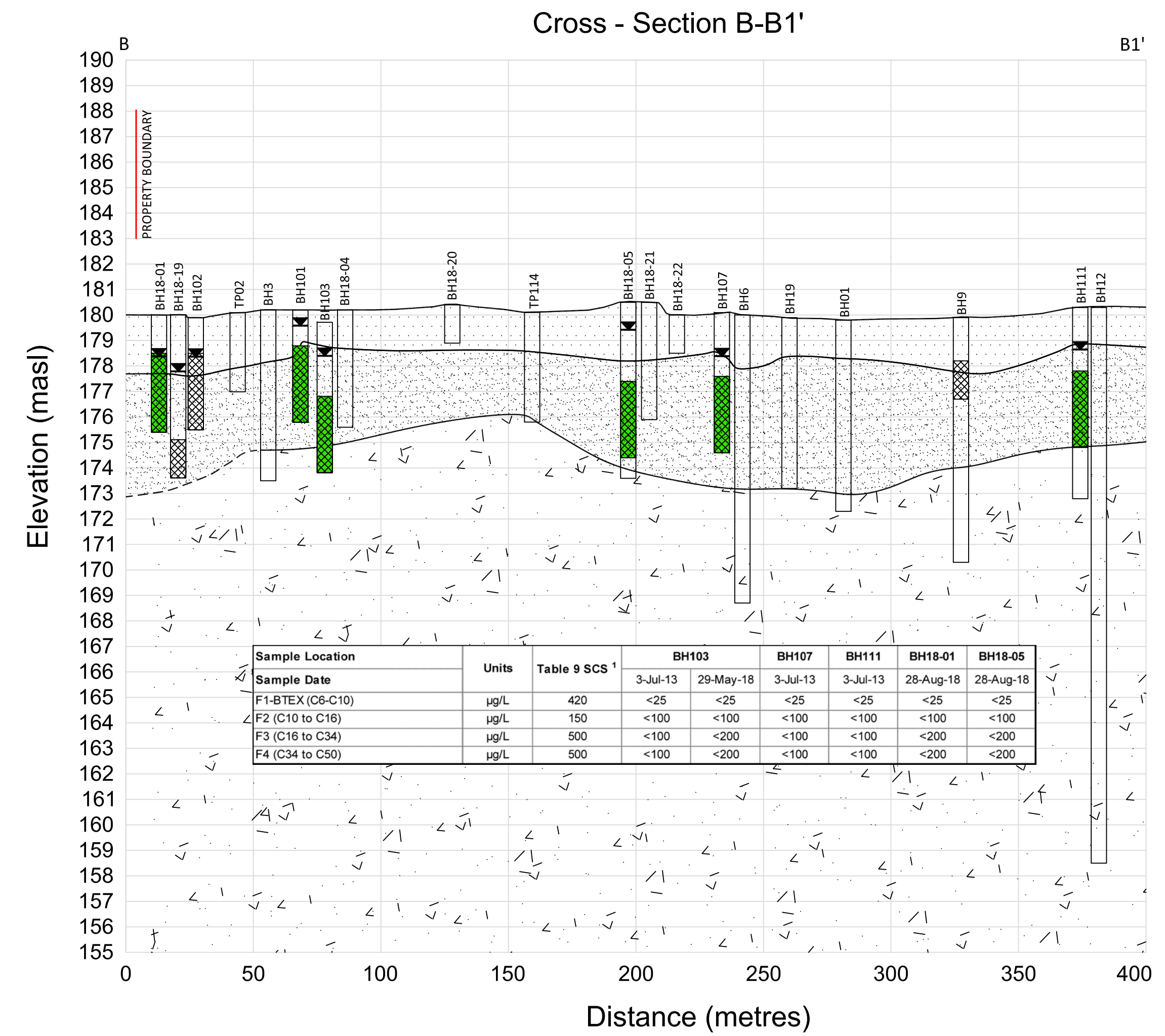
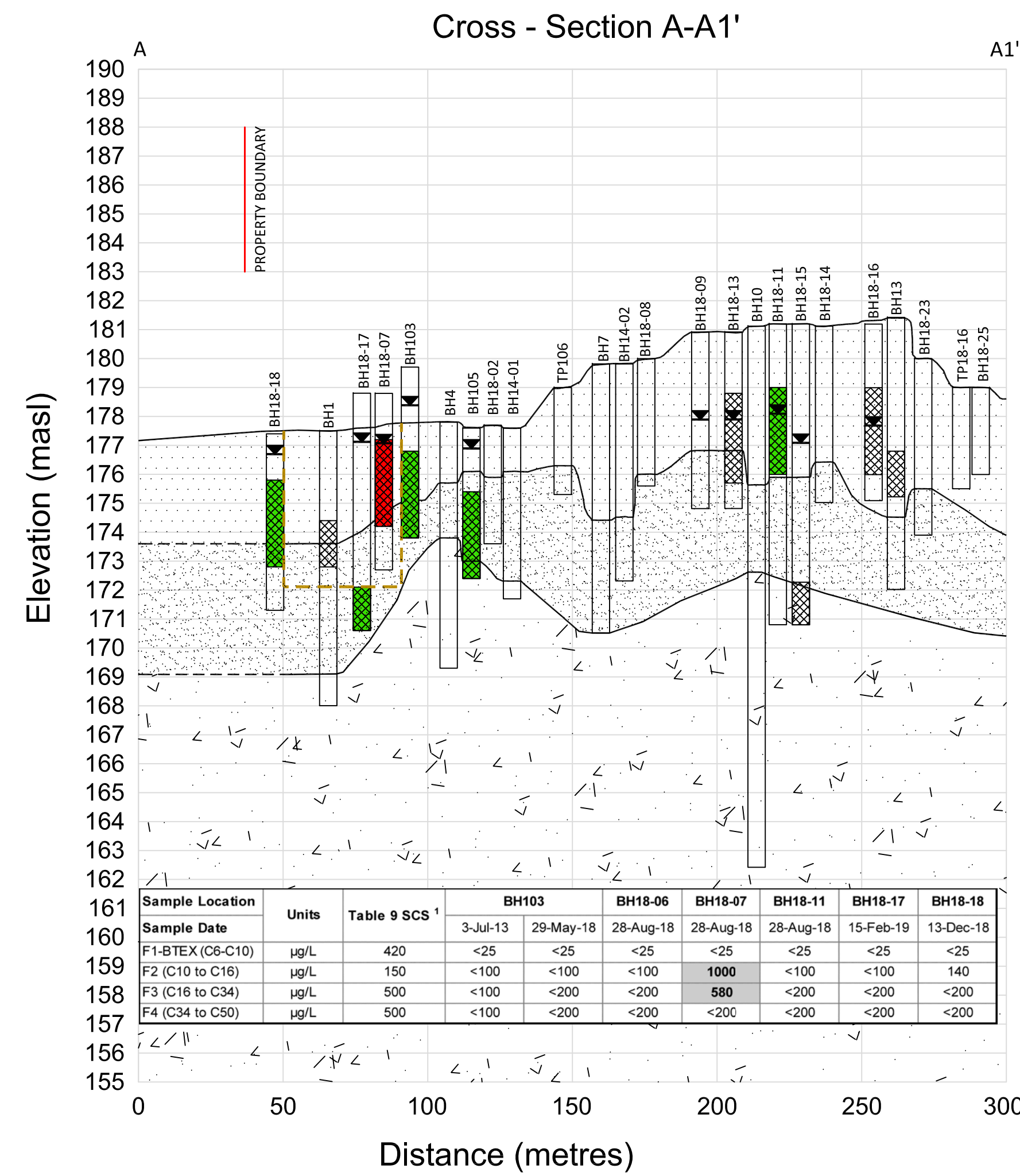
LEGEND

- Water Level (February 15, 2019)
- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

Table 9 SCS

F2	150
F3	500

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).





Sample Location	BH101	BH102		BH103		BH105		BH107		BH111			BH113		BH114		BH117		BH120			
Sample Date	28-May-18	3-Jul-13	28-May-18	28-May-18	3-Jul-13	29-May-18	3-Jul-13	28-May-18	3-Jul-13	29-May-18	3-Jul-13	3-Jul-13	29-May-18	3-Jul-13	30-May-18	30-May-18	3-Jul-13	30-May-18	3-Jul-13	29-May-18	3-Jul-13	29-May-18

Sample Location	BH123	BH18-01	BH18-05	BH18-06		BH18-07	BH18-11	BH18-12	BH18-13		BH18-15	BH18-16	BH18-17		BH18-18	BH18-19		BH19-01	BH19-02			
Sample Date	3-Jul-13	29-May-18	28-Aug-18	28-Aug-18	28-Aug-18	15-Feb-19	28-Aug-18	28-Aug-18	28-Aug-18	13-Dec-18	15-Feb-19	14-Dec-18	13-Dec-18	14-Dec-18	16-Jan-19	15-Feb-19	13-Dec-18	14-Dec-18	16-Jan-19	15-Feb-19	24-Sep-19	24-Sep-19

Well ID	Top of Screen (masl)	Bottom of Screen (masl)
BH101	178.96	175.86
BH102	178.63	175.53
BH103	176.94	173.84
BH105	175.47	172.37
BH114	176.35	173.25
BH113	176.25	173.15
BH120	176.27	173.17
BH123	178.71	175.61
BH117	179.52	176.42
BH107	177.77	174.67
BH111	177.87	174.77
BH18-01	178.49	175.39
BH18-05	177.49	174.39
BH18-06	178.34	175.24
BH18-07	177.31	174.21
BH18-11	179.16	176.06
BH18-12	176.74	173.64
BH18-13	178.76	175.66
BH18-15	172.31	170.81
BH18-16	179.18	176.08
BH18-17	172.08	170.58
BH18-18	175.94	172.84
BH18-19	175.07	173.57

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
**MIDLAND BAY LANDING**  
 CORPORATION OF THE TOWN OF MIDLAND  
 420 Bayshore Drive, Midland, Ontario

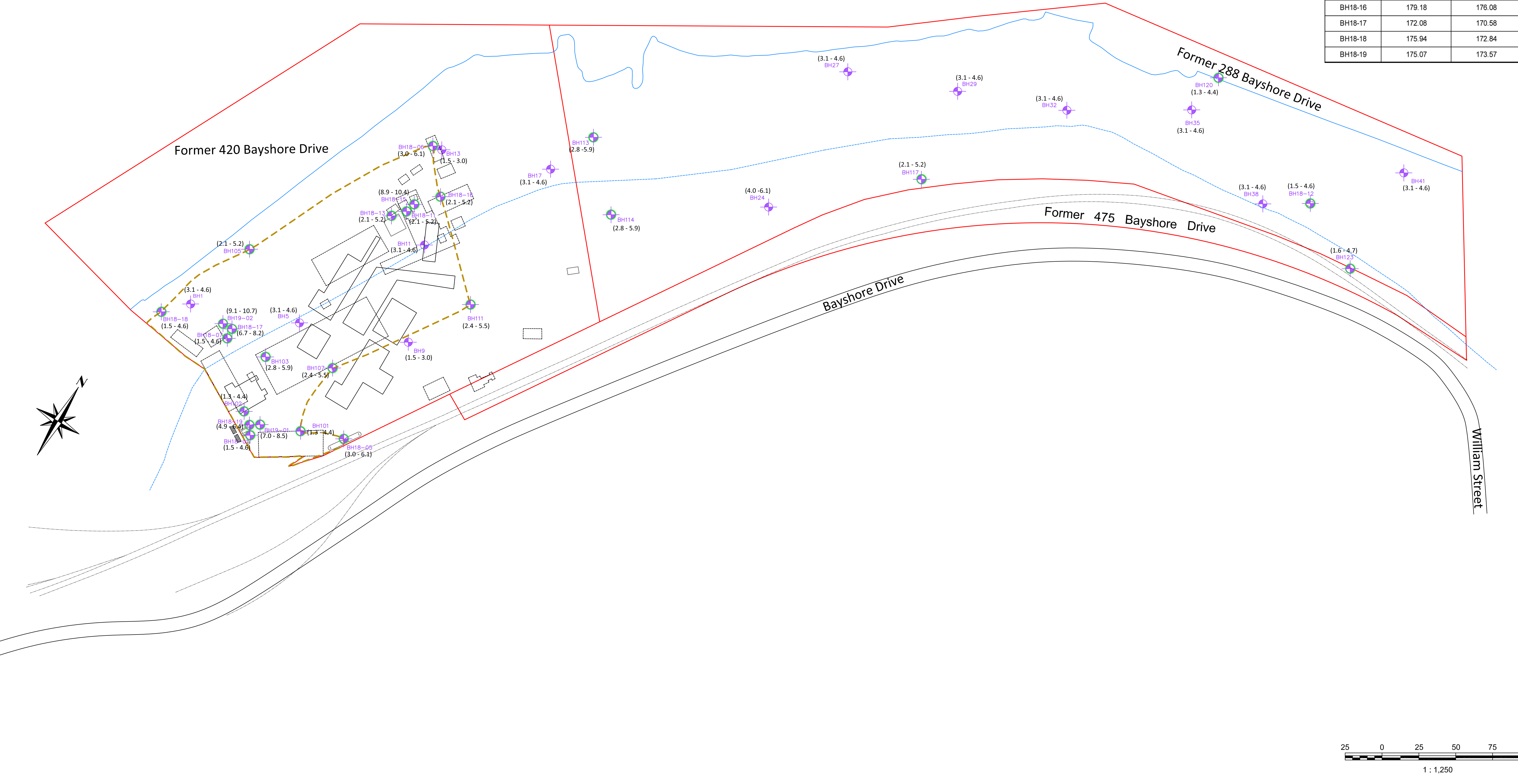
**LEGEND**

- (1.6 - 4.7) SCREEN INTERVAL IN METRES BELOW GROUND SURFACE
- MONITORING WELL
- BOREHOLE
- TEST PIT
- SURFICIAL SOIL SAMPLE
- MOUND
- WATER'S EDGE (Feb. 17, 2015)
- ORIGINAL WATER'S EDGE (APPROXIMATE)
- PROPERTY LINE
- FORMER RAIL LINE
- UNDERGROUND STORAGE TANK
- AST
- PARAMETERS TESTED MEET TABLE 9 SCS
- PARAMETERS TESTED EXCEED TABLE 9 SCS
- EXTENT OF IMPACT

**BUILDING FOOTPRINTS**

- RECENT
- FROM 1917 AND 1946 FIRE INSURANCE PLANS

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).



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**GROUNDWATER RESULTS - BTEX**

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	<b>18</b>		



Sample Location	BH101		BH102		BH103		BH105		BH107		BH111		BH113	BH114	BH117	BH120	BH123	BH18-06	BH18-13	BH18-15	BH18-16	BH18-17	BH18-19
Sample Date	3-Jul-13	28-May-18	3-Jul-13	28-May-18	3-Jul-13	29-May-18	3-Jul-13	28-May-18	3-Jul-13	29-May-18	3-Jul-13	29-May-18	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	15-Feb-19	13-Dec-18	14-Dec-18	13-Dec-18	14-Dec-18	14-Dec-18

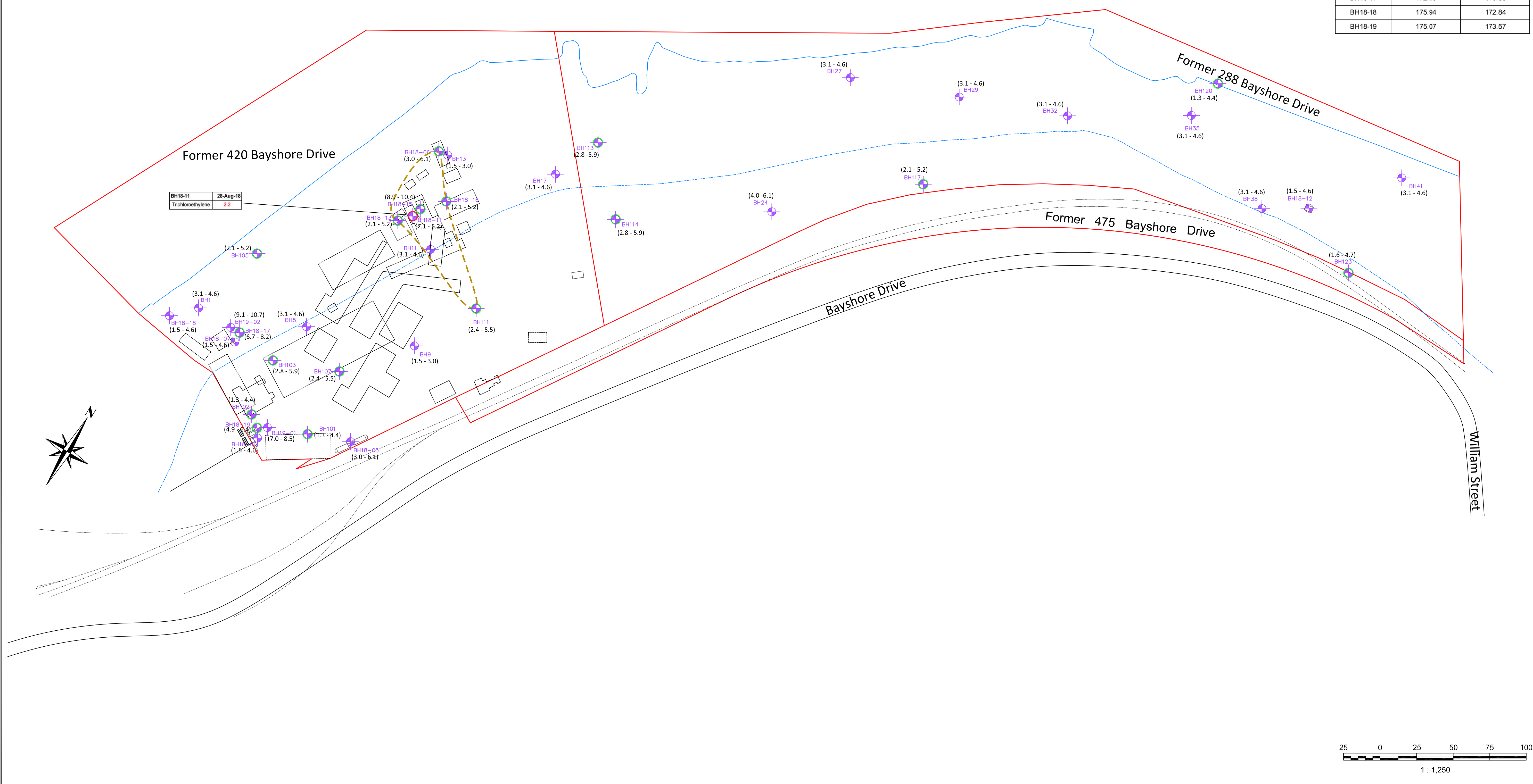
Well ID	Top of Screen (masl)	Bottom of Screen (masl)
BH101	178.96	175.86
BH102	178.63	175.53
BH103	176.94	173.84
BH105	175.47	172.37
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BH113	176.25	173.15
BH120	176.27	173.17
BH123	178.71	175.61
BH117	179.52	176.42
BH107	177.77	174.67
BH111	177.87	174.77
BH18-01	178.49	175.39
BH18-05	177.49	174.39
BH18-06	178.34	175.24
BH18-07	177.31	174.21
BH18-11	179.16	176.06
BH18-12	176.74	173.64
BH18-13	178.76	175.66
BH18-15	172.31	170.81
BH18-16	179.18	176.08
BH18-17	172.08	170.58
BH18-18	175.94	172.84
BH18-19	175.07	173.57

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
**MIDLAND BAY LANDING**  
 CORPORATION OF THE TOWN OF MIDLAND  
 420 Bayshore Drive, Midland, Ontario

- LEGEND**
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  - MONITORING WELL
  - BOREHOLE
  - TEST PIT
  - SURFICIAL SOIL SAMPLE
  - MOUND
  - WATER'S EDGE (Feb. 17, 2015)
  - ORIGINAL WATER'S EDGE (APPROXIMATE)
  - PROPERTY LINE
  - FORMER RAIL LINE
  - UNDERGROUND STORAGE TANK
  - AST
  - PARAMETERS TESTED MEET TABLE 9 SCS
  - PARAMETERS TESTED EXCEED TABLE 9 SCS
  - EXTENT OF IMPACT
- BUILDING FOOTPRINTS**
- RECENT
  - FROM 1917 AND 1946 FIRE INSURANCE PLANS

Table 9 SCS	
Trichloroethylene	0.5

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).



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**GROUNDWATER RESULTS - VOCs**

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	19a		



LEGEND

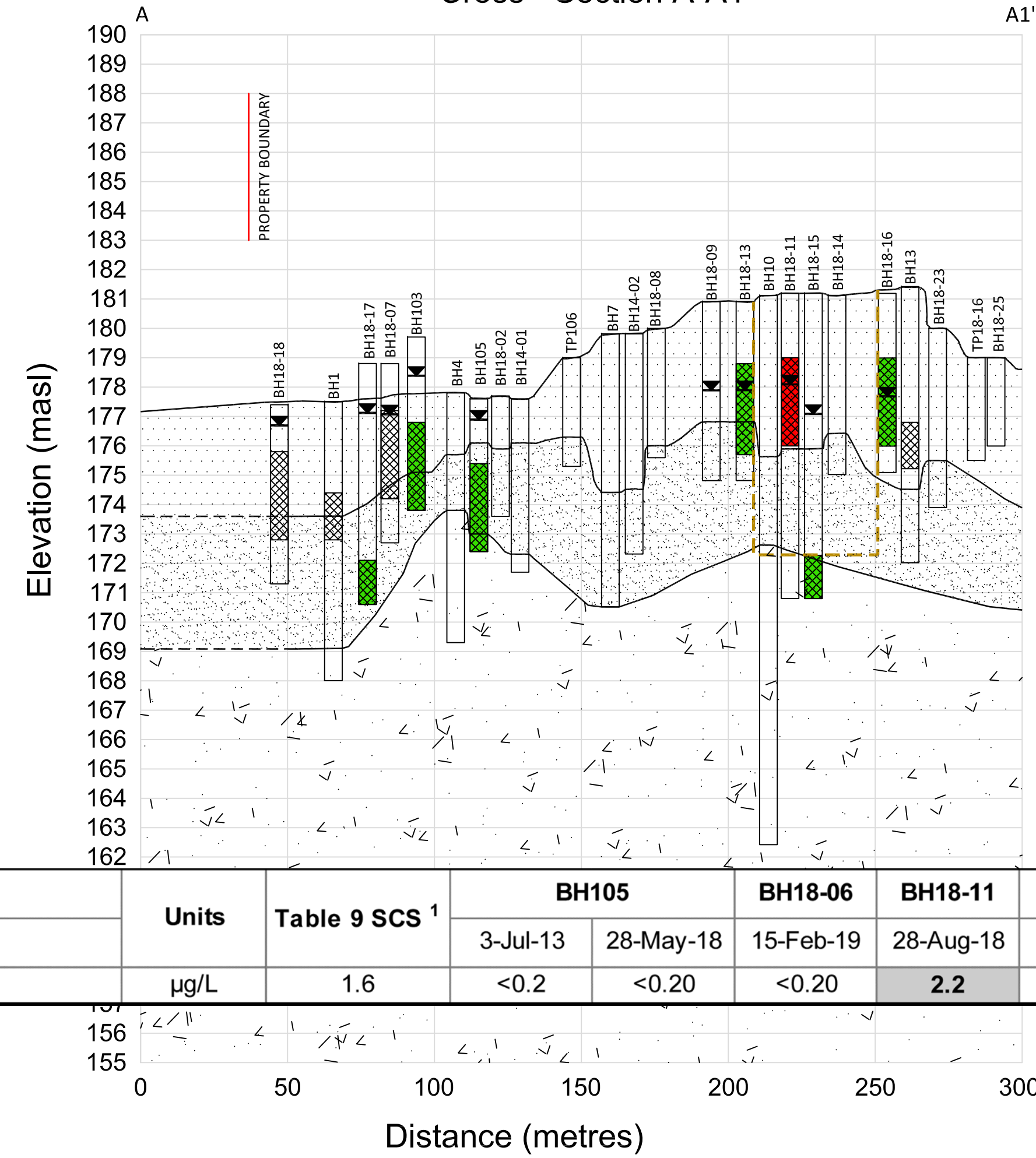
- Water Level (February 15, 2019)
- Extent of Impact
- Fill - organic topsoil, silty sand, gravel, sand cobbles, boulders, brick, wood/peat
- Till - silty sand, sandy silt, clay, sand
- Sand and Gravel
- Peat
- Sand
- Well Casing
- Parameters Tested Meet Table 9 Standard
- Parameters Tested Exceed Table 9 Standard
- Well Screen

Table 9 SCS

Trichloroethylene	0.5
-------------------	-----

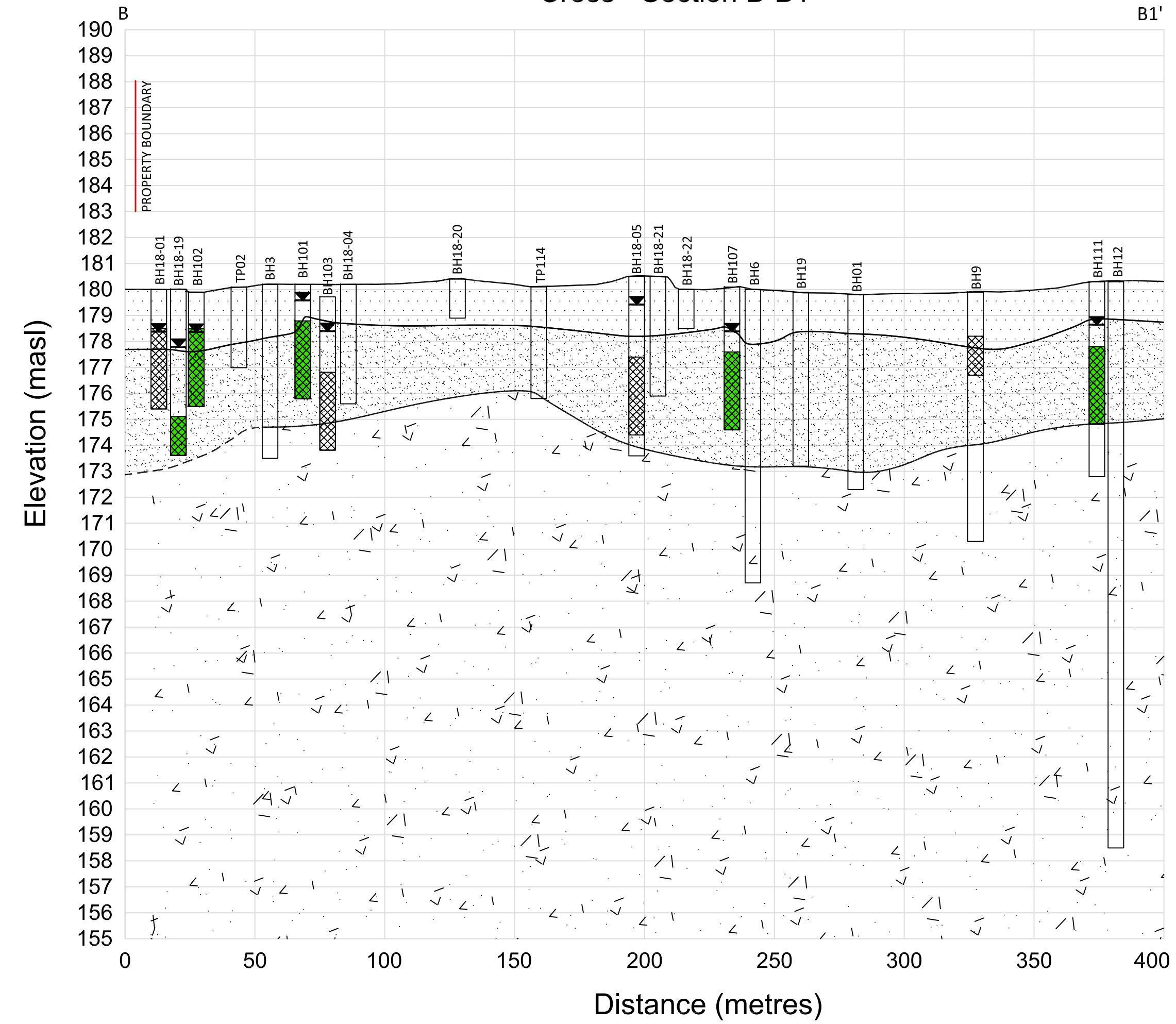
Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).

Cross - Section A-A1'



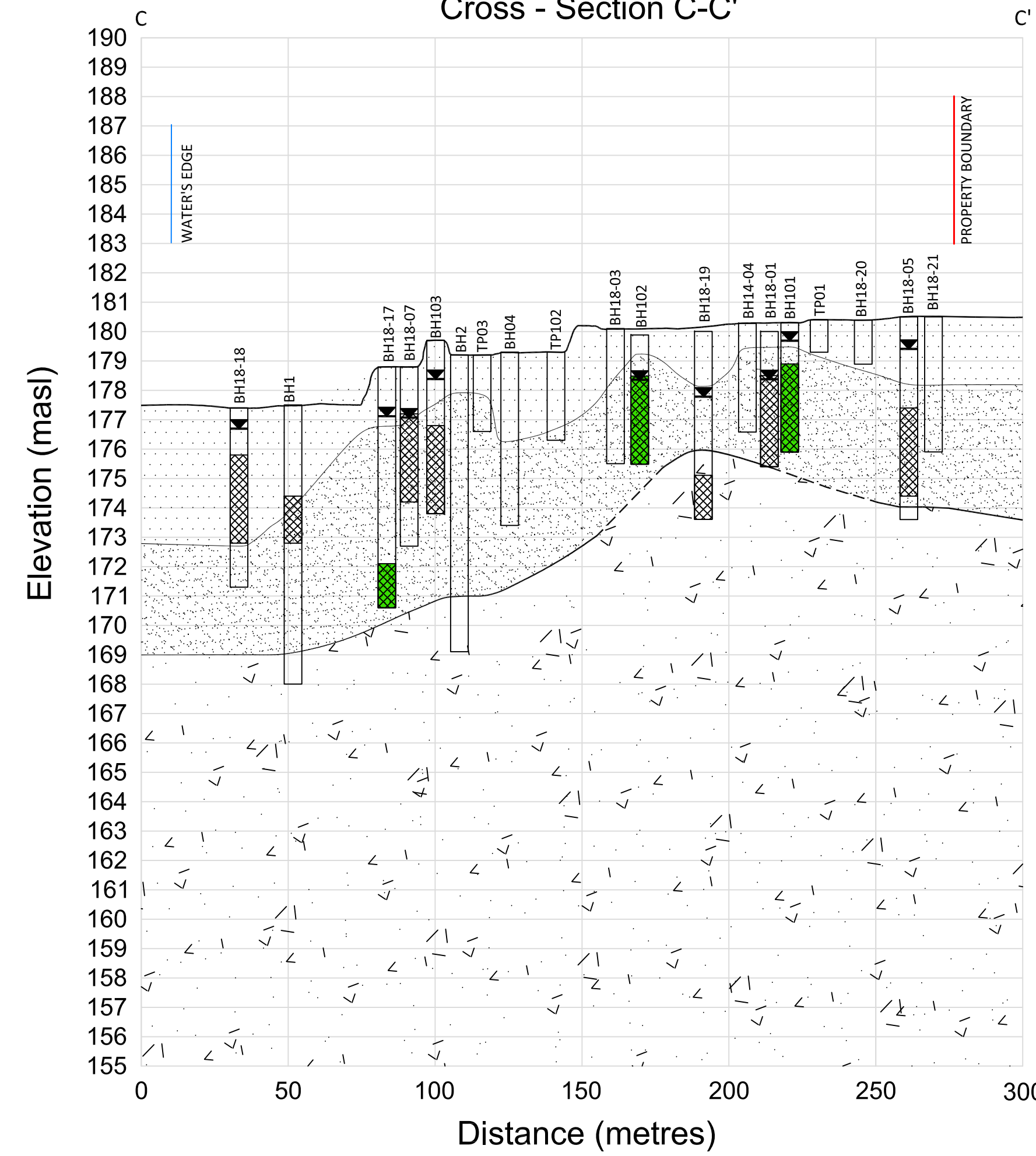
Sample Location	Units	Table 9 SCS <sup>1</sup>	BH105	BH18-06	BH18-11	BH18-13	BH18-15	
Sample Date			3-Jul-13	28-May-18	15-Feb-19	28-Aug-18	13-Dec-18	14-Dec-18
Trichloroethylene	µg/L	1.6	<0.2	<0.20	<0.20	<b>2.2</b>	<0.20	<0.20

Cross - Section B-B1'

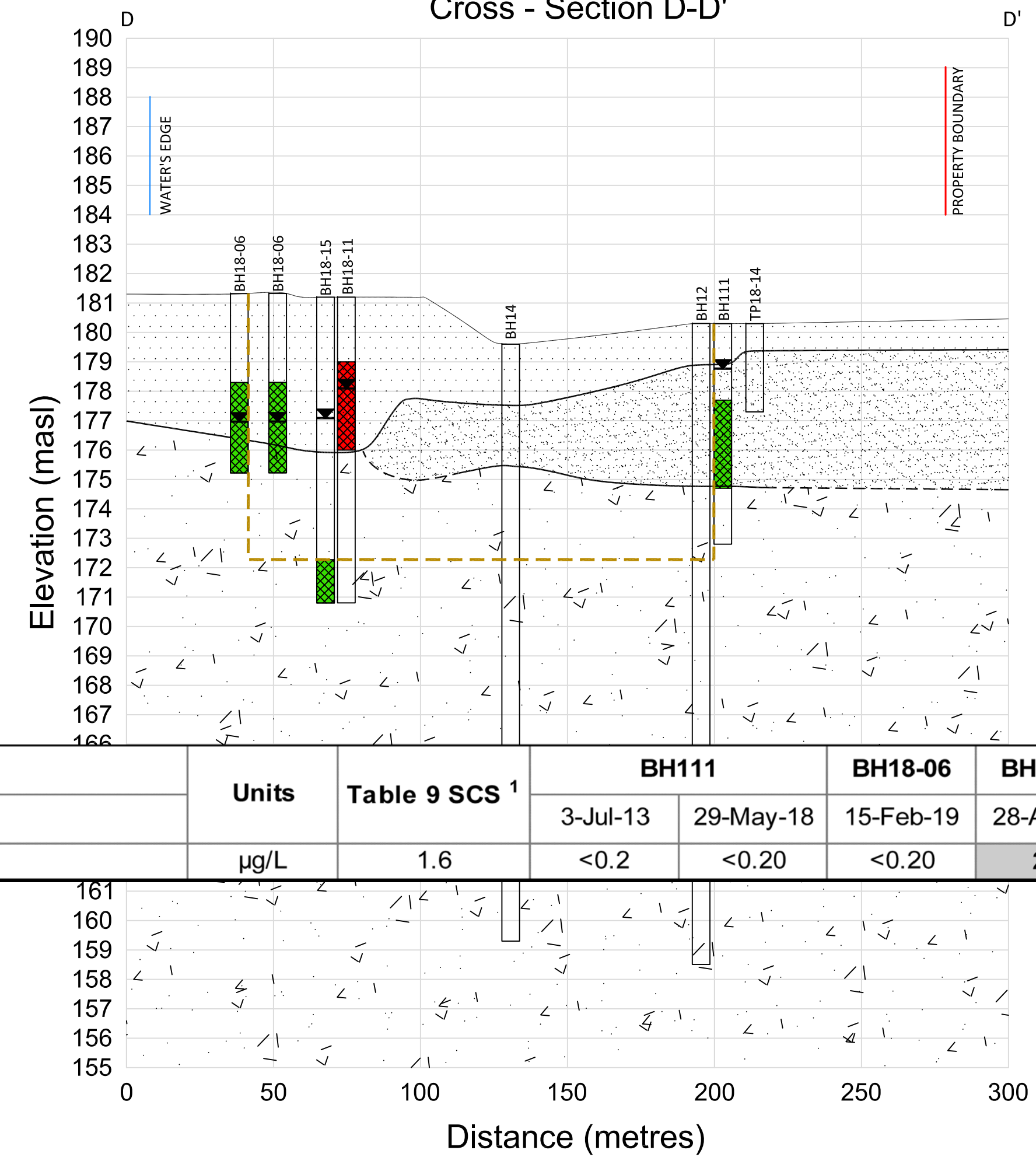


Sample Location	Units	Table 9 SCS <sup>1</sup>	BH111	BH18-06	BH18-11	BH18-15	
Sample Date			3-Jul-13	29-May-18	15-Feb-19	28-Aug-18	14-Dec-18
Trichloroethylene	µg/L	1.6	<0.2	<0.20	<0.20	<b>2.2</b>	<0.20

Cross - Section C-C'



Cross - Section D-D'





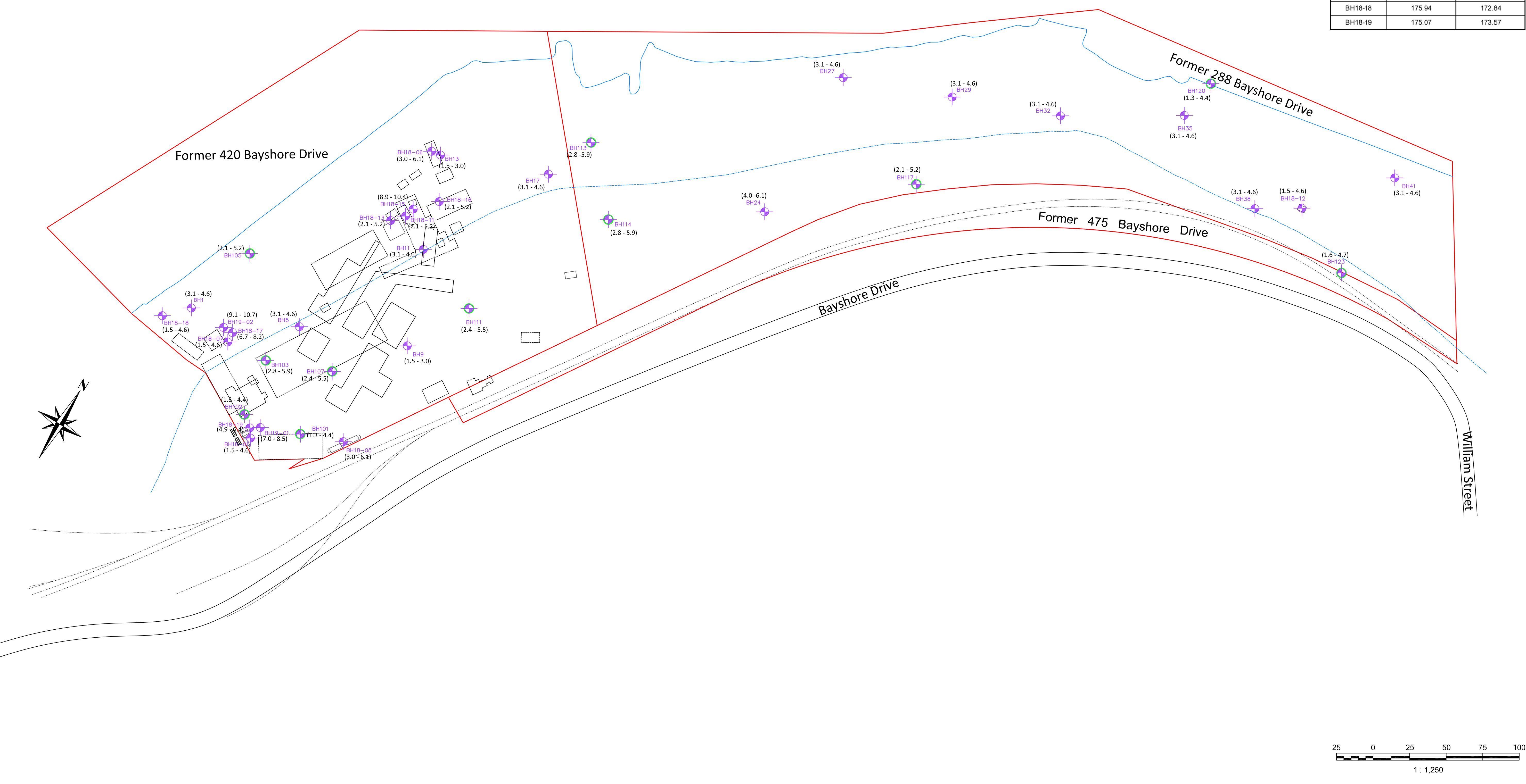
Cambium Sample Location	BH101		BH102			BH103		BH105		BH107		BH111			BH113			BH114		BH117		BH120		BH123	
Sample Date	3-Jul-13	28-May-18	3-Jul-13	28-May-18	28-May-18	3-Jul-13	29-May-18	3-Jul-13	28-May-18	3-Jul-13	29-May-18	3-Jul-13	3-Jul-13	29-May-18	3-Jul-13	30-May-18	30-May-18	3-Jul-13	30-May-18	3-Jul-13	29-May-18	3-Jul-13	29-May-18	3-Jul-13	29-May-18

Well ID	Top of Screen (masl)	Bottom of Screen (masl)
BH101	178.96	175.86
BH102	178.63	175.53
BH103	176.94	173.84
BH105	175.47	172.37
BH114	176.35	173.25
BH113	176.25	173.15
BH120	176.27	173.17
BH123	178.71	175.61
BH117	179.52	176.42
BH107	177.77	174.67
BH111	177.87	174.77
BH18-01	178.49	175.39
BH18-05	177.49	174.39
BH18-06	178.34	175.24
BH18-07	177.31	174.21
BH18-11	179.16	176.06
BH18-12	176.74	173.64
BH18-13	178.76	175.66
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BH18-16	179.18	176.08
BH18-17	172.08	170.58
BH18-18	175.94	172.84
BH18-19	175.07	173.57

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
**MIDLAND BAY LANDING**  
 CORPORATION OF THE TOWN OF MIDLAND  
 420 Bayshore Drive, Midland, Ontario

- LEGEND**
- (1.6 - 4.7) SCREEN INTERVAL IN METRES BELOW GROUND SURFACE
  - MONITORING WELL
  - BOREHOLE
  - TEST PIT
  - SURFICIAL SOIL SAMPLE
  - MOUND
  - WATER'S EDGE (Feb. 17, 2015)
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  - PROPERTY LINE
  - FORMER RAIL LINE
  - UNDERGROUND STORAGE TANK
  - AST
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  - PARAMETERS TESTED EXCEED TABLE 9 SCS
  - EXTENT OF IMPACT
  - BUILDING FOOTPRINTS**
  - RECENT
  - FROM 1917 AND 1946 FIRE INSURANCE PLANS

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON-POTABLE GROUNDWATER CONDITION (MOE, 2011).



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**GROUNDWATER RESULTS - PAHs**

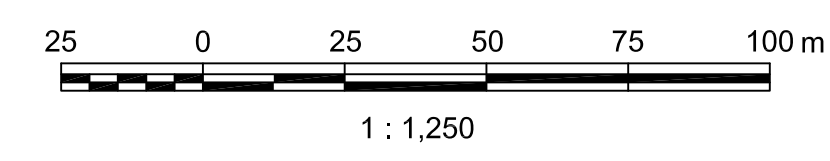
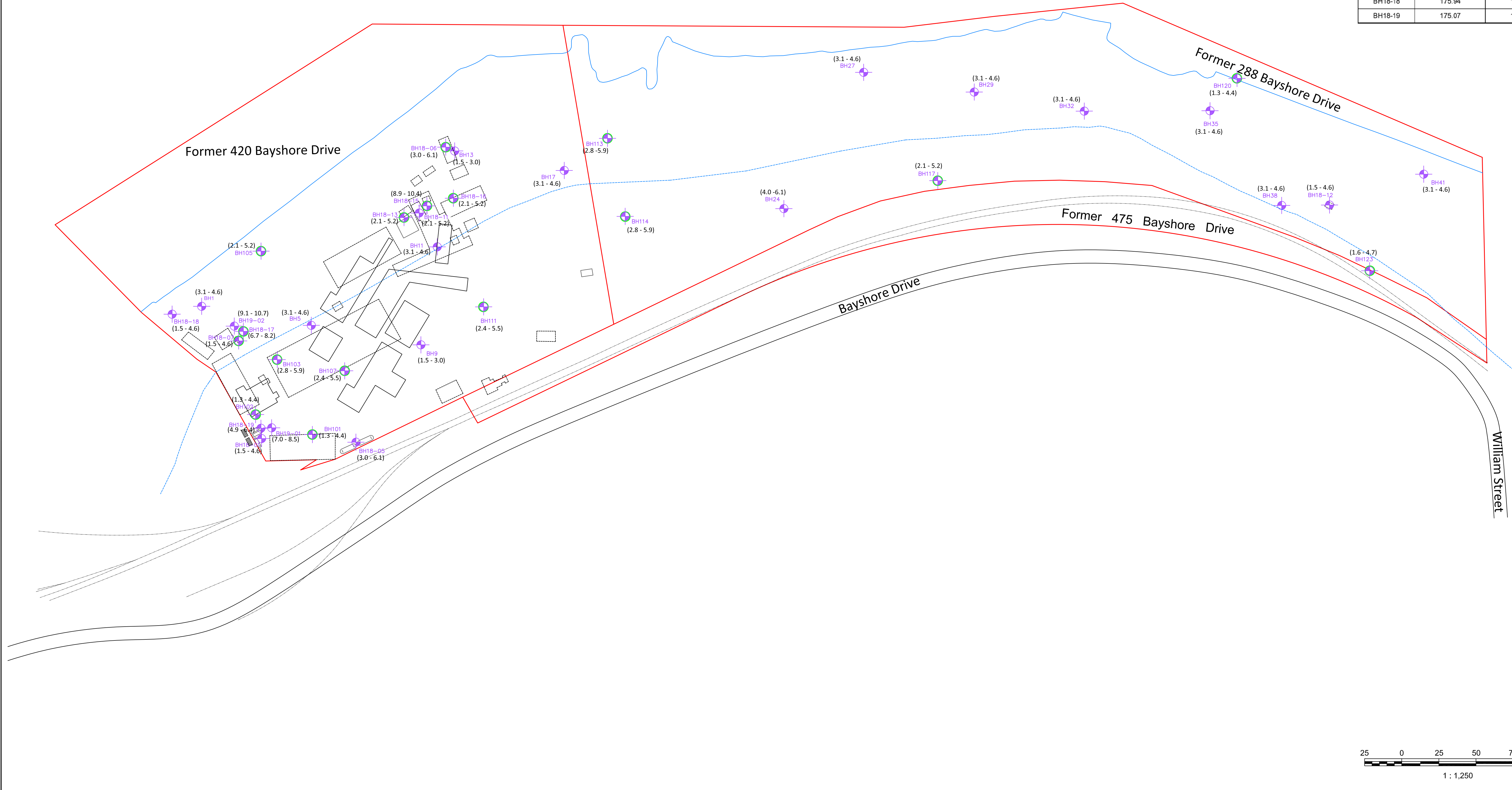
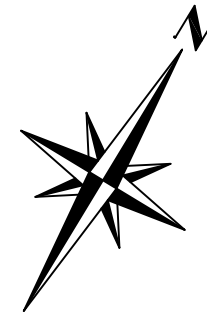
Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	20		


**PHASE TWO ENVIRONMENTAL  
SITE ASSESSMENT  
MIDLAND BAY LANDING  
CORPORATION OF THE  
TOWN OF MIDLAND**  
420 Bayshore Drive, Midland, Ontario

- LEGEND**
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  - PARAMETERS TESTED MEET TABLE 9 SCS
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  - EXTENT OF IMPACT
- BUILDING FOOTPRINTS**
- RECENT
  - FROM 1917 AND 1946 FIRE INSURANCE PLANS

Well ID	Top of Screen (masl)	Bottom of Screen (masl)
BH101	178.96	175.86
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BH103	176.94	173.84
BH105	175.47	172.37
BH114	176.35	173.25
BH113	176.25	173.15
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BH18-01	178.49	175.39
BH18-05	177.49	174.39
BH18-06	178.34	175.24
BH18-07	177.31	174.21
BH18-11	179.16	176.06
BH18-12	176.74	173.64
BH18-13	178.76	175.66
BH18-15	172.31	170.81
BH18-16	179.18	176.08
BH18-17	172.08	170.58
BH18-18	175.94	172.84
BH18-19	175.07	173.57

Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).



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**GROUNDWATER RESULTS -  
METALS**

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	21		

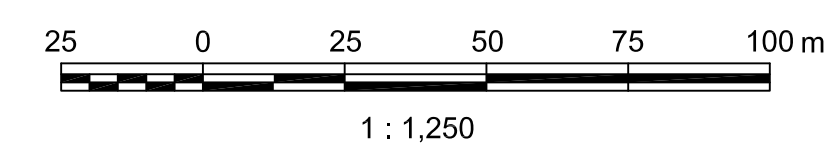
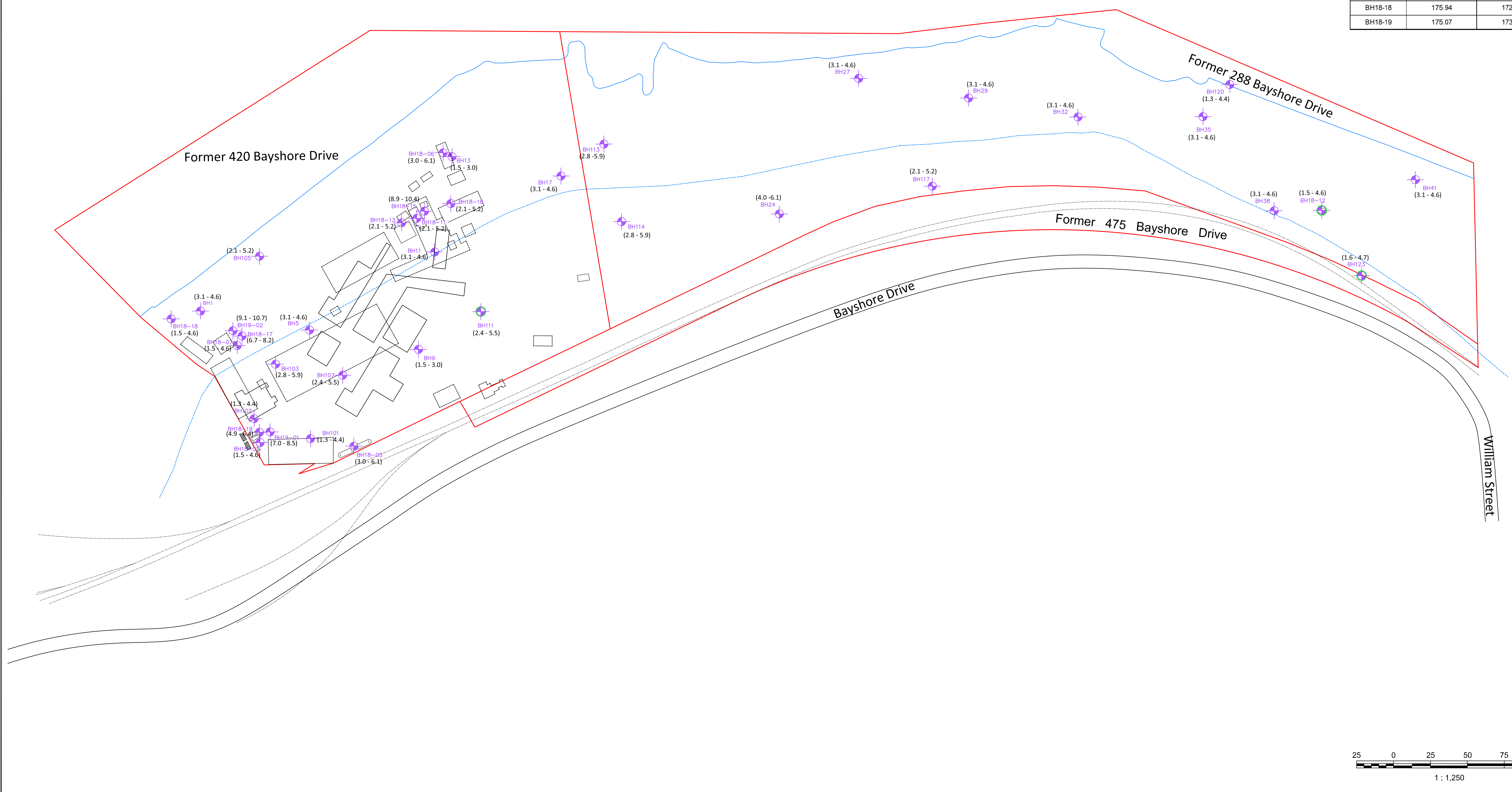
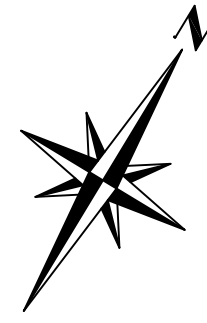



**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
**MIDLAND BAY LANDING**  
 CORPORATION OF THE TOWN OF MIDLAND  
 420 Bayshore Drive, Midland, Ontario

- LEGEND**
- (1.6 - 4.7) SCREEN INTERVAL IN METRES BELOW GROUND SURFACE
  - MONITORING WELL
  - BOREHOLE
  - TEST PIT
  - SURFICIAL SOIL SAMPLE
  - MOUND
  - WATER'S EDGE (Feb. 17, 2015)
  - ORIGINAL WATER'S EDGE (APPROXIMATE)
  - PROPERTY LINE
  - FORMER RAIL LINE
  - UNDERGROUND STORAGE TANK
  - AST
  - PARAMETERS TESTED MEET TABLE 9 SCS
  - PARAMETERS TESTED EXCEED TABLE 9 SCS
  - EXTENT OF IMPACT
- BUILDING FOOTPRINTS**
- RECENT
  - FROM 1917 AND 1946 FIRE INSURANCE PLANS

Well ID	Top of Screen (masl)	Bottom of Screen (masl)
BH101	178.96	175.86
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BH105	175.47	172.37
BH114	176.35	173.25
BH113	176.25	173.15
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Table 9 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A NON - POTABLE GROUNDWATER CONDITION (MOE, 2011).



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**GROUNDWATER RESULTS - PCBs**

Project No.:	6820-001	Date:	October 2019
Horizontal Scale:	1:1,250	Vertical Scale:	N/A
Drawn By:	TLC	Checked By:	NJY
Figure:	22		



**FIGURE 23a  
HUMAN HEALTH CONCEPTUAL SITE MODEL - WITHOUT RISK MANAGEMENT**

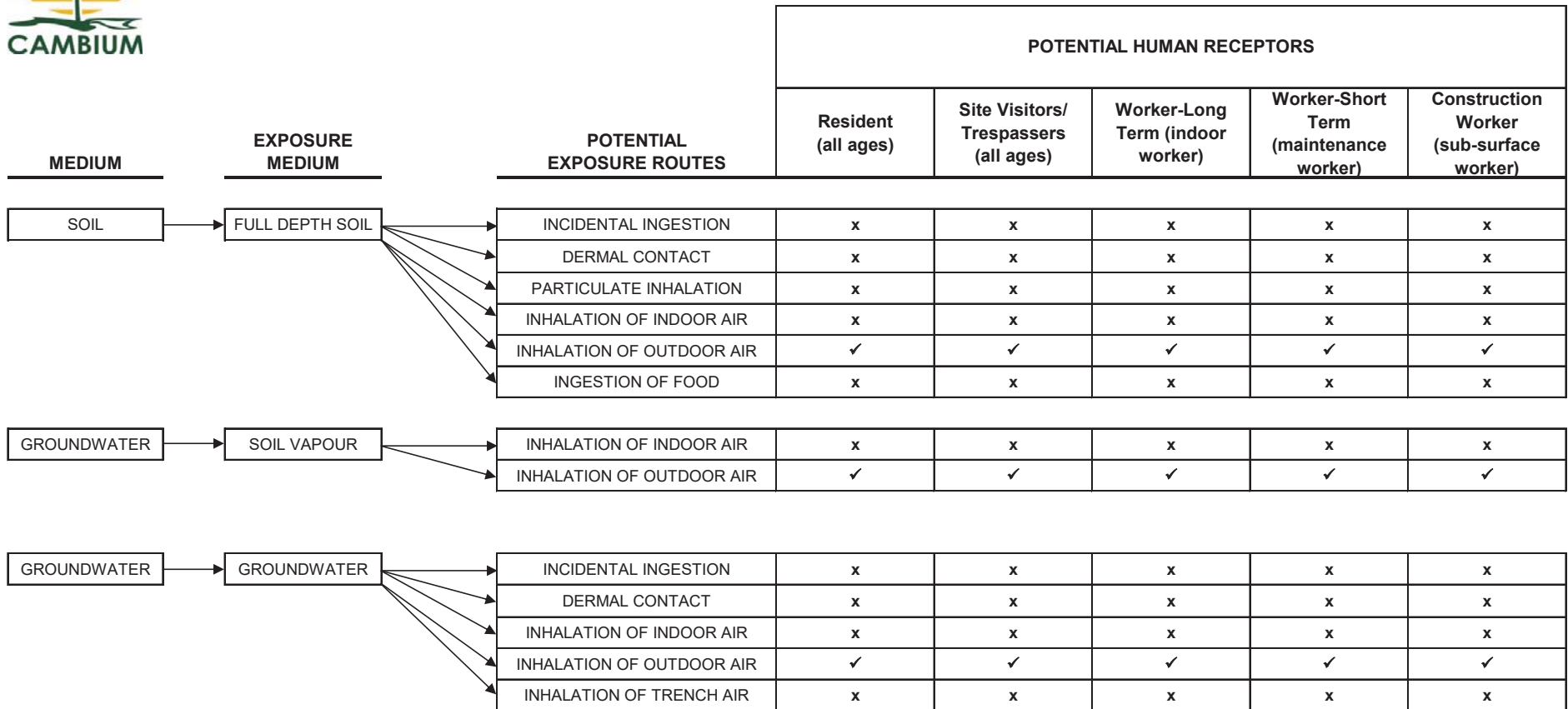
MEDIUM	EXPOSURE MEDIUM	POTENTIAL EXPOSURE ROUTES	POTENTIAL HUMAN RECEPTORS				
			Resident (all ages)	Site Visitors/ Trespassers (all ages)	Worker-Long Term (indoor worker)	Worker-Short Term (maintenance worker)	Construction Worker (sub-surface worker)
SOIL	FULL DEPTH SOIL	INCIDENTAL INGESTION	✓	✓	x	✓	✓
		DERMAL CONTACT	✓	✓	x	✓	✓
		PARTICULATE INHALATION	✓	✓	✓	✓	✓
		INHALATION OF INDOOR AIR	✓	✓	✓	✓	✓
		INHALATION OF OUTDOOR AIR	✓	✓	✓	✓	✓
		INGESTION OF FOOD	✓	✓	x	x	x
GROUNDWATER	SOIL VAPOUR	INHALATION OF INDOOR AIR	✓	✓	✓	✓	✓
		INHALATION OF OUTDOOR AIR	✓	✓	✓	✓	✓
GROUNDWATER	GROUNDWATER	INCIDENTAL INGESTION	x	x	x	x	✓
		DERMAL CONTACT	x	x	x	x	✓
		INHALATION OF INDOOR AIR	✓	✓	✓	✓	✓
		INHALATION OF OUTDOOR AIR	✓	✓	✓	✓	✓
		INHALATION OF TRENCH AIR	x	x	x	x	✓

Notes:

- ✓ - Indicates a potential exposure of contaminant of concern to receptor.
- x - Indicates no exposure of contaminant of concern to receptor.
- ▶ Indicates pathway potentially complete
- - - - -▶ Indicates pathway incomplete



**FIGURE 23b  
HUMAN HEALTH CONCEPTUAL SITE MODEL - WITH RISK MANAGEMENT**



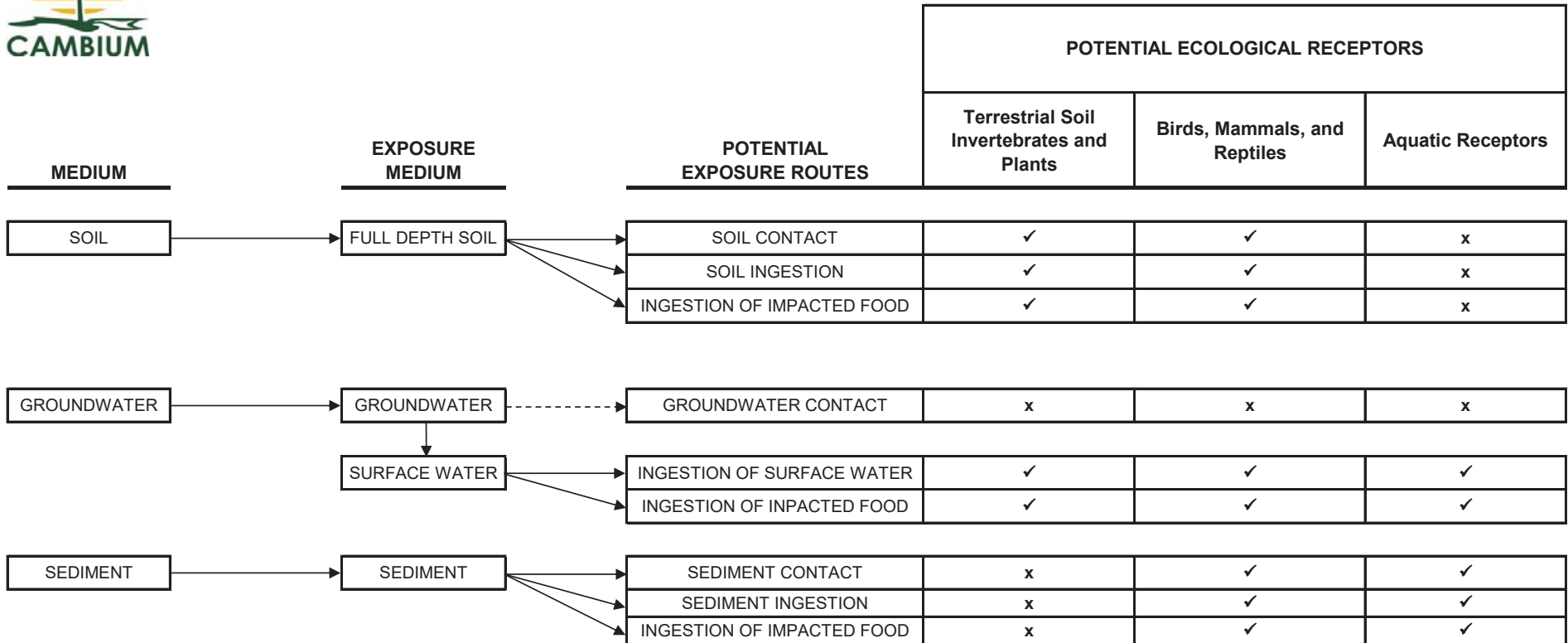
Notes:

- ✓ - Indicates a potential exposure of contaminant of concern to receptor.
- x - Indicates no exposure of contaminant of concern to receptor.
- ▶ Indicates pathway potentially complete
- ▶ Indicates pathway incomplete





**FIGURE 24a  
ECOLOGICAL CONCEPTUAL SITE MODEL - WITHOUT RISK MANAGEMENT**



Notes:

✓ - Indicates a potential exposure of contaminant of concern to receptor.

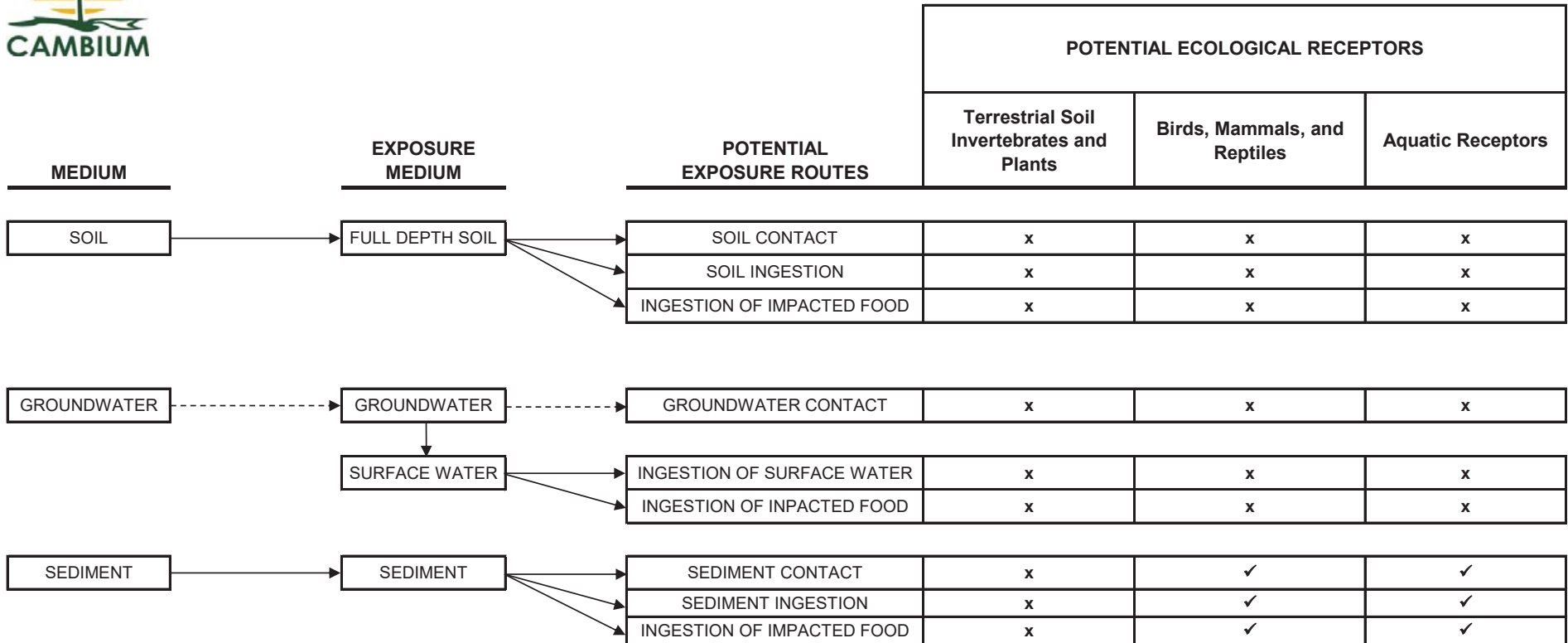
x - Indicates no exposure of contaminant of concern to receptor.

—————▶ Indicates pathway potentially complete

- - - - -▶ Indicates pathway incomplete



**FIGURE 24b  
ECOLOGICAL CONCEPTUAL SITE MODEL - WITH RISK MANAGEMENT**



Notes:

- ✓ - Indicates a potential exposure of contaminant of concern to receptor.
- x - Indicates no exposure of contaminant of concern to receptor.
- ▶ Indicates pathway potentially complete
- - - - -▶ Indicates pathway incomplete



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## Tables

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Table 1: Potentially Contaminating Activities

	Potentially Contaminating Activity (PCA)	Location of PCA	PCA Description	Contaminants of Potential Environmental Concern	APEC (Yes/No)
1	PCA #46 - Rail Yards, Tracks and Spurs	Rail sidings traversing the Site from east to west; Grand Trunk Railway main line and spur lines along the south side of the Site	On-site rail lines, spurs, and sidings	PHCs, PAHs, Metals	Yes
2	Unidentified PCA	Playfair Coal Dock present on the eastern portion of the Site	On-site storage of coal	PAHs, Metals	Yes
3	PCA #55 - Transformer Manufacturing, Processing and Use	Transformer house along the east side of Area 2	On-site transformer use – east portion of 288 Bayshore Drive	PCBs	Yes
4	PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks	Gasoline UST north of the sawmill/joiner shop building in Area 1	On-site storage of gasoline in a UST to north of sawmill/joiner shop building	BTEX, PHCs, Metals	Yes
5	PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks	Fuel oil USTs south of the sawmill/joiner shop building in Area 1	On-site storage of fuel oil in USTs to the south of the sawmill/joiner shop building	BTEX, PHCs	Yes
6	PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks	Fuel oil USTs east of the furnace shop building in Area 1	On-site storage of fuel oil in USTs to the east of the former furnace shop building	BTEX, PHCs	Yes
7	PCA #44 - Port Activities, including Operation and Maintenance of Wharves and Docks	On-site along the west side of the Site	On-site port activities related to off-loading of coal and Unimin aggregates	PHCs, PAHs, metals	Yes
8	PCA #39 - Paints Manufacturing, Processing and Bulk Storage	Paint shop building along the north side of Area 1	On-site painting activities	VOCs, Metals	Yes
9	PCA #34 - Metal Fabrication	Punch/machine shop building in the central portion of Area 1	On-site machine shop activities	VOCs, Metals	Yes
10	PCA #33 - Metal Treatment, Coating, Plating and Finishing	Furnace shop building in the southwest corner of Area 1	On-site furnace/smithing shop activities	Metals	Yes
11	PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks	Oil House on west side of Area 1	On-site oil house	BTEX, PHCs, Metals	Yes
12	PCA #7 - Boat Manufacturing	Off-site adjacent to the west	Industrial activities at the Midland Boat Works to the west	VOCs, PHCs, Metals	Yes
13	PCA #34 - Metal Fabrication	Off-site to the south	Industrial activities at the Midland Engine Works and Manton Foundry (machine shop) to the south	VOCs, PHCs, Metals	Yes
14	PCA #30 - Importation of Fill Material of Unknown Quality	Across the entire Site	Importation of fill material of unknown quality to the Site	PHCs, PAHs, Metals	Yes
15	PCA #55 - Transformer Manufacturing, Processing and Use	Northeast corner of Area 1	On-site storage of PCBs – northeast corner of 420 Bayshore Drive (Area 1)	PCBs	Yes
16	PCA #58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Off-site to the southeast	Waste management activities at 200 Bay Street	N/A	No
17	PCA #27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Off-site adjacent to the west	Repair of marine vehicles at 171 Midland Avenue	VOCs, PHCs, Metals	Yes
18	PCA #44 - Port Activities, including Operation and Maintenance of Wharves and Docks	Off-site adjacent to the west	Port activities at 171 Midland Avenue	PHCs, PAHs	Yes
19	PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks	Off-site adjacent to the west	Storage of fuel in fixed tanks at 171 Midland Avenue	BTEX, PHCs, Metals	Yes
20	PCA #28 - Gasoline and Associated Products Storage in Fixed Tanks	Off-site to the southwest	Storage of fuel in fixed tanks at 475 Bay Street	N/A	No
21	PCA #52 - Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-site to the southwest	Operation of transportation systems at 475 Bay Street	N/A	No
22	Unidentified PCA	Off-site to the southwest	Fuel release at 202 King Street	N/A	No
23	PCA #44 - Port Activities, including Operation and Maintenance of Wharves and Docks	Off-site to the west	Presence of contaminated sediment at Midland Public Harbour	N/A	No
24	PCA #55 - Transformer Manufacturing, Processing and Use	On-site transformer use within and south of Unimin main building (Area 1)	On-site transformer use – within and south of the main Unimin building	PCBs	Yes
25	PCA #52 - Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	On-site within the Marine Railway Enclosure	Operation of transportation systems and fuelling within the Marine Railway enclosure	BTEX, PHCs, Metals	Yes



Table 2 - Areas of Potential Environmental Concern

Area of Potential Environmental Concern <sup>1</sup>	Location of Area of Potential Environmental Concern on the Phase One Property	Potentially Contaminating Activity <sup>2</sup>	Location of PCA (on-site or off-site)	Contaminants of Potential Concern <sup>3</sup>	Media Potentially Impacted (Groundwater, soil, and/or sediment)
APEC A	Footprint of the Site	46. Rail Yards, Tracks and Spurs	on-site	PHCs, PAHs, Metals	Soil & Groundwater
APEC B	Area 2	Unidentified PCA (coal storage)	on-site	PAHs, Metals	Soil
APEC C	Footprint of transformer house along the east side of Area 2	55. Transformer Manufacturing, Processing and Use	on-site	PCBs	Soil
APEC D	Footprint of gasoline UST north of the sawmill/joiner shop building in Area 1	28. Gasoline and Associated Products Storage in Fixed Tanks	on-site	BTEX, PHCs, Metals	Soil & Groundwater
APEC E	Footprint of fuel oil USTs south of the sawmill/joiner shop building in Area 1	28. Gasoline and Associated Products Storage in Fixed Tanks	on-site	BTEX, PHCs	Soil & Groundwater
APEC F	Footprint of fuel oil USTs east of the furnace shop building in Area 1	28. Gasoline and Associated Products Storage in Fixed Tanks	on-site	BTEX, PHCs	Soil & Groundwater
APEC G	Water Lot portion of Site at docks. Northwest and southwest corners of Area 1; northwest corner of Area 2.	44. Port Activities, including Operation and Maintenance of Wharves and Docks	on-site	PHCs, PAHs, Metals	Surface Water & Sediment
APEC H	Footprint of paint shop building along the north side of Area 1	39. Paints Manufacturing, Processing and Bulk Storage	on-site	VOCs, Metals	Soil & Groundwater
APEC I	Footprint of punch/machine shop building in the central portion of Area 1	34. Metal Fabrication	on-site	VOCs, Metals	Soil & Groundwater
APEC J	Footprint of furnace shop building in the southwest corner of Area 1	33. Metal Treatment, Coating, Plating and Finishing	on-site	Metals	Soil
APEC K	West property boundary	7. Boat Manufacturing	off-site adjacent to the west	VOCs, PHCs, Metals	Groundwater
APEC L	South property boundary	27. Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles 34. Metal Fabrication	off-site to the south	VOCs, PHCs, Metals	Groundwater
APEC M	PCB Storage Area in northeast corner of Area 1	55. Transformer Manufacturing, Processing and Use	on-site	PCBs	Soil
APEC N	Footprint of the Site	30. Importation of Fill Material of Unknown Quality	on-site	PHCs, PAHs, Metals	Soil
APEC O	Transformers within and south of main Unimin building	55. Transformer Manufacturing, Processing and Use	on-site	PCBs	Soil
APEC P	Northwest property boundary	44. Port Activities, including Operation and Maintenance of Wharves and Docks	off-site adjacent to the west	PHCs, PAHs, Metals	Surface Water & Sediment
APEC Q	Southwest property boundary	28. Gasoline and Associated Products Storage in Fixed Tanks	off-site adjacent to the west	BTEX, PHCs, Metals	Groundwater
APEC R	West side of marine rail system enclosure	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	on-site	BTEX, PHCs, Metals	Soil & Groundwater
APEC S	Footprint of Oil House building	28. Gasoline and Associated Products Storage in Fixed Tanks	on-site	BTEX, PHCs, Metals	Soil & Groundwater

Notes:

1. Area of Potential Environmental Concern means the area on, in or under a phase one property where one or more contaminants are potentially present, as determined through the phase one environmental site assessment
2. Potentially Contaminating Activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a phase one study area
3. Method groups as defined in Protocol for the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011
4. When submitting a record of site condition for filing, a copy of this table must be attached



**Table 3 - Monitoring Well Summary**

Installed By	PML Well ID	Cambium Well ID	UTM Coordinates		Ground Surface Elevation (masl) <sup>2</sup>	Calculated Top of Pipe Elevation (masl)	Screen Length (m) <sup>2</sup>	Top of Screen (masl) <sup>2</sup>	Bottom of Screen (masl) <sup>2</sup>	Measured Riser Stickup (m) <sup>1</sup>
			Easting	Northing						
Peto MacCallum Ltd. (PML)	BH 1	-	-	-	177.45	178.25	1.5	174.35	172.85	0.80
	BH 5	-	-	-	180.45	181.42	1.5	177.35	175.85	0.97
	BH 9	-	-	-	179.70	180.73	1.5	178.20	176.70	1.03
	BH 11	-	-	-	181.05	181.78	1.5	177.95	176.45	0.73
	BH 13	-	-	-	181.35	182.19	1.5	179.85	178.35	0.84
	BH 17	-	-	-	178.80	179.80	1.5	175.70	174.20	1.00
	BH 24	-	-	-	180.75	181.84	1.5	176.15	174.65	1.09
	BH 27	-	-	-	177.60	-	1.5	174.50	173.00	-
	BH 29	-	-	-	178.00	178.68	1.5	174.90	173.40	0.68
	BH 32	-	-	-	178.15	179.10	1.5	175.05	173.55	0.95
	BH 35	-	-	-	177.80	178.72	1.5	174.70	173.20	0.92
	BH 38	-	-	-	178.50	179.47	1.5	175.40	173.90	0.97
	BH 41	-	-	-	178.20	179.17	1.5	175.10	173.60	0.97
Installed By	Pinchin Well ID	Cambium Well ID	UTM Coordinates <sup>3</sup>		Ground Surface Elevation (masl) <sup>3</sup>	Top of Pipe Elevation (masl) <sup>3</sup>	Screen Length (m) <sup>3</sup>	Top of Screen (masl) <sup>3</sup>	Bottom of Screen (masl) <sup>3</sup>	Riser Stickup (m) <sup>3</sup>
Pinchin Environmental Ltd. (Pinchin)	BH02	BH101	588204	4956276	180.24	181.26	3.1	178.96	175.86	1.02
	BH03	BH102	588167	4956267	179.93	180.97	3.1	178.63	175.53	1.04
	BH06	BH103	588161	4956311	179.74	180.79	3.1	176.94	173.84	1.05
	BH08	BH105	588112	4956359	177.57	178.80	3.1	175.47	172.37	1.23
	BH09	BH114	588304	4956529	179.15	180.22	3.1	176.35	173.25	1.07
	BH10	BH113	588270	4956546	179.05	180.06	3.1	176.25	173.15	1.01
	BH12	BH120	588606	4956803	177.57	178.49	3.1	176.27	173.17	0.92
	BH15	BH123	588758	4956744	180.31	181.41	3.1	178.71	175.61	1.10
	BH17	BH117	588493	4956636	181.62	182.49	3.1	179.52	176.42	0.87
	BH18	BH107	588206	4956337	180.17	181.35	3.1	177.77	174.67	1.18
	BH20	BH111	588258	4956412	180.27	181.11	3.1	177.87	174.77	0.84
Installed By	Cambium Well ID		UTM Coordinates		Ground Surface Elevation (masl) <sup>4</sup>	Top of Pipe Elevation (masl) <sup>4</sup>	Screen Length (m)	Top of Screen (masl) <sup>4</sup>	Bottom of Screen (masl) <sup>4</sup>	Riser Stickup (m)
Cambium Inc. (Cambium)	BH18-01		588175	4956262	179.99	180.76	3.1	178.49	175.39	0.77
	BH18-05		588232	4956297	180.49	181.26	3.1	177.49	174.39	0.77
	BH18-06		588181	4956492	181.34	182.08	3.1	178.34	175.24	0.75
	BH18-07		588132	4956309	178.81	179.51	3.1	177.31	174.21	0.70
	BH18-11		588193	4956451	181.26	182.03	3.1	179.16	176.06	0.77
	BH18-12		588708	4956764	178.24	179.04	3.1	176.74	173.64	0.79
	BH18-13		588183	4956438	180.86	181.75	3.1	178.76	175.66	0.90
	BH18-15		588193	4956452	181.21	181.99	1.5	172.31	170.81	0.78
	BH18-16		588204	4956467	181.28	182.12	3.1	179.18	176.08	0.84
	BH18-17		588132	4956312	178.78	179.62	1.5	172.08	170.58	0.84
	BH18-18		588083	4956302	177.44	178.15	3.1	175.94	172.84	0.72
	BH18-19		588174	4956264	179.97	180.75	1.5	175.07	173.57	0.78
	BH19-01		588174	4956267	179.98	180.87	1.5	171.93	170.43	0.90
BH19-02		588130	4956312	178.79	179.61	1.5	168.73	167.23	0.82	

Notes:  
1. Measurement obtained by Cambium.  
2. Data obtained from borehole logs in *Preliminary Geotechnical Investigation, Proposed Midland Bay Landing Residential Development, Bayshore Drive, Midland, Ontario*. Peto MacCallum Ltd. July 2017.  
3. Data obtained from Table 2, Table 3, and Borehole Logs in *Phase Two Environmental Site Assessment, 288 and 420 Bayshore Drive, Midland, Ontario*. Pinchin Environmental Ltd. January 2014.  
4. Elevations tied to Pinchin elevations.  
"- " indicates parameter was not measured.  
mbtoc - metres below top of casing  
masl - metres above sea level





Table 4 - Groundwater Elevation

Installed By	PML Well ID	Cambium Well ID	Ground Surface Elevation (masl) <sup>2</sup>	Calculated Top of Pipe Elevation (masl)	Measured Riser Stickup (m) <sup>1</sup>	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)
						28-May-18			28-Aug-18			13-Dec-18			15-Feb-19			23-Sep-19		
Peto MacCallum Ltd. (PML)	BH 1	-	177.45	178.25	0.80	1.28	0.48	176.97	1.63	0.83	176.62	-	-	-	-	-	-	-	-	-
	BH 5	-	180.45	181.42	0.97	3.29	2.32	178.13	3.23	2.26	178.19	-	-	-	-	-	-	-	-	-
	BH 9	-	179.70	180.73	1.03	1.50	0.47	179.23	1.37	0.34	179.36	-	-	-	-	-	-	-	-	-
	BH 11	-	181.05	181.78	0.73	3.45	2.72	178.33	3.29	2.56	178.49	-	-	-	-	-	-	-	-	-
	BH 13	-	181.35	182.19	0.84	5.17	4.33	177.02	5.12	4.28	177.07	-	-	-	-	-	-	-	-	-
	BH 17	-	178.80	179.8	1.00	2.53	1.53	177.27	2.45	1.45	177.35	-	-	-	-	-	-	-	-	-
	BH 24	-	180.75	181.84	1.09	3.13	2.04	178.71	3.33	2.24	178.51	-	-	-	-	-	-	-	-	-
	BH 27	-	177.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH 29	-	178.00	178.68	0.68	2.13	1.45	176.55	2.04	1.36	176.64	-	-	-	-	-	-	-	-	-
	BH 32	-	178.15	179.1	0.95	1.75	0.80	177.35	1.79	0.84	177.31	-	-	-	-	-	-	-	-	-
	BH 35	-	177.80	178.72	0.92	1.99	1.07	176.73	1.85	0.93	176.87	-	-	-	-	-	-	-	-	-
	BH 38	-	178.50	179.47	0.97	2.61	1.64	176.86	2.50	1.53	176.97	-	-	-	-	-	-	-	-	-
BH 41	-	178.20	179.17	0.97	2.53	1.56	176.64	2.45	1.48	176.72	-	-	-	-	-	-	-	-	-	
Installed By	Pinchin Well ID	Cambium Well ID	Ground Surface Elevation (masl) <sup>3</sup>	Top of Pipe Elevation (masl) <sup>3</sup>	Riser Stickup (m) <sup>3</sup>	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)
						28-May-18			28-Aug-18			13-Dec-18			15-Feb-19			23-Sep-19		
Pinchin Environmental Ltd. (Pinchin)	BH02	BH101	180.24	181.26	1.02	1.84	0.82	179.42	2.42	1.40	178.84	-	-	-	1.63	0.61	179.63	-	-	-
	BH03	BH102	179.93	180.97	1.04	2.64	1.60	178.33	2.71	1.67	178.26	-	-	-	2.66	1.62	178.31	-	-	-
	BH06	BH103	179.74	180.79	1.05	2.54	1.49	178.25	2.35	1.30	178.44	-	-	-	2.44	1.39	178.35	-	-	-
	BH08	BH105	177.57	178.80	1.23	1.89	0.66	176.91	1.81	0.58	176.99	-	-	-	1.95	0.72	176.85	-	-	-
	BH09	BH114	179.15	180.22	1.07	2.86	1.79	177.36	3.09	2.02	177.13	2.80	1.73	177.43	-	-	-	-	-	-
	BH10	BH113	179.05	180.06	1.01	2.11	1.10	177.95	2.02	1.01	178.04	2.09	1.08	177.97	-	-	-	-	-	-
	BH12	BH120	177.57	178.49	0.92	1.73	0.81	176.76	1.58	0.66	176.91	-	-	-	1.64	0.72	176.85	-	-	-
	BH15	BH123	180.31	181.41	1.10	4.11	3.01	177.30	4.28	3.18	177.13	4.08	2.98	177.33	4.16	3.06	177.25	-	-	-
	BH17	BH117	181.62	182.49	0.87	4.33	3.46	178.16	4.55	3.68	177.94	4.53	3.66	177.96	4.61	3.74	177.88	-	-	-
	BH18	BH107	180.17	181.35	1.18	3.07	1.89	178.28	3.89	2.71	177.46	-	-	-	3.00	1.82	178.35	-	-	-
BH20	BH111	180.27	181.11	0.84	2.38	1.54	178.73	2.74	1.90	178.37	-	-	-	2.50	1.66	178.61	-	-	-	



Table 4 - Groundwater Elevation

Installed By	Cambium Well ID	Ground Surface Elevation (masl) <sup>4</sup>	Top of Pipe Elevation (masl) <sup>4</sup>	Riser Stickup (m)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)	Water Level (mbtop)	Water Level (mbgs)	Groundwater Elevation (masl)
					28-May-18			28-Aug-18			13-Dec-18			15-Feb-19			23-Sep-19		
Cambium Inc. (Cambium)	BH18-01	179.99	180.76	0.77	-	-	-	2.49	1.72	178.27	2.36	1.59	178.40	2.37	1.60	178.39	-	-	-
	BH18-05	180.49	181.26	0.77	-	-	-	1.75	0.98	179.51	-	-	-	1.52	0.75	179.74	-	-	-
	BH18-06	181.34	182.08	0.75	-	-	-	4.83	4.08	177.25	-	-	-	5.16	4.41	176.92	-	-	-
	BH18-07	178.81	179.51	0.70	-	-	-	2.28	1.58	177.23	2.13	1.43	177.38	2.28	1.58	177.23	-	-	-
	BH18-11	181.26	182.03	0.77	-	-	-	3.93	3.16	178.10	3.95	3.18	178.08	3.98	3.21	178.05	-	-	-
	BH18-12	178.24	179.04	0.79	-	-	-	2.17	1.38	176.87	-	-	-	2.19	1.40	176.85	-	-	-
	BH18-13	180.86	181.75	0.90	-	-	-	-	-	-	3.88	2.98	177.88	3.90	3.00	177.85	-	-	-
	BH18-15	181.21	181.99	0.87	-	-	-	-	-	-	5.18	4.32	176.81	4.95	4.09	177.04	4.67	3.81	177.32
	BH18-16	181.28	182.12	0.84	-	-	-	-	-	-	4.40	3.56	177.72	4.44	3.60	177.68	-	-	-
	BH18-17	178.78	179.62	0.84	-	-	-	-	-	-	2.46	1.62	177.16	2.46	1.62	177.16	2.21	1.37	177.41
	BH18-18	177.44	178.15	0.72	-	-	-	-	-	-	1.61	0.89	176.54	1.48	0.76	176.67	-	-	-
	BH18-19	179.97	180.75	0.76	-	-	-	-	-	-	3.02	2.26	177.73	2.98	2.23	177.77	2.86	2.11	177.89
	BH19-01	179.98	180.87	0.90	-	-	-	-	-	-	-	-	-	-	-	-	2.89	2.00	177.98
BH19-02	178.79	179.61	0.82	-	-	-	-	-	-	-	-	-	-	-	-	2.08	1.26	177.53	

Notes:  
 1. Measurement obtained by Cambium.  
 2. Data obtained from borehole logs in *Preliminary Geotechnical Investigation, Proposed Midland Bay Landing Residential Development, Bayshore Drive, Midland, Ontario*. Peto MacCallum Ltd. July 2017.  
 3. Data obtained from *Table 2 - Elevation and UTM Coordinate Data* and *Table 3 - Groundwater Monitoring Data of Phase Two Environmental Site Assessment, 288 and 420 Bayshore Drive, Midland, Ontario*. Pinchin Environmental Ltd. January 2014.  
 4. Elevations tied into Pinchin elevations.  
 "-" indicates parameter was not measured.  
 masl - metres above sea level  
 mbtop - metres below top of pipe (riser)  
 mbgs - metres below ground surface



**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	TP02		TP03			TP04		TP05	TP101		
Sample Identification				TP2 SA4	TP2 SA6	TP3 SA3	DUP 1 (Duplicate)	TP3 SA5	TP4 SA4	TP4 SA7	TP5 SA4	TP101 SA2	TP101 SA5	
Sample Date				12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13
Sample Depth (m)				2.0	3.0	1.5	1.5	2.5	2.0	3.5	2.0	1.2	3.0	
Sampled By				Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	
Laboratory				Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	
Benzene	µg/g	0.02	<b>8.4</b>	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<b>0.07</b>	<0.02		
Ethylbenzene	µg/g	0.05	<b>4.8</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>0.15</b>	<0.05		
Toluene	µg/g	0.2	<b>25</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>0.55</b>	<0.05		
Xylene Mixture	µg/g	0.05	<b>43</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>0.85</b>	<0.05		
F1-BTEX (C6-C10)	µg/g	25	<b>400</b>	<5	<5	<5	<5	<5	<5	<5	<5	<5		
F2 (C10 to C16)	µg/g	10	<b>1700</b>	<b>590</b>	<b>18</b>	<10	<10	<10	<10	<10	<b>59</b>	<10		
F3 (C16 to C34)	µg/g	240	<b>38000</b>	<b>1300</b>	79	<50	<50	<50	<50	<50	<b>490</b>	<50		
F4 (C34 to C50)	µg/g	120	<b>7100</b>	<50	<50	<50	<50	<50	<50	<50	<50	<50		
F4g	µg/g	120	<b>22000</b>	-	-	-	-	-	-	-	-	-		

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).





**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP102		TP107		TP108		TP109		TP110		
Sample Identification			TP102 SA2	TP102 SA5	TP107 SA2	TP107 SA3	TP108 SA3	TP108 SA5	TP109 SA2	TP109 SA3	TP110 SA3	TP110 SA5	
Sample Date			4-Dec-13	4-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13
Sample Depth (m)			1.8	3.0	1.2	1.8	1.8	3.0	1.2	1.8	1.8	1.8	3.0
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Benzene	µg/g	0.02	<0.02	<0.02	<b>1.5</b>	<b>8.4</b>	<0.02	<0.02	<0.02	<b>0.15</b>	<0.02	<0.02	
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<b>0.6</b>	<b>3.4</b>	<0.05	<0.05	<0.05	<b>0.27</b>	<0.05	<0.05	
Toluene	µg/g	0.2	<0.05	<0.05	<b>3.9</b>	<b>21</b>	<0.05	<0.05	<b>0.35</b>	<b>1.3</b>	<0.05	<0.05	
Xylene Mixture	µg/g	0.05	<0.05	<0.05	<b>4</b>	<b>24</b>	<0.05	<0.05	<b>0.24</b>	<b>2.4</b>	<0.05	<0.05	
F1-BTEX (C6-C10)	µg/g	25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
F2 (C10 to C16)	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	240	<50	<50	54	99	<50	<50	<50	52	<50	<50	
F4 (C34 to C50)	µg/g	120	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
F4g	µg/g	120	-	-	-	-	-	-	-	-	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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Yellow shading indicates RPD was greater than data quality objective (50%)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP111		TP112		TP113		TP114		BH01	BH101	BH102
Sample Identification			TP111 SA3	TP111 SA5	TP112 SA3	TP112 SA5	TP113 SA3	TP113 SA6	TP114 SA3	TP114 SA7	BH01 SA9	BH02 SA6	BH03 SA4
Sample Date			5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	17-Jun-13	17-Jun-13
Sample Depth (m)			1.8	3.0	1.8	3.0	1.8	3.7	1.8	4.3	5.94 - 6.71	3.66 - 4.42	2.13 - 2.90
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Benzene	µg/g	0.02	<b>0.97</b>	<b>0.47</b>	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	0.05	<b>0.97</b>	<b>0.38</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	<b>5.8</b>	<b>2.2</b>	<b>0.3</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	<b>6.7</b>	<b>3</b>	<b>0.21</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1-BTEX (C6-C10)	µg/g	25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<10	<5	<5	<5
F3 (C16 to C34)	µg/g	240	<50	69	<50	<50	<50	51	<50	<50	<10	<10	<10
F4 (C34 to C50)	µg/g	120	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4g	µg/g	120	-	-	-	-	-	-	-	-	-	-	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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NV - no value

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH04	BH05	BH103	BH07		BH105	BH114	BH113	BH11	BH120	BH13	
Sample Identification			BH04 SA4	BH05 SA4	BH06 SA7	BH07 SA5	DUP 2 (Duplicate)	BH08 SA5	BH09 SA5	BH10 SA7	BH11 SA8	BH12 SA2	BH13 SA5	
Sample Date			17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13
Sample Depth (m)			2.90 - 3.66	2.13 - 2.90	4.42 - 5.18	2.90 - 3.66	2.90 - 3.66	2.90 - 3.66	2.90 - 3.66	2.90 - 3.66	4.42 - 5.18	5.18 - 5.94	0.51 - 1.37	2.90 - 3.66
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<b>0.1</b>	<0.02	
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>0.32</b>	<0.05	
Toluene	µg/g	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>3</b>	<0.05	
Xylene Mixture	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>1.5</b>	<0.05	
F1-BTEX (C6-C10)	µg/g	25	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	
F2 (C10 to C16)	µg/g	10	<5	<5	<5	<5	<5	<10	<5	<10	<5	<10	<5	
F3 (C16 to C34)	µg/g	240	<10	<10	<10	<10	<10	<50	<10	<50	<10	<50	<10	
F4 (C34 to C50)	µg/g	120	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
F4g	µg/g	120	-	-	-	-	-	-	-	-	-	-	-	

Notes:

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Depth in metres below ground surface (mbgs)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH14	BH123	BH16	BH117		BH107	BH19	BH111	BH14-01		BH14-02
Sample Identification			BH14 SA2	BH15 SA5	BH16 SA3	BH17 SA4	DUP 3 (Duplicate)	BH18 SA7	BH19 SA9	BH20 SA3	BH14-01-2	DUP 1 (Duplicate)	BH14-02-3
Sample Date			18-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	20-Jun-13	20-Jun-13	20-Jun-13	28-Apr-14	28-Apr-14	28-Apr-14
Sample Depth (m)			0.51 - 1.37	2.90 - 3.66	1.37 - 2.13	2.13 - 2.90	2.13 - 2.90	4.42 - 5.18	5.94 - 6.71	1.37 - 2.13	0.8 - 1.4	0.8 - 1.4	3.0 - 3.7
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Stantec	Stantec	Stantec
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.10	<0.10	<b>0.21</b>
Ethylbenzene	µg/g	0.05	<b>0.13</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.020
Toluene	µg/g	0.2	<b>0.59</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<b>0.29</b>
Xylene Mixture	µg/g	0.05	<b>0.56</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.20	<0.20	<b>0.11</b>
F1-BTEX (C6-C10)	µg/g	25	9	<5	<5	<5	<5	<5	<5	<5	<50	<50	<10
F2 (C10 to C16)	µg/g	10	<b>13</b>	<5	<5	<5	<5	<5	<5	<5	<10	-	<10
F3 (C16 to C34)	µg/g	240	71	<10	<10	<10	<10	<10	<10	<10	60	-	140
F4 (C34 to C50)	µg/g	120	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50
F4g	µg/g	120	-	-	-	-	-	-	-	-	-	-	-

Notes:

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Depth in metres below ground surface (mbgs)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH14-04	BH14-05			BH14-06		BH14-07	MOUND 1	MOUND 2	MOUND 3A	MOUND 3B
Sample Identification			BH14-04-5	BH14-05-3	BH14-05-6	BH14-506 (Duplicate)	BH14-06-5	BH14-06-8	BH14-07-7	MOUND 1	MOUND 2	MOUND 3A	MOUND 3B
Sample Date			28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14
Sample Depth (m)			3.0 - 3.7	1.5 - 2.1	3.8 - 4.4	3.8 - 4.4	3.0 - 3.7	5.3 - 6.1	4.6 - 5.2	0-0.15	0-0.15	0-0.15	0-0.15
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.020	<b>&lt;0.040</b>	<0.020	<0.020	<0.020	<0.020	<b>0.074</b>	<b>0.55</b>	<0.020	<0.020	
Ethylbenzene	µg/g	0.05	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<b>0.13</b>	<b>0.27</b>	0.024	<0.020	
Toluene	µg/g	0.2	<0.020	<0.040	<0.020	<0.020	0.037	<0.020	<b>0.42</b>	<b>1.6</b>	0.11	<0.020	
Xylene Mixture	µg/g	0.05	<0.040	<b>&lt;0.080</b>	<0.040	<0.040	<0.040	<0.040	<b>0.8</b>	<b>1.3</b>	<b>0.18</b>	<0.020	
F1-BTEX (C6-C10)	µg/g	25	<10	<20	<10	<10	<10	<10	12	14	<10	<10	
F2 (C10 to C16)	µg/g	10	<10	<b>&lt;20</b>	<10	<10	<10	<10	<b>19</b>	<10	<10	<10	
F3 (C16 to C34)	µg/g	240	<50	210	<50	<50	<50	<50	240	<50	<50	<50	
F4 (C34 to C50)	µg/g	120	<50	<100	<50	<50	<50	<50	<b>280</b>	<50	<50	<50	
F4g	µg/g	120	-	-	-	-	-	-	<b>1400</b>	-	-	-	

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Depth in metres below ground surface (mbgs)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	MOUND 4	TP1	TP2		TP3	TP3	TP4	TP5	TP6	TP7	
Sample Identification			MOUND 4	TP1-3	TP2-3	TP2-10 (Duplicate)	TP3-2	TP3-3	TP4-3	TP5-3	TP6-3	TP7-3	
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14
Sample Depth (m)			0-0.15	1.4 - 1.8	1.4 - 1.8	1.4 - 1.8	0.6 - 1.2	1.4 - 1.8	1.4 - 1.8	1.4 - 1.8	1.4 - 1.8	1.2 - 1.8	1.4 - 1.8
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<b>0.041</b>	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Ethylbenzene	µg/g	0.05	0.041	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Toluene	µg/g	0.2	0.18	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Xylene Mixture	µg/g	0.05	<b>0.32</b>	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
F1-BTEX (C6-C10)	µg/g	25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F2 (C10 to C16)	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	240	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
F4 (C34 to C50)	µg/g	120	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
F4g	µg/g	120	-	-	-	-	-	-	-	-	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP8			TP9	SS1	SS2	SS3	SS4	BH 7	BH 8	
Sample Identification			TP8-2	TP8-10 (Duplicate)	TP8-3	TP9-3	SS-1	SS-2	SS-3	SS-4	BH7 SS4	BH8 SS4	
Sample Date			29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	20-May-15	20-May-15
Sample Depth (m)			0.6 - 1.2	0.6 - 1.2	1.4 - 1.8	1.4 - 2	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	3.1 - 3.7	3.1 - 3.7
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	PML	PML
Laboratory	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Agat	Agat		
Benzene	µg/g	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<b>0.041</b>	<b>5</b>	<b>0.76</b>	<b>0.31</b>	<0.02	
Ethylbenzene	µg/g	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	0.028	<b>4.8</b>	<b>1</b>	<0.05	<0.05	
Toluene	µg/g	0.2	<0.020	<0.020	<0.020	<0.020	0.027	0.13	<b>25</b>	<b>4.8</b>	<b>0.5</b>	<0.05	
Xylene Mixture	µg/g	0.05	<0.040	<0.040	<0.040	<0.040	0.048	<b>0.21</b>	<b>43</b>	<b>7</b>	<b>0.31</b>	<0.05	
F1-BTEX (C6-C10)	µg/g	25	< 10	<10	<10	<10	<10	<10	<b>400</b>	<b>31</b>	-	-	
F2 (C10 to C16)	µg/g	10	< 10	<10	<10	<10	<10	<10	<b>260</b>	<10	-	-	
F3 (C16 to C34)	µg/g	240	< 50	<50	<50	<50	55	<50	<b>620</b>	58	-	-	
F4 (C34 to C50)	µg/g	120	< 50	<50	<50	<50	<50	<50	<b>130</b>	110	-	-	
F4g	µg/g	120	-	-	-	-	-	-	-	<b>540</b>	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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NV - no value

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH 26		BH 28		BH 30		BH 34	BH18-01		BH18-02	
Sample Identification			BH26 SS1	BH26 SS4	BH28 SS1	BH28 SS4	BH30 SS1	BH30 SS4	BH34 SS1	BH18-01 SS1	BH18-01 SS4	BH18-02 SS2	BH18-02 SS5
Sample Date			25-May-15	25-May-15	26-May-15	26-May-15	11-Jun-15	11-Jun-15	27-May-15	26-Jun-18	26-Jun-18	27-Jun-18	27-Jun-18
Sample Depth (m)			0.0 - 0.6	2.3 - 2.9	0-0.6	2.3-2.9	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	0.0 - 0.2	3.0 - 3.8	0.4 - 0.6	2.2 - 2.6
Sampled By			PML	PML	PML	PML	PML	PML	PML	Cambium	Cambium	Cambium	Cambium
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<b>0.12</b>	<0.020	<0.020	<0.020
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>0.23</b>	<0.020	<0.020	<0.020
Toluene	µg/g	0.2	<0.05	<0.05	<0.08	<0.08	<0.05	<0.05	<0.05	<b>0.55</b>	<0.020	0.031	<0.020
Xylene Mixture	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>2.2</b>	<0.040	<0.040	<0.040
F1-BTEX (C6-C10)	µg/g	25	-	-	<5	<5	-	-	-	<20	<10	<10	<10
F2 (C10 to C16)	µg/g	10	-	-	<5	<5	-	-	-	<b>17</b>	<10	<10	<10
F3 (C16 to C34)	µg/g	240	-	-	<10	<10	-	-	-	<b>370</b>	<50	<50	<50
F4 (C34 to C50)	µg/g	120	-	-	<50	<50	-	-	-	<b>180</b>	<50	<50	<50
F4g	µg/g	120	-	-	-	-	-	-	-	<b>650</b>	-	-	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-03	BH18-04		BH18-05		BH18-06				
Sample Identification			BH18-03 SS5	BH18-04 SS2	BH18-04 SS6	BH18-05 SS1	BH18-05 SS9	BH18-06 SS3	QA/QC #2 (Duplicate)	Relative Percent Difference (%)	BH18-06 SS5	
Sample Date			27-Jun-18	27-Jun-18	27-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18		26-Jun-18	26-Jun-18
Sample Depth (m)			3.6 - 4.3	0.4 - 0.9	3.6 - 4.3	0.0 - 0.6	6.1 - 6.5	3.5 - 3.8	3.5 - 3.8			4.9 - 5.2
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium			Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam			Maxxam
Benzene	µg/g	0.02	<0.020	<b>0.17</b>	<0.020	<0.020	<0.020	<b>0.36</b>	<b>1.3</b>	113.3	<0.020	
Ethylbenzene	µg/g	0.05	<0.020	<b>0.25</b>	<0.020	<0.020	<0.020	<b>0.059</b>	<b>0.17</b>	96.9	<0.020	
Toluene	µg/g	0.2	<0.020	<b>0.75</b>	<0.020	0.062	<0.020	<b>0.61</b>	<b>2</b>	106.5	<0.020	
Xylene Mixture	µg/g	0.05	<0.040	<b>1.1</b>	<0.040	<b>0.54</b>	<0.040	<b>0.37</b>	<b>1</b>	92.0	<0.040	
F1-BTEX (C6-C10)	µg/g	25	<10	<10	<10	<b>91</b>	<10	<10	<10	NC	<10	
F2 (C10 to C16)	µg/g	10	<10	<b>130</b>	<10	<b>1700</b>	<10	<b>13</b>	<10	NC	<10	
F3 (C16 to C34)	µg/g	240	<50	<b>38000</b>	<50	<b>2100</b>	<50	99	96	3.1	<50	
F4 (C34 to C50)	µg/g	120	<50	<b>7100</b>	<50	<b>230</b>	<50	<50	<50	NC	<50	
F4g	µg/g	120	-	-	-	-	-	-	-	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-07		BH18-08	BH18-09		BH18-10	
Sample Identification			BH18-07 SS3	BH18-07 SS8	BH18-08 SS6	BH18-09 SS3	BH18-09 SS4	BH18-10 SS3	BH18-10 SS4
Sample Date			26-Jun-18	26-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18
Sample Depth (m)			0.6 - 1.1	4.6 - 5.3	4.0 - 4.4	3.0 - 3.5	3.5 - 4.1	3.0 - 3.6	3.6 - 4.2
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam		
Benzene	µg/g	0.02	<b>0.31</b>	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	µg/g	0.05	<b>0.27</b>	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	µg/g	0.2	<b>0.99</b>	<0.020	<0.020	0.053	<0.020	<0.020	<0.020
Xylene Mixture	µg/g	0.05	<b>2</b>	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
F1-BTEX (C6-C10)	µg/g	25	<b>210</b>	<10	<10	-	-	-	-
F2 (C10 to C16)	µg/g	10	<b>1200</b>	<10	<10	-	-	-	-
F3 (C16 to C34)	µg/g	240	<b>930</b>	<50	<50	-	-	-	-
F4 (C34 to C50)	µg/g	120	<b>190</b>	<50	<50	-	-	-	-
F4g	µg/g	120	-	-	-	-	-	-	-

Notes:

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-11			Relative Percent Difference (%)	BH18-12			BH18-13	
Sample Identification			BH18-11 SS4	BH18-11 SS5	QA/QC #1 (Duplicate)		BH18-12 SS3	QA/QC #3 (Duplicate)	BH18-12 SS5	BH18-13 9.5'-11.5'	BH18-13 15'-17'
Sample Date			26-Jun-18	26-Jun-18	26-Jun-18		27-Jun-18	27-Jun-18	27-Jun-18	13-Nov-18	13-Nov-18
Sample Depth (m)			3.5 - 3.9	4.6 - 5.2	4.6 - 5.2		1.6 - 2.1	1.6 - 2.1	3.8 - 4.6	2.9 - 3.5	4.6 - 5.2
Sampled By			Cambium	Cambium	Cambium		Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam			
Benzene	µg/g	0.02	<b>0.058</b>	<0.020	<b>0.024</b>	NC	<0.020	<0.020	<0.020	<b>0.74</b>	<0.020
Ethylbenzene	µg/g	0.05	0.044	<0.020	<b>0.098</b>	NC	<0.020	<0.020	<0.020	<b>0.17</b>	<0.020
Toluene	µg/g	0.2	<b>0.28</b>	0.037	0.067	57.7	<0.020	<0.020	<0.020	<b>1.3</b>	<0.020
Xylene Mixture	µg/g	0.05	<b>0.12</b>	0.025	0.029	14.8	<0.040	<0.040	<0.040	<b>1.1</b>	<0.020
F1-BTEX (C6-C10)	µg/g	25	15	<10	<b>47</b>	NC	<10	<10	<10	-	-
F2 (C10 to C16)	µg/g	10	<b>110</b>	<b>160</b>	<b>57</b>	95	<10	<10	<b>70</b>	-	-
F3 (C16 to C34)	µg/g	240	<b>1500</b>	<b>1200</b>	<b>970</b>	21	<50	<50	<50	-	-
F4 (C34 to C50)	µg/g	120	<b>2200</b>	<b>1000</b>	<b>1200</b>	18	<50	<50	<50	-	-
F4g	µg/g	120	<b>22000</b>	<b>9900</b>	<b>8300</b>	-	-	-	-	-	-

Notes:

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Depth in metres below ground surface (mbgs)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-14				BH18-15		BH18-16			
Sample Identification			BH18-14 11.5'-12.5'	QA/QC #2 (Duplicate)	Relative Percent Difference (%)	BH18-14 15'-17'	QA/QC #3 (Duplicate)	Relative Percent Difference (%)	BH18-15 17.5'-20'	BH18-15 23'-25'	BH18-16 15'-17'	
Sample Date			13-Nov-18	13-Nov-18		13-Nov-18	13-Nov-18		13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18
Sample Depth (m)			3.5 - 3.8	3.5 - 3.8		4.6 - 5.2	4.6 - 5.2		5.3 - 6.1	7.0 - 7.6	4.6 - 5.2	
Sampled By			Cambium	Cambium		Cambium	Cambium		Cambium	Cambium	Cambium	
Laboratory	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam					
Benzene	µg/g	0.02	<b>0.16</b>	<b>0.27</b>	51.2	<0.020	<0.020	NC	<0.020	<0.020	<0.020	
Ethylbenzene	µg/g	0.05	<b>0.13</b>	<b>0.19</b>	37.5	<0.020	<0.020	NC	<0.020	<0.020	<0.020	
Toluene	µg/g	0.2	<b>0.48</b>	<b>0.74</b>	42.6	<0.020	0.029	NC	<0.020	<0.020	<0.020	
Xylene Mixture	µg/g	0.05	<b>0.85</b>	<b>1.2</b>	34.1	<0.020	<0.020	NC	<0.020	<0.020	<0.020	
F1-BTEX (C6-C10)	µg/g	25	<10	<10	NC	-	-	-	<10	<10	-	
F2 (C10 to C16)	µg/g	10	<b>37</b>	<b>33</b>	11	-	-	-	<10	<10	-	
F3 (C16 to C34)	µg/g	240	<b>620</b>	<b>680</b>	9	-	-	-	120	<50	-	
F4 (C34 to C50)	µg/g	120	<b>770</b>	<b>860</b>	11	-	-	-	60	<50	-	
F4g	µg/g	120	<b>1100</b>	<b>1600</b>	-	-	-	-	<100	-	-	

Notes:

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-18		BH18-19	BH18-20	BH18-21	BH18-22	BH18-23		
Sample Identification			BH18-18 3'-5'	BH18-18 15'-16'	BH18-19 17'-18'	BH18-20 0-2'	BH18-21 14'-15'	BH18-22 0-2'	BH18-23 4'-5'	BH18-23 11.5'-12.5'	BH18-23 14.5'-16.5'
Sample Date			13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18
Sample Depth (m)			0.9 - 1.5	4.6 - 4.9	5.2 - 5.5	0 - 0.61	4.3 - 4.6	0 - 0.61	1.2 - 1.5	3.5 - 3.8	4.4 - 5.0
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.020	<0.020	<0.020	<b>0.14</b>	<0.020	<b>0.1</b>	<b>0.065</b>	<b>0.026</b>	<b>0.68</b>
Ethylbenzene	µg/g	0.05	<0.020	<0.020	<0.020	<b>0.12</b>	<0.020	<b>0.11</b>	0.043	<b>0.064</b>	<b>0.19</b>
Toluene	µg/g	0.2	0.023	<0.020	<0.020	<b>0.49</b>	<0.020	<b>0.44</b>	0.2	0.17	<b>1.5</b>
Xylene Mixture	µg/g	0.05	<0.040	<0.040	<0.040	<b>0.79</b>	<0.040	<b>0.7</b>	<b>0.27</b>	<b>0.26</b>	<b>1.3</b>
F1-BTEX (C6-C10)	µg/g	25	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10 to C16)	µg/g	10	<10	<10	<10	<b>15</b>	<10	<10	<b>13</b>	<10	<b>19</b>
F3 (C16 to C34)	µg/g	240	<50	<50	<50	180	<50	150	140	<50	<b>280</b>
F4 (C34 to C50)	µg/g	120	<50	<50	<50	82	<50	87	70	<50	120
F4g	µg/g	120	-	-	-	<b>210</b>	-	<b>140</b>	<b>300</b>	-	<b>440</b>

Notes:

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-24		Relative Percent Difference (%)	BH18-25	BH18-27		BH18-28	
Sample Identification			BH18-24 0-2'	QA/QC #4 (Duplicate)		BH18-25 6'-8'	BH18-27 12.5'-13.6'	QAQC#1	BH18-28 12.5'-14.5'	BH18-28 15'-16'
Sample Date			14-Nov-18	14-Nov-18		14-Nov-18	6-Dec-18	6-Dec-18	6-Dec-18	6-Dec-18
Sample Depth (m)			0 - 0.61	0 - 0.61		1.8 - 2.4	3.8 - 4.1	5.3 - 5.7	3.8 - 4.4	4.6 - 4.9
Sampled By			Cambium	Cambium		Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.020	<0.020	NC	<b>0.59</b>	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	µg/g	0.05	<0.020	<0.020	NC	<b>1.3</b>	<0.020	<0.020	<0.020	0.036
Toluene	µg/g	0.2	0.026	0.037	34.9	<b>4</b>	<0.020	<0.020	<0.020	0.15
Xylene Mixture	µg/g	0.05	<0.040	<b>0.072</b>	NC	<b>9.1</b>	<0.040	<0.040	<0.040	<0.040
F1-BTEX (C6-C10)	µg/g	25	<10	<10	NC	<b>100</b>	<10	<10	<10	<10
F2 (C10 to C16)	µg/g	10	<10	<10	NC	<b>15</b>	<10	<10	<10	<b>20</b>
F3 (C16 to C34)	µg/g	240	<50	<50	NC	96	<50	<50	<50	65
F4 (C34 to C50)	µg/g	120	<50	<50	NC	<50	<50	<50	<50	<50
F4g	µg/g	120	-	-	-	-	-	-	-	-

Notes:

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Depth in metres below ground surface (mbgs)

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**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-29	SS18-01	SS18-02	SS18-05	SS18-06	SS18-07	SS18-08A	SS18-08B	SS18-09		
Sample Identification			BH18-29 17.5'-19.5'	SS18-01	SS18-02	SS18-05	SS18-06	SS18-07	SS18-08A	SS18-08B	SS18-09	QA/QC #1	
Sample Date			6-Dec-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18
Sample Depth (m)			5.3 - 5.9	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.020	<b>0.092</b>	<0.020	<b>0.087</b>	<b>1.4</b>	<b>1.7</b>	<0.020	<b>0.088</b>	<0.020	<0.020	
Ethylbenzene	µg/g	0.05	<0.020	<b>0.12</b>	<0.020	<b>0.11</b>	<b>1.9</b>	<b>2.6</b>	0.022	<b>0.077</b>	<0.020	<0.020	
Toluene	µg/g	0.2	<0.020	<b>0.52</b>	<0.020	<b>0.39</b>	<b>8.5</b>	<b>14</b>	0.1	<b>0.39</b>	<0.020	<0.020	
Xylene Mixture	µg/g	0.05	<0.040	<b>0.95</b>	<0.040	<b>0.85</b>	<b>14</b>	<b>25</b>	<b>0.19</b>	<b>0.53</b>	<0.040	<0.040	
F1-BTEX (C6-C10)	µg/g	25	<10	-	-	<10	<b>100</b>	<b>180</b>	<10	<10	<10	<10	
F2 (C10 to C16)	µg/g	10	<10	-	-	<10	<b>35</b>	<b>100</b>	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	240	<50	-	-	<50	170	<b>360</b>	<50	<50	<50	<50	
F4 (C34 to C50)	µg/g	120	<50	-	-	<50	59	<b>130</b>	<50	<50	<50	<50	
F4g	µg/g	120	-	-	-	-	<b>200</b>	<b>510</b>	-	-	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	SS18-10	SS18-13	SS18-14	SS18-15	SS18-17	SS18-18	SS18-19	SS18-20	SS18-22	TP18-01	TP18-02
Sample Identification			SS18-10	SS18-13	SS18-14	SS18-15	SS18-17	SS18-18	SS18-19	SS18-20	SS18-22	TP18-01 10	TP18-02 6.5
Sample Date			11-Jul-18	13-Aug-18	14-Aug-18	13-Aug-18	12-Nov-18	12-Nov-18	6-Dec-18	7-Dec-18	6-Dec-18	14-Aug-18	14-Aug-18
Sample Depth (m)			0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	3.0	2.0
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.020	<b>2.2</b>	<0.020	<0.020	<b>0.15</b>	<b>0.082</b>	<b>&lt;0.060</b>	<0.020	<b>0.26</b>	<0.020	<0.020
Ethylbenzene	µg/g	0.05	<0.020	<b>2.4</b>	<0.020	<0.020	<b>0.22</b>	<b>0.16</b>	<b>&lt;0.060</b>	<0.020	<b>0.17</b>	<0.020	<0.020
Toluene	µg/g	0.2	0.04	<b>12</b>	<0.020	<0.020	<b>0.86</b>	<b>0.47</b>	<0.060	0.051	<b>0.87</b>	<0.020	<0.020
Xylene Mixture	µg/g	0.05	<b>0.095</b>	<b>19</b>	<0.040	<0.040	<b>1.7</b>	<b>0.84</b>	<b>&lt;0.12</b>	<b>0.14</b>	<b>1.5</b>	<0.040	<0.020
F1-BTEX (C6-C10)	µg/g	25	-	<b>210</b>	<10	<10	17	<10	<b>&lt;30</b>	<10	14	-	<10
F2 (C10 to C16)	µg/g	10	-	<b>51</b>	<10	<10	<b>36</b>	<10	<10	<10	<10	-	<10
F3 (C16 to C34)	µg/g	240	-	<b>320</b>	<50	<50	<b>930</b>	<50	62	<50	<50	-	<50
F4 (C34 to C50)	µg/g	120	-	83	<50	<50	<b>600</b>	<50	<50	<50	<50	-	<50
F4g	µg/g	120	-	<b>430</b>	-	-	<b>1800</b>	-	-	-	-	-	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).





**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP18-03		TP18-04		TP18-09	TP18-10	TP18-11	TP18-13	TP18-14	TP18-16		
Sample Identification			TP18-03 6.5	QA/QC 5 (Duplicate)	TP18-04 13	QA/QC 4 (Duplicate)	TP18-09 10	TP18-10 0-2	TP18-11 6.5	TP18-13 5-7	TP18-14 10	TP18-16 0-2	TP18-16 11.5	
Sample Date			14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18
Sample Depth (m)			2.0		4.0	4.0	3.0	0.0 - 0.6	2.0	1.5 - 2.1	3.0	0.0 - 0.6	3.5	
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/g	0.02	<0.020	<0.020	<0.020	<0.020	<b>&lt;0.040</b>	<0.020	<b>0.14</b>	<0.020	<0.020	<0.020	<0.020	
Ethylbenzene	µg/g	0.05	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<b>0.098</b>	<0.020	<0.020	<0.020	<0.020	
Toluene	µg/g	0.2	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<b>0.46</b>	<0.020	<0.020	<0.020	<0.020	
Xylene Mixture	µg/g	0.05	<0.020	<0.020	<0.040	<0.040	<b>&lt;0.080</b>	<0.040	<b>0.59</b>	<0.040	<0.040	<0.040	<0.040	
F1-BTEX (C6-C10)	µg/g	25	<10	<10	<10	<10	<20	<10	-	<10	<10	<10	<10	
F2 (C10 to C16)	µg/g	10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	240	<50	<50	<50	<50	<50	<50	-	<50	<50	150	<50	
F4 (C34 to C50)	µg/g	120	<50	<50	<50	<50	<50	<50	-	<50	<50	<b>190</b>	<50	
F4g	µg/g	120	-	-	-	-	-	-	-	-	-	<b>590</b>	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 5: Soil Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP18-18	TP18-19
Sample Identification			TP18-18 4-6	TP18-19 2-4
Sample Date			14-Aug-18	13-Aug-18
Sample Depth (m)			1.2 - 1.8 m	0.6 - 1.2
Sampled By			Cambium	Cambium
Laboratory			Maxxam	Maxxam
Benzene	µg/g	0.02	<0.020	<b>0.17</b>
Ethylbenzene	µg/g	0.05	<0.020	<b>0.15</b>
Toluene	µg/g	0.2	<0.020	<b>0.55</b>
Xylene Mixture	µg/g	0.05	<0.040	<b>0.91</b>
F1-BTEX (C6-C10)	µg/g	25	<10	11
F2 (C10 to C16)	µg/g	10	<10	<b>140</b>
F3 (C16 to C34)	µg/g	240	<50	<b>1800</b>
F4 (C34 to C50)	µg/g	120	<50	<b>850</b>
F4g	µg/g	120	-	<b>4900</b>

Notes:

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Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



Table 6: Soil Results - Volatile Organic Compounds

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	TP02		TP03			TP04		TP05	TP101	
				TP2 SA4	TP2 SA6	TP3 SA3	DUP 1 (Duplicate)	TP3 SA5	TP4 SA4	TP4 SA7	TP5 SA4	TP101 SA2	TP101 SA5
Sample Identification				12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13
Sample Date													
Sample Depth (m)				2.0	3.0	1.5	1.5	2.5	2.0	3.5	2.0	1.2	3.0
Sampled By				Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory				Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acetone	µg/g	0.5	<b>3.6</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05
Cis- 1,2-Dichloroethylene	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trans- 1,2-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylene Dibromide	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	<b>3.9</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-butyl Ether	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	µg/g	0.05	<b>0.38</b>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	µg/g	0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Notes:

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Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

\*\*- indicates parameter not analyzed



Table 6: Soil Results - Volatile Organic Compounds

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP102		TP107		TP108		TP109		TP110		TP111	
			TP102 SA2	TP102 SA5	TP107 SA2	TP107 SA3	TP108 SA3	TP108 SA5	TP109 SA2	TP109 SA3	TP110 SA3	TP110 SA5	TP111 SA3	TP111 SA5
Sample Identification														
Sample Date			4-Dec-13	4-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13
Sample Depth (m)			1.8	3.0	1.2	1.8	1.8	3.0	1.2	1.8	1.8	3.0	1.8	3.0
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acetone	µg/g	0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cis- 1,2-Dichloroethylene	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trans- 1,2-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylene Dibromide	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	µg/g	0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

"" indicates parameter not analyzed





Table 6: Soil Results - Volatile Organic Compounds

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP112		TP113		TP114		BH01	BH101	BH102	BH04	BH05	BH103
Sample Identification			TP112 SA3	TP112 SA5	TP113 SA3	TP113 SA6	TP114 SA3	TP114 SA7	BH01 SA9	BH02 SA6	BH03 SA4	BH04 SA4	BH05 SA4	BH06 SA7
Sample Date			5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	17-Jun-13	17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13
Sample Depth (m)			1.8	3.0	1.8	3.7	1.8	4.3	5.94 - 6.71	3.66-4.42	2.13-2.90	2.90-3.66	2.13-2.90	4.42-5.18
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acetone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cis- 1,2-Dichloroethylene	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trans- 1,2-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylene Dibromide	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-butyl Ether	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	µg/g	0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

"" indicates parameter not analyzed



Table 6: Soil Results - Volatile Organic Compounds

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH07		BH105	BH114	BH113	BH11	BH120	BH13	BH14	BH123	BH16
			BH07 SA5	DUP 2 (Duplicate)	BH08 SA5	BH09 SA5	BH10 SA7	BH11 SA8	BH12 SA2	BH13 SA5	BH14 SA2	BH15 SA5	BH16 SA3
Sample Identification													
Sample Date			18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13	19-Jun-13
Sample Depth (m)			2.90-3.66	2.90-3.66	2.90-3.66	2.90-3.66	4.42-5.18	5.18-5.94	0.51-1.37	2.90-3.66	0.51-1.37	2.90-3.66	1.37-2.13
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acetone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cis- 1,2-Dichloroethylene	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trans- 1,2-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylene Dibromide	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-butyl Ether	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	µg/g	0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

"" indicates parameter not analyzed



Table 6: Soil Results - Volatile Organic Compounds

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH117		BH107	BH19	BH111	MOUND 1	MOUND 2	MOUND 3A	MOUND 3B	MOUND 4	SS1	SS2
			BH17 SA4	DUP 3 (Duplicate)	BH18 SA7	BH19 SA9	BH20 SA3	MOUND 1	MOUND 2	MOUND 3A	MOUND 3B	MOUND 4	SS-1	SS-2
Sample Identification														
Sample Date			19-Jun-13	19-Jun-13	20-Jun-13	20-Jun-13	20-Jun-13	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	30-Apr-14	30-Apr-14
Sample Depth (m)			2.13-2.90	2.13-2.90	4.42-5.18	5.94-6.71	1.37-2.13	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Agat	Agat	Agat	Agat	Agat	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acetone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cis- 1,2-Dichloroethylene	µg/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trans- 1,2-Dichloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylene Dibromide	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
n-Hexane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<b>0.09</b>	<b>0.15</b>	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1-Trichloroethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	µg/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	µg/g	0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

\*\* indicates parameter not analyzed



Table 6: Soil Results - Volatile Organic Compounds

Sample Location	Units	Table 9 SCS <sup>1</sup>	SS3	SS4	BH18-11			Relative Percent Difference (%)	BH18-13		BH18-14	
Sample Identification			SS-3	SS-4	BH18-11 SS4	BH18-11 SS5	QA/QC #1 (Duplicate)		BH18-13 9.5'-11.5'	BH18-13 15'-17'	BH18-14 15'-17'	QA/QC #3 (Duplicate)
Sample Date			30-Apr-14	30-Apr-14	26-Jun-18	26-Jun-18	26-Jun-18		13-Nov-18	13-Nov-18	13-Nov-18	13-Nov-18
Sample Depth (m)			0 - 0.15	0 - 0.15	3.5 - 3.9	4.6 - 5.2	4.6 - 5.2		2.9- 3.5	4.6 - 5.2	4.6 - 5.2	4.6 - 5.2
Sampled By			Stantec	Stantec	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam
Acetone	µg/g	0.5	<b>3.6</b>	<b>0.64</b>	<b>1.9</b>	<0.50	<b>2.8</b>	NC	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Bromoform	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Bromomethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Chloroform	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Cis- 1,2-Dichloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Trans- 1,2-Dichloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Ethylene Dibromide	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
n-Hexane	µg/g	0.05	<b>3.9</b>	<b>1.1</b>	<0.050	<0.050	<0.050	NC	<b>0.31</b>	<0.050	<0.050	<0.050
Methylene Chloride	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	NC	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	NC	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Styrene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,1,1-Trichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	µg/g	0.05	<0.050	<0.050	<b>0.12</b>	<b>0.17</b>	<b>0.38</b>	76.4	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	µg/g	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	µg/g	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	NC	<0.020	<0.020	<0.020	<0.020

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

"-" indicates parameter not analyzed





Table 6: Soil Results - Volatile Organic Compounds

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-15		BH18-16	TP18-02	TP18-03	
			BH18-15 17.5'-20'	BH18-15 23'-25'	BH18-16 15'-17'	TP18-02 6.5	TP18-03 6.5	QA/QC 5 (Duplicate)
Sample Identification								
Sample Date			13-Nov-18	13-Nov-18	13-Nov-18	14-Aug-18	14-Aug-18	14-Aug-18
Sample Depth (m)			5.3 - 6.1	7.0 - 7.6	4.6 - 5.2	2.0	2.0	2.0
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acetone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cis- 1,2-Dichloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trans- 1,2-Dichloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylene Dibromide	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
n-Hexane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1-Trichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	µg/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	µg/g	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	µg/g	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

\*\* indicates parameter not analyzed



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	TP02		TP03			TP04		TP05
Sample Identification				TP2 SA4	TP2 SA6	TP3 SA3	DUP 1 (Duplicate)	TP3 SA5	TP4 SA4	TP4 SA7	TP5 SA4
Sample Date				12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13
Sample Depth (m)				2.0	3.0	1.5	1.5	2.5	2.0	3.5	2.0
Sampled By				Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory				Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acenaphthene	µg/g	0.072	<b>1.4</b>	<b>0.13</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	<b>2.2</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.22	<b>8.7</b>	<b>0.31</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	<b>5.5</b>	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	<b>8.6</b>	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	<b>14</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	<b>8.4</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05
Benzo(k)fluoranthene	µg/g	0.48	<b>5.1</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	<b>5.5</b>	0.24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	<b>2</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	<b>12</b>	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.19	<b>1.4</b>	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<b>8.3</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	µg/g	0.59	<b>5.1</b>	-	-	-	-	-	-	-	-
2-Methylnaphthalene	µg/g	0.59	<b>7</b>	-	-	-	-	-	-	-	-
2-and 1-methyl Naphthalene	µg/g	0.59	<b>12</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.52	<0.05
Naphthalene	µg/g	0.09	<b>4.7</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	<b>6.4</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	1	<b>8</b>	0.85	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

“-” indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP101		TP102		TP107		TP108		TP109		
Sample Identification			TP101 SA2	TP101 SA5	TP102 SA2	TP102 SA5	TP107 SA2	TP107 SA3	TP108 SA3	TP108 SA5	TP109 SA2	TP109 SA3	
Sample Date			4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13
Sample Depth (m)			1.2	3.0	1.8	3.0	1.2	1.8	1.8	3.0	1.2	1.8	
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acenaphthene	µg/g	0.072	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	µg/g	0.093	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	
Anthracene	µg/g	0.22	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benz(a)anthracene	µg/g	0.36	0.08	<0.05	<0.05	<0.05	0.36	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(a)pyrene	µg/g	0.3	0.07	<0.05	<0.05	<0.05	<b>0.35</b>	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(b)fluoranthene	µg/g	0.47	0.14	<0.05	<0.05	<0.05	<b>0.54</b>	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	µg/g	0.68	<0.05	<0.05	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	
Benzo(k)fluoranthene	µg/g	0.48	<0.05	<0.05	<0.05	<0.05	0.17	<0.05	<0.05	<0.05	<0.05	<0.05	
Chrysene	µg/g	2.8	0.18	<0.05	<0.05	<0.05	0.36	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibenz(a,h)anthracene	µg/g	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluoranthene	µg/g	0.69	0.13	<0.05	<0.05	<0.05	0.37	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	µg/g	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.05	<0.05	<0.05	<0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	
1-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-and 1-methyl Naphthalene	µg/g	0.59	<0.05	<0.05	0.32	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.05	
Naphthalene	µg/g	0.09	<b>0.1</b>	<0.05	<0.05	<0.05	<b>0.12</b>	<0.05	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	µg/g	0.69	0.27	<0.05	<0.05	<0.05	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	
Pyrene	µg/g	1	0.24	<0.05	<0.05	<0.05	0.43	<0.05	<0.05	<0.05	<0.05	<0.05	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

"-" indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP110		TP111		TP112		TP113		TP114		
Sample Identification			TP110 SA3	TP110 SA5	TP111 SA3	TP111 SA5	TP112 SA3	TP112 SA5	TP113 SA3	TP113 SA6	TP114 SA3	TP114 SA7	
Sample Date			5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	5-Dec-13	4-Dec-13	4-Dec-13
Sample Depth (m)			1.8	3.0	1.8	3.0	1.8	3.0	1.8	3.7	1.8	4.3	
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acenaphthene	µg/g	0.072	<0.05	<0.05	<0.05	<b>1.4</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	µg/g	0.093	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Anthracene	µg/g	0.22	<0.05	<0.05	<0.05	<b>0.81</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benz(a)anthracene	µg/g	0.36	<0.05	0.11	<0.05	<b>1.5</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(a)pyrene	µg/g	0.3	<0.05	0.14	<0.05	<b>0.38</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(b)fluoranthene	µg/g	0.47	<0.05	0.18	0.06	<b>0.82</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	µg/g	0.68	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(k)fluoranthene	µg/g	0.48	<0.05	0.06	<0.05	0.32	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chrysene	µg/g	2.8	<0.05	0.12	0.07	1.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibenz(a,h)anthracene	µg/g	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluoranthene	µg/g	0.69	<0.05	0.16	0.07	<b>12</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	µg/g	0.19	<0.05	<0.05	<0.05	<b>1.4</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.05	0.07	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-and 1-methyl Naphthalene	µg/g	0.59	0.29	<b>0.68</b>	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	
Naphthalene	µg/g	0.09	<0.05	<0.05	<b>0.1</b>	<b>0.4</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	µg/g	0.69	<0.05	0.06	0.19	<b>2.9</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Pyrene	µg/g	1	<0.05	0.16	0.08	<b>8</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

“-” indicates parameter not analyzed or not reported by laboratory





**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH01	BH101	BH102	BH04	BH05	BH103	BH07		BH105	BH114	
Sample Identification			BH01 SA9	BH02 SA6	BH03 SA4	BH04 SA4	BH05 SA4	BH06 SA7	BH07 SA5	DUP 2 (Duplicate)	BH08 SA5	BH09 SA5	
Sample Date			17-Jun-13	17-Jun-13	17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13
Sample Depth (m)			5.94-6.71	3.66-4.42	2.13-2.90	2.90-3.66	2.13-2.90	4.42-5.18	2.90-3.66	2.90-3.66	2.90-3.66	2.90-3.66	2.90-3.66
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acenaphthene	µg/g	0.072	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	µg/g	0.093	<0.05	<0.05	<0.05	<0.05	<0.04	<0.05	<0.05	<0.05	<0.05	<0.05	
Anthracene	µg/g	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benz(a)anthracene	µg/g	0.36	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(a)pyrene	µg/g	0.3	<0.05	<0.05	<0.05	<0.05	<0.04	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(b)fluoranthene	µg/g	0.47	<0.05	<0.05	<0.05	<0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	µg/g	0.68	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(k)fluoranthene	µg/g	0.48	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chrysene	µg/g	2.8	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibenz(a,h)anthracene	µg/g	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluoranthene	µg/g	0.69	<0.05	<0.05	<0.05	<0.05	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	µg/g	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.05	<0.05	<0.05	<0.05	<0.04	<0.05	<0.05	<0.05	<0.05	<0.05	
1-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-and 1-methyl Naphthalene	µg/g	0.59	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Naphthalene	µg/g	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	µg/g	0.69	<0.05	<0.05	<0.05	<0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	
Pyrene	µg/g	1	<0.05	<0.05	<0.05	<0.05	0.24	<0.05	<0.05	<0.05	<0.05	<0.05	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

"-" indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH113	BH11	BH120	BH13	BH14	BH123	BH16	BH117		BH107	
Sample Identification			BH10 SA7	BH11 SA8	BH12 SA2	BH13 SA5	BH14 SA2	BH15 SA5	BH16 SA3	BH17 SA4	DUP 3 (Duplicate)	BH18 SA7	
Sample Date			18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	20-Jun-13
Sample Depth (m)			4.42-5.18	5.18-5.94	0.51-1.37	2.90-3.66	0.51-1.37	2.90-3.66	1.37-2.13	2.13-2.90	2.13-2.90	4.42-5.18	
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	
Acenaphthene			µg/g	0.072	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Anthracene	µg/g	0.22	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	
Benz(a)anthracene	µg/g	0.36	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(a)pyrene	µg/g	0.3	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(b)fluoranthene	µg/g	0.47	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	µg/g	0.68	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(k)fluoranthene	µg/g	0.48	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chrysene	µg/g	2.8	<0.05	<0.05	0.08	<0.05	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibenz(a,h)anthracene	µg/g	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluoranthene	µg/g	0.69	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	µg/g	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	-	-	-	
2-and 1-methyl Naphthalene	µg/g	0.59	<0.05	<0.05	<b>1.7</b>	<0.05	<b>1.1</b>	<0.05	<0.05	<0.05	<0.05	<0.05	
Naphthalene	µg/g	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	µg/g	0.69	<0.05	<0.05	0.47	<0.05	0.66	<0.05	<0.05	<0.05	<0.05	<0.05	
Pyrene	µg/g	1	<0.05	<0.05	0.05	<0.05	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

"-" indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH19	BH111	BH14-01	BH14-02	BH 7	Average of BH7 and BH14-02	BH14-04
Sample Identification			BH19 SA9	BH20 SA3	BH14-01-2	BH14-02-3	BH7 SS4		BH14-04-5
Sample Date			20-Jun-13	20-Jun-13	28-Apr-14	28-Apr-14	20-May-15		28-Apr-14
Sample Depth (m)			5.94-6.71	1.37-2.13	0.8 - 1.4	3 - 3.7	3.1 - 3.7		3 - 3.7
Sampled By			Pinchin	Pinchin	Stantec	Stantec	PML		Stantec
Laboratory			Agat	Agat	Maxxam	Maxxam	Agat		Maxxam
Acenaphthene	µg/g	0.072	<0.05	<0.05	<0.0050	0.037	<0.05	NC	<0.0050
Acenaphthylene	µg/g	0.093	<0.05	<0.05	<0.0050	0.036	<0.05	NC	<0.0050
Anthracene	µg/g	0.22	<0.05	<0.05	<0.0050	0.083	<0.05	NC	<0.0050
Benz(a)anthracene	µg/g	0.36	<0.05	<0.05	0.0072	<b>0.38</b>	0.08	0.23	<0.0050
Benzo(a)pyrene	µg/g	0.3	<0.05	<0.05	0.0078	<b>0.34</b>	0.1	0.22	<0.0050
Benzo(b)fluoranthene	µg/g	0.47	<0.05	<0.05	0.022	0.44	0.15	NC	<0.0050
Benzo(g,h,i)perylene	µg/g	0.68	<0.05	<0.05	0.018	0.24	0.07	NC	<0.0050
Benzo(k)fluoranthene	µg/g	0.48	<0.05	<0.05	<0.0050	0.17	0.08	NC	<0.0050
Chrysene	µg/g	2.8	<0.05	<0.05	0.006	0.33	0.12	NC	<0.0050
Dibenz(a,h)anthracene	µg/g	0.1	<0.05	<0.05	<0.0050	0.06	<0.05	NC	<0.0050
Fluoranthene	µg/g	0.69	<0.05	<0.05	0.016	<b>0.72</b>	0.2	0.46	<0.0050
Fluorene	µg/g	0.19	<0.05	<0.05	<0.0050	0.034	<0.05	NC	<0.0050
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.05	<0.05	0.017	<b>0.25</b>	0.06	0.16	<0.0050
1-Methylnaphthalene	µg/g	0.59	-	-	<0.0050	0.09	-	NC	<0.0050
2-Methylnaphthalene	µg/g	0.59	-	-	<0.0050	0.12	-	NC	<0.0050
2-and 1-methyl Naphthalene	µg/g	0.59	<0.05	<0.05	<0.0071	0.21	0.07	NC	<0.0071
Naphthalene	µg/g	0.09	<0.05	<0.05	0.0078	<b>0.092</b>	<0.05	0.071	<0.0050
Phenanthrene	µg/g	0.69	<0.05	<0.05	0.017	0.29	0.08	NC	<0.0050
Pyrene	µg/g	1	<0.05	<0.05	0.011	0.64	0.17	NC	<0.0050

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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NV - no value

NC - not calculated

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**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH14-05				Relative Percent Difference (%)	BH14-06			BH14-07	
			BH14-05-1	BH14-05-3	BH14-05-6	BH14-506 (Duplicate)		BH14-06-1	BH14-06-5	BH14-06-8	BH14-07-1	BH14-07-7
Sample Identification												
Sample Date			29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14		29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14
Sample Depth (m)			0.0 - 0.6	1.5 - 2.1	3.8 - 4.4	3.8 - 4.4		0.0 - 0.6	3 - 3.7	5.3 - 6.1	0.0 - 0.6	4.6 - 5.2
Sampled By			Stantec	Stantec	Stantec	Stantec		Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acenaphthene	µg/g	0.072	<b>0.12</b>	0.013	<0.0050	<0.0050	NC	0.045	<b>0.2</b>	<0.0050	0.062	<0.0050
Acenaphthylene	µg/g	0.093	0.034	0.024	<0.0050	<0.0050	NC	0.014	<0.0050	<0.0050	0.016	<0.0050
Anthracene	µg/g	0.22	0.13	0.024	<0.0050	<0.0050	NC	0.079	0.011	<0.0050	0.066	<0.0050
Benz(a)anthracene	µg/g	0.36	0.32	0.071	<0.0050	<0.0050	NC	0.22	0.019	<0.0050	0.15	<0.0050
Benzo(a)pyrene	µg/g	0.3	0.12	0.09	<0.0050	<0.0050	NC	0.15	0.019	<0.0050	0.073	<0.0050
Benzo(b)fluoranthene	µg/g	0.47	0.26	0.16	<0.0050	<0.0050	NC	0.24	0.033	<0.0050	0.13	<0.0050
Benzo(g,h,i)perylene	µg/g	0.68	0.072	0.1	<0.0050	0.024	NC	0.099	<0.0050	-	0.079	<0.0050
Benzo(k)fluoranthene	µg/g	0.48	0.061	0.05	<0.0050	<0.0050	NC	0.089	0.0092	<0.0050	0.035	<0.0050
Chrysene	µg/g	2.8	0.34	0.11	<0.0050	<0.0050	NC	0.19	0.021	<0.0050	0.17	<0.0050
Dibenz(a,h)anthracene	µg/g	0.1	0.031	0.016	<0.0050	<0.0050	NC	0.028	<0.0050	-	0.016	<0.0050
Fluoranthene	µg/g	0.69	0.36	0.28	<0.0050	<0.0050	NC	0.42	0.077	<0.0050	0.19	<0.0050
Fluorene	µg/g	0.19	0.099	0.017	<0.0050	<0.0050	NC	0.04	0.078	<0.0050	0.065	<0.0050
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.069	0.099	<0.0050	<0.0050	NC	0.095	0.017	<0.0050	0.037	<0.0050
1-Methylnaphthalene	µg/g	0.59	<b>3.9</b>	0.22	<0.0050	0.091	NC	<b>0.62</b>	<0.0050	<0.0050	<b>1.5</b>	<0.0050
2-Methylnaphthalene	µg/g	0.59	<b>5.2</b>	0.27	<0.0050	0.11	NC	<b>0.85</b>	<0.0050	<0.0050	<b>2.2</b>	<0.0050
2-and 1-methyl Naphthalene	µg/g	0.59	<b>9.1</b>	0.49	<0.0071	<0.0071	NC	<b>1.5</b>	<0.0071	<0.0071	<b>3.7</b>	<0.0071
Naphthalene	µg/g	0.09	<b>3.2</b>	<b>0.22</b>	<0.0050	<0.0050	NC	<b>0.58</b>	0.089	0.0077	<b>1.6</b>	<0.0050
Phenanthrene	µg/g	0.69	<b>2.8</b>	0.55	<0.0050	<0.0050	NC	<b>0.7</b>	0.095	<0.0050	<b>1.1</b>	<0.0050
Pyrene	µg/g	1	0.41	0.27	<0.0050	<0.0050	NC	0.36	0.061	<0.0050	0.19	<0.0050

Notes:

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Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

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**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	MOUND 1	MOUND 2	MOUND 3A	MOUND 3B	MOUND 4	TP1		
Sample Identification			MOUND 1	MOUND 2	MOUND 3A	MOUND 3B	MOUND 4	TP1-1	TP1-3	
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14
Sample Depth (m)			0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0.0 - 0.6	1.4 - 1.8
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acenaphthene	µg/g	0.072	0.034	0.0071	<0.0050	<0.0050	0.0056	0.028	<0.0050	
Acenaphthylene	µg/g	0.093	0.077	0.0093	0.0082	<0.0050	0.082	0.032	<0.0050	
Anthracene	µg/g	0.22	0.062	0.04	0.021	<0.0050	0.034	0.079	<0.0050	
Benz(a)anthracene	µg/g	0.36	0.21	0.084	0.051	<0.0050	0.17	0.12	<0.0050	
Benzo(a)pyrene	µg/g	0.3	0.24	0.16	0.058	<0.0050	0.2	0.1	<0.0050	
Benzo(b)fluoranthene	µg/g	0.47	0.38	<b>0.57</b>	0.07	<0.0050	0.3	0.21	<0.0050	
Benzo(g,h,i)perylene	µg/g	0.68	0.24	0.12	0.14	<0.0050	0.15	0.11	<0.0050	
Benzo(k)fluoranthene	µg/g	0.48	0.13	0.3	0.023	<0.0050	0.1	0.063	<0.0050	
Chrysene	µg/g	2.8	0.21	0.1	0.04	<0.0050	0.14	0.099	<0.0050	
Dibenz(a,h)anthracene	µg/g	0.1	0.047	0.042	0.017	<0.0050	0.037	0.022	<0.0050	
Fluoranthene	µg/g	0.69	0.41	0.041	0.1	<0.0050	0.23	0.35	<0.0050	
Fluorene	µg/g	0.19	0.04	0.011	<0.0050	<0.0050	0.0051	0.028	<0.0050	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.21	0.15	0.071	<0.0050	0.16	0.1	<0.0050	
1-Methylnaphthalene	µg/g	0.59	0.52	0.21	0.06	<0.0050	0.089	0.15	<0.0050	
2-Methylnaphthalene	µg/g	0.59	<b>0.78</b>	0.28	0.076	<0.0050	0.1	0.21	<0.0050	
2-and 1-methyl Naphthalene	µg/g	0.59	<b>1.3</b>	0.49	0.14	<0.0071	0.19	0.36	<0.0071	
Naphthalene	µg/g	0.09	<b>0.52</b>	<b>0.21</b>	0.053	<0.0050	0.078	<b>0.3</b>	<0.0050	
Phenanthrene	µg/g	0.69	0.55	0.16	0.076	<0.0050	0.12	0.3	<0.0050	
Pyrene	µg/g	1	0.38	0.041	0.085	<0.0050	0.25	0.28	<0.0050	

Notes:

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Depth in metres below ground surface (mbgs)

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**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP2				Relative Percent Difference (%)	TP3			TP4		TP5	
Sample Identification			TP2-1	TP2-3	TP2-10 (Duplicate)	TP3-1		TP3-2	TP3-3	TP4-1	TP4-3	TP5-1	TP5-3	
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14		28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14
Sample Depth (m)			0.0 - 0.6	1.4 - 1.8	1.4 - 1.8	0.0 - 0.6		0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	
Sampled By			Stantec	Stantec	Stantec	Stantec		Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	
Acenaphthene	µg/g	0.072	<0.0050	<0.0050	<0.0050	NC	0.021	<0.0050	<0.0050	<0.0050	<0.0050	0.055	<0.0050	
Acenaphthylene	µg/g	0.093	<0.0050	<0.0050	<0.0050	NC	0.01	<0.0050	<0.0050	<0.0050	<0.0050	0.071	<0.0050	
Anthracene	µg/g	0.22	<0.0050	<0.0050	<0.0050	NC	0.021	<0.0050	<0.0050	<0.0050	<0.0050	<b>8.7</b>	<0.0050	
Benz(a)anthracene	µg/g	0.36	<0.0050	<0.0050	0.0068	NC	0.099	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.48</b>	<0.0050	
Benzo(a)pyrene	µg/g	0.3	<0.0050	<0.0050	<0.0050	NC	0.14	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.52</b>	<0.0050	
Benzo(b)fluoranthene	µg/g	0.47	<0.0050	0.0055	0.011	66.7	0.16	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.95</b>	0.006	
Benzo(g,h,i)perylene	µg/g	0.68	<0.0050	<0.0050	<0.0050	NC	0.086	<0.0050	<0.0050	<0.0050	<0.0050	0.24	<0.0050	
Benzo(k)fluoranthene	µg/g	0.48	<0.0050	<0.0050	<0.0050	NC	0.069	<0.0050	<0.0050	<0.0050	<0.0050	0.34	<0.0050	
Chrysene	µg/g	2.8	<0.0050	<0.0050	0.0078	NC	0.077	<0.0050	<0.0050	<0.0050	<0.0050	0.79	0.0065	
Dibenz(a,h)anthracene	µg/g	0.1	<0.0050	<0.0050	<0.0050	NC	0.029	<0.0050	<0.0050	<0.0050	<0.0050	0.075	<0.0050	
Fluoranthene	µg/g	0.69	<0.0050	<0.0050	0.013	NC	0.1	<0.0050	<0.0050	<0.0050	<0.0050	0.5	0.006	
Fluorene	µg/g	0.19	<0.0050	<0.0050	<0.0050	NC	0.008	<0.0050	<0.0050	<0.0050	<0.0050	0.14	<0.0050	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.0050	<0.0050	<0.0050	NC	0.098	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.31</b>	<0.0050	
1-Methylnaphthalene	µg/g	0.59	<0.0050	0.011	0.012	8.7	0.0055	<0.0050	<0.0050	<0.0050	<0.0050	0.042	0.023	
2-Methylnaphthalene	µg/g	0.59	<0.0050	0.011	0.015	30.8	0.0065	<0.0050	<0.0050	<0.0050	<0.0050	0.088	0.023	
2-and 1-methyl Naphthalene	µg/g	0.59	<0.0071	0.022	0.027	20.4	0.012	<0.0071	<0.0071	<0.0071	<0.0071	0.13	0.046	
Naphthalene	µg/g	0.09	<0.0050	0.007	0.011	44.4	0.0075	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.27</b>	0.014	
Phenanthrene	µg/g	0.69	<0.0050	0.012	0.013	8.0	0.055	<0.0050	<0.0050	<0.0050	<0.0050	0.57	0.021	
Pyrene	µg/g	1	<0.0050	<0.0050	0.012	NC	0.087	<0.0050	<0.0050	<0.0050	<0.0050	0.46	0.0065	

Notes:

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Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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NV - no value

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**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP6		TP7		TP8			TP9		SS1		
Sample Identification			TP6-1	TP6-3	TP7-1	TP7-3	TP8-1	TP8-2	TP8-10 (Duplicate)	TP8-3	TP9-1	TP9-3	SS-1	
Sample Date			28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	30-Apr-14
Sample Depth (m)			0.0 - 0.6	1.2 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	0.6 - 1.2	0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 2	0 - 0.15	
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acenaphthene	µg/g	0.072	<0.0050	<0.0050	<0.0050	<0.0050	0.0058	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Acenaphthylene	µg/g	0.093	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Anthracene	µg/g	0.22	<0.0050	<0.0050	<0.0050	<0.0050	0.0084	<0.0050	<0.0050	<0.0050	<0.0050	0.0073		
Benz(a)anthracene	µg/g	0.36	<0.0050	<0.0050	<0.0050	0.016	0.02	<0.0050	<0.0050	<0.0050	<0.0050	0.025		
Benzo(a)pyrene	µg/g	0.3	<0.0050	<0.0050	<0.0050	0.026	0.015	<0.0050	<0.0050	<0.0050	<0.0050	0.03		
Benzo(b)fluoranthene	µg/g	0.47	0.0081	<0.0050	<0.0050	0.069	0.023	<0.0050	<0.0050	<0.0050	<0.0050	0.059		
Benzo(g,h,i)perylene	µg/g	0.68	<0.0050	<0.0050	<0.0050	0.095	0.01	<0.0050	<0.0050	<0.0050	<0.0050	0.033		
Benzo(k)fluoranthene	µg/g	0.48	<0.0050	<0.0050	<0.0050	0.018	0.0068	<0.0050	<0.0050	<0.0050	<0.0050	0.017		
Chrysene	µg/g	2.8	0.0061	<0.0050	<0.0050	0.019	0.019	<0.0050	<0.0050	<0.0050	<0.0050	0.03		
Dibenz(a,h)anthracene	µg/g	0.1	<0.0050	<0.0050	<0.0050	0.0086	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0068		
Fluoranthene	µg/g	0.69	0.0051	<0.0050	<0.0050	0.02	0.03	<0.0050	<0.0050	<0.0050	<0.0050	0.04		
Fluorene	µg/g	0.19	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.0050	<0.0050	<0.0050	0.079	0.01	<0.0050	<0.0050	<0.0050	<0.0050	0.031		
1-Methylnaphthalene	µg/g	0.59	0.03	<0.0050	0.0064	0.0063	0.13	<0.0050	<0.0050	<0.0050	<0.0050	0.072		
2-Methylnaphthalene	µg/g	0.59	0.035	<0.0050	0.0073	0.008	0.19	<0.0050	<0.0050	<0.0050	<0.0050	0.088		
2-and 1-methyl Naphthalene	µg/g	0.59	0.065	<0.0071	0.014	0.014	0.33	<0.0071	<0.0071	<0.0071	<0.0071	0.16		
Naphthalene	µg/g	0.09	0.023	<0.0050	0.0054	0.008	<b>0.13</b>	<0.0050	<0.0050	<0.0050	<0.0050	0.062		
Phenanthrene	µg/g	0.69	0.024	<0.0050	0.0059	0.015	0.11	<0.0050	<0.0050	<0.0050	<0.0050	0.065		
Pyrene	µg/g	1	0.0056	<0.0050	<0.0050	0.02	0.028	<0.0050	<0.0050	<0.0050	<0.0050	0.041		

Notes:

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Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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NV - no value

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"-" indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	SS2	SS3	SS4	BH8	BH26		BH28		BH30	
Sample Identification			SS-2	SS-3	SS-4	BH8 SS4	BH26 SS1	BH26 SS4	BH28 SS1	BH28 SS4	BH30 SS1	BH30 SS4
Sample Date			30-Apr-14	30-Apr-14	30-Apr-14	21-May-15	25-May-15	25-May-15	26-May-15	26-May-15	11-Jun-15	11-Jun-15
Sample Depth (m)			0 - 0.15	0 - 0.15	0 - 0.15	3.1 - 3.7	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9
Sampled By			Stantec	Stantec	Stantec	PML	PML	PML	PML	PML	PML	PML
Laboratory			Maxxam	Maxxam	Maxxam	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Acenaphthene	µg/g	0.072	<0.0050	<b>0.086</b>	0.013	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	<0.0050	0.049	<0.010	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.22	0.0078	0.098	0.015	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.027	0.31	0.023	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.027	0.12	0.017	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.055	0.24	0.023	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.027	0.056	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.016	0.065	<0.010	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	0.035	0.33	0.027	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.0061	0.027	<0.010	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.049	0.35	0.034	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05
Fluorene	µg/g	0.19	0.005	0.061	0.013	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.025	0.054	<0.010	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	µg/g	0.59	0.11	<b>5.1</b>	0.26	-	-	-	-	-	-	-
2-Methylnaphthalene	µg/g	0.59	0.14	<b>7</b>	0.38	-	-	-	-	-	-	-
2-and 1-methyl Naphthalene	µg/g	0.59	0.24	<b>12</b>	<b>0.64</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/g	0.09	<b>0.096</b>	<b>4.7</b>	<b>0.28</b>	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	0.09	<b>2.9</b>	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05
Pyrene	µg/g	1	0.044	0.39	0.034	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

“-” indicates parameter not analyzed or not reported by laboratory





**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH33		BH34	BH41		BH42		BH18-01	BH18-04
Sample Identification			BH33 SS1	BH33 SS2	BH34 SS1	BH41 SS1	BH41 SS2	BH42 SS1	BH42 SS2	BH18-01 SS2	BH18-04 SS3
Sample Date			11-Jun-15	11-Jun-15	27-May-15	29-May-15	29-May-15	28-May-15	28-May-15	26-Jun-18	27-Jun-18
Sample Depth (m)			0.0 - 0.25	0.8 - 1.1	0.0 - 0.6	0.0 - 0.6	0.8 - 1.4	0.0 - 0.6	0.8 - 1.4	1.5 - 2.0	1.5 - 1.8
Sampled By			PML	PML	PML	PML	PML	PML	PML	Cambium	Cambium
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Maxxam	Maxxam
Acenaphthene	µg/g	0.072	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.007	<0.050
Acenaphthylene	µg/g	0.093	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0050	<0.050
Anthracene	µg/g	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	0.012	<0.050
Benz(a)anthracene	µg/g	0.36	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.16	0.02	0.19
Benzo(a)pyrene	µg/g	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	0.22	0.11	0.02	0.14
Benzo(b)fluoranthene	µg/g	0.47	<0.05	<0.05	<0.05	<0.05	<0.05	0.4	0.17	0.042	0.22
Benzo(g,h,i)perylene	µg/g	0.68	<0.05	<0.05	<0.05	<0.05	<0.05	0.25	0.06	0.027	0.098
Benzo(k)fluoranthene	µg/g	0.48	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	0.06	0.0074	0.063
Chrysene	µg/g	2.8	<0.05	<0.05	<0.05	<0.05	0.05	0.23	0.14	0.044	0.2
Dibenz(a,h)anthracene	µg/g	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.005	<0.050
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	<0.05	0.08	0.52	0.37	0.034	0.44
Fluorene	µg/g	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.0050	<0.050
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.05	0.022	0.1
1-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	0.039	<0.050
2-Methylnaphthalene	µg/g	0.59	-	-	-	-	-	-	-	0.054	<0.050
2-and 1-methyl Naphthalene	µg/g	0.59	0.36	<0.05	<0.05	<0.05	0.29	<0.05	0.21	0.093	<0.071
Naphthalene	µg/g	0.09	<b>0.12</b>	<0.05	<0.05	<0.05	0.09	<0.05	0.07	0.027	<0.050
Phenanthrene	µg/g	0.69	0.12	<0.05	<0.05	<0.05	0.18	0.14	0.41	0.055	0.26
Pyrene	µg/g	1	0.05	<0.05	<0.05	<0.05	0.07	0.42	0.3	0.037	0.39

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

"-" indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-08		BH18-09	BH18-10	SS18-01	SS18-02	SS18-05	SS18-06	SS18-08A	
Sample Identification			BH18-08 SS6	QA/QC #5 (Duplicate)	BH18-09 SS3	BH18-10 SS3	SS18-01	SS18-02	SS18-05	SS18-06	SS18-08A	
Sample Date			27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18
Sample Depth (m)			4.0 - 4.4	4.0 - 4.4	3.0 - 3.5	3.0 - 3.6	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acenaphthene	µg/g	0.072	<0.0050	<0.0050	<0.0050	<0.0050	0.0089	<0.0050	0.0094	0.025	<0.0050	
Acenaphthylene	µg/g	0.093	<0.0050	<0.0050	0.014	0.0063	0.013	<0.0050	0.011	<b>0.19</b>	0.0065	
Anthracene	µg/g	0.22	<0.0050	<0.0050	0.014	<0.0050	0.026	<0.0050	0.0077	0.18	0.0062	
Benz(a)anthracene	µg/g	0.36	<0.0050	<0.0050	0.046	0.0058	0.051	0.0065	0.022	<b>0.37</b>	0.017	
Benzo(a)pyrene	µg/g	0.3	<0.0050	<0.0050	0.053	0.01	0.044	0.0075	0.024	<b>0.44</b>	0.02	
Benzo(b)fluoranthene	µg/g	0.47	<0.0050	<0.0050	0.066	0.013	0.071	0.012	0.039	<b>0.89</b>	0.04	
Benzo(g,h,i)perylene	µg/g	0.68	<0.0050	<0.0050	0.039	0.0082	0.049	0.0066	0.021	0.39	0.019	
Benzo(k)fluoranthene	µg/g	0.48	<0.0050	<0.0050	0.025	<0.0050	0.022	<0.0050	0.0097	0.29	0.013	
Chrysene	µg/g	2.8	<0.0050	<0.0050	0.043	<0.0050	0.046	0.006	0.03	0.45	0.02	
Dibenz(a,h)anthracene	µg/g	0.1	<0.0050	<0.0050	0.008	<0.0050	0.0094	<0.0050	<0.0050	<b>0.11</b>	<0.0050	
Fluoranthene	µg/g	0.69	<0.0050	<0.0050	0.074	0.0071	0.12	0.011	0.041	0.61	0.031	
Fluorene	µg/g	0.19	<0.0050	<0.0050	<0.0050	<0.0050	0.0096	<0.0050	0.0056	0.026	<0.0050	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.0050	<0.0050	0.044	0.0091	0.044	0.0073	0.021	<b>0.4</b>	0.019	
1-Methylnaphthalene	µg/g	0.59	<0.0050	<0.0050	0.031	<0.0050	0.16	<0.0050	0.19	<b>1</b>	0.039	
2-Methylnaphthalene	µg/g	0.59	<0.0050	<0.0050	0.037	<0.0050	0.17	<0.0050	0.2	<b>1.1</b>	0.043	
2-and 1-methyl Naphthalene	µg/g	0.59	<0.0071	<0.0071	0.068	<0.0071	0.33	<0.0071	0.38	<b>2.2</b>	0.083	
Naphthalene	µg/g	0.09	<0.0050	<0.0050	0.02	<0.0050	<b>0.1</b>	<0.0050	<b>0.12</b>	<b>0.66</b>	0.026	
Phenanthrene	µg/g	0.69	<0.0050	<0.0050	0.028	<0.0050	0.17	<0.0050	0.1	0.65	0.033	
Pyrene	µg/g	1	<0.0050	<0.0050	0.074	0.0096	0.09	0.011	0.037	0.57	0.029	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

“-” indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	SS18-08B	SS18-09	SS18-11		Relative Percent Difference (%)	SS18-12	SS18-13	SS18-16
Sample Identification			SS18-08B	SS18-09	SS18-11	QA/QC #2		SS18-12	SS18-13	SS18-16
Sample Date			11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18		14-Aug-18	13-Aug-18	14-Aug-18
Sample Depth (m)			0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15		0 - 0.15	0 - 0.15	0 - 0.15
Sampled By			Cambium	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam
Acenaphthene	µg/g	0.072	<0.0050	<0.0050	<b>0.073</b>	0.051	35.5	<0.0050	<b>0.28</b>	<0.0050
Acenaphthylene	µg/g	0.093	0.029	<0.0050	0.052	0.056	7.4	0.015	<b>0.38</b>	0.0072
Anthracene	µg/g	0.22	0.025	<0.0050	0.11	0.13	16.7	0.0089	<b>0.94</b>	0.012
Benz(a)anthracene	µg/g	0.36	0.059	<0.0050	0.27	0.26	3.8	0.033	<b>2.6</b>	0.022
Benzo(a)pyrene	µg/g	0.3	0.073	<0.0050	0.12	0.12	0.0	0.041	<b>1.6</b>	0.019
Benzo(b)fluoranthene	µg/g	0.47	0.12	<0.0050	0.29	0.28	3.5	0.058	<b>3.1</b>	0.035
Benzo(g,h,i)perylene	µg/g	0.68	0.053	<0.0050	0.084	0.084	0.0	0.049	<b>0.85</b>	0.028
Benzo(k)fluoranthene	µg/g	0.48	0.038	<0.0050	0.071	0.079	10.7	0.018	<b>1.1</b>	0.0069
Chrysene	µg/g	2.8	0.061	<0.0050	0.27	0.29	7.1	0.031	2.6	0.02
Dibenz(a,h)anthracene	µg/g	0.1	0.016	<0.0050	0.033	0.033	0.0	0.0083	<b>0.29</b>	<0.0050
Fluoranthene	µg/g	0.69	0.09	<0.0050	0.4	0.36	10.5	0.052	<b>8.7</b>	0.043
Fluorene	µg/g	0.19	0.0052	<0.0050	0.04	0.039	2.5	<0.0050	<b>0.26</b>	<0.0050
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.062	<0.0050	0.083	0.084	1.2	0.045	<b>1</b>	0.024
1-Methylnaphthalene	µg/g	0.59	0.21	<0.0050	<b>3.4</b>	<b>3.5</b>	2.9	0.044	<b>1.4</b>	0.067
2-Methylnaphthalene	µg/g	0.59	0.24	<0.0050	<b>3.6</b>	<b>3.6</b>	0.0	0.05	<b>1.6</b>	0.077
2-and 1-methyl Naphthalene	µg/g	0.59	0.45	<0.0071	<b>7.1</b>	<b>7.1</b>	0.0	0.095	<b>3</b>	0.14
Naphthalene	µg/g	0.09	<b>0.13</b>	<0.0050	<b>2</b>	<b>2</b>	0.0	0.031	<b>0.95</b>	0.054
Phenanthrene	µg/g	0.69	0.12	<0.0050	<b>1.7</b>	<b>1.7</b>	0.0	0.038	<b>6.4</b>	0.057
Pyrene	µg/g	1	0.092	<0.0050	0.37	0.34	8.5	0.048	<b>6</b>	0.036

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

“-” indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	SS18-17	SS18-21	TP18-01		Relative Percent Difference (%)	TP18-02	TP18-03	TP18-04
Sample Identification			SS18-17	SS18-21	TP18-01 10	QA/QC 3 (Duplicate)		TP18-02 6.5	TP18-03 6.5	TP18-04 13
Sample Date			12-Nov-18	6-Dec-18	14-Aug-18	14-Aug-18		14-Aug-18	14-Aug-18	14-Aug-18
Sample Depth (m)			0 - 0.15	0 - 0.15	3.0	3.0		2.0	2.0	4.0
Sampled By			Cambium	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam
Acenaphthene	µg/g	0.072	<b>0.089</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Acenaphthylene	µg/g	0.093	<b>2.2</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Anthracene	µg/g	0.22	<b>2.8</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Benz(a)anthracene	µg/g	0.36	<b>5.5</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Benzo(a)pyrene	µg/g	0.3	<b>8.6</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Benzo(b)fluoranthene	µg/g	0.47	<b>14</b>	0.0053	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Benzo(g,h,i)perylene	µg/g	0.68	<b>8.4</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Benzo(k)fluoranthene	µg/g	0.48	<b>5.1</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Chrysene	µg/g	2.8	<b>5.5</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Dibenz(a,h)anthracene	µg/g	0.1	<b>2</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Fluoranthene	µg/g	0.69	<b>5.4</b>	0.0072	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Fluorene	µg/g	0.19	0.15	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<b>8.3</b>	<0.0050	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050
1-Methylnaphthalene	µg/g	0.59	0.58	0.0061	0.014	0.0098	35.3	<0.0050	<0.0050	<0.0050
2-Methylnaphthalene	µg/g	0.59	<b>0.67</b>	0.0057	0.022	0.011	66.7	<0.0050	<0.0050	<0.0050
2-and 1-methyl Naphthalene	µg/g	0.59	<b>1.3</b>	0.012	0.036	0.021	52.6	<0.0071	<0.0071	<0.0071
Naphthalene	µg/g	0.09	<b>0.53</b>	<0.0050	0.0082	0.0067	20.1	<0.0050	<0.0050	<0.0050
Phenanthrene	µg/g	0.69	<b>1.1</b>	0.0053	0.011	0.0073	40.4	<0.0050	<0.0050	<0.0050
Pyrene	µg/g	1	<b>6.3</b>	0.0062	<0.0050	<0.0050	NC	<0.0050	<0.0050	<0.0050

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

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NV - no value

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**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP18-05	TP18-06	TP18-07	TP18-10	TP18-11		Relative Percent Difference (%)
Sample Identification			TP18-05 0.5	TP18-06 0.5	TP18-07 0.5	TP18-10 6.5	TP18-11 6.5	QA/QC 6 (Duplicate)	
Sample Date			13-Aug-18	13-Aug-18	13-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	
Sample Depth (m)			0.15	0.15	0.15	2.0	2.0	2.0	
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	
Acenaphthene	µg/g	0.072	0.0088	<0.0050	<b>0.076</b>	<0.0050	0.019	0.024	23.3
Acenaphthylene	µg/g	0.093	0.016	<0.0050	0.021	0.0074	0.014	0.013	7.4
Anthracene	µg/g	0.22	0.02	<0.0050	0.11	<0.0050	0.038	0.041	7.6
Benz(a)anthracene	µg/g	0.36	0.075	<0.0050	0.18	0.0073	0.076	0.086	12.3
Benzo(a)pyrene	µg/g	0.3	0.081	<0.0050	0.086	0.014	0.052	0.056	7.4
Benzo(b)fluoranthene	µg/g	0.47	0.13	<0.0050	0.12	0.018	0.09	0.1	10.5
Benzo(g,h,i)perylene	µg/g	0.68	0.054	<0.0050	0.043	0.014	0.048	0.052	8.0
Benzo(k)fluoranthene	µg/g	0.48	0.034	<0.0050	0.022	0.0056	0.024	0.024	0.0
Chrysene	µg/g	2.8	0.08	<0.0050	0.18	0.0071	0.091	0.1	9.4
Dibenz(a,h)anthracene	µg/g	0.1	0.014	<0.0050	0.016	<0.0050	0.011	0.012	8.7
Fluoranthene	µg/g	0.69	0.085	<0.0050	0.22	0.012	0.11	0.13	16.7
Fluorene	µg/g	0.19	0.011	<0.0050	0.078	<0.0050	0.02	0.024	18.2
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.052	<0.0050	0.036	0.013	0.04	0.043	7.2
1-Methylnaphthalene	µg/g	0.59	0.34	0.0076	<b>2.5</b>	<0.0050	0.5	<b>0.68</b>	30.5
2-Methylnaphthalene	µg/g	0.59	0.35	0.008	<b>3.2</b>	<0.0050	0.55	<b>0.76</b>	32.1
2-and 1-methyl Naphthalene	µg/g	0.59	<b>0.69</b>	0.016	<b>5.7</b>	<0.0071	<b>1</b>	<b>1.4</b>	33.3
Naphthalene	µg/g	0.09	<b>0.18</b>	0.0055	<b>1.9</b>	<0.0050	<b>0.29</b>	<b>0.4</b>	31.9
Phenanthrene	µg/g	0.69	0.19	<0.0050	<b>1.5</b>	0.0057	0.34	0.46	30.0
Pyrene	µg/g	1	0.092	<0.0050	0.25	0.016	0.11	0.13	16.7

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

"-" indicates parameter not analyzed or not reported by laboratory



**Table 7: Soil Results - Polycyclic Aromatic Hydrocarbon**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP18-12	TP18-13	
Sample Identification			TP18-12 6.5	TP18-13 0.5	TP18-13 5-7
Sample Date			14-Aug-18	14-Aug-18	14-Aug-18
Sample Depth (m)			2.0	0.15	1.5 - 2.1
Sampled By			Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam
Acenaphthene			µg/g	0.072	<0.0050
Acenaphthylene	µg/g	0.093	<0.0050	<0.0050	<0.0050
Anthracene	µg/g	0.22	<0.0050	0.017	<0.0050
Benz(a)anthracene	µg/g	0.36	<0.0050	0.043	<0.0050
Benzo(a)pyrene	µg/g	0.3	0.0053	0.038	<0.0050
Benzo(b)fluoranthene	µg/g	0.47	0.0093	0.096	<0.0050
Benzo(g,h,i)perylene	µg/g	0.68	0.0051	0.069	<0.0050
Benzo(k)fluoranthene	µg/g	0.48	<0.0050	0.021	<0.0050
Chrysene	µg/g	2.8	0.0088	0.065	<0.0050
Dibenz(a,h)anthracene	µg/g	0.1	<0.0050	0.011	<0.0050
Fluoranthene	µg/g	0.69	0.015	0.051	<0.0050
Fluorene	µg/g	0.19	<0.0050	0.0061	<0.0050
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.0054	0.07	<0.0050
1-Methylnaphthalene	µg/g	0.59	0.033	0.29	<0.0050
2-Methylnaphthalene	µg/g	0.59	0.033	0.27	<0.0050
2-and 1-methyl Naphthalene	µg/g	0.59	0.066	0.56	<0.0071
Naphthalene	µg/g	0.09	0.02	<b>0.16</b>	<0.0050
Phenanthrene	µg/g	0.69	0.029	0.2	<0.0050
Pyrene	µg/g	1	0.016	0.06	<0.0050

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in metres below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

NV - no value

NC - not calculated

“-” indicates parameter not analyzed or not reported by laboratory



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	TP02		TP03			TP04			TP05	TP101		
Sample Identification				TP2 SA4	TP2 SA6	TP3 SA3	Dup 1 (Duplicate)	Relative Percent Difference (%)	TP3 SA5	TP4 SA4	TP4 SA7	TP5 SA4	TP101 SA2	TP101 SA5	
Sample Date				12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13		12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	4-Dec-13	4-Dec-13
Sample Depth (m)				2.0	3.0	1.5	1.5		2.5	2.0	3.5	2.0	1.2	3.0	
Sampled By				Pinchin	Pinchin	Pinchin	Pinchin		Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory				Agat	Agat	Agat	Agat		Agat	Agat	Agat	Agat	Agat	Agat	Agat
Antimony	µg/g	1.3	<b>88</b>	<0.8	<0.8	<0.8	<0.8	NC	<0.8	<0.8	<0.8	<0.8	<b>5.4</b>	<0.8	
Arsenic	µg/g	18	<b>110</b>	2	1	<1	1	NC	<1	2	1	5	8	<1	
Barium	µg/g	220	<b>1470</b>	<b>390</b>	87	11	12	9	65	100	89	56	<b>1470</b>	53	
Beryllium	µg/g	2.5	<b>3.2</b>	0.9	<0.5	<0.5	<0.5	NC	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Boron	µg/g	36	21	12	10	<5	<5	NC	<5	8	5	5	6	<5	
Boron (Hot Water Soluble)	µg/g	1.5	0.75	0.44	<0.10	0.2	0.2	0.0	<0.10	0.29	0.18	<0.10	-	-	
Cadmium	µg/g	1.2	<b>1.8</b>	<0.5	<0.5	<0.5	<0.5	NC	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	
Chromium	µg/g	70	68	46	10	2	<2	NC	9	24	14	19	18	8	
Chromium VI	µg/g	0.66	0.4	<0.2	<0.2	<0.2	<0.2	NC	<0.2	<0.2	<0.2	<0.2	-	-	
Cobalt	µg/g	22	<b>48</b>	16	3.8	0.6	0.6	0	3.4	8.5	5.1	6.5	6.5	3.1	
Copper	µg/g	92	<b>280</b>	37	10	2	3	40	12	22	14	17	79	9	
Cyanide	µg/g	0.051	<b>0.07</b>	<0.040	<0.040	<0.040	<0.040	NC	<0.040	<0.040	<0.040	<0.040	-	-	
Lead	µg/g	120	<b>6800</b>	9	2	1	1	0	2	14	7	5	<b>5630</b>	21	
Mercury	µg/g	0.27	<b>1.4</b>	<0.10	<0.10	<0.10	<0.10	NC	<0.10	<0.10	<0.10	<0.10	-	-	
Molybdenum	µg/g	2	<b>6.8</b>	<0.5	<0.5	<0.5	<0.5	NC	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	
Nickel	µg/g	82	<b>84</b>	32	7	1	1	0	6	18	9	15	16	4	
Selenium	µg/g	1.5	<b>9.2</b>	<0.4	<0.4	<0.4	<0.4	NC	<0.4	<0.4	<0.4	<0.4	0.9	<0.4	
Silver	µg/g	0.5	<b>1.2</b>	<0.2	<0.2	<0.2	<0.2	NC	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Thallium	µg/g	1	0.6	<0.4	<0.4	<0.4	<0.4	NC	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Uranium	µg/g	2.5	<b>3.1</b>	0.7	<0.5	<0.5	<0.5	NC	<0.5	0.7	<0.5	0.5	0.5	<0.5	
Vanadium	µg/g	86	69	64	18	6	6	0.0	18	35	25	29	25	17	
Zinc	µg/g	290	<b>1300</b>	91	19	5	6	18	17	50	31	30	<b>968</b>	21	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP102		TP103		TP106		TP113		TP114		BH01	BH101
Sample Identification			TP102 SA2	TP102 SA5	TP103 SA3	TP103 SA5	TP106 SA3	TP106 SA5	TP113 SA3	TP113 SA6	TP114 SA3	TP114 SA7	BH01 SA9	BH02 SA6
Sample Date			4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	4-Dec-13	5-Dec-13	5-Dec-13	4-Dec-13	4-Dec-13	17-Jun-13	17-Jun-13
Sample Depth (m)			1.8	3.0	1.8	3.0	1.8	3.0	1.8	3.7	1.8	4.3	5.94 - 6.71	3.66 - 4.42
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Antimony	µg/g	1.3	<0.8	<0.8	<b>3.1</b>	<0.8	<b>10</b>	<0.8	<0.8	<0.8	<0.8	<0.8	<0.08	<0.8
Arsenic	µg/g	18	<1	<1	3	<1	4	2	<1	<1	1	<1	1	<1
Barium	µg/g	220	48	61	81	28	69	<b>222</b>	27	22	170	54	145	64
Beryllium	µg/g	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	0.7	<0.5	<0.5	<0.5
Boron	µg/g	36	<5	<5	<5	<5	<5	7	<5	<5	8	<5	8	8
Boron (Hot Water Soluble)	µg/g	1.5	-	-	-	-	-	-	-	-	-	-	0.15	<0.10
Cadmium	µg/g	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	10	7	9	8	9	36	6	6	35	10	23	10
Chromium VI	µg/g	0.66	-	-	-	-	-	-	-	-	-	-	<0.2	<0.2
Cobalt	µg/g	22	4.1	2.9	4.1	3.5	3.7	12.7	2.5	2.3	12.8	3.9	8.4	3.6
Copper	µg/g	92	11	8	50	5	39	32	8	6	33	11	18	10
Cyanide	µg/g	0.051	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040
Lead	µg/g	120	4	2	<b>163</b>	2	<b>241</b>	9	1	1	10	3	4	2
Mercury	µg/g	0.27	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10
Molybdenum	µg/g	2	<0.5	<0.5	0.8	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	7	4	9	5	8	26	4	4	25	5	17	7
Selenium	µg/g	1.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	<0.4	<0.4
Silver	µg/g	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	0.5	<0.5	0.6	<0.5
Vanadium	µg/g	86	20	16	16	14	14	57	14	13	57	22	42	20
Zinc	µg/g	290	22	15	79	21	94	81	13	11	77	22	47	18

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value





**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH102	BH04	BH05	BH103	BH07		Relative Percent Difference (%)	BH105	BH114	BH113	BH11	BH120		
Sample Identification			BH03 SA4	BH04 SA4	BH05 SA4	BH06 SA7	BH07 SA5	DUP 2 (Duplicate )		BH08 SA5	BH09 SA5	BH10 SA7	BH11 SA8	BH12 SA2		
Sample Date			17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13		18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13
Sample Depth (m)			2.13 - 2.90	2.90 - 3.66	2.13 - 2.90	4.42 - 5.18	2.90 - 3.66	4.42 - 5.18		2.90 - 3.66	4.42 - 5.18	2.90 - 3.66	2.90 - 3.66	4.42 - 5.18	5.18 - 5.94	0.51 - 1.37
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin		Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat		Agat	Agat	Agat	Agat	Agat	Agat	Agat
Antimony	µg/g	1.3	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	NC	<0.8	<0.8	<0.8	<0.8	<0.8		
Arsenic	µg/g	18	<1	<1	1	1	<1	<1	NC	2	<1	<1	<1	5		
Barium	µg/g	220	70	38	125	53	76	56	30	<b>265</b>	40	44	29	71		
Beryllium	µg/g	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NC	0.8	<0.5	<0.5	<0.5	<0.5		
Boron	µg/g	36	6	<5	10	7	<5	<5	NC	11	<5	8	<5	14		
Boron (Hot Water Soluble)	µg/g	1.5	0.1	0.17	<0.10	0.11	<0.10	<0.10	NC	0.12	<0.10	<0.10	<0.10	0.18		
Cadmium	µg/g	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NC	<0.5	<0.5	<0.5	<0.5	<0.5		
Chromium	µg/g	70	10	10	19	11	9	7	25	42	7	12	5	13		
Chromium VI	µg/g	0.66	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NC	<0.2	<0.2	<0.2	<0.2	<0.2		
Cobalt	µg/g	22	3.7	2.7	6.3	3.6	3.3	2.4	31.6	14.5	3.4	3.1	1.8	4.2		
Copper	µg/g	92	11	8	20	8	10	7	35	31	9	9	7	14		
Cyanide	µg/g	0.051	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	NC	<0.040	<0.040	<0.040	<0.040	<0.040		
Lead	µg/g	120	2	2	3	2	2	1	67	7	1	2	1	8		
Mercury	µg/g	0.27	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NC	<0.10	<0.10	<0.10	<0.10	<0.10		
Molybdenum	µg/g	2	<0.5	1	0.7	0.7	<0.5	<0.5	NC	0.5	<0.5	0.7	<0.5	1.5		
Nickel	µg/g	82	7	5	12	6	6	4	40.0	30	7	6	3	10		
Selenium	µg/g	1.5	<0.4	<.04	<0.4	<0.4	<0.4	<0.4	NC	<0.4	<0.4	<0.4	<0.4	1		
Silver	µg/g	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NC	<0.2	<0.2	<0.2	<0.2	<0.2		
Thallium	µg/g	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	NC	<0.4	<0.4	<0.4	<0.4	<0.4		
Uranium	µg/g	2.5	<0.5	<0.5	0.8	0.7	<0.5	<0.5	NC	0.8	<0.5	<0.5	<0.5	<0.5		
Vanadium	µg/g	86	20	16	37	20	20	15	29	66	19	21	11	19		
Zinc	µg/g	290	18	15	33	16	17	12	34	75	13	17	8	26		

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH13	BH14	BH123	BH16	BH117		Relative Percent Difference (%)	BH107	BH19	BH111
Sample Identification			BH13 SA5	BH14 SA2	BH15 SA5	BH16 SA3	BH17 SA4	DUP 3 (Duplicate)		BH18 SA7	BH19 SA9	BH20 SA3
Sample Date			19-Jun-13	18-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13		20-Jun-13	20-Jun-13	20-Jun-13
Sample Depth (m)			2.90 - 3.66	0.51 - 1.37	2.90 - 3.66	1.37 - 2.13	2.13 - 2.90	2.13 - 2.90		4.42 - 5.18	5.94 - 6.71	1.37 - 2.13
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin		Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat		Agat	Agat	Agat
Antimony	µg/g	1.3	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	NC	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	5	<1	1	<1	<1	NC	<1	1	2
Barium	µg/g	220	144	61	83	81	20	22	10	67	76	100
Beryllium	µg/g	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NC	<0.5	<0.5	<0.5
Boron	µg/g	36	5	12	<5	6	<5	<5	NC	<5	7	6
Boron (Hot Water Soluble)	µg/g	1.5	<0.10	0.29	<0.10	<0.10	<0.10	<0.10	NC	<0.10	<0.10	0.36
Cadmium	µg/g	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NC	<0.5	<0.5	<0.5
Chromium	µg/g	70	10	14	7	18	4	4	0	10	15	28
Chromium VI	µg/g	0.66	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NC	<0.2	<0.2	<0.2
Cobalt	µg/g	22	3.7	8	2.7	6.4	1.5	1.6	6.5	3.2	5.3	6.4
Copper	µg/g	92	12	23	10	15	5	5	0	8	14	21
Cyanide	µg/g	0.051	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	NC	<0.040	<0.040	<0.040
Lead	µg/g	120	2	13	2	3	<1	<1	NC	2	2	5
Mercury	µg/g	0.27	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NC	<0.10	<0.10	<0.10
Molybdenum	µg/g	2	0.6	0.7	<0.5	<0.5	<0.5	<0.5	NC	1	<0.5	<0.5
Nickel	µg/g	82	7	14	5	13	3	3	0.0	5	10	18
Selenium	µg/g	1.5	<0.4	0.7	<0.4	<0.4	<0.4	<0.4	NC	<0.4	<0.4	<0.4
Silver	µg/g	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NC	<0.2	<0.2	<0.2
Thallium	µg/g	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	NC	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	<0.5	0.5	<0.5	0.5	<0.5	<0.5	NC	<0.5	<0.5	0.5
Vanadium	µg/g	86	19	29	16	35	10	9	11	14	30	40
Zinc	µg/g	290	18	44	13	32	8	8	0	13	28	39

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH14-01		BH14-02	BH14-03	BH14-04	BH14-05	BH14-06	BH14-07	MOUND 1	MOUND 2
Sample Identification			BH14-01-2	BH14-01-8	BH14-02-3	BH14-03-8	BH14-04-5	BH14-05-1	BH14-06-1	BH14-07-1	MOUND 1	MOUND 2
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	28-Apr-14	28-Apr-14
Sample Depth (m)			0.8 - 1.4	5.3 - 5.9	3.0 - 3.7	6.9 - 7.5	3.0 - 3.7	0.0 - 0.6	0.0 - 0.6	0.0 - 0.6	0 - 0.15	0 - 0.15
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Antimony	µg/g	1.3	<0.20	<0.20	<b>1.7</b>	<0.20	<0.20	1.3	0.23	0.3	0.38	<0.20
Arsenic	µg/g	18	1.1	<1.0	4.2	<1.0	<1.0	16	5	<b>46</b>	4.2	<b>29</b>
Barium	µg/g	220	28	66	59	51	65	67	36	73	37	58
Beryllium	µg/g	2.5	<0.20	0.23	<0.20	<0.20	<0.20	1	<0.20	0.35	<0.20	0.27
Boron	µg/g	36	<5.0	<5.0	<5.0	<5.0	<5.0	16	<5.0	13	<5.0	5.2
Boron (Hot Water Soluble)	µg/g	1.5	0.39	0.084	0.75	0.1	0.074	0.35	0.099	0.41	0.39	0.35
Cadmium	µg/g	1.2	<0.10	<0.10	0.37	<0.10	<0.10	0.16	<0.10	<0.10	0.46	0.21
Chromium	µg/g	70	6.7	12	13	8.2	8.8	9.6	13	10	8.7	11
Chromium VI	µg/g	0.66	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	µg/g	22	2.7	4.8	4.1	2.5	3.3	12	4.8	7.9	2.9	8.1
Copper	µg/g	92	3.6	12	66	7.3	8.9	73	21	32	17	21
Cyanide	µg/g	0.051	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<b>0.07</b>	<0.01
Lead	µg/g	120	2.1	3.5	<b>330</b>	2.1	2	48	25	15	66	7.6
Mercury	µg/g	0.27	<0.050	<0.050	<0.050	<0.050	<0.050	0.12	<0.050	<0.050	<0.050	<0.050
Molybdenum	µg/g	2	<0.50	<0.50	1.1	<0.50	<0.50	1.3	<0.50	0.85	<0.50	0.59
Nickel	µg/g	82	4.3	8.2	9.8	4.5	5.8	25	9.6	16	8.4	15
Selenium	µg/g	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	<0.50	<b>1.7</b>	<0.50	<b>1.6</b>
Silver	µg/g	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	µg/g	1	<0.050	0.069	0.085	<0.050	0.067	0.6	0.1	0.17	0.062	0.15
Uranium	µg/g	2.5	0.34	0.33	0.49	0.31	0.34	0.62	0.41	0.6	0.42	0.45
Vanadium	µg/g	86	12	22	16	16	17	19	23	23	16	21
Zinc	µg/g	290	13	22	130	12	17	84	29	70	64	42

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	MOUND 3		MOUND 4	TP1		TP2			Relative Percent Difference (%)	
Sample Identification			MOUND 3A	MOUND 3B	MOUND 4	TP1-1	TP1-3	TP2-1	TP2-3	TP2-10 (Duplicate)		
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14		28-Apr-14
Sample Depth (m)			0 - 0.15	0 - 0.15	0 - 0.15	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	1.4 - 1.8		
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec		
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam		
Antimony	µg/g	1.3	<0.20	<0.20	<0.20	0.23	<0.20	<0.20	0.35	0.31	12.1	
Arsenic	µg/g	18	<1.0	<1.0	1.3	2.2	1	<1.0	1.1	1.3	16.7	
Barium	µg/g	220	32	27	35	41	86	16	33	39	17	
Beryllium	µg/g	2.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	NC	
Boron	µg/g	36	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NC	
Boron (Hot Water Soluble)	µg/g	1.5	0.14	0.096	0.27	0.27	0.14	<0.050	0.087	0.089	2.3	
Cadmium	µg/g	1.2	<0.10	<0.10	<0.10	0.18	<0.10	<0.10	<0.10	<0.10	NC	
Chromium	µg/g	70	6.3	5.3	5.6	12	9.4	4.8	7.9	8.5	7.3	
Chromium VI	µg/g	0.66	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NC	
Cobalt	µg/g	22	2.6	2.2	2.1	3.6	17	1.7	3.4	3.8	11.1	
Copper	µg/g	92	6.5	5.3	8.4	18	11	4.7	10	12	18	
Cyanide	µg/g	0.051	0.01	<0.01	0.01	0.02	0.02	<0.01	<0.01	<0.01	NC	
Lead	µg/g	120	3.2	1.4	42	28	2.9	<1.0	4.5	5.3	16.3	
Mercury	µg/g	0.27	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	NC	
Molybdenum	µg/g	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NC	
Nickel	µg/g	82	4.4	3.9	4.3	9.7	25	2.9	7.4	7.7	4.0	
Selenium	µg/g	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NC	
Silver	µg/g	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	NC	
Thallium	µg/g	1	0.059	<0.050	0.053	0.082	0.11	<0.050	0.055	0.066	18.2	
Uranium	µg/g	2.5	0.29	0.27	0.29	0.42	0.25	0.24	0.29	0.33	12.9	
Vanadium	µg/g	86	13	11	12	19	21	12	16	18	12	
Zinc	µg/g	290	14	10	36	48	41	8.6	19	23	19	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value





**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP3			TP4		TP5		TP6		TP7	
Sample Identification			TP3-1	TP3-2	TP3-3	TP4-1	TP4-3	TP5-1	TP5-3	TP6-1	TP6-3	TP7-1	
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14
Sample Depth (m)			0.0 - 0.6	0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.2 - 1.8
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Antimony	µg/g	1.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.47	0.21	<0.20	<0.20	
Arsenic	µg/g	18	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	1.4	1.7	3.3	<1.0	
Barium	µg/g	220	17	19	20	20	16	32	82	45	200	12	
Beryllium	µg/g	2.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.23	<0.20	0.73	<0.20	
Boron	µg/g	36	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.9	<5.0	
Boron (Hot Water Soluble)	µg/g	1.5	0.052	<0.050	0.2	<0.050	<0.050	<0.050	0.2	0.11	0.19	0.074	
Cadmium	µg/g	1.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Chromium	µg/g	70	4.4	8.7	6.6	5.3	3.3	8.2	11	8.2	37	8.1	
Chromium VI	µg/g	0.66	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Cobalt	µg/g	22	1.6	3.2	2.2	1.8	1.3	2.9	4.9	3.5	14	1.3	
Copper	µg/g	92	4.6	9	4.6	4.8	3.2	6.6	28	13	31	7.2	
Cyanide	µg/g	0.051	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Lead	µg/g	120	2.3	2	1.3	1	<1.0	3.2	12	6.7	7	8.4	
Mercury	µg/g	0.27	<0.050	<0.050	<0.050	<0.050	<0.050	0.052	<0.050	<0.050	<0.050	<0.050	
Molybdenum	µg/g	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Nickel	µg/g	82	3	4.8	3.7	3.1	2.2	5.3	9.1	6.3	28	3.2	
Selenium	µg/g	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Silver	µg/g	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Thallium	µg/g	1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.13	0.089	0.29	<0.050	
Uranium	µg/g	2.5	0.28	0.49	0.34	0.32	0.22	0.42	0.4	0.33	0.42	0.13	
Vanadium	µg/g	86	10	26	13	13	9	19	21	19	56	6.6	
Zinc	µg/g	290	10	14	11	7.8	5.7	15	46	21	75	15	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP8				TP9			SS1	SS2	SS3	SS4	BH 7	
Sample Identification			TP8-1	TP8-2	TP8-10 (Duplicate)	Relative Percent Difference (%)	TP8-3	TP9-1	TP9-3	SS-1	SS-2	SS-3	SS-4	BH7 SS4	
Sample Date			29-Apr-14	29-Apr-14	29-Apr-14		29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	20-May-15
Sample Depth (m)			0.0 - 0.6	0.6 - 1.2	0.6 - 1.2		1.4 - 1.8	0.0 - 0.6	1.4 - 2.0	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	3.1 - 3.7
Sampled By			Stantec	Stantec	Stantec		Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	PML
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Agat
Antimony	µg/g	1.3	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<b>88</b>	<b>1.8</b>	0.66	<0.20	<b>2.3</b>	
Arsenic	µg/g	18	1.2	1.7	1.6	6.1	1.6	<1.0	2	2.9	1.8	16	5.6	5	
Barium	µg/g	220	20	140	130	7	190	12	48	44	31	14	33	45	
Beryllium	µg/g	2.5	<0.20	1	1.1	9.5	0.55	<0.20	0.31	<0.20	<0.20	0.2	<0.20	<0.5	
Boron	µg/g	36	<5.0	<5.0	5	NC	5.8	<5.0	<5.0	<5.0	<5.0	19	<5.0	5	
Boron (Hot Water Soluble)	µg/g	1.5	0.053	0.59	0.63	6.6	0.18	0.088	0.074	0.14	0.13	0.13	0.069	-	
Cadmium	µg/g	1.2	<0.10	<0.10	<0.10	NC	<0.10	<0.10	<0.10	0.25	0.1	<0.10	<0.10	<0.5	
Chromium	µg/g	70	5.6	36	39	8	28	5.8	17	68	9.6	3.9	4.7	10	
Chromium VI	µg/g	0.66	<0.2	<0.2	<0.2	NC	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	-	
Cobalt	µg/g	22	2.3	13	15	14	13	2.1	6.4	3.9	3.1	2.3	3.2	3.6	
Copper	µg/g	92	8.2	53	55	4	24	1.9	14	<b>130</b>	<b>170</b>	17	6.9	24	
Cyanide	µg/g	0.051	<0.01	<0.01	<0.01	NC	<0.01	<0.01	<0.01	0.02	0.02	0.04	<0.01	-	
Lead	µg/g	120	2.8	6.2	6.9	10.7	5.2	<1.0	4	94	15	27	3.2	104	
Mercury	µg/g	0.27	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050	<0.050	0.087	<0.050	-	
Molybdenum	µg/g	2	<0.50	<0.50	<0.50	NC	<0.50	<0.50	<0.50	1.6	<0.50	1.3	<0.50	1.3	
Nickel	µg/g	82	4.8	44	53	19	25	3.6	14	15	6.5	13	7.3	10	
Selenium	µg/g	1.5	<0.50	<0.50	<0.50	NC	<0.50	<0.50	<0.50	<0.50	<0.50	<b>2.1</b>	<0.50	0.5	
Silver	µg/g	0.5	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	
Thallium	µg/g	1	0.079	0.27	0.28	3.6	0.19	<0.050	0.1	0.062	0.081	0.11	<0.050	<0.4	
Uranium	µg/g	2.5	0.24	1.4	1.5	6.9	0.38	0.27	0.36	0.22	0.24	0.16	0.27	<0.5	
Vanadium	µg/g	86	15	60	69	14	45	13	26	12	13	8.9	11	12	
Zinc	µg/g	290	13	100	120	18	53	10	29	190	75	16	21	91	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH 8	BH 16		BH 20		BH 22		BH 26		BH 30	
Sample Identification			BH8 SS4	BH16 SS1	BH16 SS4	BH20 SS1	BH20 SS4	BH22 SS1	BH22 SS4	BH26 SS1	BH26 SS4	BH30 SS1	BH30 SS4
Sample Date			21-May-15	22-May-15	22-May-15	22-May-15	22-May-15	25-May-15	25-May-15	25-May-15	25-May-15	11-Jun-15	11-Jun-15
Sample Depth (m)			3.1 - 3.7	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9
Sampled By			PML	PML	PML	PML	PML	PML	PML	PML	PML	PML	PML
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat	Agat
Antimony	µg/g	1.3	<0.8	<0.8	<b>1.8</b>	<b>2</b>	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	11	9	<b>27</b>	10	5	<1	<1	<1	<1
Barium	µg/g	220	71	17	60	60	74	69	33	25	16	38	70
Beryllium	µg/g	2.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	36	6	<5	7	11	7	11	<5	<5	<5	<5	6
Boron (Hot Water Soluble)	µg/g	1.5	-	0.1	0.72	0.31	0.49	0.46	0.27	-	-	-	-
Cadmium	µg/g	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	24	10	41	9	21	11	8	6	5	9	11
Chromium VI	µg/g	0.66	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-
Cobalt	µg/g	22	6	1.6	7.3	2.9	9.4	5.8	4.7	2.4	3.5	3.1	4.2
Copper	µg/g	92	16	9	24	22	35	20	11	8	3	12	10
Cyanide	µg/g	0.051	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	-	-	-	-
Lead	µg/g	120	9	7	42	42	9	34	21	5	<1	7	2
Mercury	µg/g	0.27	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-	-
Molybdenum	µg/g	2	<0.5	<0.5	0.8	1.5	0.7	1.3	0.7	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	12	6	14	10	19	11	8	4	7	7	8
Selenium	µg/g	1.5	<0.4	<0.4	0.6	0.8	1.5	0.9	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	<0.5	<0.5	<0.5	<0.5	0.9	0.7	0.5	<0.5	<0.5	<0.5	0.6
Vanadium	µg/g	86	26	6	14	17	28	16	9	10	10	15	21
Zinc	µg/g	290	35	24	44	208	54	53	23	16	15	23	23

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH 34	S1	S2	S3	BH18-01	BH18-04	BH18-06	BH18-07	BH18-08
Sample Identification			BH34 SS1	S1	S2	S3	BH18-01 SS3	BH18-04 SS3	BH18-06 SS1	BH18-07 SS3	BH18-08 SS6
Sample Date			27-May-15	2-Jun-15	2-Jun-15	2-Jun-15	26-Jun-18	27-Jun-18	26-Jun-18	26-Jun-18	27-Jun-18
Sample Depth (m)			0.0 - 0.6	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	2.0 - 2.6	1.5 - 1.8	1.5 - 1.8	0.6 - 1.1	4.0 - 4.4
Sampled By			PML	PML	PML	PML	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Agat	Agat	Agat	Agat	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Antimony	µg/g	1.3	<0.8	<0.8	<0.8	<0.8	<0.20	<0.20	<0.20	<b>13</b>	<0.20
Arsenic	µg/g	18	<b>68</b>	2	2	2	<1.0	<1.0	3.3	9.4	1.2
Barium	µg/g	220	59	3	2	4	36	210	6	<b>830</b>	<b>230</b>
Beryllium	µg/g	2.5	0.7	<0.5	<0.5	<0.5	<0.20	0.78	<0.20	0.66	0.96
Boron	µg/g	36	<5	<5	<5	<5	<5.0	9.1	<5.0	21	9.4
Boron (Hot Water Soluble)	µg/g	1.5	-	<0.10	<0.10	<0.10	-	-	-	-	-
Cadmium	µg/g	1.2	<0.5	<0.5	<0.5	<0.5	<0.10	<0.10	<0.10	1.2	<0.10
Chromium	µg/g	70	7	8	6	8	8.6	58	22	26	43
Chromium VI	µg/g	0.66	-	<0.2	<0.2	<0.2	-	-	-	-	-
Cobalt	µg/g	22	13.1	0.9	0.7	1.9	2.6	13	1.9	8.4	15
Copper	µg/g	92	36	5	3	9	6	26	8.3	<b>270</b>	33
Cyanide	µg/g	0.051	-	<0.040	<0.040	<0.040	<0.01	<0.01	<0.01	0.03	-
Lead	µg/g	120	2	<1	<1	<1	2.2	7.1	4	<b>6800</b>	7.4
Mercury	µg/g	0.27	-	<0.10	<0.10	<0.10	<0.050	<0.050	<0.050	<b>1.4</b>	<0.050
Molybdenum	µg/g	2	0.9	<0.5	<0.5	<0.5	<0.50	0.51	<b>6.8</b>	<b>3.1</b>	<0.50
Nickel	µg/g	82	31	2	2	3	4.4	31	2.8	28	31
Selenium	µg/g	1.5	1.3	<0.4	<0.4	<0.4	<0.50	<0.50	<0.50	1.1	<0.50
Silver	µg/g	0.5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	0.37	<0.20
Thallium	µg/g	1	<0.4	<0.4	<0.4	<0.4	<0.050	0.27	<0.050	0.55	0.32
Uranium	µg/g	2.5	1.4	<0.5	<0.5	0.7	0.41	0.66	0.19	0.8	1.2
Vanadium	µg/g	86	13	2	1	3	20	58	<5.0	25	68
Zinc	µg/g	290	77	10	<5	<5	13	68	6.7	<b>1300</b>	82

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-09			BH18-10	BH18-17			BH18-26	SS18-01	SS18-02		
			BH18-09 SS3	QA/QC #6 (Duplicate)	Relative Percent Difference (%)	BH18-09 SS4	BH18-10 SS4	BH18-17 9.5'-11'	QA/QC #1 (Duplicate)	Relative Percent Difference (%)	BH18-26 14.5'-16.5'	SS18-01	SS18-02	
Sample Identification	Sample Date	Sample Depth (m)	Sampled By	Laboratory		27-Jun-18	27-Jun-18	27-Jun-18	27-Jun-18		12-Nov-18	12-Nov-18	14-Nov-18	11-Jul-18
			Cambium	Cambium		Cambium	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium	Cambium
			Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam
Antimony	µg/g	1.3	<b>1.4</b>	0.75	60.5	<0.20	<0.20	<0.20	<0.20	NC	<0.20	0.25	<0.20	<0.20
Arsenic	µg/g	18	5	2.8	56.4	<1.0	<1.0	<1.0	<1.0	NC	<1.0	2.8	<1.0	<1.0
Barium	µg/g	220	46	20	79	38	28	120	110	9	58	20	33	33
Beryllium	µg/g	2.5	0.25	<0.20	NC	<0.20	<0.20	0.34	0.35	2.9	<0.20	<0.20	<0.20	<0.20
Boron	µg/g	36	<5.0	<5.0	NC	<5.0	<5.0	6	5.9	1.7	<5.0	<5.0	<5.0	<5.0
Boron (Hot Water Soluble)	µg/g	1.5	-	-	NV	-	-	-	-	NV	-	-	-	-
Cadmium	µg/g	1.2	0.16	0.1	46.2	<0.10	<0.10	<0.10	<0.10	NC	<0.10	0.15	<0.10	<0.10
Chromium	µg/g	70	19	12	45	7	9	17	16	6	7.7	5.8	6.2	6.2
Chromium VI	µg/g	0.66	-	-	NV	-	-	-	-	NV	-	-	-	-
Cobalt	µg/g	22	6	2.2	92.7	2.7	3.5	5.6	5.3	5.5	3.2	3.1	2.4	2.4
Copper	µg/g	92	46	13	112	2.6	3.6	10	10	0	6.6	10	11	11
Cyanide	µg/g	0.051	<0.01	<0.01	NC	-	-	-	-	NV	-	0.02	<0.01	<0.01
Lead	µg/g	120	<b>510</b>	51	164	1.8	1.4	2.9	3	3.4	1.3	11	3.5	3.5
Mercury	µg/g	0.27	0.062	<0.050	NC	<0.050	<0.050	<0.050	<0.050	NC	<0.050	<0.050	<0.050	<0.050
Molybdenum	µg/g	2	<b>3.6</b>	<b>2.9</b>	21.5	<0.50	<0.50	<0.50	<0.50	NC	<0.50	<0.50	<0.50	<0.50
Nickel	µg/g	82	16	5.8	93.6	3.5	5	10	11	10	5.2	6.2	3.8	3.8
Selenium	µg/g	1.5	<0.50	<0.50	NC	<0.50	<0.50	<0.50	<0.50	NC	<0.50	<0.50	<0.50	<0.50
Silver	µg/g	0.5	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<0.20
Thallium	µg/g	1	0.14	<0.050	NC	<0.050	0.053	0.09	0.1	10.5	<0.050	0.072	0.05	0.05
Uranium	µg/g	2.5	0.75	0.37	67.9	1	0.55	1.3	0.66	65.3	0.38	0.38	0.47	0.47
Vanadium	µg/g	86	24	12	67	14	15	28	26	7	18	12	14	14
Zinc	µg/g	290	81	22	115	16	20	26	26	0	12	33	14	14

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value





**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	SS18-05			SS18-06	SS18-08A	SS18-08B	SS18-09	SS18-10	SS18-13	SS18-18	TP18-01	
Sample Identification			SS18-05	QA/QC #3	Relative Percent Difference (%)	SS18-06	SS18-08A	SS18-08B	SS18-09	SS18-10	SS18-13	SS18-18	TP18-01 10FT	
Sample Date			11-Jul-18	11-Jul-18		11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	13-Aug-18	12-Nov-18	14-Aug-18
Sample Depth (m)			0 - 0.15	0 - 0.15		0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	3.0
Sampled By			Cambium	Cambium		Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Antimony	µg/g	1.3	<0.20	<0.20	NC	<b>1.5</b>	<0.20	0.34	<0.20	<0.20	1.2	<0.20	<0.20	
Arsenic	µg/g	18	1	1	0	<b>96</b>	<1.0	2.3	<1.0	1.2	<b>110</b>	1.4	2.1	
Barium	µg/g	220	27	28	4	41	20	63	17	40	38	26	78	
Beryllium	µg/g	2.5	<0.20	<0.20	NC	0.37	<0.20	0.22	<0.20	<0.20	0.39	<0.20	0.3	
Boron	µg/g	36	<5.0	<5.0	NC	9.7	<5.0	7	<5.0	5.2	12	<5.0	<5.0	
Boron (Hot Water Soluble)	µg/g	1.5	-	-	NV	-	-	-	-	-	-	-	-	
Cadmium	µg/g	1.2	0.12	0.14	15.4	0.22	<0.10	<0.10	<0.10	0.19	0.23	<0.10	<0.10	
Chromium	µg/g	70	7.2	7.1	1.4	11	6.2	9.9	6.2	14	7.2	6	13	
Chromium VI	µg/g	0.66	-	-	NV	-	-	-	-	-	-	-	-	
Cobalt	µg/g	22	2.6	2.5	3.9	9.3	2.2	4.5	2.1	3.7	5.5	2.5	5.5	
Copper	µg/g	92	19	23	19	47	6.8	15	5.3	18	34	8	10	
Cyanide	µg/g	0.051	0.02	0.02	0	0.02	0.02	0.01	<0.01	0.04	-	-	0.01	
Lead	µg/g	120	14	20	35	42	9.3	15	1.3	31	33	6.9	3.8	
Mercury	µg/g	0.27	<0.050	<0.050	NC	0.061	<0.050	<0.050	<0.050	<0.050	0.11	<0.050	<0.050	
Molybdenum	µg/g	2	<0.50	<0.50	NC	1.3	<0.50	<0.50	<0.50	<0.50	<b>2.4</b>	<0.50	<0.50	
Nickel	µg/g	82	4.9	4.9	0.0	14	4.4	9.2	3.8	9.2	12	4.3	10	
Selenium	µg/g	1.5	<0.50	<0.50	NC	<b>3.5</b>	<0.50	<0.50	<0.50	<0.50	<b>9.2</b>	<0.50	<0.50	
Silver	µg/g	0.5	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Thallium	µg/g	1	0.063	0.073	14.7	0.33	<0.050	0.13	<0.050	0.088	0.46	<0.050	0.07	
Uranium	µg/g	2.5	0.35	0.27	25.8	0.48	0.3	0.4	0.39	0.31	0.36	0.38	0.83	
Vanadium	µg/g	86	15	14	7	20	14	21	13	22	13	12	23	
Zinc	µg/g	290	59	76	25	50	19	33	9.1	55	53	24	29	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 8: Soil Results - Metals**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP18-02	TP18-09	TP18-15		Relative Percent Difference (%)	TP18-16		TP18-17	TP18-19	
Sample Identification			TP18-02 6.5FT	TP18-09 0.5FT	TP18-15 11.5	QA/QC 2 (Duplicate)		TP18-16 5-6FT	TP18-16 11.5FT	TP18-17 6.5FT	TP18-19 2-4 FT	
Sample Date			14-Aug-18	14-Aug-18	13-Aug-18	13-Aug-18		13-Aug-18	13-Aug-18	13-Aug-18	14-Aug-18	13-Aug-18
Sample Depth (m)			2.0	0.15 m	3.5	3.5		1.5 - 1.8	3.5	2.0	0.6 - 1.2	
Sampled By			Cambium	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium	Cambium	
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam	
Antimony	µg/g	1.3	<0.20	<0.20	<0.20	<0.20	NC	0.75	<0.20	<0.20	<b>16</b>	
Arsenic	µg/g	18	<1.0	1.2	1.8	<1.0	NC	2.9	<1.0	<1.0	9.6	
Barium	µg/g	220	17	52	61	150	84	64	26	70	<b>270</b>	
Beryllium	µg/g	2.5	<0.20	0.23	1.1	<b>3.2</b>	97.7	0.36	<0.20	0.26	0.69	
Boron	µg/g	36	<5.0	<5.0	9.9	13	27.1	6.7	<5.0	6.3	14	
Boron (Hot Water Soluble)	µg/g	1.5	-	-	-	-	NV	-	-	-	-	
Cadmium	µg/g	1.2	<0.10	0.14	0.14	<b>1.3</b>	161.1	0.16	<0.10	<0.10	<b>1.8</b>	
Chromium	µg/g	70	4.5	12	19	40	71	17	4.9	13	26	
Chromium VI	µg/g	0.66	-	-	-	-	NV	-	-	-	-	
Cobalt	µg/g	22	1.8	3.9	8.5	<b>48</b>	140	6.1	2.3	5.4	7.8	
Copper	µg/g	92	4.1	21	12	29	83	25	2.8	12	<b>280</b>	
Cyanide	µg/g	0.051	<0.01	<0.01	<0.01	<0.01	NC	<0.01	<0.01	<0.01	-	
Lead	µg/g	120	<1.0	24	3	7	80	37	11	3.5	<b>810</b>	
Mercury	µg/g	0.27	<0.050	<0.050	<0.050	<0.050	NC	0.062	<0.050	<0.050	-	
Molybdenum	µg/g	2	<0.50	<0.50	0.64	<0.50	NC	0.73	<0.50	<0.50	<b>2.8</b>	
Nickel	µg/g	82	2.8	7.2	22	<b>84</b>	117	13	4.9	9.9	25	
Selenium	µg/g	1.5	<0.50	<0.50	<0.50	<0.50	NC	<0.50	<0.50	<0.50	1.2	
Silver	µg/g	0.5	<0.20	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<b>1.2</b>	
Thallium	µg/g	1	<0.050	0.063	0.12	0.26	73.7	0.099	<0.050	0.099	0.24	
Uranium	µg/g	2.5	0.33	0.42	0.82	<b>3.1</b>	116.3	0.85	0.59	0.43	0.56	
Vanadium	µg/g	86	12	22	28	61	74	26	12	26	23	
Zinc	µg/g	290	8.2	38	43	200	129	54	22	28	<b>710</b>	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum (Range for pH)	TP02		TP03			TP04			TP05	BH01	BH101		
Sample Identification				TP2 SA4	TP2 SA6	TP3 SA3	Dup 1 (Duplicate)	Relative Percent Difference (%)	TP3 SA5	TP4 SA4	TP4 SA7	TP5 SA4	BH01 SA9	BH02 SA6		
Sample Date				12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13		12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	12-Jun-13	17-Jun-13	17-Jun-13
Sample Depth				2.0	3.0	1.5	1.5		2.5	2.0	3.5	2.0	5.94 - 6.71	3.66 - 4.42		
Sampled By				Pinchin	Pinchin	Pinchin	Pinchin		Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin		
Laboratory				Agat	Agat	Agat	Agat		Agat	Agat	Agat	Agat	Agat	Agat		
Electrical Conductivity	mS/cm	0.7	<b>2.9</b>	0.239	0.107	0.046	0.043	6.7	0.101	0.207	0.171	0.161	0.124	0.103		
Sodium Adsorption Ratio	N/A	5	3.8	0.162	0.098	0.305	0.385	23.2	1.56	2.45	1.55	2.11	0.545	0.18		
pH (<1.5 mbgs)	N/A	5 to 9	8.25	-	-	6.99	6.97	0.3	-	-	-	-	-	-		
pH (>1.5 mbgs)	N/A	5 to 11	8.54	7.59	8	-	-	-	7.96	7.66	7.72	7.65	8.19	8.46		

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH102	BH04	BH05	BH103	BH07		Relative Percent Difference (%)	BH105	BH114	BH113	BH11	BH120		
Sample Identification			BH03 SA4	BH04 SA4	BH05 SA4	BH06 SA7	BH07 SA5	DUP 2 (Duplicate )		BH08 SA5	BH09 SA5	BH10 SA7	BH11 SA8	BH12 SA2		
Sample Date			17-Jun-13	17-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13		18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	18-Jun-13	19-Jun-13	18-Jun-13
Sample Depth			2.13 - 2.90	2.90 - 3.66	2.13 - 2.90	4.42 - 5.18	2.90 - 3.66	4.42 - 5.18		2.90 - 3.66	4.42 - 5.18	2.90 - 3.66	2.90 - 3.66	4.42 - 5.18	5.18 - 5.94	0.51 - 1.37
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin		Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat		Agat	Agat	Agat	Agat	Agat	Agat	Agat
Electrical Conductivity	mS/cm	0.7	0.111	0.105	0.128	0.153	0.085	0.084	1.2	0.238	0.24	0.214	0.193	0.425		
Sodium Adsorption Ratio	N/A	5	0.123	0.798	2.93	1.44	0.369	0.352	4.7	0.505	0.235	0.313	2.92	0.226		
pH (<1.5 mbgs)	N/A	5 to 9	-	-	-	-	-	-	-	-	-	-	-	-		
pH (>1.5 mbgs)	N/A	5 to 11	8.07	7.81	8.1	8.16	8.21	8.23	0.2	8.09	8.51	8.28	8.46	7.88		

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH13	BH14	BH123	BH16	BH117		BH107	BH19	BH111	
Sample Identification			BH13 SA5	BH14 SA2	BH15 SA5	BH16 SA3	BH17 SA4	DUP 3 (Duplicate)	Relative Percent Difference (%)	BH18 SA7	BH19 SA9	BH20 SA3
Sample Date			19-Jun-13	18-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13	19-Jun-13		20-Jun-13	20-Jun-13	20-Jun-13
Sample Depth			2.90 - 3.66	0.51 - 1.37	2.90 - 3.66	1.37 - 2.13	2.13 - 2.90	1.37 - 2.13		4.42 - 5.18	5.94 - 6.71	1.37 - 2.13
Sampled By			Pinchin	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin		Pinchin	Pinchin	Pinchin
Laboratory			Agat	Agat	Agat	Agat	Agat	Agat		Agat	Agat	Agat
Electrical Conductivity	mS/cm	0.7	0.136	0.134	0.068	0.079	0.05	0.054	7.7	0.11	0.1	<b>1.39</b>
Sodium Adsorption Ratio	N/A	5	0.132	0.133	0.068	0.097	0.135	0.152	11.8	0.868	0.488	0.2
pH (<1.5 mbgs)	N/A	5 to 9	-	7.89	-	8.14	-	-	-	-	-	5.02
pH (>1.5 mbgs)	N/A	5 to 11	8.35	-	8.25	8.14	8.44	8.54	1.2	8.22	8.28	5.02

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable





**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH14-01		BH14-02		BH14-03	BH14-04	BH14-05	BH14-06	BH14-07	MOUND 1	
Sample Identification			BH14-01-2	BH14-01-8	BH14-02-3	BH14-02-8	BH14-03-8	BH14-04-5	BH14-05-1	BH14-06-1	BH14-07-1	MOUND 1	
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	28-Apr-14
Sample Depth			0.8 - 1.4	5.3 - 5.9	3.0 - 3.7	6.9 - 7.5	6.9 - 7.5	3.0 - 3.7	0.0 - 0.6	0.0 - 0.6	0.0 - 0.6	0 - 0.15	
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	
Electrical Conductivity	mS/cm	0.7	0.24	0.12	0.56	0.12	0.11	0.092	0.23	0.1	0.24	0.46	
Sodium Adsorption Ratio	N/A	5	0.26	0.34	0.27	0.39	0.34	0.36	0.2	0.32	0.21	0.15	
pH (<1.5 mbgs)	N/A	5 to 9	7.51	-	-	-	-	-	7.32	7.61	7.4	7.15	
pH (>1.5 mbgs)	N/A	5 to 11	-	7.98	7.07	7.94	7.98	7.81	-	-	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	MOUND 2	MOUND 3		MOUND 4	TP1		TP2	TP2		Relative Percent Difference (%)	
Sample Identification			MOUND 2	MOUND 3A	MOUND 3B	MOUND 4	TP1-1	TP1-3	TP2-1	TP2-3	TP2-10 (Duplicate)		
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14		28-Apr-14
Sample Depth			0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	1.4 - 1.8		
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec		
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam		
Electrical Conductivity	mS/cm	0.7	<b>2.3</b>	0.097	0.093	0.12	0.12	0.4	0.051	0.09	0.085	5.7	
Sodium Adsorption Ratio	N/A	5	0.056	0.32	0.35	0.29	0.28	0.15	0.46	0.32	0.33	3.1	
pH (<1.5 mbgs)	N/A	5 to 9	7.12	7.26	7.28	7.3	7.27	7.61	7.78	7.6	7.57	0.4	
pH (>1.5 mbgs)	N/A	5 to 11	-	-	-	-	-	7.61	-	7.6	7.57	0.4	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP3			TP4		TP5		TP6		TP7	
Sample Identification			TP3-1	TP3-2	TP3-3	TP4-1	TP4-3	TP5-1	TP5-3	TP6-1	TP6-3	TP7-1	
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	29-Apr-14	29-Apr-14
Sample Depth			0.0 - 0.6	0.6 - 1.2	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.4 - 1.8	0.0 - 0.6	1.2 - 1.8
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Electrical Conductivity	mS/cm	0.7	0.072	0.056	0.096	0.045	0.041	0.089	0.33	0.1	0.2	0.083	
Sodium Adsorption Ratio	N/A	5	0.38	0.43	0.31	0.49	0.49	0.34	0.18	0.32	1.1	0.44	
pH (<1.5 mbgs)	N/A	5 to 9	7.54	7.63	7.45	7.3	7.58	7.31	7.49	7.59	7.44	7.64	
pH (>1.5 mbgs)	N/A	5 to 11	-	-	7.45	-	7.58	-	7.49	-	7.44	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP8										
			TP8-1	TP8-2	TP8-10 (Duplicate)	Relative Percent Difference (%)	TP18-08 2-4	TP18-08 A	TP18-18 B	TP18-18 C	Average	BH19-03 0.60-1.20m (Resample of TP8-2)	TP8-3
Sample Identification			29-Apr-14	29-Apr-14	29-Apr-14			13-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18	N/A	23-Sep-19
Sample Date			0.0 - 0.6	0.6 - 1.2	0.6 - 1.2		0.6 - 1.2 m	0.6 - 1.2 m	0.6 - 1.2 m	0.6 - 1.2 m	0.6 - 1.2 m	0.6 - 1.2 m	1.4 - 1.8
Sample Depth			Stantec	Stantec	Stantec		Cambium	Cambium	Cambium	Cambium	N/A	Cambium	Stantec
Sampled By			Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam	N/A	Maxxam	Maxxam
Laboratory													
Electrical Conductivity	mS/cm	0.7	0.13	<b>2.4</b>	<b>2.4</b>	0	-	-	-	-	-	-	<b>2.2</b>
Sodium Adsorption Ratio	N/A	5	0.29	0.23	0.22	4.4	-	-	-	-	-	-	0.11
pH (<1.5 mbgs)	N/A	5 to 9	7.75	<b>4.11</b>	<b>4.38</b>	6.4	6.45	7.35	7.27	7.2	<b>4.7</b>	7.44	7.35
pH (>1.5 mbgs)	N/A	5 to 11	-	-	-	-	-	-	-	-	-	-	7.35

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP9		SS1	SS2	SS3	SS4	BH 16		BH 20		
Sample Identification			TP9-1	TP9-3	SS-1	SS-2	SS-3	SS-4	BH16 SS1	BH16 SS4	BH20 SS1	BH20 SS4	
Sample Date			29-Apr-14	29-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	30-Apr-14	22-May-15	22-May-15	22-May-15	22-May-15
Sample Depth			0.0 - 0.6	1.4 - 2.0	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0.0 - 0.6	2.3 - 2.9	0.0 - 0.6	2.3 - 2.9
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	Stantec	PML	PML	PML	PML
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Agat	Agat	Agat	Agat
Electrical Conductivity	mS/cm	0.7	0.036	0.1	0.12	0.1	0.12	0.069	0.113	<b>0.731</b>	0.223	<b>2.31</b>	
Sodium Adsorption Ratio	N/A	5	0.55	0.32	0.39	0.31	0.29	0.38	0.094	0.358	0.064	0.23	
pH (<1.5 mbgs)	N/A	5 to 9	7.08	7.43	7.44	7.33	5.68	7.59	8.25	-	7.54	-	
pH (>1.5 mbgs)	N/A	5 to 11	-	7.43	-	-	-	-	-	7.4	-	7.1	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable





**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH 22		S1	S2	S3	BH18-01	BH18-04	BH18-06	BH18-07
Sample Identification			BH22 SS1	BH22 SS4	S1	S2	S3	BH18-01 SS3	BH18-04 SS3	BH18-06 SS1	BH18-07 SS3
Sample Date			25-May-15	25-May-15	2-Jun-15	2-Jun-15	2-Jun-15	26-Jun-18	27-Jun-18	26-Jun-18	26-Jun-18
Sample Depth			0.0 - 0.6	2.3 - 2.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	2.0 - 2.6 m	1.5 - 1.8 m	1.5 - 1.8 m	0.6 - 1.1 m
Sampled By			PML	PML	PML	PML	PML	Cambium	Cambium	Cambium	Cambium
Laboratory			Agat	Agat	Agat	Agat	Agat	Maxxam	Maxxam	Maxxam	Maxxam
Electrical Conductivity	mS/cm	0.7	0.232	0.216	0.058	0.036	0.038	0.095	0.42	0.095	0.52
Sodium Adsorption Ratio	N/A	5	0.042	0.24	0.261	0.147	0.277	0.35	3.8	0.58	0.2
pH (<1.5 mbgs)	N/A	5 to 9	7.35	-	7.93	7.5	7.29	-	-	-	-
pH (>1.5 mbgs)	N/A	5 to 11	-	7.46	-	-	-	-	-	-	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-09		SS18-01	SS18-02	SS18-05		SS18-06	SS18-08A	SS18-08B	SS18-09				
Sample Identification			BH18-09 SS3	QA/QC #6 (Duplicate)	Relative Percent Difference (%)	SS18-01	SS18-02	SS18-05	QA/QC #3	Relative Percent Difference (%)	SS18-06	SS18-08A	SS18-08B	SS18-09		
Sample Date			27-Jun-18	27-Jun-18		11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18		11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18	11-Jul-18
Sample Depth			3.0 - 3.5 m	3.0 - 3.5 m		0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15		0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15
Sampled By			Cambium	Cambium		Cambium	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Electrical Conductivity	mS/cm	0.7	0.16	0.26	47.6	0.11	0.076	0.11	0.1	9.5	0.13	0.099	0.11	0.055		
Sodium Adsorption Ratio	N/A	5	0.87	0.68	24.5	0.29	0.35	0.28	0.29	3.5	0.26	0.3	0.29	0.43		
pH (<1.5 mbgs)	N/A	5 to 9	-	-	-	-	-	-	-	-	-	-	-	-		
pH (>1.5 mbgs)	N/A	5 to 11	-	-	-	-	-	-	-	-	-	-	-	-		

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	SS18-10	TP18-01	TP18-02	TP18-03	TP18-05	TP18-06	TP18-07	TP18-08	TP18-09	
Sample Identification			SS18-10	TP18-01 10	TP18-02 6.5	TP18-03 4.5-6	TP18-05 4.5-6	TP18-06 4.5-6	TP18-07 4.5-6	TP18-08 10	TP18-09 0.5	
Sample Date			11-Jul-18	14-Aug-18	14-Aug-18	14-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18	14-Aug-18
Sample Depth			0 - 0.15	3.0 m	2.0 m	1.4 - 1.8 m	1.4 - 1.8 m	1.4 - 1.8 m	1.4 - 1.8 m	1.4 - 1.8 m	3.0 m	0.15 m
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Electrical Conductivity	mS/cm	0.7	0.12	0.66	0.045	0.17	<b>2.3</b>	0.38	<b>2.4</b>	0.43	0.1	
Sodium Adsorption Ratio	N/A	5	0.28	0.4	0.49	-	-	-	-	-	0.31	
pH (<1.5 mbgs)	N/A	5 to 9	-	-	-	-	-	-	-	-	-	
pH (>1.5 mbgs)	N/A	5 to 11	-	-	-	-	-	-	-	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 9: Soil Results - Inorganics**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP18-14			TP18-15			TP18-16		TP18-17	
Sample Identification			TP18-14 10	QA/QC 1 (Duplicate)	Relative Percent Difference (%)	TP18-15 11.5	QA/QC 2 (Duplicate)	Relative Percent Difference (%)	TP18-16 5-6	TP18-16 11.5	TP18-17 6.5	
Sample Date			13-Aug-18	13-Aug-18		13-Aug-18	13-Aug-18		13-Aug-18	13-Aug-18	13-Aug-18	14-Aug-18
Sample Depth			3.0 m	3.0 m		3.5 m	3.5 m		1.5 - 1.8 m	3.5 m	2.0 m	
Sampled By			Cambium	Cambium		Cambium	Cambium		Cambium	Cambium	Cambium	
Laboratory			Maxxam	Maxxam		Maxxam	Maxxam		Maxxam	Maxxam	Maxxam	
Electrical Conductivity	mS/cm	0.7	<b>2.3</b>	<b>2.5</b>	8.3	<b>2.9</b>	<b>2.4</b>	18.9	0.16	0.42	0.4	
Sodium Adsorption Ratio	N/A	5	-	-	-	1.2	0.23	135.7	0.27	0.49	0.19	
pH (<1.5 mbgs)	N/A	5 to 9	-	-	-	-	-	-	-	-	-	
pH (>1.5 mbgs)	N/A	5 to 11	-	-	-	-	-	-	-	-	-	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed or not applicable



**Table 10: Soil Results - Polychlorinated Biphenyls**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	BH107	BH19	BH111	BH14-01	MOUND 1
Sample Identification				BH18 SA7	BH19 SA9	BH20 SA3	BH14-01-2	MOUND 1
Sample Date				20-Jun-13	20-Jun-13	20-Jun-13	28-Apr-14	28-Apr-14
Sample Depth				4.42-5.18	5.94-6.71	1.37-2.13	0.8 - 1.4	0-0.15
Sampled By				Pinchin	Pinchin	Pinchin	Stantec	Stantec
Laboratory				Agat	Agat	Agat	Maxxam	Maxxam
Polychlorinated Biphenyls	µg/g	0.3	<0.1	<0.1	<0.1	<0.1	<0.010	<0.010

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed





**Table 10: Soil Results - Polychlorinated Bipheny**

Sample Location	Units	Table 9 SCS <sup>1</sup>	MOUND 2	MOUND 3	MOUND 3	MOUND 4	TP1
Sample Identification			MOUND 2	MOUND 3A	MOUND 3B	MOUND 4	TP1-1
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14
Sample Depth			0-0.15	0-0.15	0-0.15	0-0.15	0.0 - 0.6
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Polychlorinated Biphenyls			µg/g	0.3	<0.010	<0.010	<0.010

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed



**Table 10: Soil Results - Polychlorinated Bipheny**

Sample Location	Units	Table 9 SCS <sup>1</sup>	TP2		TP3	TP3	TP4	TP5
Sample Identification			TP2-3	TP2-10 (Duplicate)	TP3-2	TP3-3	TP4-3	TP5-3
Sample Date			28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14	28-Apr-14
Sample Depth			1.4 - 1.8	1.4 - 1.8	0.6 - 1.2	1.4 - 1.8	1.4 - 1.8	1.4 - 1.8
Sampled By			Stantec	Stantec	Stantec	Stantec	Stantec	Stantec
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Polychlorinated Biphenyls	µg/g	0.3	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed



**Table 10: Soil Results - Polychlorinated Bipheny**

Sample Location			TP6	TP8		TP8	BH18-12	
Sample Identification			TP6-3	TP8-2	TP8-10 (Duplicate)	TP8-3	BH18-12 SS2	QA/QC #4 (Duplicate)
Sample Date	<b>Units</b>	<b>Table 9 SCS <sup>1</sup></b>	29-Apr-14	29-Apr-14	29-Apr-14	29-Apr-14	27-Jun-18	27-Jun-18
Sample Depth			1.2 - 1.8	0.6 - 1.2	0.6 - 1.2	1.4 - 1.8	0.3 - 0.8 m	0.3 - 0.8 m
Sampled By			Stantec	Stantec	Stantec	Stantec	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Polychlorinated Biphenyls			µg/g	0.3	<0.010	<0.010	<0.010	<0.010

Notes:

1. Table 9 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

Depth in meters below ground surface (mbgs)

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

N/A - not applicable

NV - no value

"-" indicates parameter not analyzed



**Table 11: Groundwater Results - Petroleum Hydrocarbons**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	BH101			BH102			BH103	
Sample Identification				BH02	DUP4 (Duplicate)	MW101	BH03	MW102	QA/QC 1 (Duplicate)	BH06	MW103
Sample Date				3-Jul-13	3-Jul-13	28-May-18	3-Jul-13	28-May-18	28-May-18	3-Jul-13	29-May-18
Sampled By				Pinchin	Pinchin	Cambium	Pinchin	Cambium	Cambium	Pinchin	Cambium
Laboratory	Agat	Agat	Maxxam	Agat	Maxxam	Maxxam	Agat	Maxxam			
Benzene	µg/L	44	2.4	-	-	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
Ethylbenzene	µg/L	1800	12	-	-	<0.20	<0.1	<0.20	<0.20	<0.1	<0.20
Toluene	µg/L	14000	53	-	-	<0.20	<0.2	<0.20	<0.20	0.22	<0.20
Xylene mixture	µg/L	3300	1.9	-	-	<0.20	<0.3	<0.20	<0.20	<0.3	<0.20
F1-BTEX (C6-C10)	µg/L	420	<25	<25	<25	-	<25	-	-	<25	<25
F2 (C10 to C16)	µg/L	150	<b>1000</b>	<100	<100	-	<100	-	-	<100	<100
F3 (C16 to C34)	µg/L	500	<b>580</b>	<100	<100	-	<100	-	-	<100	<200
F4 (C34 to C50)	µg/L	500	<200	<100	<100	-	<100	-	-	<100	<200

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 11: Groundwater Results - Petroleum Hydrocarbc**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH105		BH107		BH111		
Sample Identification			BH08	MW105	BH18	MW107	BH20	DUP5 (Duplicate)	MW111
Sample Date			3-Jul-13	28-May-18	3-Jul-13	29-May-18	3-Jul-13	3-Jul-13	29-May-18
Sampled By			Pinchin	Cambium	Pinchin	Cambium	Pinchin	Pinchin	Cambium
Laboratory			Agat	Maxxam	Agat	Maxxam	Agat	Agat	Maxxam
Benzene	µg/L	44	<0.2	<0.20	<0.2	<0.20	<0.2	<0.2	<0.20
Ethylbenzene	µg/L	1800	<0.1	<0.20	<0.1	<0.20	<0.1	<0.1	<0.20
Toluene	µg/L	14000	<0.2	<0.20	0.24	<0.20	<0.2	<0.2	<0.20
Xylene mixture	µg/L	3300	<0.3	<0.20	<0.3	<0.20	<0.3	<0.3	<0.20
F1-BTEX (C6-C10)	µg/L	420	<25	<25	<25	-	<25	<25	-
F2 (C10 to C16)	µg/L	150	<100	<100	<100	-	<100	<100	-
F3 (C16 to C34)	µg/L	500	<100	<200	<100	-	<100	<100	-
F4 (C34 to C50)	µg/L	500	<100	<200	<100	-	<100	<100	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or du





**Table 11: Groundwater Results - Petroleum Hydrocarbc**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH113			BH114		BH117		BH120	
Sample Identification			BH10	MW113	QA/QC 4 (Duplicate)	BH09	MW114	BH17	MW117	BH12	MW120
Sample Date			3-Jul-13	30-May-18	30-May-18	3-Jul-13	30-May-18	3-Jul-13	29-May-18	3-Jul-13	29-May-18
Sampled By			Pinchin	Cambium	Cambium	Pinchin	Cambium	Pinchin	Cambium	Pinchin	Cambium
Laboratory			Agat	Maxxam	Maxxam	Agat	Maxxam	Agat	Maxxam	Agat	Maxxam
Benzene	µg/L	44	<0.2	<0.20	<0.20	<0.2	<0.20	<0.2	<0.20	<0.2	<0.20
Ethylbenzene	µg/L	1800	<0.1	<0.20	<0.20	<0.1	<0.20	<0.1	<0.20	<0.1	<0.20
Toluene	µg/L	14000	<0.2	<0.20	<0.20	0.35	<0.20	<0.2	<0.20	<0.2	<0.20
Xylene mixture	µg/L	3300	<0.3	<0.40	<0.40	<0.3	<0.40	<0.3	<0.40	<0.3	<0.40
F1-BTEX (C6-C10)	µg/L	420	<25	<25	<25	<25	<25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	<100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	<100	<200	<200	<100	<200	<100	<200	<100	<200
F4 (C34 to C50)	µg/L	500	<100	<200	<200	<100	<200	<100	<200	<100	<200

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or du



**Table 11: Groundwater Results - Petroleum Hydrocarbc**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH123		BH18-01			BH18-05	BH18-06		BH18-07	
Sample Identification			BH15	MW123	BH18-01	QA/QC #1	Relative Percent Difference (%)	BH18-05	BH18-06	BH18-06	BH18-07	
Sample Date			3-Jul-13	29-May-18	28-Aug-18	28-Aug-18		28-Aug-18	28-Aug-18	28-Aug-18	15-Feb-19	28-Aug-18
Sampled By			Pinchin	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory	Agat	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam		
Benzene	µg/L	44	<0.2	<0.20	0.56	0.56	0	<0.20	<0.20	<0.20	<0.20	
Ethylbenzene	µg/L	1800	<0.1	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<0.20	
Toluene	µg/L	14000	0.93	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20	<0.20	
Xylene mixture	µg/L	3300	<0.3	<0.40	<0.40	<0.40	NC	<0.40	<0.40	<0.20	<0.40	
F1-BTEX (C6-C10)	µg/L	420	<25	<25	<25	<25	NC	<25	<25	-	<25	
F2 (C10 to C16)	µg/L	150	<100	<100	<100	<100	NC	<100	<100	-	<b>1000</b>	
F3 (C16 to C34)	µg/L	500	<100	<200	<200	<200	NC	<200	<200	-	<b>580</b>	
F4 (C34 to C50)	µg/L	500	<100	<200	<200	<200	NC	<200	<200	-	<200	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or du



**Table 11: Groundwater Results - Petroleum Hydrocarbc**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-11	BH18-12	BH18-13			BH18-15	BH18-16	
Sample Identification			BH18-11	BH18-12	BH18-13	QA/QC#1	Relative Percent Difference (%)	BH18-13	BH18-15	BH18-16
Sample Date			28-Aug-18	28-Aug-18	13-Dec-18	13-Dec-18		15-Feb-19	14-Dec-18	13-Dec-18
Sampled By			Cambium	Cambium	Cambium	Cambium		Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam		Maxxam	Maxxam	Maxxam
Benzene	µg/L	44	<0.20	<0.20	1.1	1.1	0	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	1800	<0.20	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20
Toluene	µg/L	14000	<0.20	<0.20	<0.20	<0.20	NC	<0.20	<0.20	<0.20
Xylene mixture	µg/L	3300	<0.40	<0.40	<0.40	<0.40	NC	<0.40	<0.40	<0.40
F1-BTEX (C6-C10)	µg/L	420	<25	<25	-	-	-	<25	-	-
F2 (C10 to C16)	µg/L	150	<100	<100	-	-	-	-	-	-
F3 (C16 to C34)	µg/L	500	<200	<200	-	-	-	-	-	-
F4 (C34 to C50)	µg/L	500	<200	<200	-	-	-	-	-	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or du



**Table 11: Groundwater Results - Petroleum Hydrocarbc**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-17			BH18-18	BH18-19			BH19-01
Sample Identification			BH18-17	BH18-17	BH18-17	BH18-18	BH18-19	BH18-19	BH18-19	BH19-01
Sample Date			14-Dec-18	16-Jan-19	15-Feb-19	13-Dec-18	14-Dec-18	16-Jan-19	15-Feb-19	24-Sep-19
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Benzene	µg/L	44	1.9	0.91	0.78	<0.20	2.4	<0.2	0.54	<0.20
Ethylbenzene	µg/L	1800	0.63	<0.2	<0.20	12	0.66	<0.2	<0.2	<0.20
Toluene	µg/L	14000	2.5	0.49	0.63	<0.20	3.4	1.6	53	0.28
Xylene mixture	µg/L	3300	1.9	<0.4	<0.40	<0.40	1.2	<0.4	<0.40	<0.40
F1-BTEX (C6-C10)	µg/L	420	-	-	<25	<25	-	-	<25	<25
F2 (C10 to C16)	µg/L	150	-	-	<100	140	-	-	-	-
F3 (C16 to C34)	µg/L	500	-	-	<200	<200	-	-	-	-
F4 (C34 to C50)	µg/L	500	-	-	<200	<200	-	-	-	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or du



**Table 11: Groundwater Results - Petroleum Hydrocarbc**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH19-02		
			BH19-02	QA/QC	Relative Percent Difference (%)
Sample Identification					
Sample Date			24-Sep-19	24-Sep-19	
Sampled By			Cambium	Cambium	
Laboratory			Maxxam	Maxxam	
Benzene	µg/L	44	0.36	0.35	3
Ethylbenzene	µg/L	1800	<0.20	<0.20	NC
Toluene	µg/L	14000	0.65	0.62	5
Xylene mixture	µg/L	3300	0.48	0.45	6
F1-BTEX (C6-C10)	µg/L	420	<25	<25	NC
F2 (C10 to C16)	µg/L	150	-	-	-
F3 (C16 to C34)	µg/L	500	-	-	-
F4 (C34 to C50)	µg/L	500	-	-	-

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or du





**Table 12: Groundwater Results -  
 Volatile Organic Compounds**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	BH101			BH102			Relative Percent Difference (%)
				BH02	DUP4 (Duplicate)	MW101	BH03	MW102	QA/QC 1 (Duplicate)	
				3-Jul-13	3-Jul-13	28-May-18	3-Jul-13	28-May-18	28-May-18	
				Pinchin	Pinchin	Cambium	Pinchin	Cambium	Cambium	
Sample Identification	Sample Date	Sampled By	Laboratory	Agat	Agat	Maxxam	Agat	Maxxam	Maxxam	
Acetone	µg/L	100000	25	<1	<9	<10	<2	<10	<10	NC
Bromodichloromethane	µg/L	67000	<0.5	<0.2	<0.2	<0.50	<0.2	<0.50	<0.50	NC
Bromoform	µg/L	380	<1.0	<0.1	<0.1	<1.0	<0.1	<1.0	<1.0	NC
Bromomethane	µg/L	5.6	<0.5	<0.2	<0.2	<0.50	<0.2	<0.50	<0.50	NC
Carbon Tetrachloride	µg/L	0.79	<0.2	<0.2	<0.2	<0.20	<0.2	<0.20	<0.20	NC
Chlorobenzene	µg/L	500	<0.2	<0.1	<0.1	<0.20	<0.1	<0.20	<0.20	NC
Chloroform	µg/L	2.4	<0.2	<0.2	<0.2	<0.20	<0.2	<0.20	<0.20	NC
Dibromochloromethane	µg/L	65000	<0.5	<0.1	<0.1	<0.50	<0.1	<0.50	<0.50	NC
1,2-Dichlorobenzene	µg/L	4600	<0.5	<0.1	<0.1	<0.50	<0.1	<0.50	<0.50	NC
1,3-Dichlorobenzene	µg/L	7600	<0.5	<0.1	<0.1	<0.50	<0.1	<0.50	<0.50	NC
1,4-Dichlorobenzene	µg/L	8	<0.5	<0.1	<0.1	<0.50	<0.1	<0.50	<0.50	NC
Dichlorodifluoromethane	µg/L	3500	<1.0	<0.2	<0.2	<1.0	<0.2	<1.0	<1.0	NC
1,1-Dichloroethane	µg/L	320	<0.3	<0.3	<0.3	<0.20	<0.3	<0.20	<0.20	NC
1,2-Dichloroethane	µg/L	1.6	<0.5	<0.2	<0.2	<0.50	<0.2	<0.50	<0.50	NC
1,1-Dichloroethylene	µg/L	1.6	<0.3	<0.3	<0.3	<0.20	<0.3	<0.20	<0.20	NC
Cis- 1,2-Dichloroethylene	µg/L	1.6	1.3	<0.2	<0.2	<0.50	<0.2	<0.50	<0.50	NC
Trans- 1,2-Dichloroethylene	µg/L	1.6	<0.5	<0.2	<0.2	<0.50	<0.2	<0.50	<0.50	NC
1,2-Dichloropropane	µg/L	16	<0.2	<0.2	<0.2	<0.20	<0.2	<0.20	<0.20	NC
1,3-Dichloropropane	µg/L	5.2	<0.5	<0.2	<0.2	<0.50	<0.2	<0.50	<0.50	NC
Ethylene Dibromide	µg/L	0.25	<0.2	<0.1	<0.1	<0.20	<0.1	<0.20	<0.20	NC
n-Hexane	µg/L	51	<1.0	<0.2	<0.2	<1.0	<0.2	<1.0	<1.0	NC
Methylene Chloride	µg/L	610	<2.0	<0.3	<0.3	<2.0	<0.3	<2.0	<2.0	NC
Methyl Ethyl Ketone	µg/L	470000	74	<1	<9	<10	<2	<10	<10	NC
Methyl Isobutyl Ketone	µg/L	140000	<10	<1	<9	<5.0	<2	<5.0	<5.0	NC
Methyl tert-butyl Ether	µg/L	190	1.9	<0.2	<0.2	<0.50	<0.2	1.5	2.2	38
Styrene	µg/L	1300	<0.5	<0.1	<0.1	<0.50	<0.1	<0.50	<0.50	NC
1,1,1,2-Tetrachloroethane	µg/L	3.3	<0.5	<0.1	<0.1	<0.50	<0.1	<0.50	<0.50	NC
1,1,1,2,2-Tetrachloroethane	µg/L	3.2	<0.5	<0.1	<0.1	<0.50	<0.1	<0.50	<0.50	NC
Tetrachloroethylene	µg/L	1.6	<0.2	<0.2	<0.2	<0.20	<0.2	<0.20	<0.20	NC
1,1,1-Trichloroethane	µg/L	640	<0.3	<0.3	<0.3	<0.20	<0.3	<0.20	<0.20	NC
1,1,2-Trichloroethane	µg/L	4.7	<0.5	<0.2	<0.3	<0.50	<0.3	<0.50	<0.50	NC
Trichloroethylene	µg/L	1.6	<b>2.2</b>	<0.2	<0.2	<0.20	<0.2	<0.20	<0.20	NC
Trichlorofluoromethane	µg/L	2000	<0.5	<0.4	<0.4	<0.50	<0.4	<0.50	<0.50	NC
Vinyl Chloride	µg/L	0.5	<0.2	<0.17	<0.17	<0.20	<0.17	<0.20	<0.20	NC

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 12: Groundwater Results -  
 Volatile Organic Compounds**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH103		BH105		BH107	
			BH06	MW103	BH08	MW105	BH18	MW107
Sample Identification			3-Jul-13	29-May-18	3-Jul-13	28-May-18	3-Jul-13	29-May-18
Sample Date			Pinchin	Cambium	Pinchin	Cambium	Pinchin	Cambium
Sampled By			Agat	Maxxam	Agat	Maxxam	Agat	Maxxam
Laboratory								
Acetone	µg/L	100000	<3	25	<1	<10	<7	<10
Bromodichloromethane	µg/L	67000	<0.2	<0.50	<0.2	<0.50	<0.2	<0.50
Bromoform	µg/L	380	<0.1	<1.0	<0.1	<1.0	<0.1	<1.0
Bromomethane	µg/L	5.6	<0.2	<0.50	<0.2	<0.50	<0.2	<0.50
Carbon Tetrachloride	µg/L	0.79	<0.2	<0.20	<0.2	<0.20	<0.2	<0.20
Chlorobenzene	µg/L	500	<0.1	<0.20	<0.1	<0.20	<0.1	<0.20
Chloroform	µg/L	2.4	<0.2	<0.20	<0.2	<0.20	<0.2	<0.20
Dibromochloromethane	µg/L	65000	<0.1	<0.50	<0.1	<0.50	<0.1	<0.50
1,2-Dichlorobenzene	µg/L	4600	<0.1	<0.50	<0.1	<0.50	<0.1	<0.50
1,3-Dichlorobenzene	µg/L	7600	<0.1	<0.50	<0.1	<0.50	<0.1	<0.50
1,4-Dichlorobenzene	µg/L	8	<0.1	<0.50	<0.1	<0.50	<0.1	<0.50
Dichlorodifluoromethane	µg/L	3500	<0.2	<1.0	<0.2	<1.0	<0.2	<1.0
1,1-Dichloroethane	µg/L	320	<0.3	<0.20	<0.3	<0.20	<0.3	<0.20
1,2-Dichloroethane	µg/L	1.6	<0.2	<0.50	<0.2	<0.50	<0.2	<0.50
1,1-Dichloroethylene	µg/L	1.6	<0.3	<0.20	<0.3	<0.20	<0.3	<0.20
Cis- 1,2-Dichloroethylene	µg/L	1.6	<0.2	<0.50	<0.2	<0.50	<0.2	<0.50
Trans- 1,2-Dichloroethylene	µg/L	1.6	<0.2	<0.50	<0.2	<0.50	<0.2	<0.50
1,2-Dichloropropane	µg/L	16	<0.2	<0.20	<0.2	<0.20	<0.2	<0.20
1,3-Dichloropropene	µg/L	5.2	<0.2	<0.50	<0.2	<0.50	<0.2	<0.50
Ethylene Dibromide	µg/L	0.25	<0.1	<0.20	<0.1	<0.20	<0.1	<0.20
n-Hexane	µg/L	51	<0.2	<1.0	<0.2	<1.0	<0.2	<1.0
Methylene Chloride	µg/L	610	<0.3	<2.0	<0.3	<2.0	<0.3	<2.0
Methyl Ethyl Ketone	µg/L	470000	<3	74	<1	<10	<7	<10
Methyl Isobutyl Ketone	µg/L	140000	<3	<5.0	<1	<5.0	<7	<5.0
Methyl tert-butyl Ether	µg/L	190	<0.2	<0.50	<0.2	<0.50	<0.2	<0.50
Styrene	µg/L	1300	<0.1	<0.50	<0.1	<0.50	<0.1	<0.50
1,1,1,2-Tetrachloroethane	µg/L	3.3	<0.1	<0.50	<0.1	<0.50	<0.1	<0.50
1,1,1,2,2-Tetrachloroethane	µg/L	3.2	<0.1	<0.50	<0.1	<0.50	<0.1	<0.50
Tetrachloroethylene	µg/L	1.6	<0.2	<0.20	<0.2	<0.20	<0.2	<0.20
1,1,1-Trichloroethane	µg/L	640	<0.3	<0.20	<0.3	<0.20	<0.3	<0.20
1,1,2-Trichloroethane	µg/L	4.7	<0.3	<0.50	<0.2	<0.50	<0.3	<0.50
Trichloroethylene	µg/L	1.6	<0.2	<0.20	<0.2	<0.20	<0.2	<0.20
Trichlorofluoromethane	µg/L	2000	<0.4	<0.50	<0.4	<0.50	<0.4	<0.50
Vinyl Chloride	µg/L	0.5	<0.17	<0.20	<0.17	<0.20	<0.17	<0.20

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 12: Groundwater Results -  
 Volatile Organic Compounds**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH111			BH113	BH114	BH117	BH120	BH123
			BH20	DUP5 (Duplicate)	MW111	BH10	BH09	BH17	BH12	BH15
Sample Identification			3-Jul-13	3-Jul-13	29-May-18	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13
Sample Date			Pinchin	Pinchin	Cambium	Pinchin	Pinchin	Pinchin	Pinchin	Pinchin
Sampled By			Agat	Agat	Maxxam	Agat	Agat	Agat	Agat	Agat
Laboratory										
Acetone	µg/L	100000	<8	<10	<10	<2	<4	<6	<3	<5
Bromodichloromethane	µg/L	67000	<0.2	<0.2	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2
Bromoform	µg/L	380	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1
Bromomethane	µg/L	5.6	<0.2	<0.2	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2
Carbon Tetrachloride	µg/L	0.79	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	µg/L	500	<0.1	<0.1	<0.20	<0.1	<0.1	<0.1	<0.1	<0.1
Chloroform	µg/L	2.4	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2
Dibromochloromethane	µg/L	65000	<0.1	<0.1	<0.50	<0.1	<0.1	<0.1	<0.1	<0.1
1,2-Dichlorobenzene	µg/L	4600	<0.1	<0.1	<0.50	<0.1	<0.1	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	µg/L	7600	<0.1	<0.1	<0.50	<0.1	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	µg/L	8	<0.1	<0.1	<0.50	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	µg/L	3500	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	µg/L	320	<0.3	<0.3	<0.20	<0.3	<0.3	<0.3	<0.3	<0.3
1,2-Dichloroethane	µg/L	1.6	<0.2	<0.2	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethylene	µg/L	1.6	<0.3	<0.3	<0.20	<0.3	<0.3	<0.3	<0.3	<0.3
Cis- 1,2-Dichloroethylene	µg/L	1.6	<0.2	<0.2	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2
Trans- 1,2-Dichloroethylene	µg/L	1.6	<0.2	<0.2	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloropropane	µg/L	16	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichloropropene	µg/L	5.2	<0.2	<0.2	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylene Dibromide	µg/L	0.25	<0.1	<0.1	<0.20	<0.1	<0.1	<0.1	<0.1	<0.1
n-Hexane	µg/L	51	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
Methylene Chloride	µg/L	610	<0.3	<0.3	<2.0	<0.3	<0.3	<0.3	<0.3	<0.3
Methyl Ethyl Ketone	µg/L	470000	<8	<10	<10	<2	<4	<6	<3	<5
Methyl Isobutyl Ketone	µg/L	140000	<8	<10	<5.0	<2	<4	<6	<3	<5
Methyl tert-butyl Ether	µg/L	190	<0.2	<0.2	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2
Styrene	µg/L	1300	<0.1	<0.1	<0.50	<0.1	<0.1	<0.1	<0.1	<0.1
1,1,1,2-Tetrachloroethane	µg/L	3.3	<0.1	<0.1	<0.50	<0.1	<0.1	<0.1	<0.1	<0.1
1,1,1,2,2-Tetrachloroethane	µg/L	3.2	<0.1	<0.1	<0.50	<0.1	<0.1	<0.1	<0.1	<0.1
Tetrachloroethylene	µg/L	1.6	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,1-Trichloroethane	µg/L	640	<0.3	<0.3	<0.20	<0.3	<0.3	<0.3	<0.3	<0.3
1,1,2-Trichloroethane	µg/L	4.7	<0.3	<0.3	<0.50	<0.2	<0.3	<0.3	<0.2	<0.3
Trichloroethylene	µg/L	1.6	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorofluoromethane	µg/L	2000	<0.4	<0.4	<0.50	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl Chloride	µg/L	0.5	<0.17	<0.17	<0.20	<0.17	<0.17	<0.17	<0.17	<0.17

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 12: Groundwater Results -  
 Volatile Organic Compounds**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-06	BH18-11	BH18-13		BH18-15	BH18-16
Sample Identification			BH18-06	BH18-11	BH18-13	QA/QC#1	BH18-15	BH18-16
Sample Date			15-Feb-19	28-Aug-18	13-Dec-18	13-Dec-18	14-Dec-18	13-Dec-18
Sampled By			Cambium	Cambium	Cambium	Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acetone	µg/L	100000	<20	<10	<10	<10	<10	<10
Bromodichloromethane	µg/L	67000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	380	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	0.79	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	500	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	2.4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	65000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	µg/L	4600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	7600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	3500	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	320	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	µg/L	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cis- 1,2-Dichloroethylene	µg/L	1.6	<0.50	1.3	<0.50	<0.50	<0.50	<0.50
Trans- 1,2-Dichloroethylene	µg/L	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	µg/L	16	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,3-Dichloropropane	µg/L	5.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylene Dibromide	µg/L	0.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	51	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	µg/L	610	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl Ethyl Ketone	µg/L	470000	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone	µg/L	140000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl Ether	µg/L	190	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	1300	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	3.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2,2-Tetrachloroethane	µg/L	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	µg/L	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	640	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	µg/L	4.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	1.6	<0.20	<b>2.2</b>	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	2000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 12: Groundwater Results -  
 Volatile Organic Compounds**

Sample Location	Units	Table 9 SCS <sup>1</sup>	BH18-17	BH18-19
Sample Identification			BH18-17	BH18-19
Sample Date			14-Dec-18	14-Dec-18
Sampled By			Cambium	Cambium
Laboratory			Maxxam	Maxxam
Acetone	µg/L	100000	<10	<10
Bromodichloromethane	µg/L	67000	<0.50	<0.50
Bromoform	µg/L	380	<1.0	<1.0
Bromomethane	µg/L	5.6	<0.50	<0.50
Carbon Tetrachloride	µg/L	0.79	<0.20	<0.20
Chlorobenzene	µg/L	500	<0.20	<0.20
Chloroform	µg/L	2.4	<0.20	<0.20
Dibromochloromethane	µg/L	65000	<0.50	<0.50
1,2-Dichlorobenzene	µg/L	4600	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	7600	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	8	<0.50	<0.50
Dichlorodifluoromethane	µg/L	3500	<1.0	<1.0
1,1-Dichloroethane	µg/L	320	<0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	<0.50	<0.50
1,1-Dichloroethylene	µg/L	1.6	<0.20	<0.20
Cis- 1,2-Dichloroethylene	µg/L	1.6	<0.50	<0.50
Trans- 1,2-Dichloroethylene	µg/L	1.6	<0.50	<0.50
1,2-Dichloropropane	µg/L	16	<0.20	<0.20
1,3-Dichloropropene	µg/L	5.2	<0.50	<0.50
Ethylene Dibromide	µg/L	0.25	<0.20	<0.20
n-Hexane	µg/L	51	1.1	<1.0
Methylene Chloride	µg/L	610	<2.0	<2.0
Methyl Ethyl Ketone	µg/L	470000	<10	<10
Methyl Isobutyl Ketone	µg/L	140000	<5.0	<5.0
Methyl tert-butyl Ether	µg/L	190	<0.50	1.9
Styrene	µg/L	1300	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	3.3	<0.50	<0.50
1,1,1,2,2-Tetrachloroethane	µg/L	3.2	<0.50	<0.50
Tetrachloroethylene	µg/L	1.6	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	640	<0.20	<0.20
1,1,2-Trichloroethane	µg/L	4.7	<0.50	<0.50
Trichloroethylene	µg/L	1.6	<0.20	<0.20
Trichlorofluoromethane	µg/L	2000	<0.50	<0.50
Vinyl Chloride	µg/L	0.5	<0.20	<0.20

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 9 SCS

**Bold and Shaded** - value exceeds Table 9 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

"" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).





**Table 13: Groundwater Results - Polycyclic Aromatic Hydrocarbons**

Cambium Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	BH101			BH102				BH103		BH105	
				BH02	DUP4 (Duplicate)	Relative Percent Difference (%)	MW101	BH03	MW102	QA/QC 1 (Duplicate)	BH06	MW103	BH08	MW105
Sample Identification				3-Jul-13	28-May-18		28-May-18	3-Jul-13	28-May-18	28-May-18	3-Jul-13	29-May-18	3-Jul-13	28-May-18
Sample Date				Pinchin	Pinchin		Cambium	Pinchin	Cambium	Cambium	Pinchin	Cambium	Pinchin	Cambium
Sampled By				Agat	Agat		Maxxam	Agat	Maxxam	Maxxam	Agat	Maxxam	Agat	Maxxam
Laboratory														
Acenaphthene	µg/L	600	0.43	0.37	0.43	15	0.082	0.38	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Acenaphthylene	µg/L	1.4	<0.2	<0.2	<0.2	NC	<0.050	<0.20	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Anthracene	µg/L	1	0.15	<0.1	<0.1	NC	<0.050	0.15	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Benzo(a)anthracene	µg/L	1.8	<0.2	<0.2	<0.2	NC	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Benzo(a)pyrene	µg/L	0.81	<0.01	<0.01	<0.01	NC	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.01	<0.010
Benzo(b)fluoranthene	µg/L	0.75	<0.1	<0.1	<0.1	NC	<0.050	<0.1	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Benzo(g,h,i)perylene	µg/L	0.2	<0.2	<0.2	<0.2	NC	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Benzo(k)fluoranthene	µg/L	0.4	<0.1	<0.1	<0.1	NC	<0.050	<0.1	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Chrysene	µg/L	0.7	<0.1	<0.1	<0.1	NC	<0.050	<0.1	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Dibenzo(a,h)anthracene	µg/L	0.4	<0.2	<0.2	<0.2	NC	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Fluoranthene	µg/L	73	<0.2	<0.2	<0.2	NC	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Fluorene	µg/L	290	0.51	0.44	0.51	15	<0.050	0.31	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Indeno(1,2,3-cd)pyrene	µg/L	0.2	<0.2	<0.2	<0.2	NC	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Naphthalene	µg/L	1400	0.37	<0.2	<0.2	NC	<0.050	0.37	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Phenanthrene	µg/L	380	0.3	0.26	0.3	14	<0.030	0.15	<0.030	<0.030	<0.1	<0.030	<0.1	<0.030
Pyrene	µg/L	5.7	0.15	<0.2	<0.2	NC	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
2-and 1-Methylnaphthalene	µg/L	1500	<0.2	<0.2	<0.2	NC	<0.071	<0.2	<0.071	<0.071	<0.2	<0.071	<0.2	<0.071

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

\*\*- indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 13: Groundwater Results - Polycyclic Aromatic Hydrocarbons**

Cambium Sample Location	Units	Table 9 SCS <sup>1</sup>	BH107		BH111			BH113			BH114		BH117	
			BH18	MW107	BH20	DUP5 (Duplicate)	MW111	BH10	MW113	QA/QC 4 (Duplicate)	BH09	MW114	BH17	MW117
Sample Identification			3-Jul-13	29-May-18	3-Jul-13	3-Jul-13	29-May-18	3-Jul-13	30-May-18	30-May-18	3-Jul-13	30-May-18	3-Jul-13	29-May-18
Sample Date			Pinchin	Cambium	Pinchin	Pinchin	Cambium	Pinchin	Cambium	Cambium	Pinchin	Cambium	Pinchin	Cambium
Sampled By			Agat	Maxxam	Agat	Agat	Maxxam	Agat	Maxxam	Maxxam	Agat	Maxxam	Agat	Maxxam
Laboratory														
Acenaphthene	µg/L	600	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Acenaphthylene	µg/L	1.4	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Anthracene	µg/L	1	<0.1	<0.050	<0.1	<0.1	<0.050	<0.1	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Benzo(a)anthracene	µg/L	1.8	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Benzo(a)pyrene	µg/L	0.81	<0.01	<0.010	<0.01	<0.01	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.01	<0.010
Benzo(b)fluoranthene	µg/L	0.75	<0.1	<0.050	<0.1	<0.1	<0.050	<0.1	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Benzo(g,h,i)perylene	µg/L	0.2	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Benzo(k)fluoranthene	µg/L	0.4	<0.1	<0.050	<0.1	<0.1	<0.050	<0.1	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Chrysene	µg/L	0.7	<0.1	<0.050	<0.1	<0.1	<0.050	<0.1	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050
Dibenzo(a,h)anthracene	µg/L	0.4	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Fluoranthene	µg/L	73	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Fluorene	µg/L	290	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Indeno(1,2,3-cd)pyrene	µg/L	0.2	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Naphthalene	µg/L	1400	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
Phenanthrene	µg/L	380	<0.1	<0.030	<0.1	<0.1	<0.030	<0.1	<0.030	<0.030	<0.1	<0.030	<0.1	<0.030
Pyrene	µg/L	5.7	<0.2	<0.050	<0.2	<0.2	<0.050	<0.2	<0.050	<0.050	<0.2	<0.050	<0.2	<0.050
2-and 1-Methylnaphthalene	µg/L	1500	<0.2	<0.071	<0.2	<0.2	<0.071	<0.2	<0.071	<0.071	<0.2	<0.071	<0.2	<0.071

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

“-” indicates parameter not analyzed

“NC” - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 13: Groundwater Results - Polycyclic Aromatic Hydrocarbons**

Cambium Sample Location	Units	Table 9 SCS <sup>1</sup>	BH120		BH123	
			BH12	MW120	BH15	MW123
Sample Identification			3-Jul-13	29-May-18	3-Jul-13	29-May-18
Sample Date			Pinchin	Cambium	Pinchin	Cambium
Sampled By			Agat	Maxxam	Agat	Maxxam
Laboratory						
Acenaphthene	µg/L	600	<0.2	<0.050	<0.2	<0.050
Acenaphthylene	µg/L	1.4	<0.2	<0.050	<0.2	<0.050
Anthracene	µg/L	1	<0.1	<0.050	<0.1	<0.050
Benzo(a)anthracene	µg/L	1.8	<0.2	<0.050	<0.2	<0.050
Benzo(a)pyrene	µg/L	0.81	<0.01	<0.010	<0.01	<0.010
Benzo(b)fluoranthene	µg/L	0.75	<0.1	<0.050	<0.1	<0.050
Benzo(g,h,i)perylene	µg/L	0.2	<0.2	<0.050	<0.2	<0.050
Benzo(k)fluoranthene	µg/L	0.4	<0.1	<0.050	<0.1	<0.050
Chrysene	µg/L	0.7	<0.1	<0.050	<0.1	<0.050
Dibenzo(a,h)anthracene	µg/L	0.4	<0.2	<0.050	<0.2	<0.050
Fluoranthene	µg/L	73	<0.2	<0.050	<0.2	<0.050
Fluorene	µg/L	290	<0.2	<0.050	<0.2	<0.050
Indeno(1,2,3-cd)pyrene	µg/L	0.2	<0.2	<0.050	<0.2	<0.050
Naphthalene	µg/L	1400	<0.2	<0.050	<0.2	<0.050
Phenanthrene	µg/L	380	<0.1	<0.030	<0.1	<0.030
Pyrene	µg/L	5.7	<0.2	0.15	<0.2	<0.050
2-and 1-Methylnaphthalene	µg/L	1500	<0.2	<0.071	<0.2	<0.071

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

“-” indicates parameter not analyzed

“NC” - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location	Units	Table 9 Standards <sup>1</sup>	Maximum Concentration	BH101			
				BH02	DUP4 (Duplicate)	Relative Percent Difference (%)	MW101
				3-Jul-2013	3-Jul-13		28-May-18
				Pinchin	Pinchin	Cambium	
Sample Identification				Agat	Agat		Maxxam
Sample Date							
Sampled By							
Laboratory							
Antimony	µg/L	16000	3.4	<0.5	<0.5	NC	<0.50
Arsenic	µg/L	1500	31.1	<1.0	<1.0	NC	<1.0
Barium	µg/L	23000	830	76.4	74.4	2.7	130
Beryllium	µg/L	53	<0.5	<0.5	<0.5	NC	<0.50
Boron	µg/L	36000	214	65.9	63.7	3.4	95
Cadmium	µg/L	2.1	0.64	<0.2	<0.2	NC	0.64
Chromium	µg/L	640	10.9	<2.0	<2.0	NC	<5.0
Chromium VI	µg/L	110	<5	<5	<5	NC	<0.50
Cobalt	µg/L	52	9.6	<0.5	0.5	NC	0.57
Copper	µg/L	69	4.6	1.7	1.8	5.7	4
Cyanide	µg/L	52	2	-	-	NV	<1
Lead	µg/L	20	<0.5	<0.5	<0.5	NC	<0.50
Mercury	µg/L	0.29	<0.1	-	-	NV	<0.1
Molybdenum	µg/L	7300	54.3	0.9	1.1	20	<0.50
Nickel	µg/L	390	55.7	<1.0	1.5	NC	2.9
Selenium	µg/L	50	4.8	<1.0	<1.0	NC	<2.0
Silver	µg/L	1.2	<0.2	<0.2	<0.2	NC	<0.10
Thallium	µg/L	400	<0.3	<0.3	<0.3	NC	<0.050
Uranium	µg/L	330	13.1	2.2	2.1	4.7	1.2
Vanadium	µg/L	200	2.7	0.9	1.1	20	0.69
Zinc	µg/L	890	460	11.3	7.8	37	460
Chloride	µg/L	1800000	230	-	-	-	25
Sodium	µg/L	1800000	330000	-	-	-	12000

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

“-” indicates parameter not analyzed

“NC” - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location	Units	Table 9 Standards <sup>1</sup>	BH102			
			BH03	MW102	QA/QC 1 (Duplicate)	Relative Percent Difference (%)
			3-Jul-2013	28-May-18	28-May-18	
			Pinchin	Cambium	Cambium	
Sample Identification			Agat	Maxxam	Maxxam	
Sample Date						
Sampled By						
Laboratory						
Antimony	µg/L	16000	<0.5	0.73	0.75	2.7
Arsenic	µg/L	1500	1.1	<1.0	<1.0	NC
Barium	µg/L	23000	108	84	85	1
Beryllium	µg/L	53	<0.5	<0.50	<0.50	NC
Boron	µg/L	36000	107	60	58	3
Cadmium	µg/L	2.1	<0.2	<0.10	<0.10	NC
Chromium	µg/L	640	<2.0	<5.0	<5.0	NC
Chromium VI	µg/L	110	<5	<0.50	<0.50	NC
Cobalt	µg/L	52	1.9	<0.50	<0.50	NC
Copper	µg/L	69	1.1	2.5	2.7	7.7
Cyanide	µg/L	52	-	<1	<1	NC
Lead	µg/L	20	<0.5	<0.50	<0.50	NC
Mercury	µg/L	0.29	-	<0.1	<0.1	NC
Molybdenum	µg/L	7300	15.9	<0.50	<0.50	NC
Nickel	µg/L	390	4	<1.0	<1.0	NC
Selenium	µg/L	50	<1.0	<2.0	<2.0	NC
Silver	µg/L	1.2	<0.2	<0.10	<0.10	NC
Thallium	µg/L	400	<0.3	<0.050	<0.050	NC
Uranium	µg/L	330	0.6	1.5	1.4	6.9
Vanadium	µg/L	200	<0.4	<0.50	<0.50	NC
Zinc	µg/L	890	7.3	10	8.8	12.8
Chloride	µg/L	1800000	-	5.2	5.4	3.8
Sodium	µg/L	1800000	-	5800	5800	0

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).





**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location			BH103		BH105	
			BH06	MW103	BH08	MW105
Sample Identification	Units	Table 9 Standards <sup>1</sup>	3-Jul-2013	29-May-18	3-Jul-2013	28-May-18
Sample Date			Pinchin	Cambium	Pinchin	Cambium
Sampled By			Agat	Maxxam	Agat	Maxxam
Laboratory						
Antimony	µg/L	16000	0.8	<0.50	<0.5	<0.50
Arsenic	µg/L	1500	1.2	<1.0	3.4	3.2
Barium	µg/L	23000	191	260	580	830
Beryllium	µg/L	53	<0.5	<0.50	<0.5	<0.50
Boron	µg/L	36000	53.3	54	46.9	43
Cadmium	µg/L	2.1	<0.2	<0.10	<0.2	<0.10
Chromium	µg/L	640	<2.0	<5.0	6.4	<5.0
Chromium VI	µg/L	110	<5	<0.50	<5	<0.50
Cobalt	µg/L	52	<0.5	<0.50	0.9	0.67
Copper	µg/L	69	1	<1.0	<1.0	<1.0
Cyanide	µg/L	52	-	<1	-	<1
Lead	µg/L	20	<0.5	<0.50	<0.5	<0.50
Mercury	µg/L	0.29	-	<0.1	-	<0.1
Molybdenum	µg/L	7300	7.7	1.4	5.1	1.3
Nickel	µg/L	390	1.4	<1.0	1.4	<1.0
Selenium	µg/L	50	<1.0	<2.0	2.6	<2.0
Silver	µg/L	1.2	<0.2	<0.10	<0.2	<0.10
Thallium	µg/L	400	<0.3	<0.050	<0.3	<0.050
Uranium	µg/L	330	2.6	2.7	<0.5	<0.10
Vanadium	µg/L	200	2.7	<0.50	0.8	<0.50
Zinc	µg/L	890	5.2	<5.0	<5.0	<5.0
Chloride	µg/L	1800000	-	130	-	160
Sodium	µg/L	1800000	-	210000	-	51000

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location	Units	Table 9 Standards <sup>1</sup>	BH107		BH111			Relative Percent Difference (%)	MW111
			BH18	MW107	BH20	DUP5 (Duplicate)			
Sample Identification			3-Jul-2013	29-May-18	3-Jul-2013	3-Jul-13		29-May-18	
Sample Date			Pinchin	Cambium	Pinchin	Pinchin		Cambium	
Sampled By			Agat	Maxxam	Agat	Agat		Maxxam	
Laboratory									
Antimony	µg/L	16000	<0.5	<0.50	<0.5	<0.5	NC	<0.50	
Arsenic	µg/L	1500	<1.0	<1.0	2.3	2.1	9	1.5	
Barium	µg/L	23000	91.2	97	29.4	25.2	15	11	
Beryllium	µg/L	53	<0.5	<0.50	<0.5	<0.5	NC	<0.50	
Boron	µg/L	36000	45.1	40	94.8	90.2	5	97	
Cadmium	µg/L	2.1	<0.2	<0.10	<0.2	<0.2	NC	<0.10	
Chromium	µg/L	640	<2.0	<5.0	<2	<2	NC	<5.0	
Chromium VI	µg/L	110	<5	<0.50	<5	<5	NC	<0.50	
Cobalt	µg/L	52	<0.5	<0.50	<0.5	7.7	NC	3.8	
Copper	µg/L	69	<1.0	<1.0	1.5	1.5	0	<1.0	
Cyanide	µg/L	52	-	<1	-	-	NV	<1	
Lead	µg/L	20	<0.5	<0.50	<0.5	<0.5	NC	<0.50	
Mercury	µg/L	0.29	-	<0.1	-	-	NV	<0.1	
Molybdenum	µg/L	7300	1.4	0.53	25.2	23.1	9	0.6	
Nickel	µg/L	390	<1.0	<1.0	21.4	20.5	4	5.9	
Selenium	µg/L	50	<1.0	<2.0	4.2	3.8	10	<2.0	
Silver	µg/L	1.2	<0.2	<0.10	<0.2	<0.2	NC	<0.10	
Thallium	µg/L	400	<0.3	<0.050	<0.3	<0.3	NC	<0.050	
Uranium	µg/L	330	<0.5	0.82	13.1	12.1	8	2.2	
Vanadium	µg/L	200	0.6	<0.50	1.5	1.6	6	<0.50	
Zinc	µg/L	890	17.4	<5.0	10.6	12.2	14	<5.0	
Chloride	µg/L	1800000	-	38	-	-	-	24	
Sodium	µg/L	1800000	-	62000	-	-	-	30000	

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location		Table 9 Standards <sup>1</sup>	BH113		BH114		BH117	
			BH10	MW113	BH09	MW114	BH17	MW117
Sample Identification	Units		3-Jul-2013	13-Dec-2018	3-Jul-2013	13-Dec-2018	3-Jul-2013	14-Dec-2018
Sample Date			Pinchin	Cambium	Pinchin	Cambium	Pinchin	Cambium
Sampled By			Agat	Maxxam	Agat	Maxxam	Agat	Maxxam
Laboratory								
Antimony	µg/L	16000	<0.5	<0.50	<0.5	<0.50	0.6	0.96
Arsenic	µg/L	1500	1.8	<1.0	<1.0	<1.0	<1.0	<1.0
Barium	µg/L	23000	17.3	11	16.7	11	81	52
Beryllium	µg/L	53	<0.5	<0.50	<0.5	<0.50	<0.5	<0.50
Boron	µg/L	36000	127	140	214	150	38.4	18
Cadmium	µg/L	2.1	<0.2	<0.10	0.3	<0.10	<0.2	<0.10
Chromium	µg/L	640	10.9	<5.0	<2.0	<5.0	<2.0	<5.0
Chromium VI	µg/L	110	<5	-	<5	-	<5	-
Cobalt	µg/L	52	4.3	3.7	9.2	9.6	<0.5	<0.50
Copper	µg/L	69	3.7	2.2	2.5	2.1	1.2	3.6
Cyanide	µg/L	52	-	-	-	-	-	-
Lead	µg/L	20	<0.5	<0.50	<0.5	<0.50	<0.5	<0.50
Mercury	µg/L	0.29	-	-	-	-	-	-
Molybdenum	µg/L	7300	3.5	<0.50	9.1	<0.50	1.6	0.69
Nickel	µg/L	390	4.9	3.8	10.1	3.5	<1.0	<1.0
Selenium	µg/L	50	4.8	<2.0	1.1	<2.0	1.2	<2.0
Silver	µg/L	1.2	<0.2	<0.10	<0.2	<0.10	<0.2	<0.10
Thallium	µg/L	400	<0.3	<0.050	<0.3	<0.050	<0.3	<0.050
Uranium	µg/L	330	10.5	10	2.5	1.7	<0.5	0.34
Vanadium	µg/L	200	0.7	<0.50	<0.4	<0.50	0.7	0.76
Zinc	µg/L	890	7.3	<5.0	31	<5.0	<5.0	<5.0
Chloride	µg/L	1800000	-	-	-	-	-	-
Sodium	µg/L	1800000	-	330000	-	32000	-	1100

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location		Table 9 Standards <sup>1</sup>	BH120		BH123		BH18-06
			BH12	MW120	BH15	MW123	BH18-06
Sample Identification	Units		3-Jul-2013	29-May-18	3-Jul-2013	14-Dec-2018	28-Aug-18
Sample Date			Pinchin	Cambium	Pinchin	Cambium	Cambium
Sampled By			Agat	Maxxam	Agat	Maxxam	Maxxam
Laboratory							
Antimony	µg/L	16000	3.4	<0.50	0.6	<0.50	2.1
Arsenic	µg/L	1500	31.1	<1.0	<1.0	<1.0	2.9
Barium	µg/L	23000	127	140	144	160	21
Beryllium	µg/L	53	<0.5	<0.50	<0.5	<0.50	<0.50
Boron	µg/L	36000	106	27	62.8	43	12
Cadmium	µg/L	2.1	<0.2	<0.10	<0.2	<0.10	<0.10
Chromium	µg/L	640	3.9	<5.0	<2.0	<5.0	<5.0
Chromium VI	µg/L	110	<5	<0.50	<5	-	-
Cobalt	µg/L	52	9.4	<0.50	7.2	<0.50	<0.50
Copper	µg/L	69	1.3	<1.0	2.6	4.6	3.8
Cyanide	µg/L	52	-	2	-	-	-
Lead	µg/L	20	<0.5	<0.50	<0.5	<0.50	<0.50
Mercury	µg/L	0.29	-	<0.1	-	-	-
Molybdenum	µg/L	7300	8.5	<0.50	54.3	1	5.7
Nickel	µg/L	390	55.7	<1.0	18	1.8	<1.0
Selenium	µg/L	50	<1.0	<2.0	2.1	2	<2.0
Silver	µg/L	1.2	<0.2	<0.10	<0.2	<0.10	<0.10
Thallium	µg/L	400	<0.3	<0.050	<0.3	<0.050	<0.050
Uranium	µg/L	330	<0.5	0.42	0.9	0.82	1.3
Vanadium	µg/L	200	0.7	<0.50	<0.4	<0.50	<0.50
Zinc	µg/L	890	5.6	<5.0	9.6	5.2	<5.0
Chloride	µg/L	1800000	-	230	-	-	-
Sodium	µg/L	1800000	-	140000	-	9700	920

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location	Units	Table 9 Standards <sup>1</sup>	BH18-07			BH18-13		
			BH18-07	QA/QC #2 (Duplicate)	Relative Percent Difference (%)	BH18-13	QA/QC#1 (Duplicate)	Relative Percent Difference (%)
			28-Aug-18	28-Aug-18		13-Dec-18	13-Dec-18	
			Cambium	Cambium	Cambium	Cambium		
Sample Identification			Maxxam	Maxxam		Maxxam	Maxxam	
Antimony	µg/L	16000	<0.50	<0.50	NC	1.5	1.5	0
Arsenic	µg/L	1500	<1.0	<1.0	NC	<1.0	<1.0	NC
Barium	µg/L	23000	250	250	0	730	700	4
Beryllium	µg/L	53	<0.50	<0.50	NC	<0.50	<0.50	NC
Boron	µg/L	36000	84	84	0	48	48	0
Cadmium	µg/L	2.1	<0.10	<0.10	NC	<0.10	<0.10	NC
Chromium	µg/L	640	<5.0	<5.0	NC	<5.0	<5.0	NC
Chromium VI	µg/L	110	-	-	-	-	-	-
Cobalt	µg/L	52	<0.50	<0.50	NC	<0.50	<0.50	NC
Copper	µg/L	69	<1.0	<1.0	NC	<1.0	<1.0	NC
Cyanide	µg/L	52	-	-	-	-	-	-
Lead	µg/L	20	<0.50	<0.50	NC	<0.50	<0.50	NC
Mercury	µg/L	0.29	-	-	-	-	-	-
Molybdenum	µg/L	7300	0.88	0.97	10	5.1	4.8	6.1
Nickel	µg/L	390	<1.0	<1.0	NC	<1.0	<1.0	NC
Selenium	µg/L	50	<2.0	<2.0	NC	<2.0	<2.0	NC
Silver	µg/L	1.2	<0.10	<0.10	NC	<0.10	<0.10	NC
Thallium	µg/L	400	<0.050	<0.050	NC	<0.050	<0.050	NC
Uranium	µg/L	330	1.8	1.8	0	1	0.97	3.0
Vanadium	µg/L	200	<0.50	<0.50	NC	<0.50	<0.50	NC
Zinc	µg/L	890	<5.0	<5.0	NC	16	16	0
Chloride	µg/L	1800000	-	-	-	-	-	-
Sodium	µg/L	1800000	120000	130000	8	33000	33000	0

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

“-” indicates parameter not analyzed

“NC” - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).





**Table 14: Groundwater Results -  
 Metals and Inorganics**

Cambium Sample Location	Units	Table 9 Standards <sup>1</sup>	BH18-15	BH18-16	BH18-17
Sample Identification			BH18-15	BH18-16	BH18-17
Sample Date			14-Dec-18	13-Dec-18	14-Dec-18
Sampled By			Cambium	Cambium	Cambium
Laboratory			Maxxam	Maxxam	Maxxam
Antimony	µg/L	16000	<0.50	<0.50	<0.50
Arsenic	µg/L	1500	<1.0	<1.0	<1.0
Barium	µg/L	23000	150	66	230
Beryllium	µg/L	53	<0.50	<0.50	<0.50
Boron	µg/L	36000	39	53	130
Cadmium	µg/L	2.1	<0.10	<0.10	<0.10
Chromium	µg/L	640	<5.0	<5.0	<5.0
Chromium VI	µg/L	110	-	-	-
Cobalt	µg/L	52	<0.50	2.4	<0.50
Copper	µg/L	69	2.7	<1.0	1.2
Cyanide	µg/L	52	-	-	-
Lead	µg/L	20	<0.50	<0.50	<0.50
Mercury	µg/L	0.29	-	-	-
Molybdenum	µg/L	7300	0.51	<0.50	5.2
Nickel	µg/L	390	<1.0	3	<1.0
Selenium	µg/L	50	<2.0	<2.0	<2.0
Silver	µg/L	1.2	<0.10	<0.10	<0.10
Thallium	µg/L	400	<0.050	<0.050	<0.050
Uranium	µg/L	330	2.5	0.14	0.21
Vanadium	µg/L	200	<0.50	<0.50	<0.50
Zinc	µg/L	890	<5.0	32	<5.0
Chloride	µg/L	1800000	-	-	-
Sodium	µg/L	1800000	45000	38000	54000

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

Yellow shading indicates RPD was greater than data quality objective (50%)

NV - no value

-" indicates parameter not analyzed

"NC" - The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



**Table 15: Groundwater Results - Polychlorinated Biphenyls**

Sample Location	Units	Table 9 SCS <sup>1</sup>	Maximum Concentration	BH111	BH123		BH18-12	
Sample Identification				BH20	MW123	QA/QC 3 (Duplicate)	BH18-12	QA/QC #3
Sample Date				3-Jul-13	29-May-18	29-May-18	28-Aug-18	28-Aug-18
Sampled By				Pinchin	Cambium	Cambium	Cambium	Cambium
Laboratory				Agat	Maxxam	Maxxam	Maxxam	Maxxam
Polychlorinated Biphenyls	µg/L	0.2	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05

Notes:

1. Table 9 Generic Site Condition Standards (SCS) within 30 m of Water Body in Non-Potable Groundwater Condition in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011).

**Bold** - reported detection limit exceeds Table 7 SCS

**Bold and Shaded** - value exceeds Table 7 SCS

NV - no value

"-" indicates parameter not analyzed



---

**Appendix A**  
**Plan of Survey**

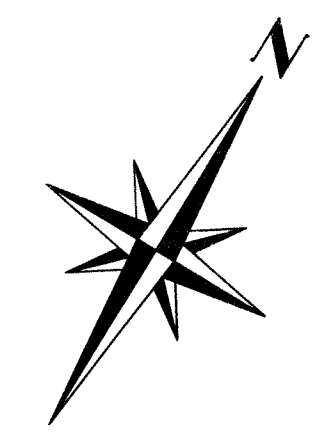
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**TOPOGRAPHIC SURVEY OF**

OF PART OF LOT 108, CONCESSION 2,  
PART OF THE BED OF MIDLAND BAY OF GEORGIAN BAY  
LYING IN FRONT OF LOT 108, CONCESSION 2,  
WATER LOTS 'C' AND 'D',  
IN MIDLAND BAY OF GEORGIAN BAY  
PART OF LOTS 1 TO 12 (BOTH INCLUSIVE), NORTH SIDE OF FRANK STREET  
ALL OF WATER LOTS 1 TO 12 (BOTH INCLUSIVE),  
PART OF CHARLES STREET, GEORGE STREET & LINDSAY STREET  
REGISTERED PLAN 349  
CHARLES STREET, GEORGE STREET & LINDSAY STREET  
REGISTERED PLAN 749  
(GEOGRAPHIC TOWNSHIP OF TAY)

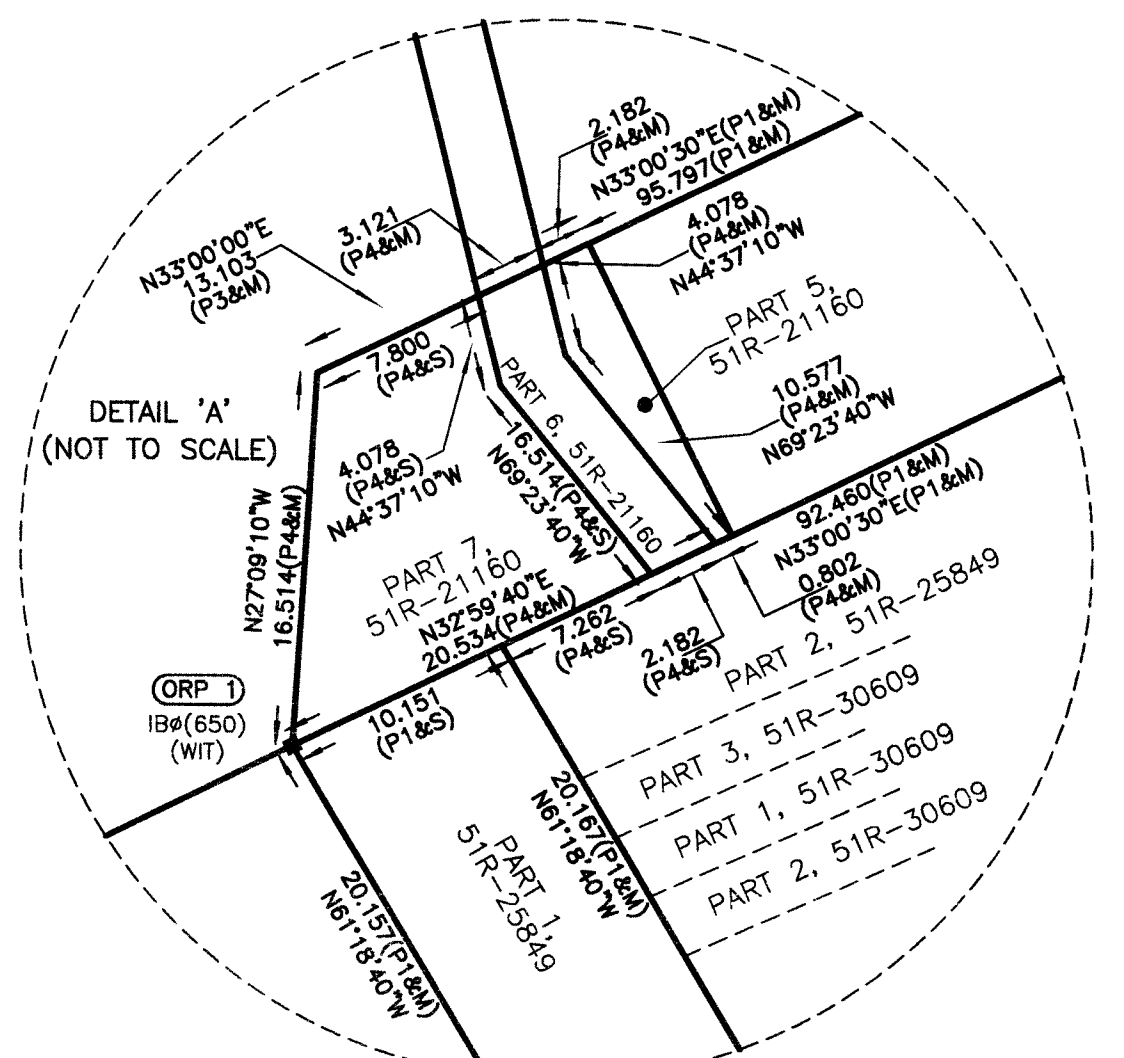
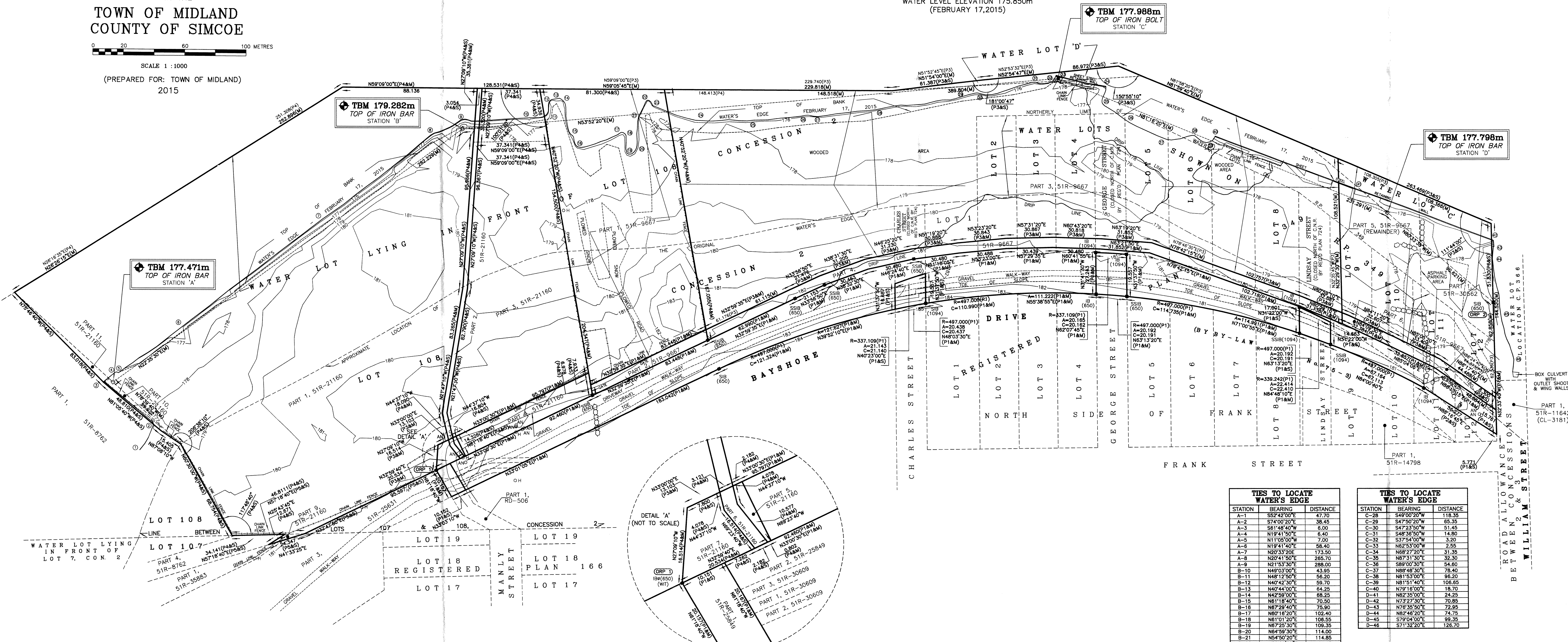
NOW IN THE  
**TOWN OF MIDLAND**  
**COUNTY OF SIMCOE**

SCALE 1:1000  
(PREPARED FOR: TOWN OF MIDLAND)  
2015



**MIDLAND BAY OF GEORGIAN BAY**

WATER LEVEL ELEVATION 175.850m  
(FEBRUARY 17, 2015)



**TIES TO LOCATE WATER'S EDGE**

STATION	BEARING	DISTANCE
A-1	S52°42'00"E	47.70
A-2	S74°00'20"E	38.45
A-3	S81°40'40"W	6.00
A-4	N19°41'50"E	6.40
A-5	N11°05'00"W	7.00
A-6	N18°41'40"E	58.40
A-7	N20°33'20"E	173.50
A-8	N20°41'50"E	265.70
A-9	N21°53'30"E	288.00
A-10	N48°03'30"E	43.85
A-11	N48°12'50"E	56.20
A-12	N40°42'30"E	59.70
A-13	N40°44'00"E	64.25
A-14	N40°29'00"E	68.25
A-15	N61°18'40"E	70.50
A-16	N67°29'40"E	75.90
A-17	N67°16'20"E	102.40
A-18	N61°01'20"E	106.55
A-19	N67°25'30"E	109.35
A-20	N64°59'30"E	114.00
A-21	N54°52'20"E	114.85
A-22	N50°01'20"E	121.15
A-23	N51°41'30"E	124.90
A-24	N56°40'40"E	155.40
A-25	N58°59'50"E	189.70
A-26	N58°27'20"E	223.25
A-27	N56°44'10"E	231.40

**TIES TO LOCATE WATER'S EDGE**

STATION	BEARING	DISTANCE
C-28	S49°00'20"W	118.35
C-29	S47°50'20"W	65.35
C-30	S47°23'50"W	51.45
C-31	S48°36'50"W	14.80
C-32	S37°54'00"W	3.20
C-33	N62°53'00"W	2.55
C-34	N68°27'20"E	31.35
C-35	N67°31'30"E	32.30
C-36	S89°00'30"E	54.60
C-37	N84°48'50"E	78.40
C-38	N81°53'00"E	96.20
C-39	N81°51'40"E	106.65
C-40	N79°18'00"E	18.70
C-41	N82°35'00"E	24.25
C-42	N73°27'30"E	70.85
C-43	N76°35'50"E	72.95
C-44	N82°46'20"E	74.75
C-45	S79°04'00"E	96.35
C-46	S71°32'20"E	126.70

ALL COORDINATES ARE IN METRES AND WERE DERIVED FROM GPS OBSERVATIONS USING THE CAN-NET NETWORK, AND ARE REFERRED TO UTM ZONE 17, NAD 83 (CSRS, CBNV6-2010.0). COORDINATE VALUES ARE TO AN URBAN ACCURACY IN ACCORDANCE WITH 0.REG.216/10.

POINT ID	NORTHING	EASTING
ORP 1	4956355.114	588279.524
ORP 2	4956805.597	588810.853

CAUTION: COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THE PLAN.

DISTANCES ON THIS PLAN ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.99967348.

**NOTE:**  
ALL ELEVATIONS ARE GEODETIC REFERRED TO GPS OBSERVATIONS USING THE REAL TIME NETWORK (RTN).

**NOTE:**  
DISTANCES AND ELEVATIONS ARE EXPRESSED IN METRES AND DECIMAL PARTS THEREOF.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT PROVINCIAL STANDARD DRAWINGS AND SPECIFICATIONS UNLESS OTHERWISE NOTED.

LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AND SERVICES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES.

ALL DIMENSIONS AND ELEVATIONS ARE TO BE CHECKED AND VERIFIED BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.

TOPOGRAPHIC FIELD WORK COMPLETED ON MARCH 20, 2015.  
BOUNDARY FIELD WORK COMPLETED BY DEARDEN & STANTON LTD., ON MARCH 20, 2015.

NO.	DATE	DESCRIPTION	J.C.S.
1	31/03/15	DRAFT TOPOGRAPHIC PLAN RELEASED FOR COMMENT	J.C.S.
2	DD/MM/YY	DESCRIPTION	BY

**LEGEND**

⊕	-BENCHMARK	⊕	-PROPOSED FIRE HYDRANT
⊙	-SURVEY BAR FOUND	⊙	-PROPOSED SANITARY MANHOLE
⊙	-SURVEY BAR POINT	⊙	-PROPOSED STORM MANHOLE
⊙	-TRAVELER POINT	⊙	-PROPOSED WATER VALVE
⊙	-EXISTING GAS VALVE	⊙	-PROPOSED WATER VALVE
⊙	-EXISTING CURB STOP	⊙	-CATCH BASIN
⊙	-EXISTING WATER VALVE	⊙	-DITCH INLET CATCH BASIN
⊙	-EXISTING FIRE HYDRANT	⊙	-DOUBLE CATCH BASIN
⊙	-EXISTING ANCHOR	⊙	-EXISTING GRADE
⊙	-EXISTING HYDRO POLE	⊙	-PROPOSED GRADE
⊙	-EXISTING LIGHT AND BELL	⊙	-DITCH FLOW DIRECTION
⊙	-EXISTING LIGHT POST	⊙	-BUSHLINE
⊙	-EXISTING WELL	⊙	-ROCKS
⊙	-EXISTING BELL BOX	⊙	-CHAIN LINK FENCE
⊙	-EXISTING CABLE TV BOX		
⊙	-EXISTING SANITARY MANHOLE		
⊙	-EXISTING TREE		

**SURVEYOR'S CERTIFICATE**

I CERTIFY THAT:  
1) THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.  
2) THE SURVEY WAS COMPLETED ON

ORILLIA ONTARIO  
MARCH 31, 2015

**DRAFT**  
J. C. STANTON  
ONTARIO LAND SURVEYOR  
CANADA LANDS SURVEYOR

CAD FILE: P726381  
DRAWN BY: TOWNES  
CHECKED BY: J.C. STANTON, O.L.S.  
DATE: MARCH 31, 2015.  
SCALE: HORIZ. 1:100

**DEARDEN & STANTON LTD.** D.W.G. NO. R-592  
ONTARIO LAND SURVEYORS  
CANADA LANDS SURVEYORS  
CONSULTING ENGINEERS  
49 COLLEMBER STREET E. 1ST FLOOR  
ORILLIA ONTARIO (705) 325-0241  
PHONE (705) 325-4521 FAX (705) 325-0241

SHEET 1 of 1



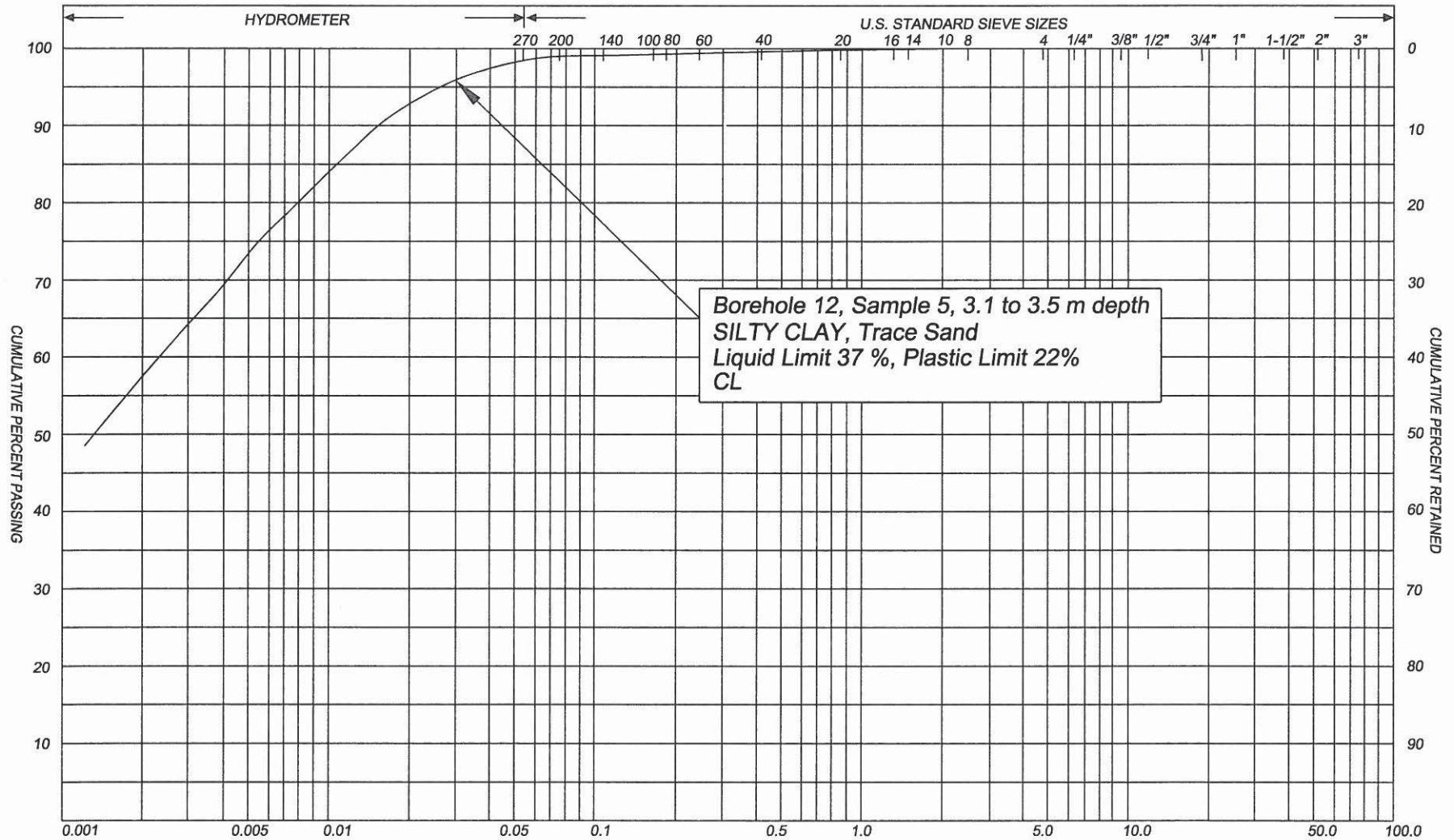
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## **Appendix B**

# **Grain Size Distribution Results**

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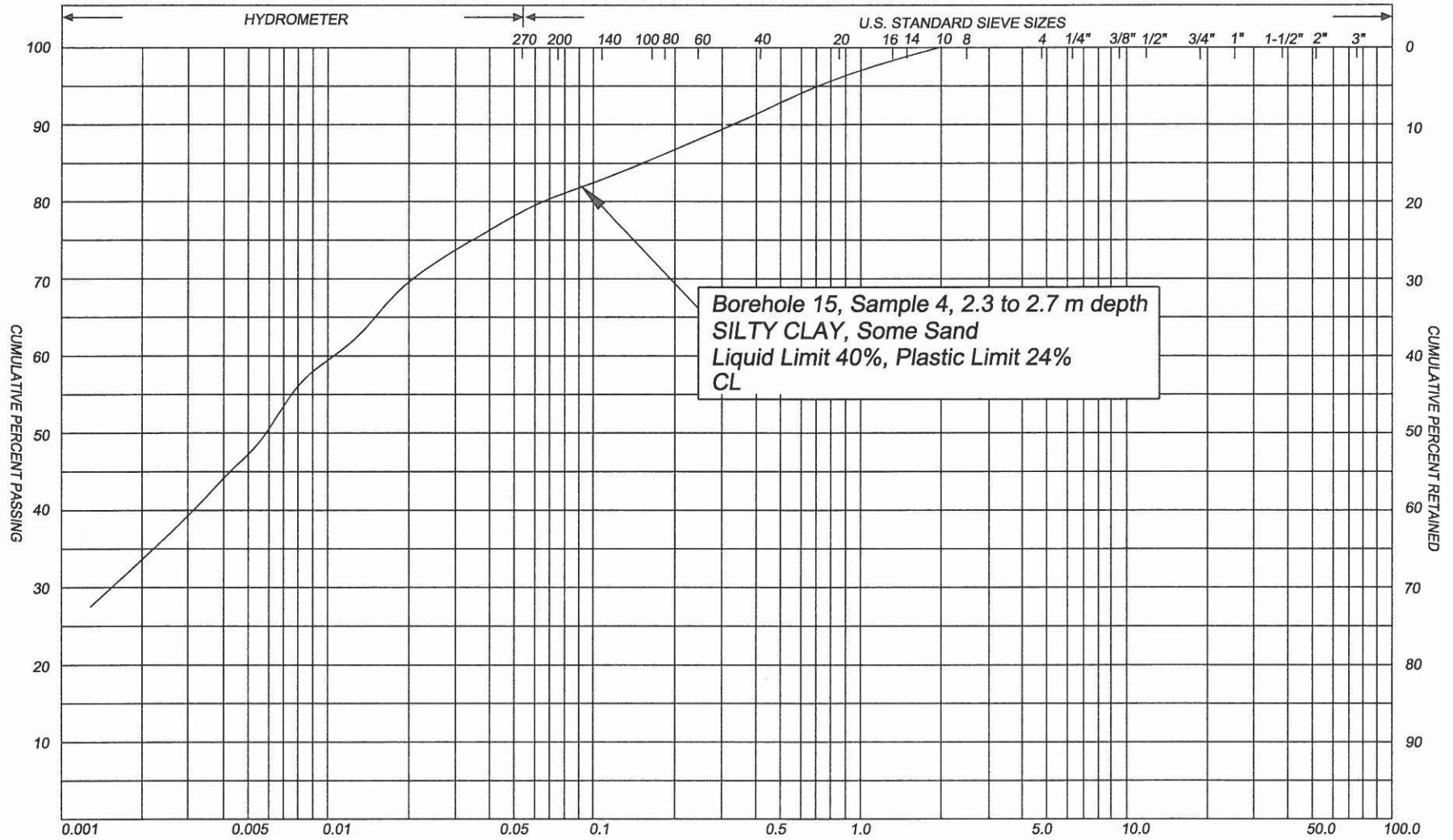


Borehole 12, Sample 5, 3.1 to 3.5 m depth  
 SILTY CLAY, Trace Sand  
 Liquid Limit 37 %, Plastic Limit 22%  
 CL

SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	UNIFIED
CLAY	FINE SILT		COARSE SILT	FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	M.I.T.	
	CLAY		SILT		V. FINE SAND	FINE SAND	MED SAND	COARSE SAND	GRAVEL				U.S. BUREAU	

**PML** *Peto MacCallum Ltd.*  
 CONSULTING ENGINEERS  
**PARTICLE SIZE DISTRIBUTION CHART**

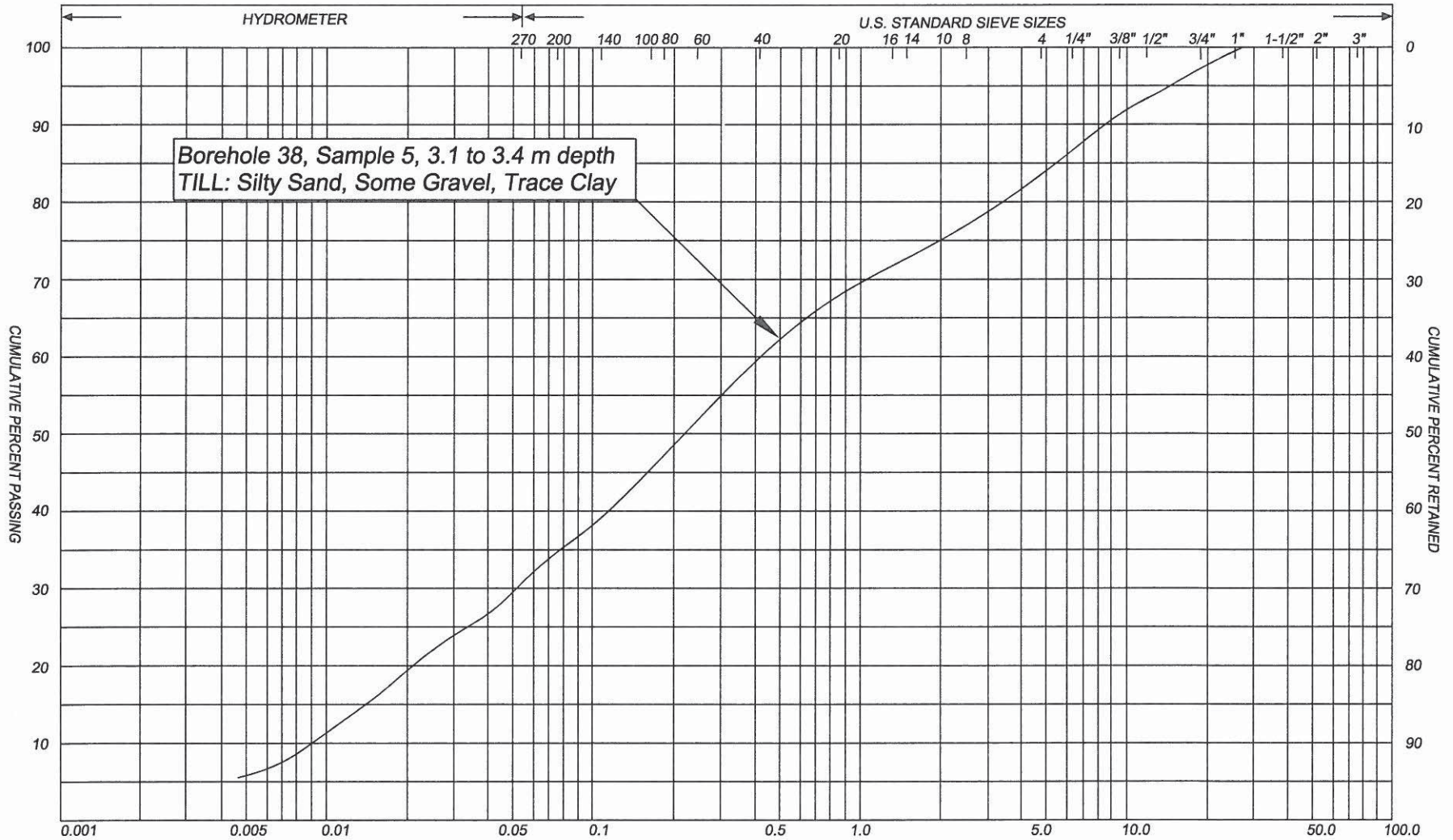
PML Ref.: 15BF019  
 Figure No.: 1-2



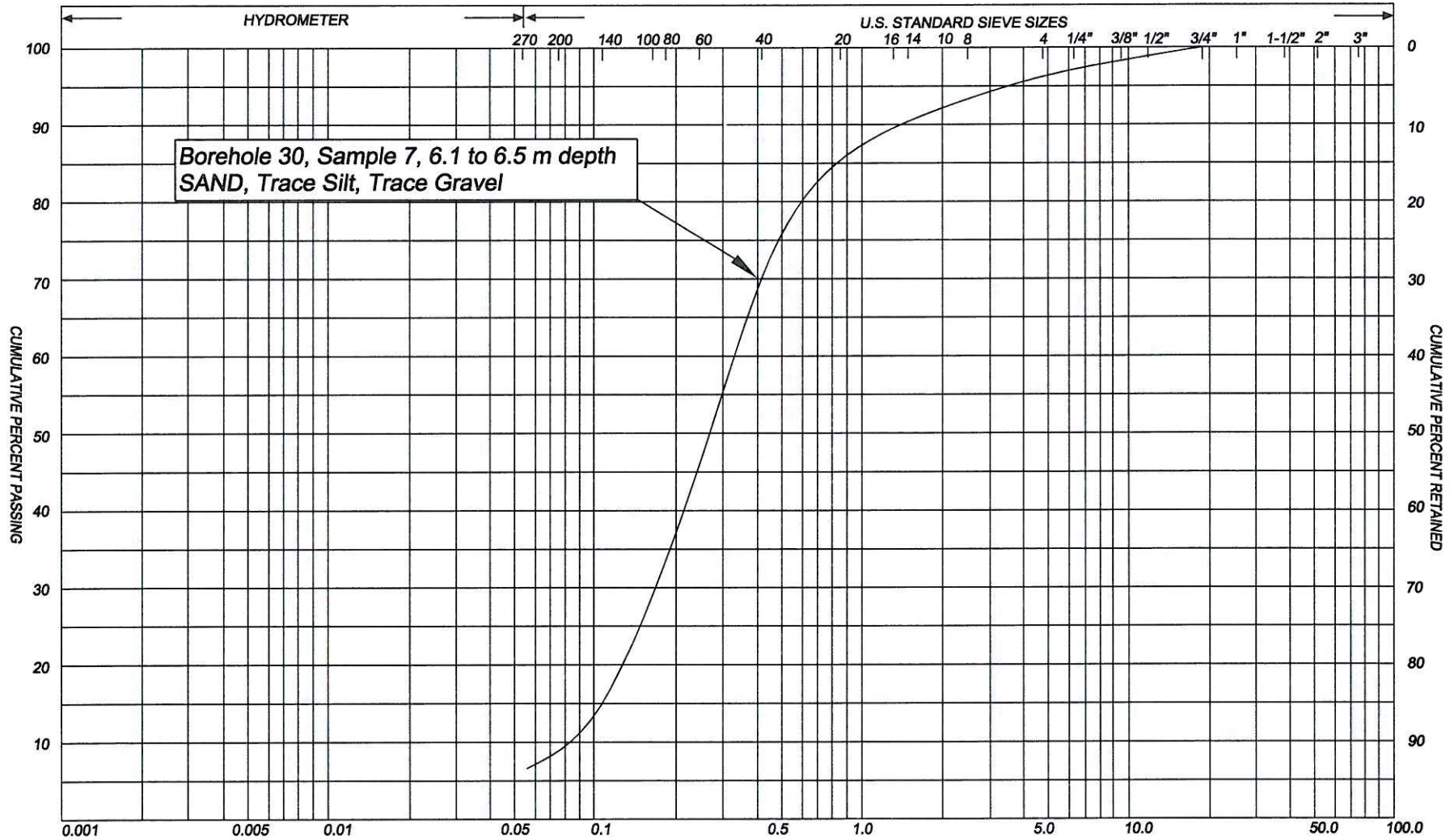
Borehole 15, Sample 4, 2.3 to 2.7 m depth  
 SILTY CLAY, Some Sand  
 Liquid Limit 40%, Plastic Limit 24%  
 CL

SILT & CLAY				FINE SAND			MEDIUM SAND			COARSE SAND			GRAVEL			COBBLES	UNIFIED
CLAY	FINE SILT		COARSE SILT	FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL			COBBLES		M.I.T.		
	CLAY			SILT			V. FINE SAND	FINE SAND	MED SAND	COARSE SAND	GRAVEL			COBBLES		U.S. BUREAU	



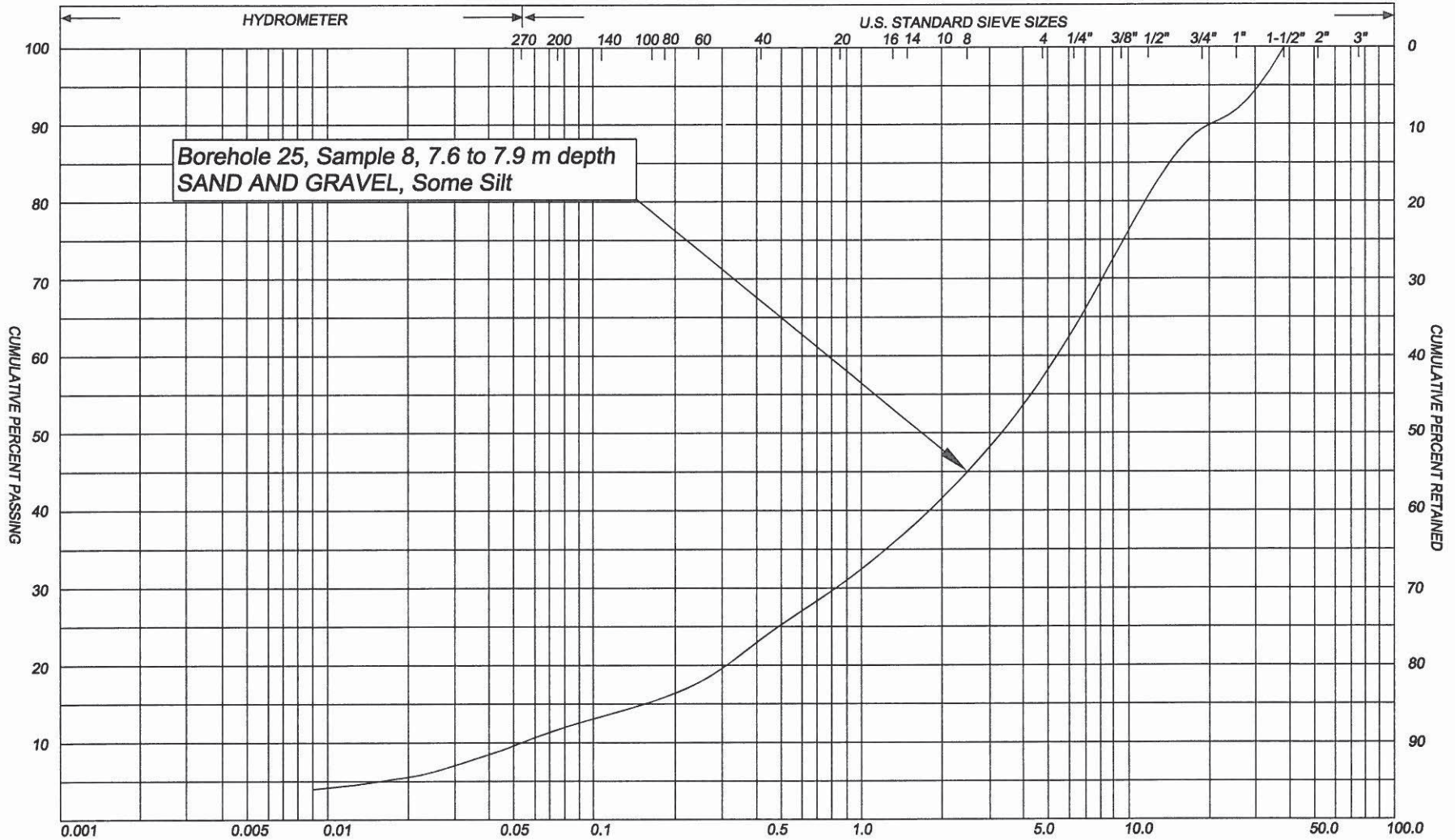


GRAIN SIZE IN MILLIMETERS												
SILT & CLAY				FINE SAND		MEDIUM SAND		COARSE SAND	GRAVEL	COBBLES	UNIFIED	
CLAY	FINE SILT		MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND		COARSE SAND	GRAVEL	COBBLES	M.I.T.	
CLAY		SILT			V. FINE SAND	FINE SAND	MED SAND	COARSE SAND	GRAVEL			U.S. BUREAU



SILT & CLAY			FINE SAND			MEDIUM SAND			COARSE SAND			GRAVEL			COBBLES	UNIFIED
CLAY	FINE SILT		MEDIUM SILT		COARSE SILT	FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL			COBBLES	M.I.T.
CLAY		SILT			V. FINE SAND	FINE SAND		MED SAND		COARSE SAND		GRAVEL				U.S. BUREAU





SILT & CLAY				FINE SAND			COARSE SAND	GRAVEL	COBBLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL	COBBLES	M.I.T.	
CLAY	SILT	V. FINE SAND	FINE SAND	MED SAND	COARSE SAND	GRAVEL			U.S. BUREAU	



CLIENT NAME: PINCHIN ENVIRONMENTAL  
850 BARRYDOWNE ROAD, SUITE 302  
SUDBURY, ON P3A3T7  
(705) 521-0560

ATTENTION TO: TROY GORDON

PROJECT NO: UNIMIN

AGAT WORK ORDER: 13U729031

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Jun 28, 2013

PAGES (INCLUDING COVER): 26

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

\*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
 FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

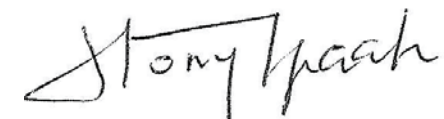
## O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH01 SA9	BH02 SA6	BH03 SA4	BH04 SA5	BH05 SA4	BH06 SA7	BH07 SA5	BH09 SA5	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
		DATE SAMPLED:		6/17/2013	6/17/2013	6/17/2013	6/17/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4487162	4487164	4487168	4487172	4487179	4487183	4487197	4487211	
Antimony	µg/g	40	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	
Arsenic	µg/g	18	1	1	<1	<1	<1	1	1	<1	<1	
Barium	µg/g	670	2	145	64	70	38	125	53	76	40	
Beryllium	µg/g	8	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Boron	µg/g	120	5	8	8	6	<5	10	7	<5	<5	
Boron (Hot Water Soluble)	µg/g	2	0.10	0.15	<0.10	0.10	0.17	<0.10	0.11	<0.10	<0.10	
Cadmium	µg/g	1.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Chromium	µg/g	160	2	23	10	10	10	19	11	9	7	
Cobalt	µg/g	80	0.5	8.4	3.6	3.7	2.7	6.3	3.6	3.3	3.4	
Copper	µg/g	230	1	18	10	11	8	20	8	10	9	
Lead	µg/g	120	1	4	2	2	2	3	2	2	1	
Molybdenum	µg/g	40	0.5	<0.5	<0.5	<0.5	1.0	0.7	0.7	<0.5	<0.5	
Nickel	µg/g	270	1	17	7	7	5	12	6	6	7	
Selenium	µg/g	5.5	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Silver	µg/g	40	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Thallium	µg/g	3.3	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Uranium	µg/g	33	0.5	0.6	<0.5	<0.5	<0.5	0.8	0.7	<0.5	<0.5	
Vanadium	µg/g	86	1	42	20	20	16	37	20	20	19	
Zinc	µg/g	340	5	47	18	18	15	33	16	17	13	
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
Mercury	µg/g	3.9	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	0.124	0.103	0.111	0.105	0.128	0.153	0.085	0.240	
Sodium Adsorption Ratio	NA	12	NA	0.545	0.180	0.123	0.798	2.93	1.44	0.369	0.235	
pH, 2:1 CaCl2 Extraction	pH Units		NA	8.19	8.46	8.07	7.81	8.10	8.16	8.21	8.51	

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
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FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

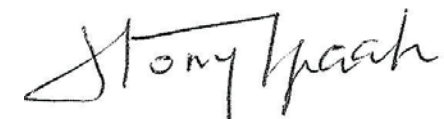
## O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH11 SA8	BH13 SA5	BH15 SA5	BH16 SA3	BH17 SA4	BH18 SA7	BH19 SA9	BH20 SA3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/20/2013	6/20/2013
		G / S	RDL	4487216	4487221	4487226	4487231	4487236	4487241	4487249	4487255
Antimony	µg/g	40	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	1	<1	1	<1	<1	1	2
Barium	µg/g	670	2	29	144	83	81	20	67	76	100
Beryllium	µg/g	8	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	5	<5	6	<5	<5	7	6
Boron (Hot Water Soluble)	µg/g	2	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.36
Cadmium	µg/g	1.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	5	10	7	18	4	10	15	28
Cobalt	µg/g	80	0.5	1.8	3.7	2.7	6.4	1.5	3.2	5.3	6.4
Copper	µg/g	230	1	7	12	10	15	5	8	14	21
Lead	µg/g	120	1	1	2	2	3	<1	2	2	5
Molybdenum	µg/g	40	0.5	<0.5	0.6	<0.5	<0.5	<0.5	1.0	<0.5	<0.5
Nickel	µg/g	270	1	3	7	5	13	3	5	10	18
Selenium	µg/g	5.5	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	40	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	3.3	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	33	0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.5
Vanadium	µg/g	86	1	11	19	16	35	10	14	30	40
Zinc	µg/g	340	5	8	18	13	32	8	13	28	39
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	3.9	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	0.193	0.136	0.068	0.079	0.050	0.110	0.100	1.39
Sodium Adsorption Ratio	NA	12	NA	2.92	0.132	0.068	0.097	0.135	0.868	0.488	0.200
pH, 2:1 CaCl2 Extraction	pH Units		NA	8.46	8.35	8.25	8.14	8.44	8.22	8.28	5.02

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
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<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - Metals & Inorganics (Soil)

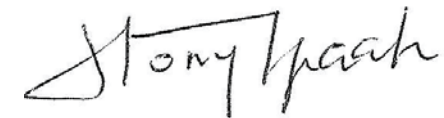
DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		DUP 2	DUP 3
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		6/20/2013	6/20/2013
		G / S	RDL	4487262	4487267
Antimony	µg/g	40	0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1
Barium	µg/g	670	2	56	22
Beryllium	µg/g	8	0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	<5
Boron (Hot Water Soluble)	µg/g	2	0.10	<0.10	<0.10
Cadmium	µg/g	1.9	0.5	<0.5	<0.5
Chromium	µg/g	160	2	7	4
Cobalt	µg/g	80	0.5	2.4	1.6
Copper	µg/g	230	1	7	5
Lead	µg/g	120	1	1	<1
Molybdenum	µg/g	40	0.5	<0.5	<0.5
Nickel	µg/g	270	1	4	3
Selenium	µg/g	5.5	0.4	<0.4	<0.4
Silver	µg/g	40	0.2	<0.2	<0.2
Thallium	µg/g	3.3	0.4	<0.4	<0.4
Uranium	µg/g	33	0.5	<0.5	<0.5
Vanadium	µg/g	86	1	15	9
Zinc	µg/g	340	5	12	8
Chromium VI	µg/g	8	0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	3.9	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	0.084	0.054
Sodium Adsorption Ratio	NA	12	NA	0.352	0.152
pH, 2:1 CaCl <sub>2</sub> Extraction	pH Units		NA	8.23	8.54

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC) - Current  
 4487162-4487267 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl<sub>2</sub> extract prepared at 2:1 ratio.

Certified By:





# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## Particle Size by Sieve (Wet)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

		SAMPLE DESCRIPTION:		BH06 SA7	BH20 SA3
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		6/18/2013	6/20/2013
Parameter	Unit	G / S	RDL	4487183	4487255
Sieve Analysis - 75 µm (retained)	%		N/A	22.8	16.4
Sieve Analysis - 75 µm (passing)	%		N/A	77.2	83.6
Soil Texture (Toronto)				Fine	Fine

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4487183-4487255 Value reported is the amount of sample passing through or retained on sieve after wash with water and represents proportion by weight particles smaller or larger than indicated sieve size.

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH01 SA9	BH02 SA6	BH03 SA4	BH04 SA5	BH05 SA4	BH06 SA7	BH07 SA5	BH09 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/17/2013	6/17/2013	6/17/2013	6/17/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4487162	4487164	4487168	4487172	4487179	4487183	4487197	4487211
Naphthalene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	96	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	12	0.05	<0.05	<0.05	<0.05	<0.05	0.18	<0.05	<0.05	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	0.26	<0.05	<0.05	<0.05
Pyrene	µg/g	96	0.05	<0.05	<0.05	<0.05	<0.05	0.24	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.96	0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05
Chrysene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05	<0.05	<0.05	0.20	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.76	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	76	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	23.0	8.1	10.2	12.9	7.0	16.6	9.0	8.0
PAH Extr	NA			Y	Y	Y	Y	Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits									
Chrysene-d12	%	50-140		69	53	60	52	79	52	54	62

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH11 SA8	BH13 SA5	BH15 SA5	BH16 SA3	BH17 SA4	BH18 SA7	BH19 SA9	BH20 SA3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/20/2013	6/20/2013
		G / S	RDL	4487216	4487221	4487226	4487231	4487236	4487241	4487249	4487255
Naphthalene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	96	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	12	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	96	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.96	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.76	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	76	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	10.5	7.8	11.1	14.2	4.8	12.4	18.7	20.7
PAH Extr	NA			Y	Y	Y	Y	Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits									
Chrysene-d12	%	50-140		55	52	55	52	51	56	55	67

Certified By: \_\_\_\_\_



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

O. Reg. 153(511) - PAHs (Soil)					
DATE RECEIVED: 2013-06-21			DATE REPORTED: 2013-06-28		
	SAMPLE DESCRIPTION:	DUP 2	DUP 3		
	SAMPLE TYPE:	Soil	Soil		
	DATE SAMPLED:	6/20/2013	6/20/2013		
Parameter	Unit	G / S	RDL	4487262	4487267
Naphthalene	µg/g	9.6	0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05
Acenaphthene	µg/g	96	0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05
Phenanthrene	µg/g	12	0.05	<0.05	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05
Fluoranthene	µg/g	9.6	0.05	<0.05	<0.05
Pyrene	µg/g	96	0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.96	0.05	<0.05	<0.05
Chrysene	µg/g	9.6	0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.76	0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	9.6	0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	76	0.05	<0.05	<0.05
Moisture Content	%		0.1	9.0	4.9
PAH Extr	NA			Y	Y
Surrogate	Unit	Acceptable Limits			
Chrysene-d12	%	50-140		69	56

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard; Refers to T3(ICC) - Current

4487162-4487267 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By: \_\_\_\_\_



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PCBs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH18 SA7	BH19 SA9	BH20 SA3
		G / S	RDL	4487241	4487249	4487255
Aroclor 1242	µg/g		0.1	<0.1	<0.1	<0.1
Aroclor 1248	µg/g		0.1	<0.1	<0.1	<0.1
Aroclor 1254	µg/g		0.1	<0.1	<0.1	<0.1
Aroclor 1260	µg/g		0.1	<0.1	<0.1	<0.1
Polychlorinated Biphenyls	µg/g	1.1	0.1	<0.1	<0.1	<0.1
PCB Extr	NA			Y	Y	Y
Surrogate	Unit	Acceptable Limits				
Decachlorobiphenyl	%	60-140		80	92	85

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC) - Current 4487241-4487255 Results are based on the dry weight of soil extracted.

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH01 SA9	BH02 SA6	BH03 SA4	BH04 SA5	BH05 SA4	BH06 SA7	BH07 SA5	BH09 SA5	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
		DATE SAMPLED:		6/17/2013	6/17/2013	6/17/2013	6/17/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4487162	4487164	4487168	4487172	4487179	4487183	4487197	4487211	
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5	<5	<5	<5	<5	
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5	
F2 (C10 to C16)	µg/g	230	10	<10	<10	<10	<10	<10	<10	<10	<10	
F2 (C10 to C16) minus Naphthalene	µg/g	230	10	<10	<10	<10	<10	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	1700	50	<50	<50	<50	<50	<50	<50	<50	<50	
F3 (C16 to C34) minus PAHs	µg/g	1700	50	<50	<50	<50	<50	<50	<50	<50	<50	
F4 (C34 to C50)	µg/g	3300	50	<50	<50	<50	<50	<50	<50	<50	<50	
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA	NA	NA	NA	NA	NA	NA	NA	
Moisture Content	%		0.1	23.0	8.1	10.2	12.9	7.0	16.6	9.0	8.0	
F2-F4 Extr	NA			Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits										
Terphenyl	%	60-140		71	98	104	94	82	92	95	98	
Parameter	Unit	SAMPLE DESCRIPTION:		BH11 SA8	BH13 SA5	BH15 SA5	BH16 SA3	BH17 SA4	BH18 SA7	BH19 SA9	BH20 SA3	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/20/2013	6/20/2013	6/20/2013	6/20/2013
		G / S	RDL	4487216	4487221	4487226	4487231	4487236	4487241	4487249	4487255	
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5	<5	<5	<5	<5	
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5	
F2 (C10 to C16)	µg/g	230	10	<10	<10	<10	<10	<10	<10	<10	<10	
F2 (C10 to C16) minus Naphthalene	µg/g	230	10	<10	<10	<10	<10	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	1700	50	<50	<50	<50	<50	<50	<50	<50	<50	
F3 (C16 to C34) minus PAHs	µg/g	1700	50	<50	<50	<50	<50	<50	<50	<50	<50	
F4 (C34 to C50)	µg/g	3300	50	<50	<50	<50	<50	<50	<50	<50	<50	
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA	NA	NA	NA	NA	NA	NA	NA	
Moisture Content	%		0.1	10.5	7.8	11.1	14.2	4.8	12.4	18.7	20.7	
F2-F4 Extr	NA			Y	Y	Y	Y	Y	Y	Y	Y	
Surrogate	Unit	Acceptable Limits										
Terphenyl	%	60-140		82	93	106	78	117	105	125	101	

Certified By:





CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

**O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)**

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		DUP 2	DUP 3
		G / S	RDL	4487262	4487267
F1 (C6 to C10)	µg/g		5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	230	10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g	230	10	<10	<10
F3 (C16 to C34)	µg/g	1700	50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g	1700	50	<50	<50
F4 (C34 to C50)	µg/g	3300	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA	NA
Moisture Content	%		0.1	9.0	4.9
F2-F4 Extr	NA			Y	Y
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		126	94

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC) - Current

4487162-4487267 Results are based on sample dry weight.

The C6-C10 fraction is calculated using toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons &gt;C50 are present.

Total C6 - C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

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# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH01 SA9	BH02 SA6	BH03 SA4	BH04 SA5	BH05 SA4	BH06 SA7	BH07 SA5	BH09 SA5	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
		DATE SAMPLED:		6/17/2013	6/17/2013	6/17/2013	6/17/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4487162	4487164	4487168	4487172	4487179	4487183	4487197	4487211	
Dichlorodifluoromethane	ug/g	16	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Vinyl Chloride	ug/g	0.032	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acetone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1,1-Dichloroethylene	ug/g	0.064	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Methylene Chloride	ug/g	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Trans- 1,2-Dichloroethylene	ug/g	1.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Methyl tert-butyl Ether	ug/g	11	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-Dichloroethane	ug/g	17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Methyl Ethyl Ketone	ug/g	70	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Cis- 1,2-Dichloroethylene	ug/g	55	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Chloroform	ug/g	0.47	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	
1,1,1-Trichloroethane	ug/g	6.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Carbon Tetrachloride	ug/g	0.21	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzene	ug/g	0.32	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
1,2-Dichloropropane	ug/g	0.16	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	
Trichloroethylene	ug/g	0.91	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	
Bromodichloromethane	ug/g	18	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Methyl Isobutyl Ketone	ug/g	31	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Toluene	ug/g	68	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibromochloromethane	ug/g	13	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Tetrachloroethylene	ug/g	4.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,1,2-Tetrachloroethane	ug/g	0.087	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Ethylbenzene	ug/g	9.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Bromoform	ug/g	0.61	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

Certified By: \_\_\_\_\_





## Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

### O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH01 SA9	BH02 SA6	BH03 SA4	BH04 SA5	BH05 SA4	BH06 SA7	BH07 SA5	BH09 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/17/2013	6/17/2013	6/17/2013	6/17/2013	6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4487162	4487164	4487168	4487172	4487179	4487183	4487197	4487211
Styrene	ug/g	34	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	6.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	26	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.18	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	46	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits									
Toluene-d8	% Recovery	50-140		104	104	102	105	104	103	105	105
4-Bromofluorobenzene	% Recovery	50-140		93	91	90	93	92	92	92	92

Certified By:

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH11 SA8	BH13 SA5	BH15 SA5	BH16 SA3	BH17 SA4	BH18 SA7	BH19 SA9	BH20 SA3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/20/2013	6/20/2013
		G / S	RDL	4487216	4487221	4487226	4487231	4487236	4487241	4487249	4487255
Dichlorodifluoromethane	ug/g	16	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.032	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.064	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	1.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	11	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	70	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	55	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.47	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	6.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.21	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.32	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.16	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.91	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	18	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	31	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	68	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	ug/g	13	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	4.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.087	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	9.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.61	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By:





## Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

### O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH11 SA8	BH13 SA5	BH15 SA5	BH16 SA3	BH17 SA4	BH18 SA7	BH19 SA9	BH20 SA3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/20/2013	6/20/2013	6/20/2013
		G / S	RDL	4487216	4487221	4487226	4487231	4487236	4487241	4487249	4487255
Styrene	ug/g	34	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	6.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	26	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.18	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	46	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits									
Toluene-d8	% Recovery	50-140		104	104	105	107	104	104	101	103
4-Bromofluorobenzene	% Recovery	50-140		91	89	89	93	90	90	86	92

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
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<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		DUP 2	DUP 3
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		6/20/2013	6/20/2013
		G / S	RDL	4487262	4487267
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.032	0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05
Acetone	ug/g	16	0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.064	0.05	<0.05	<0.05
Methylene Chloride	ug/g	1.6	0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	1.3	0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	11	0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	17	0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	70	0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	55	0.02	<0.02	<0.02
Chloroform	ug/g	0.47	0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	6.1	0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.21	0.05	<0.05	<0.05
Benzene	ug/g	0.32	0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.16	0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.91	0.03	<0.03	<0.03
Bromodichloromethane	ug/g	18	0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	31	0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04
Toluene	ug/g	68	0.05	<0.05	<0.05
Dibromochloromethane	ug/g	13	0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	4.5	0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.087	0.04	<0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05
Ethylbenzene	ug/g	9.5	0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05
Bromoform	ug/g	0.61	0.05	<0.05	<0.05

Certified By:





## Certificate of Analysis

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

### O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		DUP 2	DUP 3
		G / S	RDL	4487262	4487267
Styrene	ug/g	34	0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	9.6	0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.2	0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	6.8	0.05	<0.05	<0.05
Xylene Mixture	ug/g	26	0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.18	0.04	<0.04	<0.04
n-Hexane	µg/g	46	0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		103	105
4-Bromofluorobenzene	% Recovery	50-140		91	91

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(ICC) - Current  
 4487162-4487267 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By: \_\_\_\_\_

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

Soil Analysis																
RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

**O. Reg. 153(511) - Metals & Inorganics (Soil)**

Antimony	1	4487162	< 0.8	< 0.8	0.0%	< 0.8	107%	70%	130%	81%	80%	120%	83%	70%	130%
Arsenic	1	4487162	1	1	0.0%	< 1	103%	70%	130%	88%	80%	120%	92%	70%	130%
Barium	1	4487162	145	138	4.9%	< 2	101%	70%	130%	100%	80%	120%	108%	70%	130%
Beryllium	1	4487162	< 0.5	< 0.5	0.0%	< 0.5	100%	70%	130%	93%	80%	120%	92%	70%	130%
Boron	1	4487162	8	8	0.0%	< 5	78%	70%	130%	90%	80%	120%	94%	70%	130%
Boron (Hot Water Soluble)	1	4487164	<0.10	<0.10	0.0%	< 0.10	92%	60%	140%	82%	70%	130%	92%	60%	140%
Cadmium	1	4487162	< 0.5	< 0.5	0.0%	< 0.5	106%	70%	130%	112%	80%	120%	113%	70%	130%
Chromium	1	4487162	23	23	0.0%	< 2	105%	70%	130%	99%	80%	120%	98%	70%	130%
Cobalt	1	4487162	8.4	8.4	0.0%	< 0.5	97%	70%	130%	99%	80%	120%	99%	70%	130%
Copper	1	4487162	18	18	0.0%	< 1	100%	70%	130%	109%	80%	120%	97%	70%	130%
Lead	1	4487162	4	4	0.0%	< 1	102%	70%	130%	101%	80%	120%	97%	70%	130%
Molybdenum	1	4487162	< 0.5	< 0.5	0.0%	< 0.5	101%	70%	130%	102%	80%	120%	109%	70%	130%
Nickel	1	4487162	17	17	0.0%	< 1	97%	70%	130%	100%	80%	120%	96%	70%	130%
Selenium	1	4487162	< 0.4	< 0.4	0.0%	< 0.4	85%	70%	130%	101%	80%	120%	104%	70%	130%
Silver	1	4487162	< 0.2	< 0.2	0.0%	< 0.2	100%	70%	130%	116%	80%	120%	118%	70%	130%
Thallium	1	4487162	< 0.4	< 0.4	0.0%	< 0.4	95%	70%	130%	95%	80%	120%	93%	70%	130%
Uranium	1	4487162	0.6	0.6	0.0%	< 0.5	107%	70%	130%	108%	80%	120%	102%	70%	130%
Vanadium	1	4487162	42	43	2.4%	< 1	97%	70%	130%	102%	80%	120%	105%	70%	130%
Zinc	1	4487162	47	45	4.3%	< 5	101%	70%	130%	109%	80%	120%	107%	70%	130%
Chromium VI	1	4487162	< 0.2	< 0.2	0.0%	< 0.2	94%	70%	130%	99%	80%	120%	100%	70%	130%
Cyanide	1	4487162	< 0.040	< 0.040	0.0%	< 0.040	102%	70%	130%	102%	80%	120%	99%	70%	130%
Mercury	1	4487162	< 0.10	< 0.10	0.0%	< 0.10	103%	70%	130%	86%	80%	120%	87%	70%	130%
Electrical Conductivity (2:1)	1	4487164	0.103	0.104	1.0%	< 0.005	93%	90%	110%	NA			NA		
Sodium Adsorption Ratio	1	4487221	0.132	0.131	1.0%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	1	4487172	7.81	7.79	0.3%	NA	100%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

**O. Reg. 153(511) - Metals & Inorganics (Soil)**

Antimony	1	4487226	< 0.8	< 0.8	0.0%	< 0.8	70%	130%		80%	120%		70%	130%
Arsenic	1	4487226	< 1	1		< 1	70%	130%		80%	120%		70%	130%
Barium	1	4487226	83	68	19.9%	< 2	70%	130%		80%	120%		70%	130%
Beryllium	1	4487226	< 0.5	< 0.5	0.0%	< 0.5	70%	130%		80%	120%		70%	130%
Boron	1	4487226	< 5	< 5	0.0%	< 5	70%	130%		80%	120%		70%	130%
Cadmium	1	4487226	< 0.5	< 0.5	0.0%	< 0.5	70%	130%		80%	120%		70%	130%
Chromium	1	4487226	7	7	0.0%	< 2	70%	130%		80%	120%		70%	130%
Cobalt	1	4487226	2.74	2.92	6.4%	< 0.5	70%	130%		80%	120%		70%	130%
Copper	1	4487226	10	11	9.5%	< 1	70%	130%		80%	120%		70%	130%
Lead	1	4487226	2	2	0.0%	< 1	70%	130%		80%	120%		70%	130%
Molybdenum	1	4487226	< 0.5	< 0.5	0.0%	< 0.5	70%	130%		80%	120%		70%	130%

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL  
 PROJECT NO: UNIMIN

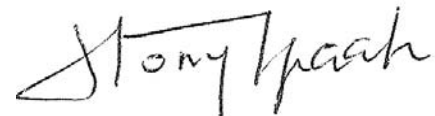
AGAT WORK ORDER: 13U729031  
 ATTENTION TO: TROY GORDON

### Soil Analysis (Continued)

RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Nickel	1	4487226	5	5	0.0%	< 1	70%	130%		80%	120%		70%	130%	
Selenium	1	4487226	< 0.4	< 0.4	0.0%	< 0.4	70%	130%		80%	120%		70%	130%	
Silver	1	4487226	< 0.2	< 0.2	0.0%	< 0.2	70%	130%		80%	120%		70%	130%	
Thallium	1	4487226	< 0.4	< 0.4	0.0%	< 0.4	70%	130%		80%	120%		70%	130%	
Uranium	1	4487226	< 0.5	< 0.5	0.0%	< 0.5	70%	130%		80%	120%		70%	130%	
Vanadium	1	4487226	16	17	6.1%	< 1	70%	130%		80%	120%		70%	130%	
Zinc	1	4487226	13	14	7.4%	< 5	70%	130%		80%	120%		70%	130%	
Mercury	1	4487226	< 0.10	< 0.10	0.0%	< 0.10	70%	130%		80%	120%		70%	130%	
pH, 2:1 CaCl2 Extraction	1	4487241	8.22	8.19	0.4%	NA	100%	90%	110%	NA			NA		
Particle Size by Sieve (Wet)															
Sieve Analysis - 75 µm (retained)	1	4487183	22.8	22.8	0.0%	N/A	NA			NA			NA		
Sieve Analysis - 75 µm (passing)	1	4487183	77.2	77.2	0.0%	N/A	NA			NA			NA		

Comments: NA - Not Applicable

Certified By: \_\_\_\_\_



## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis

RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
O. Reg. 153(511) - VOCs (Soil)																
Dichlorodifluoromethane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	60%	50%	140%	105%	50%	140%	108%	50%	140%	
Vinyl Chloride	1	4478216	< 0.02	< 0.02	0.0%	< 0.02	83%	50%	140%	107%	50%	140%	102%	50%	140%	
Bromomethane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	111%	50%	140%	123%	50%	140%	
Trichlorofluoromethane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	106%	50%	140%	120%	50%	140%	123%	50%	140%	
Acetone	1	4478216	< 0.50	< 0.50	0.0%	< 0.50	100%	50%	140%	116%	50%	140%	119%	50%	140%	
1,1-Dichloroethylene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	97%	50%	140%	118%	60%	130%	119%	50%	140%	
Methylene Chloride	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	108%	50%	140%	108%	60%	130%	121%	50%	140%	
Trans- 1,2-Dichloroethylene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	122%	50%	140%	118%	60%	130%	122%	50%	140%	
Methyl tert-butyl Ether	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	107%	50%	140%	116%	60%	130%	116%	50%	140%	
1,1-Dichloroethane	1	4478216	< 0.02	< 0.02	0.0%	< 0.02	114%	50%	140%	112%	60%	130%	107%	50%	140%	
Methyl Ethyl Ketone	1	4478216	< 0.50	< 0.50	0.0%	< 0.50	95%	50%	140%	94%	50%	140%	80%	50%	140%	
Cis- 1,2-Dichloroethylene	1	4478216	< 0.02	< 0.02	0.0%	< 0.02	92%	50%	140%	98%	60%	130%	90%	50%	140%	
Chloroform	1	4478216	< 0.04	< 0.04	0.0%	< 0.04	112%	50%	140%	114%	60%	130%	110%	50%	140%	
1,2-Dichloroethane	1	4478216	< 0.03	< 0.03	0.0%	< 0.03	108%	50%	140%	117%	60%	130%	113%	50%	140%	
1,1,1-Trichloroethane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	105%	50%	140%	108%	60%	130%	106%	50%	140%	
Carbon Tetrachloride	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	104%	60%	130%	106%	50%	140%	
Benzene	1	4478216	< 0.02	< 0.02	0.0%	< 0.02	95%	50%	140%	103%	60%	130%	98%	50%	140%	
1,2-Dichloropropane	1	4478216	< 0.03	< 0.03	0.0%	< 0.03	100%	50%	140%	99%	60%	130%	98%	50%	140%	
Trichloroethylene	1	4478216	< 0.03	< 0.03	0.0%	< 0.03	111%	50%	140%	92%	60%	130%	96%	50%	140%	
Bromodichloromethane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	109%	50%	140%	109%	60%	130%	106%	50%	140%	
Methyl Isobutyl Ketone	1	4478216	< 0.50	< 0.50	0.0%	< 0.50	61%	50%	140%	101%	50%	140%	86%	50%	140%	
1,1,2-Trichloroethane	1	4478216	< 0.04	< 0.04	0.0%	< 0.04	115%	50%	140%	116%	60%	130%	110%	50%	140%	
Toluene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	102%	60%	130%	98%	50%	140%	
Dibromochloromethane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	113%	60%	130%	104%	50%	140%	
Ethylene Dibromide	1	4478216	< 0.04	< 0.04	0.0%	< 0.04	96%	50%	140%	98%	60%	130%	93%	50%	140%	
Tetrachloroethylene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	113%	60%	130%	108%	50%	140%	
1,1,1,2-Tetrachloroethane	1	4478216	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	112%	60%	130%	107%	50%	140%	
Chlorobenzene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	112%	60%	130%	106%	50%	140%	
Ethylbenzene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	102%	60%	130%	98%	50%	140%	
m & p-Xylene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	98%	50%	140%	102%	60%	130%	100%	50%	140%	
Bromoform	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	107%	50%	140%	114%	60%	130%	106%	50%	140%	
Styrene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	72%	50%	140%	88%	60%	130%	83%	50%	140%	
1,1,2,2-Tetrachloroethane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	111%	60%	130%	119%	50%	140%	
o-Xylene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	69%	50%	140%	73%	60%	130%	70%	50%	140%	
1,3-Dichlorobenzene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	89%	50%	140%	86%	60%	130%	79%	50%	140%	
1,4-Dichlorobenzene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	105%	50%	140%	104%	60%	130%	97%	50%	140%	
1,2-Dichlorobenzene	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	90%	50%	140%	87%	60%	130%	84%	50%	140%	
Xylene Mixture	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	69%	50%	140%	73%	60%	130%	70%	50%	140%	
1,3-Dichloropropene	1	4478216	< 0.04	< 0.04	0.0%	< 0.04	84%	50%	140%	96%	60%	130%	86%	50%	140%	



## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis (Continued)

RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
n-Hexane	1	4478216	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	119%	60%	130%	97%	50%	140%	
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)																
F1 (C6 to C10)	1	4478216	< 5	< 5	0.0%	< 5	94%	60%	140%	91%	80%	120%	74%	60%	140%	
F2 (C10 to C16)	1	4487221	< 10	< 10	0.0%	< 10	117%	60%	140%	89%	80%	120%	73%	60%	140%	
F3 (C16 to C34)	1	4487221	< 50	< 50	0.0%	< 50	120%	60%	140%	101%	80%	120%	83%	60%	140%	
F4 (C34 to C50)	1	4487221	< 50	< 50	0.0%	< 50	88%	60%	140%	84%	80%	120%	88%	60%	140%	
O. Reg. 153(511) - PAHs (Soil)																
Naphthalene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	109%	50%	140%	88%	50%	140%	74%	50%	140%	
Acenaphthylene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	79%	50%	140%	67%	50%	140%	
Acenaphthene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	84%	50%	140%	69%	50%	140%	
Fluorene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	90%	50%	140%	75%	50%	140%	67%	50%	140%	
Phenanthrene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	83%	50%	140%	66%	50%	140%	64%	50%	140%	
Anthracene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	83%	50%	140%	77%	50%	140%	
Fluoranthene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	79%	50%	140%	67%	50%	140%	64%	50%	140%	
Pyrene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	80%	50%	140%	69%	50%	140%	66%	50%	140%	
Benz(a)anthracene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	73%	50%	140%	76%	50%	140%	86%	50%	140%	
Chrysene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	92%	50%	140%	75%	50%	140%	77%	50%	140%	
Benzo(b)fluoranthene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	104%	50%	140%	87%	50%	140%	
Benzo(k)fluoranthene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	108%	50%	140%	76%	50%	140%	68%	50%	140%	
Benzo(a)pyrene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	72%	50%	140%	76%	50%	140%	73%	50%	140%	
Indeno(1,2,3-cd)pyrene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	81%	50%	140%	64%	50%	140%	59%	50%	140%	
Dibenz(a,h)anthracene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	69%	50%	140%	77%	50%	140%	63%	50%	140%	
Benzo(g,h,i)perylene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	78%	50%	140%	63%	50%	140%	65%	50%	140%	
2-and 1-methyl Naphthalene	1	4487197	< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	83%	50%	140%	72%	50%	140%	
Moisture Content	1	4487197	< 0.1	< 0.1	0.0%	< 0.1	0%	0%		0%	0%		0%	0%		
Chrysene-d12	1	4487197	<	<	0.0%	<	50%	140%		50%	140%		50%	140%		
PAH Extr	1	4487197	<	<	0.0%	<	100%	100%		100%	100%		100%	100%		
O. Reg. 153(511) - VOCs (Soil)																
Dichlorodifluoromethane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	50%	140%	NA	50%	140%	
Vinyl Chloride	1	4478267	< 0.02	< 0.02	0.0%	< 0.02	NA	50%	140%	NA	50%	140%	NA	50%	140%	
Bromomethane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	50%	140%	NA	50%	140%	
Trichlorofluoromethane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	50%	140%	NA	50%	140%	
Acetone	1	4478267	< 0.50	< 0.50	0.0%	< 0.50	NA	50%	140%	NA	50%	140%	NA	50%	140%	
1,1-Dichloroethylene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Methylene Chloride	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Trans- 1,2-Dichloroethylene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Methyl tert-butyl Ether	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,1-Dichloroethane	1	4478267	< 0.02	< 0.02	0.0%	< 0.02	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Methyl Ethyl Ketone	1	4478267	< 0.50	< 0.50	0.0%	< 0.50	NA	50%	140%	NA	50%	140%	NA	50%	140%	

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis (Continued)

RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Cis- 1,2-Dichloroethylene	1	4478267	< 0.02	< 0.02	0.0%	< 0.02	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Chloroform	1	4478267	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,2-Dichloroethane	1	4478267	< 0.03	< 0.03	0.0%	< 0.03	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,1,1-Trichloroethane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Carbon Tetrachloride	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Benzene	1	4478267	< 0.02	< 0.02	0.0%	< 0.02	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,2-Dichloropropane	1	4478267	< 0.03	< 0.03	0.0%	< 0.03	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Trichloroethylene	1	4478267	< 0.03	< 0.03	0.0%	< 0.03	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Bromodichloromethane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Methyl Isobutyl Ketone	1	4478267	< 0.50	< 0.50	0.0%	< 0.50	NA	50%	140%	NA	50%	140%	NA	50%	140%	
1,1,2-Trichloroethane	1	4478267	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Toluene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Dibromochloromethane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Ethylene Dibromide	1	4478267	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Tetrachloroethylene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,1,1,2-Tetrachloroethane	1	4478267	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Chlorobenzene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Ethylbenzene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
m & p-Xylene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Bromoform	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Styrene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,1,1,2-Tetrachloroethane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
o-Xylene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,3-Dichlorobenzene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,4-Dichlorobenzene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,2-Dichlorobenzene	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
Xylene Mixture	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
1,3-Dichloropropene	1	4478267	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	NA	60%	130%	NA	50%	140%	
n-Hexane	1	4478267	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	NA	60%	130%	NA	50%	140%	
O. Reg. 153(511) - PAHs (Soil)																
Naphthalene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	118%	50%	140%	83%	50%	140%	77%	50%	140%	
Acenaphthylene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	68%	50%	140%	71%	50%	140%	
Acenaphthene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	74%	50%	140%	76%	50%	140%	
Fluorene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	87%	50%	140%	66%	50%	140%	72%	50%	140%	
Phenanthrene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	71%	50%	140%	62%	50%	140%	68%	50%	140%	
Anthracene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	77%	50%	140%	61%	50%	140%	72%	50%	140%	
Fluoranthene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	69%	50%	140%	60%	50%	140%	68%	50%	140%	
Pyrene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	64%	50%	140%	60%	50%	140%	67%	50%	140%	
Benz(a)anthracene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	80%	50%	140%	62%	50%	140%	71%	50%	140%	

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031


PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis (Continued)

RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Chrysene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	72%	50%	140%	68%	50%	140%	73%	50%	140%	
Benzo(b)fluoranthene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	74%	50%	140%	73%	50%	140%	
Benzo(k)fluoranthene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	126%	50%	140%	91%	50%	140%	94%	50%	140%	
Benzo(a)pyrene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	70%	50%	140%	75%	50%	140%	
Indeno(1,2,3-cd)pyrene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	91%	50%	140%	88%	50%	140%	
Dibenz(a,h)anthracene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	86%	50%	140%	79%	50%	140%	71%	50%	140%	
Benzo(g,h,i)perylene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	82%	50%	140%	87%	50%	140%	71%	50%	140%	
2-and 1-methyl Naphthalene	1	4487262	< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	75%	50%	140%	74%	50%	140%	
O. Reg. 153(511) - PCBs (Soil)																
Aroclor 1242	1		< 0.1	< 0.1	0.0%	< 0.1	NA	60%	140%	NA	60%	140%	NA	60%	140%	
Aroclor 1248	1		< 0.1	< 0.1	0.0%	< 0.1	NA	60%	140%	NA	60%	140%	NA	60%	140%	
Aroclor 1254	1		< 0.1	< 0.1	0.0%	< 0.1	NA	60%	140%	NA	60%	140%	NA	60%	140%	
Aroclor 1260	1		< 0.1	< 0.1	0.0%	< 0.1	NA	60%	140%	NA	60%	140%	NA	60%	140%	
Polychlorinated Biphenyls	1		< 0.1	< 0.1	0.0%	< 0.1	95%	60%	140%	103%	60%	140%	96%	60%	140%	

Certified By: \_\_\_\_\_



## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A; SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
pH, 2:1 CaCl <sub>2</sub> Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER
Sieve Analysis - 75 µm (retained)		KROETSCH 2007; SHEPPARD 2007	SIEVE
Sieve Analysis - 75 µm (passing)		KROETSCH 2007; SHEPPARD 2007	SIEVE

## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	Org 5506	EPA SW-846 3540 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
PAH Extr			N/A
Aroclor 1242	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Aroclor 1248	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Aroclor 1254	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Aroclor 1260	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Polychlorinated Biphenyls	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
PCB Extr			N/A
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	GRAVIMETRIC ANALYSIS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
F2-F4 Extr			N/A
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS



## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729031

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS



# AGAT

## Laboratories

2 black

5835 Coopers Avenue  
Mississauga, ON  
L4Z 1Y2

www.agatlabs.com · webeath.agatlabs.com

### Laboratory Use Only

Arrival Temperature: 13U729031  
AGAT WO #: ① 4.1/4.3/4.3  
② 37/3.9/4.7  
Lab Temperature:  
Notes:

### Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122 • TF: 800.856.6261

#### Client Information

Company: PINCHIN ENVIRONMENTAL  
Contact: TROY GORDON  
Address: 850 BARRY DOWNE RD  
SUDBURY ON P3A3T7  
Phone: 705-521-0560 Fax: 705-521-1309  
Project: UNIMIN PO: 76105.001  
AGAT Quotation #: 50A

Please note, if quotation number is not provided,  
client will be billed full price for analysis.

#### Regulatory Requirements

Regulation 153/04 (reg. 511 Amend.)  Sewer Use  Regulation 558  
Table 3  Region  CCME  
Indicate one  Other (specify) \_\_\_\_\_  
 Ind/Com  Sanitary  Prov. Water Quality Objectives (PWQO)  
 Res/Park  Storm  None  
 Agriculture  
Soil Texture (check one)  
 Coarse  Fine

#### Turnaround Time Required (TAT) Required\*

##### Regular TAT

5 to 7 Working Days

##### Rush TAT (please provide prior notification)

##### Rush Surcharges Apply

3 Working Days  
 2 Working Days  
 1 Working Day

##### OR

Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

#### Invoice To

Same: Yes  No

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_

#### Is this a drinking water sample?

(potable water intended for human consumption)  
 Yes  No

If "Yes", please use the  
Drinking Water Chain of Custody Form

#### Is this submission for a Record of Site Condition?

Yes  No

#### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

#### Report Information - reports to be sent to:

1. Name: TROY GORDON  
Email: TGORDON@PINCHIN.COM  
2. Name: JENNA PILLARELLA  
Email: JPILLARELLA@PINCHIN.COM

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6 <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N- Total <input type="checkbox"/> Hg <input type="checkbox"/> pH	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub>	VOC: <input checked="" type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX	CCME Fractions 1 to 4	ABNS	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	Green Site	
BH01 SA9	June 17	13:30	S	4		✓						✓	✓									
BH02 SA6	June 17	14:20	S	4		✓						✓	✓									
BH03 SA4	June 17	15:45	S	4		✓						✓	✓									
BH04 SAS	June 17	16:40	S	4		✓						✓	✓									
BH05 SA4	June 18	8:35	S	4		✓						✓	✓									
BH06 SA7	June 18	9:45	S	5		✓						✓	✓									
BH07 SAS	June 18	10:55	S	5		✓						✓	✓									
BH09 SAS	June 18	13:45	S	5		✓						✓	✓									
BH11 SAB	June 19	9:40	S	5		✓						✓	✓									
BH13 SAS	June 19		S	5		✓						✓	✓									
BH15 SAS	June 19	14:00	S	5		✓						✓	✓									

Samples Relinquished By (Print Name and Sign):  
Jenna Pillarella

Date/Time: June 21/13

Samples Received By (Print Name and Sign):  
Gina Harper Gina Harper July 21/2013  
Shazmin June 21/13 2:44 pm

Pink Copy - Client  
Yellow Copy - AGAT  
White Copy - AGAT

Page 1 of 2  
N<sup>o</sup>: 199751





# AGAT Laboratories

5835 Coopers Avenue  
Mississauga, ON  
L4Z 1Y2

www.agatlabs.com • webeath.agatlabs.com

P: 905.712.5100 • F: 905.712.5122 • TF: 800.856.6261

## Laboratory Use Only

Arrival Temperature: \_\_\_\_\_  
AGAT WO #: \_\_\_\_\_  
Lab Temperature: \_\_\_\_\_  
Notes: \_\_\_\_\_

## Chain of Custody Record

### Client Information

Company: PINCHIN ENVIRONMENTAL  
Contact: TROY GORDON  
Address: 650 BARRY DOWNER RD  
SUDBURY ON P3A 3T7  
Phone: 705-521-0560 Fax: 705-521-1309  
Project: UNIMIN PO: 76105.001  
AGAT Quotation #: SDA

Please note, if quotation number is not provided, client will be billed full price for analysis.

### Regulatory Requirements

Regulation 153/04  
(reg. 511 Amend.)

Table 3  
Indicate one

Ind/Com

Res/Park

Agriculture

Soil Texture (check one)

Coarse  Fine

Sewer Use

Region \_\_\_\_\_  
Indicate one

Sanitary

Storm

Regulation 558

CCME

Other (specify) \_\_\_\_\_

Prov. Water Quality Objectives (PWQO)

None

### Turnaround Time Required (TAT) Required\*

#### Regular TAT

5 to 7 Working Days

**Rush TAT** (please provide prior notification)

**Rush Surcharges Apply**

3 Working Days

2 Working Days

1 Working Day

**OR**

Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

### Invoice To

Same: Yes  No

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_

### Is this a drinking water sample?

(potable water intended for human consumption)

Yes  No

If "Yes", please use the  
Drinking Water Chain of Custody Form

### Is this submission for a Record of Site Condition?

Yes  No

### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

### Report Information - reports to be sent to:

1. Name: TROY GORDON  
Email: TGORDON@PINCHIN.COM  
2. Name: JENNA PILLARELLA  
Email: JPILLARELLA@PINCHIN.COM

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6 <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N-Total <input type="checkbox"/> Hg <input type="checkbox"/> pH	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub>	VOC: <input checked="" type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	Grain Size	
BH16 SA3	June 19	14:55	S	5		✓						✓	✓		✓							
BH17 SA4	June 19	16:55	S	5		✓						✓	✓		✓							
BH18 SA7	June 20	16:10	S	6		✓						✓	✓		✓	✓						
BH19 SA9	June 20	12:00	S	6		✓						✓	✓		✓	✓						
BH20 SA3	June 20	12:45	S	7		✓						✓	✓		✓	✓					✓	
DUP2	June 18	10:55	S	5		✓						✓	✓		✓	✓						
DUP3	June 19	16:55	S	5		✓						✓	✓		✓	✓						

Samples Relinquished By (Print Name and Sign):  
Jenna Pillarella  
Date/Time: June 21/13

Samples Received By (Print Name and Sign):  
Shazmin  
Date/Time: June 21/2013

Samples Received By (Print Name and Sign):  
Crina Harper  
Date/Time: June 21/2013

Pink Copy - Client  
Yellow Copy - AGAT  
White Copy - AGAT

Page 2 of 2  
N<sup>o</sup>: **199752**

10:00

CLIENT NAME: PINCHIN ENVIRONMENTAL  
850 BARRYDOWNE ROAD, SUITE 302  
SUDBURY, ON P3A3T7  
(705) 521-0560

ATTENTION TO: TROY GORDON

PROJECT NO: UNIMIN

AGAT WORK ORDER: 13U729033

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Jun 28, 2013

PAGES (INCLUDING COVER): 14

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

\*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

# Certificate of Analysis

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
 FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2013-06-21

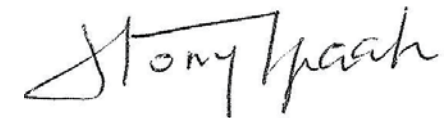
DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH08 SA5	BH10 SA7	BH12 SA2	BH14 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4484840	4484858	4484870	4484878
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	2	<1	5	5
Barium	µg/g	220	2	265	44	71	61
Beryllium	µg/g	2.5	0.5	0.8	<0.5	<0.5	<0.5
Boron	µg/g	36	5	11	8	14	12
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.12	<0.10	0.18	0.29
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	42	12	13	14
Cobalt	µg/g	22	0.5	14.5	3.1	4.2	8.0
Copper	µg/g	92	1	31	9	14	23
Lead	µg/g	120	1	7	2	8	13
Molybdenum	µg/g	2	0.5	0.5	0.7	1.5	0.7
Nickel	µg/g	82	1	30	6	10	14
Selenium	µg/g	1.5	0.4	<0.4	<0.4	1.0	0.7
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	0.8	<0.5	<0.5	0.5
Vanadium	µg/g	86	1	66	21	19	29
Zinc	µg/g	290	5	75	17	26	44
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	0.238	0.214	0.425	0.134
Sodium Adsorption Ratio	NA	5	NA	0.505	0.313	0.226	0.133
pH, 2:1 CaCl <sub>2</sub> Extraction	pH Units		NA	8.09	8.28	7.88	7.89

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

 4484840-4484878 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl<sub>2</sub> extract prepared at 2:1 ratio.

Certified By:





# Certificate of Analysis

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
 FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## Particle Size by Sieve (Wet)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

SAMPLE DESCRIPTION: BH12 SA2

SAMPLE TYPE: Soil

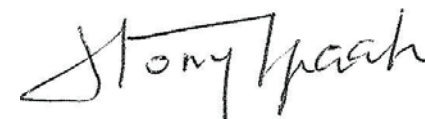
DATE SAMPLED: 6/18/2013

Parameter	Unit	G / S	RDL	4484870
Sieve Analysis - 75 µm (retained)	%		N/A	85.2
Sieve Analysis - 75 µm (passing)	%		N/A	14.8
Soil Texture (Toronto)				Coarse

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4484870 Value reported is the amount of sample passing through or retained on sieve after wash with water and represents proportion by weight particles smaller or larger than indicated sieve size.

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH08 SA5	BH10 SA7	BH12 SA2	BH14 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4484840	4484858	4484870	4484878
Naphthalene	µg/g	0.09	0.05	<0.05	<0.05	0.65	0.29
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	0.072	0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.19	0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	0.05	<0.05	<0.05	0.47	0.66
Anthracene	µg/g	0.22	0.05	<0.05	<0.05	<0.05	0.06
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	<0.05	0.12
Pyrene	µg/g	1	0.05	<0.05	<0.05	0.05	0.16
Benz(a)anthracene	µg/g	0.36	0.05	<0.05	<0.05	<0.05	0.08
Chrysene	µg/g	2.8	0.05	<0.05	<0.05	0.08	0.14
Benzo(b)fluoranthene	µg/g	0.47	0.05	<0.05	<0.05	<0.05	0.07
Benzo(k)fluoranthene	µg/g	0.48	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.59	0.05	<0.05	<0.05	1.7	1.1
Moisture Content	%		0.1	23.3	9.4	6.8	8.7
PAH Extr	NA			Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits					
Chrysene-d12	%	50-140		70	75	58	102

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

4484840-4484878 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By: \_\_\_\_\_



CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH08 SA5	BH10 SA7	BH12 SA2	BH14 SA2
		G / S	RDL	4484840	4484858	4484870	4484878
F1 (C6 to C10)	µg/g		5	<5	<5	13	10
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	7	9
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	13
F2 (C10 to C16) minus Naphthalene	µg/g	10	10	<10	<10	<10	13
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50	71
F3 (C16 to C34) minus PAHs	µg/g	240	50	<50	<50	<50	70
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA
Moisture Content	%		0.1	23.3	9.4	6.8	8.7
F2-F4 Extr	NA			Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits					
Terphenyl	%	60-140		127	114	135	100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

4484840-4484878 Results are based on sample dry weight.

The C6-C10 fraction is calculated using toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons &gt;C50 are present.

Total C6 - C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:



CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH08 SA5	BH10 SA7	BH12 SA2	BH14 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4484840	4484858	4484870	4484878
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02	<0.02	1.0	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05	<0.05	3.0	0.59
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05	<0.05	0.32	0.13
m & p-Xylene	ug/g	0.05	0.05	<0.05	<0.05	0.99	0.33
Bromoform	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
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<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-06-21

DATE REPORTED: 2013-06-28

Parameter	Unit	SAMPLE DESCRIPTION:		BH08 SA5	BH10 SA7	BH12 SA2	BH14 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/18/2013	6/18/2013	6/18/2013	6/18/2013
		G / S	RDL	4484840	4484858	4484870	4484878
Styrene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	0.50	0.23
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	0.05	<0.05	<0.05	1.5	0.56
1,3-Dichloropropene	µg/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits					
Toluene-d8	% Recovery	50-140		105	101	102	103
4-Bromofluorobenzene	% Recovery	50-140		92	90	104	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

4484840-4484878 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge &amp; trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By:





# Guideline Violation

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
 FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
4484840	BH08 SA5	T9 (All) - NEW	O. Reg. 153(511) - Metals & Inorganics (Soil)	Barium	220	265
4484870	BH12 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	2-and 1-methyl Naphthalene	0.59	1.7
4484870	BH12 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	0.09	0.65
4484870	BH12 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Benzene	0.02	1.0
4484870	BH12 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	0.32
4484870	BH12 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	3.0
4484870	BH12 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	1.5
4484878	BH14 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	2-and 1-methyl Naphthalene	0.59	1.1
4484878	BH14 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	0.09	0.29
4484878	BH14 SA2	T9 (All) - NEW	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F2 (C10 to C16)	10	13
4484878	BH14 SA2	T9 (All) - NEW	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F2 (C10 to C16) minus Naphthalene	10	13
4484878	BH14 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	0.13
4484878	BH14 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	0.59
4484878	BH14 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	0.56

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL  
 PROJECT NO: UNIMIN

AGAT WORK ORDER: 13U729033  
 ATTENTION TO: TROY GORDON

Soil Analysis																
RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

**O. Reg. 153(511) - Metals & Inorganics (Soil)**

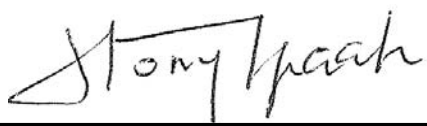
Antimony	1		< 0.8	< 0.8	0.0%	< 0.8	115%	70%	130%	86%	80%	120%	88%	70%	130%
Arsenic	1		1	1	0.0%	< 1	104%	70%	130%	93%	80%	120%	94%	70%	130%
Barium	1		34	36	5.7%	< 2	106%	70%	130%	109%	80%	120%	104%	70%	130%
Beryllium	1		< 0.5	< 0.5	0.0%	< 0.5	84%	70%	130%	101%	80%	120%	100%	70%	130%
Boron	1		< 5	< 5	0.0%	< 5	79%	70%	130%	99%	80%	120%	96%	70%	130%
Boron (Hot Water Soluble)	1	4484858	<0.10	<0.10	0.0%	< 0.10	89%	60%	140%	85%	70%	130%	96%	60%	140%
Cadmium	1		< 0.5	< 0.5	0.0%	< 0.5	114%	70%	130%	117%	80%	120%	116%	70%	130%
Chromium	1		11	11	0.0%	< 2	96%	70%	130%	107%	80%	120%	111%	70%	130%
Cobalt	1		3.7	3.8	2.7%	< 0.5	102%	70%	130%	111%	80%	120%	104%	70%	130%
Copper	1		8	8	0.0%	< 1	99%	70%	130%	110%	80%	120%	103%	70%	130%
Lead	1		3	3	0.0%	< 1	103%	70%	130%	101%	80%	120%	98%	70%	130%
Molybdenum	1		< 0.5	< 0.5	0.0%	< 0.5	109%	70%	130%	105%	80%	120%	109%	70%	130%
Nickel	1		9	10	10.5%	< 1	105%	70%	130%	117%	80%	120%	111%	70%	130%
Selenium	1		< 0.4	< 0.4	0.0%	< 0.4	93%	70%	130%	97%	80%	120%	107%	70%	130%
Silver	1		< 0.2	< 0.2	0.0%	< 0.2	105%	70%	130%	114%	80%	120%	118%	70%	130%
Thallium	1		< 0.4	< 0.4	0.0%	< 0.4	97%	70%	130%	104%	80%	120%	100%	70%	130%
Uranium	1		< 0.5	< 0.5	0.0%	< 0.5	92%	70%	130%	92%	80%	120%	91%	70%	130%
Vanadium	1		19	20	5.1%	< 1	94%	70%	130%	112%	80%	120%	113%	70%	130%
Zinc	1		18	19	5.4%	< 5	99%	70%	130%	116%	80%	120%	115%	70%	130%
Chromium VI	1		< 0.2	< 0.2	0.0%	< 0.2	94%	70%	130%	99%	80%	120%	100%	70%	130%
Cyanide	1		< 0.040	< 0.040	0.0%	< 0.040	102%	70%	130%	107%	80%	120%	100%	70%	130%
Mercury	1		< 0.10	< 0.10	0.0%	< 0.10	103%	70%	130%	100%	80%	120%	97%	70%	130%
Electrical Conductivity (2:1)	1	4484840	0.238	0.239	0.4%	< 0.005	94%	90%	110%	NA			NA		
Sodium Adsorption Ratio	1		0.748	0.700	6.6%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	1		7.39	7.40	0.1%	NA	100%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

**Particle Size by Sieve (Wet)**

Sieve Analysis - 75 µm (retained)	1		22.8	22.8	0.0%	N/A	NA			NA			NA		
Sieve Analysis - 75 µm (passing)	1		77.2	77.2	0.0%	N/A	NA			NA			NA		

Comments: NA - Not Applicable

Certified By: 

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis

RPT Date: Jun 28, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	1		< 0.05	< 0.05	0.0%	< 0.05	113%	50%	140%	113%	50%	140%	112%	50%	140%
Vinyl Chloride	1		< 0.02	< 0.02	0.0%	< 0.02	111%	50%	140%	107%	50%	140%	112%	50%	140%
Bromomethane	1		< 0.05	< 0.05	0.0%	< 0.05	108%	50%	140%	106%	50%	140%	124%	50%	140%
Trichlorofluoromethane	1		< 0.05	< 0.05	0.0%	< 0.05	116%	50%	140%	122%	50%	140%	125%	50%	140%
Acetone	1		< 0.50	< 0.50	0.0%	< 0.50	101%	50%	140%	120%	50%	140%	102%	50%	140%
1,1-Dichloroethylene	1		< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	116%	60%	130%	102%	50%	140%
Methylene Chloride	1		< 0.05	< 0.05	0.0%	< 0.05	124%	50%	140%	117%	60%	130%	111%	50%	140%
Trans- 1,2-Dichloroethylene	1		< 0.05	< 0.05	0.0%	< 0.05	122%	50%	140%	121%	60%	130%	99%	50%	140%
Methyl tert-butyl Ether	1		< 0.05	< 0.05	0.0%	< 0.05	116%	50%	140%	101%	60%	130%	109%	50%	140%
1,1-Dichloroethane	1		< 0.02	< 0.02	0.0%	< 0.02	118%	50%	140%	112%	60%	130%	114%	50%	140%
Methyl Ethyl Ketone	1		< 0.50	< 0.50	0.0%	< 0.50	103%	50%	140%	85%	50%	140%	88%	50%	140%
Cis- 1,2-Dichloroethylene	1		< 0.02	< 0.02	0.0%	< 0.02	93%	50%	140%	92%	60%	130%	92%	50%	140%
Chloroform	1		< 0.04	< 0.04	0.0%	< 0.04	112%	50%	140%	109%	60%	130%	115%	50%	140%
1,2-Dichloroethane	1		< 0.03	< 0.03	0.0%	< 0.03	111%	50%	140%	117%	60%	130%	117%	50%	140%
1,1,1-Trichloroethane	1		< 0.05	< 0.05	0.0%	< 0.05	104%	50%	140%	111%	60%	130%	111%	50%	140%
Carbon Tetrachloride	1		< 0.05	< 0.05	0.0%	< 0.05	97%	50%	140%	106%	60%	130%	107%	50%	140%
Benzene	1		< 0.02	< 0.02	0.0%	< 0.02	103%	50%	140%	100%	60%	130%	103%	50%	140%
1,2-Dichloropropane	1		< 0.03	< 0.03	0.0%	< 0.03	102%	50%	140%	103%	60%	130%	100%	50%	140%
Trichloroethylene	1		< 0.03	< 0.03	0.0%	< 0.03	106%	50%	140%	96%	60%	130%	92%	50%	140%
Bromodichloromethane	1		< 0.05	< 0.05	0.0%	< 0.05	105%	50%	140%	105%	60%	130%	109%	50%	140%
Methyl Isobutyl Ketone	1		< 0.50	< 0.50	0.0%	< 0.50	95%	50%	140%	94%	50%	140%	94%	50%	140%
1,1,2-Trichloroethane	1		< 0.04	< 0.04	0.0%	< 0.04	111%	50%	140%	87%	60%	130%	113%	50%	140%
Toluene	1		< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	110%	60%	130%	101%	50%	140%
Dibromochloromethane	1		< 0.05	< 0.05	0.0%	< 0.05	106%	50%	140%	99%	60%	130%	110%	50%	140%
Ethylene Dibromide	1		< 0.04	< 0.04	0.0%	< 0.04	97%	50%	140%	104%	60%	130%	99%	50%	140%
Tetrachloroethylene	1		< 0.05	< 0.05	0.0%	< 0.05	89%	50%	140%	107%	60%	130%	111%	50%	140%
1,1,1,2-Tetrachloroethane	1		< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	110%	60%	130%	114%	50%	140%
Chlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	106%	60%	130%	109%	50%	140%
Ethylbenzene	1		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	99%	60%	130%	103%	50%	140%
m & p-Xylene	1		< 0.05	< 0.05	0.0%	< 0.05	106%	50%	140%	99%	60%	130%	103%	50%	140%
Bromoform	1		< 0.05	< 0.05	0.0%	< 0.05	100%	50%	140%	107%	60%	130%	109%	50%	140%
Styrene	1		< 0.05	< 0.05	0.0%	< 0.05	75%	50%	140%	87%	60%	130%	88%	50%	140%
1,1,2,2-Tetrachloroethane	1		< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	117%	60%	130%	101%	50%	140%
o-Xylene	1		< 0.05	< 0.05	0.0%	< 0.05	78%	50%	140%	75%	60%	130%	74%	50%	140%
1,3-Dichlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	92%	50%	140%	85%	60%	130%	90%	50%	140%
1,4-Dichlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	101%	60%	130%	106%	50%	140%
1,2-Dichlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	89%	60%	130%	96%	50%	140%
Xylene Mixture	1		< 0.05	< 0.05	0.0%	< 0.05	78%	50%	140%	75%	60%	130%	74%	50%	140%
1,3-Dichloropropene	1		< 0.04	< 0.04	0.0%	< 0.04	86%	50%	140%	87%	60%	130%	86%	50%	140%

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL  
 PROJECT NO: UNIMIN

AGAT WORK ORDER: 13U729033  
 ATTENTION TO: TROY GORDON

### Trace Organics Analysis (Continued)

RPT Date: Jun 28, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
n-Hexane	1		< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	92%	60%	130%	105%	50%	140%	
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)																
F1 (C6 to C10)	1		< 5	< 5	0.0%	< 5	94%	60%	140%	91%	80%	120%	74%	60%	140%	
F2 (C10 to C16)	1		< 10	< 10	0.0%	< 10	117%	60%	140%	89%	80%	120%	73%	60%	140%	
F3 (C16 to C34)	1		< 50	< 50	0.0%	< 50	120%	60%	140%	101%	80%	120%	83%	60%	140%	
F4 (C34 to C50)	1		< 50	< 50	0.0%	< 50	88%	60%	140%	84%	80%	120%	88%	60%	140%	
O. Reg. 153(511) - PAHs (Soil)																
Naphthalene	1		< 0.05	< 0.05	0.0%	< 0.05	118%	50%	140%	83%	50%	140%	77%	50%	140%	
Acenaphthylene	1		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	68%	50%	140%	71%	50%	140%	
Acenaphthene	1		< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	74%	50%	140%	76%	50%	140%	
Fluorene	1		< 0.05	< 0.05	0.0%	< 0.05	87%	50%	140%	66%	50%	140%	72%	50%	140%	
Phenanthrene	1		< 0.05	< 0.05	0.0%	< 0.05	71%	50%	140%	62%	50%	140%	68%	50%	140%	
Anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	77%	50%	140%	61%	50%	140%	72%	50%	140%	
Fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	69%	50%	140%	60%	50%	140%	68%	50%	140%	
Pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	64%	50%	140%	60%	50%	140%	67%	50%	140%	
Benz(a)anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	80%	50%	140%	62%	50%	140%	71%	50%	140%	
Chrysene	1		< 0.05	< 0.05	0.0%	< 0.05	72%	50%	140%	68%	50%	140%	73%	50%	140%	
Benzo(b)fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	74%	50%	140%	73%	50%	140%	
Benzo(k)fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	126%	50%	140%	91%	50%	140%	94%	50%	140%	
Benzo(a)pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	70%	50%	140%	75%	50%	140%	
Indeno(1,2,3-cd)pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	91%	50%	140%	88%	50%	140%	
Dibenz(a,h)anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	86%	50%	140%	79%	50%	140%	71%	50%	140%	
Benzo(g,h,i)perylene	1		< 0.05	< 0.05	0.0%	< 0.05	82%	50%	140%	87%	50%	140%	71%	50%	140%	
2-and 1-methyl Naphthalene	1		< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	75%	50%	140%	74%	50%	140%	

Certified By: \_\_\_\_\_



## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A; SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
pH, 2:1 CaCl <sub>2</sub> Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER
Sieve Analysis - 75 µm (retained)		KROETSCH 2007; SHEPPARD 2007	SIEVE
Sieve Analysis - 75 µm (passing)		KROETSCH 2007; SHEPPARD 2007	SIEVE



## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	Org 5506	EPA SW-846 3540 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
PAH Extr			N/A
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	GRAVIMETRIC ANALYSIS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
F2-F4 Extr			N/A
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13U729033

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS



# AGAT

## Laboratories

2 black

5835 Coopers Avenue  
Mississauga, ON  
L4Z 1Y2

www.agatlabs.com · webeearth.agatlabs.com

P: 905.712.5100 · F: 905.712.5122 · TF: 800.856.6261

### Laboratory Use Only

Arrival Temperature: 13U729033  
AGAT WO #: \_\_\_\_\_  
Lab Temperature: ① 4.1/4.3/4.3  
Notes: ② 3.7/3.9/4.7

### Chain of Custody Record

#### Client Information

Company: PINCHIN ENVIRONMENTAL  
Contact: TROY GORDON  
Address: 850 BARRY DOWNE ROAD  
SIDBURY ON P3A 3T7  
Phone: 705-521-0560 Fax: 705-521-1309  
Project: LUNIMIN PO: 76105.001  
AGAT Quotation #: SDA

Please note, if quotation number is not provided, client will be billed full price for analysis.

#### Regulatory Requirements

Regulation 153/04 (reg. 511 Amend)  Sewer Use  Regulation 558  
Table 9 Indicate one Region \_\_\_\_\_ Indicate one  
 Ind/Com  Res/Park  Sanitary  Storm  
 Agriculture  Other (specify) \_\_\_\_\_  
Soil Texture (check one)  Prov. Water Quality Objectives (PWQO)  None  
 Coarse  Fine

#### Turnaround Time Required (TAT) Required\*

**Regular TAT**  
 5 to 7 Working Days  
**Rush TAT** (please provide prior notification)  
**Rush Surcharges Apply**  
 3 Working Days  
 2 Working Days  
 1 Working Day  
**OR**  
Date Required (Rush surcharges may apply): \_\_\_\_\_

#### Invoice To

Same: Yes  No

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_

Is this a drinking water sample? (potable water intended for human consumption)  
 Yes  No  
If "Yes", please use the Drinking Water Chain of Custody Form

Is this submission for a Record of Site Condition?  
 Yes  No

\*TAT is exclusive of weekends and statutory holidays

#### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

#### Report Information - reports to be sent to:

1. Name: TROY GORDON  
Email: TGORDON@PINCHIN.COM  
2. Name: JENNA PILLARELLA  
Email: JPILLARELLA@PINCHIN.COM

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information
BH08 SAS	June 18	12:05	S	5	
BH10 SA7	June 18	16:30	S	5	
BH12 SA2	June 19	10:45	S	6	
BH14 SA2	June 19	12:25	S	5	

Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6 <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N-Total <input type="checkbox"/> Hg <input type="checkbox"/> pH	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub>	VOC: <input checked="" type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	Grain Size
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>

Samples Relinquished By (Print Name and Sign): Jenna Pillarella  
Date/Time: June 21/13

Samples Received By (Print Name and Sign): Gina Harper  
Date/Time: June 21/2013 2:44pm  
Samples Received By (Print Name and Sign): Sharmin  
Date/Time: June 21/2013 10:00am

Print Copy - Client  
Yellow Copy - AGAT  
White Copy - AGAT  
Page 1 of 1  
N<sup>o</sup>: **191491**

CLIENT NAME: PINCHIN ENVIRONMENTAL  
850 BARRYDOWNE ROAD, SUITE 302  
SUDBURY, ON P3A3T7  
(705) 521-0560

ATTENTION TO: TROY GORDON

PROJECT NO: UNIMIN

AGAT WORK ORDER: 13T791759

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Dec 13, 2013

PAGES (INCLUDING COVER): 15

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

\*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



# Certificate of Analysis

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
 FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

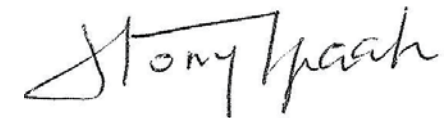
## O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP101 SA2	TP101 SA5	TP114 SA3	TP114 SA7	TP102 SA2	TP102 SA5	TP106 SA3	TP105 SA3		
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
		DATE SAMPLED:		12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013
		G / S	RDL	5036964	5036965	5036969	5036973	5036978	5036982	5036986	5036987		
Antimony	µg/g	1.3	0.8	5.4	<0.8	<0.8	<0.8	<0.8	<0.8	10.0	2.3		
Arsenic	µg/g	18	1	8	<1	1	<1	<1	<1	4	3		
Boron	µg/g	36	5	6	<5	8	<5	<5	<5	<5	<5		
Barium	µg/g	220	2	1470	53	170	54	48	61	69	61		
Beryllium	µg/g	2.5	0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5		
Cadmium	µg/g	1.2	0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Chromium	µg/g	70	2	18	8	35	10	10	7	9	8		
Cobalt	µg/g	22	0.5	6.5	3.1	12.8	3.9	4.1	2.9	3.7	3.1		
Copper	µg/g	92	1	79	9	33	11	11	8	39	27		
Lead	µg/g	120	1	5630	21	10	3	4	2	241	141		
Molybdenum	µg/g	2	0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1.2		
Nickel	µg/g	82	1	16	4	25	5	7	4	8	7		
Selenium	µg/g	1.5	0.4	0.9	<0.4	<0.4	0.4	<0.4	<0.4	<0.4	0.5		
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		
Uranium	µg/g	2.5	0.5	0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Vanadium	µg/g	86	1	25	17	57	22	20	16	14	11		
Zinc	µg/g	290	5	968	21	77	22	22	15	94	66		

Certified By:





# Certificate of Analysis

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
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<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP105 SA5	TP104 SA3	TP104 SA5	TP103 SA3	TP103 SA5	TP106 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013
		G / S	RDL	5036989	5036990	5036991	5036992	5036993	5037109
Antimony	µg/g	1.3	0.8	<0.8	2.4	<0.8	3.1	<0.8	<0.8
Arsenic	µg/g	18	1	2	4	1	3	<1	2
Boron	µg/g	36	5	7	<5	<5	<5	<5	7
Barium	µg/g	220	2	230	65	51	81	28	222
Beryllium	µg/g	2.5	0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.7
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	37	11	16	9	8	36
Cobalt	µg/g	22	0.5	13.9	4.3	6.3	4.1	3.5	12.7
Copper	µg/g	92	1	35	45	12	50	5	32
Lead	µg/g	120	1	14	180	7	163	2	9
Molybdenum	µg/g	2	0.5	<0.5	1.7	<0.5	0.8	<0.5	<0.5
Nickel	µg/g	82	1	27	11	12	9	5	26
Selenium	µg/g	1.5	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	0.8	<0.5	0.5	<0.5	<0.5	0.7
Vanadium	µg/g	86	1	60	15	27	16	14	57
Zinc	µg/g	290	5	85	74	36	79	21	81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## Particle Size by Sieve (Wet)

DATE RECEIVED: 2013-12-09

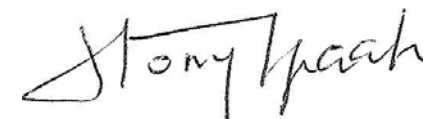
DATE REPORTED: 2013-12-13

		SAMPLE DESCRIPTION:		TP114 SA7	TP105 SA3
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		12/4/2013	12/4/2013
Parameter	Unit	G / S	RDL	5036973	5036987
Sieve Analysis - 75 µm (retained)	%		N/A	66.4	81.5
Sieve Analysis - 75 µm (passing)	%		N/A	33.6	18.5
Soil Texture				Coarse	Coarse

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5036973-5036987 Value reported is the amount of sample passing through or retained on sieve after wash with water and represents proportion by weight particles smaller or larger than indicated sieve size.

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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP101 SA2	TP101 SA5	TP114 SA3	TP114 SA7	TP102 SA2	TP102 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013
		G / S	RDL	5036964	5036965	5036969	5036973	5036978	5036982
Naphthalene	µg/g	0.09	0.05	0.10	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	0.072	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.19	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	0.05	0.27	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.22	0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	1	0.05	0.24	<0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.05	0.14	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.59	0.05	0.52	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	15.5	12.2	14.9	13.2	6.0	7.5
Surrogate	Unit	Acceptable Limits							
Chrysene-d12	%	50-140		92	78	99	88	90	86

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

5036964-5036982 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP101 SA2	TP101 SA5	TP114 SA3	TP114 SA7	TP102 SA2	TP102 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013
		G / S	RDL	5036964	5036965	5036969	5036973	5036978	5036982
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	59	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g	10	10	59	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	490	<50	<50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g	240	50	490	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	15.5	12.2	14.9	13.2	6.0	7.5
Surrogate	Unit	Acceptable Limits							
Terphenyl	%	60-140		95	71	107	80	80	73

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

5036964-5036982 Results are based on sample dry weight.

The C6-C10 fraction is calculated using toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.

Total C6 - C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:



CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP101 SA2	TP101 SA5	TP114 SA3	TP114 SA7	TP102 SA2	TP102 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013
		G / S	RDL	5036964	5036965	5036969	5036973	5036978	5036982
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.02	0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.05	0.55	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	0.15	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g	0.05	0.05	0.63	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By:





# Certificate of Analysis

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

 5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP101 SA2	TP101 SA5	TP114 SA3	TP114 SA7	TP102 SA2	TP102 SA5
		G / S	RDL	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:		12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013	12/4/2013
Styrene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	0.22	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	0.05	0.85	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits							
Toluene-d8	% Recovery	50-140		115	114	118	117	115	116
4-Bromofluorobenzene	% Recovery	50-140		104	104	104	102	107	104

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

5036964-5036982 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge &amp; trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By:



# Guideline Violation

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Antimony	1.3	5.4
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Barium	220	1470
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Lead	120	5630
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Zinc	290	968
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	0.09	0.10
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F2 (C10 to C16)	10	59
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F2 (C10 to C16) minus Naphthalene	10	59
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F3 (C16 to C34)	240	490
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F3 (C16 to C34) minus PAHs	240	490
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Benzene	0.02	0.07
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	0.15
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	0.55
5036964	TP101 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	0.85
5036986	TP106 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Antimony	1.3	10.0
5036986	TP106 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Lead	120	241
5036987	TP105 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Antimony	1.3	2.3
5036987	TP105 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Lead	120	141
5036989	TP105 SA5	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Barium	220	230
5036990	TP104 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Antimony	1.3	2.4
5036990	TP104 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Lead	120	180
5036992	TP103 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Antimony	1.3	3.1
5036992	TP103 SA3	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Lead	120	163
5037109	TP106 SA5	T9 (All) - NEW	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Barium	220	222

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL  
 PROJECT NO: UNIMIN

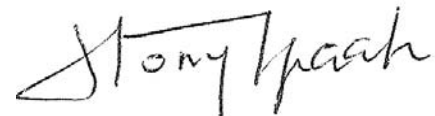
AGAT WORK ORDER: 13T791759  
 ATTENTION TO: TROY GORDON

Soil Analysis															
RPT Date: Dec 13, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE	
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - Metals (Comprehensive) (Soil)															
Antimony	1	5036964	5.4	6.5	18.5%	< 0.8	110%	70%	130%	91%	80%	120%	107%	70%	130%
Arsenic	1	5036964	8	8	0.0%	< 1	108%	70%	130%	101%	80%	120%	103%	70%	130%
Boron	1	5036964	6	7	15.4%	< 5	77%	70%	130%	113%	80%	120%	105%	70%	130%
Barium	1	5036964	1470	1530	4.0%	< 2	103%	70%	130%	87%	80%	120%	102%	70%	130%
Beryllium	1	5036964	< 0.5	< 0.5	0.0%	< 0.5	94%	70%	130%	110%	80%	120%	103%	70%	130%
Cadmium	1	5036964	0.8	0.8	0.0%	< 0.5	110%	70%	130%	112%	80%	120%	101%	70%	130%
Chromium	1	5036964	18	18	0.0%	< 2	87%	70%	130%	99%	80%	120%	96%	70%	130%
Cobalt	1	5036964	6.5	6.7	3.0%	< 0.5	98%	70%	130%	103%	80%	120%	97%	70%	130%
Copper	1	5036964	79	83	4.9%	< 1	97%	70%	130%	103%	80%	120%	101%	70%	130%
Lead	1	5036964	5630	5990	6.2%	< 1	100%	70%	130%	88%	80%	120%	116%	70%	130%
Molybdenum	1	5036964	1.3	1.3	0.0%	< 0.5	106%	70%	130%	99%	80%	120%	97%	70%	130%
Nickel	1	5036964	16	16	0.0%	< 1	101%	70%	130%	102%	80%	120%	97%	70%	130%
Selenium	1	5036964	0.9	0.9	0.0%	< 0.4	100%	70%	130%	101%	80%	120%	105%	70%	130%
Silver	1	5036964	< 0.2	< 0.2	0.0%	< 0.2	96%	70%	130%	110%	80%	120%	106%	70%	130%
Thallium	1	5036964	< 0.4	< 0.4	0.0%	< 0.4	102%	70%	130%	96%	80%	120%	97%	70%	130%
Uranium	1	5036964	0.5	0.5	0.0%	< 0.5	101%	70%	130%	94%	80%	120%	101%	70%	130%
Vanadium	1	5036964	25	25	0.0%	< 1	98%	70%	130%	105%	80%	120%	100%	70%	130%
Zinc	1	5036964	968	966	0.2%	< 5	101%	70%	130%	107%	80%	120%	129%	70%	130%
Particle Size by Sieve (Wet)															
Sieve Analysis - 75 µm (retained)	1		66.0	69.2	4.7%	N/A	NA			NA			NA		
Sieve Analysis - 75 µm (passing)	1		34.0	30.8	9.9%	N/A	NA			NA			NA		

Comments: NA - Not Applicable

Certified By: \_\_\_\_\_



## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis

RPT Date: Dec 13, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
O. Reg. 153(511) - VOCs (Soil)																
Dichlorodifluoromethane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	122%	50%	140%	111%	50%	140%	108%	50%	140%	
Vinyl Chloride	1	5036964	< 0.02	< 0.02	0.0%	< 0.02	66%	50%	140%	106%	50%	140%	104%	50%	140%	
Bromomethane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	107%	50%	140%	103%	50%	140%	
Trichlorofluoromethane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	65%	50%	140%	106%	50%	140%	127%	50%	140%	
Acetone	1	5036964	< 0.50	< 0.50	0.0%	< 0.50	103%	50%	140%	83%	50%	140%	96%	50%	140%	
1,1-Dichloroethylene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	128%	50%	140%	107%	60%	130%	107%	50%	140%	
Methylene Chloride	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	118%	50%	140%	115%	60%	130%	109%	50%	140%	
Trans- 1,2-Dichloroethylene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	108%	50%	140%	103%	60%	130%	110%	50%	140%	
Methyl tert-butyl Ether	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	74%	50%	140%	108%	60%	130%	104%	50%	140%	
1,1-Dichloroethane	1	5036964	< 0.02	< 0.02	0.0%	< 0.02	90%	50%	140%	99%	60%	130%	102%	50%	140%	
Methyl Ethyl Ketone	1	5036964	< 0.50	< 0.50	0.0%	< 0.50	86%	50%	140%	100%	50%	140%	105%	50%	140%	
Cis- 1,2-Dichloroethylene	1	5036964	< 0.02	< 0.02	0.0%	< 0.02	73%	50%	140%	117%	60%	130%	115%	50%	140%	
Chloroform	1	5036964	< 0.04	< 0.04	0.0%	< 0.04	84%	50%	140%	112%	60%	130%	108%	50%	140%	
1,2-Dichloroethane	1	5036964	< 0.03	< 0.03	0.0%	< 0.03	76%	50%	140%	94%	60%	130%	100%	50%	140%	
1,1,1-Trichloroethane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	91%	50%	140%	110%	60%	130%	96%	50%	140%	
Carbon Tetrachloride	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	103%	60%	130%	93%	50%	140%	
Benzene	1	5036964	0.07	0.09	25.0%	< 0.02	72%	50%	140%	107%	60%	130%	105%	50%	140%	
1,2-Dichloropropane	1	5036964	< 0.03	< 0.03	0.0%	< 0.03	118%	50%	140%	111%	60%	130%	118%	50%	140%	
Trichloroethylene	1	5036964	< 0.03	< 0.03	0.0%	< 0.03	90%	50%	140%	105%	60%	130%	102%	50%	140%	
Bromodichloromethane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	71%	50%	140%	117%	60%	130%	87%	50%	140%	
Methyl Isobutyl Ketone	1	5036964	< 0.50	< 0.50	0.0%	< 0.50	62%	50%	140%	93%	50%	140%	98%	50%	140%	
1,1,2-Trichloroethane	1	5036964	< 0.04	< 0.04	0.0%	< 0.04	87%	50%	140%	97%	60%	130%	98%	50%	140%	
Toluene	1	5036964	0.55	0.70	24.0%	< 0.05	73%	50%	140%	111%	60%	130%	119%	50%	140%	
Dibromochloromethane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	88%	50%	140%	101%	60%	130%	97%	50%	140%	
Ethylene Dibromide	1	5036964	< 0.04	< 0.04	0.0%	< 0.04	81%	50%	140%	114%	60%	130%	115%	50%	140%	
Tetrachloroethylene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	83%	50%	140%	102%	60%	130%	95%	50%	140%	
1,1,1,2-Tetrachloroethane	1	5036964	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	97%	60%	130%	103%	50%	140%	
Chlorobenzene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	68%	50%	140%	116%	60%	130%	119%	50%	140%	
Ethylbenzene	1	5036964	0.15	0.18	18.2%	< 0.05	118%	50%	140%	105%	60%	130%	109%	50%	140%	
m & p-Xylene	1	5036964	0.63	0.70	10.5%	< 0.05	72%	50%	140%	116%	60%	130%	113%	50%	140%	
Bromoform	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	91%	50%	140%	112%	60%	130%	94%	50%	140%	
Styrene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	76%	50%	140%	99%	60%	130%	95%	50%	140%	
1,1,2,2-Tetrachloroethane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	100%	60%	130%	107%	50%	140%	
o-Xylene	1	5036964	0.22	0.21	4.7%	< 0.05	82%	50%	140%	104%	60%	130%	111%	50%	140%	
1,3-Dichlorobenzene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	72%	50%	140%	103%	60%	130%	110%	50%	140%	
1,4-Dichlorobenzene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	114%	50%	140%	87%	60%	130%	97%	50%	140%	
1,2-Dichlorobenzene	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	119%	50%	140%	101%	60%	130%	112%	50%	140%	
1,3-Dichloropropene	1	5036964	< 0.04	< 0.04	0.0%	< 0.04	85%	50%	140%	90%	60%	130%	104%	50%	140%	
n-Hexane	1	5036964	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	111%	60%	130%	81%	50%	140%	

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis (Continued)

RPT Date: Dec 13, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

**O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)**

F1 (C6 to C10)	1		< 5	< 5	0.0%	< 5	83%	60%	140%	104%	80%	120%	93%	60%	140%
F2 (C10 to C16)	1		< 10	< 10	0.0%	< 10	106%	60%	140%	109%	80%	120%	63%	60%	140%
F3 (C16 to C34)	1		< 50	< 50	0.0%	< 50	105%	60%	140%	112%	80%	120%	68%	60%	140%
F4 (C34 to C50)	1		< 50	< 50	0.0%	< 50	88%	60%	140%	95%	80%	120%	84%	60%	140%

**O. Reg. 153(511) - PAHs (Soil)**

Naphthalene	1		< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	93%	50%	140%	106%	50%	140%
Acenaphthylene	1		< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	96%	50%	140%	109%	50%	140%
Acenaphthene	1		< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	98%	50%	140%	110%	50%	140%
Fluorene	1		< 0.05	< 0.05	0.0%	< 0.05	104%	50%	140%	96%	50%	140%	111%	50%	140%
Phenanthrene	1		< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	103%	50%	140%	119%	50%	140%
Anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	109%	50%	140%	95%	50%	140%	110%	50%	140%
Fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	100%	50%	140%	106%	50%	140%	124%	50%	140%
Pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	105%	50%	140%	123%	50%	140%
Benz(a)anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	81%	50%	140%	96%	50%	140%	117%	50%	140%
Chrysene	1		< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	106%	50%	140%	126%	50%	140%
Benzo(b)fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	106%	50%	140%	130%	50%	140%
Benzo(k)fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	129%	50%	140%	111%	50%	140%	130%	50%	140%
Benzo(a)pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	117%	50%	140%	107%	50%	140%	124%	50%	140%
Indeno(1,2,3-cd)pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	90%	50%	140%	105%	50%	140%
Dibenz(a,h)anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	99%	50%	140%	121%	50%	140%
Benzo(g,h,i)perylene	1		< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	87%	50%	140%	102%	50%	140%
2-and 1-methyl Naphthalene	1		< 0.05	< 0.05	0.0%	< 0.05	92%	50%	140%	80%	50%	140%	93%	50%	140%

Certified By:





## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Sieve Analysis - 75 µm (retained)		KROETSCH 2007; SHEPPARD 2007	SIEVE
Sieve Analysis - 75 µm (passing)		KROETSCH 2007; SHEPPARD 2007	SIEVE

## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	Org 5506	EPA SW-846 3540 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	GRAVIMETRIC ANALYSIS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791759

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS





# AGAT Laboratories

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### Laboratory Use Only

Arrival Temperature: 8.4, 6.2, 8.5  
AGAT WO #: 13T791759  
Lab Temperature: \_\_\_\_\_  
Notes: \_\_\_\_\_

## Chain of Custody Record

P: 905.712.5100 · F: 905.712.5122

### Client Information

Company: PINCHIN ENVIRONMENTAL  
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SLIDBURY ON  
Phone: 705.521.0560 Fax: 705.521.1309  
Project: UNIMIN PO: 76105.003  
AGAT Quotation #: SOA

Please note, if quotation number is not provided, client will be billed full price for analysis.

### Regulatory Requirements

Regulation 153/04 (reg. 512 Amend.)  
Table 9 Indicate one  
 Ind/Com  
 Res/Park  
 Agriculture  
Soil Texture (check one)  
 Coarse  Fine

Sewer Use  
Region \_\_\_\_\_ Indicate one  
 Sanitary  
 Storm

Regulation 558  
 CCME  
 Other (specify) \_\_\_\_\_  
 Prov. Water Quality Objectives (PWQO)  
 None

### Turnaround Time Required (TAT) Required\*

**Regular TAT**  
 5 to 7 Working Days

**Rush TAT** (please provide prior notification)  
**Rush Surcharges Apply**  
 3 Working Days  
 2 Working Days  
 1 Working Day

**OR**  
Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

### Invoice To

Same: Yes  No

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_

Is this a drinking water sample? (potable water intended for human consumption)  
 Yes  No  
If "Yes", please use the Drinking Water Chain of Custody Form

Is this submission for a Record of Site Condition?  
 Yes  No

### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

### Report Information - reports to be sent to:

1. Name: TROY GORDON  
Email: TGORDON@PINCHIN.COM  
2. Name: \_\_\_\_\_  
Email: \_\_\_\_\_

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics	Metal Scan RSC	Hydride Forming Metals	Client Custom Metals	ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6 <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N- Total <input type="checkbox"/> Hg <input type="checkbox"/> pH	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub>	VOC: <input checked="" type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX	CCME Fractions 1 to 4	ABNS	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	GFAN SIZE	
TP101 SA2	DEC 4/13	8:15	S	4		✓	✓					✓	✓		✓							
TP101 SA5		8:30		4		✓	✓					✓	✓		✓							
TP114 SA3		8:50		4		✓	✓					✓	✓		✓							
TP114 SA7		9:10		5		✓	✓					✓	✓		✓						✓	
TP102 SA2		9:25		4		✓	✓					✓	✓		✓							
TP102 SA5		9:40		4		✓	✓					✓	✓		✓							
TP106 SA3		10:05		1		✓	✓					✓	✓		✓							
TP106 SA5		10:30		1		✓	✓					✓	✓		✓							
TP105 SA3		10:55		2		✓	✓					✓	✓		✓						✓	
TP105 SA5		11:10		1		✓	✓					✓	✓		✓							

Samples Relinquished By (Print Name and Sign): <u>Jenna Pillarella</u>	Date/Time: <u>Dec 6/13</u>	Samples Received By (Print Name and Sign): <u>R Lawrence</u>	Date/Time: <u>Dec 6/13</u>	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page <u>1</u> of <u>2</u>
Samples Relinquished By (Print Name and Sign): _____	Date/Time: _____	Samples Received By (Print Name and Sign): <u>M... DFC 7 10:30</u>	Date/Time: _____	N <sup>o</sup> : <b>29662</b>	





### Laboratory Use Only

Arrival Temperature: \_\_\_\_\_  
 AGAT WO #: ~~291358~~  
 Lab Temperature: \_\_\_\_\_  
 Notes: \_\_\_\_\_

## Chain of Custody Record

P: 905.712.5100 · F: 905.712.5122

### Client Information

Company: PINCHIN ENVIRONMENTAL  
 Contact: TROY GORDON  
 Address: 850 BARRY DOWNER RD  
SUDBURY ON  
 Phone: 705 521 0560 Fax: 705 521 1309  
 Project: UNIMIN PO: 76105.003  
 AGAT Quotation #: SOA

Please note, if quotation number is not provided,  
client will be billed full price for analysis.

### Regulatory Requirements

Regulation 153/04  
(reg. 511 Amend)  
 Table 9  
Indicate one  
 Ind/Com  
 Res/Park  
 Agriculture  
 Soil Texture (check one)  
 Coarse  Fine

Sewer Use  
 Region \_\_\_\_\_  
Indicate one  
 Sanitary  
 Storm  
 Regulation 558  
 CCME  
 Other (specify) \_\_\_\_\_  
 Prov. Water Quality Objectives (PWQO)  
 None

### Turnaround Time Required (TAT) Required\*

**Regular TAT**  
 5 to 7 Working Days  
**Rush TAT** (please provide prior notification)  
**Rush Surcharges Apply**  
 3 Working Days  
 2 Working Days  
 1 Working Day

### OR

Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

### Invoice To

Same: Yes  No

Company: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Address: \_\_\_\_\_

### Is this a drinking water sample?

(potable water intended for human consumption)  
 Yes  No

If "Yes", please use the  
**Drinking Water Chain of Custody Form**

### Is this submission for a Record of Site Condition?

Yes  No

### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

### Report Information - reports to be sent to:

1. Name: TROY GORDON  
 Email: TGORDON@PINCHIN.COM  
 2. Name: \_\_\_\_\_  
 Email: \_\_\_\_\_

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6 <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N-Total <input type="checkbox"/> Hg <input type="checkbox"/> pH	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub>	VOC: <input type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	
TP104 SA3	DEC 4/13	12:20	S	1		✓	✓	✓													
TP104 SA5	↓	12:45	↓	1		✓	✓	✓													
TP103 SA3	↓	13:15	↓	1		✓	✓	✓													
TP103 SA5	↓	13:35	↓	1		✓	✓	✓													

Samples Relinquished By (Print Name and Sign): <u>Jenna Pillarella</u>	Date/Time: <u>Dec 6/13</u>	Samples Received By (Print Name and Sign): <u>R. Lawrence</u>	Date/Time: <u>Dec 6/13</u>	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page <u>2</u> of <u>2</u> N°: <b>29664</b>
Samples Relinquished By (Print Name and Sign): <u>Jenna Pillarella</u>	Date/Time: <u>Dec 7 10:30</u>	Samples Received By (Print Name and Sign): <u>[Signature]</u>	Date/Time: <u>Dec 7 10:30</u>		



CLIENT NAME: PINCHIN ENVIRONMENTAL  
850 BARRYDOWNE ROAD, SUITE 302  
SUDBURY, ON P3A3T7  
(705) 521-0560

ATTENTION TO: TROY GORDON

PROJECT NO: UNIMIN

AGAT WORK ORDER: 13T791762

SOIL ANALYSIS REVIEWED BY: Sofka Pehlyova, Senior Analyst

TRACE ORGANICS REVIEWED BY: Inga Kuzmina, Trace Organics Lab Manager

DATE REPORTED: Dec 13, 2013

PAGES (INCLUDING COVER): 19

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

\*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



## Certificate of Analysis

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
 FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

### O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP113 SA3	TP113 SA6
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		12/5/2013	12/5/2013
		G / S	RDL	5037198	5037203
Antimony	µg/g	1.3	0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1
Boron	µg/g	36	5	<5	<5
Barium	µg/g	220	2	27	22
Beryllium	µg/g	2.5	0.5	<0.5	<0.5
Cadmium	µg/g	1.2	0.5	<0.5	<0.5
Chromium	µg/g	70	2	6	6
Cobalt	µg/g	22	0.5	2.5	2.3
Copper	µg/g	92	1	8	6
Lead	µg/g	120	1	1	1
Molybdenum	µg/g	2	0.5	<0.5	<0.5
Nickel	µg/g	82	1	4	4
Selenium	µg/g	1.5	0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	<0.5	<0.5
Vanadium	µg/g	86	1	14	13
Zinc	µg/g	290	5	13	11

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

Certified By:

*Sofra Pehlyova*



# Certificate of Analysis

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## Particle Size by Sieve (Wet)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

		SAMPLE DESCRIPTION:		TP108 SA5	TP109 SA3	TP113 SA3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013
Parameter	Unit	G / S	RDL	5037169	5037176	5037198
Sieve Analysis - 75 µm (retained)	%	N/A		39.1	73.5	40.2
Sieve Analysis - 75 µm (passing)	%	N/A		60.9	26.5	59.8
Soil Texture				Fine	Coarse	Fine

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5037169-5037198 Value reported is the amount of sample passing through or retained on sieve after wash with water and represents proportion by weight particles smaller or larger than indicated sieve size.

Certified By:

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP107 SA2	TP107 SA3	TP108 SA3	TP108 SA5	TP109 SA2	TP109 SA3	TP110 SA3	TP110 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013
		G / S	RDL	5037162	5037163	5037166	5037169	5037173	5037176	5037180	5037183
Naphthalene	µg/g	0.09	0.05	0.12	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	0.072	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.19	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	0.05	0.19	0.33	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
Anthracene	µg/g	0.22	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	0.37	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	0.16
Pyrene	µg/g	1	0.05	0.43	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	0.16
Benz(a)anthracene	µg/g	0.36	0.05	0.36	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11
Chrysene	µg/g	2.8	0.05	0.36	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	0.12
Benzo(b)fluoranthene	µg/g	0.47	0.05	0.54	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	0.18
Benzo(k)fluoranthene	µg/g	0.48	0.05	0.17	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
Benzo(a)pyrene	µg/g	0.3	0.05	0.35	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.05	0.20	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.05	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
2-and 1-methyl Naphthalene	µg/g	0.59	0.05	0.32	0.60	<0.05	<0.05	<0.05	<0.05	0.06	0.05
Moisture Content	%		0.1	21.3	9.3	13.2	14.5	14.6	10.8	14.7	16.4
Surrogate	Unit	Acceptable Limits									
Chrysene-d12	%	50-140		91	84	99	88	119	62	80	72

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
 MISSISSAUGA, ONTARIO  
 CANADA L4Z 1Y2  
 TEL (905)712-5100  
 FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP111 SA3	TP111 SA5	TP112 SA3	TP112 SA5	TP113 SA3	TP113 SA6	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	
		G / S	RDL	5037186	5037189	5037192	5037195	5037198	5037203	
Naphthalene	µg/g	0.09	0.05	0.10	0.40	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthene	µg/g	0.072	0.05	<0.05	1.4	<0.05	<0.05	<0.05	<0.05	
Fluorene	µg/g	0.19	0.05	<0.05	1.4	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	µg/g	0.69	0.05	0.19	2.9	<0.05	<0.05	<0.05	<0.05	
Anthracene	µg/g	0.22	0.05	<0.05	0.81	<0.05	<0.05	<0.05	<0.05	
Fluoranthene	µg/g	0.69	0.05	0.07	12	<0.05	<0.05	<0.05	<0.05	
Pyrene	µg/g	1	0.05	0.08	8.0	<0.05	<0.05	<0.05	<0.05	
Benz(a)anthracene	µg/g	0.36	0.05	<0.05	1.5	<0.05	<0.05	<0.05	<0.05	
Chrysene	µg/g	2.8	0.05	0.07	1.4	<0.05	<0.05	<0.05	<0.05	
Benzo(b)fluoranthene	µg/g	0.47	0.05	0.06	0.82	<0.05	<0.05	<0.05	<0.05	
Benzo(k)fluoranthene	µg/g	0.48	0.05	<0.05	0.32	<0.05	<0.05	<0.05	<0.05	
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	0.38	<0.05	<0.05	<0.05	<0.05	
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	µg/g	0.68	0.05	<0.05	0.10	<0.05	<0.05	<0.05	<0.05	
2-and 1-methyl Naphthalene	µg/g	0.59	0.05	0.29	0.68	0.05	<0.05	<0.05	<0.05	
Moisture Content	%		0.1	4.8	20.4	11.3	14.9	9.6	18.2	
Surrogate	Unit	Acceptable Limits								
Chrysene-d12	%	50-140			100	100	100	84	82	108

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW

5037162-5037203 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By: \_\_\_\_\_





CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

**O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)**

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP107 SA2	TP107 SA3	TP108 SA3	TP108 SA5	TP109 SA2	TP109 SA3	TP110 SA3	TP110 SA5	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013
		G / S	RDL	5037162	5037163	5037166	5037169	5037173	5037176	5037180	5037183	
F1 (C6 to C10)	µg/g		5	7	31	<5	<5	<5	<5	<5	<5	
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5	<5	<5	<5	<5	
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10	<10	<10	<10	<10	
F2 (C10 to C16) minus Naphthalene	µg/g	10	10	<10	<10	<10	<10	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	240	50	54	99	<50	<50	<50	52	<50	<50	
F3 (C16 to C34) minus PAHs	µg/g	240	50	51	90	<50	<50	<50	52	<50	<50	
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50	<50	<50	<50	<50	
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA	NA	NA	NA	NA	
Moisture Content	%		0.1	21.3	9.3	13.2	14.5	14.6	10.8	14.7	16.4	
Surrogate	Unit	Acceptable Limits										
Terphenyl	%	60-140		84	80	60	73	75	80	74	77	
Parameter	Unit	SAMPLE DESCRIPTION:		TP111 SA3	TP111 SA5	TP112 SA3	TP112 SA5	TP113 SA3	TP113 SA6			
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil			
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013			
		G / S	RDL	5037186	5037189	5037192	5037195	5037198	5037203			
F1 (C6 to C10)	µg/g		5	12	6	<5	<5	<5	<5			
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5	<5	<5			
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10	<10	<10			
F2 (C10 to C16) minus Naphthalene	µg/g	10	10	<10	<10	<10	<10	<10	<10			
F3 (C16 to C34)	µg/g	240	50	<50	69	<50	<50	<50	51			
F3 (C16 to C34) minus PAHs	µg/g	240	50	<50	<50	<50	<50	<50	51			
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50	<50	<50			
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA	NA	NA			
Moisture Content	%		0.1	4.8	20.4	11.3	14.9	9.6	18.2			
Surrogate	Unit	Acceptable Limits										
Terphenyl	%	60-140		87	100	90	63	82	78			

Certified By:





# Certificate of Analysis

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW  
5037162-5037203 Results are based on sample dry weight.

The C6-C10 fraction is calculated using toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.

Total C6 - C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:

# Certificate of Analysis

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP107 SA2	TP107 SA3	TP108 SA3	TP108 SA5	TP109 SA2	TP109 SA3	TP110 SA3	TP110 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013
		G / S	RDL	5037162	5037163	5037166	5037169	5037173	5037176	5037180	5037183
Dichlorodifluoromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.02	0.02	1.5	8.4	<0.02	<0.02	<0.02	0.15	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.05	3.9	21	<0.05	<0.05	0.35	1.3	<0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	0.60	3.4	<0.05	<0.05	<0.05	0.27	<0.05	<0.05
m & p-Xylene	ug/g	0.05	0.05	2.3	13	<0.05	<0.05	0.18	1.3	<0.05	<0.05
Bromoform	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By:



# Certificate of Analysis

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP107 SA2	TP107 SA3	TP108 SA3	TP108 SA5	TP109 SA2	TP109 SA3	TP110 SA3	TP110 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		G / S	RDL	5037162	5037163	5037166	5037169	5037173	5037176	5037180	5037183
Styrene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	1.7	11	<0.05	<0.05	0.06	1.1	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	0.05	4.0	24	<0.05	<0.05	0.24	2.4	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits									
Toluene-d8	% Recovery	50-140		113	118	114	116	113	116	116	113
4-Bromofluorobenzene	% Recovery	50-140		114	120	106	106	106	104	104	106

Certified By:



CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP111 SA3	TP111 SA5	TP112 SA3	TP112 SA5	TP113 SA3	TP113 SA6
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013
		G / S	RDL	5037186	5037189	5037192	5037195	5037198	5037203
Dichlorodifluoromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.02	0.02	0.97	0.47	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.05	5.8	2.2	0.30	<0.05	<0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	0.97	0.38	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g	0.05	0.05	3.7	1.8	0.12	<0.05	<0.05	<0.05
Bromoform	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By:





# Certificate of Analysis

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

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CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

## O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-12-09

DATE REPORTED: 2013-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		TP111 SA3	TP111 SA5	TP112 SA3	TP112 SA5	TP113 SA3	TP113 SA6
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013	12/5/2013
		G / S	RDL	5037186	5037189	5037192	5037195	5037198	5037203
Styrene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	3.0	1.2	0.09	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	0.05	6.7	3.0	0.21	<0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits							
Toluene-d8	% Recovery	50-140		115	114	115	118	113	115
4-Bromofluorobenzene	% Recovery	50-140		116	111	107	104	104	104

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T9 (All) - NEW  
 5037162-5037203 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By:



CLIENT NAME: PINCHIN ENVIRONMENTAL

ATTENTION TO: TROY GORDON

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
5037162	TP107 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	0.3	0.35
5037162	TP107 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	0.47	0.54
5037162	TP107 SA2	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	0.09	0.12
5037162	TP107 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Benzene	0.02	1.5
5037162	TP107 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	0.60
5037162	TP107 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	3.9
5037162	TP107 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	4.0
5037163	TP107 SA3	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	2-and 1-methyl Naphthalene	0.59	0.60
5037163	TP107 SA3	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	0.09	0.22
5037163	TP107 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Benzene	0.02	8.4
5037163	TP107 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	3.4
5037163	TP107 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	21
5037163	TP107 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	24
5037173	TP109 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	0.35
5037173	TP109 SA2	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	0.24
5037176	TP109 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Benzene	0.02	0.15
5037176	TP109 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	0.27
5037176	TP109 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	1.3
5037176	TP109 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	2.4
5037186	TP111 SA3	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	0.09	0.10
5037186	TP111 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Benzene	0.02	0.97
5037186	TP111 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	0.97
5037186	TP111 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	5.8
5037186	TP111 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	6.7
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	2-and 1-methyl Naphthalene	0.59	0.68
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Acenaphthene	0.072	1.4
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Anthracene	0.22	0.81
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)anthracene	0.36	1.5
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	0.3	0.38
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	0.47	0.82
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	0.69	12
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Fluorene	0.19	1.4
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	0.09	0.40
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Phenanthrene	0.69	2.9
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - PAHs (Soil)	Pyrene	1	8.0
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Benzene	0.02	0.47
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Ethylbenzene	0.05	0.38
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	2.2
5037189	TP111 SA5	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	3.0
5037192	TP112 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Toluene	0.2	0.30
5037192	TP112 SA3	T9 (All) - NEW	O. Reg. 153(511) - VOCs (Soil)	Xylene Mixture	0.05	0.21

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL  
 PROJECT NO: UNIMIN

AGAT WORK ORDER: 13T791762  
 ATTENTION TO: TROY GORDON

Soil Analysis																
RPT Date: Dec 13, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

**Particle Size by Sieve (Wet)**

Sieve Analysis - 75 µm (retained)	1		66.0	69.2	4.7%	N/A	NA			NA			NA
Sieve Analysis - 75 µm (passing)	1		34.0	30.8	9.9%	N/A	NA			NA			NA

Comments: NA - Not Applicable

**O. Reg. 153(511) - Metals (Comprehensive) (Soil)**

Antimony	1		< 0.8	< 0.8	0.0%	< 0.8	123%	70%	130%	89%	80%	120%	91%	70%	130%
Arsenic	1		1	1	0.0%	< 1	109%	70%	130%	96%	80%	120%	103%	70%	130%
Boron	1		< 5	< 5	0.0%	< 5	78%	70%	130%	99%	80%	120%	90%	70%	130%
Barium	1		20	21	4.9%	< 2	103%	70%	130%	86%	80%	120%	89%	70%	130%
Beryllium	1		< 0.5	< 0.5	0.0%	< 0.5	87%	70%	130%	102%	80%	120%	90%	70%	130%
Cadmium	1		< 0.5	< 0.5	0.0%	< 0.5	100%	70%	130%	110%	80%	120%	103%	70%	130%
Chromium	1		6	6	0.0%	< 2	88%	70%	130%	92%	80%	120%	92%	70%	130%
Cobalt	1		2.9	3.2	9.8%	< 0.5	98%	70%	130%	96%	80%	120%	98%	70%	130%
Copper	1		5	5	0.0%	< 1	103%	70%	130%	96%	80%	120%	93%	70%	130%
Lead	1		3	3	0.0%	< 1	104%	70%	130%	90%	80%	120%	84%	70%	130%
Molybdenum	1		< 0.5	< 0.5	0.0%	< 0.5	101%	70%	130%	96%	80%	120%	107%	70%	130%
Nickel	1		3	3	0.0%	< 1	99%	70%	130%	96%	80%	120%	96%	70%	130%
Selenium	1		< 0.4	< 0.4	0.0%	< 0.4	76%	70%	130%	95%	80%	120%	103%	70%	130%
Silver	1		< 0.2	< 0.2	0.0%	< 0.2	110%	70%	130%	102%	80%	120%	104%	70%	130%
Thallium	1		< 0.4	< 0.4	0.0%	< 0.4	96%	70%	130%	99%	80%	120%	95%	70%	130%
Uranium	1		< 0.5	< 0.5	0.0%	< 0.5	107%	70%	130%	95%	80%	120%	95%	70%	130%
Vanadium	1		12	13	8.0%	< 1	95%	70%	130%	99%	80%	120%	104%	70%	130%
Zinc	1		16	17	6.1%	< 5	102%	70%	130%	102%	80%	120%	105%	70%	130%

Certified By: \_\_\_\_\_

*Sofia Pehlyora*

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis

RPT Date: Dec 13, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
O. Reg. 153(511) - VOCs (Soil)																
Dichlorodifluoromethane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	122%	50%	140%	111%	50%	140%	108%	50%	140%	
Vinyl Chloride	1	5037186	< 0.02	< 0.02	0.0%	< 0.02	66%	50%	140%	106%	50%	140%	104%	50%	140%	
Bromomethane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	107%	50%	140%	103%	50%	140%	
Trichlorofluoromethane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	65%	50%	140%	106%	50%	140%	127%	50%	140%	
Acetone	1	5037186	< 0.50	< 0.50	0.0%	< 0.50	103%	50%	140%	83%	50%	140%	96%	50%	140%	
1,1-Dichloroethylene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	128%	50%	140%	107%	60%	130%	107%	50%	140%	
Methylene Chloride	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	118%	50%	140%	115%	60%	130%	109%	50%	140%	
Trans- 1,2-Dichloroethylene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	108%	50%	140%	103%	60%	130%	110%	50%	140%	
Methyl tert-butyl Ether	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	74%	50%	140%	108%	60%	130%	104%	50%	140%	
1,1-Dichloroethane	1	5037186	< 0.02	< 0.02	0.0%	< 0.02	90%	50%	140%	99%	60%	130%	102%	50%	140%	
Methyl Ethyl Ketone	1	5037186	< 0.50	< 0.50	0.0%	< 0.50	86%	50%	140%	100%	50%	140%	105%	50%	140%	
Cis- 1,2-Dichloroethylene	1	5037186	< 0.02	< 0.02	0.0%	< 0.02	73%	50%	140%	117%	60%	130%	115%	50%	140%	
Chloroform	1	5037186	< 0.04	< 0.04	0.0%	< 0.04	84%	50%	140%	112%	60%	130%	108%	50%	140%	
1,2-Dichloroethane	1	5037186	< 0.03	< 0.03	0.0%	< 0.03	76%	50%	140%	94%	60%	130%	100%	50%	140%	
1,1,1-Trichloroethane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	91%	50%	140%	110%	60%	130%	96%	50%	140%	
Carbon Tetrachloride	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	103%	60%	130%	93%	50%	140%	
Benzene	1	5037186	0.97	0.95	2.1%	< 0.02	72%	50%	140%	107%	60%	130%	105%	50%	140%	
1,2-Dichloropropane	1	5037186	< 0.03	< 0.03	0.0%	< 0.03	118%	50%	140%	111%	60%	130%	118%	50%	140%	
Trichloroethylene	1	5037186	< 0.03	< 0.03	0.0%	< 0.03	90%	50%	140%	105%	60%	130%	102%	50%	140%	
Bromodichloromethane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	71%	50%	140%	117%	60%	130%	87%	50%	140%	
Methyl Isobutyl Ketone	1	5037186	< 0.50	< 0.50	0.0%	< 0.50	62%	50%	140%	93%	50%	140%	98%	50%	140%	
1,1,2-Trichloroethane	1	5037186	< 0.04	< 0.04	0.0%	< 0.04	87%	50%	140%	97%	60%	130%	98%	50%	140%	
Toluene	1	5037186	5.8	5.8	0.0%	< 0.05	73%	50%	140%	111%	60%	130%	119%	50%	140%	
Dibromochloromethane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	88%	50%	140%	101%	60%	130%	97%	50%	140%	
Ethylene Dibromide	1	5037186	< 0.04	< 0.04	0.0%	< 0.04	81%	50%	140%	114%	60%	130%	115%	50%	140%	
Tetrachloroethylene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	83%	50%	140%	102%	60%	130%	95%	50%	140%	
1,1,1,2-Tetrachloroethane	1	5037186	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	97%	60%	130%	103%	50%	140%	
Chlorobenzene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	68%	50%	140%	116%	60%	130%	119%	50%	140%	
Ethylbenzene	1	5037186	0.97	0.98	1.0%	< 0.05	118%	50%	140%	105%	60%	130%	109%	50%	140%	
m & p-Xylene	1	5037186	3.7	3.8	2.7%	< 0.05	72%	50%	140%	116%	60%	130%	113%	50%	140%	
Bromoform	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	91%	50%	140%	112%	60%	130%	94%	50%	140%	
Styrene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	76%	50%	140%	99%	60%	130%	95%	50%	140%	
1,1,2,2-Tetrachloroethane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	100%	60%	130%	107%	50%	140%	
o-Xylene	1	5037186	3.0	2.9	3.4%	< 0.05	82%	50%	140%	104%	60%	130%	111%	50%	140%	
1,3-Dichlorobenzene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	72%	50%	140%	103%	60%	130%	110%	50%	140%	
1,4-Dichlorobenzene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	114%	50%	140%	87%	60%	130%	97%	50%	140%	
1,2-Dichlorobenzene	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	119%	50%	140%	101%	60%	130%	112%	50%	140%	
1,3-Dichloropropene	1	5037186	< 0.04	< 0.04	0.0%	< 0.04	85%	50%	140%	90%	60%	130%	104%	50%	140%	
n-Hexane	1	5037186	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	111%	60%	130%	81%	50%	140%	

## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis (Continued)

RPT Date: Dec 13, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

**O. Reg. 153(511) - VOCs (Soil)**

Dichlorodifluoromethane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	93%	50%	140%	103%	50%	140%
Vinyl Chloride	1	5037189	< 0.02	< 0.02	0.0%	< 0.02	70%	50%	140%	84%	50%	140%	89%	50%	140%
Bromomethane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	89%	50%	140%	93%	50%	140%
Trichlorofluoromethane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	65%	50%	140%	99%	50%	140%	108%	50%	140%
Acetone	1	5037189	< 0.50	< 0.50	0.0%	< 0.50	104%	50%	140%	103%	50%	140%	110%	50%	140%
1,1-Dichloroethylene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	111%	50%	140%	96%	60%	130%	116%	50%	140%
Methylene Chloride	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	98%	50%	140%	108%	60%	130%	110%	50%	140%
Trans- 1,2-Dichloroethylene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	92%	50%	140%	110%	60%	130%	104%	50%	140%
Methyl tert-butyl Ether	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	78%	50%	140%	85%	60%	130%	96%	50%	140%
1,1-Dichloroethane	1	5037189	< 0.02	< 0.02	0.0%	< 0.02	90%	50%	140%	92%	60%	130%	111%	50%	140%
Methyl Ethyl Ketone	1	5037189	< 0.50	< 0.50	0.0%	< 0.50	104%	50%	140%	104%	50%	140%	98%	50%	140%
Cis- 1,2-Dichloroethylene	1	5037189	< 0.02	< 0.02	0.0%	< 0.02	110%	50%	140%	100%	60%	130%	105%	50%	140%
Chloroform	1	5037189	< 0.04	< 0.04	0.0%	< 0.04	91%	50%	140%	100%	60%	130%	110%	50%	140%
1,2-Dichloroethane	1	5037189	< 0.03	< 0.03	0.0%	< 0.03	83%	50%	140%	97%	60%	130%	96%	50%	140%
1,1,1-Trichloroethane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	84%	50%	140%	100%	60%	130%	104%	50%	140%
Carbon Tetrachloride	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	92%	50%	140%	91%	60%	130%	119%	50%	140%
Benzene	1	5037189	0.47	0.40	16.1%	< 0.02	93%	50%	140%	108%	60%	130%	97%	50%	140%
1,2-Dichloropropane	1	5037189	< 0.03	< 0.03	0.0%	< 0.03	77%	50%	140%	80%	60%	130%	103%	50%	140%
Trichloroethylene	1	5037189	< 0.03	< 0.03	0.0%	< 0.03	74%	50%	140%	88%	60%	130%	99%	50%	140%
Bromodichloromethane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	79%	50%	140%	83%	60%	130%	118%	50%	140%
Methyl Isobutyl Ketone	1	5037189	< 0.50	< 0.50	0.0%	< 0.50	116%	50%	140%	94%	50%	140%	90%	50%	140%
1,1,2-Trichloroethane	1	5037189	< 0.04	< 0.04	0.0%	< 0.04	96%	50%	140%	106%	60%	130%	101%	50%	140%
Toluene	1	5037189	2.2	2.0	9.5%	< 0.05	73%	50%	140%	85%	60%	130%	104%	50%	140%
Dibromochloromethane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	99%	60%	130%	102%	50%	140%
Ethylene Dibromide	1	5037189	< 0.04	< 0.04	0.0%	< 0.04	80%	50%	140%	87%	60%	130%	112%	50%	140%
Tetrachloroethylene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	73%	50%	140%	91%	60%	130%	115%	50%	140%
1,1,1,2-Tetrachloroethane	1	5037189	< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	105%	60%	130%	103%	50%	140%
Chlorobenzene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	77%	50%	140%	89%	60%	130%	111%	50%	140%
Ethylbenzene	1	5037189	0.38	0.33	14.1%	< 0.05	114%	50%	140%	76%	60%	130%	95%	50%	140%
m & p-Xylene	1	5037189	1.8	1.5	18.2%	< 0.05	73%	50%	140%	99%	60%	130%	130%	50%	140%
Bromoform	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	85%	50%	140%	88%	60%	130%	112%	50%	140%
Styrene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	76%	50%	140%	81%	60%	130%	111%	50%	140%
1,1,1,2,2-Tetrachloroethane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	89%	60%	130%	105%	50%	140%
o-Xylene	1	5037189	1.2	1.0	18.2%	< 0.05	117%	50%	140%	81%	60%	130%	100%	50%	140%
1,3-Dichlorobenzene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	83%	50%	140%	83%	60%	130%	104%	50%	140%
1,4-Dichlorobenzene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	78%	50%	140%	74%	60%	130%	87%	50%	140%
1,2-Dichlorobenzene	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	79%	50%	140%	83%	60%	130%	99%	50%	140%
1,3-Dichloropropene	1	5037189	< 0.04	< 0.04	0.0%	< 0.04	83%	50%	140%	93%	60%	130%	96%	50%	140%



## Quality Assurance

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

### Trace Organics Analysis (Continued)

RPT Date: Dec 13, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
n-Hexane	1	5037189	< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	88%	60%	130%	97%	50%	140%	
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)																
F1 (C6 to C10)	1	5037183	< 5	< 5	0.0%	< 5	94%	60%	140%	103%	80%	120%	100%	60%	140%	
F2 (C10 to C16)	1	5037180	< 10	< 10	0.0%	< 10	102%	60%	140%	81%	80%	120%	89%	60%	140%	
F3 (C16 to C34)	1	5037180	< 50	< 50	0.0%	< 50	108%	60%	140%	88%	80%	120%	103%	60%	140%	
F4 (C34 to C50)	1	5037180	< 50	< 50	0.0%	< 50	82%	60%	140%	92%	80%	120%	98%	60%	140%	
O. Reg. 153(511) - PAHs (Soil)																
Naphthalene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	86%	50%	140%	88%	50%	140%	85%	50%	140%	
Acenaphthylene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	92%	50%	140%	86%	50%	140%	85%	50%	140%	
Acenaphthene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	86%	50%	140%	89%	50%	140%	
Fluorene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	85%	50%	140%	87%	50%	140%	
Phenanthrene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	98%	50%	140%	90%	50%	140%	93%	50%	140%	
Anthracene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	100%	50%	140%	89%	50%	140%	93%	50%	140%	
Fluoranthene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	108%	50%	140%	93%	50%	140%	100%	50%	140%	
Pyrene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	110%	50%	140%	94%	50%	140%	104%	50%	140%	
Benz(a)anthracene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	109%	50%	140%	84%	50%	140%	105%	50%	140%	
Chrysene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	122%	50%	140%	93%	50%	140%	110%	50%	140%	
Benzo(b)fluoranthene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	100%	50%	140%	97%	50%	140%	103%	50%	140%	
Benzo(k)fluoranthene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	106%	50%	140%	109%	50%	140%	
Benzo(a)pyrene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	98%	50%	140%	95%	50%	140%	104%	50%	140%	
Indeno(1,2,3-cd)pyrene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	79%	50%	140%	84%	50%	140%	
Dibenz(a,h)anthracene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	91%	50%	140%	77%	50%	140%	82%	50%	140%	
Benzo(g,h,i)perylene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	84%	50%	140%	64%	50%	140%	69%	50%	140%	
2-and 1-methyl Naphthalene	1	5037169	< 0.05	< 0.05	0.0%	< 0.05	81%	50%	140%	77%	50%	140%	78%	50%	140%	

Certified By:



## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Sieve Analysis - 75 µm (retained)		KROETSCH 2007; SHEPPARD 2007	SIEVE
Sieve Analysis - 75 µm (passing)		KROETSCH 2007; SHEPPARD 2007	SIEVE

## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	Org 5506	EPA SW-846 3540 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	GRAVIMETRIC ANALYSIS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

## Method Summary

CLIENT NAME: PINCHIN ENVIRONMENTAL

AGAT WORK ORDER: 13T791762

PROJECT NO: UNIMIN

ATTENTION TO: TROY GORDON

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS





# AGAT

## Laboratories

5835 Coopers Avenue  
Mississauga, ON  
L4Z 1Y2

www.agatlabs.com • webeath.agatlabs.com

### Laboratory Use Only

Arrival Temperature: 8.7 8.1, 7.2

AGAT WO #: 131791769

Lab Temperature: \_\_\_\_\_

Notes: \_\_\_\_\_

## Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122

### Client Information

Company: PINCHIN ENVIRONMENTAL  
Contact: TROY GORDON  
Address: 850 BARRY DOWNE RD  
SUDBURY ON  
Phone: 705 521 0560 Fax: 705 521 0309  
Project: UNIMIN PO: 76105.003  
AGAT Quotation #: SOA

Please note, if quotation number is not provided,  
client will be billed full price for analysis.

### Regulatory Requirements

Regulation 153/04  
(reg. 511 Amend.)

Table 9  
Indicate one

Ind/Com

Res/Park

Agriculture

Soil Texture (check one)

Coarse  Fine

Sewer Use

Region \_\_\_\_\_  
Indicate one

Sanitary

Storm

Regulation 558

CCME

Other (specify) \_\_\_\_\_

Prov. Water Quality  
Objectives (PWQO)

None

### Turnaround Time Required (TAT) Required\*

#### Regular TAT

5 to 7 Working Days

Rush TAT (please provide prior notification)

#### Rush Surcharges Apply

3 Working Days

2 Working Days

1 Working Day

OR

Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

### Invoice To

Same: Yes  No

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_

Is this a drinking water sample?  
(potable water intended for human consumption)  
 Yes  No

If "Yes", please use the  
**Drinking Water Chain of Custody Form**

Is this submission for a Record of Site Condition?

Yes  No

### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

### Report Information - reports to be sent to:

1. Name: TROY GORDON  
Email: TGORDON@PINCHIN.COM  
2. Name: \_\_\_\_\_  
Email: \_\_\_\_\_

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6- <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N- Total <input type="checkbox"/> Hg <input type="checkbox"/> pH	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NO <sub>x</sub> /NO <sub>2</sub>	VOC: <input checked="" type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX	CCME Fractions 1 to 4	ABNS	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/inorganics	Sewer Use		
TP107 SA 2	DEC 5/13	8:30	S	3																		
TP107 SA 3		8:35		3																		
TP108 SA 3		9:00		3																		
TP108 SA 5		9:15		3																		
TP109 SA 2		9:35		3																		
TP109 SA 3		9:45		3																		
TP110 SA 3		10:10		3																		
TP110 SA 5		10:25		3																		
TP111 SA 3		10:55		3																		
TP111 SA 5		11:10		3																		

Samples Relinquished By (Print Name and Sign):  
Jenna Pillay  
Date/Time: Dec 6/13

Samples Received By (Print Name and Sign):  
R. Lawrence  
Date/Time: Dec 7 10:30

Samples Relinquished By (Print Name and Sign):  
M. M...  
Date/Time: Dec 6/13

Pink Copy - Client  
Yellow Copy - AGAT  
White Copy - AGAT

Page 1 of 2

Nº: **29665**





### Laboratory Use Only

Arrival Temperature: \_\_\_\_\_  
 AGAT WO #: 131791769  
 Lab Temperature: \_\_\_\_\_  
 Notes: \_\_\_\_\_

## Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122

### Client Information

Company: PINCHIN ENVIRONMENTAL  
 Contact: TROY GORDON  
 Address: 850 BARRY DOWNE RD  
SUDBURY ON  
 Phone: 705 521 0560 Fax: 705 521 1309  
 Project: UNIMIN PO: 76105.003  
 AGAT Quotation #: 30A

Please note, if quotation number is not provided,  
client will be billed full price for analysis.

### Regulatory Requirements

- Regulation 153/04 (reg. 511 Amend.)  
 Table 9 Indicate one  
 Ind/Com  
 Res/Park  
 Agriculture  
 Sewer Use  
 Region \_\_\_\_\_ Indicate one  
 Sanitary  
 Storm  
 Regulation 558  
 CCME  
 Other (specify) \_\_\_\_\_  
 Soil Texture (check one)  
 Coarse  Fine  
 Prov. Water Quality Objectives (PWQO)  
 None

### Turnaround Time Required (TAT) Required\*

- Regular TAT**  
 5 to 7 Working Days  
**Rush TAT** (please provide prior notification)  
**Rush Surcharges Apply**  
 3 Working Days  
 2 Working Days  
 1 Working Day  
**OR**  
 Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

### Invoice To

Same: Yes  No

Company: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Address: \_\_\_\_\_

Is this a drinking water sample?  
 (potable water intended for human consumption)  
 Yes  No  
 If "Yes", please use the  
**Drinking Water Chain of Custody Form**

### Is this submission for a Record of Site Condition?

Yes  No

### Legend Matrix

- GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

### Report Information – reports to be sent to:

1. Name: TROY GORDON  
 Email: TGORDON@PINCHIN.COM  
 2. Name: \_\_\_\_\_  
 Email: \_\_\_\_\_

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information
TP112 SA3	DEC5/13	11:30	S	3	
TP112 SA5	↓	11:45	↓	3	
TP113 SA3	↓	12:15	↓	5	
TP113 SA6	↓	12:35	↓	4	

Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6 <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N- Total <input type="checkbox"/> Hg <input type="checkbox"/> pH	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub>	VOC: <input checked="" type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
	<u>RSC</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					<u>GRAN SIZE</u>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>

Samples Relinquished By (Print Name and Sign): Jenna Pillarella  
 Date/Time: Dec 6/13

Samples Received By (Print Name and Sign): R. Lawrence  
 Date/Time: Dec. 6/13  
Dec. 7 10:30

Pink Copy - Client  
 Yellow Copy - AGAT  
 White Copy - AGAT

Page 2 of 2  
 No: **29666**



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## **Appendix C**

# **Sampling and Analysis Plan**

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# Sampling and Analysis Plan - Midland Bay Landing 420 Bayshore Drive, Midland, Ontario

Cambium Reference No.: 6820-001

2018-04-30

Prepared for: The Town of Midland



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Cambium Inc.

P.O. Box 325  
52 Hunter Street East, Peterborough  
Ontario, K9H 1G5

Telephone: (866) 217.7900

Facsimile: (705) 742.7907

[cambium-inc.com](http://cambium-inc.com)

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## 1.0 INTRODUCTION

This document outlines the Sampling and Analysis Plan (SAP) for the field work proposed for the Phase Two Environmental Site Assessment (ESA) being completed at 420 Bayshore Drive, Midland, Ontario (hereinafter referred to as the 'Site'). This SAP establishes a quality assurance and quality control (QA/QC) program, data quality objectives, standard operating procedures, and a description of potential physical impediments that may limit the ability to conduct sampling and analysis.

### 1.1 OBJECTIVES

Cambium Inc. (Cambium) completed a Phase One ESA for the Site which identified areas of potential environmental concern (APECs) associated with current and former uses of the site and surrounding properties.

The purpose of the Phase Two ESA will be to investigate soil and groundwater quality in the identified APECs through the drilling of boreholes, installation of monitoring wells, excavating of test pits and the collection of soil and groundwater samples.

The contaminants of potential concern (COPCs) associated with the APECs include: petroleum hydrocarbon fractions 1 to 4 (PHC F1-F4), volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals.

The overall objective of the Phase Two work program is to identify areas of contaminants at the Phase Two property and to determine the extent and concentration of contaminants of concern (COCs) identified during previous investigations to support the filing of a Record of Site Condition (RSC) in accordance with Ontario Regulation (O.Reg.) 153/04.





## 2.0 WORK PROPOSED

Proposed boreholes, monitoring wells, test pit, and surface sampling locations and rationale are included in the following table.

Borehole/ Monitoring Well/ Test Pit/ Surface Sampling ID	Rationale
BH18-01/BH18-19 /BH19-01	Investigate soil and groundwater quality for COPCs in APECs E, J, K, and Q in the footprint of the former fuel oil USTs along the west side of the Site.
BH18-02	Investigate soil quality for COPCs in APECs A and N on the northwest side of the Site.
BH18-03	Investigate soil quality for COPCs in APECs A and N on the west side of the Site.
BH18-04	Investigate soil quality for COPCs in APECs A, I, and N in the footprint of the former punch/machine shop.
BH18-05/BH18-21	Investigate soil and groundwater quality for COPCs in APEC F and APEC L along the south side of the Site.
BH18-06	Investigate soil and groundwater quality for COPCs in APECs A, N, and S in the footprint of the former oil house on the west side of the Site.
BH18-07/BH18-17 /BH19-02	Investigate soil and groundwater quality for COPCs in APECs A, D, and N in the footprint of the former gasoline UST.
BH18-08	Investigate soil quality for COPCs in APECs A and N on the northwest portion of the Site.
BH18-09	Investigate soil quality for COPCs in APECs A and N on the northwest portion of the Site.
BH18-10	Investigate soil quality for COPCs in APECs A and N on the northwest portion of the Site.
BH18-11/BH18-15	Investigate soil and groundwater quality for COPCs in APEC H in the footprint of the former paint shop on the west side of the Site.
BH18-12/BH18-27	Investigate soil and groundwater quality for COPCs in APECs C and N on the east side of the Site.
BH18-13/BH18-16	Investigate the lateral extent of VOC impacts in groundwater from APEC H on the west side of the Site.
BH18-14	Investigate the lateral extent of BTEX/PHC impacts in soil from APEC S on the west side of the Site.
BH18-18	Investigate soil and groundwater quality for COPCs in APECs A, K, and N in the northwest corner of the Site
BH18-20	Investigate the lateral extent of BTEX/PHC impacts in soil from APEC F on the southwest side of the Site.
BH18-22	Investigate the lateral extent of BTEX/PHC impacts in soil from APEC F on the southwest side of the Site.



<b>BH18-23</b>	Investigate the lateral extent of BTEX/PHC impacts in soil on the northwest side of the Site.
<b>BH18-24</b>	Investigate the lateral extent of BTEX/PHC impacts in soil on the northwest side of the Site.
<b>BH18-25</b>	Investigate the lateral extent of BTEX/PHC impacts in soil on the northwest side of the Site.
<b>BH18-28</b>	Investigate the lateral extent of BTEX/PHC impacts in soil on the east side of the Site.
<b>BH18-29</b>	Investigate the lateral extent of BTEX/PHC impacts in soil on the east side of the Site.
<b>TP18-01</b>	Investigate soil quality for COPCs in APECs A, B, N, and R in the marine enclosure.
<b>TP18-02</b>	Investigate soil quality for COPCs in APECs A and N on the south-central side of the Site.
<b>TP18-03</b>	Investigate soil quality for COPCs in APECs A, B, and N on the northeast side of the Site.
<b>TP18-04</b>	Investigate soil quality for COPCs in APECs A, B, and N on the northeast side of the Site.
<b>TP18-05</b>	Investigate the extent of PAH and EC impacts in soil in the marine enclosure.
<b>TP18-06</b>	Investigate the extent of PAH and EC impacts in soil in the marine enclosure.
<b>TP18-07</b>	Investigate the extent of PAH and EC impacts in soil in the marine enclosure.
<b>TP18-08</b>	Investigate the extent of EC impacts in the marine enclosure.
<b>TP18-09</b>	Investigate soil quality for COPCs in APECs A, B, and N on the east side of the Site.
<b>TP18-10</b>	Investigate soil quality for COPCs in APECs A and N along the east property boundary.
<b>TP18-11</b>	Investigate soil quality for COPCs in APECs A and N along the east property boundary.
<b>TP18-12</b>	Investigate soil quality for COPCs in APECs A and N along the east property boundary.
<b>TP18-13</b>	Investigate soil quality for COPCs in APECs A, B, and N on the southeast side of the Site.
<b>TP18-14</b>	Investigate soil quality for COPCs in APECs A and N on the west side of the Site.
<b>TP18-15/BH18-26</b>	Investigate soil quality for COPCs in in APECs A and N on the west side of the Site.
<b>TP18-16</b>	Investigate soil quality for COPCs in in APECs A and N on the northwest side of the Site.
<b>TP18-17</b>	Investigate soil quality for COPCs in APECs A, B, and N on the northeast side of the Site.



<b>TP18-18</b>	Investigate soil quality for COPCs in APECs A and N on the east side of the Site.
<b>TP18-19</b>	Investigate soil quality for COPCs in APECs A and N along the northwest side of the Site
<b>SS18-01</b>	Investigate soil quality for COPCs in APECs A, B, N, and R in the marine enclosure.
<b>SS18-02</b>	Investigate soil quality for COPCs in APECs A, B, and N in the marine enclosure.
<b>SS18-05</b>	Investigate soil quality for COPCs in APECs A and N on the south-central portion of the Site.
<b>SS18-06</b>	Investigate soil quality for COPCs in APECs A, B, and N on the south-central portion of the Site.
<b>SS18-07</b>	Investigate soil quality for COPCs in APECs A, B, and N in the central portion of the Site.
<b>SS18-08</b>	Investigate soil quality for COPCs in APECs A and N on the south-central side of the Site.
<b>SS18-08B</b>	Investigate soil quality for COPCs in APECs A, B, and N on the northeast side of the Site.
<b>SS18-09</b>	Investigate soil quality for COPCs in APECs A, B, and N on the east side of the Site.
<b>SS18-10</b>	Investigate soil quality for COPCs in APECs A, B, and N on the east side of the Site.
<b>SS18-11</b>	Investigate soil quality for COPCs in APECs A and N on the southeast side of the Site.
<b>SS18-12</b>	Investigate soil quality for COPCs in APECs A, B, and N on the east side of the Site.
<b>SS18-13</b>	Investigate soil quality for COPCs in APECs A, B and N on the south-central portion of the Site.
<b>SS18-14</b>	Investigate soil quality for COPCs in APECs A, B, and N in the central portion of the Site.
<b>SS18-15</b>	Investigate soil quality for COPCs in in APECs A and N on the west side of the Site.
<b>SS18-16</b>	Investigate soil quality for COPCs in APECs A, B, and N on the southeast side of the Site.
<b>SS18-17</b>	Investigate soil quality for COPCs in APECs A and N on the south-central portion of the Site.
<b>SS18-18</b>	Investigate soil quality for COPCs in APECs A, B, and N in the marine enclosure.
<b>SS18-19</b>	Investigate the lateral extent of BTEX/PHC impacts in soil on the west side of the Site.
<b>SS18-20</b>	Investigate soil quality for COPCs in in APECs A, I, N, and O in the footprint of the former punch/machine shop.
<b>SS18-21</b>	Investigate soil quality for COPCs in APECs A, B, and N in the central portion of the Site.



<b>SS18-22</b>	Investigate soil quality for COPCs in APECs A, B, and N on the north-central portion of the Site.
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To meet the objectives outlined above, the Phase Two ESA work program will generally consist of the following:

- Advance boreholes and test pits to depths below known or suspected contamination to assess the vertical extent of impacts;
- Collect soil samples continuously at regular intervals using a split spoon or dual tube sampling system;
- Install monitoring wells in nine boreholes such that the screen straddles the water table;
- Install monitoring wells with 1.52 m screens in BH18-15, BH18-17, BH18-19, BH19-01, and BH19-02 below the depth of known contamination; and,
- Collect groundwater samples using a low-flow sampling method.

The following existing monitoring wells installed by Pinchin (2014) will also be sampled:

Borehole / Monitoring Well ID	Rationale
BH101	Investigate groundwater quality for COPCs (VOCs, PAHs, metals) in the southwest corner of the Site.
BH102	Investigate groundwater quality for COPCs (VOCs, PAHs, metals) in the west side of the Site.
BH103	Investigate groundwater quality for COPCs (VOCs, PAHs, metals) in the west side of the Site.
BH105	Investigate groundwater quality for COPCs (VOCs, PAHs, metals) on the northwest side of the Site.
BH107	Investigate groundwater quality for COPCs in APEC I on the west side of the Site.
BH111	Investigate groundwater quality for COPCs (VOCs, PAHs, metals) on the west side of the Site.
BH113	Investigate groundwater quality for COPCs in APECs B and R in the marine enclosure.
BH114	Investigate groundwater quality for COPCs in APECs B and R in the marine enclosure.
BH117	Investigate groundwater quality for COPCs in APEC A in the south-central part of the Site.
BH120	Investigate groundwater quality for COPCs in APEC A in the northeast side of the Site.
BH123	Investigate groundwater quality for COPCs in APEC A and PCBs in the southeast side of the Site.



## 2.1 QUALITY ASSURANCE

Cambium will maintain the following quality control measures throughout the Phase Two work program:

- Non-dedicated sampling and monitoring equipment will be decontaminated following each use and between each sampling location.
- A minimum of one (1) duplicate sample will be collected for every ten samples collected, for both soil and groundwater.
- Groundwater trip blanks will be submitted for analysis of VOCs with every groundwater VOC sample submission.

An analytical laboratory accredited by the Canadian Association of Laboratory Accreditation (CALA) will be utilized, and the laboratory will complete additional quality control measures (i.e. duplicates, method spikes) as required by its accreditation.

All laboratory certificates of analysis will be reviewed by Cambium for data integrity and quality control. If anomalies in the reported data are identified, Cambium will resample or collect additional samples, where possible and as required.

## 2.2 SAMPLING METHODS

Boreholes will be advanced using a track-mounted drill rig, test pits will be completed using an excavator and surface soil samples will be collected with a trowel. Retrieved soil samples will be inspected for visible and olfactory evidence of contamination. Soil samples will be divided, with half or more of the sample placed in a dedicated polyethylene sample bag and sealed for field screening, and the remaining sample placed in dedicated sample jars or vials for analytical submission. Samples to be submitted for analysis of VOCs will be collected applying the appropriate techniques, as per O. Reg. 153/04 (i.e. pre-calibrated syringe sampler and methanol preserved vial).

Two-inch monitoring wells will be installed in select boreholes by a licensed well contractor. Monitoring wells will generally consist of a 3.05 m length of schedule 40 PVC screen with riser to the top of the well. Wells will be completed with a protective steel monument casing.

Groundwater samples will be collected following development of the well to ensure representative formation waters. Samples from each well will be collected using a low-flow peristaltic pump, with dedicated tubing installed in each of the monitoring wells. Groundwater samples requiring filtration will be field filtered using an in-line filter attached to the end of the polyethylene tubing.

Each sample will be handled by a Cambium field technician using dedicated nitrile gloves to minimize the potential for cross-contamination.





## **2.2.1 SAMPLE HANDLING AND CUSTODY**

Samples will be collected in laboratory-supplied sample containers, with preservative as necessary. All samples requiring laboratory analysis will be placed in a cooler and maintained at less than 10°C prior to and during transport to the laboratory.

Samples will be labelled with a unique sample ID, sampling date, and project number. All samples will be shipped to the laboratory under chain of custody protocols.

## **2.2.2 INSTRUMENTATION**

The Phase Two work program will require the use of the following non-dedicated instrumentation and equipment: trowel, field water quality kit, peristaltic pump, and interface probe. Equipment will be inspected daily for damage or defects, and appropriate measures will be taken if necessary, prior to commencing field work. The interface probe will be decontaminated between monitoring wells using an Alconox wash, and rinsed with distilled water.

## **2.3 QUALITY CONTROL**

### **2.3.1 VERIFICATION AND VALIDATION METHODS**

To validate the integrity of the laboratory analytical data as well as sampling methods, Cambium will determine the relative percent difference (RPD) of QA/QC duplicate samples and the corresponding numbered samples. Cambium will also review the analysis of trip blanks and laboratory completed matrix spikes.

RPD is calculated using the following formula:

$$RPD = \frac{|S - D|}{1/2(S + D)} * 100$$

Where S = numbered sample value

D = duplicate value

Low concentrations are more sensitive to RPD values; as such, RPDs will not be calculated where the parameter concentration in the sample and/or duplicate is less than five (5) times the laboratory RDL.

RPD values will be evaluated based on a target variance of 60% or less for soil and 40% or less for groundwater (CCME, 2016).

If an RPD is calculated above the allowable limits, Cambium will attempt to determine the source of the variance, and will assess whether the elevated RPD affects the integrity and usability of the data.

If detectable contaminant concentrations are identified in the trip blank, Cambium will assess the chain of custody protocols and sample transport procedures, and determine if there are impacts to the integrity of the data.



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## Appendix D

# Borehole Logs and Well Records

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# Log of Borehole:

BH18-01

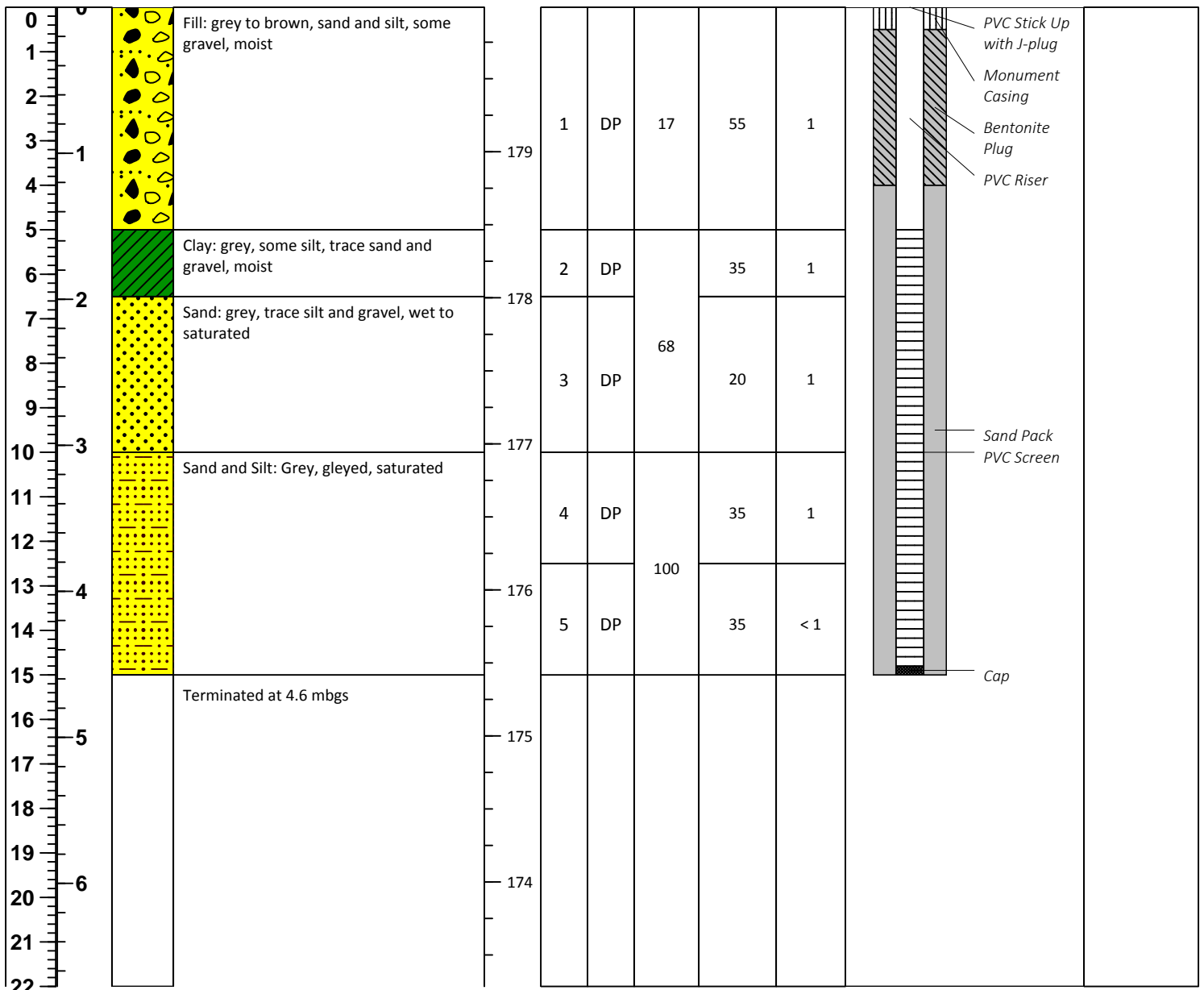
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588175E, 4956262N

**Project No.:** 6820-001  
**Date Completed:** 6/26/18  
**Elevation:** 179.990 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: MC

Input By: NW



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# Log of Borehole:

BH18-02

Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588117E, 4956366N

**Project No.:** 6820-001  
**Date Completed:** 6/27/18  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		

<p>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22</p>	<p>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22</p>	<p>Fill: brown, sand and gravel, trace silt, moist          black, organics and sand, wet, hydrocarbon odour          saturated, hydrocarbon odour          Sand: grey, gleyed, some silt, trace gravel, moist          wet          Terminated at 4.6 mbgs</p>	<p>0 -1 -2 -3 -4 -5 -6</p>	<table border="1"> <tr> <td>1</td> <td>DP</td> <td rowspan="2">40</td> <td>&lt; 5</td> <td>&lt; 1</td> </tr> <tr> <td>2</td> <td>DP</td> <td>5</td> <td>1</td> </tr> <tr> <td>3</td> <td>DP</td> <td rowspan="3">70</td> <td>&lt; 5</td> <td>&lt; 1</td> </tr> <tr> <td>4</td> <td>DP</td> <td>&lt; 5</td> <td>&lt; 1</td> </tr> <tr> <td>5</td> <td>DP</td> <td>&lt; 5</td> <td>&lt; 1</td> </tr> <tr> <td>6</td> <td>DP</td> <td rowspan="2">70</td> <td>&lt; 5</td> <td>&lt; 1</td> </tr> <tr> <td>7</td> <td>DP</td> <td>&lt; 5</td> <td>&lt; 1</td> </tr> </table>	1	DP	40	< 5	< 1	2	DP	5	1	3	DP	70	< 5	< 1	4	DP	< 5	< 1	5	DP	< 5	< 1	6	DP	70	< 5	< 1	7	DP	< 5	< 1		
1	DP	40	< 5	< 1																																	
2	DP		5	1																																	
3	DP	70	< 5	< 1																																	
4	DP		< 5	< 1																																	
5	DP		< 5	< 1																																	
6	DP	70	< 5	< 1																																	
7	DP		< 5	< 1																																	

Logged By: MC

Input By: NW



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# Log of Borehole:

BH18-03

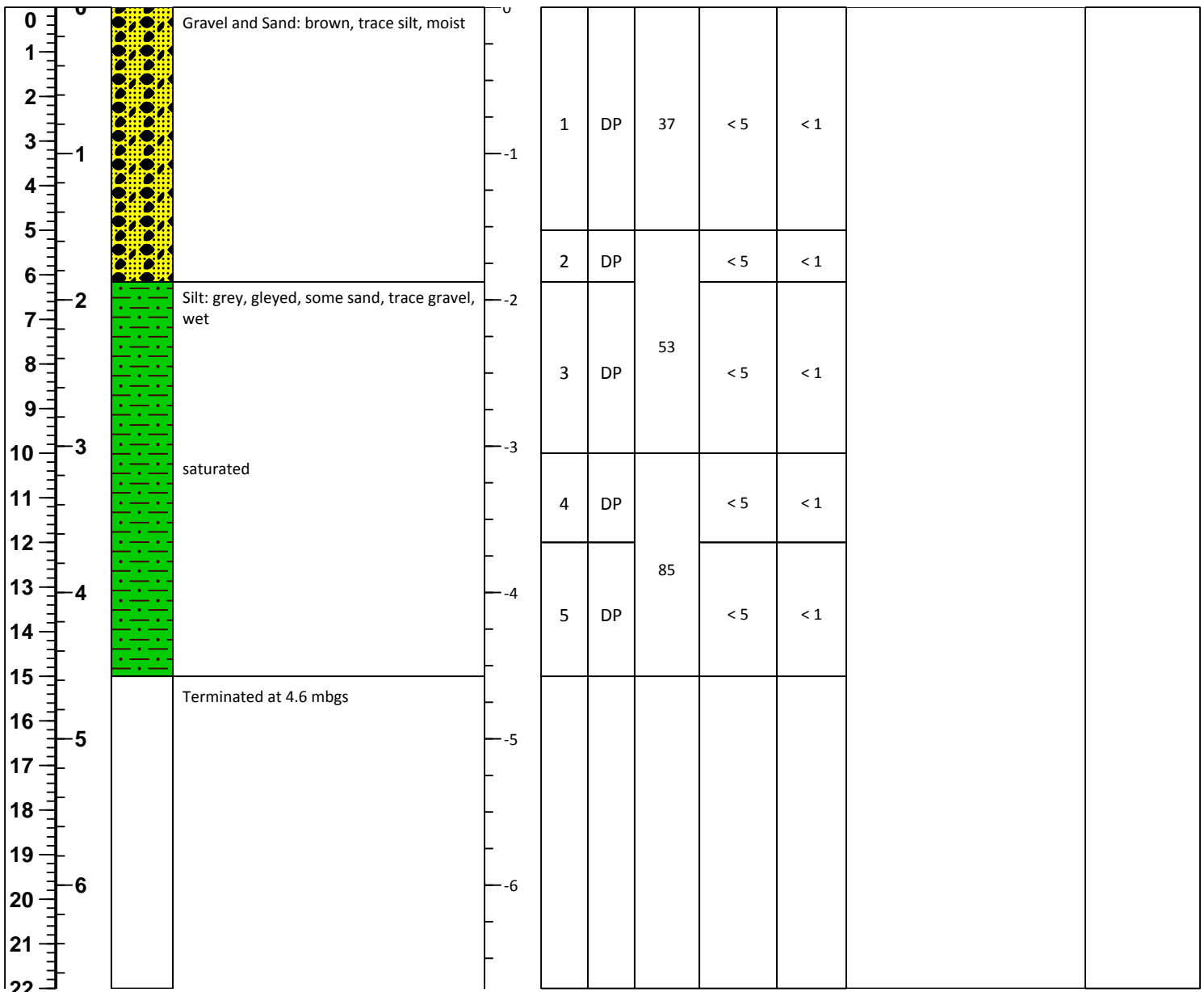
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588179E, 4956285N

**Project No.:** 6820-001  
**Date Completed:** 6/27/18  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: MC

Input By: NW



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# Log of Borehole:

BH18-04

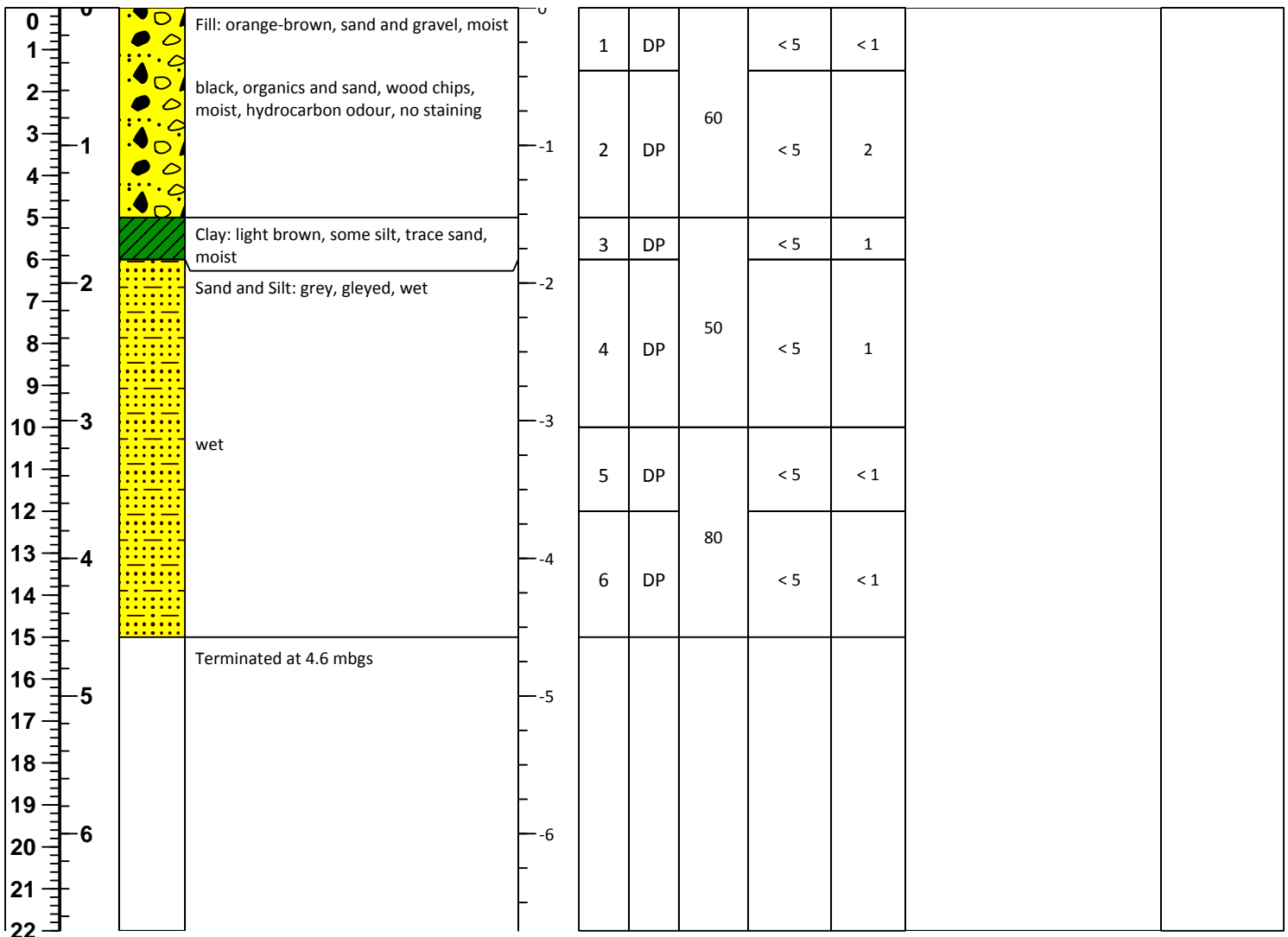
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588178E, 4956302N

**Project No.:** 6820-001  
**Date Completed:** 6/27/18  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: MC

Input By: NW



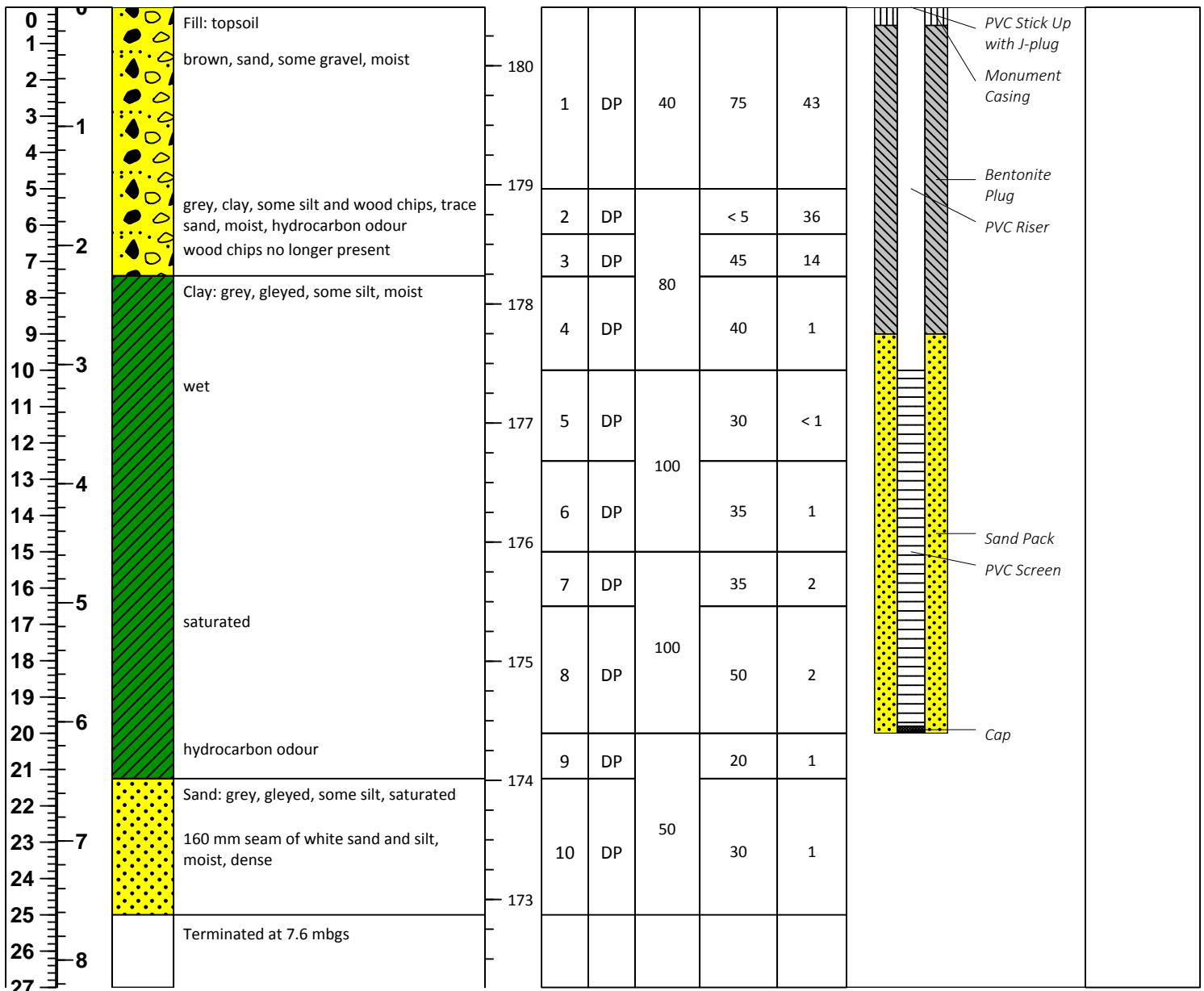


**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588232E, 4956297N

**Project No.:** 6820-001  
**Date Completed:** 6/26/18  
**Elevation:** 180.491 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		





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# Log of Borehole:

BH18-06

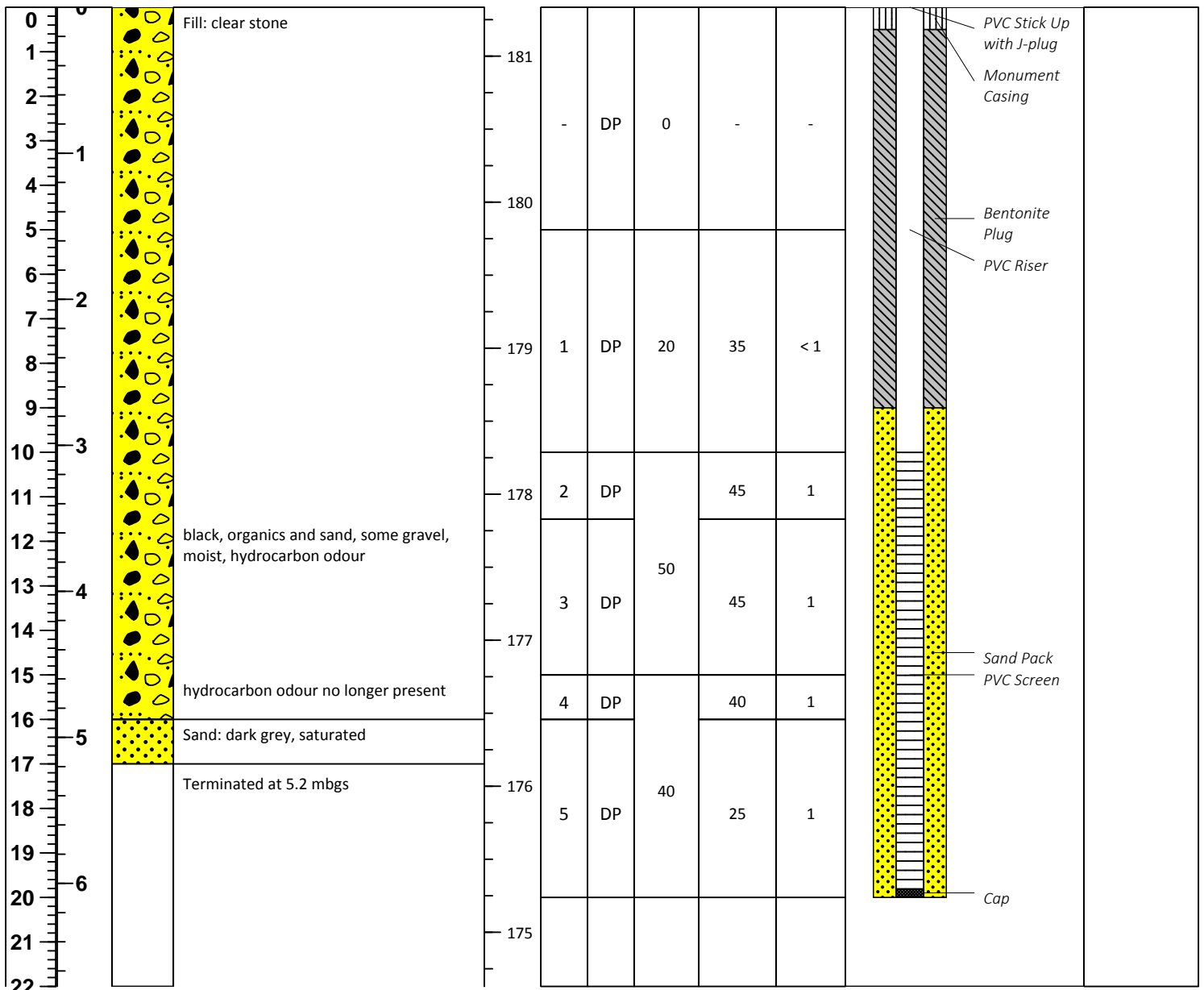
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588181E, 4956492N

**Project No.:** 6820-001  
**Date Completed:** 6/26/18  
**Elevation:** 181.335 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



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Input By: NW



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# Log of Borehole:

BH18-07

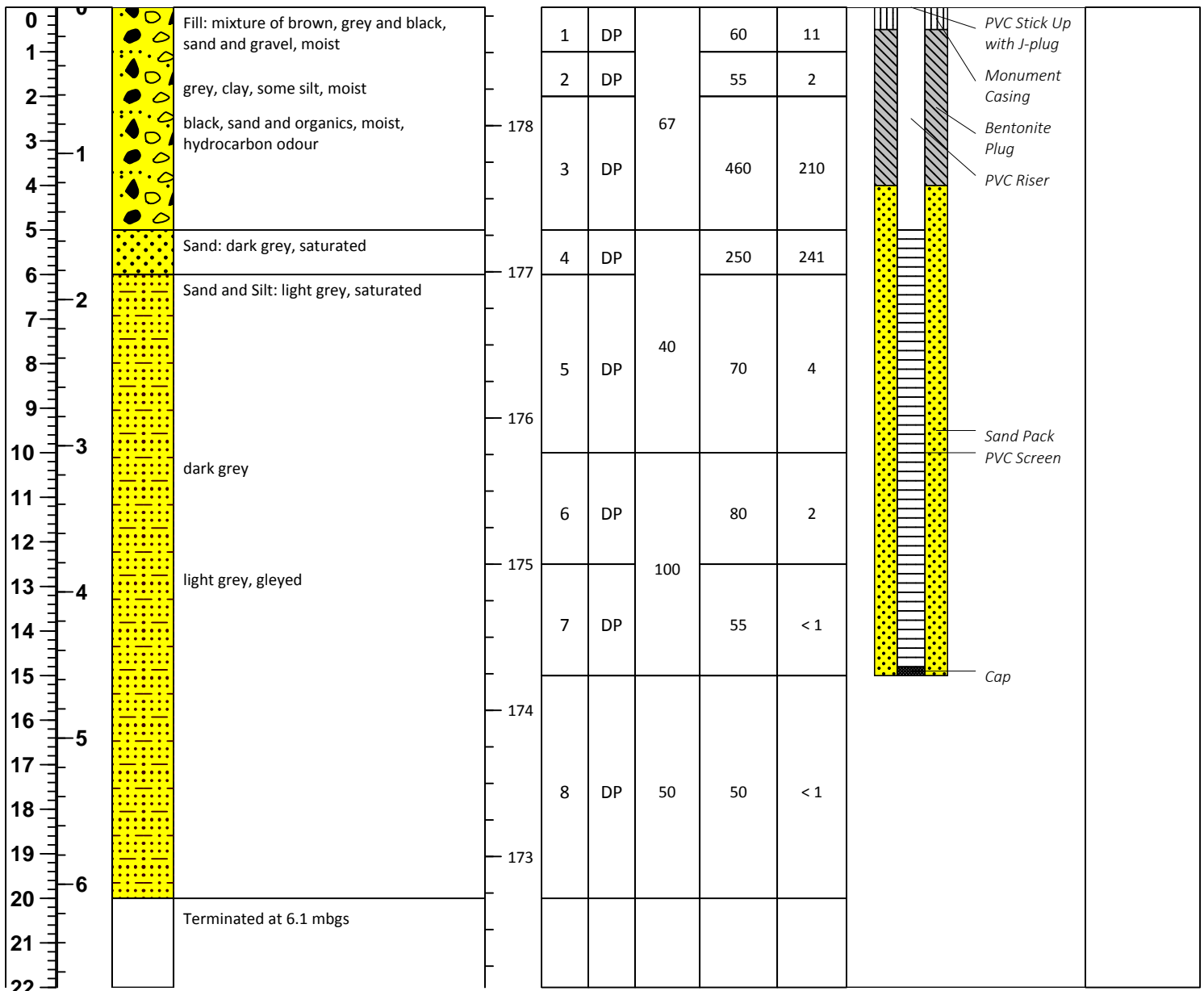
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588132E, 4956309N

**Project No.:** 6820-001  
**Date Completed:** 6/26/18  
**Elevation:** 178.810 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



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Input By: NW



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# Log of Borehole:

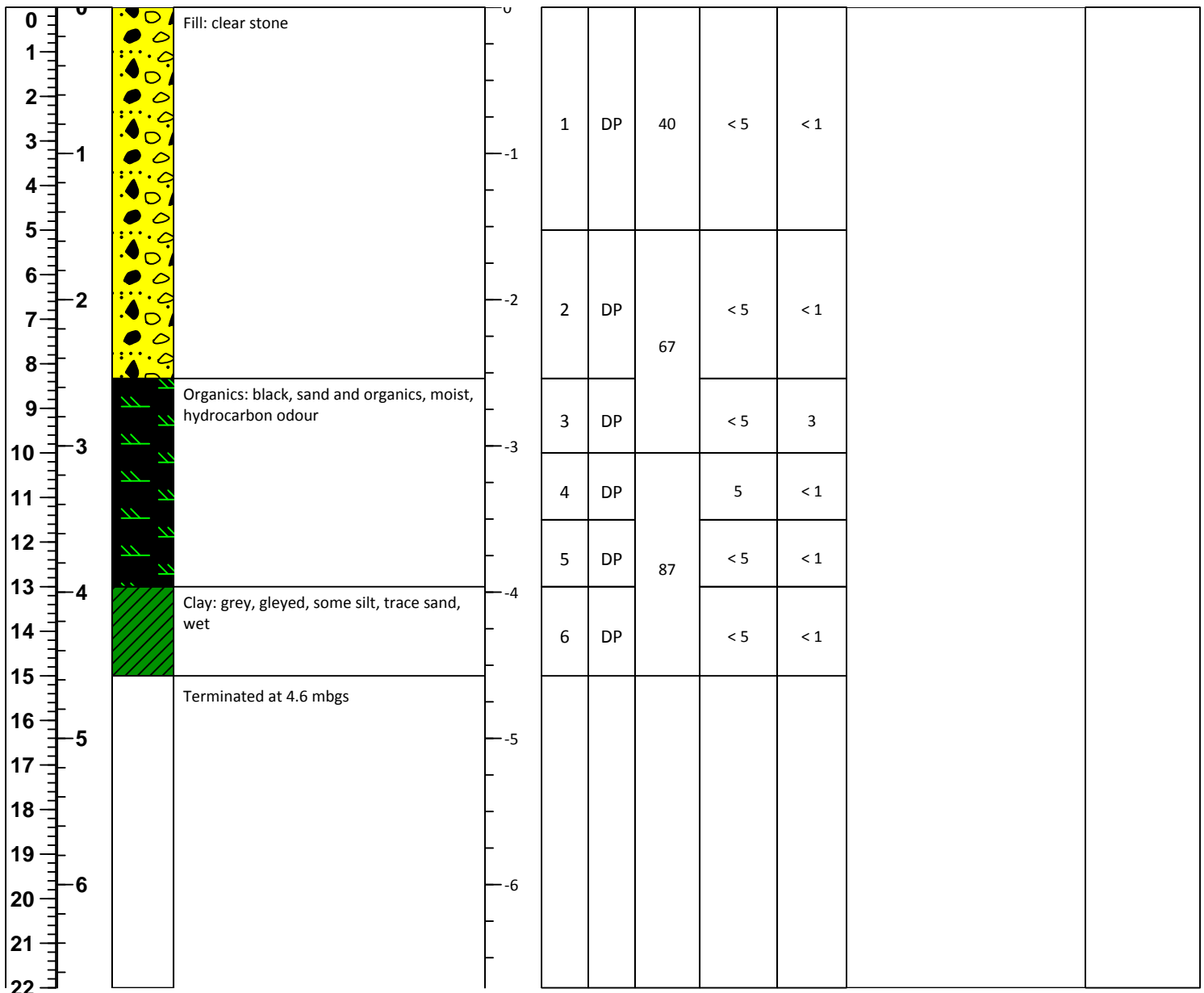
BH18-08

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588143E, 4956410N

**Project No.:** 6820-001  
**Date Completed:** 6/27/18  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



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Input By: NW



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# Log of Borehole:

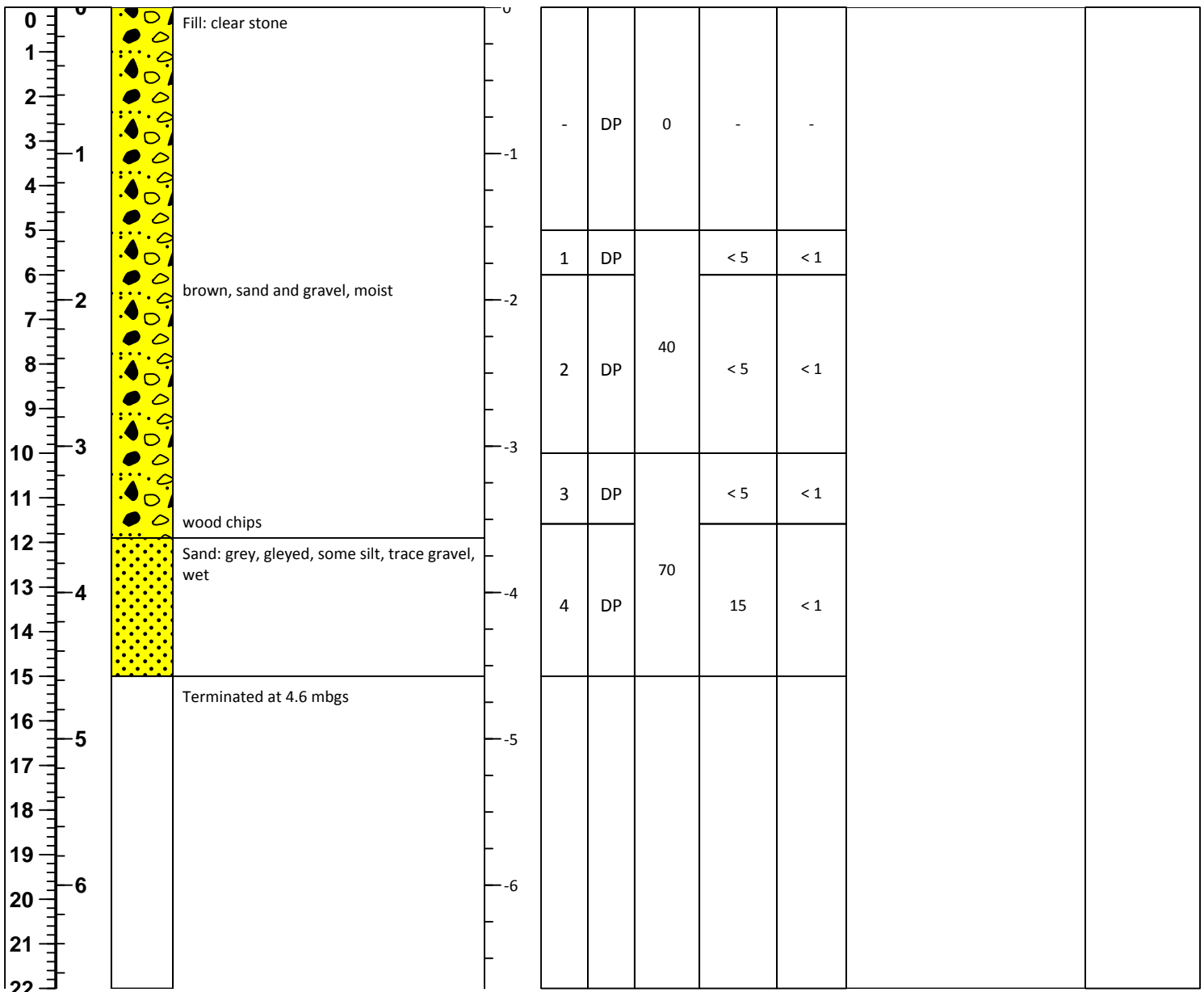
BH18-09

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588148E, 4956438N

**Project No.:** 6820-001  
**Date Completed:** 6/27/18  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		





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# Log of Borehole:

BH18-10

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**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588121E, 4956414N

**Project No.:** 6820-001  
**Date Completed:** 6/27/18  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		

0	0	Fill: clear stone		0	-	DP	0	-	-		
1	1			1	DP	10	1				
2	2			Organics: black, sand and organics, moist, hydrocarbon odour	2	DP	40	10	2		
3	3				3	DP	300	1			
4	4			Sand: dark grey, some silt, trace gravel, wet, hydrocarbon odour no odour	4	DP	75	25	< 1		
5	5	Terminated at 4.6 mbgs									

Logged By: MC

Input By: NW





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# Log of Borehole:

BH18-11

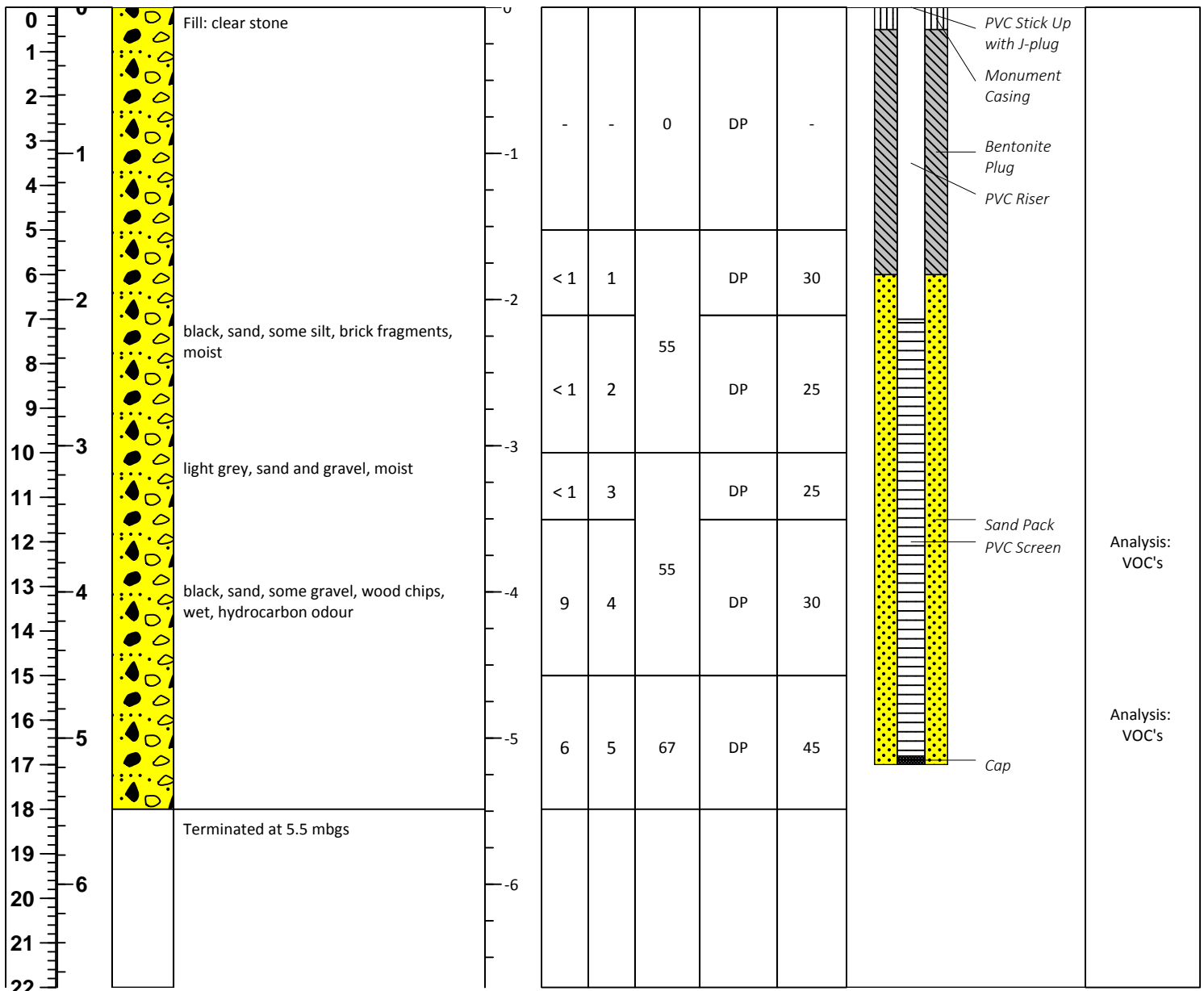
Page 1 of 1

**Client:** Town of Midland  
**Contractor:** Strata Drilling  
**Location:** 420 Bayshore Dr. Midland, ON

**Project Name:** Midland Bay Landing  
**Method:** Geoprobe  
**UTM:** 17T 4956446E, 588189N

**Project No.:** 6820-001  
**Date Completed:** 26/6/18  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: M.C

Input By: M.C



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# Log of Borehole:

BH18-12

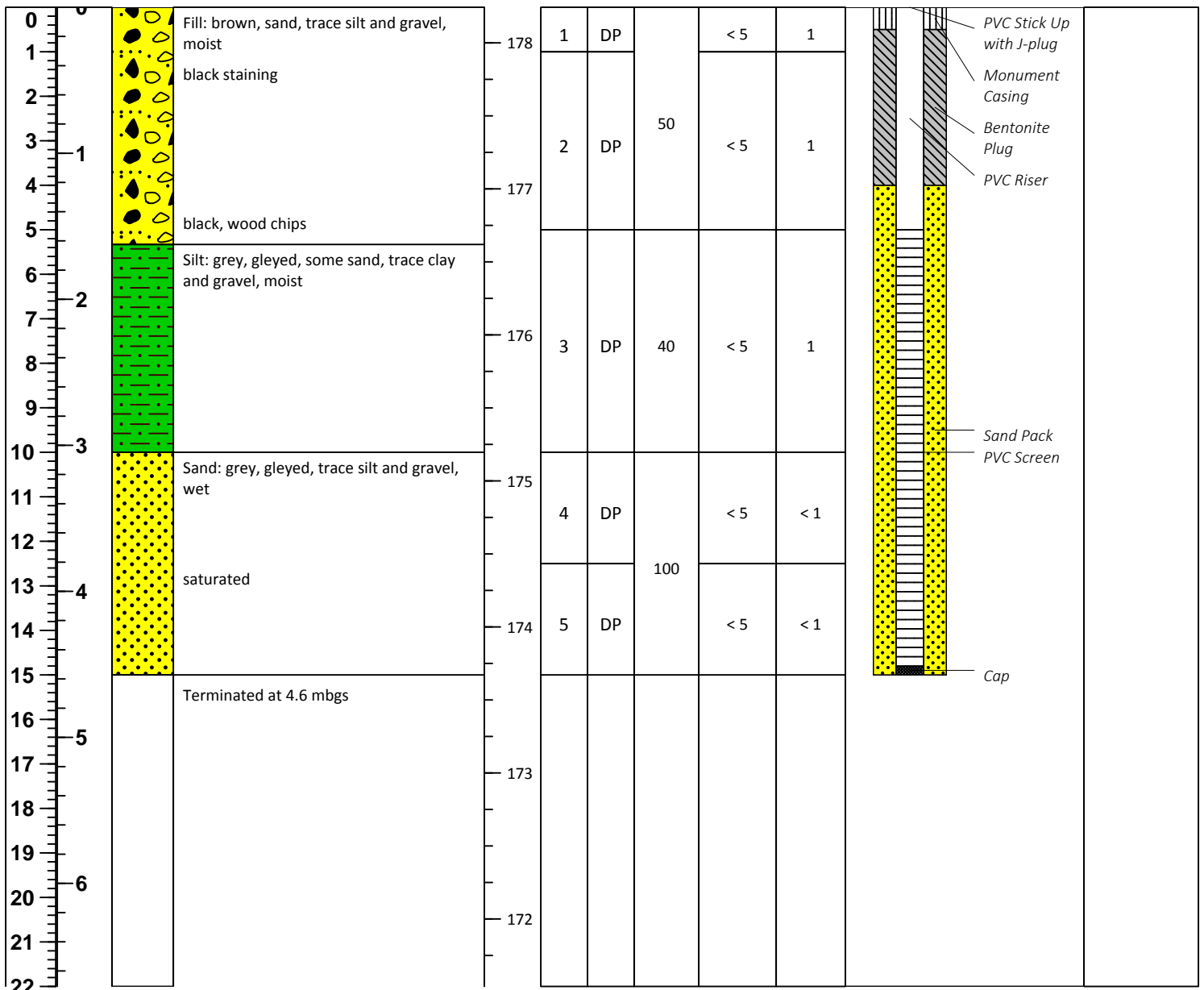
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588708E, 4956764N

**Project No.:** 6820-001  
**Date Completed:** 6/27/18  
**Elevation:** 178.244 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: MC

Input By: NW



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# Log of Borehole:

BH18-13

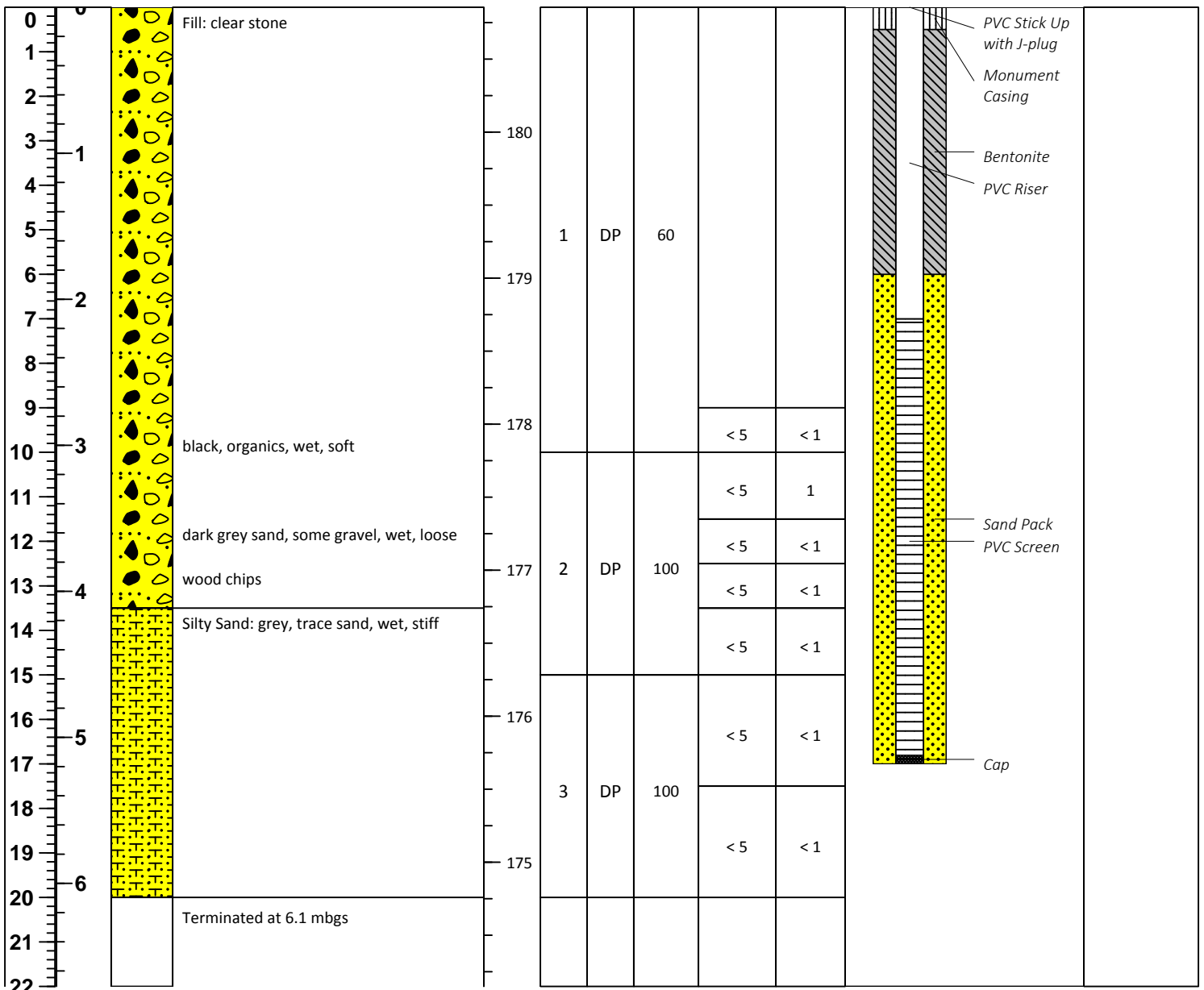
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588182E, 4956438N

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** 180.855 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-14

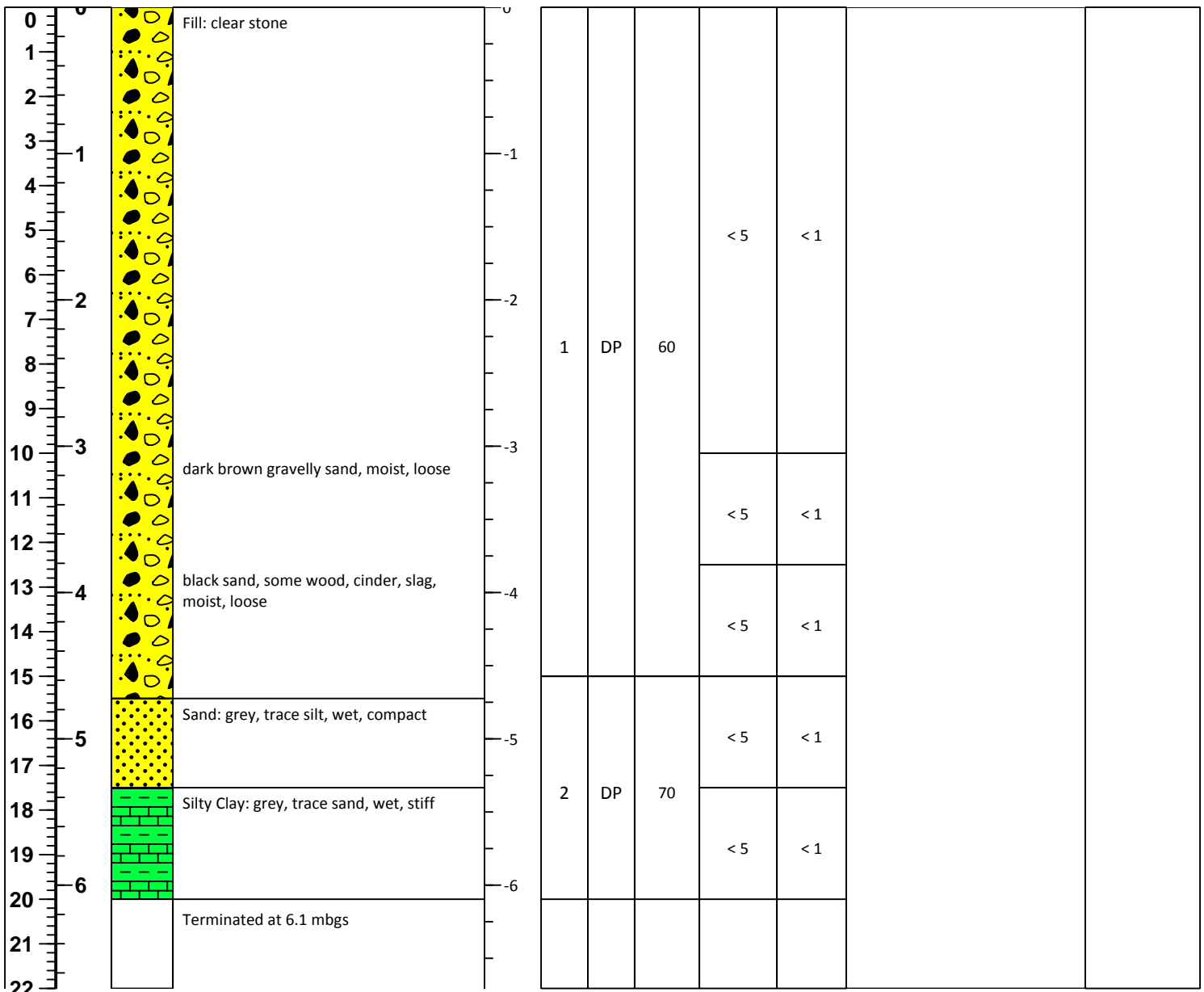
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-15

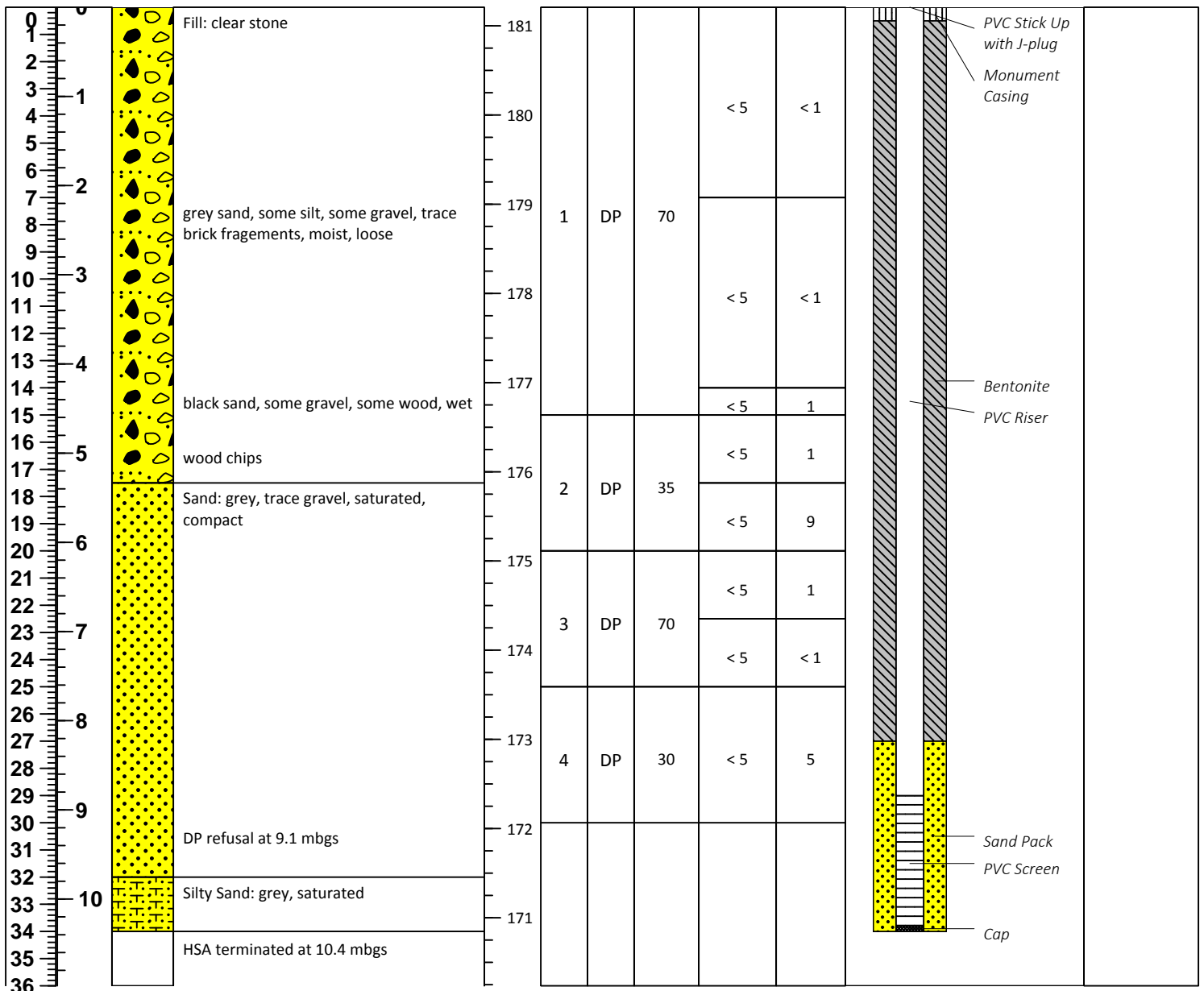
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588193E, 4956452N

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** 181.209 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-16

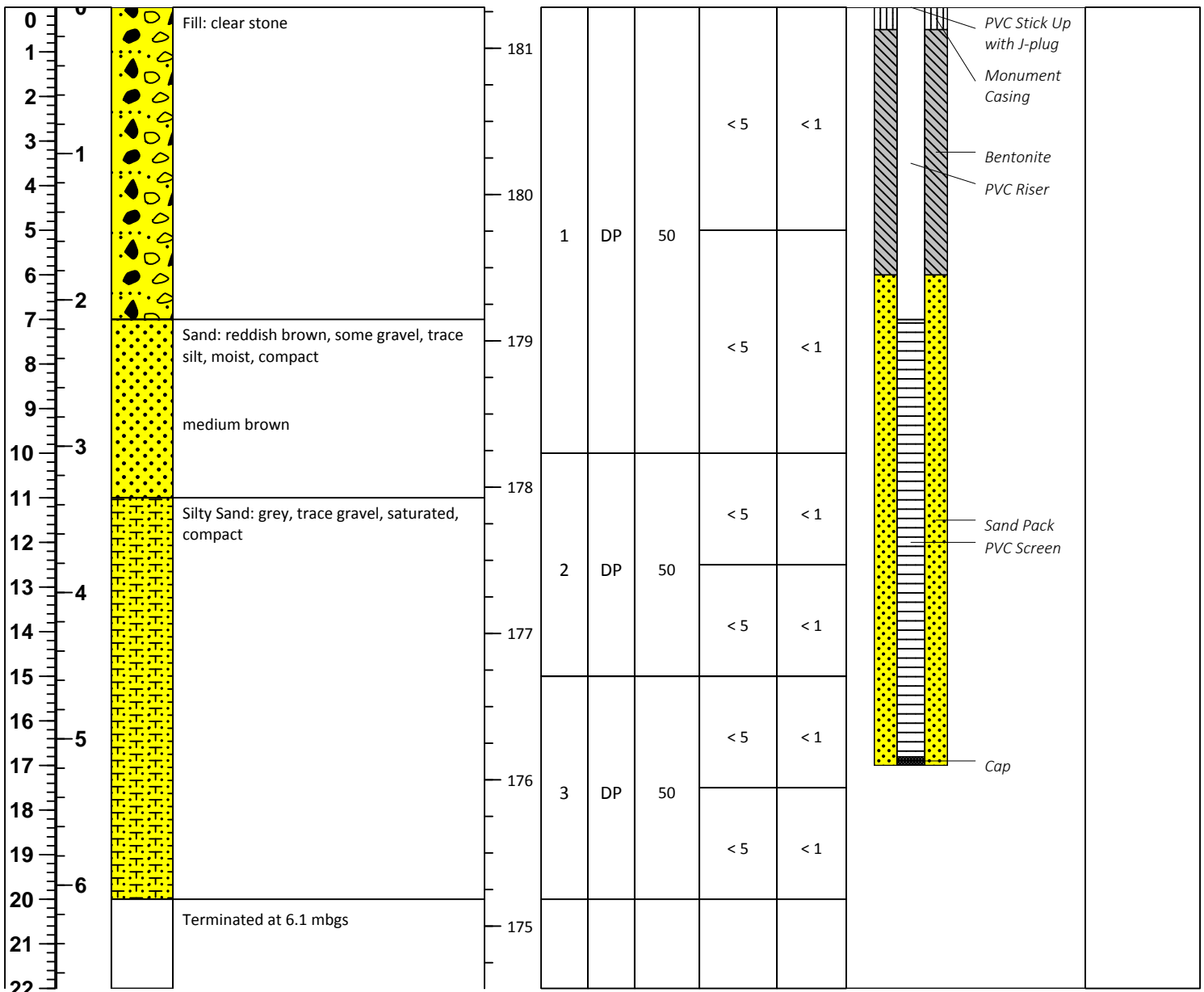
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588204E, 4956467N

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** 181.280 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW





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# Log of Borehole:

BH18-17

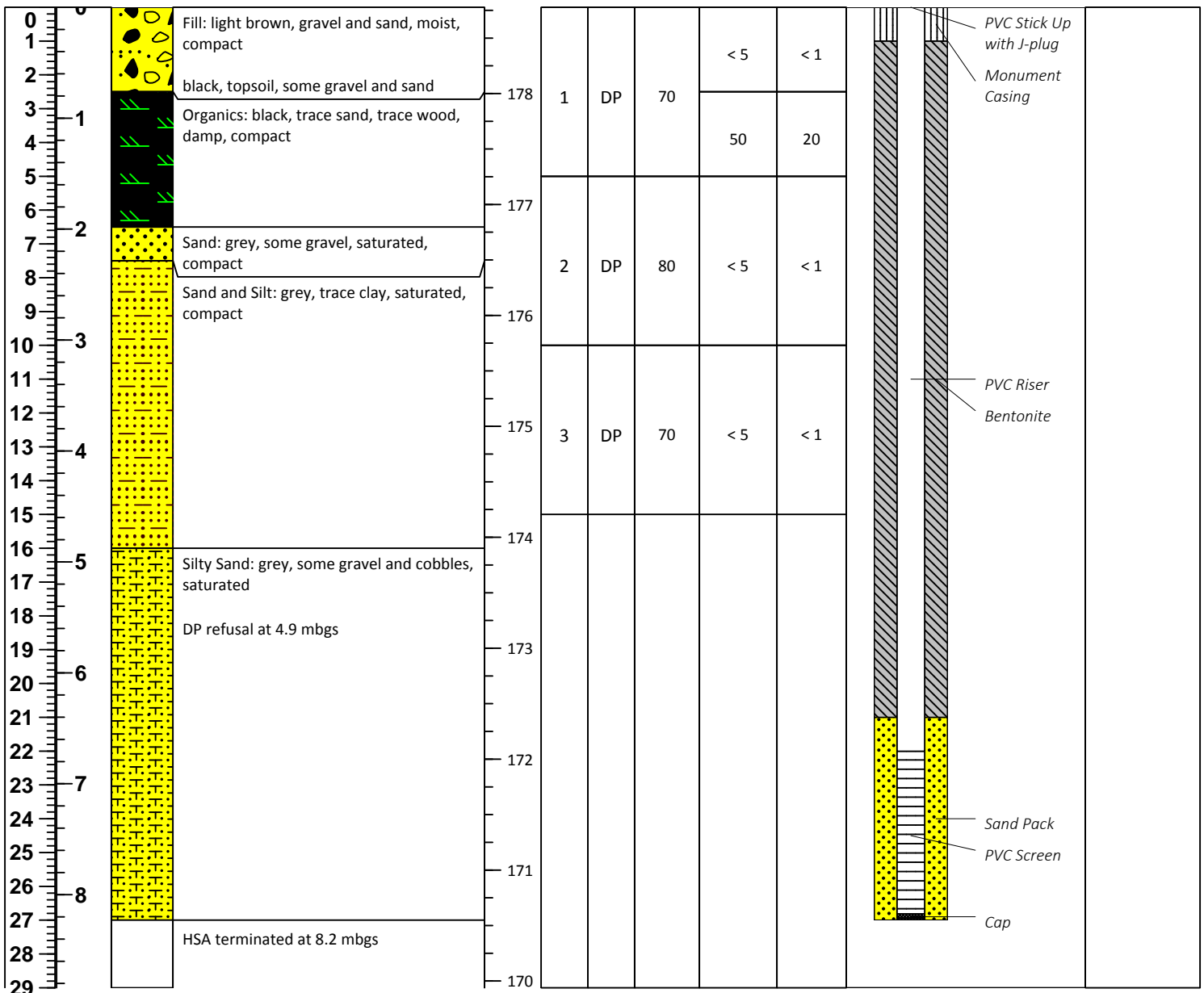
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588132E, 4956312N

**Project No.:** 6820-001  
**Date Completed:** 2018-11-12  
**Elevation:** 178.778 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-18

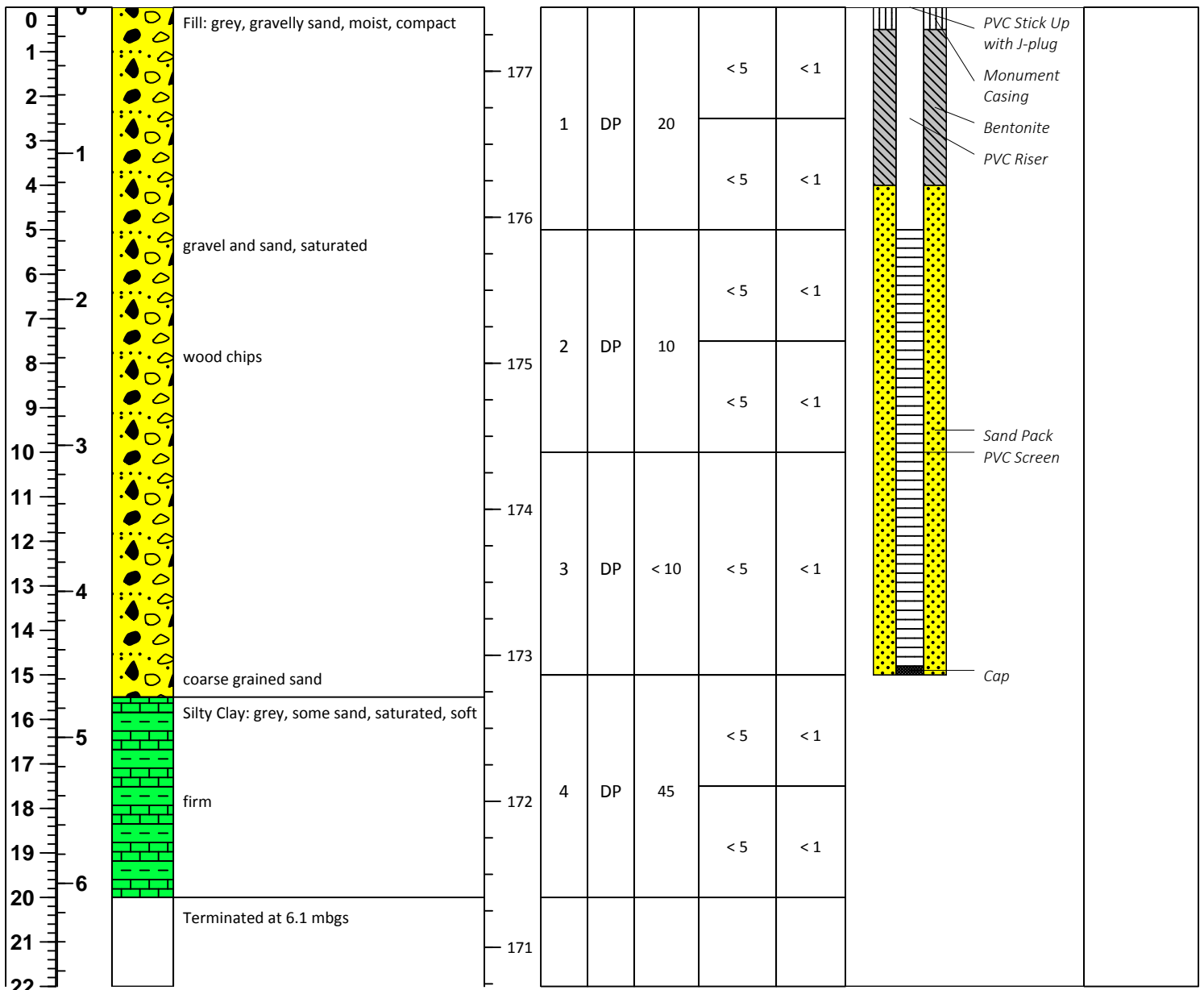
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588083E, 4956302N

**Project No.:** 6820-001  
**Date Completed:** 2018-11-12  
**Elevation:** 177.438 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-19

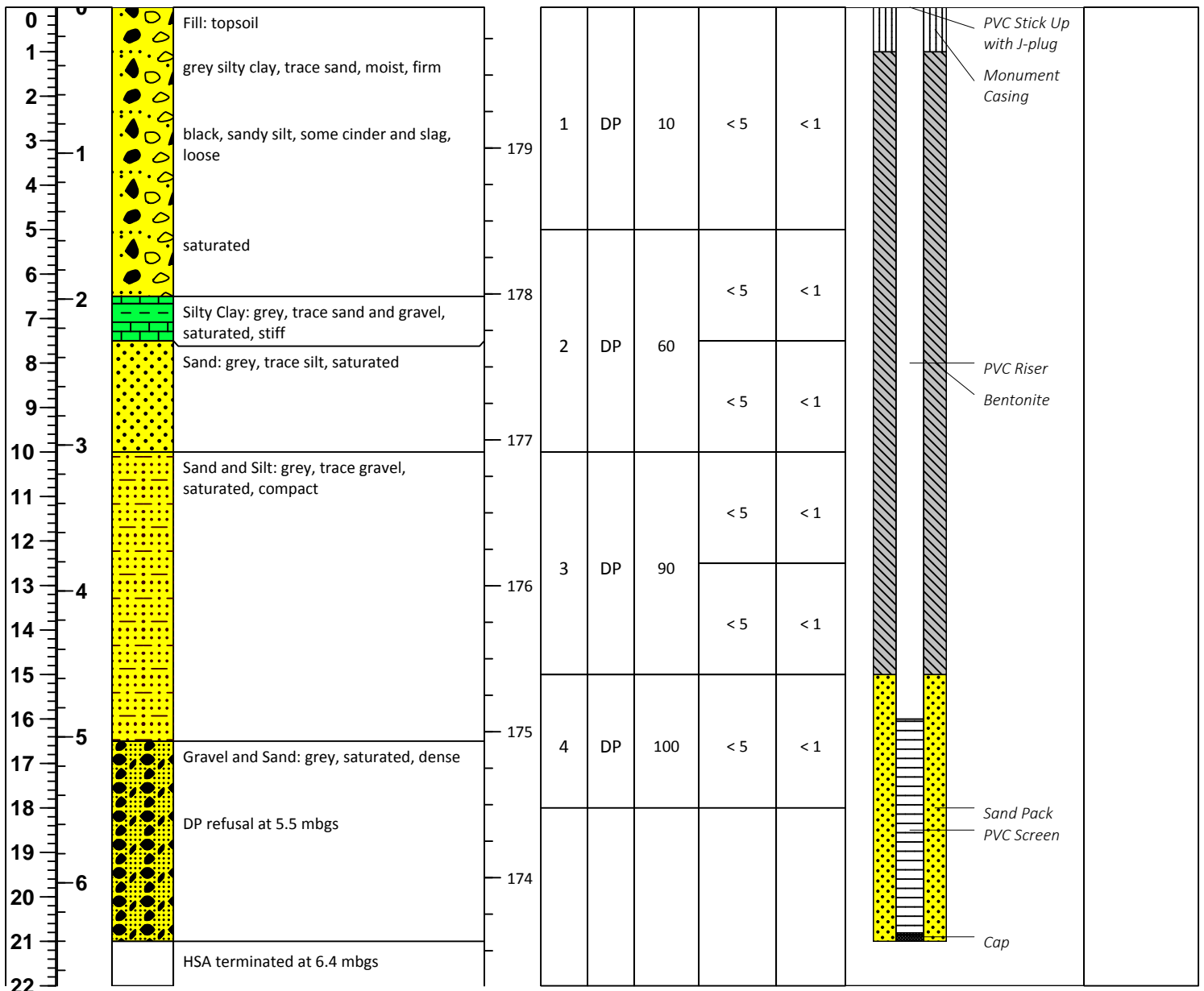
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** 17T 588174E, 4956264N

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** 179.965 masl

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-20

Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		

0	0	Fill: topsoil									
1	0.3	black silty sand, some cinder and slag, moist, loose			1	DP	30	< 5	< 1		
2	0.6										
3	0.9										
4	1.2	grey, silty clay, some wood chips, trace sand, moist, soft									
5	1.5	Terminated at 1.5 mbgs									
6	1.8										
7	2.1										
8	2.4										
9	2.7										
10	3.0										
11	3.3										
12	3.6										
13	3.9										
14	4.2										
15	4.5										
16	4.8										
17	5.1										
18	5.4										
19	5.7										
20	6.0										
21	6.3										
22	6.6										

Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-21

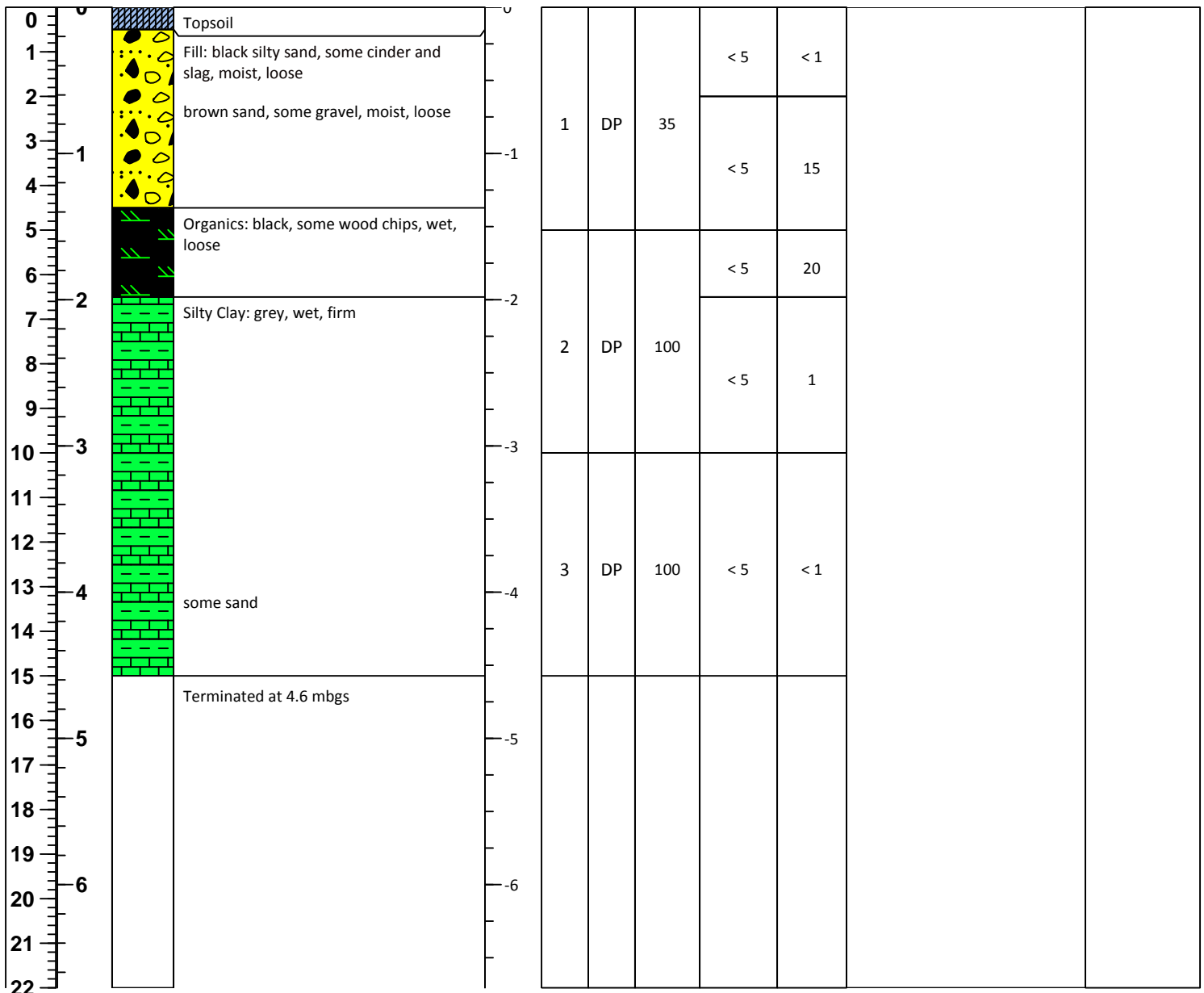
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-22

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-13  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		

0	0		Topsoil								
1	0.3		Fill: black silty sand, some cinder and slag, moist, loose		1	DP	40	< 5	< 1		
2	0.6										
3	0.9		grey sand, some gravel					< 5	< 1		
4	1.2										
5	1.5		Terminated at 1.5 mbgs								
6	1.8										
7	2.1										
8	2.4										
9	2.7										
10	3.0										
11	3.3										
12	3.6										
13	3.9										
14	4.2										
15	4.5										
16	4.8										
17	5.1										
18	5.4										
19	5.7										
20	6.0										
21	6.3										
22	6.6										





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# Log of Borehole:

BH18-23

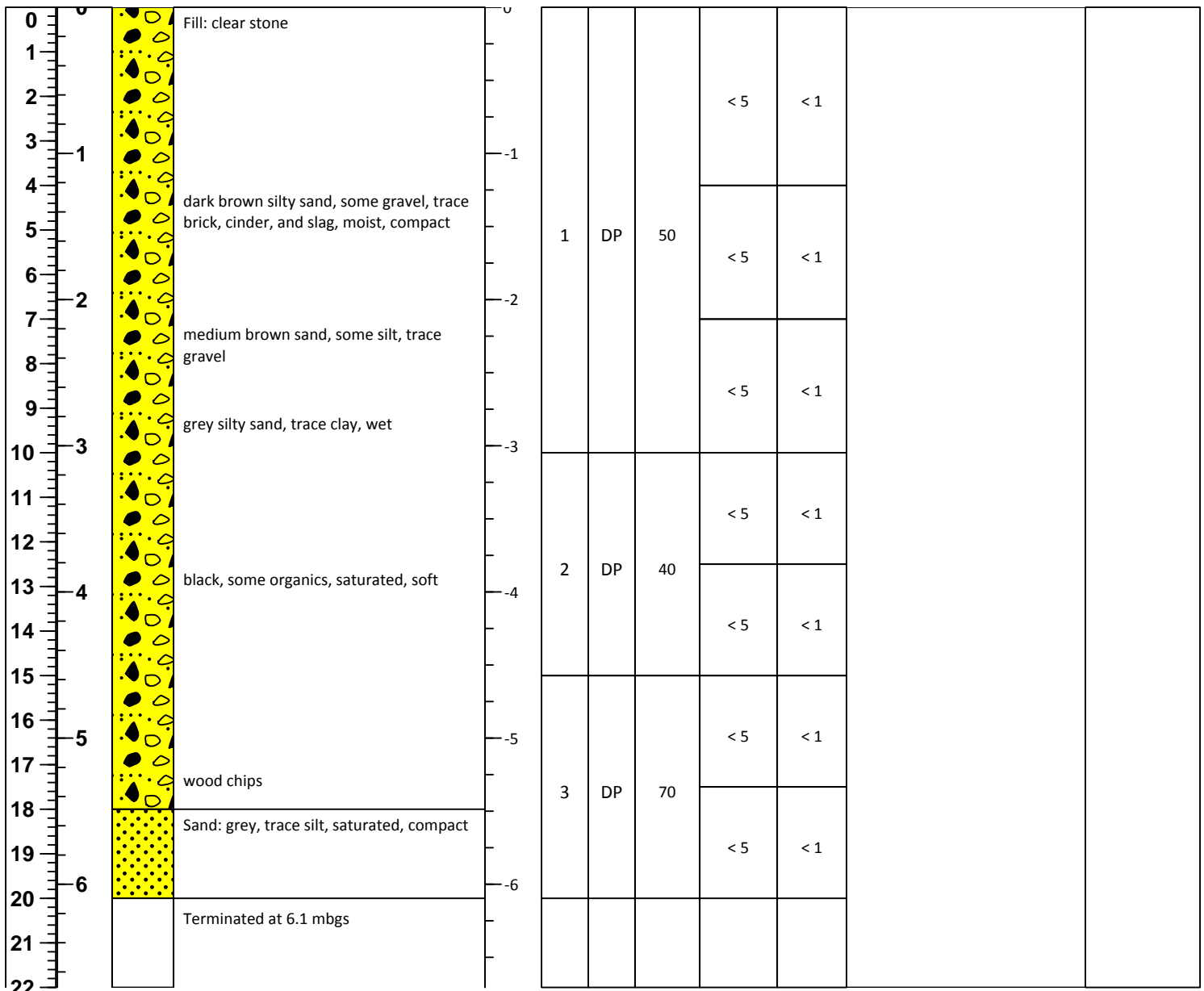
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-14  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW



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# Log of Borehole:

BH18-24

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-14  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		

0	0		Fill: medium brown, sand, trace silt and gravel, moist, compact	0	1	DP	50				
1	0			-1							
2	0										
3	1										
4	1										
5	1		Terminated at 1.5 mbgs								
6	2										
7	2										
8	2										
9	3										
10	3										
11	3										
12	3										
13	4										
14	4										
15	4										
16	5										
17	5										
18	5										
19	6										
20	6										
21	6										
22	6										



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**Log of Borehole:**

**BH18-25**

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-14  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		

0	0		Fill: light brown, gravel and sand, moist, compact					< 5	< 1		
1	0.3		clear stone			1	DP	45			
2	0.6							< 5	< 1		
3	0.9						2	DP	75		
4	1.2		black, silty sand, trace slag and cinder, wet, compact					< 5	< 1		
5	1.5								< 5	< 1	
6	1.8		Organics: black, wet, loose					< 5	< 1		
7	2.1										
8	2.4		Terminated at 3.0 mbgs								
9	2.7										
10	3.0										
11	3.3										
12	3.6										
13	3.9										
14	4.2										
15	4.5										
16	4.8										
17	5.1										
18	5.4										
19	5.7										
20	6.0										
21	6.3										
22	6.6										



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# Log of Borehole:

BH18-26

Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Strata Drilling Group  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Direct Push  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-11-14  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLING INFO					Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	CSV (ppm)		



Logged By: NW

Input By: NW

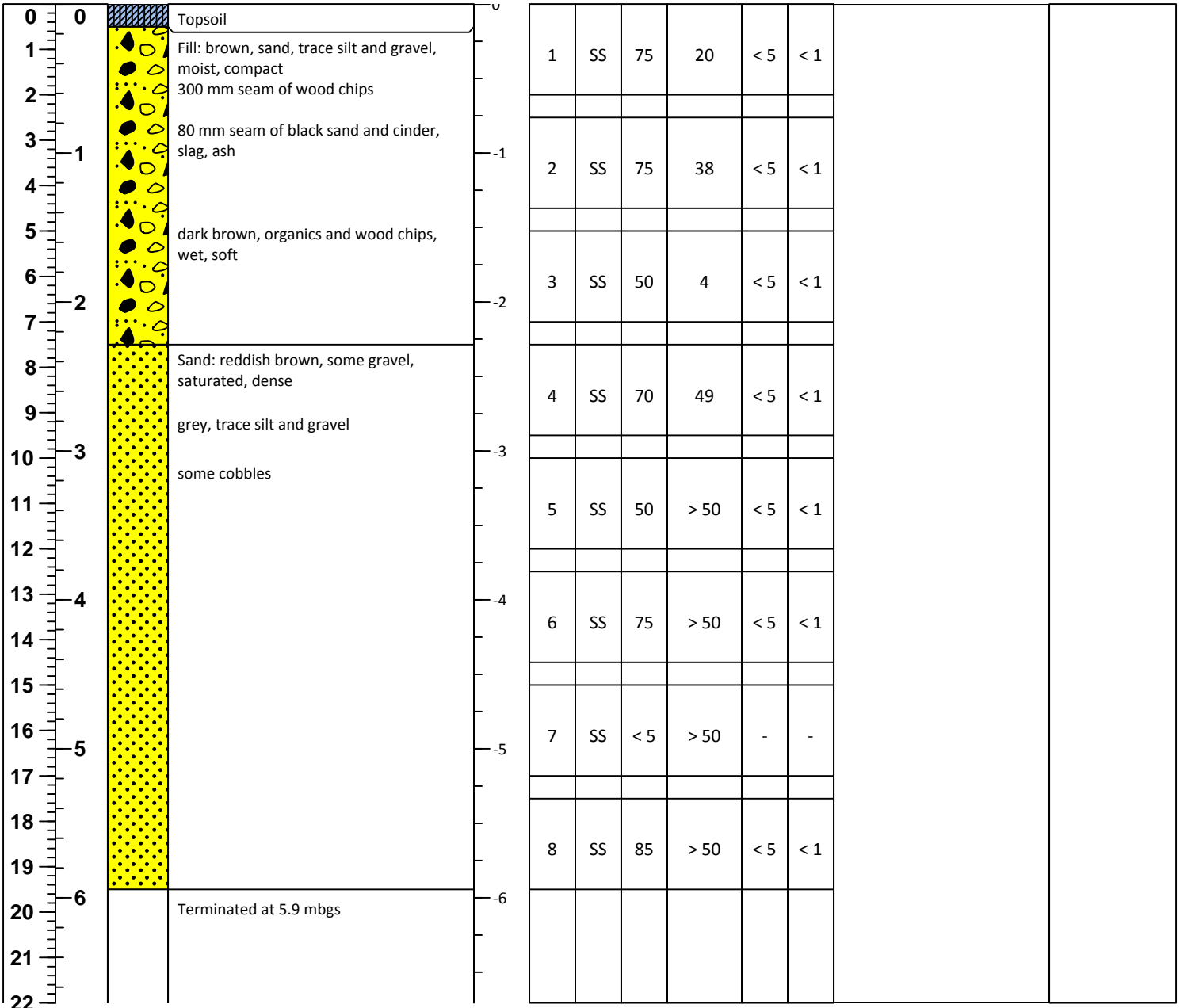


**Client:** Corporation of the Town of Midland  
**Contractor:** Walker Drilling Ltd.  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Split Spoon/Hollow Stem Auger  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-12-06  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLE						Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	SPT (N)	CSV (ppm)		





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# Log of Borehole:

BH18-28

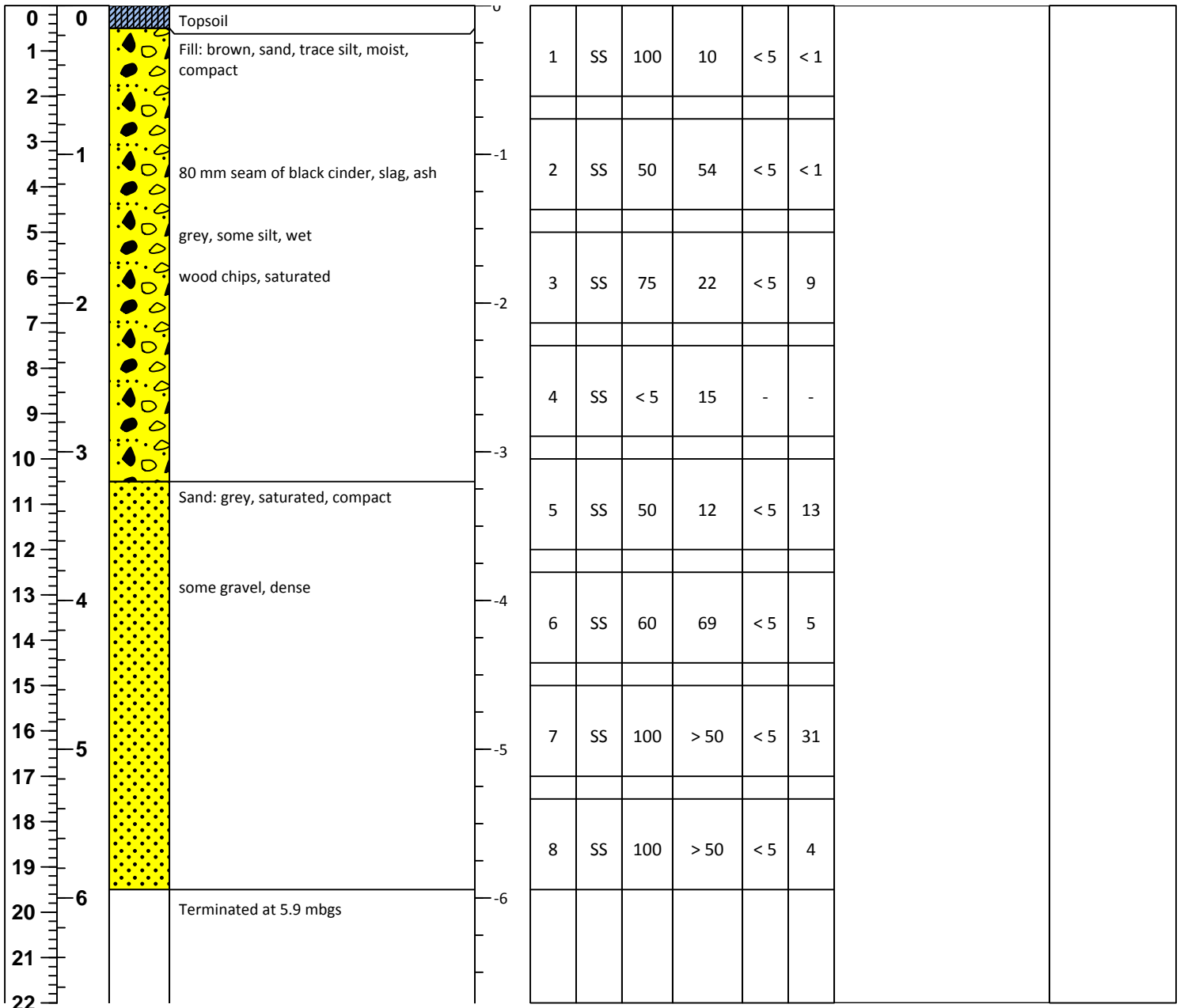
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Walker Drilling Ltd.  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Split Spoon/Hollow Stem Auger  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-12-06  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLE						Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	SPT (N)	CSV (ppm)		



Logged By: NW

Input By: NW



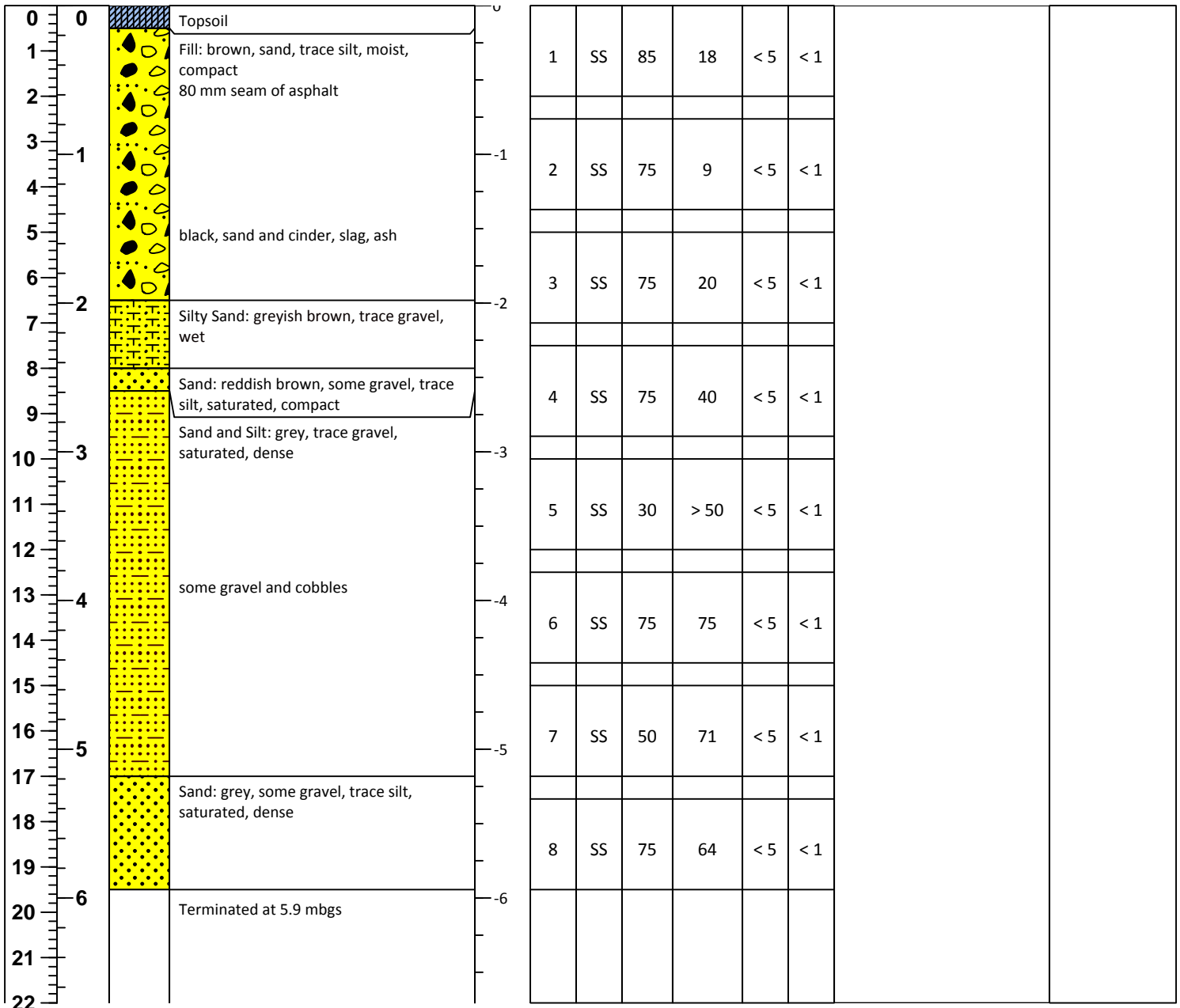


**Client:** Corporation of the Town of Midland  
**Contractor:** Walker Drilling Ltd.  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Split Spoon/Hollow Stem Auger  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2018-12-05  
**Elevation:** -

SUBSURFACE PROFILE				SAMPLE						Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description	Elevation (m)	Number	Type	% Recovery	SPT (N)	CSV (ppm)		





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# Log of Borehole:

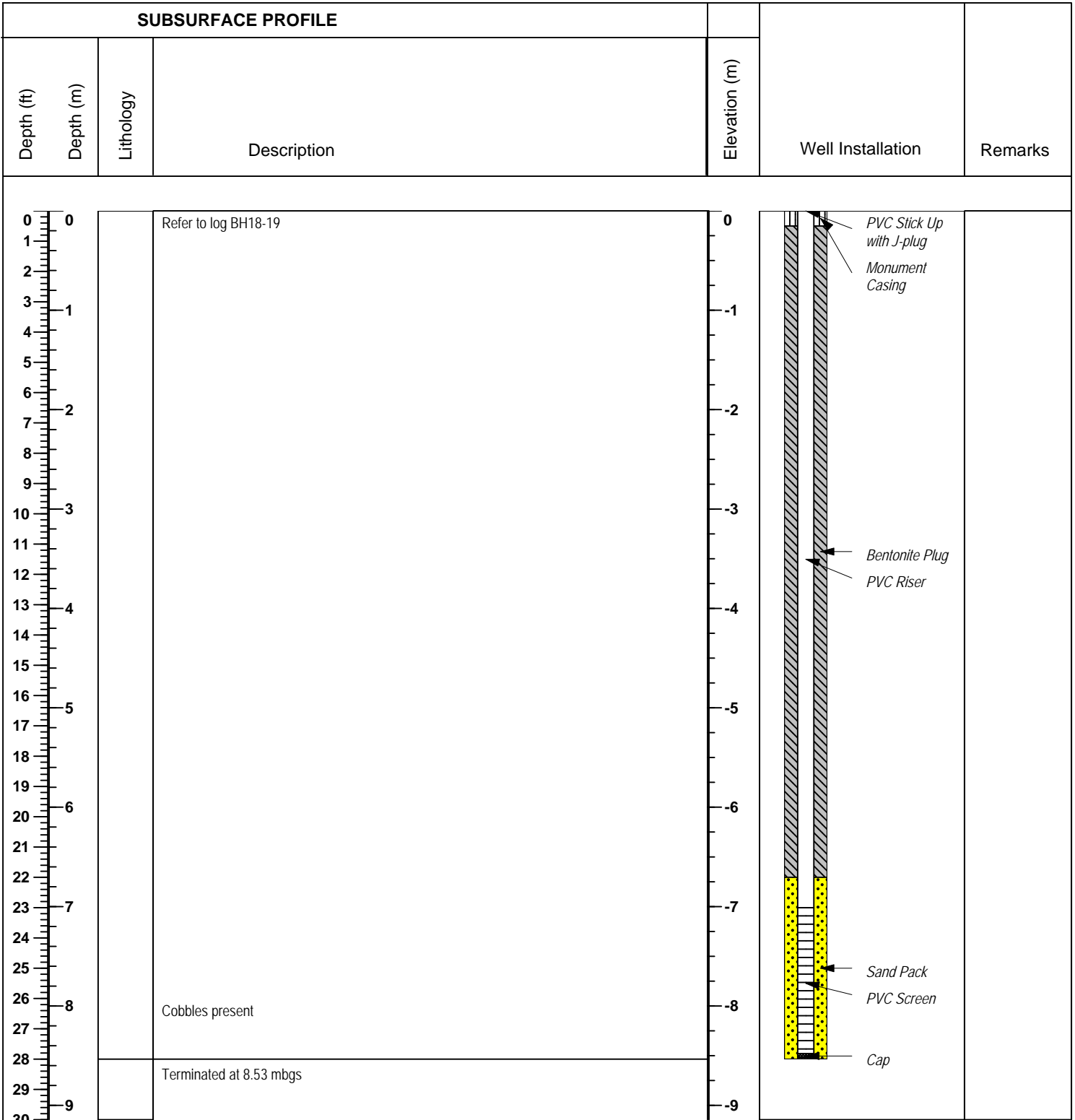
BH19-01

Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Profile Drilling Inc.  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Straight Auger/Tri-cone  
**UTM:** 17T 588174 E, 4956267 N

**Project No.:** 6820-001  
**Date Completed:** 2019-09-19  
**Elevation:** 179.98 masl



Logged By: M. Cunningham

Input By: B.Hnatiw



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# Log of Borehole:

BH19-02

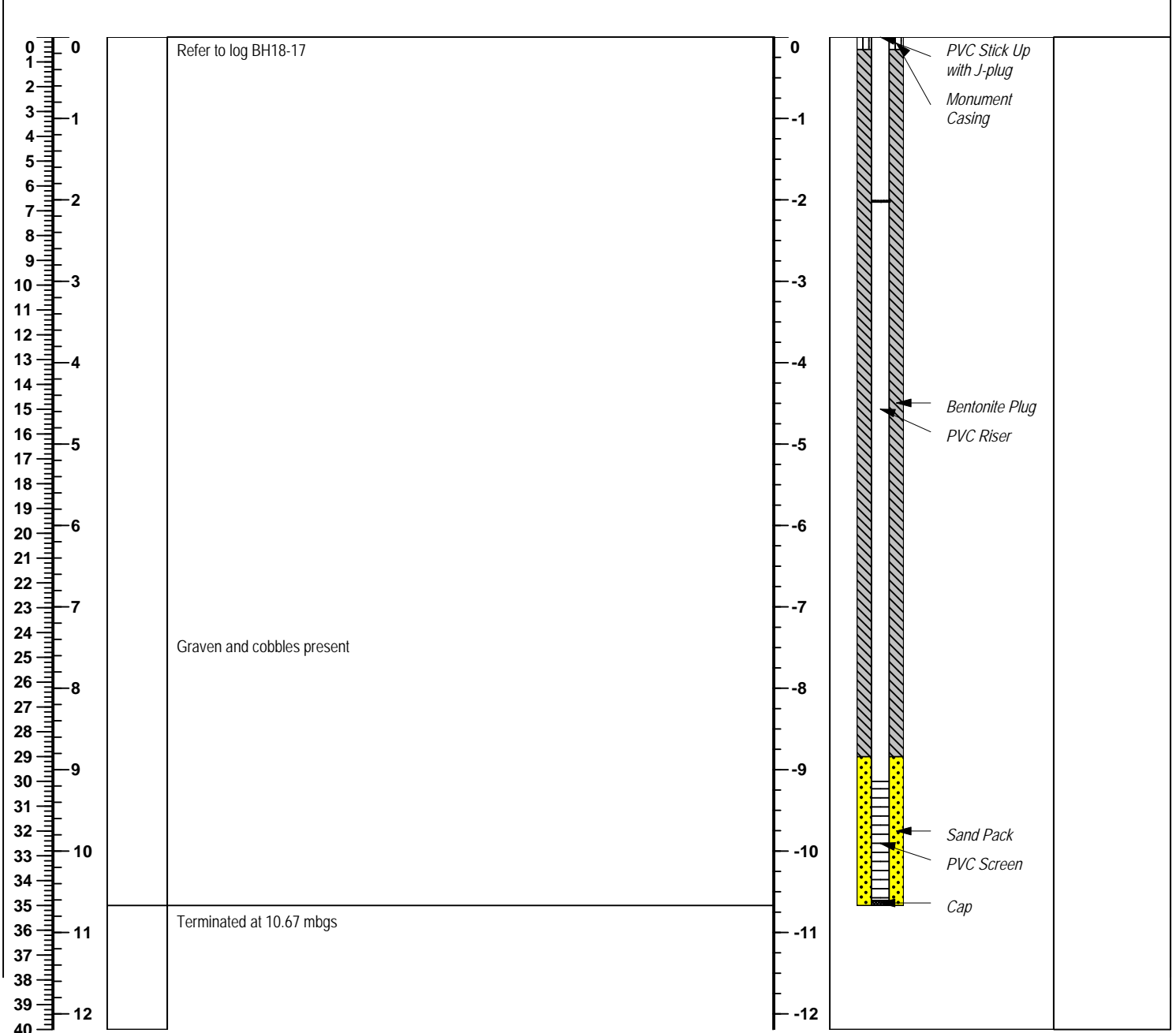
Page 1 of 1

**Client:** Corporation of the Town of Midland  
**Contractor:** Profile Drilling Inc.  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Straight Auger/Casing Advancement  
**UTM:** 588130E, 4956312N

**Project No.:** 6820-001  
**Date Completed:** 2019-09-20  
**Elevation:** 179.779 masl

SUBSURFACE PROFILE				Elevation (m)	Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description			



Logged By: M. Cunningham

Input By: B.Hnatiw



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**Log of Borehole:**

**BH19-03**

**Client:** Corporation of the Town of Midland  
**Contractor:** Cambium Inc.  
**Location:** 420 Bayshore Drive, Midland, ON

**Project Name:** Phase Two ESA  
**Method:** Hand Auger  
**UTM:** -

**Project No.:** 6820-001  
**Date Completed:** 2019-09-23  
**Elevation:** 179.479 masl

SUBSURFACE PROFILE				Elevation (m)	Well Installation	Remarks
Depth (ft)	Depth (m)	Lithology	Description			
0	0		Fill: Toposil rootlets, moist	0		
			Sand and gravel, dark brown, moist			
1			Coal, some sand, some gravel, moist to wet			
			Clayey Silt: to silty clay, medium brown, moist			
2						
			greyish brown	-1		
3						
4			Terminated at 1.22 mbgs			
5						
6						

**Logged By:** M. Cunnigham

**Input By:** B.Hnatiw



Well Tag No. (Place Sticker and/or Print Below)

S-22214

Well Record

n 903 Ontario Water Resources Act

Measurements recorded in:  Metric  Imperial

Tag#: A246429

Page of

A246429

Well Owner's Information

First Name: M. Shawn Bernault, Last Name/Organization: Corporation of the Town of Midland, E-mail Address: [blank], Mailing Address: 575 Dominion Avenue, Municipality: Midland, Province: ON, Postal Code: L4R 1R2, Telephone No.: [blank]

Well Location

Address of Well Location: 420 Bayshore Drive, Township: [blank], Lot: [blank], Concession: [blank], City/Town/Village: MIDLAND, Province: Ontario, Postal Code: [blank], UTM Coordinates: NAD 83 175887084956763, Municipal Plan and Sublot Number: [blank]

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From/To. Rows include Blue/Black fill, Brown sand, and loose gravel.

Annular Space table with 3 columns: Depth Set at (m/ft) From/To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³). Rows include concrete, bentonite, and sand.

Method of Construction and Well Use section with checkboxes for Cable Tool, Rotary, Boring, etc., and Public, Commercial, etc. Well Use.

Construction Record - Casing table with 4 columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From/To. Status of Well checkboxes.

Construction Record - Screen table with 4 columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From/To. Status of Well checkboxes.

Water Details table with 3 columns: Water found at Depth (m/ft), Kind of Water, Hole Diameter (Depth and Diameter).

Well Contractor and Well Technician Information section with fields for Business Name, Address, Licence No., Municipality, E-mail Address, Name of Well Technician, Signature, and Date Submitted.

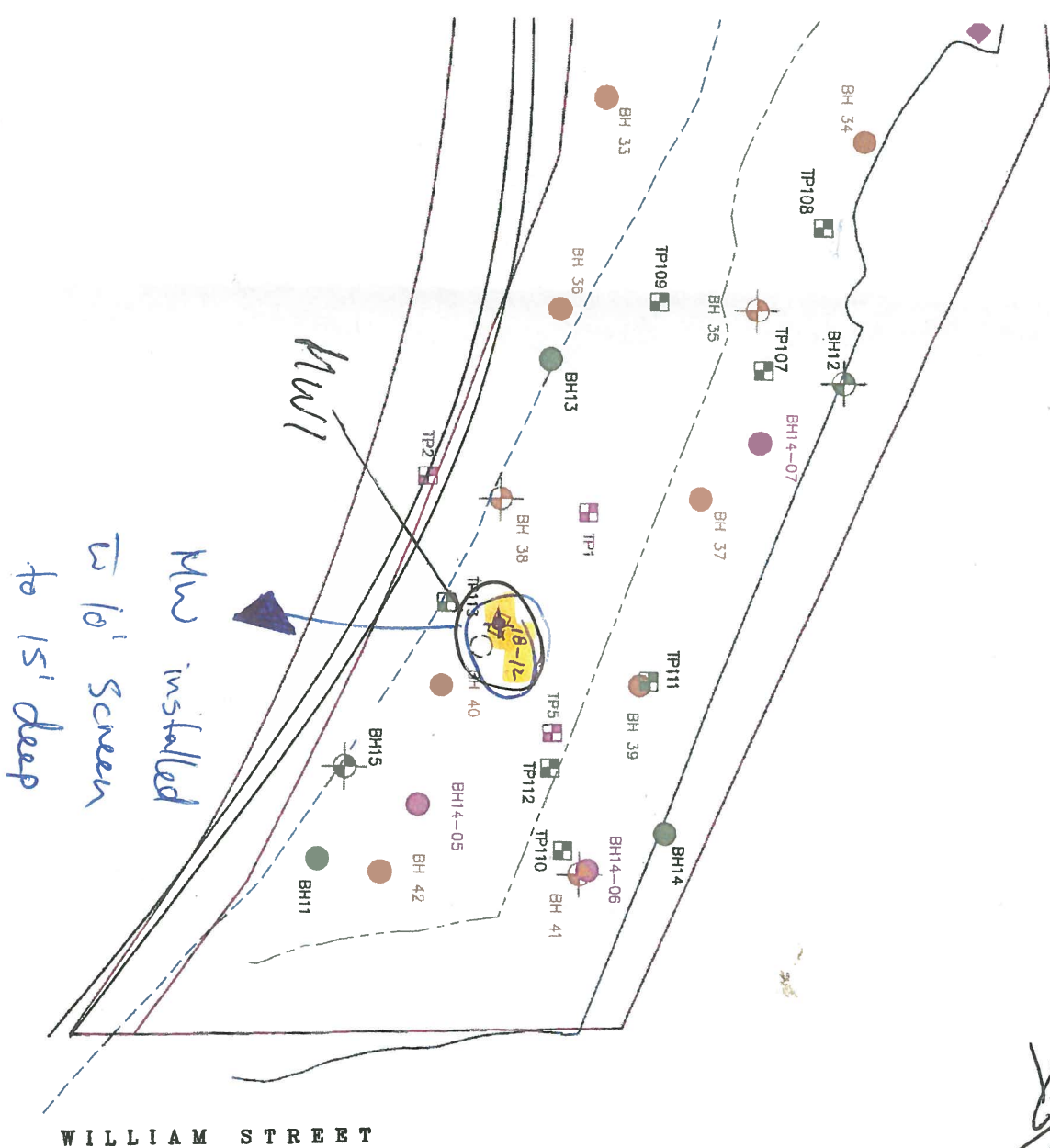
Results of Well Yield Testing table with columns for Time (min), Water Level (m/ft), and Recovery (min). Includes sections for After test of well yield, Draw Down, and Recovery.

Map of Well Location section with instructions to provide a map and a handwritten note 'SEE ATTACHED MAP (NEW)'.

Well owner's information package delivered section with checkboxes for Yes/No and Date Work Completed (20180627).

Ministry Use Only section with Audit No. 2290459 and Received field.

18-12



WILLIAM STREET

*Middleman*  
*WSP*

well

S-20214





Well Tag#: A252009 (Below) A252009

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name: M. Shawn Berrault, Last Name / Organization: Corporation of the Town of Midland, E-mail Address, Mailing Address: 575 Dominion Avenue, Municipality: Midland, Province: ON, Postal Code: L4R 1R2, Telephone No.: (905) 526-9127

Well Location

Address of Well Location: 420 Bayshore Drive, Township, Lot, Concession, City/Town/Village: Midland, Province: Ontario, Postal Code, UTM Coordinates: NAD 83 17588240 4956329

Overburden and Bedrock Materials/Abandonment Sealing Record

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To. Includes handwritten entries for sand and clay.

Annular Space table with columns: Depth Set at (m/ft) From, To, Type of Sealant Used, Volume Placed (m³/ft³). Includes handwritten entries for sand and holeplug flushmount.

Method of Construction and Well Use section with checkboxes for Cable Tool, Rotary, Boring, etc., and Public, Commercial, etc.

Construction Record - Casing table with columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth (m/ft) From, To, Status of Well. Includes handwritten entries for PVC casing.

Construction Record - Screen table with columns: Outside Diameter, Material, Slot No., Depth (m/ft) From, To. Includes handwritten entries for PVC screen.

Water Details and Hole Diameter table with columns: Water found at Depth, Kind of Water, Hole Diameter (m/ft) From, To, Diameter (cm/in).

Well Contractor and Well Technician Information section with fields for Business Name, Address, Licence No., Municipality, Province, Postal Code, Business E-mail Address, Name of Well Technician, Signature, Date Submitted.

Results of Well Yield Testing table with columns: After test of well yield, water was, Draw Down (Time, Water Level), Recovery (Time, Water Level), Pumping rate, Duration of pumping, Final water level end of pumping, If flowing give rate, Recommended pump depth, Recommended pump rate, Well production, Disinfected?.

Map of Well Location section with text: Please provide a map below following instructions on the back. MW

Comments section with text: Comments:

Well owner's information package delivered section with checkboxes for Yes/No, Date Package Delivered, Date Work Completed.

Ministry Use Only section with fields for Audit No. (2290446), Received.



Measurements recorded in:  Metric  Imperial

A252012

5-22214 Page \_\_\_\_ of \_\_\_\_

Well Owner's Information

First Name: Arm, Last Name: Shawn, Organization: Berrault Corporation of the Town of Midland, E-mail Address: [blank], Mailing Address: 575 Dominion Avenue, Municipality: Midland, Province: ON, Postal Code: L4K1R2, Telephone No.: (705) 526-4275

Well Location

Address of Well Location: 420 Bayshore Drive, Township: [blank], Lot: [blank], Concession: [blank], County/District/Municipality: [blank], City/Town/Village: Midland, Province: Ontario, Postal Code: [blank], UTM Coordinates: NAD 83 175882044 956292

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From/To. Includes entries for BRN Silt and BRN/GRY Sand.

Annular Space table with 3 columns: Depth Set at (m/ft) From/To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³). Includes entries for Sand and Adeply Monument.

Results of Well Yield Testing table with columns for Time, Water Level, and Recovery. Includes data for pumping rate, duration, and final water level.

Method of Construction and Well Use section with checkboxes for Cable Tool, Rotary, Boring, etc., and Public, Commercial, etc.

Construction Record - Casing table with columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth (m/ft) From/To, Status of Well. Includes entry for 2" PVC casing.

Construction Record - Screen table with columns: Outside Diameter, Material, Slot No., Depth (m/ft) From/To. Includes entry for 2.25" PV screen.

Water Details table with columns: Water found at Depth, Kind of Water, Hole Diameter (Depth, Diameter). Includes entries for water found at various depths.

Well Contractor and Well Technician Information section with fields for Business Name (Strote Soil Sampling), Business Address (165 Shields Court), Well Contractor's Licence No. (7291), and Well Technician's Licence No. (3448).

Map of Well Location section with a field for 'Please provide a map below following instructions on the back.' and a 'Ministry Use Only' section with Audit No. 2290434.



Measurements recorded in:  Metric  Imperial

Well Owner's Information

First Name: M. Shawn Bernault, Last Name / Organization: Corporation of the Town of Midland, E-mail Address: [blank], Mailing Address: 575 Dominion Avenue, Municipality: Midland, Province: ON, Postal Code: L4R 1K2, Telephone No.: (705) 526-4275

Well Location

Address of Well Location: 420 Bayshore Drive, Township: [blank], Lot: [blank], Concession: [blank], County/District/Municipality: [blank], City/Town/Village: Midland, Province: Ontario, Postal Code: [blank], UTM Coordinates: NAD 83 17 588 136 495 6332

Overburden and Bedrock Materials/Abandonment Sealing Record

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft). Rows include Sand and Gravel at depths of 0-8' and 8-15'.

Annular Space table with 3 columns: Depth Set at (m/ft) From/To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³). Rows include Sand and Holeplug.

Results of Well Yield Testing table with 4 columns: Time (min), Water Level (m/ft), Time (min), Water Level (m/ft). Includes sections for After test of well yield, Pumping rate, Duration of pumping, Final water level, and Recommended pump depth/rate.

Method of Construction and Well Use section with checkboxes for Cable Tool, Rotary, Boring, etc., and Public, Commercial, etc. Well Use includes Test Hole and Monitoring.

Construction Record - Casing table with 4 columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From/To. Row shows 2" PVC casing from 0 to 5'.

Construction Record - Screen table with 4 columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From/To. Row shows 2.25" PVC screen from 5' to 15'.

Water Details table with 3 columns: Water found at Depth (m/ft), Kind of Water (Fresh, Gas, Other), Hole Diameter (Depth and Diameter). Row shows water at 0-15' depth with 8" diameter hole.

Well Contractor and Well Technician Information section with fields for Business Name (Strata Soil Sampling), Licence No. (7241), Business Address (165 Shields Court), Municipality (Markham), and Technician Name (Mike).

Map of Well Location section with a note: 'Please provide a map below following instructions on the back. MW3'.

Well owner's information package delivered section with checkboxes for Yes/No and Date Work Completed (20180628).

Ministry Use Only section with Audit No. 2290436 and Received field.



Measurements recorded in:  Metric  Imperial

S-22214 Page of

Well Owner's Information

First Name: M. Shawn Berrault, Last Name / Organization: Corporation of the Town of Midland, E-mail Address: [blank], Mailing Address: 575 Dominion Avenue, Municipality: Midland, Province: ON, Rostal Code: L4R1R2, Telephone No.: [blank]

Well Location

Address of Well Location: 420 Bayshore Drive, Township: [blank], Lot: [blank], Concession: [blank], City/Town/Village: Midland, Province: Ontario, Postal Code: [blank], UTM Coordinates: NAD 83 17 5881 864950 442

Overburden and Bedrock Materials/Abandonment Sealing Record

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From/To. Rows include Sand, Silt, Gravel, and Sand.

Annular Space table with 3 columns: Depth Set at (m/ft) From/To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³). Rows include Sand, Holeplug, and Monuments.

Results of Well Yield Testing table with columns for Draw Down (Time, Water Level) and Recovery (Time, Water Level). Includes pumping rate, duration, and final water level.

Method of Construction and Well Use checkboxes. Includes Cable Tool, Rotary, Boring, Air percussion, Diamond, Jetting, Driving, Digging, Public, Commercial, Domestic, Livestock, Irrigation, Industrial, Cooling & Air Conditioning, Not used, Dewatering, Monitoring.

Construction Record - Casing table with 5 columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth (m/ft) From/To, Status of Well. Includes PVC casing, 2.25 inch diameter, 0.25 inch wall thickness.

Construction Record - Screen table with 5 columns: Outside Diameter, Material, Slot No., Depth (m/ft) From/To, Status of Well. Includes PVC screen, 2.25 inch diameter, 0.10 inch slot size.

Water Details and Hole Diameter table. Water found at Depth (m/ft) and Kind of Water (Fresh, Untested, Gas, Other). Hole Diameter (Depth, Diameter).

Well Contractor and Well Technician Information. Business Name: Strata Soil Sampling, Well Contractor's Licence No.: 724, Business Address: 165 Shields Court, Municipality: Markham.

Map of Well Location and Comments. Map of Well Location: MW 4. Comments: [blank]

Well Technician Information. Bus. Telephone No.: 905 940 7919, Name of Well Technician: Muis, Mike, Signature of Technician and/or Contractor: [Signature], Date Submitted: 20180626.

Ministry Use Only. Audit No.: 2290435, Date Package Delivered: YYYYMMDD, Date Work Completed: 20180626.



Measurements recorded in:  Metric  Imperial

**Well Owner's Information**

First Name: **Shawn Berrault** Last Name / Organization: **Corporation of the Town of Midland** E-mail Address: \_\_\_\_\_  
 Mailing Address (Street Number/Name): **575 Dominion Avenue** Municipality: **Midland** Province: **ON** Postal Code: **L4R1R2** Telephone No. (inc. area code): **(705) 526-4275**  
 Well Constructed by Well Owner

**Well Location**

Address of Well Location (Street Number/Name): **420 Bayshore Drive** Township: \_\_\_\_\_ Lot: \_\_\_\_\_ Concession: \_\_\_\_\_  
 County/District/Municipality: \_\_\_\_\_ City/Town/Village: **Midland** Province: **Ontario** Postal Code: \_\_\_\_\_  
 UTM Coordinates: Zone **18** Easting **17588** Northing **4936488** Municipal Plan and Sublot Number: \_\_\_\_\_ Other: \_\_\_\_\_

**Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)**

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)
				From To
BRN	Sand	Gravel		0 10'
BRN/GRY	Silt	Sand		10 2'

**Annular Space**

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
20' 9'	Sand	
9' 0'	Holeplug Monument	

**Results of Well Yield Testing**

After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: _____	Static Level			
	1		1	
	2		2	
	3		3	
	4		4	
	5		5	
Pump intake set at (m/ft)	10		10	
Pumping rate (l/min / GPM)	15		15	
Duration of pumping ____ hrs + ____ min	20		20	
Final water level end of pumping (m/ft)	25		25	
If flowing give rate (l/min / GPM)	30		30	
Recommended pump depth (m/ft)	40		40	
Recommended pump rate (l/min / GPM)	50		50	
Well production (l/min / GPM)	60		60	
Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No				

**Method of Construction**

Cable Tool  Diamond  Public  Commercial  Not used  
 Rotary (Conventional)  Jetting  Domestic  Municipal  Dewatering  
 Rotary (Reverse)  Driving  Livestock  Test Hole  Monitoring  
 Boring  Digging  Irrigation  Cooling & Air Conditioning  
 Air percussion  Industrial  
 Other, specify **Direct Push**  Other, specify \_\_\_\_\_

**Construction Record - Casing**

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
2"	PVC	.25	0	10'	<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input checked="" type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input checked="" type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____

**Construction Record - Screen**

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
2.25	PVC	.10	10'	20'

**Water Details**

Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> ntested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Hole Diameter	
		Depth (m/ft)	Diameter (cm/in)
		From To	
		0 20'	8"

**Well Contractor and Well Technician Information**

Business Name of Well Contractor: **Strata Soil Sampling** Well Contractor's Licence No.: **7291**  
 Business Address (Street Number/Name): **165 Shields court** Municipality: **Markham**  
 Province: **ON** Postal Code: **L3R8V2** Business E-mail Address: **wrecords@stratasoil.com**

Bus. Telephone No. (inc. area code): **905 940 7919** Name of Well Technician (Last Name, First Name): **Mike**  
 Well Technician's Licence No.: **3448** Signature of Technician and/or Contractor: \_\_\_\_\_ Date Submitted: **20180628**

**Map of Well Location**

Please provide a map below following instructions on the back.  
**MW 5**

Comments: \_\_\_\_\_

Well owner's information package delivered:  Yes  No

Date Package Delivered: **YYYYMMDD**  
 Date Work Completed: **20180628**

**Ministry Use Only**  
 Audit No.: **Z290284**

Geoplaner V2.8 - [in Bt

dd.ddddd°

Latitude: 44.75524

Longitude: -79.88538

ok

UTM N Hemis.

17 T 588222

4956365

ok

postal address or point

420 bayshore drive midla

dd° mm.mmm'

44 ° 45.314 N

79 ° 53.123 W

ok

dd° mm' ss.ss"

44 ° 45' 18.9"

79 ° 53' 7.4"

ok

elevation /m

181.8

WPO1-A edit

<< < 01-A >

POI / WPT / Waypoint

\*01-A "WPO1-A"

added

17 T 588222 4956365

44.75524°N -79.88538°

Elevation= 181.8m

\*420 bayshore drive m

420 Bayshore Dr, Midla

\*\*all waypoints removed...

remove 01-A  remove all WPTs

download WPTs  download Route

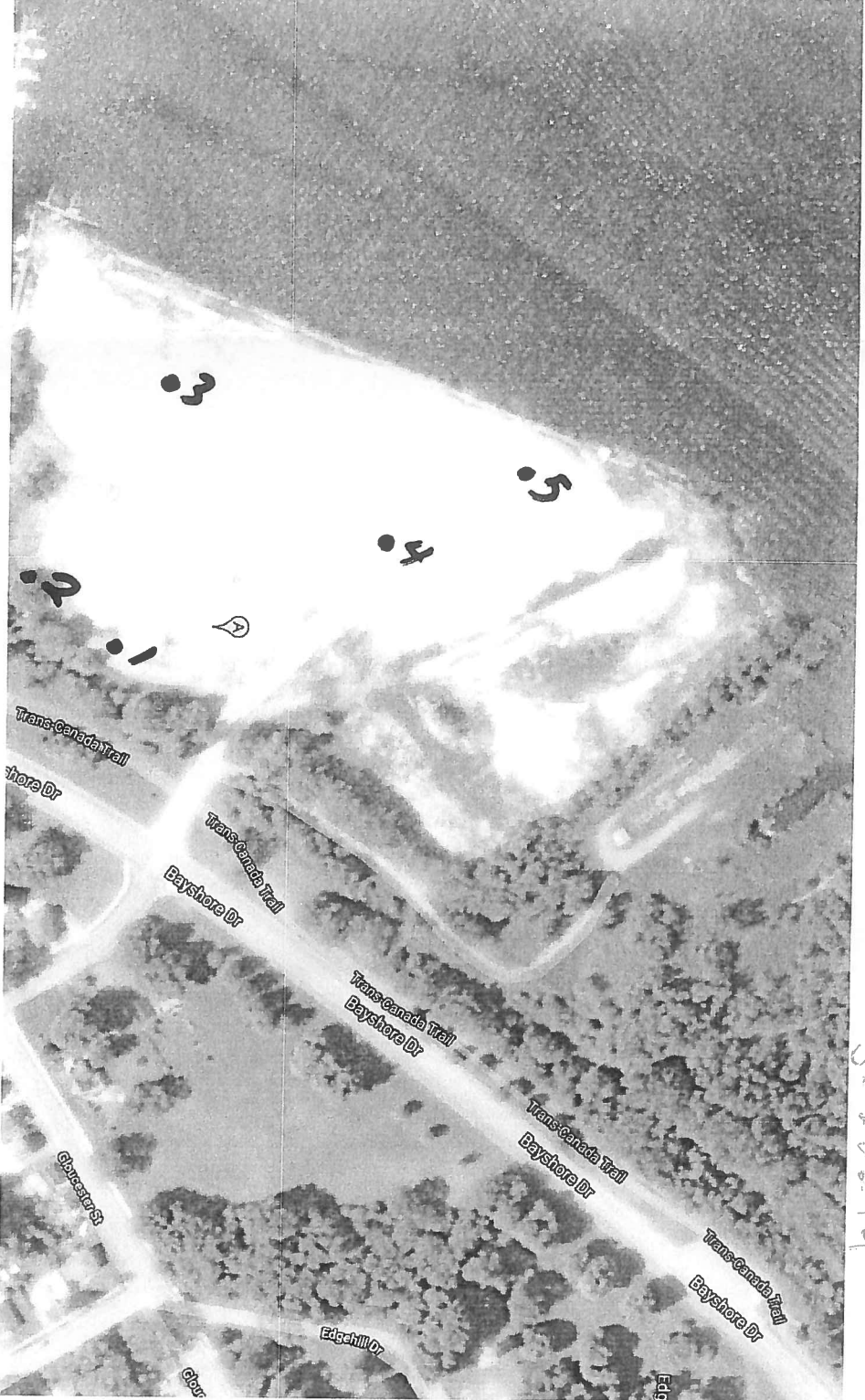
upload WPTs  upload Route

Link Creator  Geoglenkaps/OSM  Browse...

Link Creator -> Geoplaner URL + waypoints (latitude, longitude, name (optional))

1) With the help of the Geoplaner, add and edit the waypoints which should be included into the link

?; Size: id the waypoint title/names also be included (increases the link length)?  yes





A261444

8-22-840

Page \_\_\_ of \_\_\_

Measurements recorded in:  Metric  Imperial

Well Owner's Information

First Name: M. Shawn Berrault Last Name / Organization: Corporation of the Town of Midland E-mail Address: \_\_\_\_\_  Well Constructed by Well Owner

Mailing Address (Street Number/Name): 575 Dominion Avenue Municipality: Midland Province: ON Postal Code: H4R 1R2 Telephone No. (inc. area code): (705) 526-4275

Well Location

Address of Well Location (Street Number/Name): 420 Bayshore Dr Township: \_\_\_\_\_ Lot: \_\_\_\_\_ Concession: \_\_\_\_\_

County/District/Municipality: \_\_\_\_\_ City/Town/Village: Midland Province: Ontario Postal Code: \_\_\_\_\_

UTM Coordinates: Zone: \_\_\_\_\_ Easting: 175881099 Northing: 4956308 Municipal Plan and Sublot Number: \_\_\_\_\_ Other: \_\_\_\_\_

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
<u>BRN</u>	<u>Sand</u>	<u>Gravel/Silt</u>		<u>0</u>	<u>15'</u>

Annular Space		
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)
<u>15'</u>	<u>4'</u>	<u>Sand</u>
<u>4'</u>	<u>0</u>	<u>Holeplug</u>
		<u>Flushpoint</u>

**Method of Construction**

Cable Tool  Diamond  Rotary (Conventional)  Jetting  Rotary (Reverse)  Driving  Boring  Air percussion  Other, specify Direct Push

**Well Use**

Public  Commercial  Not used  Domestic  Municipal  Dewatering  Livestock  Test Hole  Monitoring  Irrigation  Cooling & Air Conditioning  Industrial  Other, specify \_\_\_\_\_

Results of Well Yield Testing				
After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: _____	Static Level			
	1		1	
	2		2	
	3		3	
	4		4	
	5		5	
Pump intake set at (m/ft)				
Pumping rate (l/min / GPM)				
Duration of pumping hrs + min				
Final water level end of pumping (m/ft)	10		10	
If flowing give rate (l/min / GPM)	15		15	
	20		20	
Recommended pump depth (m/ft)	25		25	
Recommended pump rate (l/min / GPM)	30		30	
Well production (l/min / GPM)	40		40	
	50		50	
Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No	60		60	

Construction Record - Casing				
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)	
			From	To
<u>2"</u>	<u>PVC</u>	<u>.25</u>	<u>0</u>	<u>5'</u>

**Status of Well**

Water Supply  Replacement Well  Test Hole  Recharge Well  Dewatering Well  Observation and/or Monitoring Hole  Alteration (Construction)  Abandoned, Insufficient Supply  Abandoned, Poor Water Quality  Abandoned, other, specify \_\_\_\_\_  Other, specify \_\_\_\_\_

Construction Record - Screen				
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
<u>2.25</u>	<u>PVC</u>	<u>10</u>	<u>5'</u>	<u>15'</u>

**Map of Well Location**

Please provide a map below following instructions on the back.  
HW

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Depth (m/ft) From	To
		<u>0</u>	<u>15'</u>
			<u>8"</u>

**Well Contractor and Well Technician Information**

Business Name of Well Contractor: Strata Soil Sampling Well Contractor's Licence No.: 7121411

Business Address (Street Number/Name): 165 Shields Court Municipality: Markham

Province: ON Postal Code: L3R3V2 Business E-mail Address: wrecords@stratasoil.com

Bus. Telephone No. (inc. area code): 9059407919 Name of Well Technician (Last Name, First Name): Leccese Michael

Well Technician's Licence No.: 73816 Signature of Technician and/or Contractor: \_\_\_\_\_ Date Submitted: 2018/11/13

Comments: \_\_\_\_\_

Well owner's information package delivered <input type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered <u>Y1Y1Y1M1M1D1D1</u>	Ministry Use Only Audit No. <u>2303021</u>
	Date Work Completed <u>2018/11/13</u>	

Received \_\_\_\_\_

Measurements recorded in:  Metric  Imperial

A251474

S-22840 Page \_\_\_ of \_\_\_

**Well Owner's Information**

First Name: Attn: Shawn Berriault Last Name / Organization: Corporation of the Town of Midland E-mail Address: \_\_\_\_\_  Well Constructed by Well Owner

Mailing Address (Street Number/Name): 575 Dominion Avenue Municipality: Midland Province: ON Postal Code: L4R 1R2 Telephone No. (inc. area code): (705) 524-4075

**Well Location**

Address of Well Location (Street Number/Name): 420 Bayshore Dr Township: \_\_\_\_\_ Lot: \_\_\_\_\_ Concession: \_\_\_\_\_

County/District/Municipality: \_\_\_\_\_ City/Town/Village: Midland Province: Ontario Postal Code: \_\_\_\_\_

UTM Coordinates: Zone 18 Easting 1175188139 Northing 49516331 Municipal Plan and Sublot Number: \_\_\_\_\_ Other: \_\_\_\_\_

**Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)**

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
BRN	Sand	Silt/Gravel		0	12'
GRY	Silt			12'	27'

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m <sup>3</sup> /ft <sup>3</sup> )
From	To	
27'	2' Sand	
21	0 Holeplug Monument	

Results of Well Yield Testing				
After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: _____	Static Level			
	1		1	
	2		2	
	3		3	
	4		4	
	5		5	
Pump intake set at (m/ft)	10		10	
Pumping rate (l/min / GPM)	15		15	
Duration of pumping _____ hrs + _____ min	20		20	
Final water level end of pumping (m/ft)	25		25	
If flowing give rate (l/min / GPM)	30		30	
Recommended pump depth (m/ft)	40		40	
Recommended pump rate (l/min / GPM)	50		50	
Well production (l/min / GPM)	60		60	
Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No				

Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input checked="" type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify <u>Direct Push</u>		<input type="checkbox"/> Other, specify _____		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input checked="" type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input checked="" type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
2"	PVC	.25	0	22'	

Construction Record - Screen				
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
2.25	PVC	.10	22'	27'

**Map of Well Location**  
Please provide a map below following instructions on the back.  
MW 2

Water Details		Hole Diameter	
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft) From	To
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	0	27' 8"
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		

**Well Contractor and Well Technician Information**  
Business Name of Well Contractor: Strata Soil Sampling Well Contractor's Licence No.: 7 12 4 1  
Business Address (Street Number/Name): 165 Shields Court Municipality: Markham  
Province: ON Postal Code: L3R 8V2 Business E-mail Address: wrecords@stratasoil.com

Bus. Telephone No. (inc. area code): 905 940 7919 Name of Well Technician (Last Name, First Name): Leccese Michael  
Well Technician's Licence No.: 73010 Signature of Technician and/or Contractor: \_\_\_\_\_ Date Submitted: 2018/11/13

Well owner's information package delivered:  Yes  No  
Date Package Delivered: Y|Y|Y|Y|M|M|D|D  
Date Work Completed: 2018/11/13  
**Ministry Use Only**  
Audit No.: Z303022  
Received: \_\_\_\_\_

A263177

Measurements recorded in:  Metric  Imperial

Tag#: A263177

S-22840 Page \_\_\_ of \_\_\_

Well Owner's Information

First Name: Shawn Berrault, Last Name / Organization: Corporation of the Town of Midland, E-mail Address: [blank], Mailing Address: 575 Dominion Avenue, Municipality: Midland, Province: ON, Postal Code: H4R 1A2, Telephone No.: (705) 526-4275

Well Location

Address of Well Location: 420 Bayshore Drive, Township: [blank], Lot: [blank], Concession: [blank], County/District/Municipality: [blank], City/Town/Village: Midland, Province: Ontario, Postal Code: [blank], UTM Coordinates: Zone 17, Easting 588203, Northing 49156460

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From/To. Row 1: BRN, Sand, Gravel, [blank], 0 to 17'

Annular Space table with 3 columns: Depth Set at (m/ft) From/To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³). Rows: 17' to 6', Sand; 6' to 0, Holeplug Monument

Results of Well Yield Testing table with columns: After test of well yield, water was; Draw Down (Time, Water Level); Recovery (Time, Water Level). Includes pumping rate, duration, and final water level data.

Method of Construction and Well Use table. Method of Construction: Direct Push. Well Use: Test Hole, Monitoring.

Construction Record - Casing table with 4 columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth (m/ft) From/To. Row 1: 2", PVC, .25, 0 to 7'

Construction Record - Screen table with 4 columns: Outside Diameter, Material, Slot No., Depth (m/ft) From/To. Row 1: 2.25, PVC, .10, 7' to 17'

Water Details and Hole Diameter table. Water found at Depth: [blank], Kind of Water: [blank]. Hole Diameter: Depth 0 to 17', Diameter 8".

Well Contractor and Well Technician Information. Business Name: Strata Soil Sampling, Well Contractor's Licence No.: 71241, Business Address: 165 Shields Court, Municipality: Markham.

Map of Well Location. Please provide a map below following instructions on the back. MW3

Well Technician's Licence No.: 13816, Name of Well Technician: Cecese, Michael, Signature of Technician and/or Contractor: [Signature], Date Submitted: 2011/11/13

Ministry Use Only. Audit No.: Z303023, Date Package Delivered: YYY Y MM DD, Date Work Completed: 2011/11/13



A254589

Measurements recorded in:  Metric  Imperial

Tag#: A254589

S-22340 Page \_\_\_ of \_\_\_

Well Owner's Information

First Name: Hm. Shawn Berrault Last Name / Organization: Corporation of the Town of Midland E-mail Address: \_\_\_\_\_  Well Constructed by Well Owner

Mailing Address (Street Number/Name): 575 Dominion Avenue Municipality: Midland Province: ON Postal Code: H4R 1R2 Telephone No. (inc. area code): (705) 526-4275

Well Location

Address of Well Location (Street Number/Name): 420 Bayshore Dr Township: \_\_\_\_\_ Lot: \_\_\_\_\_ Concession: \_\_\_\_\_

County/District/Municipality: \_\_\_\_\_ City/Town/Village: Midland Province: Ontario Postal Code: \_\_\_\_\_

UTM Coordinates: Zone 18 Easting 118249 Northing 56431 Municipal Plan and Sublot Number: \_\_\_\_\_ Other: \_\_\_\_\_

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)
				From To
BRN	Sand	Gravel		0 17'

**Annular Space**

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
From To		
17' 6'	Sand	
6' 0'	Holeplug	
	Monument	

**Results of Well Yield Testing**

After test of well yield, water was:	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____				
If pumping discontinued, give reason:	Static Level			
	1		1	
Pump intake set at (m/ft)	2		2	
Pumping rate (l/min / GPM)	3		3	
	4		4	
Duration of pumping _____ hrs + _____ min	5		5	
Final water level end of pumping (m/ft)	10		10	
	15		15	
If flowing give rate (l/min / GPM)	20		20	
	25		25	
Recommended pump depth (m/ft)	30		30	
Recommended pump rate (l/min / GPM)	40		40	
Well production (l/min / GPM)	50		50	
Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No	60		60	

**Method of Construction**

Cable Tool  Diamond  Public  Commercial  Not used  
 Rotary (Conventional)  Jetting  Domestic  Municipal  Dewatering  
 Rotary (Reverse)  Driving  Livestock  Test Hole  Monitoring  
 Boring  Digging  Irrigation  Cooling & Air Conditioning  
 Air percussion  Industrial  
 Other, specify Direct Push  Other, specify \_\_\_\_\_

**Construction Record - Casing**

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
2"	PVC	.25	0	7'	<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input checked="" type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____

**Construction Record - Screen**

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
2.25	PVC	.10	7'	17'

**Water Details**

Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Hole Diameter		
		Depth (m/ft)	Diameter (cm/in)	
From	To			
		0	17'	8"

**Well Contractor and Well Technician Information**

Business Name of Well Contractor: Strata Soil Sampling Well Contractor's Licence No.: 71241

Business Address (Street Number/Name): 165 Shields Court Municipality: Markham

Province: ON Postal Code: L3R8V2 Business E-mail Address: wrecords@stratasoil.com

Bus. Telephone No. (inc. area code): 9059407919 Name of Well Technician (Last Name, First Name): Leccese Michael

Well Technician's Licence No.: 13016 Signature of Technician and/or Contractor: \_\_\_\_\_ Date Submitted: 2014/01/13

**Map of Well Location**

Please provide a map below following instructions on the back.

NW4

Comments: \_\_\_\_\_

Well owner's information package delivered:  Yes  No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: 2014 01 13

**Ministry Use Only**

Audit No.: 2303144

Received: \_\_\_\_\_



A254590

Measurements recorded in:  Metric  Imperial

Tag#: A254590

S-22840

Page of

Well Owner's Information

First Name: Atm. Shawn Berrault, Last Name / Organization: Corporation of the Town of Midland, E-mail Address: [blank],  Well Constructed by Well Owner

Mailing Address (Street Number/Name): 575 Dominion Avenue, Municipality: Midland, Province: ON, Postal Code: L4R1R2, Telephone No. (inc. area code): (705) 526-4275

Well Location: Address of Well Location (Street Number/Name): 420 Bayshore Dr, Township: [blank], Lot: [blank], Concession: [blank]

County/District/Municipality: [blank], City/Town/Village: Midland, Province: Ontario, Postal Code: [blank]

UTM Coordinates: Zone: 18, Easting: 175881, Northing: 14959255, Municipal Plan and Sublot Number: [blank], Other: [blank]

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From/To. Includes handwritten entries for sand, silt, gravel, and sand.

Annular Space table with 3 columns: Depth Set at (m/ft) From/To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³). Includes handwritten entries for Sand, Holeplug, and Monuments.

Results of Well Yield Testing table with columns for Time (min), Water Level (m/ft), and Recovery. Includes data for pumping rate, duration, and final water level.

Method of Construction and Well Use table with checkboxes for Cable Tool, Rotary, Boring, etc., and Public, Commercial, Industrial, etc.

Construction Record - Casing table with columns for Inside Diameter, Open Hole OR Material, Wall Thickness, Depth, and Status of Well.

Construction Record - Screen table with columns for Outside Diameter, Material, Slot No., and Depth.

Water Details and Hole Diameter table with columns for Water found at Depth, Kind of Water, and Hole Diameter.

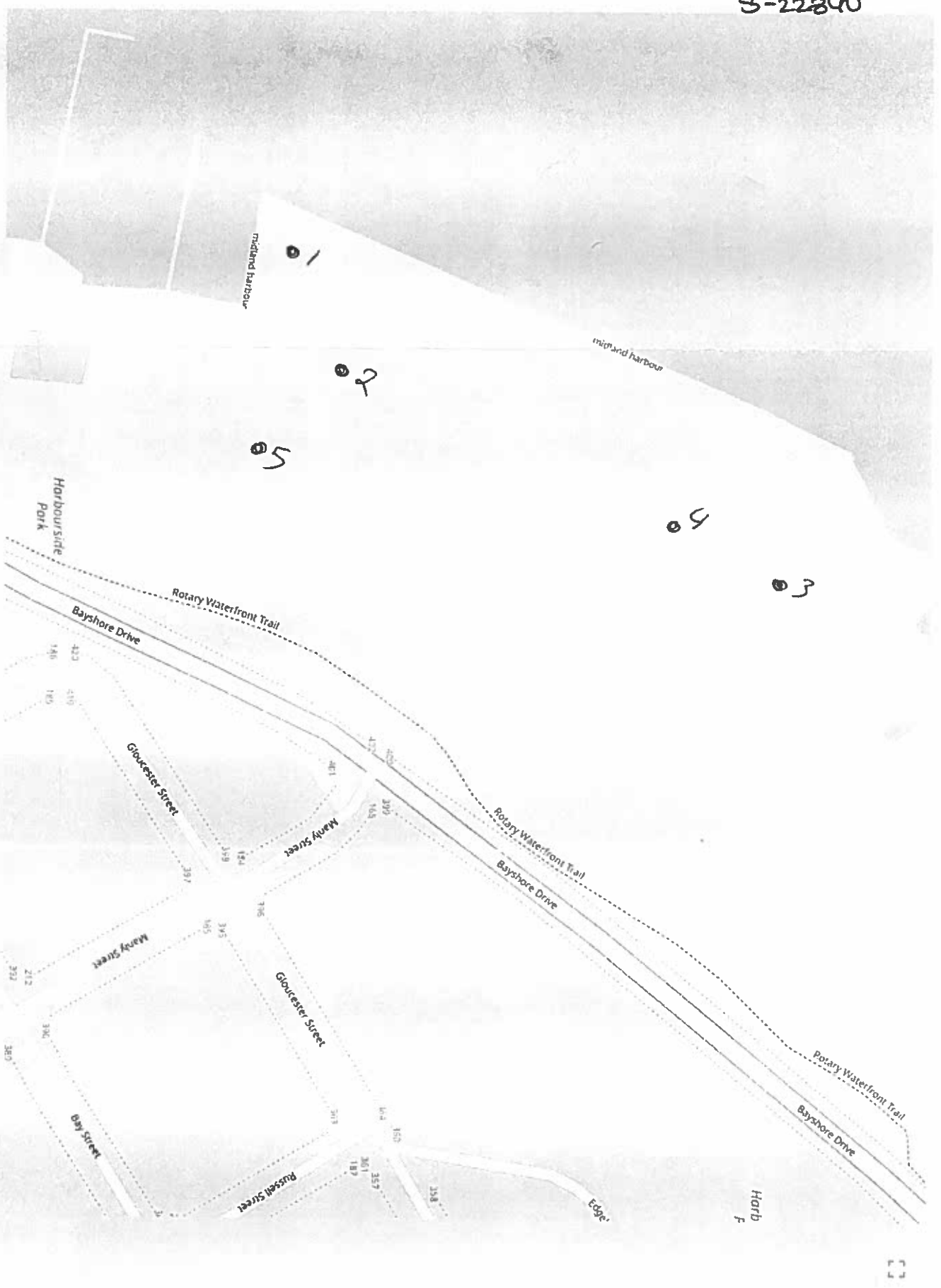
Well Contractor and Well Technician Information table with fields for Business Name, Address, Province, Postal Code, Business E-mail Address, Name of Well Technician, and Signature.

Map of Well Location section with handwritten 'MWS' and instructions to provide a map.

Well Contractor and Well Technician Information table (continued) with fields for Business Telephone No., Well Technician's Licence No., and Date Submitted.

Ministry Use Only table with fields for Audit No. (2305374), Date Package Delivered, Date Work Completed, and Received.

S-22840





**TEST PIT LOGS**

**Bayshore landing, Midland**

Technician: J. Macphail

Cambium Reference No. 6820-001

Completed August 13-14, 2018



Test Pit ID	Depth (mbg <sup>1</sup> )	Soil Sample	Material Description
TP18-01	- 0 - 0.61 0.61 - 1.22 1.22 - 1.83 1.83 - 2.44 2.44 - 3.05 3.05	GS1 GS2 GS3 GS4	Light brown, sand and gravel, dry to moist Redish Orange to black, sand, some gravel, moist wood debris, some silt and sand, wet Brown silty sand, some organics, saturated Grey, sandsilt, some wood debris, saturated Test pit terminated at 3.05 mbgs, QA/QC3 at 3.05mbgs Sampled: Btex, PAH's, Metals
TP18-02	0 - 0.61 0.61 - 1.22 1.22 - 1.98  1.98	GS1 GS2 GS3	0-0.3mbgs, Light brown, sand, some silt, some organics, dry to moist 0.3-1mbgs, Light brown, sandsilt, dry to moist 1.0-1.98mbgs, Light brown, sandsilt, dry to moist  Test pit terminated at 1.98 mbgs
TP18-03	0 - 0.46 0.46 - 1.37 1.37 - 1.98 1.98 - 2.13	GS1 GS2 GS3 GS4	Medium brown, sand, some gravel, some organics, dry to moist Redishbrown, sand, some gravel and cobbles, some wood debris, saturated wood debris Grey, silty sand, some gravel, saturated  Test pit terminated at 2.13 mbgs, water at 1mbgs Sampled for Btex at 1.98 to 2.13mbgs, QA/QC 5 at 2.13mbgs
TP18-04	0 - 0.61 0.61 - 1.22 1.22 - 1.98 1.98 - 5.18  5.18	GS1 GS2 GS3	White, sand and gravel, trace organics, dry to moist Redish Orange to black, sand and gravel, trace organics, moist Grey, clayey silt, some gravel and cobbles, some wood debris, saturated wood debris  Test pit terminated at 5.13mbgs, note a second TP was sub-excavated to find soil to sample; sampled taken at 3.05mbgs Sampled: BTEX and PHC's at 3.05mbgs, QA/QC 4 at 3.05mbgs
TP18-05	0 - 0.3 0.3 - 1.52 1.52 - 1.83  1.83	GS1 GS2 GS3	Dark grey, sand and gravel, trace organics, dry to moist Redishbrown, sandsilt, some gravel, dry to moist Grey, clayey silt, dry to moist  Test pit terminated at 1.83mbgs,

**TEST PIT LOGS**

**Bayshore landing, Midland**

Technician: J. Macphail

Cambium Reference No. 6820-001

Completed August 13-14, 2018



TP18-06	0 - 1.37	GS1	Light brown,sand, some silt, some gravel, some cobbles and boulders, dry to moist
	1.37 - 1.83	GS2	Black, topsoil, sandsilt, some organics, some wood debris, dry to moist
	1.83		Test pit terminated at 1.98 mbgs
TP18-07	0 - 0.3	GS1	Light brown, sand and gravel, dry to moist
	0.3 - 0.91	GS2	Light brown, sand, trace gravel, dry to moist
	0.91 - 1.83	GS3	Grey, sandsilt, some clay, moist
	1.83		Test pit terminated at 1.98 mbgs QA/QC2 at 1.3 to 1.83mbgs
TP18-08	0 - 0.3	GS1	Grey, sand and gravel, dry to moist
	0.3 - 0.61	GS2	Black, silty sand, some gravel, dry moist
	0.61 - 1.37	GS3	Brownish orange, sand, some gravel, dry to moist
	1.37 - 1.68	GS4	Black, topsoil, sandsilt, lots of organics, moist
	1.68 - 3.05	GS5	Grey, sandsilt, some gravel, dry moist
	3.05		Test Pit terminated at 3.05mbgs Note: samples TP18-08 A,B,C were taken within 1 to south, west and east of the test pit
TP18-09	0 - 0.3	GS1	Light brown, sand, some silt, some gravel, trace organics, dry to moist
	0.3 - 0.61	GS2	Black, silty sand, trace gravel, dry to moist
	0.61 - 1.22	GS3	Redish orange, sand, some gravel, some cobbles, dry to moist
	1.22 - 3.05	GS4	wood debris, trace sand, saturated
	3.05	GS5	Grey, silt, some sand, trace gravel, saturated
	3.05		Test Pit terminated at 3.05mbgs
TP18-10	0 - 0.46	GS1	Light grey, sand and gravel, dry to moist
	0.46 - 0.91	GS2	Light brown, silty sand, some gravel and cobbles, dry to moist
	0.91 - 1.22	GS3	Black, sand, some silt, some gravel, dry to moist
	1.22 - 1.83	GS4	Light brown, silt, some sand, some gravel, trace cobbles, dry to moist
	1.83		Test Pit terminated at 1.83mbgs

**TEST PIT LOGS**

**Bayshore landing, Midland**

Technician: J. Macphail

Cambium Reference No. 6820-001

Completed August 13-14, 2018



TP18-11	0 - 1.37 1.37 - 1.83	GS1 GS2	Light brown, sand, some gravel, dry to moist Dark brown, sand, some gravel, moist to saturated  Test pit terminated at 1.83 mbgs
TP18-12	0 - 0.61 0.61 - 1.52 1.52 - 1.83	GS1 GS2 GS3	Light brown, sand and gravel, dry to moist Light to medium brown, sand, some gravel and cobbles, dry to moist Redish orange, sand, some gravel, dry to moist  Test pit terminated at 1.83 mbgs
TP18-13	0 - 0.3 0.3 - 2.13  2.13	GS1 GS2	Black, topsoil, sand, trace gravel, dry to moist Light to medium brown, sand, trace to some gravel, dry to moist  Test pit terminated at 2.13 mbgs
TP18-14	0 - 0.15 0.15 - 0.61 0.61 - 0.91 0.91 - 3.05	GS1 GS2 GS3 GS4	Medium brown, topsoil, some gravel, some organics, wood debris, dry to moist Light grey, sandysilt, dry to moist Light brown, sand, dry to moist Grey, sandysilt, dry to moist Test pit terminated at 3.05mbgs QA/QC1 at 3.05mbgs
TP18-15	0 - 0.61 0.61 - 2.13 2.13 - 3.2 3.2 - 3.51	GS1 GS2 GS3 GS4	White, sand and gravel, some organics, dry to moist Dark grey, to black, sand and gravel, construction debris, dry to moist Grey, sandysilt, moist Grey, sand and gravel, wet  Test pit terminated at 3.51 mbgs

**TEST PIT LOGS**

**Bayshore landing, Midland**

Technician: J. Macphail

Cambium Reference No. 6820-001

Completed August 13-14, 2018



TP18-16	0 - 0.3	GS1	White, sand and gravel, trace organics, dry to moist
	0.3 - 0.91	GS2	Brown, sand, some gravel, dry to moist
	0.91 - 1.83	GS3	Black, silty sand, wood and brick debris, wet
	1.83 - 3.51	GS4	Grey, sandysilt, wet to saturated
	3.51		Test pit terminated at 3.51mbgs
TP18-17	0 - 0.3	GS1	Medium brown, sand, some gravel, some organics, moist
	0.3 - 0.91	GS2	redish brown, sand, moist
	0.91 - 1.83	GS3	Grey, sandysilt, some wood debris, wet to saturated
	1.83		Test pit terminated at 1.83mbgs
TP18-18	0 - 0.12	GS1	Asphalt
	0.12 - 0.46	GS2	Light brown, sand and gravel, dry to moist
	0.46 - 1.37	GS3	Medium brown, sand, some gravel, some cobbles, dry to moist
	1.37 - 2.9	GS4	Dark grey, sand, some silt, some wood debris, moist
	2.9 - 3.05	GS5	Grey, clayey silt, some sand, moist
	3.05		Test pit terminated at 3.05mbgs
TP18-19	0 - 0.61	GS1	White, sand and gravel, dry to moist
	0.61 - 1.37	GS2	Black, topsoil, silty sand, some gravel, wood debris, construction debris, moist
	1.37 - 3.2	GS3	Dark grey, sandysilt, moist
			Test pit terminated at 3.2 mbgs



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## Appendix E

# Laboratory Certificates of Analysis

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**Attention: Natalie Wright**

Cambium Environmental Inc  
 74 Cedar Pointe Drive,  
 Unit 1009  
 Barrie, ON  
 Canada L4N 5R7

**Report Date: 2018/06/08**  
 Report #: R5224061  
 Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8D1389**

**Received: 2018/06/01, 09:19**

Sample Matrix: Water  
 # Samples Received: 16

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Methylnaphthalene Sum	13	N/A	2018/06/04	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	9	N/A	2018/06/07		EPA 8260C m
Chloride by Automated Colourimetry	5	N/A	2018/06/04	CAM SOP-00463	EPA 325.2 m
Chloride by Automated Colourimetry	3	N/A	2018/06/05	CAM SOP-00463	EPA 325.2 m
Chromium (VI) in Water	8	N/A	2018/06/06	CAM SOP-00436	EPA 7199 m
Free (WAD) Cyanide	8	N/A	2018/06/05	CAM SOP-00457	OMOE E3015 m
Petroleum Hydro. CCME F1 & BTEX in Water	6	N/A	2018/06/05	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	13	2018/06/02	2018/06/04	CAM SOP-00316	CCME PHC-CWS m
Mercury	8	2018/06/04	2018/06/05	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS	8	N/A	2018/06/04	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM)	7	2018/06/02	2018/06/02	CAM SOP-00318	EPA 8270D m
PAH Compounds in Water by GC/MS (SIM)	6	2018/06/02	2018/06/03	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Water	2	2018/06/02	2018/06/02	CAM SOP-00309	EPA 8082A m
Volatile Organic Compounds and F1 PHCs	6	N/A	2018/06/06	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds and F1 PHCs	1	N/A	2018/06/07	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	2	N/A	2018/06/07	CAM SOP-00228	EPA 8260C m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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



Your Project #: 6820-001  
Your C.O.C. #: 665865-03-01, c#665865-02-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/06/08**  
Report #: R5224061  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8D1389**

**Received: 2018/06/01, 09:19**

dilution methods.

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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

Encryption Key



Gina Baybayan  
Project Manager  
08 Jun 2018 10:44:33

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager  
Email: GBaybayan@maxxam.ca  
Phone# (905)817-5766

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

**O.REG 153 METALS & INORGANICS PKG (WTR)**

<b>Maxxam ID</b>			GVQ212			GVQ212			GVQ213		
<b>Sampling Date</b>			2018/05/28 13:00			2018/05/28 13:00			2018/05/28 12:30		
<b>COC Number</b>			665865-03-01			665865-03-01			665865-03-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>MW101</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW101 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW102</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Inorganics</b>											
WAD Cyanide (Free)	ug/L	<b>52</b>	<1	1	5559379				<1	1	5559379
Dissolved Chloride (Cl)	mg/L	<b>1800</b>	25	1.0	5560446				5.2	1.0	5560446

<b>Metals</b>											
Chromium (VI)	ug/L	<b>110</b>	<0.50	0.50	5562821	<0.50	0.50	5562821	<0.50	0.50	5562821
Mercury (Hg)	ug/L	<b>0.29</b>	<0.1	0.1	5562867				<0.1	0.1	5562867
Dissolved Antimony (Sb)	ug/L	<b>16000</b>	<0.50	0.50	5561282				0.73	0.50	5561282
Dissolved Arsenic (As)	ug/L	<b>1500</b>	<1.0	1.0	5561282				<1.0	1.0	5561282
Dissolved Barium (Ba)	ug/L	<b>23000</b>	130	2.0	5561282				84	2.0	5561282
Dissolved Beryllium (Be)	ug/L	<b>53</b>	<0.50	0.50	5561282				<0.50	0.50	5561282
Dissolved Boron (B)	ug/L	<b>36000</b>	95	10	5561282				60	10	5561282
Dissolved Cadmium (Cd)	ug/L	<b>2.1</b>	0.64	0.10	5561282				<0.10	0.10	5561282
Dissolved Chromium (Cr)	ug/L	<b>640</b>	<5.0	5.0	5561282				<5.0	5.0	5561282
Dissolved Cobalt (Co)	ug/L	<b>52</b>	0.57	0.50	5561282				<0.50	0.50	5561282
Dissolved Copper (Cu)	ug/L	<b>69</b>	4.0	1.0	5561282				2.5	1.0	5561282
Dissolved Lead (Pb)	ug/L	<b>20</b>	<0.50	0.50	5561282				<0.50	0.50	5561282
Dissolved Molybdenum (Mo)	ug/L	<b>7300</b>	<0.50	0.50	5561282				<0.50	0.50	5561282
Dissolved Nickel (Ni)	ug/L	<b>390</b>	2.9	1.0	5561282				<1.0	1.0	5561282
Dissolved Selenium (Se)	ug/L	<b>50</b>	<2.0	2.0	5561282				<2.0	2.0	5561282
Dissolved Silver (Ag)	ug/L	<b>1.2</b>	<0.10	0.10	5561282				<0.10	0.10	5561282
Dissolved Sodium (Na)	ug/L	<b>1800000</b>	12000	100	5561282				5800	100	5561282
Dissolved Thallium (Tl)	ug/L	<b>400</b>	<0.050	0.050	5561282				<0.050	0.050	5561282
Dissolved Uranium (U)	ug/L	<b>330</b>	1.2	0.10	5561282				1.5	0.10	5561282
Dissolved Vanadium (V)	ug/L	<b>200</b>	0.69	0.50	5561282				<0.50	0.50	5561282
Dissolved Zinc (Zn)	ug/L	<b>890</b>	460	5.0	5561282				10	5.0	5561282

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Lab-Dup = Laboratory Initiated Duplicate  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Ground Water - All Types of Property Use

**O.REG 153 METALS & INORGANICS PKG (WTR)**

Maxxam ID			GVQ214		GVQ215			GVQ215		
Sampling Date			2018/05/28 14:45		2018/05/29 10:20			2018/05/29 10:20		
COC Number			665865-03-01		665865-03-01			665865-03-01		
	UNITS	Criteria	MW105	RDL	MW107	RDL	QC Batch	MW107 Lab-Dup	RDL	QC Batch
<b>Inorganics</b>										
WAD Cyanide (Free)	ug/L	<b>52</b>	<1	1	<1	1	5559379			
Dissolved Chloride (Cl)	mg/L	<b>1800</b>	160	2.0	38	1.0	5560446			
<b>Metals</b>										
Chromium (VI)	ug/L	<b>110</b>	<0.50	0.50	<0.50	0.50	5562821			
Mercury (Hg)	ug/L	<b>0.29</b>	<0.1	0.1	<0.1	0.1	5562867			
Dissolved Antimony (Sb)	ug/L	<b>16000</b>	<0.50	0.50	<0.50	0.50	5561282	<0.50	0.50	5561282
Dissolved Arsenic (As)	ug/L	<b>1500</b>	3.2	1.0	<1.0	1.0	5561282	<1.0	1.0	5561282
Dissolved Barium (Ba)	ug/L	<b>23000</b>	830	2.0	97	2.0	5561282	98	2.0	5561282
Dissolved Beryllium (Be)	ug/L	<b>53</b>	<0.50	0.50	<0.50	0.50	5561282	<0.50	0.50	5561282
Dissolved Boron (B)	ug/L	<b>36000</b>	43	10	40	10	5561282	41	10	5561282
Dissolved Cadmium (Cd)	ug/L	<b>2.1</b>	<0.10	0.10	<0.10	0.10	5561282	<0.10	0.10	5561282
Dissolved Chromium (Cr)	ug/L	<b>640</b>	<5.0	5.0	<5.0	5.0	5561282	<5.0	5.0	5561282
Dissolved Cobalt (Co)	ug/L	<b>52</b>	0.67	0.50	<0.50	0.50	5561282	<0.50	0.50	5561282
Dissolved Copper (Cu)	ug/L	<b>69</b>	<1.0	1.0	<1.0	1.0	5561282	<1.0	1.0	5561282
Dissolved Lead (Pb)	ug/L	<b>20</b>	<0.50	0.50	<0.50	0.50	5561282	<0.50	0.50	5561282
Dissolved Molybdenum (Mo)	ug/L	<b>7300</b>	1.3	0.50	0.53	0.50	5561282	<0.50	0.50	5561282
Dissolved Nickel (Ni)	ug/L	<b>390</b>	<1.0	1.0	<1.0	1.0	5561282	<1.0	1.0	5561282
Dissolved Selenium (Se)	ug/L	<b>50</b>	<2.0	2.0	<2.0	2.0	5561282	<2.0	2.0	5561282
Dissolved Silver (Ag)	ug/L	<b>1.2</b>	<0.10	0.10	<0.10	0.10	5561282	<0.10	0.10	5561282
Dissolved Sodium (Na)	ug/L	<b>1800000</b>	51000	100	62000	100	5561282	63000	100	5561282
Dissolved Thallium (Tl)	ug/L	<b>400</b>	<0.050	0.050	<0.050	0.050	5561282	<0.050	0.050	5561282
Dissolved Uranium (U)	ug/L	<b>330</b>	<0.10	0.10	0.82	0.10	5561282	0.80	0.10	5561282
Dissolved Vanadium (V)	ug/L	<b>200</b>	<0.50	0.50	<0.50	0.50	5561282	<0.50	0.50	5561282
Dissolved Zinc (Zn)	ug/L	<b>890</b>	<5.0	5.0	<5.0	5.0	5561282	<5.0	5.0	5561282
<p>RDL = Reportable Detection Limit            QC Batch = Quality Control Batch            Lab-Dup = Laboratory Initiated Duplicate            Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)            Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition            Ground Water - All Types of Property Use</p>										

**O.REG 153 METALS & INORGANICS PKG (WTR)**

Maxxam ID			GVQ216			GVQ219			GVQ220		
Sampling Date			2018/05/29 11:00			2018/05/29 15:30			2018/05/29 09:40		
COC Number			665865-03-01			665865-03-01			665865-03-01		
	UNITS	Criteria	MW111	RDL	QC Batch	MW120	RDL	MW103	RDL	QC Batch	
<b>Inorganics</b>											
WAD Cyanide (Free)	ug/L	<b>52</b>	<1	1	5559379	2	1	<1	1	5559379	
Dissolved Chloride (Cl)	mg/L	<b>1800</b>	24	1.0	5560474	230	3.0	130	1.0	5561654	
<b>Metals</b>											
Chromium (VI)	ug/L	<b>110</b>	<0.50	0.50	5562821	<0.50	0.50	<0.50	0.50	5562821	
Mercury (Hg)	ug/L	<b>0.29</b>	<0.1	0.1	5562867	<0.1	0.1	<0.1	0.1	5562867	
Dissolved Antimony (Sb)	ug/L	<b>16000</b>	<0.50	0.50	5561282	<0.50	0.50	<0.50	0.50	5561282	
Dissolved Arsenic (As)	ug/L	<b>1500</b>	1.5	1.0	5561282	<1.0	1.0	<1.0	1.0	5561282	
Dissolved Barium (Ba)	ug/L	<b>23000</b>	11	2.0	5561282	140	2.0	260	2.0	5561282	
Dissolved Beryllium (Be)	ug/L	<b>53</b>	<0.50	0.50	5561282	<0.50	0.50	<0.50	0.50	5561282	
Dissolved Boron (B)	ug/L	<b>36000</b>	97	10	5561282	27	10	54	10	5561282	
Dissolved Cadmium (Cd)	ug/L	<b>2.1</b>	<0.10	0.10	5561282	<0.10	0.10	<0.10	0.10	5561282	
Dissolved Chromium (Cr)	ug/L	<b>640</b>	<5.0	5.0	5561282	<5.0	5.0	<5.0	5.0	5561282	
Dissolved Cobalt (Co)	ug/L	<b>52</b>	3.8	0.50	5561282	<0.50	0.50	<0.50	0.50	5561282	
Dissolved Copper (Cu)	ug/L	<b>69</b>	<1.0	1.0	5561282	<1.0	1.0	<1.0	1.0	5561282	
Dissolved Lead (Pb)	ug/L	<b>20</b>	<0.50	0.50	5561282	<0.50	0.50	<0.50	0.50	5561282	
Dissolved Molybdenum (Mo)	ug/L	<b>7300</b>	0.60	0.50	5561282	<0.50	0.50	1.4	0.50	5561282	
Dissolved Nickel (Ni)	ug/L	<b>390</b>	5.9	1.0	5561282	<1.0	1.0	<1.0	1.0	5561282	
Dissolved Selenium (Se)	ug/L	<b>50</b>	<2.0	2.0	5561282	<2.0	2.0	<2.0	2.0	5561282	
Dissolved Silver (Ag)	ug/L	<b>1.2</b>	<0.10	0.10	5561282	<0.10	0.10	<0.10	0.10	5561282	
Dissolved Sodium (Na)	ug/L	<b>1800000</b>	30000	100	5561282	140000	100	210000	100	5561282	
Dissolved Thallium (Tl)	ug/L	<b>400</b>	<0.050	0.050	5561282	<0.050	0.050	<0.050	0.050	5561282	
Dissolved Uranium (U)	ug/L	<b>330</b>	2.2	0.10	5561282	0.42	0.10	2.7	0.10	5561282	
Dissolved Vanadium (V)	ug/L	<b>200</b>	<0.50	0.50	5561282	<0.50	0.50	<0.50	0.50	5561282	
Dissolved Zinc (Zn)	ug/L	<b>890</b>	<5.0	5.0	5561282	<5.0	5.0	<5.0	5.0	5561282	
<p>RDL = Reportable Detection Limit            QC Batch = Quality Control Batch            Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)            Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition            Ground Water - All Types of Property Use</p>											

**O.REG 153 METALS & INORGANICS PKG (WTR)**

Maxxam ID			GvQ223		
Sampling Date			2018/05/28		
COC Number			c#665865-02-01		
	UNITS	Criteria	QA/QC 1	RDL	QC Batch
<b>Inorganics</b>					
WAD Cyanide (Free)	ug/L	<b>52</b>	<1	1	5559379
Dissolved Chloride (Cl)	mg/L	<b>1800</b>	5.4	1.0	5561654
<b>Metals</b>					
Chromium (VI)	ug/L	<b>110</b>	<0.50	0.50	5562821
Mercury (Hg)	ug/L	<b>0.29</b>	<0.1	0.1	5562867
Dissolved Antimony (Sb)	ug/L	<b>16000</b>	0.75	0.50	5561282
Dissolved Arsenic (As)	ug/L	<b>1500</b>	<1.0	1.0	5561282
Dissolved Barium (Ba)	ug/L	<b>23000</b>	85	2.0	5561282
Dissolved Beryllium (Be)	ug/L	<b>53</b>	<0.50	0.50	5561282
Dissolved Boron (B)	ug/L	<b>36000</b>	58	10	5561282
Dissolved Cadmium (Cd)	ug/L	<b>2.1</b>	<0.10	0.10	5561282
Dissolved Chromium (Cr)	ug/L	<b>640</b>	<5.0	5.0	5561282
Dissolved Cobalt (Co)	ug/L	<b>52</b>	<0.50	0.50	5561282
Dissolved Copper (Cu)	ug/L	<b>69</b>	2.7	1.0	5561282
Dissolved Lead (Pb)	ug/L	<b>20</b>	<0.50	0.50	5561282
Dissolved Molybdenum (Mo)	ug/L	<b>7300</b>	<0.50	0.50	5561282
Dissolved Nickel (Ni)	ug/L	<b>390</b>	<1.0	1.0	5561282
Dissolved Selenium (Se)	ug/L	<b>50</b>	<2.0	2.0	5561282
Dissolved Silver (Ag)	ug/L	<b>1.2</b>	<0.10	0.10	5561282
Dissolved Sodium (Na)	ug/L	<b>1800000</b>	5800	100	5561282
Dissolved Thallium (Tl)	ug/L	<b>400</b>	<0.050	0.050	5561282
Dissolved Uranium (U)	ug/L	<b>330</b>	1.4	0.10	5561282
Dissolved Vanadium (V)	ug/L	<b>200</b>	<0.50	0.50	5561282
Dissolved Zinc (Zn)	ug/L	<b>890</b>	8.8	5.0	5561282
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)					
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition					
Ground Water - All Types of Property Use					

**O.REG 153 PAHS (WATER)**

Maxxam ID			GVQ212	GVQ213	GVQ214			GVQ214		
Sampling Date			2018/05/28 13:00	2018/05/28 12:30	2018/05/28 14:45			2018/05/28 14:45		
COC Number			665865-03-01	665865-03-01	665865-03-01			665865-03-01		
	UNITS	Criteria	MW101	MW102	MW105	RDL	QC Batch	MW105 Lab-Dup	RDL	QC Batch

**Calculated Parameters**

Methylnaphthalene, 2-(1-)	ug/L	-	<0.071	<0.071	<0.071	0.071	5559230			
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**Polyaromatic Hydrocarbons**

Acenaphthene	ug/L	<b>600</b>	0.082	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Acenaphthylene	ug/L	<b>1.4</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Anthracene	ug/L	<b>1</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Benzo(a)anthracene	ug/L	<b>1.8</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Benzo(a)pyrene	ug/L	<b>0.81</b>	<0.010	<0.010	<0.010	0.010	5561465	<0.010	0.010	5561465
Benzo(b/j)fluoranthene	ug/L	<b>0.75</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Benzo(g,h,i)perylene	ug/L	<b>0.2</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Benzo(k)fluoranthene	ug/L	<b>0.4</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Chrysene	ug/L	<b>0.7</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Dibenz(a,h)anthracene	ug/L	<b>0.4</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Fluoranthene	ug/L	<b>73</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Fluorene	ug/L	<b>290</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Indeno(1,2,3-cd)pyrene	ug/L	<b>0.2</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
1-Methylnaphthalene	ug/L	<b>1500</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
2-Methylnaphthalene	ug/L	<b>1500</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Naphthalene	ug/L	<b>1400</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465
Phenanthrene	ug/L	<b>380</b>	<0.030	<0.030	<0.030	0.030	5561465	<0.030	0.030	5561465
Pyrene	ug/L	<b>5.7</b>	<0.050	<0.050	<0.050	0.050	5561465	<0.050	0.050	5561465

**Surrogate Recovery (%)**

D10-Anthracene	%	-	97	110	99		5561465	97		5561465
D14-Terphenyl (FS)	%	-	72	93	72		5561465	78		5561465
D8-Acenaphthylene	%	-	96	102	95		5561465	95		5561465

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Lab-Dup = Laboratory Initiated Duplicate  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Ground Water - All Types of Property Use



**O.REG 153 PAHS (WATER)**

Maxxam ID			GVQ215	GVQ216	GVQ217	GVQ218	GVQ219		
Sampling Date			2018/05/29 10:20	2018/05/29 11:00	2018/05/29 13:10	2018/05/29 15:00	2018/05/29 15:30		
COC Number			665865-03-01	665865-03-01	665865-03-01	665865-03-01	665865-03-01		
	UNITS	Criteria	MW107	MW111	MW123	MW117	MW120	RDL	QC Batch
<b>Calculated Parameters</b>									
Methylnaphthalene, 2-(1-)	ug/L	-	<0.071	<0.071	<0.071	<0.071	<0.071	0.071	5559230
<b>Polyaromatic Hydrocarbons</b>									
Acenaphthene	ug/L	<b>600</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Acenaphthylene	ug/L	<b>1.4</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Anthracene	ug/L	<b>1</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(a)anthracene	ug/L	<b>1.8</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(a)pyrene	ug/L	<b>0.81</b>	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	5561465
Benzo(b/j)fluoranthene	ug/L	<b>0.75</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(g,h,i)perylene	ug/L	<b>0.2</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(k)fluoranthene	ug/L	<b>0.4</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Chrysene	ug/L	<b>0.7</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Dibenz(a,h)anthracene	ug/L	<b>0.4</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Fluoranthene	ug/L	<b>73</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Fluorene	ug/L	<b>290</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Indeno(1,2,3-cd)pyrene	ug/L	<b>0.2</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
1-Methylnaphthalene	ug/L	<b>1500</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
2-Methylnaphthalene	ug/L	<b>1500</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Naphthalene	ug/L	<b>1400</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Phenanthrene	ug/L	<b>380</b>	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5561465
Pyrene	ug/L	<b>5.7</b>	<0.050	<0.050	<0.050	<0.050	0.15	0.050	5561465
<b>Surrogate Recovery (%)</b>									
D10-Anthracene	%	-	95	101	96	98	92		5561465
D14-Terphenyl (FS)	%	-	77	88	84	77	80		5561465
D8-Acenaphthylene	%	-	93	102	95	96	96		5561465
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Ground Water - All Types of Property Use									

**O.REG 153 PAHS (WATER)**

Maxxam ID			GVQ220	GVQ221	GVQ222	GVQ223	GVQ225		
Sampling Date			2018/05/29 09:40	2018/05/30 11:00	2018/05/30 11:30	2018/05/28	2018/05/30		
COC Number			665865-03-01	665865-03-01	c#665865-02-01	c#665865-02-01	c#665865-02-01		
	UNITS	Criteria	MW103	MW114	MW113	QA/QC 1	QA/QC 4	RDL	QC Batch
<b>Calculated Parameters</b>									
Methylnaphthalene, 2-(1-)	ug/L	-	<0.071	<0.071	<0.071	<0.071	<0.071	0.071	5559230
<b>Polyaromatic Hydrocarbons</b>									
Acenaphthene	ug/L	<b>600</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Acenaphthylene	ug/L	<b>1.4</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Anthracene	ug/L	<b>1</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(a)anthracene	ug/L	<b>1.8</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(a)pyrene	ug/L	<b>0.81</b>	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	5561465
Benzo(b/j)fluoranthene	ug/L	<b>0.75</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(g,h,i)perylene	ug/L	<b>0.2</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Benzo(k)fluoranthene	ug/L	<b>0.4</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Chrysene	ug/L	<b>0.7</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Dibenz(a,h)anthracene	ug/L	<b>0.4</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Fluoranthene	ug/L	<b>73</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Fluorene	ug/L	<b>290</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Indeno(1,2,3-cd)pyrene	ug/L	<b>0.2</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
1-Methylnaphthalene	ug/L	<b>1500</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
2-Methylnaphthalene	ug/L	<b>1500</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Naphthalene	ug/L	<b>1400</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
Phenanthrene	ug/L	<b>380</b>	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5561465
Pyrene	ug/L	<b>5.7</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5561465
<b>Surrogate Recovery (%)</b>									
D10-Anthracene	%	-	96	98	95	103	96		5561465
D14-Terphenyl (FS)	%	-	75	78	80	86	81		5561465
D8-Acenaphthylene	%	-	94	98	92	99	93		5561465
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition									
Ground Water - All Types of Property Use									

**O.REG 153 PCBs (WATER)**

Maxxam ID			GVQ217	GVQ224		
Sampling Date			2018/05/29 13:10	2018/05/29		
COC Number			665865-03-01	c#665865-02-01		
	UNITS	Criteria	MW123	QA/QC 3	RDL	QC Batch
<b>PCBs</b>						
Aroclor 1242	ug/L	-	<0.05	<0.05	0.05	5561272
Aroclor 1248	ug/L	-	<0.05	<0.05	0.05	5561272
Aroclor 1254	ug/L	-	<0.05	<0.05	0.05	5561272
Aroclor 1260	ug/L	-	<0.05	<0.05	0.05	5561272
Total PCB	ug/L	<b>0.2</b>	<0.05	<0.05	0.05	5561272
<b>Surrogate Recovery (%)</b>						
Decachlorobiphenyl	%	-	66	98		5561272
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Ground Water - All Types of Property Use						

**O.REG 153 PETROLEUM HYDROCARBONS (WATER)**

Maxxam ID	GVQ217			GVQ217			GVQ218				
Sampling Date	2018/05/29 13:10			2018/05/29 13:10			2018/05/29 15:00				
COC Number	665865-03-01			665865-03-01			665865-03-01				
	UNITS	Criteria	MW123	RDL	QC Batch	MW123 Lab-Dup	RDL	QC Batch	MW117	RDL	QC Batch

**BTEX & F1 Hydrocarbons**

Benzene	ug/L	<b>44</b>	<0.20	0.20	5561650	<0.20	0.20	5561650	<0.20	0.20	5561650
Toluene	ug/L	<b>14000</b>	<0.20	0.20	5561650	<0.20	0.20	5561650	<0.20	0.20	5561650
Ethylbenzene	ug/L	<b>1800</b>	<0.20	0.20	5561650	<0.20	0.20	5561650	<0.20	0.20	5561650
o-Xylene	ug/L	-	<0.20	0.20	5561650	<0.20	0.20	5561650	<0.20	0.20	5561650
p+m-Xylene	ug/L	-	<0.40	0.40	5561650	<0.40	0.40	5561650	<0.40	0.40	5561650
Total Xylenes	ug/L	<b>3300</b>	<0.40	0.40	5561650	<0.40	0.40	5561650	<0.40	0.40	5561650
F1 (C6-C10)	ug/L	<b>420</b>	<25	25	5561650	<25	25	5561650	<25	25	5561650
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	25	5561650	<25	25	5561650	<25	25	5561650

**F2-F4 Hydrocarbons**

F2 (C10-C16 Hydrocarbons)	ug/L	<b>150</b>	<100	100	5561460				<100	100	5561460
F3 (C16-C34 Hydrocarbons)	ug/L	<b>500</b>	<200	200	5561460				<200	200	5561460
F4 (C34-C50 Hydrocarbons)	ug/L	<b>500</b>	<200	200	5561460				<200	200	5561460
Reached Baseline at C50	ug/L	-	Yes		5561460				Yes		5561460

**Surrogate Recovery (%)**

1,4-Difluorobenzene	%	-	106		5561650	98		5561650	98		5561650
4-Bromofluorobenzene	%	-	86		5561650	97		5561650	98		5561650
D10-Ethylbenzene	%	-	122		5561650	107		5561650	109		5561650
D4-1,2-Dichloroethane	%	-	122		5561650	103		5561650	103		5561650
o-Terphenyl	%	-	92		5561460				95		5561460

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Ground Water - All Types of Property Use

**O.REG 153 PETROLEUM HYDROCARBONS (WATER)**

Maxxam ID			GVQ219	GVQ221	GVQ222	GVQ225		
Sampling Date			2018/05/29 15:30	2018/05/30 11:00	2018/05/30 11:30	2018/05/30		
COC Number			665865-03-01	665865-03-01	c#665865-02-01	c#665865-02-01		
	UNITS	Criteria	MW120	MW114	MW113	QA/QC 4	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>								
Benzene	ug/L	<b>44</b>	<0.20	<0.20	<0.20	<0.20	0.20	5561650
Toluene	ug/L	<b>14000</b>	<0.20	<0.20	<0.20	<0.20	0.20	5561650
Ethylbenzene	ug/L	<b>1800</b>	<0.20	<0.20	<0.20	<0.20	0.20	5561650
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	<0.20	0.20	5561650
p+m-Xylene	ug/L	-	<0.40	<0.40	<0.40	<0.40	0.40	5561650
Total Xylenes	ug/L	<b>3300</b>	<0.40	<0.40	<0.40	<0.40	0.40	5561650
F1 (C6-C10)	ug/L	<b>420</b>	<25	<25	<25	<25	25	5561650
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	<25	<25	<25	25	5561650
<b>F2-F4 Hydrocarbons</b>								
F2 (C10-C16 Hydrocarbons)	ug/L	<b>150</b>	<100	<100	<100	<100	100	5561460
F3 (C16-C34 Hydrocarbons)	ug/L	<b>500</b>	<200	<200	<200	<200	200	5561460
F4 (C34-C50 Hydrocarbons)	ug/L	<b>500</b>	<200	<200	<200	<200	200	5561460
Reached Baseline at C50	ug/L	-	Yes	Yes	Yes	Yes		5561460
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene	%	-	98	98	98	99		5561650
4-Bromofluorobenzene	%	-	96	98	97	96		5561650
D10-Ethylbenzene	%	-	109	108	111	112		5561650
D4-1,2-Dichloroethane	%	-	103	102	104	104		5561650
o-Terphenyl	%	-	96	84	91	90		5561460
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition								
Ground Water - All Types of Property Use								

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

Maxxam ID			GVQ212	GVQ213	GVQ214			GVQ214		
Sampling Date			2018/05/28 13:00	2018/05/28 12:30	2018/05/28 14:45			2018/05/28 14:45		
COC Number			665865-03-01	665865-03-01	665865-03-01			665865-03-01		
	UNITS	Criteria	MW101	MW102	MW105	RDL	QC Batch	MW105 Lab-Dup	RDL	QC Batch

Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<b>5.2</b>	<0.50	<0.50	<0.50	0.50	5559231			
Volatile Organics										
Acetone (2-Propanone)	ug/L	<b>100000</b>	<10	<10	<10	10	5560223			
Benzene	ug/L	<b>44</b>	<0.20	<0.20	<0.20	0.20	5560223			
Bromodichloromethane	ug/L	<b>67000</b>	<0.50	<0.50	<0.50	0.50	5560223			
Bromoform	ug/L	<b>380</b>	<1.0	<1.0	<1.0	1.0	5560223			
Bromomethane	ug/L	<b>5.6</b>	<0.50	<0.50	<0.50	0.50	5560223			
Carbon Tetrachloride	ug/L	<b>0.79</b>	<0.20	<0.20	<0.20	0.20	5560223			
Chlorobenzene	ug/L	<b>500</b>	<0.20	<0.20	<0.20	0.20	5560223			
Chloroform	ug/L	<b>2.4</b>	<0.20	<0.20	<0.20	0.20	5560223			
Dibromochloromethane	ug/L	<b>65000</b>	<0.50	<0.50	<0.50	0.50	5560223			
1,2-Dichlorobenzene	ug/L	<b>4600</b>	<0.50	<0.50	<0.50	0.50	5560223			
1,3-Dichlorobenzene	ug/L	<b>7600</b>	<0.50	<0.50	<0.50	0.50	5560223			
1,4-Dichlorobenzene	ug/L	<b>8</b>	<0.50	<0.50	<0.50	0.50	5560223			
Dichlorodifluoromethane (FREON 12)	ug/L	<b>3500</b>	<1.0	<1.0	<1.0	1.0	5560223			
1,1-Dichloroethane	ug/L	<b>320</b>	<0.20	<0.20	<0.20	0.20	5560223			
1,2-Dichloroethane	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	0.50	5560223			
1,1-Dichloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	<0.20	0.20	5560223			
cis-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	0.50	5560223			
trans-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	0.50	5560223			
1,2-Dichloropropane	ug/L	<b>16</b>	<0.20	<0.20	<0.20	0.20	5560223			
cis-1,3-Dichloropropene	ug/L	<b>5.2</b>	<0.30	<0.30	<0.30	0.30	5560223			
trans-1,3-Dichloropropene	ug/L	<b>5.2</b>	<0.40	<0.40	<0.40	0.40	5560223			
Ethylbenzene	ug/L	<b>1800</b>	<0.20	<0.20	<0.20	0.20	5560223			
Ethylene Dibromide	ug/L	<b>0.25</b>	<0.20	<0.20	<0.20	0.20	5560223			
Hexane	ug/L	<b>51</b>	<1.0	<1.0	<1.0	1.0	5560223			
Methylene Chloride(Dichloromethane)	ug/L	<b>610</b>	<2.0	<2.0	<2.0	2.0	5560223			
Methyl Ethyl Ketone (2-Butanone)	ug/L	<b>470000</b>	<10	<10	<10	10	5560223			
Methyl Isobutyl Ketone	ug/L	<b>140000</b>	<5.0	<5.0	<5.0	5.0	5560223			
Methyl t-butyl ether (MTBE)	ug/L	<b>190</b>	<0.50	1.5	<0.50	0.50	5560223			
Styrene	ug/L	<b>1300</b>	<0.50	<0.50	<0.50	0.50	5560223			
1,1,1,2-Tetrachloroethane	ug/L	<b>3.3</b>	<0.50	<0.50	<0.50	0.50	5560223			

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Lab-Dup = Laboratory Initiated Duplicate  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Ground Water - All Types of Property Use



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

Maxxam ID			GVQ212	GVQ213	GVQ214			GVQ214		
Sampling Date			2018/05/28 13:00	2018/05/28 12:30	2018/05/28 14:45			2018/05/28 14:45		
COC Number			665865-03-01	665865-03-01	665865-03-01			665865-03-01		
	UNITS	Criteria	MW101	MW102	MW105	RDL	QC Batch	MW105 Lab-Dup	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	<b>3.2</b>	<0.50	<0.50	<0.50	0.50	5560223			
Tetrachloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	<0.20	0.20	5560223			
Toluene	ug/L	<b>14000</b>	<0.20	<0.20	<0.20	0.20	5560223			
1,1,1-Trichloroethane	ug/L	<b>640</b>	<0.20	<0.20	<0.20	0.20	5560223			
1,1,2-Trichloroethane	ug/L	<b>4.7</b>	<0.50	<0.50	<0.50	0.50	5560223			
Trichloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	<0.20	0.20	5560223			
Trichlorofluoromethane (FREON 11)	ug/L	<b>2000</b>	<0.50	<0.50	<0.50	0.50	5560223			
Vinyl Chloride	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5560223			
p+m-Xylene	ug/L	-	<0.20	<0.20	<0.20	0.20	5560223			
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	0.20	5560223			
Total Xylenes	ug/L	<b>3300</b>	<0.20	<0.20	<0.20	0.20	5560223			
F1 (C6-C10)	ug/L	<b>420</b>	<25	<25	<25	25	5560223			
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	<25	<25	25	5560223			
<b>F2-F4 Hydrocarbons</b>										
F2 (C10-C16 Hydrocarbons)	ug/L	<b>150</b>	<100	<100	<100	100	5561460	<100	100	5561460
F3 (C16-C34 Hydrocarbons)	ug/L	<b>500</b>	<200	<200	<200	200	5561460	<200	200	5561460
F4 (C34-C50 Hydrocarbons)	ug/L	<b>500</b>	<200	<200	<200	200	5561460	<200	200	5561460
Reached Baseline at C50	ug/L	-	Yes	Yes	Yes		5561460	Yes		5561460
<b>Surrogate Recovery (%)</b>										
o-Terphenyl	%	-	100	97	98		5561460	94		5561460
4-Bromofluorobenzene	%	-	96	96	97		5560223			
D4-1,2-Dichloroethane	%	-	101	102	101		5560223			
D8-Toluene	%	-	102	102	101		5560223			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Ground Water - All Types of Property Use										

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

Maxxam ID			GVQ215	GVQ216	GVQ220		GVQ223		
Sampling Date			2018/05/29 10:20	2018/05/29 11:00	2018/05/29 09:40		2018/05/28		
COC Number			665865-03-01	665865-03-01	665865-03-01		c#665865-02-01		
	UNITS	Criteria	MW107	MW111	MW103	QC Batch	QA/QC 1	RDL	QC Batch

**Calculated Parameters**

1,3-Dichloropropene (cis+trans)	ug/L	<b>5.2</b>	<0.50	<0.50	<0.50	5559231	<0.50	0.50	5559231
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**Volatile Organics**

Acetone (2-Propanone)	ug/L	<b>100000</b>	<10	<10	25	5560223	<10	10	5563001
Benzene	ug/L	<b>44</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Bromodichloromethane	ug/L	<b>67000</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
Bromoform	ug/L	<b>380</b>	<1.0	<1.0	<1.0	5560223	<1.0	1.0	5563001
Bromomethane	ug/L	<b>5.6</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
Carbon Tetrachloride	ug/L	<b>0.79</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Chlorobenzene	ug/L	<b>500</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Chloroform	ug/L	<b>2.4</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Dibromochloromethane	ug/L	<b>65000</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
1,2-Dichlorobenzene	ug/L	<b>4600</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
1,3-Dichlorobenzene	ug/L	<b>7600</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
1,4-Dichlorobenzene	ug/L	<b>8</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
Dichlorodifluoromethane (FREON 12)	ug/L	<b>3500</b>	<1.0	<1.0	<1.0	5560223	<1.0	1.0	5563001
1,1-Dichloroethane	ug/L	<b>320</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
1,2-Dichloroethane	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
1,1-Dichloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
cis-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
trans-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
1,2-Dichloropropane	ug/L	<b>16</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
cis-1,3-Dichloropropene	ug/L	<b>5.2</b>	<0.30	<0.30	<0.30	5560223	<0.30	0.30	5563001
trans-1,3-Dichloropropene	ug/L	<b>5.2</b>	<0.40	<0.40	<0.40	5560223	<0.40	0.40	5563001
Ethylbenzene	ug/L	<b>1800</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Ethylene Dibromide	ug/L	<b>0.25</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Hexane	ug/L	<b>51</b>	<1.0	<1.0	<1.0	5560223	<1.0	1.0	5563001
Methylene Chloride(Dichloromethane)	ug/L	<b>610</b>	<2.0	<2.0	<2.0	5560223	<2.0	2.0	5563001
Methyl Ethyl Ketone (2-Butanone)	ug/L	<b>470000</b>	<10	<10	74	5560223	<10	10	5563001
Methyl Isobutyl Ketone	ug/L	<b>140000</b>	<5.0	<5.0	<5.0	5560223	<5.0	5.0	5563001
Methyl t-butyl ether (MTBE)	ug/L	<b>190</b>	<0.50	<0.50	<0.50	5560223	2.2	0.50	5563001
Styrene	ug/L	<b>1300</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
1,1,1,2-Tetrachloroethane	ug/L	<b>3.3</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
1,1,2,2-Tetrachloroethane	ug/L	<b>3.2</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Ground Water - All Types of Property Use

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

Maxxam ID			GVQ215	GVQ216	GVQ220		GVQ223		
Sampling Date			2018/05/29 10:20	2018/05/29 11:00	2018/05/29 09:40		2018/05/28		
COC Number			665865-03-01	665865-03-01	665865-03-01		c#665865-02-01		
	UNITS	Criteria	MW107	MW111	MW103	QC Batch	QA/QC 1	RDL	QC Batch
Tetrachloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Toluene	ug/L	<b>14000</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
1,1,1-Trichloroethane	ug/L	<b>640</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
1,1,2-Trichloroethane	ug/L	<b>4.7</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
Trichloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Trichlorofluoromethane (FREON 11)	ug/L	<b>2000</b>	<0.50	<0.50	<0.50	5560223	<0.50	0.50	5563001
Vinyl Chloride	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
p+m-Xylene	ug/L	-	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
Total Xylenes	ug/L	<b>3300</b>	<0.20	<0.20	<0.20	5560223	<0.20	0.20	5563001
F1 (C6-C10)	ug/L	<b>420</b>	<25	<25	<25	5560223	<25	25	5563001
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	<25	<25	5560223	<25	25	5563001
<b>F2-F4 Hydrocarbons</b>									
F2 (C10-C16 Hydrocarbons)	ug/L	<b>150</b>	<100	<100	<100	5561460	<100	100	5561460
F3 (C16-C34 Hydrocarbons)	ug/L	<b>500</b>	<200	<200	<200	5561460	<200	200	5561460
F4 (C34-C50 Hydrocarbons)	ug/L	<b>500</b>	<200	<200	<200	5561460	<200	200	5561460
Reached Baseline at C50	ug/L	-	Yes	Yes	Yes	5561460	Yes		5561460
<b>Surrogate Recovery (%)</b>									
o-Terphenyl	%	-	98	95	84	5561460	83		5561460
4-Bromofluorobenzene	%	-	97	96	96	5560223	94		5563001
D4-1,2-Dichloroethane	%	-	101	101	102	5560223	103		5563001
D8-Toluene	%	-	101	101	101	5560223	103		5563001
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition									
Ground Water - All Types of Property Use									

**O.REG 153 VOCs BY HS (WATER)**

Maxxam ID			GVQ226	GVQ227		
Sampling Date			2018/05/28			
COC Number			c#665865-02-01	c#665865-02-01		
	UNITS	Criteria	FIELD BLANK	TRIP BLANK LOT#3487	RDL	QC Batch
<b>Calculated Parameters</b>						
1,3-Dichloropropene (cis+trans)	ug/L	<b>5.2</b>	<0.50	<0.50	0.50	5559231
<b>Volatile Organics</b>						
Acetone (2-Propanone)	ug/L	<b>100000</b>	<10	<10	10	5561487
Benzene	ug/L	<b>44</b>	<0.20	<0.20	0.20	5561487
Bromodichloromethane	ug/L	<b>67000</b>	<0.50	<0.50	0.50	5561487
Bromoform	ug/L	<b>380</b>	<1.0	<1.0	1.0	5561487
Bromomethane	ug/L	<b>5.6</b>	<0.50	<0.50	0.50	5561487
Carbon Tetrachloride	ug/L	<b>0.79</b>	<0.20	<0.20	0.20	5561487
Chlorobenzene	ug/L	<b>500</b>	<0.20	<0.20	0.20	5561487
Chloroform	ug/L	<b>2.4</b>	<0.20	<0.20	0.20	5561487
Dibromochloromethane	ug/L	<b>65000</b>	<0.50	<0.50	0.50	5561487
1,2-Dichlorobenzene	ug/L	<b>4600</b>	<0.50	<0.50	0.50	5561487
1,3-Dichlorobenzene	ug/L	<b>7600</b>	<0.50	<0.50	0.50	5561487
1,4-Dichlorobenzene	ug/L	<b>8</b>	<0.50	<0.50	0.50	5561487
Dichlorodifluoromethane (FREON 12)	ug/L	<b>3500</b>	<1.0	<1.0	1.0	5561487
1,1-Dichloroethane	ug/L	<b>320</b>	<0.20	<0.20	0.20	5561487
1,2-Dichloroethane	ug/L	<b>1.6</b>	<0.50	<0.50	0.50	5561487
1,1-Dichloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	0.20	5561487
cis-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	0.50	5561487
trans-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	0.50	5561487
1,2-Dichloropropane	ug/L	<b>16</b>	<0.20	<0.20	0.20	5561487
cis-1,3-Dichloropropene	ug/L	<b>5.2</b>	<0.30	<0.30	0.30	5561487
trans-1,3-Dichloropropene	ug/L	<b>5.2</b>	<0.40	<0.40	0.40	5561487
Ethylbenzene	ug/L	<b>1800</b>	<0.20	<0.20	0.20	5561487
Ethylene Dibromide	ug/L	<b>0.25</b>	<0.20	<0.20	0.20	5561487
Hexane	ug/L	<b>51</b>	<1.0	<1.0	1.0	5561487
Methylene Chloride(Dichloromethane)	ug/L	<b>610</b>	<2.0	<2.0	2.0	5561487
Methyl Ethyl Ketone (2-Butanone)	ug/L	<b>470000</b>	<10	<10	10	5561487
Methyl Isobutyl Ketone	ug/L	<b>140000</b>	<5.0	<5.0	5.0	5561487
Methyl t-butyl ether (MTBE)	ug/L	<b>190</b>	<0.50	<0.50	0.50	5561487
Styrene	ug/L	<b>1300</b>	<0.50	<0.50	0.50	5561487
1,1,1,2-Tetrachloroethane	ug/L	<b>3.3</b>	<0.50	<0.50	0.50	5561487
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)						
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition						
Ground Water - All Types of Property Use						

**O.REG 153 VOCS BY HS (WATER)**

Maxxam ID			GVQ226	GVQ227		
Sampling Date			2018/05/28			
COC Number			c#665865-02-01	c#665865-02-01		
	UNITS	Criteria	FIELD BLANK	TRIP BLANK LOT#3487	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	<b>3.2</b>	<0.50	<0.50	0.50	5561487
Tetrachloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	0.20	5561487
Toluene	ug/L	<b>14000</b>	<0.20	<0.20	0.20	5561487
1,1,1-Trichloroethane	ug/L	<b>640</b>	<0.20	<0.20	0.20	5561487
1,1,2-Trichloroethane	ug/L	<b>4.7</b>	<0.50	<0.50	0.50	5561487
Trichloroethylene	ug/L	<b>1.6</b>	<0.20	<0.20	0.20	5561487
Trichlorofluoromethane (FREON 11)	ug/L	<b>2000</b>	<0.50	<0.50	0.50	5561487
Vinyl Chloride	ug/L	<b>0.5</b>	<0.20	<0.20	0.20	5561487
p+m-Xylene	ug/L	-	<0.20	<0.20	0.20	5561487
o-Xylene	ug/L	-	<0.20	<0.20	0.20	5561487
Total Xylenes	ug/L	<b>3300</b>	<0.20	<0.20	0.20	5561487
<b>Surrogate Recovery (%)</b>						
4-Bromofluorobenzene	%	-	90	89		5561487
D4-1,2-Dichloroethane	%	-	112	113		5561487
D8-Toluene	%	-	93	93		5561487
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Ground Water - All Types of Property Use						

### TEST SUMMARY

**Maxxam ID:** GVQ212  
**Sample ID:** MW101  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Chloride by Automated Colourimetry	KONE	5560446	N/A	2018/06/04	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5560223	N/A	2018/06/06	Yang (Philip) Yu

**Maxxam ID:** GVQ212 Dup  
**Sample ID:** MW101  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le

**Maxxam ID:** GVQ213  
**Sample ID:** MW102  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Chloride by Automated Colourimetry	KONE	5560446	N/A	2018/06/04	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5560223	N/A	2018/06/06	Yang (Philip) Yu

**Maxxam ID:** GVQ214  
**Sample ID:** MW105  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Chloride by Automated Colourimetry	KONE	5560446	N/A	2018/06/04	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison



### TEST SUMMARY

**Maxxam ID:** GVQ214  
**Sample ID:** MW105  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5560223	N/A	2018/06/06	Yang (Philip) Yu

**Maxxam ID:** GVQ214 Dup  
**Sample ID:** MW105  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng

**Maxxam ID:** GVQ215  
**Sample ID:** MW107  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Chloride by Automated Colourimetry	KONE	5560446	N/A	2018/06/04	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5560223	N/A	2018/06/06	Yang (Philip) Yu

**Maxxam ID:** GVQ215 Dup  
**Sample ID:** MW107  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen

**Maxxam ID:** GVQ216  
**Sample ID:** MW111  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Chloride by Automated Colourimetry	KONE	5560474	N/A	2018/06/04	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison

### TEST SUMMARY

**Maxxam ID:** GVQ216  
**Sample ID:** MW111  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5560223	N/A	2018/06/06	Yang (Philip) Yu

**Maxxam ID:** GVQ217  
**Sample ID:** MW123  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5561650	N/A	2018/06/05	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng
Polychlorinated Biphenyl in Water	GC/ECD	5561272	2018/06/02	2018/06/02	Sarah Huang

**Maxxam ID:** GVQ217 Dup  
**Sample ID:** MW123  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5561650	N/A	2018/06/05	Lincoln Ramdahin

**Maxxam ID:** GVQ218  
**Sample ID:** MW117  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5561650	N/A	2018/06/05	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/02	Lingyun Feng

**Maxxam ID:** GVQ219  
**Sample ID:** MW120  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
Chloride by Automated Colourimetry	KONE	5561654	N/A	2018/06/05	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5561650	N/A	2018/06/05	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/03	Lingyun Feng

### TEST SUMMARY

**Maxxam ID:** GVQ220  
**Sample ID:** MW103  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Chloride by Automated Colourimetry	KONE	5561654	N/A	2018/06/05	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/03	Lingyun Feng
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5560223	N/A	2018/06/06	Yang (Philip) Yu

**Maxxam ID:** GVQ221  
**Sample ID:** MW114  
**Matrix:** Water

**Collected:** 2018/05/30  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5561650	N/A	2018/06/05	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/03	Lingyun Feng

**Maxxam ID:** GVQ222  
**Sample ID:** MW113  
**Matrix:** Water

**Collected:** 2018/05/30  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5561650	N/A	2018/06/05	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/03	Lingyun Feng

**Maxxam ID:** GVQ223  
**Sample ID:** QA/QC 1  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Chloride by Automated Colourimetry	KONE	5561654	N/A	2018/06/05	Deonarine Ramnarine
Chromium (VI) in Water	IC	5562821	N/A	2018/06/06	Lang Le
Free (WAD) Cyanide	SKAL/CN	5559379	N/A	2018/06/05	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
Mercury	CV/AA	5562867	2018/06/04	2018/06/05	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5561282	N/A	2018/06/04	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/03	Lingyun Feng
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5563001	N/A	2018/06/07	Xueming Jiang

### TEST SUMMARY

**Maxxam ID:** GVQ224  
**Sample ID:** QA/QC 3  
**Matrix:** Water

**Collected:** 2018/05/29  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Water	GC/ECD	5561272	2018/06/02	2018/06/02	Sarah Huang

**Maxxam ID:** GVQ225  
**Sample ID:** QA/QC 4  
**Matrix:** Water

**Collected:** 2018/05/30  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5559230	N/A	2018/06/04	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5561650	N/A	2018/06/05	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5561460	2018/06/02	2018/06/04	Anna Stuglik Rolland
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5561465	2018/06/02	2018/06/03	Lingyun Feng

**Maxxam ID:** GVQ226  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2018/05/28  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5561487	N/A	2018/06/07	Anna Gabrielyan

**Maxxam ID:** GVQ227  
**Sample ID:** TRIP BLANK LOT#3487  
**Matrix:** Water

**Collected:**  
**Shipped:**  
**Received:** 2018/06/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5559231	N/A	2018/06/07	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5561487	N/A	2018/06/07	Anna Gabrielyan

### GENERAL COMMENTS

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

Package 1	8.0°C
Package 2	7.3°C
Package 3	7.3°C

Cooler custody seal was present and intact.

MW105, MW111, MW123, MW114 contained sediment.

MW120 contained sediment in the G bottle.

Revised Report (2018/06/08): Requested regulatory criteria have been included on this report.

**Results relate only to the items tested.**



Maxxam Job #: B8D1389  
Report Date: 2018/06/08

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5560223	4-Bromofluorobenzene	2018/06/06	98	70 - 130	97	70 - 130	96	%		
5560223	D4-1,2-Dichloroethane	2018/06/06	101	70 - 130	102	70 - 130	100	%		
5560223	D8-Toluene	2018/06/06	101	70 - 130	102	70 - 130	103	%		
5561272	Decachlorobiphenyl	2018/06/02	95	60 - 130	90	60 - 130	92	%		
5561460	o-Terphenyl	2018/06/04	109	60 - 130	101	60 - 130	100	%		
5561465	D10-Anthracene	2018/06/02	106	50 - 130	100	50 - 130	107	%		
5561465	D14-Terphenyl (FS)	2018/06/02	96	50 - 130	89	50 - 130	91	%		
5561465	D8-Acenaphthylene	2018/06/02	101	50 - 130	98	50 - 130	102	%		
5561487	4-Bromofluorobenzene	2018/06/06	99	70 - 130	99	70 - 130	94	%		
5561487	D4-1,2-Dichloroethane	2018/06/06	106	70 - 130	102	70 - 130	106	%		
5561487	D8-Toluene	2018/06/06	103	70 - 130	103	70 - 130	94	%		
5561650	1,4-Difluorobenzene	2018/06/05	99	70 - 130	102	70 - 130	101	%		
5561650	4-Bromofluorobenzene	2018/06/05	97	70 - 130	102	70 - 130	98	%		
5561650	D10-Ethylbenzene	2018/06/05	106	70 - 130	96	70 - 130	101	%		
5561650	D4-1,2-Dichloroethane	2018/06/05	105	70 - 130	99	70 - 130	101	%		
5563001	4-Bromofluorobenzene	2018/06/07	98	70 - 130	98	70 - 130	96	%		
5563001	D4-1,2-Dichloroethane	2018/06/07	102	70 - 130	101	70 - 130	99	%		
5563001	D8-Toluene	2018/06/07	102	70 - 130	102	70 - 130	102	%		
5559379	WAD Cyanide (Free)	2018/06/05	88	80 - 120	101	80 - 120	<1	ug/L	NC	20
5560223	1,1,1,2-Tetrachloroethane	2018/06/06	99	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5560223	1,1,1-Trichloroethane	2018/06/06	97	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5560223	1,1,2,2-Tetrachloroethane	2018/06/06	101	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5560223	1,1,2-Trichloroethane	2018/06/06	108	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5560223	1,1-Dichloroethane	2018/06/06	98	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5560223	1,1-Dichloroethylene	2018/06/06	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5560223	1,2-Dichlorobenzene	2018/06/06	95	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5560223	1,2-Dichloroethane	2018/06/06	96	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5560223	1,2-Dichloropropane	2018/06/06	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5560223	1,3-Dichlorobenzene	2018/06/06	92	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5560223	1,4-Dichlorobenzene	2018/06/06	90	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
5560223	Acetone (2-Propanone)	2018/06/06	101	60 - 140	103	60 - 140	<10	ug/L	NC	30
5560223	Benzene	2018/06/06	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30





Maxxam Job #: B8D1389  
Report Date: 2018/06/08

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5560223	Bromodichloromethane	2018/06/06	96	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5560223	Bromoform	2018/06/06	95	70 - 130	93	70 - 130	<1.0	ug/L	NC	30
5560223	Bromomethane	2018/06/06	88	60 - 140	90	60 - 140	<0.50	ug/L	NC	30
5560223	Carbon Tetrachloride	2018/06/06	96	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5560223	Chlorobenzene	2018/06/06	93	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5560223	Chloroform	2018/06/06	97	70 - 130	97	70 - 130	<0.20	ug/L	1.2	30
5560223	cis-1,2-Dichloroethylene	2018/06/06	94	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5560223	cis-1,3-Dichloropropene	2018/06/06	88	70 - 130	85	70 - 130	<0.30	ug/L	NC	30
5560223	Dibromochloromethane	2018/06/06	97	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5560223	Dichlorodifluoromethane (FREON 12)	2018/06/06	89	60 - 140	89	60 - 140	<1.0	ug/L	NC	30
5560223	Ethylbenzene	2018/06/06	95	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5560223	Ethylene Dibromide	2018/06/06	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5560223	F1 (C6-C10) - BTEX	2018/06/06					<25	ug/L	NC	30
5560223	F1 (C6-C10)	2018/06/06	91	60 - 140	89	60 - 140	<25	ug/L	NC	30
5560223	Hexane	2018/06/06	96	70 - 130	95	70 - 130	<1.0	ug/L	NC	30
5560223	Methyl Ethyl Ketone (2-Butanone)	2018/06/06	100	60 - 140	100	60 - 140	<10	ug/L	NC	30
5560223	Methyl Isobutyl Ketone	2018/06/06	106	70 - 130	106	70 - 130	<5.0	ug/L	NC	30
5560223	Methyl t-butyl ether (MTBE)	2018/06/06	96	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5560223	Methylene Chloride(Dichloromethane)	2018/06/06	93	70 - 130	93	70 - 130	<2.0	ug/L	NC	30
5560223	o-Xylene	2018/06/06	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5560223	p+m-Xylene	2018/06/06	91	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
5560223	Styrene	2018/06/06	93	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5560223	Tetrachloroethylene	2018/06/06	91	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
5560223	Toluene	2018/06/06	95	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5560223	Total Xylenes	2018/06/06					<0.20	ug/L	NC	30
5560223	trans-1,2-Dichloroethylene	2018/06/06	91	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5560223	trans-1,3-Dichloropropene	2018/06/06	93	70 - 130	86	70 - 130	<0.40	ug/L	NC	30
5560223	Trichloroethylene	2018/06/06	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5560223	Trichlorofluoromethane (FREON 11)	2018/06/06	96	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5560223	Vinyl Chloride	2018/06/06	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5560446	Dissolved Chloride (Cl)	2018/06/04	113	80 - 120	103	80 - 120	<1.0	mg/L	0.67	20
5560474	Dissolved Chloride (Cl)	2018/06/04	116	80 - 120	102	80 - 120	<1.0	mg/L	11	20



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5561272	Aroclor 1242	2018/06/02					<0.05	ug/L		
5561272	Aroclor 1248	2018/06/02					<0.05	ug/L		
5561272	Aroclor 1254	2018/06/02					<0.05	ug/L		
5561272	Aroclor 1260	2018/06/02	89	60 - 130	94	60 - 130	<0.05	ug/L		
5561272	Total PCB	2018/06/02	89	60 - 130	94	60 - 130	<0.05	ug/L	NC	40
5561282	Dissolved Antimony (Sb)	2018/06/04	116	80 - 120	105	80 - 120	<0.50	ug/L	NC	20
5561282	Dissolved Arsenic (As)	2018/06/04	105	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
5561282	Dissolved Barium (Ba)	2018/06/04	109	80 - 120	103	80 - 120	<2.0	ug/L	0.67	20
5561282	Dissolved Beryllium (Be)	2018/06/04	108	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
5561282	Dissolved Boron (B)	2018/06/04	106	80 - 120	96	80 - 120	<10	ug/L	3.0	20
5561282	Dissolved Cadmium (Cd)	2018/06/04	110	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
5561282	Dissolved Chromium (Cr)	2018/06/04	104	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
5561282	Dissolved Cobalt (Co)	2018/06/04	103	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
5561282	Dissolved Copper (Cu)	2018/06/04	107	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
5561282	Dissolved Lead (Pb)	2018/06/04	102	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
5561282	Dissolved Molybdenum (Mo)	2018/06/04	114	80 - 120	103	80 - 120	<0.50	ug/L	5.8	20
5561282	Dissolved Nickel (Ni)	2018/06/04	102	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
5561282	Dissolved Selenium (Se)	2018/06/04	105	80 - 120	101	80 - 120	<2.0	ug/L	NC	20
5561282	Dissolved Silver (Ag)	2018/06/04	107	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
5561282	Dissolved Sodium (Na)	2018/06/04	NC	80 - 120	99	80 - 120	<100	ug/L	1.5	20
5561282	Dissolved Thallium (Tl)	2018/06/04	102	80 - 120	96	80 - 120	<0.050	ug/L	NC	20
5561282	Dissolved Uranium (U)	2018/06/04	107	80 - 120	99	80 - 120	<0.10	ug/L	3.2	20
5561282	Dissolved Vanadium (V)	2018/06/04	107	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5561282	Dissolved Zinc (Zn)	2018/06/04	104	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
5561460	F2 (C10-C16 Hydrocarbons)	2018/06/04	115	50 - 130	103	60 - 130	<100	ug/L	NC	30
5561460	F3 (C16-C34 Hydrocarbons)	2018/06/04	NC	50 - 130	97	60 - 130	<200	ug/L	NC	30
5561460	F4 (C34-C50 Hydrocarbons)	2018/06/04	100	50 - 130	96	60 - 130	<200	ug/L	NC	30
5561465	1-Methylnaphthalene	2018/06/02	114	50 - 130	115	50 - 130	<0.050	ug/L	NC	30
5561465	2-Methylnaphthalene	2018/06/02	105	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
5561465	Acenaphthene	2018/06/02	100	50 - 130	100	50 - 130	<0.050	ug/L	NC	30
5561465	Acenaphthylene	2018/06/02	102	50 - 130	102	50 - 130	<0.050	ug/L	NC	30
5561465	Anthracene	2018/06/02	98	50 - 130	97	50 - 130	<0.050	ug/L	NC	30



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5561465	Benzo(a)anthracene	2018/06/02	90	50 - 130	98	50 - 130	<0.050	ug/L	NC	30
5561465	Benzo(a)pyrene	2018/06/02	85	50 - 130	97	50 - 130	<0.010	ug/L	NC	30
5561465	Benzo(b/j)fluoranthene	2018/06/02	86	50 - 130	100	50 - 130	<0.050	ug/L	NC	30
5561465	Benzo(g,h,i)perylene	2018/06/02	73	50 - 130	86	50 - 130	<0.050	ug/L	NC	30
5561465	Benzo(k)fluoranthene	2018/06/02	89	50 - 130	98	50 - 130	<0.050	ug/L	NC	30
5561465	Chrysene	2018/06/02	90	50 - 130	101	50 - 130	<0.050	ug/L	NC	30
5561465	Dibenz(a,h)anthracene	2018/06/02	73	50 - 130	87	50 - 130	<0.050	ug/L	NC	30
5561465	Fluoranthene	2018/06/02	105	50 - 130	103	50 - 130	<0.050	ug/L	NC	30
5561465	Fluorene	2018/06/02	99	50 - 130	100	50 - 130	<0.050	ug/L	NC	30
5561465	Indeno(1,2,3-cd)pyrene	2018/06/02	77	50 - 130	91	50 - 130	<0.050	ug/L	NC	30
5561465	Naphthalene	2018/06/02	99	50 - 130	98	50 - 130	<0.050	ug/L	NC	30
5561465	Phenanthrene	2018/06/02	100	50 - 130	103	50 - 130	<0.030	ug/L	NC	30
5561465	Pyrene	2018/06/02	105	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
5561487	1,1,1,2-Tetrachloroethane	2018/06/06	97	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5561487	1,1,1-Trichloroethane	2018/06/06	94	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
5561487	1,1,2,2-Tetrachloroethane	2018/06/06	107	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5561487	1,1,2-Trichloroethane	2018/06/06	106	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5561487	1,1-Dichloroethane	2018/06/06	101	70 - 130	97	70 - 130	<0.20	ug/L	0.74	30
5561487	1,1-Dichloroethylene	2018/06/06	99	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5561487	1,2-Dichlorobenzene	2018/06/06	99	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5561487	1,2-Dichloroethane	2018/06/06	102	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5561487	1,2-Dichloropropane	2018/06/06	101	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5561487	1,3-Dichlorobenzene	2018/06/06	90	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
5561487	1,4-Dichlorobenzene	2018/06/06	96	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5561487	Acetone (2-Propanone)	2018/06/06	110	60 - 140	100	60 - 140	<10	ug/L	NC	30
5561487	Benzene	2018/06/06	97	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5561487	Bromodichloromethane	2018/06/06	96	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5561487	Bromoform	2018/06/06	98	70 - 130	94	70 - 130	<1.0	ug/L	NC	30
5561487	Bromomethane	2018/06/06	103	60 - 140	96	60 - 140	<0.50	ug/L	NC	30
5561487	Carbon Tetrachloride	2018/06/06	92	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5561487	Chlorobenzene	2018/06/06	96	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5561487	Chloroform	2018/06/06	98	70 - 130	94	70 - 130	<0.20	ug/L	NC	30



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5561487	cis-1,2-Dichloroethylene	2018/06/06	98	70 - 130	95	70 - 130	<0.50	ug/L	0.39	30
5561487	cis-1,3-Dichloropropene	2018/06/06	100	70 - 130	94	70 - 130	<0.30	ug/L	NC	30
5561487	Dibromochloromethane	2018/06/06	98	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5561487	Dichlorodifluoromethane (FREON 12)	2018/06/06	86	60 - 140	84	60 - 140	<1.0	ug/L	NC	30
5561487	Ethylbenzene	2018/06/06	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5561487	Ethylene Dibromide	2018/06/06	101	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5561487	Hexane	2018/06/06	102	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
5561487	Methyl Ethyl Ketone (2-Butanone)	2018/06/06	110	60 - 140	104	60 - 140	<10	ug/L	NC	30
5561487	Methyl Isobutyl Ketone	2018/06/06	106	70 - 130	104	70 - 130	<5.0	ug/L	NC	30
5561487	Methyl t-butyl ether (MTBE)	2018/06/06	93	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5561487	Methylene Chloride(Dichloromethane)	2018/06/06	108	70 - 130	103	70 - 130	<2.0	ug/L	NC	30
5561487	o-Xylene	2018/06/06	88	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5561487	p+m-Xylene	2018/06/06	92	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5561487	Styrene	2018/06/06	94	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5561487	Tetrachloroethylene	2018/06/06	96	70 - 130	94	70 - 130	<0.20	ug/L	2.4	30
5561487	Toluene	2018/06/06	96	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5561487	Total Xylenes	2018/06/06					<0.20	ug/L	NC	30
5561487	trans-1,2-Dichloroethylene	2018/06/06	99	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5561487	trans-1,3-Dichloropropene	2018/06/06	110	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
5561487	Trichloroethylene	2018/06/06	94	70 - 130	93	70 - 130	<0.20	ug/L	1.5	30
5561487	Trichlorofluoromethane (FREON 11)	2018/06/06	91	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
5561487	Vinyl Chloride	2018/06/06	101	70 - 130	98	70 - 130	<0.20	ug/L	0.70	30
5561650	Benzene	2018/06/05	111	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
5561650	Ethylbenzene	2018/06/05	97	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5561650	F1 (C6-C10) - BTEX	2018/06/05					<25	ug/L	NC	30
5561650	F1 (C6-C10)	2018/06/05	76	70 - 130	99	70 - 130	<25	ug/L	NC	30
5561650	o-Xylene	2018/06/05	103	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5561650	p+m-Xylene	2018/06/05	92	70 - 130	95	70 - 130	<0.40	ug/L	NC	30
5561650	Toluene	2018/06/05	101	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5561650	Total Xylenes	2018/06/05					<0.40	ug/L	NC	30
5561654	Dissolved Chloride (Cl)	2018/06/05	134	80 - 120	104	80 - 120	<1.0	mg/L	2.1	20
5562821	Chromium (VI)	2018/06/06	104	80 - 120	103	80 - 120	<0.50	ug/L	NC	20



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5562867	Mercury (Hg)	2018/06/05	99	75 - 125	96	80 - 120	<0.1	ug/L	NC	20
5563001	1,1,1,2-Tetrachloroethane	2018/06/07	97	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5563001	1,1,1-Trichloroethane	2018/06/07	96	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5563001	1,1,2,2-Tetrachloroethane	2018/06/07	97	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5563001	1,1,2-Trichloroethane	2018/06/07	106	70 - 130	108	70 - 130	<0.50	ug/L	NC	30
5563001	1,1-Dichloroethane	2018/06/07	97	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5563001	1,1-Dichloroethylene	2018/06/07	96	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5563001	1,2-Dichlorobenzene	2018/06/07	92	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5563001	1,2-Dichloroethane	2018/06/07	96	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5563001	1,2-Dichloropropane	2018/06/07	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5563001	1,3-Dichlorobenzene	2018/06/07	91	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5563001	1,4-Dichlorobenzene	2018/06/07	89	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5563001	Acetone (2-Propanone)	2018/06/07	100	60 - 140	103	60 - 140	<10	ug/L	NC	30
5563001	Benzene	2018/06/07	95	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5563001	Bromodichloromethane	2018/06/07	94	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5563001	Bromoform	2018/06/07	90	70 - 130	92	70 - 130	<1.0	ug/L	NC	30
5563001	Bromomethane	2018/06/07	86	60 - 140	91	60 - 140	<0.50	ug/L	NC	30
5563001	Carbon Tetrachloride	2018/06/07	95	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5563001	Chlorobenzene	2018/06/07	92	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5563001	Chloroform	2018/06/07	97	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5563001	cis-1,2-Dichloroethylene	2018/06/07	93	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5563001	cis-1,3-Dichloropropene	2018/06/07	89	70 - 130	83	70 - 130	<0.30	ug/L	NC	30
5563001	Dibromochloromethane	2018/06/07	93	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5563001	Dichlorodifluoromethane (FREON 12)	2018/06/07	97	60 - 140	103	60 - 140	<1.0	ug/L	NC	30
5563001	Ethylbenzene	2018/06/07	95	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5563001	Ethylene Dibromide	2018/06/07	94	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5563001	F1 (C6-C10) - BTEX	2018/06/07					<25	ug/L	NC	30
5563001	F1 (C6-C10)	2018/06/07	92	60 - 140	94	60 - 140	<25	ug/L	NC	30
5563001	Hexane	2018/06/07	96	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
5563001	Methyl Ethyl Ketone (2-Butanone)	2018/06/07	96	60 - 140	99	60 - 140	<10	ug/L	NC	30
5563001	Methyl Isobutyl Ketone	2018/06/07	101	70 - 130	104	70 - 130	<5.0	ug/L	NC	30
5563001	Methyl t-butyl ether (MTBE)	2018/06/07	95	70 - 130	96	70 - 130	<0.50	ug/L	NC	30



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5563001	Methylene Chloride(Dichloromethane)	2018/06/07	92	70 - 130	94	70 - 130	<2.0	ug/L	NC	30
5563001	o-Xylene	2018/06/07	93	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5563001	p+m-Xylene	2018/06/07	90	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
5563001	Styrene	2018/06/07	93	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5563001	Tetrachloroethylene	2018/06/07	91	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5563001	Toluene	2018/06/07	95	70 - 130	95	70 - 130	<0.20	ug/L	1.5	30
5563001	Total Xylenes	2018/06/07					<0.20	ug/L	NC	30
5563001	trans-1,2-Dichloroethylene	2018/06/07	92	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5563001	trans-1,3-Dichloropropene	2018/06/07	91	70 - 130	83	70 - 130	<0.40	ug/L	NC	30
5563001	Trichloroethylene	2018/06/07	92	70 - 130	94	70 - 130	<0.20	ug/L	2.4	30
5563001	Trichlorofluoromethane (FREON 11)	2018/06/07	95	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5563001	Vinyl Chloride	2018/06/07	95	70 - 130	98	70 - 130	<0.20	ug/L	NC	30

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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



### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

---

Cristina Carriere, Scientific Service Specialist

---

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



Maxxam Analytics International Corporation d/b/a Maxxam Analytics  
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free: 800-563-6256 Fax: (905) 817-5777 www.maxxam.ca

01-Jun-18 09:19

Gina Baybayan  
B8D1389

Page 1 of 2

INVOICE TO:  
Company Name: #17950 Cambium Environmental Inc  
Attention: ACCOUNTS PAYABLE  
Address: 52 Hunter St E PO Box 325  
Peterborough ON K9H 1G5  
Tel: (705) 742-7900 Fax: (705) 742-7907  
Email: accounting@cambium-env.com, Evan.Black@cambium

REPORT TO:  
Company Name: #24915 Cambium Environmental Inc  
Attention: Natalie Wright  
Address: 74 Cedar Pointe Drive, Unit 1009  
Barrie ON L4N 5R7  
Tel: (705) 719-0700 Ext: 402 Fax:  
Email: Natalie.Wright@cambium-env.com, @cambium-inc.com

PROJECT INFORMATION:  
Quotation #: B82843  
P.O.#:  
Project: 6620-001  
Project Name: PS4 ENV-910  
Site #:  
Sampled By:

COE #:  
Bottle Order #:  
Project Manager:  
Gina Baybayan

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

Regulation 153 (2011)  
 Table 1  Res/Park  Medium/Fine  
 Table 2  Ind/Comm  Coarse  
 Table 3  Agri/Other  For RSC  
 Table 4  
 Other Regulations  
 CCME  Sanitary Sewer Bylaw  
 Reg 558  Storm Sewer Bylaw  
 MESA Municipality  
 PWOD  
 Other

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

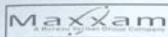
Turnaround Time (TAT) Required  
Please provide reference codes for all projects

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (Please Circle) Metals / Hg / Cr / V	D Reg 153 VOCs by MS & P1/F4 (Water)	D Reg 153 Petroleum Hydrocarbons (Water)	D Reg 153 PAHs (Water)	D Reg 153 Metals & Inorganics Pkg (W)	D Reg 153 PCBs (Water)	# of Batches	Comments
	MW101	18/5/28	13:00	GW	✓	✓	✓	✓	✓		10	
	MW102	↓	12:30	GW	✓	✓	✓	✓	✓		10	
	MW105	↓	14:45	GW	✓	✓	✓	✓	✓		10	
	MW107	18/5/29	10:20	GW	✓	✓	✓	✓	✓		9	
	MW111		11:00	GW	✓	✓	✓	✓	✓		9	
	MW123		13:10	GW		✓	✓		✓		6	
	MW117		15:00	GW		✓	✓		✓		5	
	MW120		15:30	GW	✓	✓	✓	✓	✓		10	
	MW103	↓	09:40	GW	✓	✓	✓	✓	✓		10	
	MW114	18/5/30	11:00	GW		✓	✓		✓		4	

RELINQUISHED BY: (Signature/Print) Date: (YY/MM/DD) Time: RECEIVED BY: (Signature/Print) Date: (YY/MM/DD) Time: # jars used and not submitted

Signature: [Signature] Date: 18/05/31 Time: 09:30 Signature: [Signature] Date: 18/05/31 Time: 09:19

UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.  
 IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.  
 SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/MP-CONTENT/UPLOADS/ONTARIO-COC.PDF



Maxxam Analytica International Corporation aka Maxxam Analytica  
 6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-6700 Toll-Free 800-963-6266 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

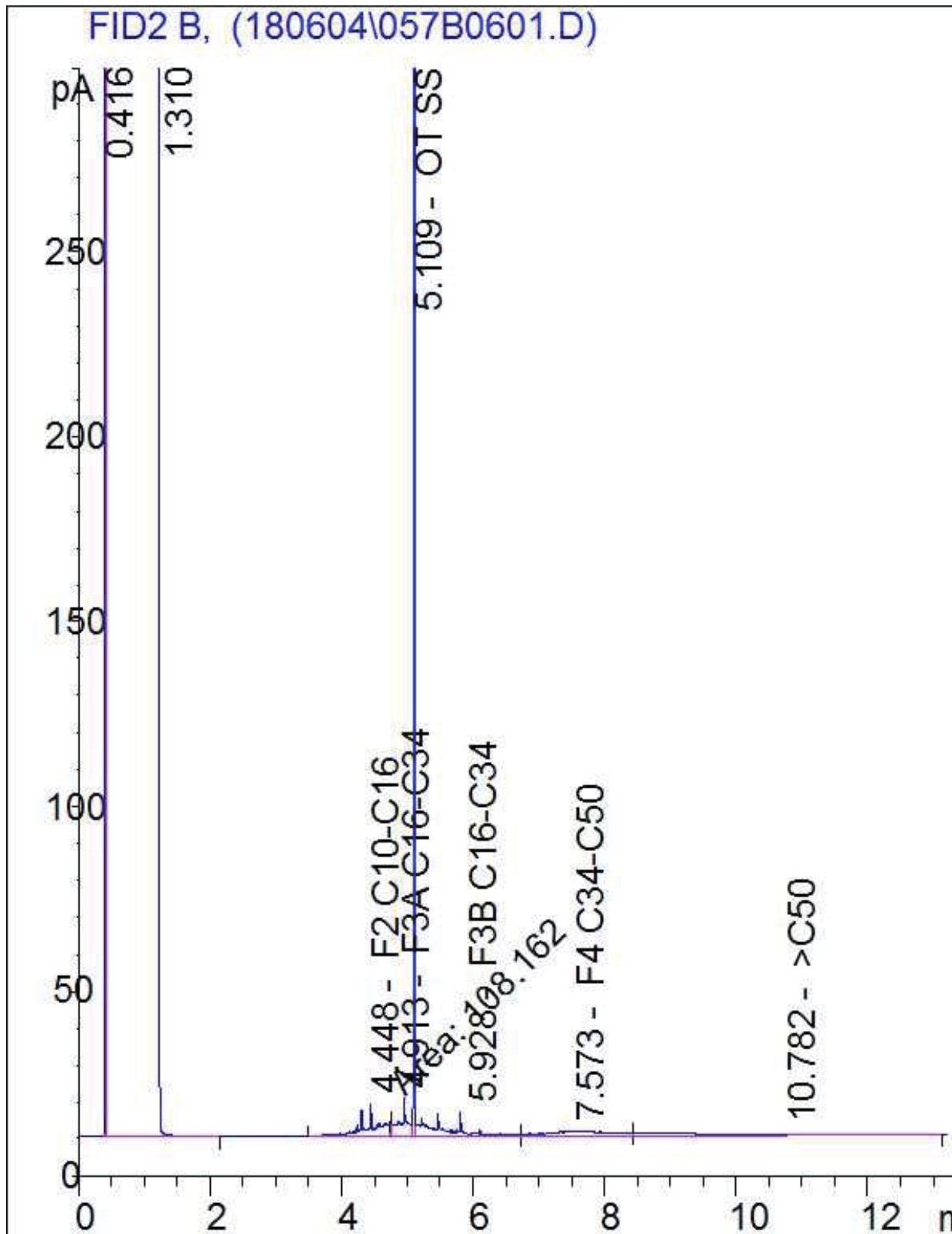
<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: (705) 719-0700 Email: Natalie.Wright@maxxam.ca, @cambium-inc.com		<b>PROJECT INFORMATION:</b> Contention #: B82843 P.O. #: Project: 6820 - @e Project Name: Site #: Sampled By:		<b>Laboratory Use Only:</b> Maxxam Job #: Bottle Order #: COC #: Project Manager: Gina Baybayan	
---	--	--	--	---	--	---	--

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY					ANALYSIS REQUESTED (PLEASE BE SPECIFIC)					Turnaround Time (TAT) Required			
Regulation 153 (2011)					Other Regulations					Special Instructions		Regular (Standard) TAT:	
<input type="checkbox"/> Table 1	<input checked="" type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw			<input type="checkbox"/> Field Filtered (please circle) <input type="checkbox"/> Metals / Hg / Cr / V <input type="checkbox"/> Reg 153 VOCs by HS & P144 (Water) <input type="checkbox"/> Reg 153 Petroleum Hydrocarbons (Water) <input type="checkbox"/> Reg 153 PAHs (Water) <input type="checkbox"/> Reg 153 Metals & Inorganics Prg (W) <input type="checkbox"/> Reg 153 PCBs (Water)		<input checked="" type="checkbox"/> Regular (Standard) TAT: Self-apply if Rush TAT is not specified. Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Phosphorus are > 5 days - contact your Project Manager for details.		<input type="checkbox"/> Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (Call lab for #)		
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Storm	<input type="checkbox"/> Reg 358	<input type="checkbox"/> Storm Sewer Bylaw					<input type="checkbox"/> MISA Municipality: _____ <input type="checkbox"/> PHOD <input type="checkbox"/> Other: _____		<input type="checkbox"/> Field Filtered (please circle) <input type="checkbox"/> Metals / Hg / Cr / V <input type="checkbox"/> Reg 153 VOCs by HS & P144 (Water) <input type="checkbox"/> Reg 153 Petroleum Hydrocarbons (Water) <input type="checkbox"/> Reg 153 PAHs (Water) <input type="checkbox"/> Reg 153 Metals & Inorganics Prg (W) <input type="checkbox"/> Reg 153 PCBs (Water)		<input type="checkbox"/> Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (Call lab for #)
Include Criteria on Certificate of Analysis (N)? <input checked="" type="checkbox"/>													
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle)	Metals / Hg / Cr / V	Reg 153 VOCs by HS & P144 (Water)	Reg 153 Petroleum Hydrocarbons (Water)	Reg 153 PAHs (Water)	Reg 153 Metals & Inorganics Prg (W)	Reg 153 PCBs (Water)	# of Bottles	Comments
	MW113	18/5/30	11:30	GW								4	
	QA/QC 1	18/5/28	-	GW	✓	✓	✓	✓	✓	✓	✓	10	
	QA/QC 3	18/5/29	-	GW								2	
	QA/QC 4	18/5/30	-	GW								4	
	Field Blank	18/5/28	-	GW								3	
	Trip Blank Lot # 3487	-	-	GW								2	
				GW									
				GW									
				GW									
				GW									

RELINQUISHED BY: (Signature/Print) <i>M. Cunningham</i>	Date: (YY/MM/DD) 18/05/31	Time 09:30	RECEIVED BY: (Signature/Print) <i>see pte-1</i>	Date: (YY/MM/DD)	Time	# Jars used and not submitted	Laboratory Use Only			
						Time Sensitive	Temperature (°C) on Race	Custody Seal Intact	Yes	No

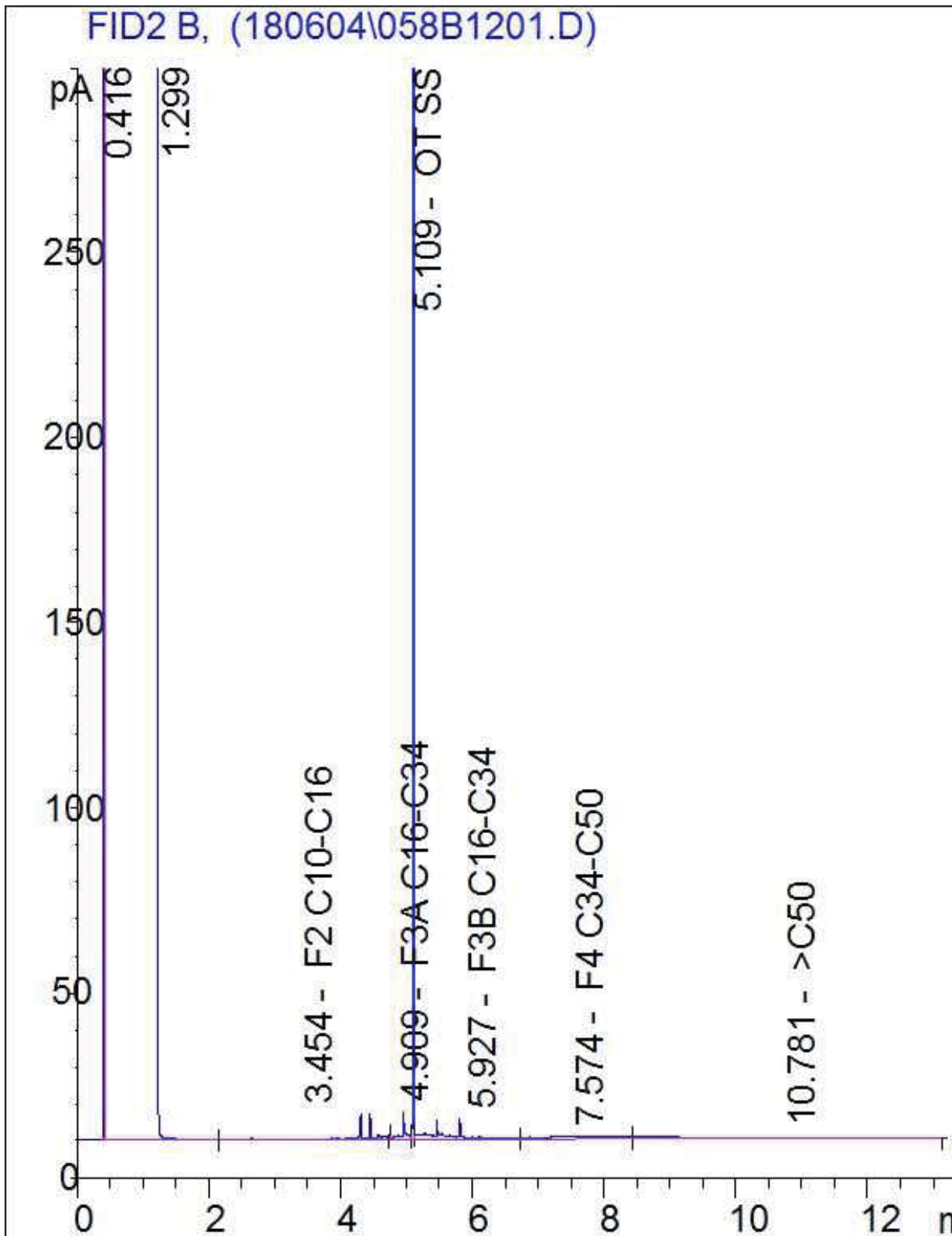
\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.  
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 \*\*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/MP-CONTENT/UPLOADS/ONTARIO-COC.PDF.  
 SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM  
 White: Maxxa Yellow: Client

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



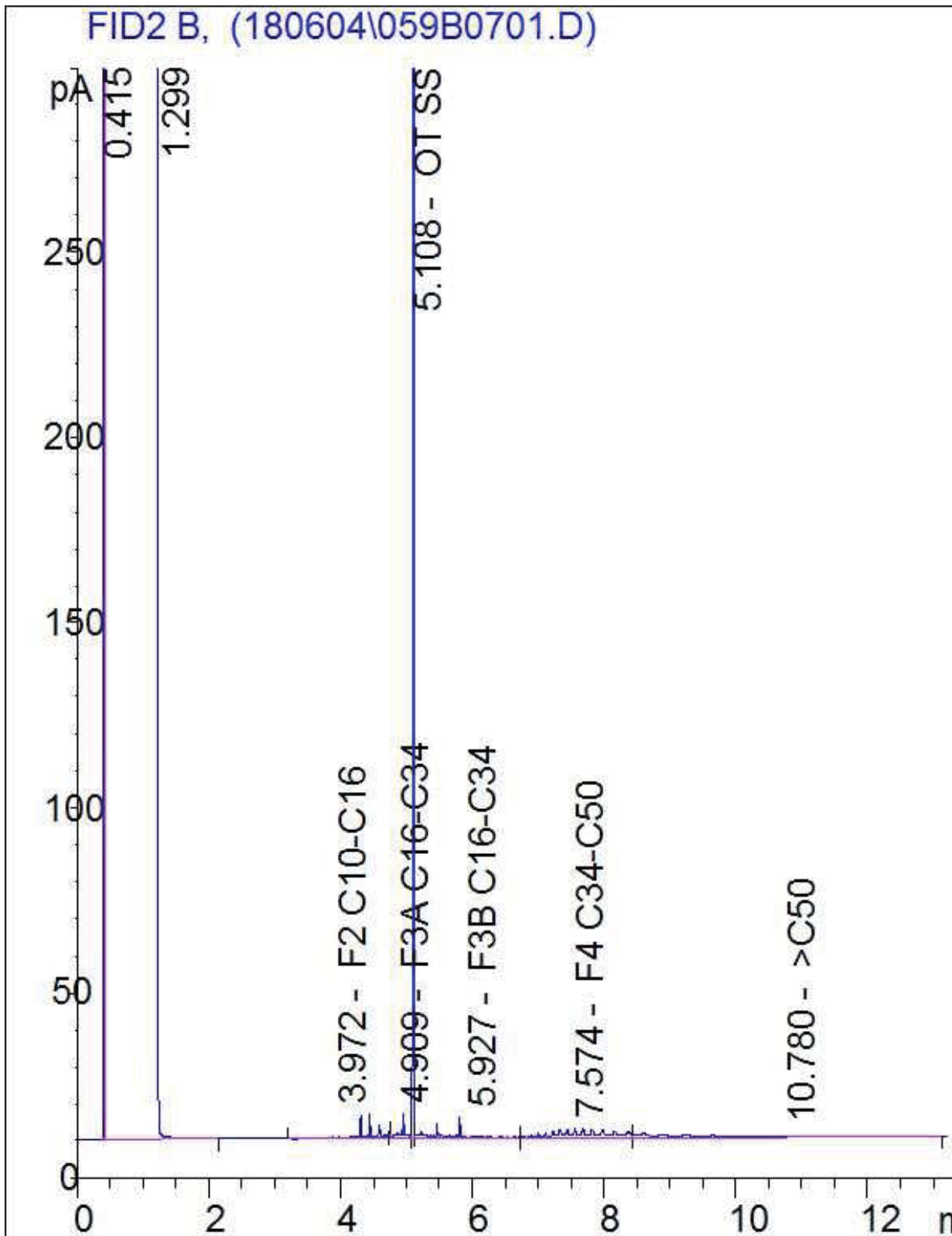
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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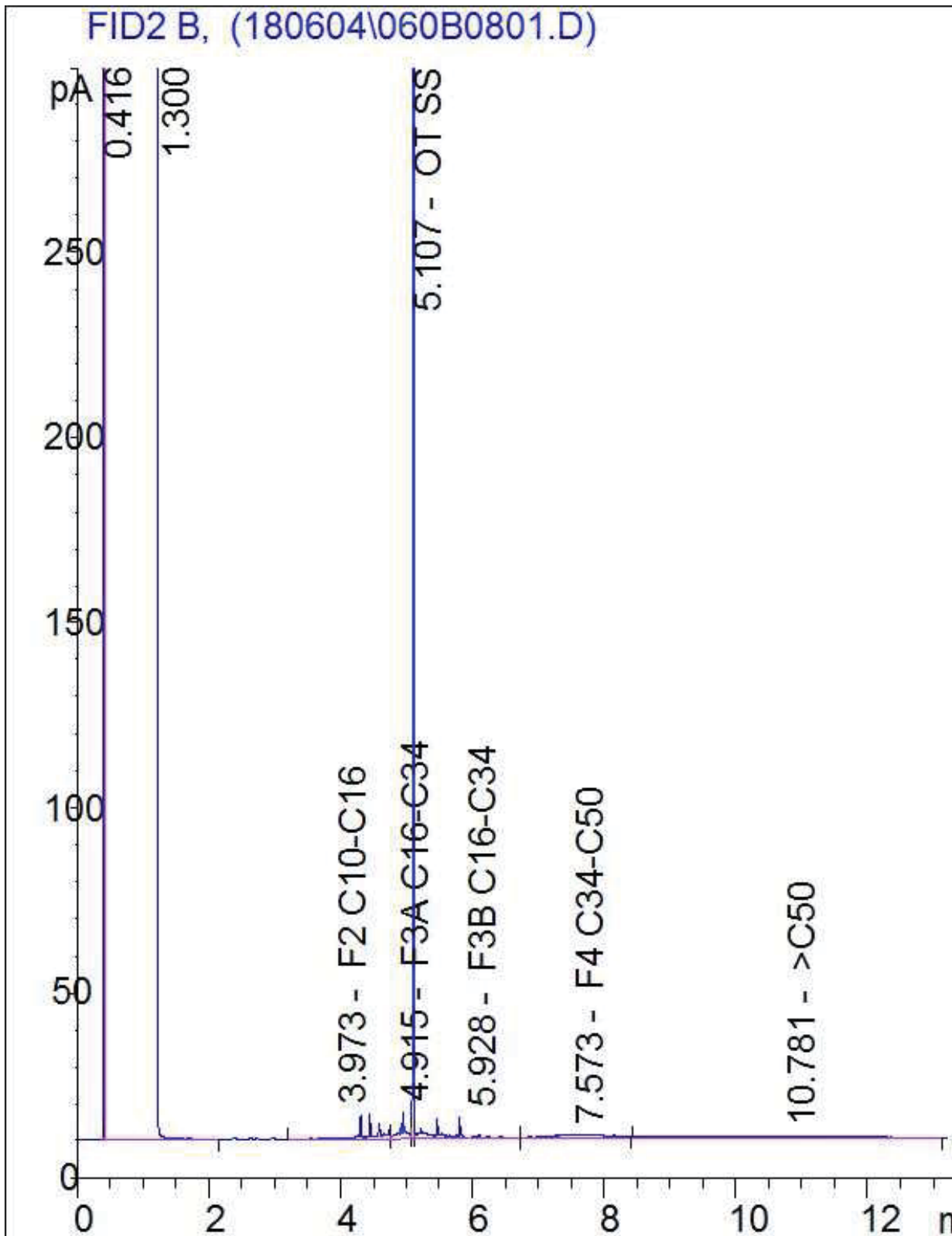
Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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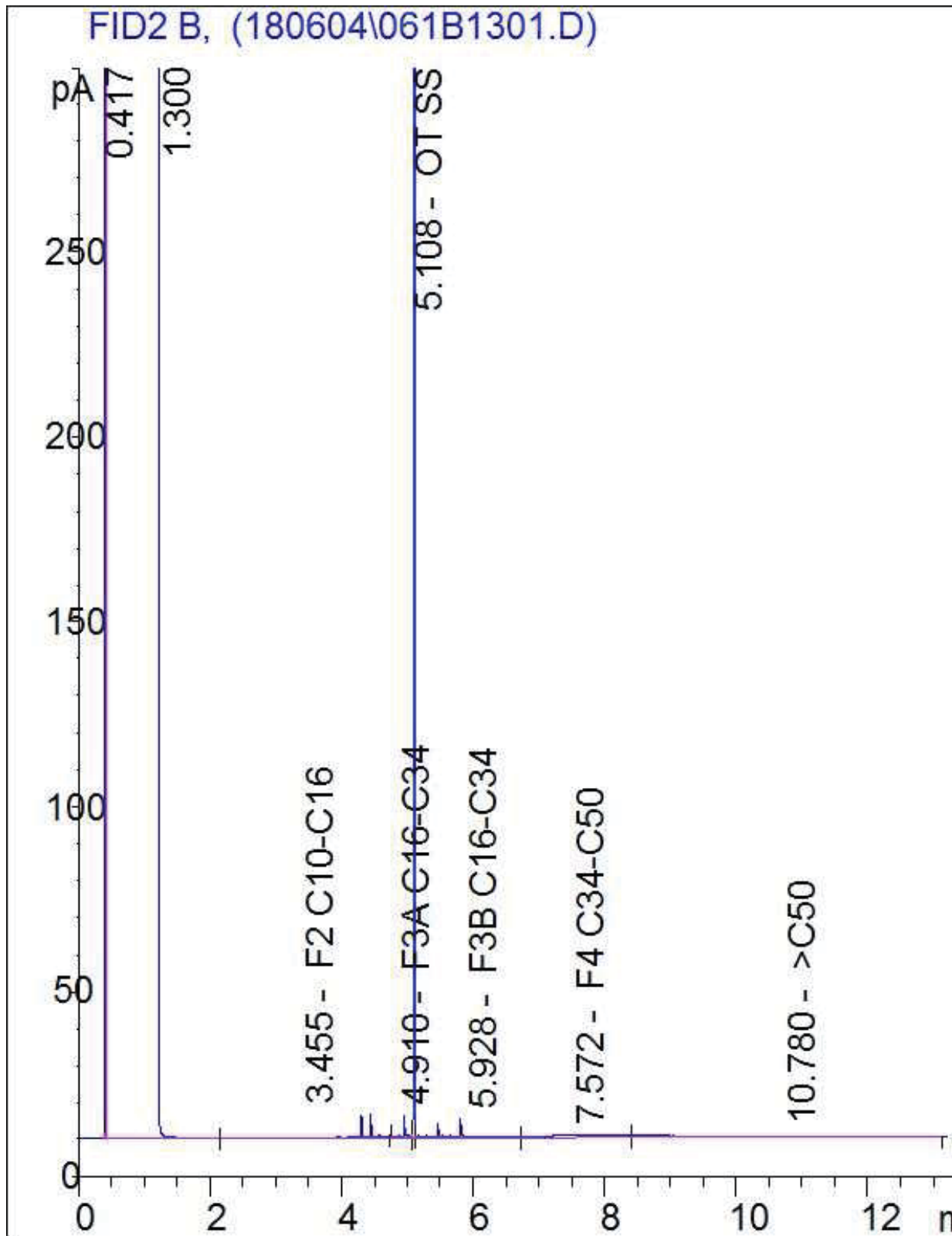


Petroleum Hydrocarbons F2-F4 in Water Chromatogram



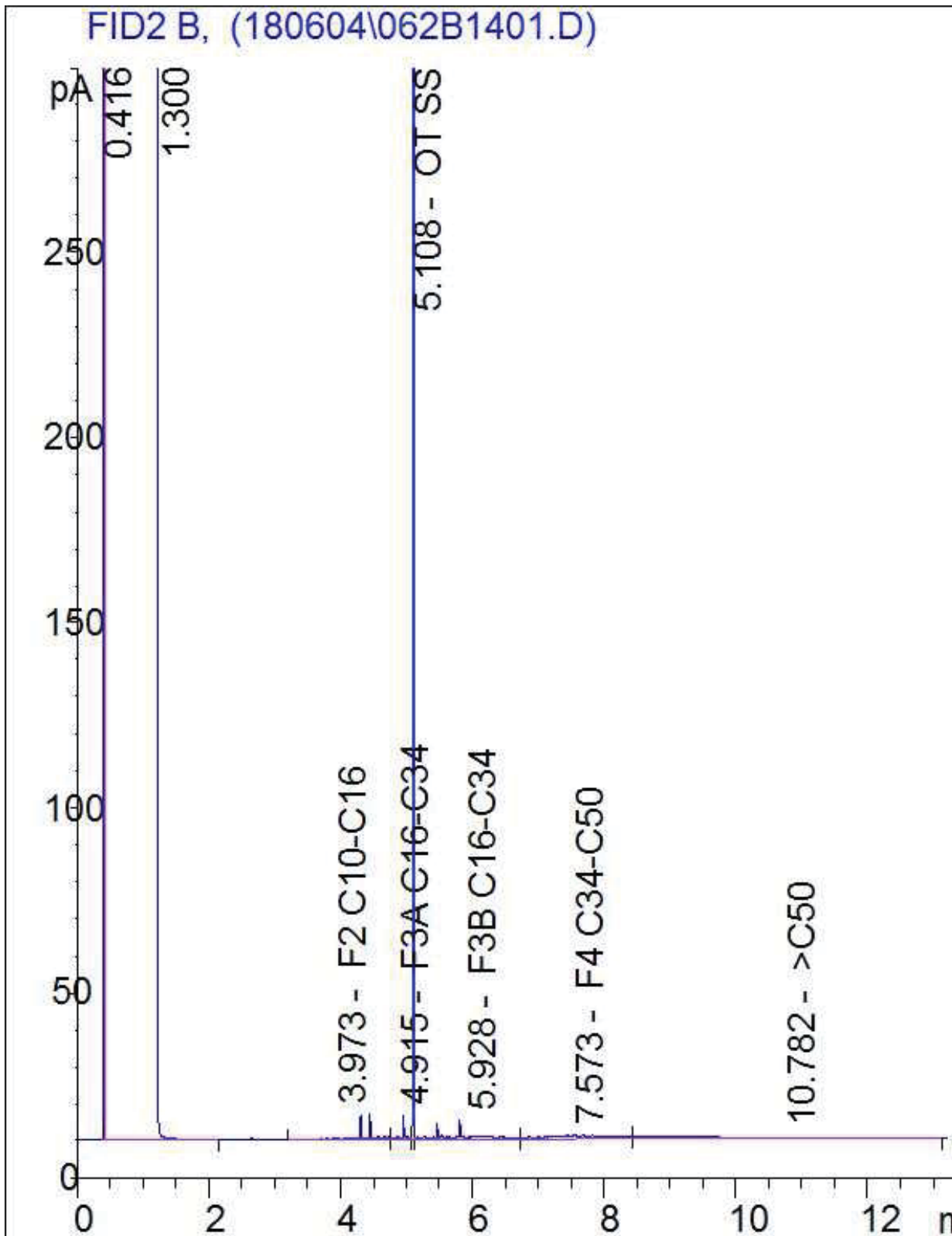
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



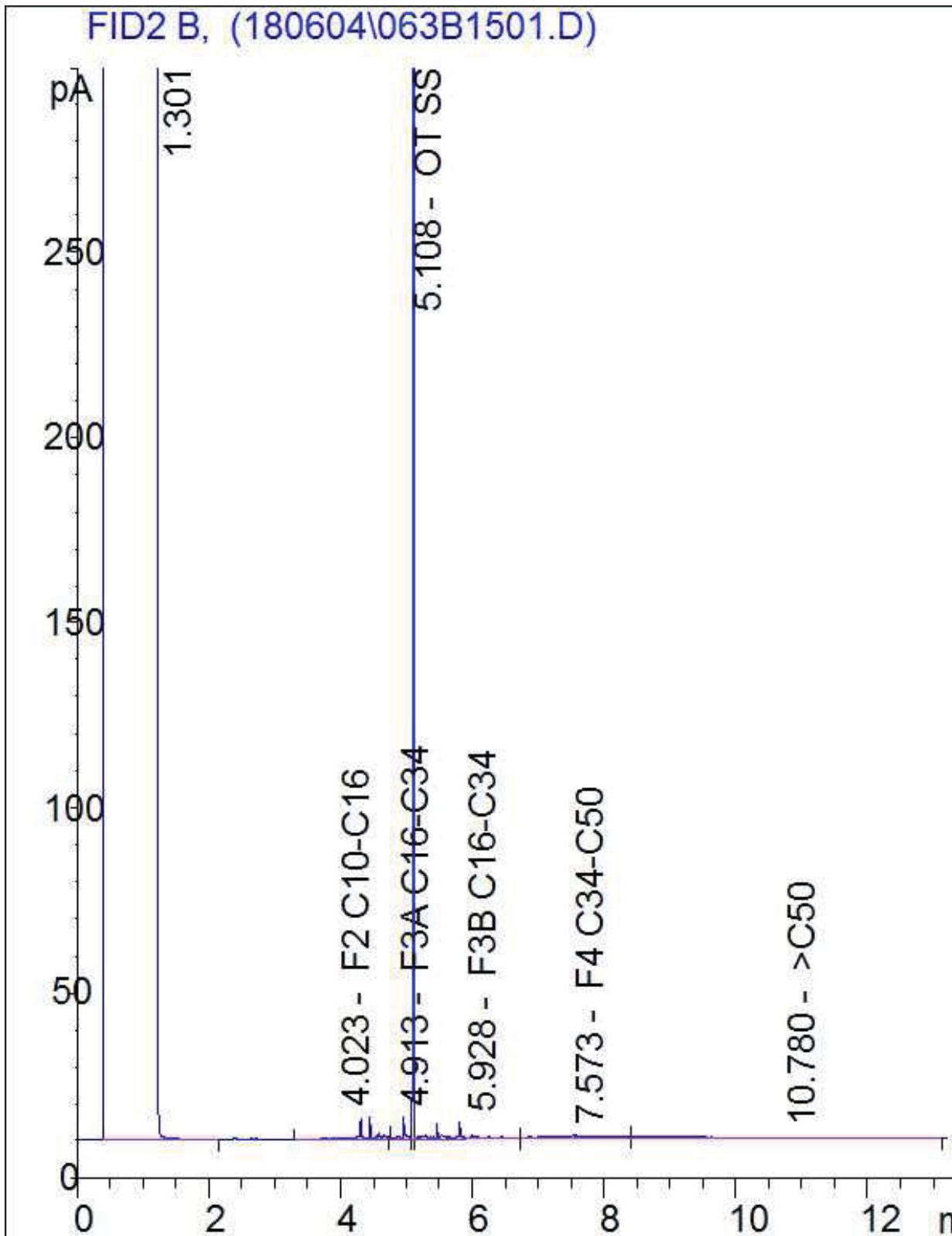
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Petroleum Hydrocarbons F2-F4 in Water Chromatogram



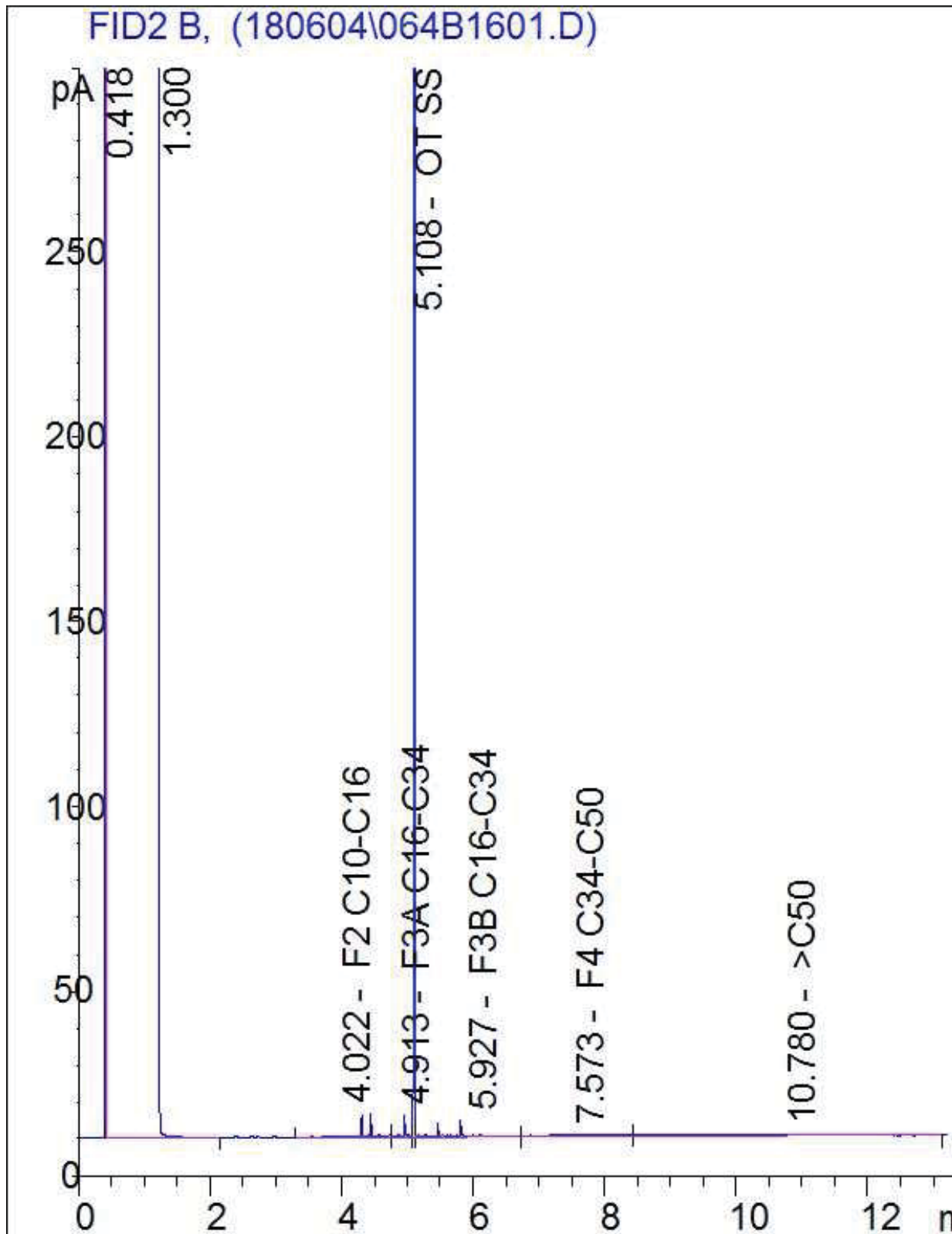
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Petroleum Hydrocarbons F2-F4 in Water Chromatogram



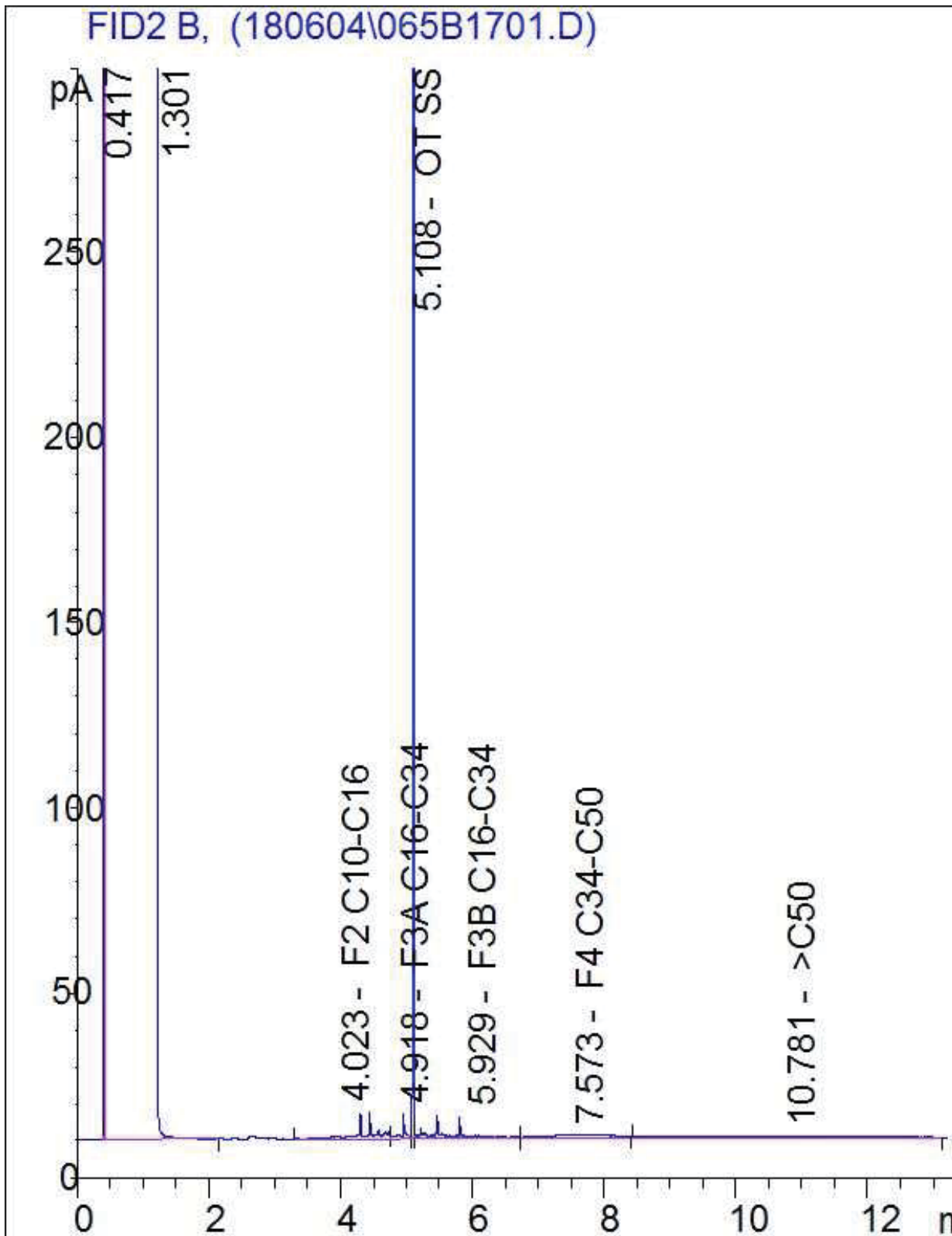
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Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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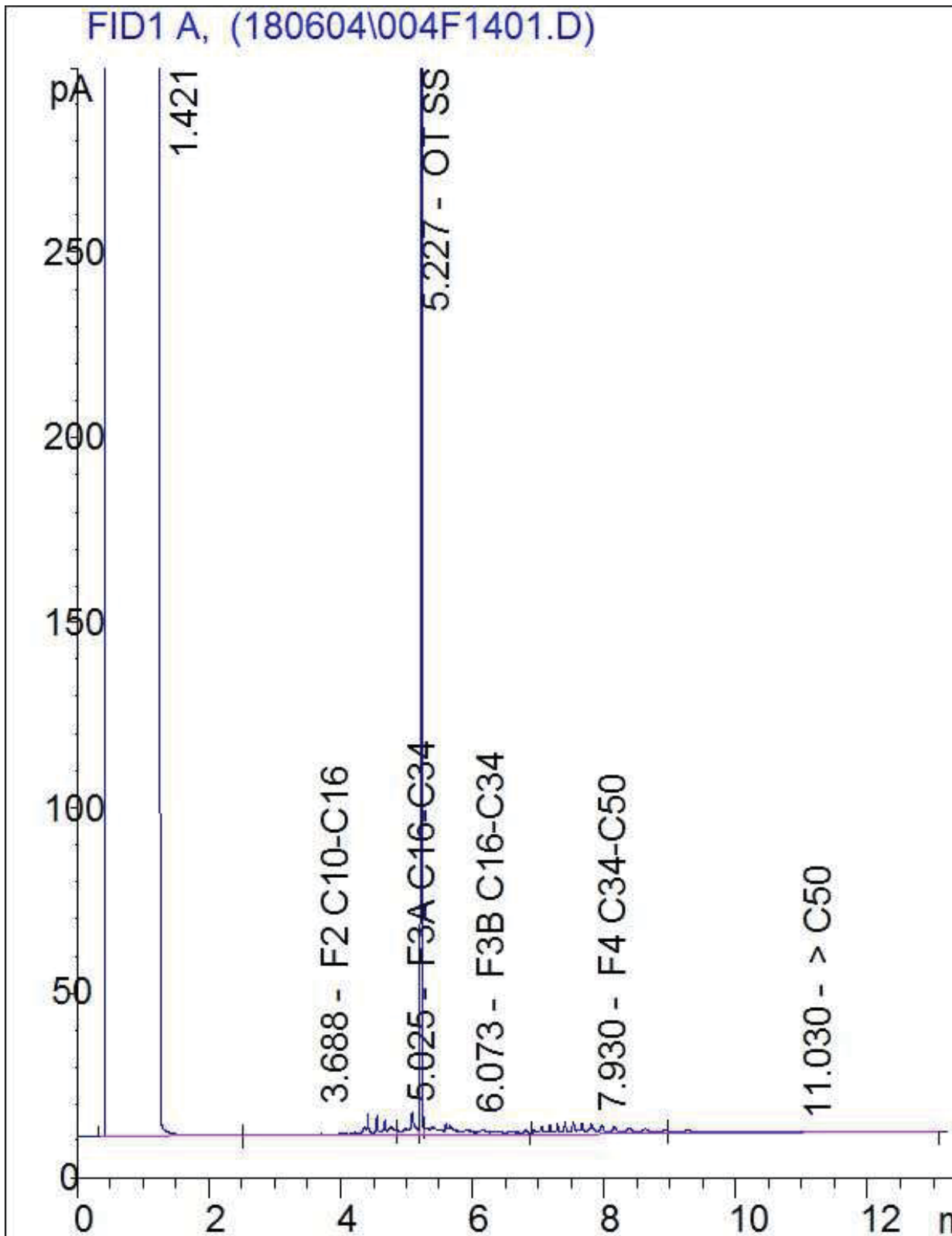
Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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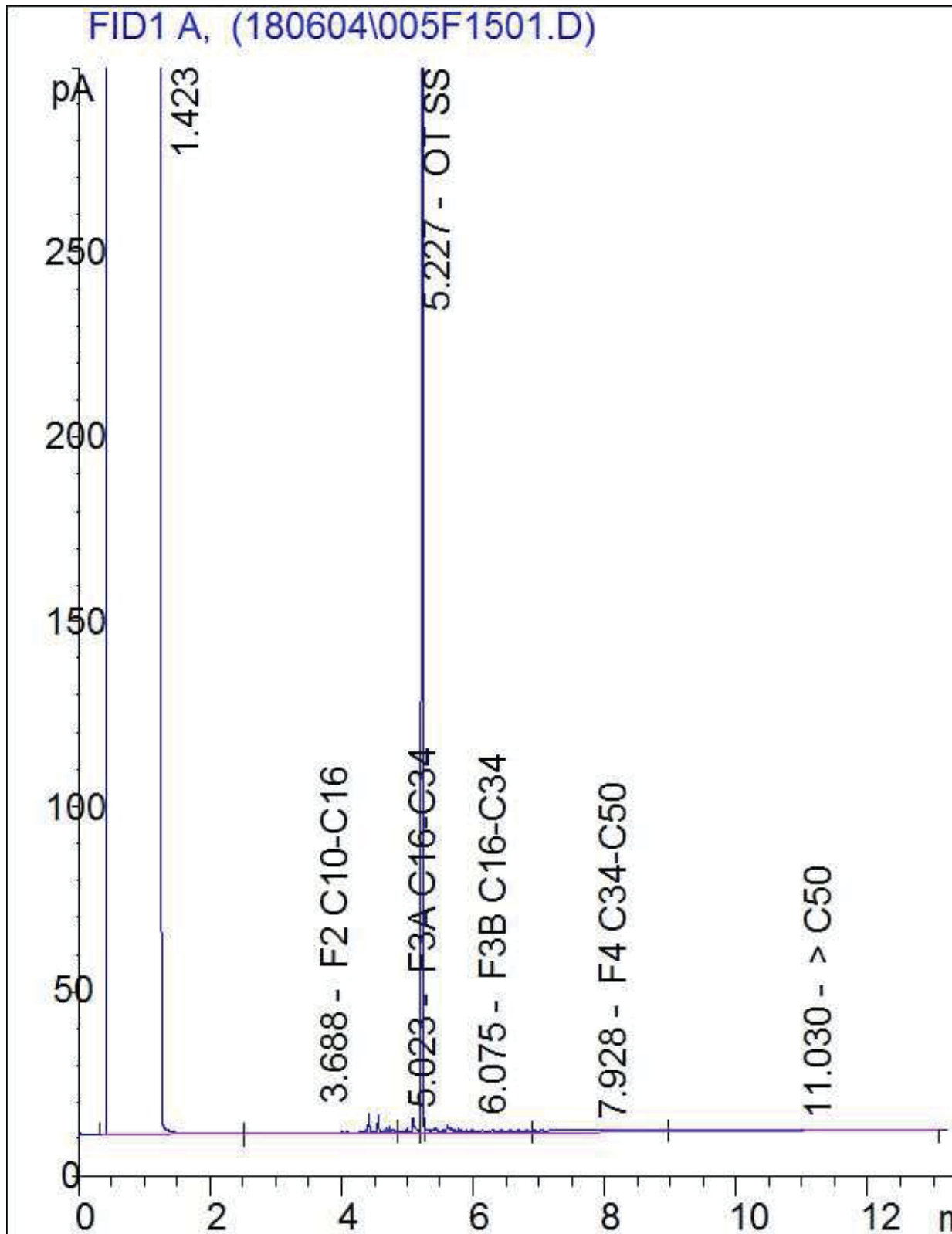


Petroleum Hydrocarbons F2-F4 in Water Chromatogram



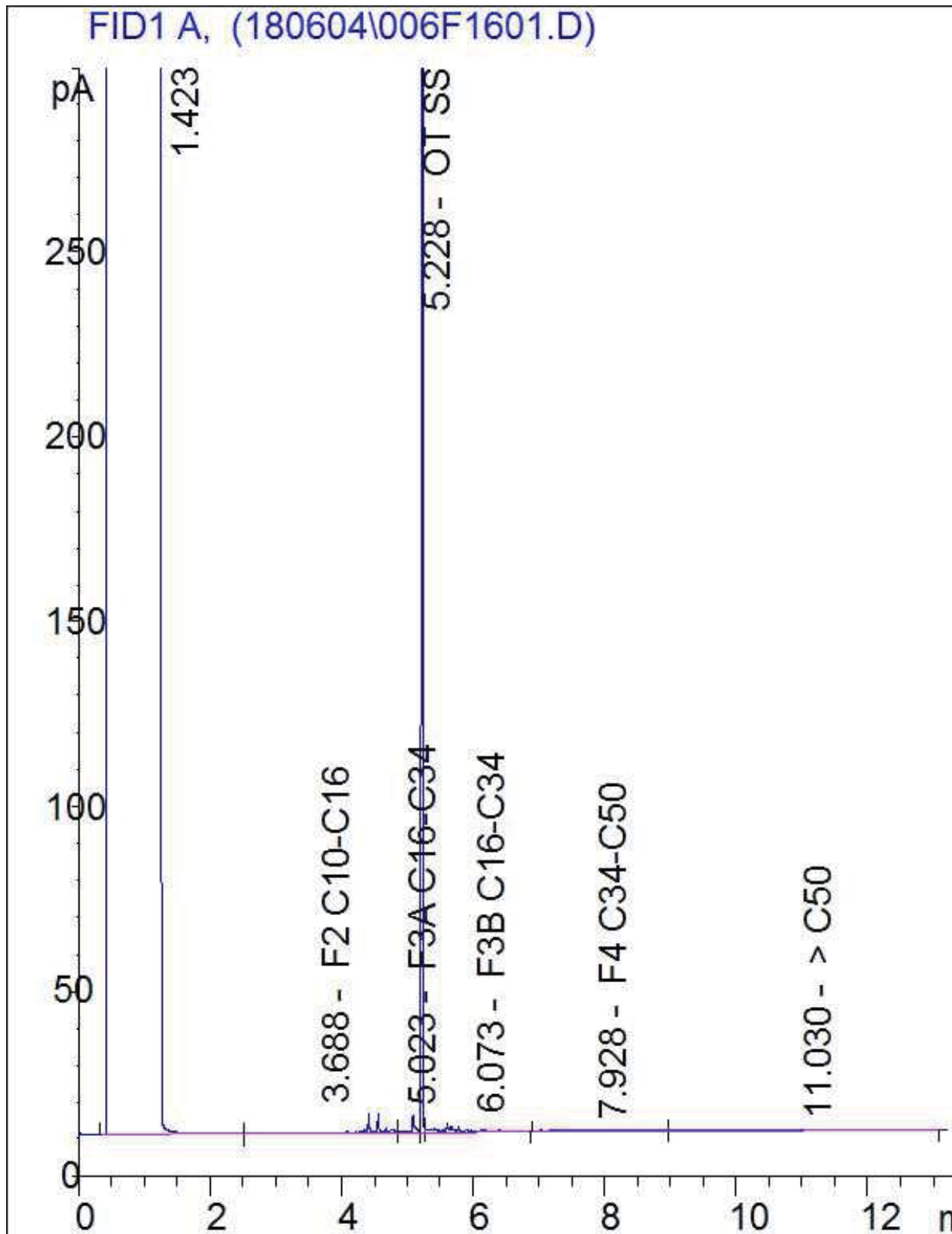
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



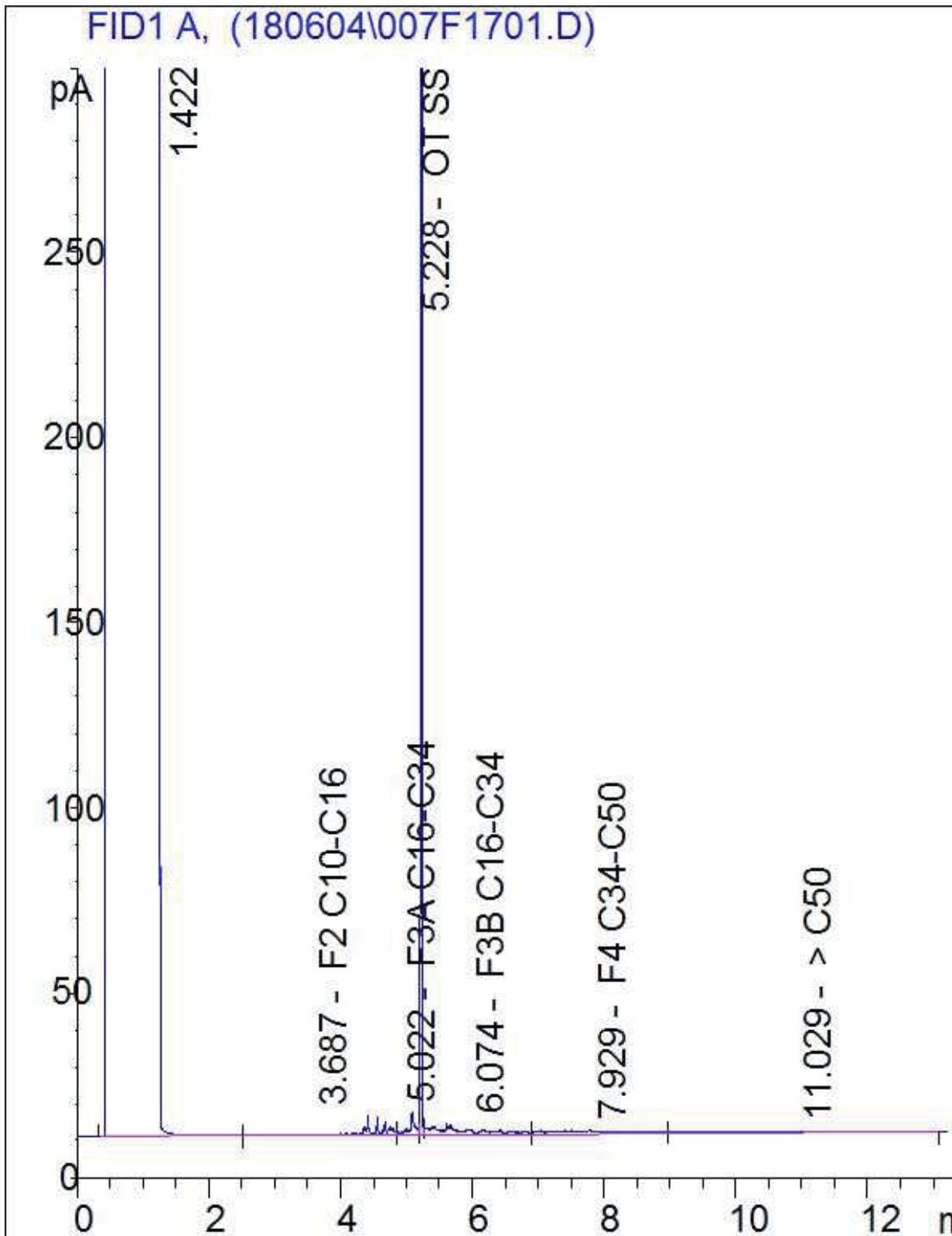
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



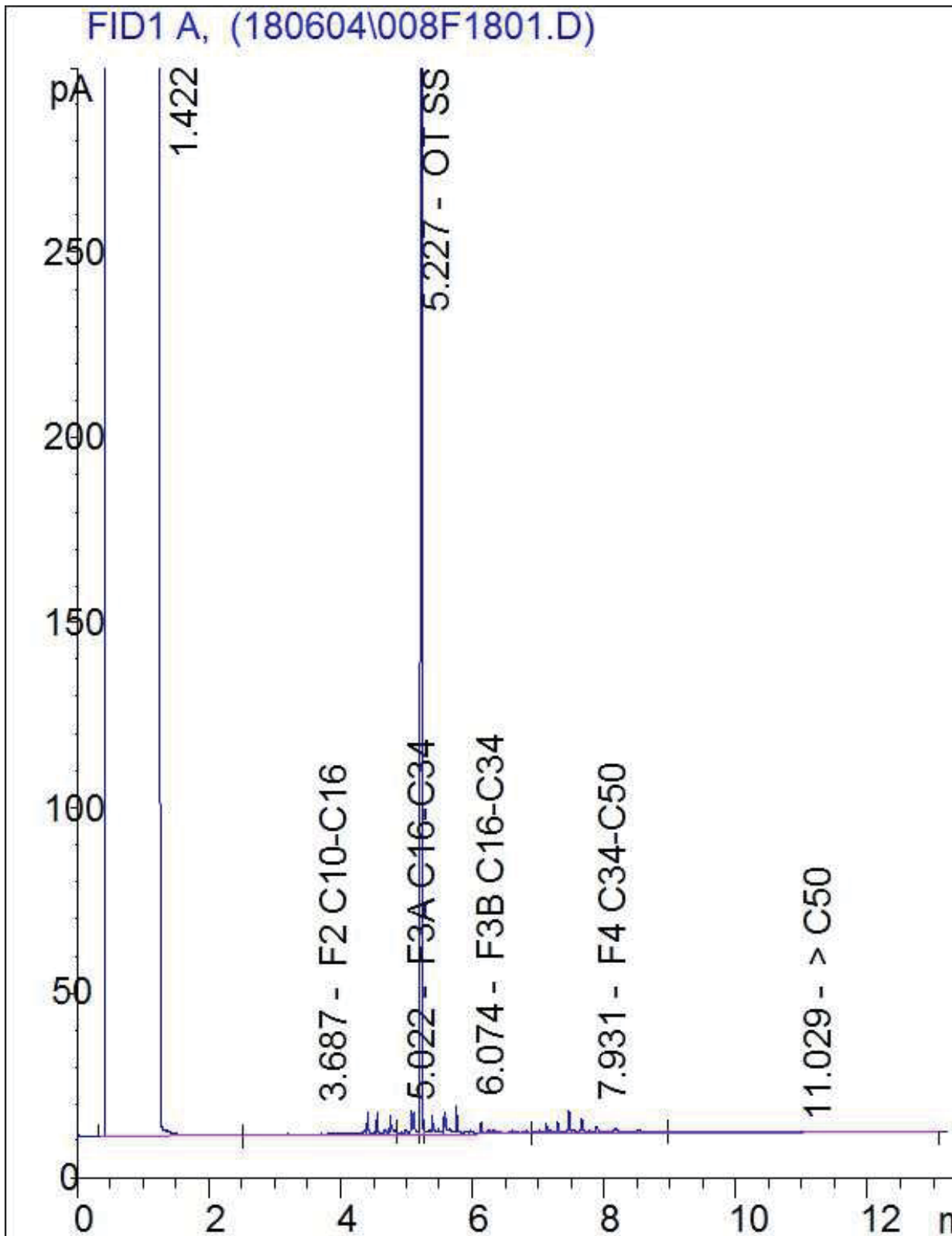
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

Your C.O.C. #: 670315-01-01, c#670315-02-01, c#670315-03-01,  
c#665865-04-01

**Report Date: 2018/07/24**

Report #: R5314968

Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8G2028**

Received: 2018/06/29, 08:40

Sample Matrix: Soil  
# Samples Received: 34

Analyses	Date		Laboratory Method	Reference
	Quantity	Extracted		
Methylnaphthalene Sum	6	N/A	2018/07/09 CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	3	N/A	2018/07/05	EPA 8260C m
Free (WAD) Cyanide	6	2018/07/05	2018/07/06 CAM SOP-00457	OMOE E3015 m
Conductivity	6	2018/07/06	2018/07/06 CAM SOP-00414	OMOE E3530 v1 m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	20	N/A	2018/07/06 CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	5	N/A	2018/07/07 CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	17	2018/07/03	2018/07/05 CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2018/07/04	2018/07/06 CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	3	2018/07/05	2018/07/06 CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	4	2018/07/09	2018/07/09 CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	6	2018/07/05	2018/07/05 CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	2	2018/07/19	2018/07/19 CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2018/07/24	2018/07/24 CAM SOP-00447	EPA 6020B m
Moisture	20	N/A	2018/07/04 CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	13	N/A	2018/07/05 CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	2018/07/04	2018/07/05 CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	5	2018/07/05	2018/07/06 CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Soil	2	2018/07/03	2018/07/04 CAM SOP-00309	EPA 8082A m
Sodium Adsorption Ratio (SAR)	6	N/A	2018/07/06 CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs	1	N/A	2018/07/06 CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Soil	3	N/A	2018/07/05 CAM SOP-00228	EPA 8260C m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using



Your Project #: 6820-001

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

Your C.O.C. #: 670315-01-01, c#670315-02-01, c#670315-03-01,  
c#665865-04-01

**Report Date: 2018/07/24**

Report #: R5314968

Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8G2028**

**Received: 2018/06/29, 08:40**

accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

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

Encryption Key



Gina Baybayan  
Project Manager  
24 Jul 2018 17:13:24

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager

Email: GBaybayan@maxxam.ca

Phone# (905)817-5766

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

**O.REG 153 ICPMS METALS (SOIL)**

Maxxam ID			HCG523	HCG529	HCG533		HCG536		
Sampling Date			2018/06/26	2018/06/27	2018/06/26		2018/06/26		
COC Number			670315-01-01	670315-01-01	c#670315-02-01		c#670315-02-01		
	UNITS	Criteria	BH18-01 SS3	BH18-04 SS3	BH18-06 SS1	RDL	BH18-07 SS3	RDL	QC Batch

<b>Metals</b>									
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	<0.20	<0.20	0.20	<b>13</b>	0.20	5614168
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	<1.0	<1.0	3.3	1.0	9.4	1.0	5614168
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	36	210	6.0	0.50	<b>830</b>	0.50	5614168
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	<0.20	0.78	<0.20	0.20	0.66	0.20	5614168
Acid Extractable Boron (B)	ug/g	<b>36</b>	<5.0	9.1	<5.0	5.0	21	5.0	5614168
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	<0.10	<0.10	<0.10	0.10	1.2	0.10	5614168
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	8.6	58	22	1.0	26	1.0	5614168
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	2.6	13	1.9	0.10	8.4	0.10	5614168
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	6.0	26	8.3	0.50	<b>270</b>	0.50	5614168
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	2.2	7.1	4.0	1.0	<b>6800</b>	5.0	5614168
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	0.51	<b>6.8</b>	0.50	<b>3.1</b>	0.50	5614168
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	4.4	31	2.8	0.50	28	0.50	5614168
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	<0.50	<0.50	0.50	1.1	0.50	5614168
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	0.37	0.20	5614168
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	<0.050	0.27	<0.050	0.050	0.55	0.050	5614168
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.41	0.66	0.19	0.050	0.80	0.050	5614168
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	20	58	<5.0	5.0	25	5.0	5614168
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	13	68	6.7	5.0	<b>1300</b>	5.0	5614168
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	<0.050	<0.050	0.050	<b>1.4</b>	0.050	5614168

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 ICPCMS METALS (SOIL)**

<b>Maxxam ID</b>			HCG538		HCG539		HCG540		
<b>Sampling Date</b>			2018/06/27		2018/06/27		2018/06/27		
<b>COC Number</b>			c#670315-02-01		c#670315-02-01		c#670315-02-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>BH18-08 SS6</b>	<b>QC Batch</b>	<b>BH18-09 SS3</b>	<b>QC Batch</b>	<b>BH18-09 SS4</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>									
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	5644176	<b>1.4</b>	5614168	<0.20	0.20	5637097
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	1.2	5644176	5.0	5614168	<1.0	1.0	5637097
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	<b>230</b>	5644176	46	5614168	38	0.50	5637097
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	0.96	5644176	0.25	5614168	<0.20	0.20	5637097
Acid Extractable Boron (B)	ug/g	<b>36</b>	9.4	5644176	<5.0	5614168	<5.0	5.0	5637097
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	<0.10	5644176	0.16	5614168	<0.10	0.10	5637097
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	43	5644176	19	5614168	7.0	1.0	5637097
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	15	5644176	6.0	5614168	2.7	0.10	5637097
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	33	5644176	46	5614168	2.6	0.50	5637097
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	7.4	5644176	<b>510</b>	5614168	1.8	1.0	5637097
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	5644176	<b>3.6</b>	5614168	<0.50	0.50	5637097
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	31	5644176	16	5614168	3.5	0.50	5637097
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	5644176	<0.50	5614168	<0.50	0.50	5637097
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	5644176	<0.20	5614168	<0.20	0.20	5637097
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.32	5644176	0.14	5614168	<0.050	0.050	5637097
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	1.2	5644176	0.75	5614168	1.0	0.050	5637097
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	68	5644176	24	5614168	14	5.0	5637097
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	82	5644176	81	5614168	16	5.0	5637097
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	5644176	0.062	5614168	<0.050	0.050	5637097

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 ICPCMS METALS (SOIL)**

Maxxam ID			HCG542		HCG553		
Sampling Date			2018/06/27		2018/06/27		
COC Number			c#670315-03-01		c#665865-04-01		
	UNITS	Criteria	BH18-10 SS4	QC Batch	QA/QC #6	RDL	QC Batch
<b>Metals</b>							
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	5637097	0.75	0.20	5614168
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	<1.0	5637097	2.8	1.0	5614168
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	28	5637097	20	0.50	5614168
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	<0.20	5637097	<0.20	0.20	5614168
Acid Extractable Boron (B)	ug/g	<b>36</b>	<5.0	5637097	<5.0	5.0	5614168
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	<0.10	5637097	0.10	0.10	5614168
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	9.0	5637097	12	1.0	5614168
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	3.5	5637097	2.2	0.10	5614168
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	3.6	5637097	13	0.50	5614168
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	1.4	5637097	51	1.0	5614168
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	5637097	<b>2.9</b>	0.50	5614168
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	5.0	5637097	5.8	0.50	5614168
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	5637097	<0.50	0.50	5614168
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	5637097	<0.20	0.20	5614168
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.053	5637097	<0.050	0.050	5614168
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.55	5637097	0.37	0.050	5614168
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	15	5637097	12	5.0	5614168
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	20	5637097	22	5.0	5614168
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	5637097	<0.050	0.050	5614168
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition							
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							

**O.REG 153 METALS & INORGANICS PKG (SOIL)**

<b>Maxxam ID</b>			HCG523	HCG529	HCG533	HCG536	HCG539		
<b>Sampling Date</b>			2018/06/26	2018/06/27	2018/06/26	2018/06/26	2018/06/27		
<b>COC Number</b>			670315-01-01	670315-01-01	c#670315-02-01	c#670315-02-01	c#670315-02-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>BH18-01 SS3</b>	<b>BH18-04 SS3</b>	<b>BH18-06 SS1</b>	<b>BH18-07 SS3</b>	<b>BH18-09 SS3</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>									
Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.35	3.8	0.58	0.20	0.87		5607680

<b>Inorganics</b>									
Conductivity	mS/cm	<b>0.7</b>	0.095	0.42	0.095	0.52	0.16	0.002	5615919
WAD Cyanide (Free)	ug/g	<b>0.051</b>	<0.01	<0.01	<0.01	0.03	<0.01	0.01	5613287

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

<b>Maxxam ID</b>			HCG553		
<b>Sampling Date</b>			2018/06/27		
<b>COC Number</b>			c#665865-04-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>QA/QC #6</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>					
Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.68		5607680

<b>Inorganics</b>					
Conductivity	mS/cm	<b>0.7</b>	0.26	0.002	5615919
WAD Cyanide (Free)	ug/g	<b>0.051</b>	<0.01	0.01	5613287

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HCG522		HCG529			HCG538		
Sampling Date			2018/06/26		2018/06/27			2018/06/27		
COC Number			670315-01-01		670315-01-01			c#670315-02-01		
	UNITS	Criteria	BH18-01 SS2	RDL	BH18-04 SS3	RDL	QC Batch	BH18-08 SS6	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-	27	1.0	14	1.0	5613952			
<b>Calculated Parameters</b>										
Methylnaphthalene, 2-(1-)	ug/g	-	0.093	0.0071	<0.071	0.071	5607610	<0.0071	0.0071	5607610
<b>Polyaromatic Hydrocarbons</b>										
Acenaphthene	ug/g	<b>0.072</b>	0.0070	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
Acenaphthylene	ug/g	<b>0.093</b>	<0.0050	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
Anthracene	ug/g	<b>0.22</b>	0.012	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.020	0.0050	0.19	0.050	5615402	<0.0050	0.0050	5611696
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.020	0.0050	0.14	0.050	5615402	<0.0050	0.0050	5611696
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	0.042	0.0050	0.22	0.050	5615402	<0.0050	0.0050	5611696
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.027	0.0050	0.098	0.050	5615402	<0.0050	0.0050	5611696
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.0074	0.0050	0.063	0.050	5615402	<0.0050	0.0050	5611696
Chrysene	ug/g	<b>2.8</b>	0.044	0.0050	0.20	0.050	5615402	<0.0050	0.0050	5611696
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	0.0050	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
Fluoranthene	ug/g	<b>0.69</b>	0.034	0.0050	0.44	0.050	5615402	<0.0050	0.0050	5611696
Fluorene	ug/g	<b>0.19</b>	<0.0050	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.022	0.0050	0.10	0.050	5615402	<0.0050	0.0050	5611696
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.039	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.054	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
Naphthalene	ug/g	<b>0.09</b>	0.027	0.0050	<0.050	0.050	5615402	<0.0050	0.0050	5611696
Phenanthrene	ug/g	<b>0.69</b>	0.055	0.0050	0.26	0.050	5615402	<0.0050	0.0050	5611696
Pyrene	ug/g	<b>1</b>	0.037	0.0050	0.39	0.050	5615402	<0.0050	0.0050	5611696
<b>Surrogate Recovery (%)</b>										
D10-Anthracene	%	-	97		83		5615402	87		5611696
D14-Terphenyl (FS)	%	-	99		88		5615402	88		5611696
D8-Acenaphthylene	%	-	91		86		5615402	72		5611696
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)										
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition										
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										



**O.REG 153 PAHS (SOIL)**

Maxxam ID			HCG539			HCG541	HCG552		
Sampling Date			2018/06/27			2018/06/27	2018/06/27		
COC Number			c#670315-02-01			c#670315-03-01	c#665865-04-01		
	UNITS	Criteria	BH18-09 SS3	RDL	QC Batch	BH18-10 SS3	QA/QC #5	RDL	QC Batch
<b>Inorganics</b>									
Moisture	%	-				31	18	1.0	5613952
<b>Calculated Parameters</b>									
Methylnaphthalene, 2-(1-)	ug/g	-	0.068	0.0071	5607610	<0.0071	<0.0071	0.0071	5607610
<b>Polyaromatic Hydrocarbons</b>									
Acenaphthene	ug/g	<b>0.072</b>	<0.0050	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Acenaphthylene	ug/g	<b>0.093</b>	0.014	0.0050	5615402	0.0063	<0.0050	0.0050	5615402
Anthracene	ug/g	<b>0.22</b>	0.014	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.046	0.0050	5615402	0.0058	<0.0050	0.0050	5615402
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.053	0.0050	5615402	0.010	<0.0050	0.0050	5615402
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	0.066	0.0050	5615402	0.013	<0.0050	0.0050	5615402
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.039	0.0050	5615402	0.0082	<0.0050	0.0050	5615402
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.025	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Chrysene	ug/g	<b>2.8</b>	0.043	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	0.0080	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Fluoranthene	ug/g	<b>0.69</b>	0.074	0.0050	5615402	0.0071	<0.0050	0.0050	5615402
Fluorene	ug/g	<b>0.19</b>	<0.0050	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.044	0.0050	5615402	0.0091	<0.0050	0.0050	5615402
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.031	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.037	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Naphthalene	ug/g	<b>0.09</b>	0.020	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Phenanthrene	ug/g	<b>0.69</b>	0.028	0.0050	5615402	<0.0050	<0.0050	0.0050	5615402
Pyrene	ug/g	<b>1</b>	0.074	0.0050	5615402	0.0096	<0.0050	0.0050	5615402
<b>Surrogate Recovery (%)</b>									
D10-Anthracene	%	-	102		5615402	91	88		5615402
D14-Terphenyl (FS)	%	-	100		5615402	88	75		5615402
D8-Acenaphthylene	%	-	92		5615402	82	77		5615402
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition									
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**O.REG 153 PCBS (SOIL)**

Maxxam ID			HCG545	HCG551		
Sampling Date			2018/06/27	2018/06/27		
COC Number			c#670315-03-01	c#665865-04-01		
	UNITS	Criteria	BH18-12 SS2	QA/QC #4	RDL	QC Batch
<b>Inorganics</b>						
Moisture	%	-	8.6	18	1.0	5613734
<b>PCBs</b>						
Aroclor 1242	ug/g	-	<0.010	<0.010	0.010	5610391
Aroclor 1248	ug/g	-	<0.010	<0.010	0.010	5610391
Aroclor 1254	ug/g	-	<0.010	<0.010	0.010	5610391
Aroclor 1260	ug/g	-	<0.010	<0.010	0.010	5610391
Total PCB	ug/g	<b>0.3</b>	<0.010	<0.010	0.010	5610391
<b>Surrogate Recovery (%)</b>						
Decachlorobiphenyl	%	-	98	87		5610391
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use						

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HCG521		HCG524	HCG525	HCG526		
Sampling Date			2018/06/26		2018/06/26	2018/06/27	2018/06/27		
COC Number			670315-01-01		670315-01-01	670315-01-01	670315-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>BH18-01 SS1</b>	<b>RDL</b>	<b>BH18-01 SS4</b>	<b>BH18-02 SS2</b>	<b>BH18-02 SS5</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Inorganics</b>									
Moisture	%	-	15	1.0	13	8.0	24	1.0	5611781

<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>	<b>0.12</b>	0.040	<0.020	<0.020	<0.020	0.020	5610172
Toluene	ug/g	<b>0.2</b>	<b>0.55</b>	0.040	<0.020	0.031	<0.020	0.020	5610172
Ethylbenzene	ug/g	<b>0.05</b>	<b>0.23</b>	0.040	<0.020	<0.020	<0.020	0.020	5610172
o-Xylene	ug/g	-	0.92	0.040	<0.020	<0.020	<0.020	0.020	5610172
p+m-Xylene	ug/g	-	1.3	0.080	<0.040	<0.040	<0.040	0.040	5610172
Total Xylenes	ug/g	<b>0.05</b>	<b>2.2</b>	0.080	<0.040	<0.040	<0.040	0.040	5610172
F1 (C6-C10)	ug/g	<b>25</b>	<20	20	<10	<10	<10	10	5610172
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<20	20	<10	<10	<10	10	5610172

<b>F2-F4 Hydrocarbons</b>									
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<b>17</b>	10	<10	<10	<10	10	5610354
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<b>370</b>	50	<50	<50	<50	50	5610354
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<b>180</b>	50	<50	<50	<50	50	5610354
Reached Baseline at C50	ug/g	-	No		Yes	Yes	Yes		5610354

<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-	100		98	101	100		5610172
4-Bromofluorobenzene	%	-	98		98	98	100		5610172
D10-Ethylbenzene	%	-	98		88	85	97		5610172
D4-1,2-Dichloroethane	%	-	103		103	107	103		5610172
o-Terphenyl	%	-	87		89	90	87		5610354

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HCG526			HCG527	HCG528	HCG530		
Sampling Date			2018/06/27			2018/06/27	2018/06/27	2018/06/27		
COC Number			670315-01-01			670315-01-01	670315-01-01	670315-01-01		
	UNITS	Criteria	BH18-02 SS5 Lab-Dup	RDL	QC Batch	BH18-03 SS5	BH18-04 SS2	BH18-04 SS6	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-				11	14	6.3	1.0	5611781
<b>BTEX &amp; F1 Hydrocarbons</b>										
Benzene	ug/g	<b>0.02</b>	<0.020	0.020	5610172	<0.020	<b>0.17</b>	<0.020	0.020	5610172
Toluene	ug/g	<b>0.2</b>	<0.020	0.020	5610172	<0.020	<b>0.75</b>	<0.020	0.020	5610172
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	0.020	5610172	<0.020	<b>0.25</b>	<0.020	0.020	5610172
o-Xylene	ug/g	-	<0.020	0.020	5610172	<0.020	0.53	<0.020	0.020	5610172
p+m-Xylene	ug/g	-	<0.040	0.040	5610172	<0.040	0.56	<0.040	0.040	5610172
Total Xylenes	ug/g	<b>0.05</b>	<0.040	0.040	5610172	<0.040	<b>1.1</b>	<0.040	0.040	5610172
F1 (C6-C10)	ug/g	<b>25</b>				<10	<10	<10	10	5610172
F1 (C6-C10) - BTEX	ug/g	<b>25</b>				<10	<10	<10	10	5610172
<b>F2-F4 Hydrocarbons</b>										
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>				<10	<b>130</b>	<10	10	5610354
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>				<50	<b>38000</b>	<50	50	5610354
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>				<50	<b>7100</b>	<50	50	5610354
Reached Baseline at C50	ug/g	-				Yes	Yes	Yes		5610354
<b>Surrogate Recovery (%)</b>										
1,4-Difluorobenzene	%	-	100		5610172	98	99	98		5610172
4-Bromofluorobenzene	%	-	99		5610172	100	97	100		5610172
D10-Ethylbenzene	%	-	92		5610172	97	83	91		5610172
D4-1,2-Dichloroethane	%	-	102		5610172	104	109	103		5610172
o-Terphenyl	%	-				88	97	89		5610354
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Lab-Dup = Laboratory Initiated Duplicate										
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)										
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition										
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HCG531	HCG532			HCG532		
Sampling Date			2018/06/26	2018/06/26			2018/06/26		
COC Number			c#670315-02-01	c#670315-02-01			c#670315-02-01		
	UNITS	Criteria	BH18-05 SS1	BH18-05 SS9	RDL	QC Batch	BH18-05 SS9 Lab-Dup	RDL	QC Batch
<b>Inorganics</b>									
Moisture	%	-	23	29	1.0	5611781			
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>	<0.020	<0.020	0.020	5610172			
Toluene	ug/g	<b>0.2</b>	0.062	<0.020	0.020	5610172			
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	<0.020	0.020	5610172			
o-Xylene	ug/g	-	0.059	<0.020	0.020	5610172			
p+m-Xylene	ug/g	-	0.48	<0.040	0.040	5610172			
Total Xylenes	ug/g	<b>0.05</b>	<b>0.54</b>	<0.040	0.040	5610172			
F1 (C6-C10)	ug/g	<b>25</b>	<b>91</b>	<10	10	5610172			
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<b>91</b>	<10	10	5610172			
<b>F2-F4 Hydrocarbons</b>									
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<b>1700</b>	<10	10	5610354	<10	10	5610354
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<b>2100</b>	<50	50	5610354	<50	50	5610354
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<b>230</b>	<50	50	5610354	<50	50	5610354
Reached Baseline at C50	ug/g	-	Yes	Yes		5610354	Yes		5610354
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-	97	98		5610172			
4-Bromofluorobenzene	%	-	102	99		5610172			
D10-Ethylbenzene	%	-	90	96		5610172			
D4-1,2-Dichloroethane	%	-	103	104		5610172			
o-Terphenyl	%	-	114	99		5610354	89		5610354
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HCG534	HCG535	HCG536	HCG537		
Sampling Date			2018/06/26	2018/06/26	2018/06/26	2018/06/26		
COC Number			c#670315-02-01	c#670315-02-01	c#670315-02-01	c#670315-02-01		
	UNITS	Criteria	BH18-06 SS3	BH18-06 SS5	BH18-07 SS3	BH18-07 SS8	RDL	QC Batch
<b>Inorganics</b>								
Moisture	%	-	15	20	18	13	1.0	5611781
<b>BTEX &amp; F1 Hydrocarbons</b>								
Benzene	ug/g	<b>0.02</b>	<b>0.36</b>	<0.020	<b>0.31</b>	<0.020	0.020	5610172
Toluene	ug/g	<b>0.2</b>	<b>0.61</b>	<0.020	<b>0.99</b>	<0.020	0.020	5610172
Ethylbenzene	ug/g	<b>0.05</b>	<b>0.059</b>	<0.020	<b>0.27</b>	<0.020	0.020	5610172
o-Xylene	ug/g	-	0.11	<0.020	0.84	<0.020	0.020	5610172
p+m-Xylene	ug/g	-	0.26	<0.040	1.1	<0.040	0.040	5610172
Total Xylenes	ug/g	<b>0.05</b>	<b>0.37</b>	<0.040	<b>2.0</b>	<0.040	0.040	5610172
F1 (C6-C10)	ug/g	<b>25</b>	<10	<10	<b>220</b>	<10	10	5610172
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	<10	<b>210</b>	<10	10	5610172
<b>F2-F4 Hydrocarbons</b>								
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<b>13</b>	<10	<b>1200</b>	<10	10	5610354
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	99	<50	<b>930</b>	<50	50	5610354
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	<50	<b>190</b>	<50	50	5610354
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		5610354
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene	%	-	100	98	104	98		5610172
4-Bromofluorobenzene	%	-	100	98	100	99		5610172
D10-Ethylbenzene	%	-	89	87	93	95		5610172
D4-1,2-Dichloroethane	%	-	104	104	112	105		5610172
o-Terphenyl	%	-	88	87	101	91		5610354
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition								
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								



**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HCG538			HCG543	HCG544		
Sampling Date			2018/06/27			2018/06/26	2018/06/26		
COC Number			c#670315-02-01			c#670315-03-01	c#670315-03-01		
	UNITS	Criteria	BH18-08 SS6	RDL	QC Batch	BH18-11 SS4	BH18-11 SS5	RDL	QC Batch

Inorganics									
Moisture	%	-	25	1.0	5613952	27	28	1.0	5611907

BTEX & F1 Hydrocarbons									
Benzene	ug/g	0.02	<0.020	0.020	5610172				
Toluene	ug/g	0.2	<0.020	0.020	5610172				
Ethylbenzene	ug/g	0.05	<0.020	0.020	5610172				
o-Xylene	ug/g	-	<0.020	0.020	5610172				
p+m-Xylene	ug/g	-	<0.040	0.040	5610172				
Total Xylenes	ug/g	0.05	<0.040	0.040	5610172				
F1 (C6-C10)	ug/g	25	<10	10	5610172	16	<10	10	5610172
F1 (C6-C10) - BTEX	ug/g	25	<10	10	5610172	15	<10	10	5610172

F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	10	<10	10	5611735	110	160	10	5614354
F3 (C16-C34 Hydrocarbons)	ug/g	240	<50	50	5611735	1500	1200	50	5614354
F4 (C34-C50 Hydrocarbons)	ug/g	120	<50	50	5611735	2200	1000	50	5614354
Reached Baseline at C50	ug/g	-	Yes		5611735	No	No		5614354

Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	99		5610172	99	101		5610172
4-Bromofluorobenzene	%	-	97		5610172	98	99		5610172
D10-Ethylbenzene	%	-	101		5610172	85	95		5610172
D4-1,2-Dichloroethane	%	-	108		5610172	107	106		5610172
o-Terphenyl	%	-	89		5611735	90	87		5614354

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HCG546	HCG547			HCG547		
Sampling Date			2018/06/27	2018/06/27			2018/06/27		
COC Number			c#670315-03-01	c#670315-03-01			c#670315-03-01		
	UNITS	Criteria	BH18-12 SS3	BH18-12 SS5	RDL	QC Batch	BH18-12 SS5 Lab-Dup	RDL	QC Batch

Inorganics									
Moisture	%	-	6.5	8.2	1.0	5611781	7.9	1.0	5611781

BTEX & F1 Hydrocarbons									
Benzene	ug/g	<b>0.02</b>	<0.020	<0.020	0.020	5612513			
Toluene	ug/g	<b>0.2</b>	<0.020	<0.020	0.020	5612513			
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	<0.020	0.020	5612513			
o-Xylene	ug/g	-	<0.020	<0.020	0.020	5612513			
p+m-Xylene	ug/g	-	<0.040	<0.040	0.040	5612513			
Total Xylenes	ug/g	<b>0.05</b>	<0.040	<0.040	0.040	5612513			
F1 (C6-C10)	ug/g	<b>25</b>	<10	<10	10	5612513			
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	<10	10	5612513			

F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	<b>70</b>	10	5610354			
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	<50	50	5610354			
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	<50	50	5610354			
Reached Baseline at C50	ug/g	-	Yes	Yes		5610354			

Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	96	97		5612513			
4-Bromofluorobenzene	%	-	90	93		5612513			
D10-Ethylbenzene	%	-	92	105		5612513			
D4-1,2-Dichloroethane	%	-	100	103		5612513			
o-Terphenyl	%	-	88	88		5610354			

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Lab-Dup = Laboratory Initiated Duplicate  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HCG548			HCG549	HCG550		
Sampling Date			2018/06/26			2018/06/26	2018/06/27		
COC Number			c#670315-03-01			c#670315-03-01	c#670315-03-01		
	UNITS	Criteria	QA/QC #1	RDL	QC Batch	QA/QC #2	QA/QC #3	RDL	QC Batch
<b>Inorganics</b>									
Moisture	%	-	26	1.0	5611907	17	5.2	1.0	5611781
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>				<b>1.3</b>	<0.020	0.020	5612513
Toluene	ug/g	<b>0.2</b>				<b>2.0</b>	<0.020	0.020	5612513
Ethylbenzene	ug/g	<b>0.05</b>				<b>0.17</b>	<0.020	0.020	5612513
o-Xylene	ug/g	-				0.30	<0.020	0.020	5612513
p+m-Xylene	ug/g	-				0.75	<0.040	0.040	5612513
Total Xylenes	ug/g	<b>0.05</b>				<b>1.0</b>	<0.040	0.040	5612513
F1 (C6-C10)	ug/g	<b>25</b>	<b>47</b>	20	5612513	<10	<10	10	5612513
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<b>47</b>	20	5612513	<10	<10	10	5612513
<b>F2-F4 Hydrocarbons</b>									
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<b>57</b>	10	5614354	<10	<10	10	5610354
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<b>970</b>	50	5614354	96	<50	50	5610354
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<b>1200</b>	50	5614354	<50	<50	50	5610354
Reached Baseline at C50	ug/g	-	No		5614354	Yes	Yes		5610354
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-	97		5612513	92	88		5612513
4-Bromofluorobenzene	%	-	96		5612513	93	95		5612513
D10-Ethylbenzene	%	-	78		5612513	88	88		5612513
D4-1,2-Dichloroethane	%	-	101		5612513	93	94		5612513
o-Terphenyl	%	-	91		5614354	86	87		5610354
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**O.REG 153 VOCs BY HS (SOIL)**

Maxxam ID			HCG543	HCG544	HCG548		
Sampling Date			2018/06/26	2018/06/26	2018/06/26		
COC Number			c#670315-03-01	c#670315-03-01	c#670315-03-01		
	UNITS	Criteria	BH18-11 SS4	BH18-11 SS5	QA/QC #1	RDL	QC Batch
<b>Calculated Parameters</b>							
1,3-Dichloropropene (cis+trans)	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5607611
<b>Volatile Organics</b>							
Acetone (2-Propanone)	ug/g	<b>0.5</b>	<b>1.9</b>	<0.50	<b>2.8</b>	0.50	5609186
Benzene	ug/g	<b>0.02</b>	<b>0.058</b>	<0.020	<b>0.024</b>	0.020	5609186
Bromodichloromethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Bromoform	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Bromomethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Carbon Tetrachloride	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Chlorobenzene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Chloroform	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Dibromochloromethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,2-Dichlorobenzene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,3-Dichlorobenzene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,4-Dichlorobenzene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Dichlorodifluoromethane (FREON 12)	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,1-Dichloroethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,2-Dichloroethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,1-Dichloroethylene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
cis-1,2-Dichloroethylene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
trans-1,2-Dichloroethylene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,2-Dichloropropane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
cis-1,3-Dichloropropene	ug/g	<b>0.05</b>	<0.030	<0.030	<0.030	0.030	5609186
trans-1,3-Dichloropropene	ug/g	<b>0.05</b>	<0.040	<0.040	<0.040	0.040	5609186
Ethylbenzene	ug/g	<b>0.05</b>	0.044	<0.020	<b>0.098</b>	0.020	5609186
Ethylene Dibromide	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Hexane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Methylene Chloride(Dichloromethane)	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Methyl Ethyl Ketone (2-Butanone)	ug/g	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5609186
Methyl Isobutyl Ketone	ug/g	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5609186
Methyl t-butyl ether (MTBE)	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Styrene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,1,1,2-Tetrachloroethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,1,2,2-Tetrachloroethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition							
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							

**O.REG 153 VOCs BY HS (SOIL)**

Maxxam ID			HCG543	HCG544	HCG548		
Sampling Date			2018/06/26	2018/06/26	2018/06/26		
COC Number			c#670315-03-01	c#670315-03-01	c#670315-03-01		
	UNITS	Criteria	BH18-11 SS4	BH18-11 SS5	QA/QC #1	RDL	QC Batch
Tetrachloroethylene	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Toluene	ug/g	<b>0.2</b>	<b>0.28</b>	0.037	0.067	0.020	5609186
1,1,1-Trichloroethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
1,1,2-Trichloroethane	ug/g	<b>0.05</b>	<0.050	<0.050	<0.050	0.050	5609186
Trichloroethylene	ug/g	<b>0.05</b>	<b>0.12</b>	<b>0.17</b>	<b>0.38</b>	0.050	5609186
Trichlorofluoromethane (FREON 11)	ug/g	<b>0.25</b>	<0.050	<0.050	<0.050	0.050	5609186
Vinyl Chloride	ug/g	<b>0.02</b>	<0.020	<0.020	<0.020	0.020	5609186
p+m-Xylene	ug/g	-	0.071	0.025	0.029	0.020	5609186
o-Xylene	ug/g	-	0.049	<0.020	<0.020	0.020	5609186
Total Xylenes	ug/g	<b>0.05</b>	<b>0.12</b>	0.025	0.029	0.020	5609186
<b>Surrogate Recovery (%)</b>							
4-Bromofluorobenzene	%	-	100	96	96		5609186
D10-o-Xylene	%	-	96	108	96		5609186
D4-1,2-Dichloroethane	%	-	98	100	98		5609186
D8-Toluene	%	-	96	97	98		5609186
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition							
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							

**RESULTS OF ANALYSES OF SOIL**

Maxxam ID		HCG523	HCG533	HCG539		HCG540	HCG542		
Sampling Date		2018/06/26	2018/06/26	2018/06/27		2018/06/27	2018/06/27		
COC Number		670315-01-01	c#670315-02-01	c#670315-02-01		c#670315-02-01	c#670315-03-01		
	UNITS	BH18-01 SS3	BH18-06 SS1	BH18-09 SS3	QC Batch	BH18-09 SS4	BH18-10 SS4	RDL	QC Batch
<b>Inorganics</b>									
Moisture	%	14	4.7	14	5613690	32	27	1.0	5614004
RDL = Reportable Detection Limit QC Batch = Quality Control Batch									

Maxxam ID		HCG553		
Sampling Date		2018/06/27		
COC Number		c#665865-04-01		
	UNITS	QA/QC #6	RDL	QC Batch
<b>Inorganics</b>				
Moisture	%	24	1.0	5613690
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



**VOLATILE ORGANICS BY GC/MS (SOIL)**

Maxxam ID			HCG554		
Sampling Date					
COC Number			c#665865-04-01		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
<b>Volatile Organics</b>					
Acetone (2-Propanone)	ug/g	0.5	<0.50	0.50	5610762
Benzene	ug/g	0.02	<0.020	0.020	5610762
Bromodichloromethane	ug/g	0.05	<0.050	0.050	5610762
Bromoform	ug/g	0.05	<0.050	0.050	5610762
Bromomethane	ug/g	0.05	<0.050	0.050	5610762
Carbon Tetrachloride	ug/g	0.05	<0.050	0.050	5610762
Chlorobenzene	ug/g	0.05	<0.050	0.050	5610762
Chloroform	ug/g	0.05	<0.050	0.050	5610762
Dibromochloromethane	ug/g	0.05	<0.050	0.050	5610762
1,2-Dichlorobenzene	ug/g	0.05	<0.050	0.050	5610762
1,3-Dichlorobenzene	ug/g	0.05	<0.050	0.050	5610762
1,4-Dichlorobenzene	ug/g	0.05	<0.050	0.050	5610762
Dichlorodifluoromethane (FREON 12)	ug/g	0.05	<0.050	0.050	5610762
1,1-Dichloroethane	ug/g	0.05	<0.050	0.050	5610762
1,2-Dichloroethane	ug/g	0.05	<0.050	0.050	5610762
1,1-Dichloroethylene	ug/g	0.05	<0.050	0.050	5610762
cis-1,2-Dichloroethylene	ug/g	0.05	<0.050	0.050	5610762
trans-1,2-Dichloroethylene	ug/g	0.05	<0.050	0.050	5610762
1,2-Dichloropropane	ug/g	0.05	<0.050	0.050	5610762
cis-1,3-Dichloropropene	ug/g	0.05	<0.030	0.030	5610762
trans-1,3-Dichloropropene	ug/g	0.05	<0.040	0.040	5610762
Ethylbenzene	ug/g	0.05	<0.020	0.020	5610762
Ethylene Dibromide	ug/g	0.05	<0.050	0.050	5610762
Hexane	ug/g	0.05	<0.050	0.050	5610762
Methylene Chloride(Dichloromethane)	ug/g	0.05	<0.050	0.050	5610762
Methyl Ethyl Ketone (2-Butanone)	ug/g	0.5	<0.50	0.50	5610762
Methyl Isobutyl Ketone	ug/g	0.5	<0.50	0.50	5610762
Methyl t-butyl ether (MTBE)	ug/g	0.05	<0.050	0.050	5610762
Styrene	ug/g	0.05	<0.050	0.050	5610762
1,1,1,2-Tetrachloroethane	ug/g	0.05	<0.050	0.050	5610762
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.050	0.050	5610762
Tetrachloroethylene	ug/g	0.05	<0.050	0.050	5610762
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)					
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition					
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

**VOLATILE ORGANICS BY GC/MS (SOIL)**

Maxxam ID			HCG554		
Sampling Date					
COC Number			c#665865-04-01		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
Toluene	ug/g	<b>0.2</b>	<0.020	0.020	5610762
1,1,1-Trichloroethane	ug/g	<b>0.05</b>	<0.050	0.050	5610762
1,1,2-Trichloroethane	ug/g	<b>0.05</b>	<0.050	0.050	5610762
Trichloroethylene	ug/g	<b>0.05</b>	<0.050	0.050	5610762
Trichlorofluoromethane (FREON 11)	ug/g	<b>0.25</b>	<0.050	0.050	5610762
Vinyl Chloride	ug/g	<b>0.02</b>	<0.020	0.020	5610762
p+m-Xylene	ug/g	-	<0.020	0.020	5610762
o-Xylene	ug/g	-	<0.020	0.020	5610762
Total Xylenes	ug/g	<b>0.05</b>	<0.020	0.020	5610762
F1 (C6-C10)	ug/g	<b>25</b>	<10	10	5610762
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	10	5610762
<b>Surrogate Recovery (%)</b>					
4-Bromofluorobenzene	%	-	94		5610762
D10-o-Xylene	%	-	98		5610762
D4-1,2-Dichloroethane	%	-	100		5610762
D8-Toluene	%	-	99		5610762
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			HCG521			HCG539	HCG540		
Sampling Date			2018/06/26			2018/06/27	2018/06/27		
COC Number			670315-01-01			c#670315-02-01	c#670315-02-01		
	UNITS	Criteria	BH18-01 SS1	RDL	QC Batch	BH18-09 SS3	BH18-09 SS4	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>				<0.020	<0.020	0.020	5610172
Toluene	ug/g	<b>0.2</b>				0.053	<0.020	0.020	5610172
Ethylbenzene	ug/g	<b>0.05</b>				<0.020	<0.020	0.020	5610172
o-Xylene	ug/g	-				<0.020	<0.020	0.020	5610172
p+m-Xylene	ug/g	-				<0.040	<0.040	0.040	5610172
Total Xylenes	ug/g	<b>0.05</b>				<0.040	<0.040	0.040	5610172
<b>F2-F4 Hydrocarbons</b>									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<b>120</b>	<b>650</b>	100	5618763				
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-				100	100		5610172
4-Bromofluorobenzene	%	-				99	99		5610172
D10-Ethylbenzene	%	-				90	97		5610172
D4-1,2-Dichloroethane	%	-				105	104		5610172
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			HCG541	HCG542			HCG543		
Sampling Date			2018/06/27	2018/06/27			2018/06/26		
COC Number			c#670315-03-01	c#670315-03-01			c#670315-03-01		
	UNITS	Criteria	BH18-10 SS3	BH18-10 SS4	RDL	QC Batch	BH18-11 SS4	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>	<0.020	<0.020	0.020	5610172			
Toluene	ug/g	<b>0.2</b>	<0.020	<0.020	0.020	5610172			
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	<0.020	0.020	5610172			
o-Xylene	ug/g	-	<0.020	<0.020	0.020	5610172			
p+m-Xylene	ug/g	-	<0.040	<0.040	0.040	5610172			
Total Xylenes	ug/g	<b>0.05</b>	<0.040	<0.040	0.040	5610172			
<b>F2-F4 Hydrocarbons</b>									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<b>120</b>					<b>22000</b>	100	5618763
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-	100	100		5610172			
4-Bromofluorobenzene	%	-	98	99		5610172			
D10-Ethylbenzene	%	-	87	91		5610172			
D4-1,2-Dichloroethane	%	-	107	106		5610172			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

Maxxam ID			HCG544	HCG548		
Sampling Date			2018/06/26	2018/06/26		
COC Number			c#670315-03-01	c#670315-03-01		
	UNITS	Criteria	BH18-11 SS5	QA/QC #1	RDL	QC Batch
<b>F2-F4 Hydrocarbons</b>						
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<b>120</b>	<b>9900</b>	<b>8300</b>	100	5618763
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use						

### TEST SUMMARY

**Maxxam ID:** HCG521  
**Sample ID:** BH18-01 SS1  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
F4G (CCME Hydrocarbons Gravimetric)	BAL	5618763	2018/07/09	2018/07/09	Debra Deslandes
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG522  
**Sample ID:** BH18-01 SS2  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5607610	N/A	2018/07/09	Automated Statchk
Moisture	BAL	5613952	N/A	2018/07/05	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5615402	2018/07/05	2018/07/06	Mitesh Raj

**Maxxam ID:** HCG523  
**Sample ID:** BH18-01 SS3  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5613287	2018/07/05	2018/07/06	Louise Harding
Conductivity	AT	5615919	2018/07/06	2018/07/06	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5614168	2018/07/05	2018/07/05	Matthew Ritenburg
Moisture	BAL	5613690	N/A	2018/07/05	Min Yang
Sodium Adsorption Ratio (SAR)	CALC/MET	5607680	N/A	2018/07/06	Automated Statchk

**Maxxam ID:** HCG524  
**Sample ID:** BH18-01 SS4  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG525  
**Sample ID:** BH18-02 SS2  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

### TEST SUMMARY

**Maxxam ID:** HCG526  
**Sample ID:** BH18-02 SS5  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG526 Dup  
**Sample ID:** BH18-02 SS5  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu

**Maxxam ID:** HCG527  
**Sample ID:** BH18-03 SS5  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG528  
**Sample ID:** BH18-04 SS2  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG529  
**Sample ID:** BH18-04 SS3  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5607610	N/A	2018/07/09	Automated Statchk
Free (WAD) Cyanide	TECH	5613287	2018/07/05	2018/07/06	Louise Harding
Conductivity	AT	5615919	2018/07/06	2018/07/06	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5614168	2018/07/05	2018/07/05	Matthew Ritenburg
Moisture	BAL	5613952	N/A	2018/07/05	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5615402	2018/07/05	2018/07/06	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5607680	N/A	2018/07/06	Automated Statchk



### TEST SUMMARY

**Maxxam ID:** HCG530  
**Sample ID:** BH18-04 SS6  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG531  
**Sample ID:** BH18-05 SS1  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG532  
**Sample ID:** BH18-05 SS9  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG532 Dup  
**Sample ID:** BH18-05 SS9  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland

**Maxxam ID:** HCG533  
**Sample ID:** BH18-06 SS1  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5613287	2018/07/05	2018/07/06	Louise Harding
Conductivity	AT	5615919	2018/07/06	2018/07/06	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5614168	2018/07/05	2018/07/05	Matthew Ritenburg
Moisture	BAL	5613690	N/A	2018/07/05	Min Yang
Sodium Adsorption Ratio (SAR)	CALC/MET	5607680	N/A	2018/07/06	Automated Statchk

**Maxxam ID:** HCG534  
**Sample ID:** BH18-06 SS3  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland

### TEST SUMMARY

**Maxxam ID:** HCG534  
**Sample ID:** BH18-06 SS3  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG535  
**Sample ID:** BH18-06 SS5  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG536  
**Sample ID:** BH18-07 SS3  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5613287	2018/07/05	2018/07/06	Louise Harding
Conductivity	AT	5615919	2018/07/06	2018/07/06	Tahir Anwar
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Strong Acid Leachable Metals by ICPMS	ICP/MS	5614168	2018/07/05	2018/07/05	Matthew Ritenburg
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan
Sodium Adsorption Ratio (SAR)	CALC/MET	5607680	N/A	2018/07/06	Automated Statchk

**Maxxam ID:** HCG537  
**Sample ID:** BH18-07 SS8  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG538  
**Sample ID:** BH18-08 SS6  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5607610	N/A	2018/07/09	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5611735	2018/07/04	2018/07/06	Anna Stuglik Rolland
Strong Acid Leachable Metals by ICPMS	ICP/MS	5644176	2018/07/24	2018/07/24	Daniel Teclu
Moisture	BAL	5613952	N/A	2018/07/05	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5611696	2018/07/04	2018/07/05	Mitesh Raj

### TEST SUMMARY

**Maxxam ID:** HCG539  
**Sample ID:** BH18-09 SS3  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5607610	N/A	2018/07/09	Automated Statchk
Free (WAD) Cyanide	TECH	5613287	2018/07/05	2018/07/06	Louise Harding
Conductivity	AT	5615919	2018/07/06	2018/07/06	Tahir Anwar
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5614168	2018/07/05	2018/07/05	Matthew Ritenburg
Moisture	BAL	5613690	N/A	2018/07/05	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5615402	2018/07/05	2018/07/06	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5607680	N/A	2018/07/06	Automated Statchk

**Maxxam ID:** HCG540  
**Sample ID:** BH18-09 SS4  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5637097	2018/07/19	2018/07/19	Daniel Teclu
Moisture	BAL	5614004	N/A	2018/07/05	Min Yang

**Maxxam ID:** HCG541  
**Sample ID:** BH18-10 SS3  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5607610	N/A	2018/07/09	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Moisture	BAL	5613952	N/A	2018/07/05	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5615402	2018/07/05	2018/07/06	Mitesh Raj

**Maxxam ID:** HCG542  
**Sample ID:** BH18-10 SS4  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5637097	2018/07/19	2018/07/19	Daniel Teclu
Moisture	BAL	5614004	N/A	2018/07/05	Min Yang

**Maxxam ID:** HCG543  
**Sample ID:** BH18-11 SS4  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5607611	N/A	2018/07/05	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5614354	2018/07/05	2018/07/06	Jeevaraj Jeevaratnam
F4G (CCME Hydrocarbons Gravimetric)	BAL	5618763	2018/07/09	2018/07/09	Debra Deslandes
Moisture	BAL	5611907	N/A	2018/07/04	Min Yang

### TEST SUMMARY

**Maxxam ID:** HCG543  
**Sample ID:** BH18-11 SS4  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds in Soil	GC/MS	5609186	N/A	2018/07/05	Anna Gabrielyan

**Maxxam ID:** HCG544  
**Sample ID:** BH18-11 SS5  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5607611	N/A	2018/07/05	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5610172	N/A	2018/07/06	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5614354	2018/07/05	2018/07/06	Jeevaraj Jeevaratnam
F4G (CCME Hydrocarbons Gravimetric)	BAL	5618763	2018/07/09	2018/07/09	Debra Deslandes
Moisture	BAL	5611907	N/A	2018/07/04	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5609186	N/A	2018/07/05	Anna Gabrielyan

**Maxxam ID:** HCG545  
**Sample ID:** BH18-12 SS2  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5613734	N/A	2018/07/05	Chun Yan
Polychlorinated Biphenyl in Soil	GC/ECD	5610391	2018/07/03	2018/07/04	Svitlana Shaula

**Maxxam ID:** HCG546  
**Sample ID:** BH18-12 SS3  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5612513	N/A	2018/07/07	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG547  
**Sample ID:** BH18-12 SS5  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5612513	N/A	2018/07/07	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG547 Dup  
**Sample ID:** BH18-12 SS5  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

### TEST SUMMARY

**Maxxam ID:** HCG548  
**Sample ID:** QA/QC #1  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5607611	N/A	2018/07/05	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5612513	N/A	2018/07/07	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5614354	2018/07/05	2018/07/06	Jeevaraj Jeevaratnam
F4G (CCME Hydrocarbons Gravimetric)	BAL	5618763	2018/07/09	2018/07/09	Debra Deslandes
Moisture	BAL	5611907	N/A	2018/07/04	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5609186	N/A	2018/07/05	Anna Gabrielyan

**Maxxam ID:** HCG549  
**Sample ID:** QA/QC #2  
**Matrix:** Soil

**Collected:** 2018/06/26  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5612513	N/A	2018/07/07	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG550  
**Sample ID:** QA/QC #3  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5612513	N/A	2018/07/07	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5610354	2018/07/03	2018/07/05	Anna Stuglik Rolland
Moisture	BAL	5611781	N/A	2018/07/04	Chun Yan

**Maxxam ID:** HCG551  
**Sample ID:** QA/QC #4  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5613734	N/A	2018/07/05	Chun Yan
Polychlorinated Biphenyl in Soil	GC/ECD	5610391	2018/07/03	2018/07/04	Svitlana Shaula

**Maxxam ID:** HCG552  
**Sample ID:** QA/QC #5  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5607610	N/A	2018/07/09	Automated Statchk
Moisture	BAL	5613952	N/A	2018/07/05	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5615402	2018/07/05	2018/07/06	Mitesh Raj

### TEST SUMMARY

**Maxxam ID:** HCG553  
**Sample ID:** QA/QC #6  
**Matrix:** Soil

**Collected:** 2018/06/27  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5613287	2018/07/05	2018/07/06	Louise Harding
Conductivity	AT	5615919	2018/07/06	2018/07/06	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5614168	2018/07/05	2018/07/05	Matthew Ritenburg
Moisture	BAL	5613690	N/A	2018/07/05	Min Yang
Sodium Adsorption Ratio (SAR)	CALC/MET	5607680	N/A	2018/07/06	Automated Statchk

**Maxxam ID:** HCG554  
**Sample ID:** TRIP BLANK  
**Matrix:** Soil

**Collected:**  
**Shipped:**  
**Received:** 2018/06/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5610762	N/A	2018/07/06	Manpreet Sarao



### GENERAL COMMENTS

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

Package 1	9.3°C
Package 2	10.3°C

Revised Report (2018/07/11): Result for F1 has been included in this report.

Revised Report (2018/07/24): Metals analysis for samples BH18-08 SS6, BH18-09 SS4, BH18-10 SS4 has been included in this report.

Sample HCG521 [BH18-01 SS1] : F1BTEX Analysis: Detection limits were adjusted for sample weight .

Sample HCG523 [BH18-01 SS3] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HCG529 [BH18-04 SS3] : PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample HCG543 [BH18-11 SS4] : F1/BTEX Analysis:  
The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis

Sample HCG548 [QA/QC #1] : F1 BTEX analysis : Detection limits were adjusted for sample weight and The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis

**Results relate only to the items tested.**



Maxxam Job #: B8G2028  
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**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5609186	4-Bromofluorobenzene	2018/07/05	98	60 - 140	100	60 - 140	95	%		
5609186	D10-o-Xylene	2018/07/05	116	60 - 130	120	60 - 130	97	%		
5609186	D4-1,2-Dichloroethane	2018/07/05	94	60 - 140	98	60 - 140	102	%		
5609186	D8-Toluene	2018/07/05	103	60 - 140	102	60 - 140	94	%		
5610172	1,4-Difluorobenzene	2018/07/05	102	60 - 140	103	60 - 140	99	%		
5610172	4-Bromofluorobenzene	2018/07/05	99	60 - 140	98	60 - 140	99	%		
5610172	D10-Ethylbenzene	2018/07/05	101	60 - 140	88	60 - 140	82	%		
5610172	D4-1,2-Dichloroethane	2018/07/05	106	60 - 140	107	60 - 140	103	%		
5610354	o-Terphenyl	2018/07/05	93	60 - 130	95	60 - 130	95	%		
5610391	Decachlorobiphenyl	2018/07/04	67	60 - 130	91	60 - 130	82	%		
5610762	4-Bromofluorobenzene	2018/07/06	100	60 - 140	100	60 - 140	94	%		
5610762	D10-o-Xylene	2018/07/06	106	60 - 130	91	60 - 130	97	%		
5610762	D4-1,2-Dichloroethane	2018/07/06	100	60 - 140	99	60 - 140	99	%		
5610762	D8-Toluene	2018/07/06	101	60 - 140	103	60 - 140	99	%		
5611696	D10-Anthracene	2018/07/05	76	50 - 130	81	50 - 130	80	%		
5611696	D14-Terphenyl (FS)	2018/07/05	76	50 - 130	82	50 - 130	81	%		
5611696	D8-Acenaphthylene	2018/07/05	69	50 - 130	74	50 - 130	74	%		
5611735	o-Terphenyl	2018/07/05	93	60 - 130	91	60 - 130	91	%		
5612513	1,4-Difluorobenzene	2018/07/07	92	60 - 140	93	60 - 140	94	%		
5612513	4-Bromofluorobenzene	2018/07/07	93	60 - 140	96	60 - 140	99	%		
5612513	D10-Ethylbenzene	2018/07/07	108	60 - 140	104	60 - 140	91	%		
5612513	D4-1,2-Dichloroethane	2018/07/07	94	60 - 140	99	60 - 140	100	%		
5614354	o-Terphenyl	2018/07/05	104	60 - 130	94	60 - 130	93	%		
5615402	D10-Anthracene	2018/07/05	77	50 - 130	82	50 - 130	76	%		
5615402	D14-Terphenyl (FS)	2018/07/05	74	50 - 130	78	50 - 130	68	%		
5615402	D8-Acenaphthylene	2018/07/05	76	50 - 130	76	50 - 130	72	%		
5609186	1,1,1,2-Tetrachloroethane	2018/07/05	94	60 - 140	96	60 - 130	<0.050	ug/g		
5609186	1,1,1-Trichloroethane	2018/07/05	96	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	1,1,2,2-Tetrachloroethane	2018/07/05	89	60 - 140	97	60 - 130	<0.050	ug/g		
5609186	1,1,2-Trichloroethane	2018/07/05	91	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	1,1-Dichloroethane	2018/07/05	93	60 - 140	94	60 - 130	<0.050	ug/g		
5609186	1,1-Dichloroethylene	2018/07/05	94	60 - 140	93	60 - 130	<0.050	ug/g		



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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5609186	1,2-Dichlorobenzene	2018/07/05	97	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	1,2-Dichloroethane	2018/07/05	92	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5609186	1,2-Dichloropropane	2018/07/05	94	60 - 140	96	60 - 130	<0.050	ug/g		
5609186	1,3-Dichlorobenzene	2018/07/05	97	60 - 140	93	60 - 130	<0.050	ug/g		
5609186	1,4-Dichlorobenzene	2018/07/05	98	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	Acetone (2-Propanone)	2018/07/05	93	60 - 140	105	60 - 140	<0.50	ug/g		
5609186	Benzene	2018/07/05	96	60 - 140	96	60 - 130	<0.020	ug/g		
5609186	Bromodichloromethane	2018/07/05	91	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	Bromoform	2018/07/05	89	60 - 140	96	60 - 130	<0.050	ug/g		
5609186	Bromomethane	2018/07/05	76	60 - 140	79	60 - 140	<0.050	ug/g		
5609186	Carbon Tetrachloride	2018/07/05	96	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	Chlorobenzene	2018/07/05	96	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	Chloroform	2018/07/05	94	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	cis-1,2-Dichloroethylene	2018/07/05	92	60 - 140	94	60 - 130	<0.050	ug/g		
5609186	cis-1,3-Dichloropropene	2018/07/05	81	60 - 140	85	60 - 130	<0.030	ug/g		
5609186	Dibromochloromethane	2018/07/05	91	60 - 140	96	60 - 130	<0.050	ug/g		
5609186	Dichlorodifluoromethane (FREON 12)	2018/07/05	73	60 - 140	81	60 - 140	<0.050	ug/g		
5609186	Ethylbenzene	2018/07/05	99	60 - 140	95	60 - 130	<0.020	ug/g		
5609186	Ethylene Dibromide	2018/07/05	92	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
5609186	Hexane	2018/07/05	97	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5609186	Methyl Ethyl Ketone (2-Butanone)	2018/07/05	92	60 - 140	106	60 - 140	<0.50	ug/g		
5609186	Methyl Isobutyl Ketone	2018/07/05	89	60 - 140	101	60 - 130	<0.50	ug/g		
5609186	Methyl t-butyl ether (MTBE)	2018/07/05	91	60 - 140	94	60 - 130	<0.050	ug/g		
5609186	Methylene Chloride(Dichloromethane)	2018/07/05	87	60 - 140	89	60 - 130	<0.050	ug/g		
5609186	o-Xylene	2018/07/05	98	60 - 140	96	60 - 130	<0.020	ug/g		
5609186	p+m-Xylene	2018/07/05	99	60 - 140	96	60 - 130	<0.020	ug/g		
5609186	Styrene	2018/07/05	78	60 - 140	78	60 - 130	<0.050	ug/g		
5609186	Tetrachloroethylene	2018/07/05	97	60 - 140	93	60 - 130	<0.050	ug/g		
5609186	Toluene	2018/07/05	96	60 - 140	95	60 - 130	<0.020	ug/g		
5609186	Total Xylenes	2018/07/05					<0.020	ug/g		
5609186	trans-1,2-Dichloroethylene	2018/07/05	92	60 - 140	92	60 - 130	<0.050	ug/g		
5609186	trans-1,3-Dichloropropene	2018/07/05	80	60 - 140	84	60 - 130	<0.040	ug/g		



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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5609186	Trichloroethylene	2018/07/05	96	60 - 140	95	60 - 130	<0.050	ug/g		
5609186	Trichlorofluoromethane (FREON 11)	2018/07/05	92	60 - 140	92	60 - 130	<0.050	ug/g		
5609186	Vinyl Chloride	2018/07/05	87	60 - 140	89	60 - 130	<0.020	ug/g		
5610172	Benzene	2018/07/06	92	60 - 140	97	60 - 140	<0.020	ug/g	NC	50
5610172	Ethylbenzene	2018/07/06	95	60 - 140	101	60 - 140	<0.020	ug/g	NC	50
5610172	F1 (C6-C10) - BTEX	2018/07/05					<10	ug/g		
5610172	F1 (C6-C10)	2018/07/05	75	60 - 140	84	80 - 120	<10	ug/g		
5610172	o-Xylene	2018/07/06	99	60 - 140	103	60 - 140	<0.020	ug/g	NC	50
5610172	p+m-Xylene	2018/07/06	94	60 - 140	98	60 - 140	<0.040	ug/g	NC	50
5610172	Toluene	2018/07/06	89	60 - 140	94	60 - 140	<0.020	ug/g	NC	50
5610172	Total Xylenes	2018/07/06					<0.040	ug/g	NC	50
5610354	F2 (C10-C16 Hydrocarbons)	2018/07/05	94	50 - 130	95	80 - 120	<10	ug/g	NC	30
5610354	F3 (C16-C34 Hydrocarbons)	2018/07/05	91	50 - 130	91	80 - 120	<50	ug/g	NC	30
5610354	F4 (C34-C50 Hydrocarbons)	2018/07/05	85	50 - 130	85	80 - 120	<50	ug/g	NC	30
5610391	Aroclor 1242	2018/07/04					<0.010	ug/g	NC	50
5610391	Aroclor 1248	2018/07/04					<0.010	ug/g	NC	50
5610391	Aroclor 1254	2018/07/04					<0.010	ug/g	NC	50
5610391	Aroclor 1260	2018/07/04	70	30 - 130	109	30 - 130	<0.010	ug/g	NC	50
5610391	Total PCB	2018/07/04	70	30 - 130	109	30 - 130	<0.010	ug/g	NC	50
5610762	1,1,1,2-Tetrachloroethane	2018/07/06	94	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5610762	1,1,1-Trichloroethane	2018/07/06	102	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5610762	1,1,2,2-Tetrachloroethane	2018/07/06	92	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
5610762	1,1,2-Trichloroethane	2018/07/06	95	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5610762	1,1-Dichloroethane	2018/07/06	103	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5610762	1,1-Dichloroethylene	2018/07/06	104	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
5610762	1,2-Dichlorobenzene	2018/07/06	94	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5610762	1,2-Dichloroethane	2018/07/06	99	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5610762	1,2-Dichloropropane	2018/07/06	98	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5610762	1,3-Dichlorobenzene	2018/07/06	95	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5610762	1,4-Dichlorobenzene	2018/07/06	97	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5610762	Acetone (2-Propanone)	2018/07/06	101	60 - 140	97	60 - 140	<0.50	ug/g	NC	50
5610762	Benzene	2018/07/06	100	60 - 140	97	60 - 130	<0.020	ug/g	NC	50



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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5610762	Bromodichloromethane	2018/07/06	95	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5610762	Bromoform	2018/07/06	90	60 - 140	88	60 - 130	<0.050	ug/g	NC	50
5610762	Bromomethane	2018/07/06	96	60 - 140	94	60 - 140	<0.050	ug/g	NC	50
5610762	Carbon Tetrachloride	2018/07/06	102	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5610762	Chlorobenzene	2018/07/06	93	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
5610762	Chloroform	2018/07/06	101	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5610762	cis-1,2-Dichloroethylene	2018/07/06	101	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5610762	cis-1,3-Dichloropropene	2018/07/06	90	60 - 140	87	60 - 130	<0.030	ug/g	NC	50
5610762	Dibromochloromethane	2018/07/06	89	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
5610762	Dichlorodifluoromethane (FREON 12)	2018/07/06	101	60 - 140	101	60 - 140	<0.050	ug/g	NC	50
5610762	Ethylbenzene	2018/07/06	93	60 - 140	91	60 - 130	<0.020	ug/g	0.97	50
5610762	Ethylene Dibromide	2018/07/06	95	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5610762	F1 (C6-C10) - BTEX	2018/07/06					<10	ug/g	NC	30
5610762	F1 (C6-C10)	2018/07/06	127	60 - 140	96	80 - 120	<10	ug/g	NC	30
5610762	Hexane	2018/07/06	98	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5610762	Methyl Ethyl Ketone (2-Butanone)	2018/07/06	90	60 - 140	87	60 - 140	<0.50	ug/g	NC	50
5610762	Methyl Isobutyl Ketone	2018/07/06	83	60 - 140	80	60 - 130	<0.50	ug/g	NC	50
5610762	Methyl t-butyl ether (MTBE)	2018/07/06	100	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5610762	Methylene Chloride(Dichloromethane)	2018/07/06	109	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
5610762	o-Xylene	2018/07/06	94	60 - 140	91	60 - 130	<0.020	ug/g	1.4	50
5610762	p+m-Xylene	2018/07/06	89	60 - 140	87	60 - 130	<0.020	ug/g	0.83	50
5610762	Styrene	2018/07/06	90	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
5610762	Tetrachloroethylene	2018/07/06	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5610762	Toluene	2018/07/06	96	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
5610762	Total Xylenes	2018/07/06					<0.020	ug/g	0.99	50
5610762	trans-1,2-Dichloroethylene	2018/07/06	105	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
5610762	trans-1,3-Dichloropropene	2018/07/06	92	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
5610762	Trichloroethylene	2018/07/06	102	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5610762	Trichlorofluoromethane (FREON 11)	2018/07/06	110	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
5610762	Vinyl Chloride	2018/07/06	104	60 - 140	102	60 - 130	<0.020	ug/g	NC	50
5611696	1-Methylnaphthalene	2018/07/05	95	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
5611696	2-Methylnaphthalene	2018/07/05	87	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40



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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5611696	Acenaphthene	2018/07/05	84	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5611696	Acenaphthylene	2018/07/05	84	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5611696	Anthracene	2018/07/05	82	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5611696	Benzo(a)anthracene	2018/07/05	87	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5611696	Benzo(a)pyrene	2018/07/05	84	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5611696	Benzo(b/j)fluoranthene	2018/07/05	87	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5611696	Benzo(g,h,i)perylene	2018/07/05	64	50 - 130	64	50 - 130	<0.0050	ug/g	NC	40
5611696	Benzo(k)fluoranthene	2018/07/05	84	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5611696	Chrysene	2018/07/05	88	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5611696	Dibenz(a,h)anthracene	2018/07/05	59	50 - 130	56	50 - 130	<0.0050	ug/g	NC	40
5611696	Fluoranthene	2018/07/05	88	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5611696	Fluorene	2018/07/05	82	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5611696	Indeno(1,2,3-cd)pyrene	2018/07/05	66	50 - 130	65	50 - 130	<0.0050	ug/g	NC	40
5611696	Naphthalene	2018/07/05	80	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5611696	Phenanthrene	2018/07/05	86	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5611696	Pyrene	2018/07/05	87	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5611735	F2 (C10-C16 Hydrocarbons)	2018/07/06	94	50 - 130	93	80 - 120	<10	ug/g	NC	30
5611735	F3 (C16-C34 Hydrocarbons)	2018/07/06	89	50 - 130	86	80 - 120	<50	ug/g	NC	30
5611735	F4 (C34-C50 Hydrocarbons)	2018/07/06	88	50 - 130	85	80 - 120	<50	ug/g	NC	30
5611781	Moisture	2018/07/04							3.7	20
5611907	Moisture	2018/07/04							4.8	20
5612513	Benzene	2018/07/07	109	60 - 140	115	60 - 140	<0.020	ug/g	NC	50
5612513	Ethylbenzene	2018/07/07	108	60 - 140	109	60 - 140	<0.020	ug/g	NC	50
5612513	F1 (C6-C10) - BTEX	2018/07/07					<10	ug/g	NC	30
5612513	F1 (C6-C10)	2018/07/07	117	60 - 140	102	80 - 120	<10	ug/g	NC	30
5612513	o-Xylene	2018/07/07	116	60 - 140	115	60 - 140	<0.020	ug/g	NC	50
5612513	p+m-Xylene	2018/07/07	104	60 - 140	104	60 - 140	<0.040	ug/g	NC	50
5612513	Toluene	2018/07/07	96	60 - 140	110	60 - 140	<0.020	ug/g	NC	50
5612513	Total Xylenes	2018/07/07					<0.040	ug/g	NC	50
5613287	WAD Cyanide (Free)	2018/07/06	110	75 - 125	98	80 - 120	<0.01	ug/g	NC	35
5613690	Moisture	2018/07/05							1.3	20
5613734	Moisture	2018/07/05							4.8	20





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**QUALITY ASSURANCE REPORT(CONT'D)**

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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5613952	Moisture	2018/07/05							1.5	20
5614004	Moisture	2018/07/05							4.3	20
5614168	Acid Extractable Antimony (Sb)	2018/07/05	94	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
5614168	Acid Extractable Arsenic (As)	2018/07/05	104	75 - 125	101	80 - 120	<1.0	ug/g	2.2	30
5614168	Acid Extractable Barium (Ba)	2018/07/05	NC	75 - 125	105	80 - 120	<0.50	ug/g	0.16	30
5614168	Acid Extractable Beryllium (Be)	2018/07/05	105	75 - 125	101	80 - 120	<0.20	ug/g	0.94	30
5614168	Acid Extractable Boron (B)	2018/07/05	98	75 - 125	95	80 - 120	<5.0	ug/g	NC	30
5614168	Acid Extractable Cadmium (Cd)	2018/07/05	103	75 - 125	103	80 - 120	<0.10	ug/g	3.0	30
5614168	Acid Extractable Chromium (Cr)	2018/07/05	104	75 - 125	101	80 - 120	<1.0	ug/g	0.14	30
5614168	Acid Extractable Cobalt (Co)	2018/07/05	105	75 - 125	100	80 - 120	<0.10	ug/g	5.0	30
5614168	Acid Extractable Copper (Cu)	2018/07/05	96	75 - 125	98	80 - 120	<0.50	ug/g	5.7	30
5614168	Acid Extractable Lead (Pb)	2018/07/05	111	75 - 125	106	80 - 120	<1.0	ug/g	2.9	30
5614168	Acid Extractable Mercury (Hg)	2018/07/05	106	75 - 125	100	80 - 120	<0.050	ug/g	8.5	30
5614168	Acid Extractable Molybdenum (Mo)	2018/07/05	102	75 - 125	102	80 - 120	<0.50	ug/g	6.1	30
5614168	Acid Extractable Nickel (Ni)	2018/07/05	105	75 - 125	101	80 - 120	<0.50	ug/g	1.8	30
5614168	Acid Extractable Selenium (Se)	2018/07/05	110	75 - 125	105	80 - 120	<0.50	ug/g	NC	30
5614168	Acid Extractable Silver (Ag)	2018/07/05	99	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
5614168	Acid Extractable Thallium (Tl)	2018/07/05	107	75 - 125	103	80 - 120	<0.050	ug/g	11	30
5614168	Acid Extractable Uranium (U)	2018/07/05	104	75 - 125	99	80 - 120	<0.050	ug/g	0.073	30
5614168	Acid Extractable Vanadium (V)	2018/07/05	NC	75 - 125	98	80 - 120	<5.0	ug/g	2.3	30
5614168	Acid Extractable Zinc (Zn)	2018/07/05	NC	75 - 125	103	80 - 120	<5.0	ug/g	5.1	30
5614354	F2 (C10-C16 Hydrocarbons)	2018/07/06	101	50 - 130	87	80 - 120	<10	ug/g	NC	30
5614354	F3 (C16-C34 Hydrocarbons)	2018/07/06	100	50 - 130	88	80 - 120	<50	ug/g	NC	30
5614354	F4 (C34-C50 Hydrocarbons)	2018/07/06	98	50 - 130	85	80 - 120	<50	ug/g	NC	30
5615402	1-Methylnaphthalene	2018/07/05	95	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
5615402	2-Methylnaphthalene	2018/07/05	88	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5615402	Acenaphthene	2018/07/05	86	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5615402	Acenaphthylene	2018/07/05	87	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5615402	Anthracene	2018/07/05	86	50 - 130	81	50 - 130	<0.0050	ug/g		
5615402	Benzo(a)anthracene	2018/07/05	90	50 - 130	84	50 - 130	<0.0050	ug/g		
5615402	Benzo(a)pyrene	2018/07/05	86	50 - 130	88	50 - 130	<0.0050	ug/g		
5615402	Benzo(b/j)fluoranthene	2018/07/05	78	50 - 130	95	50 - 130	<0.0050	ug/g		



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**QUALITY ASSURANCE REPORT(CONT'D)**

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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5615402	Benzo(g,h,i)perylene	2018/07/05	75	50 - 130	79	50 - 130	<0.0050	ug/g		
5615402	Benzo(k)fluoranthene	2018/07/05	99	50 - 130	81	50 - 130	<0.0050	ug/g		
5615402	Chrysene	2018/07/05	92	50 - 130	96	50 - 130	<0.0050	ug/g		
5615402	Dibenz(a,h)anthracene	2018/07/05	79	50 - 130	72	50 - 130	<0.0050	ug/g		
5615402	Fluoranthene	2018/07/05	83	50 - 130	82	50 - 130	<0.0050	ug/g		
5615402	Fluorene	2018/07/05	88	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5615402	Indeno(1,2,3-cd)pyrene	2018/07/05	83	50 - 130	79	50 - 130	<0.0050	ug/g		
5615402	Naphthalene	2018/07/05	88	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5615402	Phenanthrene	2018/07/05	88	50 - 130	92	50 - 130	<0.0050	ug/g		
5615402	Pyrene	2018/07/05	87	50 - 130	88	50 - 130	<0.0050	ug/g		
5615919	Conductivity	2018/07/06			99	90 - 110	<0.002	mS/cm	1.6	10
5618763	F4G-sg (Grav. Heavy Hydrocarbons)	2018/07/09	NC	65 - 135	102	65 - 135	<100	ug/g	1.2	50
5637097	Acid Extractable Antimony (Sb)	2018/07/19	111	75 - 125	102	80 - 120	<0.20	ug/g	2.9	30
5637097	Acid Extractable Arsenic (As)	2018/07/19	109	75 - 125	103	80 - 120	<1.0	ug/g	1.6	30
5637097	Acid Extractable Barium (Ba)	2018/07/19	NC	75 - 125	105	80 - 120	<0.50	ug/g	2.5	30
5637097	Acid Extractable Beryllium (Be)	2018/07/19	107	75 - 125	100	80 - 120	<0.20	ug/g	2.1	30
5637097	Acid Extractable Boron (B)	2018/07/19	107	75 - 125	98	80 - 120	<5.0	ug/g	1.1	30
5637097	Acid Extractable Cadmium (Cd)	2018/07/19	106	75 - 125	101	80 - 120	<0.10	ug/g	5.0	30
5637097	Acid Extractable Chromium (Cr)	2018/07/19	112	75 - 125	106	80 - 120	<1.0	ug/g	6.8	30
5637097	Acid Extractable Cobalt (Co)	2018/07/19	105	75 - 125	104	80 - 120	<0.10	ug/g	0.31	30
5637097	Acid Extractable Copper (Cu)	2018/07/19	NC	75 - 125	103	80 - 120	<0.50	ug/g	24	30
5637097	Acid Extractable Lead (Pb)	2018/07/19	NC	75 - 125	103	80 - 120	<1.0	ug/g	0.63	30
5637097	Acid Extractable Mercury (Hg)	2018/07/19	NC	75 - 125	104	80 - 120	<0.050	ug/g	0.34	30
5637097	Acid Extractable Molybdenum (Mo)	2018/07/19	112	75 - 125	103	80 - 120	<0.50	ug/g	0.72	30
5637097	Acid Extractable Nickel (Ni)	2018/07/19	113	75 - 125	102	80 - 120	<0.50	ug/g	5.1	30
5637097	Acid Extractable Selenium (Se)	2018/07/19	107	75 - 125	105	80 - 120	<0.50	ug/g	NC	30
5637097	Acid Extractable Silver (Ag)	2018/07/19	103	75 - 125	100	80 - 120	<0.20	ug/g	0.62	30
5637097	Acid Extractable Thallium (Tl)	2018/07/19	104	75 - 125	103	80 - 120	<0.050	ug/g	2.1	30
5637097	Acid Extractable Uranium (U)	2018/07/19	105	75 - 125	102	80 - 120	<0.050	ug/g	0.96	30
5637097	Acid Extractable Vanadium (V)	2018/07/19	114	75 - 125	105	80 - 120	<5.0	ug/g	0.40	30
5637097	Acid Extractable Zinc (Zn)	2018/07/19	NC	75 - 125	109	80 - 120	<5.0	ug/g	0.27	30
5644176	Acid Extractable Antimony (Sb)	2018/07/24	100	75 - 125	102	80 - 120	<0.20	ug/g	NC	30



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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5644176	Acid Extractable Arsenic (As)	2018/07/24	99	75 - 125	98	80 - 120	<1.0	ug/g	4.2	30
5644176	Acid Extractable Barium (Ba)	2018/07/24	NC	75 - 125	100	80 - 120	<0.50	ug/g	0.35	30
5644176	Acid Extractable Beryllium (Be)	2018/07/24	101	75 - 125	100	80 - 120	<0.20	ug/g	0.58	30
5644176	Acid Extractable Boron (B)	2018/07/24	98	75 - 125	95	80 - 120	<5.0	ug/g	NC	30
5644176	Acid Extractable Cadmium (Cd)	2018/07/24	99	75 - 125	99	80 - 120	<0.10	ug/g	NC	30
5644176	Acid Extractable Chromium (Cr)	2018/07/24	104	75 - 125	101	80 - 120	<1.0	ug/g	4.2	30
5644176	Acid Extractable Cobalt (Co)	2018/07/24	99	75 - 125	99	80 - 120	<0.10	ug/g	1.1	30
5644176	Acid Extractable Copper (Cu)	2018/07/24	98	75 - 125	98	80 - 120	<0.50	ug/g	1.5	30
5644176	Acid Extractable Lead (Pb)	2018/07/24	98	75 - 125	100	80 - 120	<1.0	ug/g	3.2	30
5644176	Acid Extractable Mercury (Hg)	2018/07/24	99	75 - 125	103	80 - 120	<0.050	ug/g	NC	30
5644176	Acid Extractable Molybdenum (Mo)	2018/07/24	99	75 - 125	99	80 - 120	<0.50	ug/g	NC	30
5644176	Acid Extractable Nickel (Ni)	2018/07/24	97	75 - 125	99	80 - 120	<0.50	ug/g	0.84	30
5644176	Acid Extractable Selenium (Se)	2018/07/24	103	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
5644176	Acid Extractable Silver (Ag)	2018/07/24	97	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
5644176	Acid Extractable Thallium (Tl)	2018/07/24	97	75 - 125	100	80 - 120	<0.050	ug/g	15	30
5644176	Acid Extractable Uranium (U)	2018/07/24	95	75 - 125	94	80 - 120	<0.050	ug/g	9.7	30
5644176	Acid Extractable Vanadium (V)	2018/07/24	102	75 - 125	98	80 - 120	<5.0	ug/g	2.3	30
5644176	Acid Extractable Zinc (Zn)	2018/07/24	100	75 - 125	101	80 - 120	<5.0	ug/g	9.1	30

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

### VALIDATION SIGNATURE PAGE

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



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Brad Newman, Scientific Service Specialist



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Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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

29-Jun-18 08:40

Gina Baybayan

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<b>INVOICE TO:</b>		<b>REPORT TO:</b>		<b>PROJECT INFORMATION:</b>	
Company Name: #17950 Cambium Environmental Inc	Company Name: #24915 Cambium Environmental Inc	Quotation #: B33923-883408	Bottle Order #: 870315		
Attention: ACCOUNTS PAYABLE	Attention: Natalie Wright	P.O. #	Project Manager: Gina Baybayan		
Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5	Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7	Project: 6820-001	PS4 ENV-1103		
Tel: (705) 742-7900 Fax: (705) 742-7907	Tel: (705) 719-0700 Ext: 402 Fax: (705) 719-0700	Project Name:	Site #		
Email: accounting@cambium-env.com, Evan.Black@cambium	Email: Natalie.Wright@BESCPMEIT@cambium-inc.com	Sampled By:	Barcode: C89703150101		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Requested	
Regulation 153 (2011)						Field Filtered (please circle) Mobile / Hg / Cr VI										Please provide advance notice for rush projects	
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	Other Regulations			Reg 153 Parameters Publications										Regular (Standard) TAT:	
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw	D Reg 153 VOCs by HS (44-44-44)										(will be applied if Rush TAT is not specified)		
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input checked="" type="checkbox"/> For RSC	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw	D Reg 153 P/Am (B&I)										Standard TAT = 5-7 Working days for most tests.		
<input type="checkbox"/> Table 9			<input type="checkbox"/> MISA	<input type="checkbox"/> Municipality	D Reg 153 LC/Phs Metals (Sto)										Please note: Standard TAT for certain tests such as BOD and Dissolved Solids = 5 days - contact your Project Manager for details.		
			<input type="checkbox"/> P/W/O	<input type="checkbox"/> Other	Cyanide, SAK, EC										Job Specific Rush TAT (if applies to entire submission)		
Include Criteria on Certificate of Analysis (Y/N)? <input checked="" type="checkbox"/>						BTEX										Date Requested: _____ Time Required: _____	
Sample Barcode Label	Sample Location/Identification	Date Sampled	Time Sampled	Matrix												# of Bottles	Comments
1	BH18-01 SS1	18/06/26	-	Soil	✓											3	
2	BH18-01 SS2															1	
3	BH18-01 SS3															1	
4	BH18-01 SS4				✓											3	
5	BH18-02 SS2	18/06/27			✓											3	
6	BH18-02 SS5				✓											3	
7	BH18-03 SS5				✓											3	
8	BH18-04 SS2				✓											3	
9	BH18-04 SS3															2	
10	BH18-04 SS6				✓											3	

RELINQUISHED BY: (Signature/Print)	Date: (YYMMDD)	Time	RECEIVED BY: (Signature/Print)	Date: (YYMMDD)	Time	# jars used and not substituted	Laboratory Use Only			
M. L. / Matt Cunningham	18/06/28	13:00	Colin W. WILSON	2018 06 29	08:40		Time Sensitive	Temperature (°C) on Receipt	Custody Seal Present	Yes/No
								9/10/9 9/11/11		Yes/No

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 \*\*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF

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



Maxxam Analytics International Corporation or Maxxam Analytics  
 6740 Campobello Road, Mississauga, Ontario Canada L5N 2L6 Tel: (905) 817-5700 Toll-free 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@Cambium-env.com, Evan.Black@Cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: (705) 719-0700 Email: Natalie.Wright@Cambium-env.com, Natalie.Black@Cambium		<b>PROJECT INFORMATION:</b> Quotation #: B33923- B3408 P.O.#: Project: 6820-001 Project Name: Site #: Sampled By:		<b>Laboratory Use Only:</b> Maxxam Job #: Bottle Order #: COC #: Project Manager: Gina Daylayan	
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MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)						Turnaround Time (TAT) Required: Please provide advance notice for rush projects					
Regulation 153 (2011)			Other Regulations			Special Instructions			Field Filled (Please circle): Metals / Hg / Cr / V	Q Reg 153 Petroleum Hydrocarbons (Soil)	Q Reg 153 VOCs by HS & F1-F4 (Soil)	Q Reg 153 PAHs (Soil)	Q Reg 153 ICPMS Metals (Soil)	BTEX	Cyanide, SAR, EC	Regular (Standard) TAT: <i>(will be applied if Rush TAT is not specified)</i>	
Table 1	Res/Par	Medium/Fine	CCME	Sanitary Sewer Bylaw													
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											Standard TAT = 5-7 Working days for most tests.	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											Please note: Standard TAT for certain tests such as BOD and Dissolved Solids are + 5 days - contact your Project Manager for details.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											Job Specific Rush TAT (if applies to entire submission)	
																Date Required: _____ Time Required: _____	
																Rush Confirmation Number: _____	
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix												# of Bottles	Comments
1	BH18-05 S51	18/06/26	-	So:1												3	
2	BH18-05 S59		-													3	
3	BH18-06 S51		-													1	
4	BH18-06 S53		-													3	
5	BH18-06 S55		-													3	
6	BH18-07 S53		-													4	
7	BH18-07 S58		-													3	
8	BH18-08 S56	18/06/27	-													4	
9	BH18-09 S53		-													5	
10	BH18-09 S54		-													3	

* RELINQUISHED BY: (Signature/Print) Matt Cunningham		Date: (YY/MM/DD) 18/06/28	Time 13:00	RECEIVED BY: (Signature/Print) Soc page one		Date: (YY/MM/DD)	Time	# Jars used and not submitted	Laboratory Use Only		
Time Sensitive	Temperature (°C) on Receipt	Custody Seal Present	Yes	No							

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 6740 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 3 of 4

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: (705) 719-0700 Email: Natalie.Wright@BESCPMPEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: B33923- B33408 P.O. #: 6820-001 Project Name: Site #: Sampled By:		<b>Laboratory Use Only:</b> Maxxam Job #: 870315 Bottle Order #: Project Manager: Gina Baybayan CQC #:  C970315-03-01	
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MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required: Please provide advance notice for rush projects	
Regulation 153 (2011)			Other Regulations			Special Instructions	Field Filtered (please circle): Metals / Hg / Cr / V	Q Reg 153 Petroleum Hydrocarbons (S01)	Q Reg 153 VOCs by HS & F1-F4 (S01)	Q Reg 153 PAHs (S01)	Q Reg 153 ICPEMS Metals (S01)	BTEX	PCBs	Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Phosphorus are > 5 days - contact your Project Manager for details.	Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)		
Table 1	Res/Park	Medium/In	CCME	Sanitary Sewer Bylaw									# of Bottles	Comments			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									4				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									1				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									3				

* RELINQUISHED BY: (Signature/Print) M. Wright / Matt Cunningham		Date: (YYMMDD) 18/06/28	Time 13:00	RECEIVED BY: (Signature/Print) SCE page ONE	Date: (YYMMDD)	Time	# jars used and not submitted	Laboratory Use Only			
Time Sensitive		Temperature (°C) on Receipt		Custody Seal Intact	Yes	No					

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White: Maxxam Yellow: Client  
 SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: Email: Natalie.WrightBEGPMPEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: <del>882843</del> B83468 P.O. #: Project: 6820 - 00J Project Name: Site #: Sampled By:		<b>Laboratory Use Only:</b> Maxxam Job #: Bottle Order #: COC #: Project Manager: Gina Baybayan	
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MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY				ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required: Please provide advance notice for rush projects					
Regulation 153 (2011)			Other Regulations			Special Instructions	Field Filtered (please circle): Metals / Hg / Cr / V	O.Reg 153 VOCs by HS & P L & L (Water)	O.Reg 153 Petroleum Hydrocarbons (Water)	O.Reg 153 PAHs (Water)	O.Reg 153 Metals & Inorganics (Water)	O.Reg 153 PCBs / PCPMS / Mirex (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 PCPMS / Mirex (Soil)	O.Reg 153 Cyanide, SAR, EC	O.Reg 153 VOCs	Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Solids are > 5 days - contact your Project Manager for details.		<input checked="" type="checkbox"/>
<input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input checked="" type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input checked="" type="checkbox"/> For RSC			<input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 55A <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Municipality <input type="checkbox"/> PWQO <input type="checkbox"/> Other																Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)
Include Criteria on Certificate of Analysis (Y/N)? <input checked="" type="checkbox"/>																			
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix													# of Bottles	Comments	
1	QA/QC # 4	18/06/27	-	Soil													1		
2	QA/QC # 5	↓	-	Soil													1		
3	QA/QC # 6	↓	-	Soil													1		
4	Trip Blank	-	-	-													2		
5																			
6																			
7																			
8																			
9																			
10																			

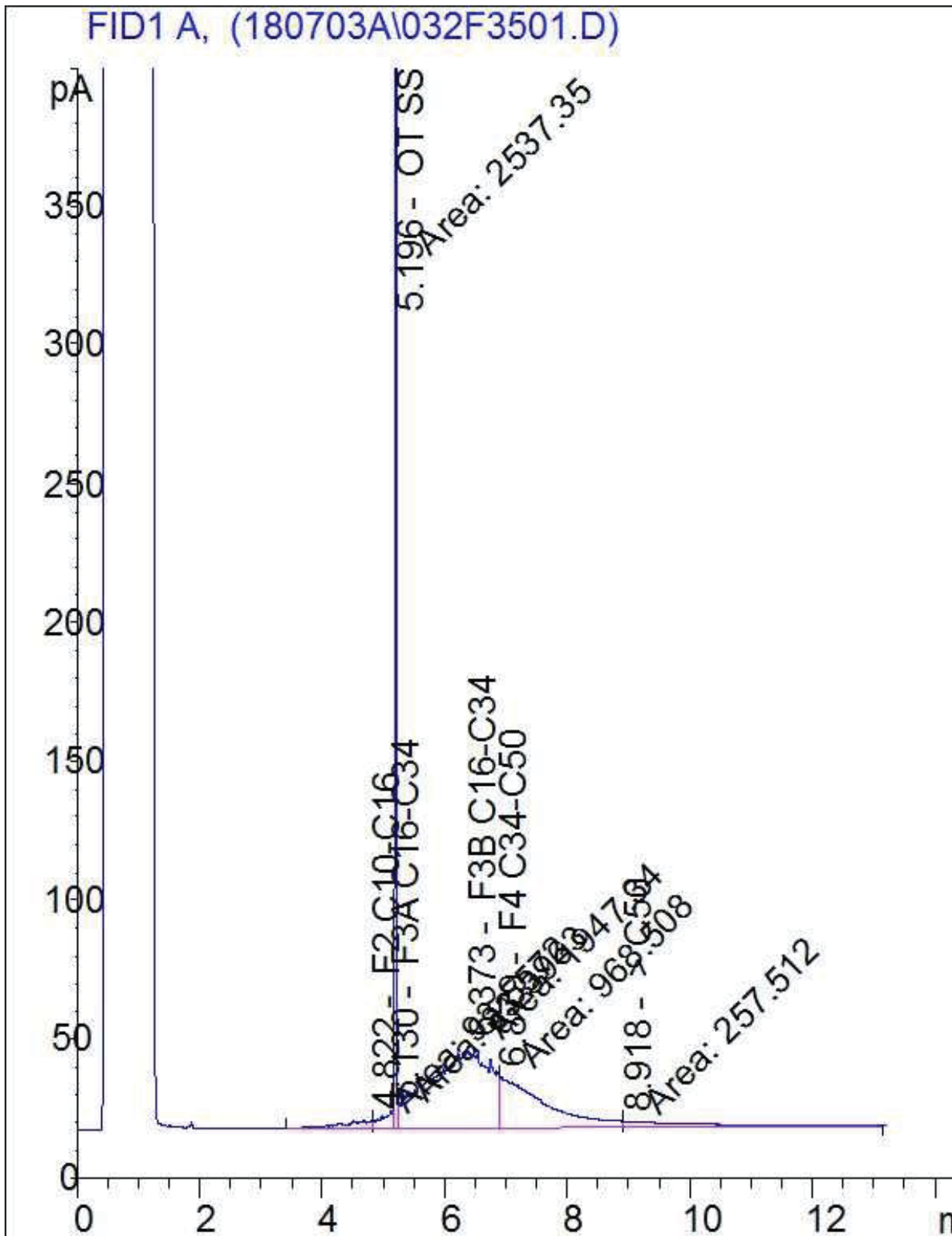
* RELINQUISHED BY: (Signature/Print) M. Leigh T. MacLaughlin	Date: (YY/MM/DD) 18/06/28	Time 13:00	RECEIVED BY: (Signature/Print) SEE PAGE ONE	Date: (YY/MM/DD)	Time	# Jars used and not submitted	Laboratory Use Only	
						Time Sensitive	Temperature (°C) on Receipt	Custody Seal Present Intact
								Yes No

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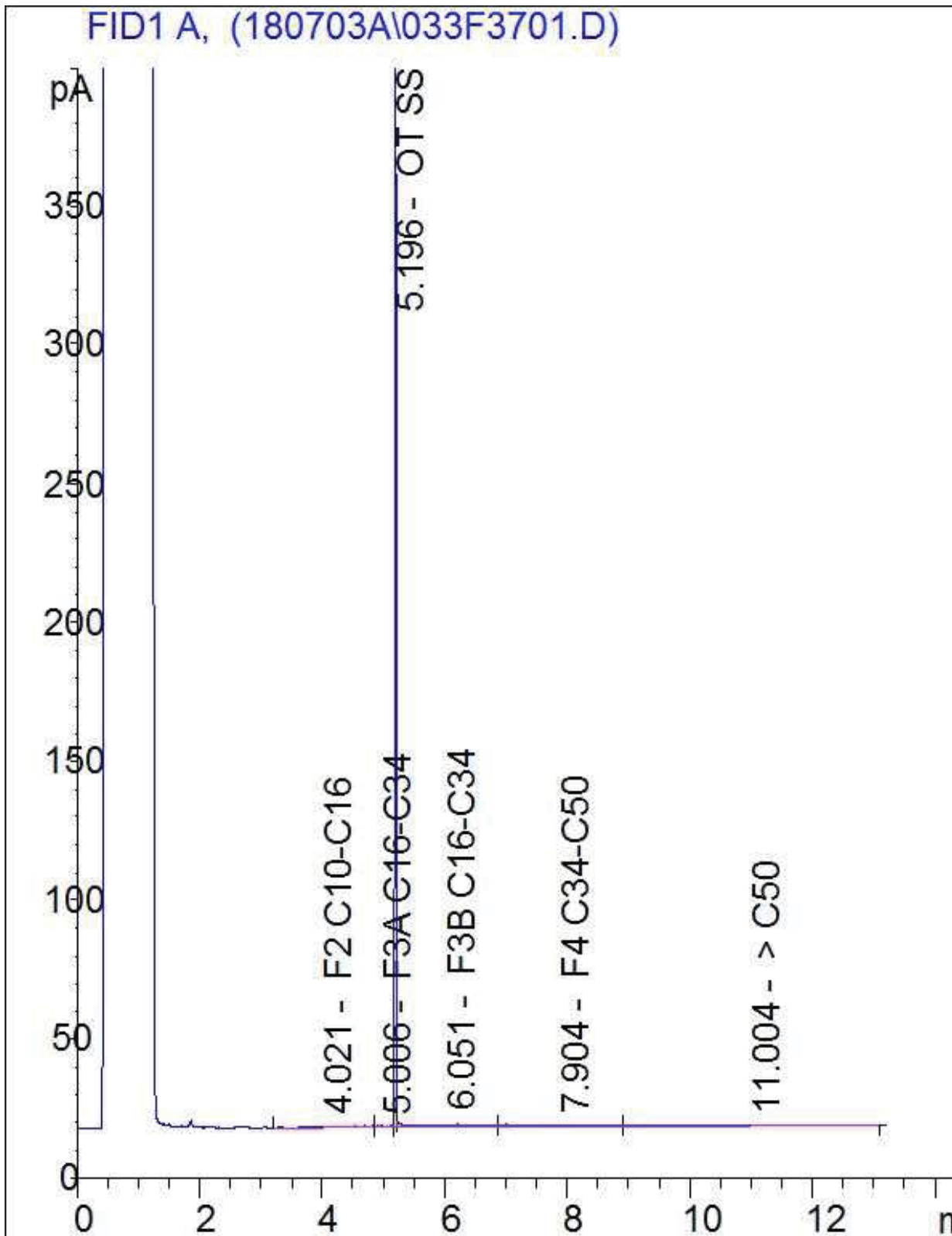
White: Maxxam Yellow: Client

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



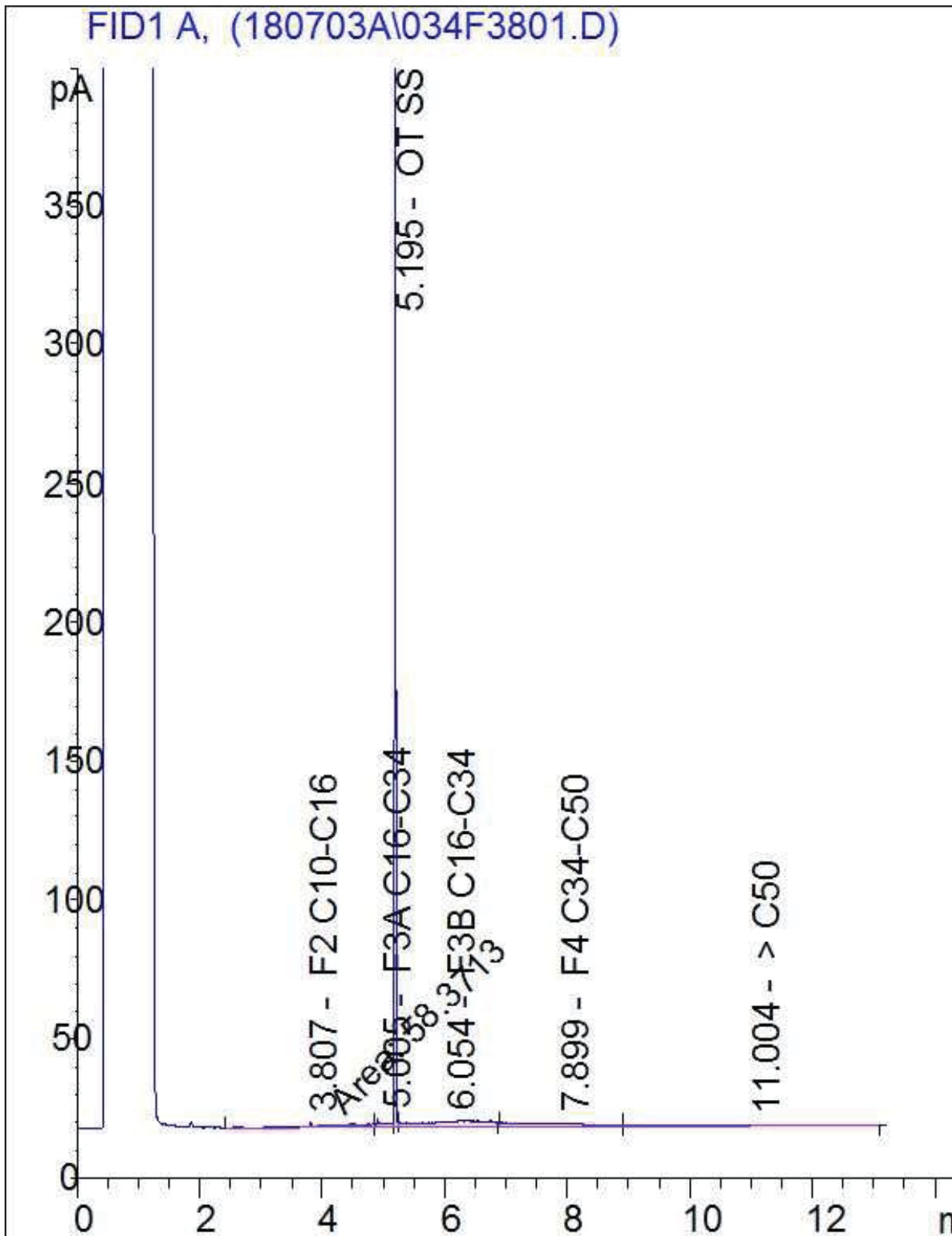
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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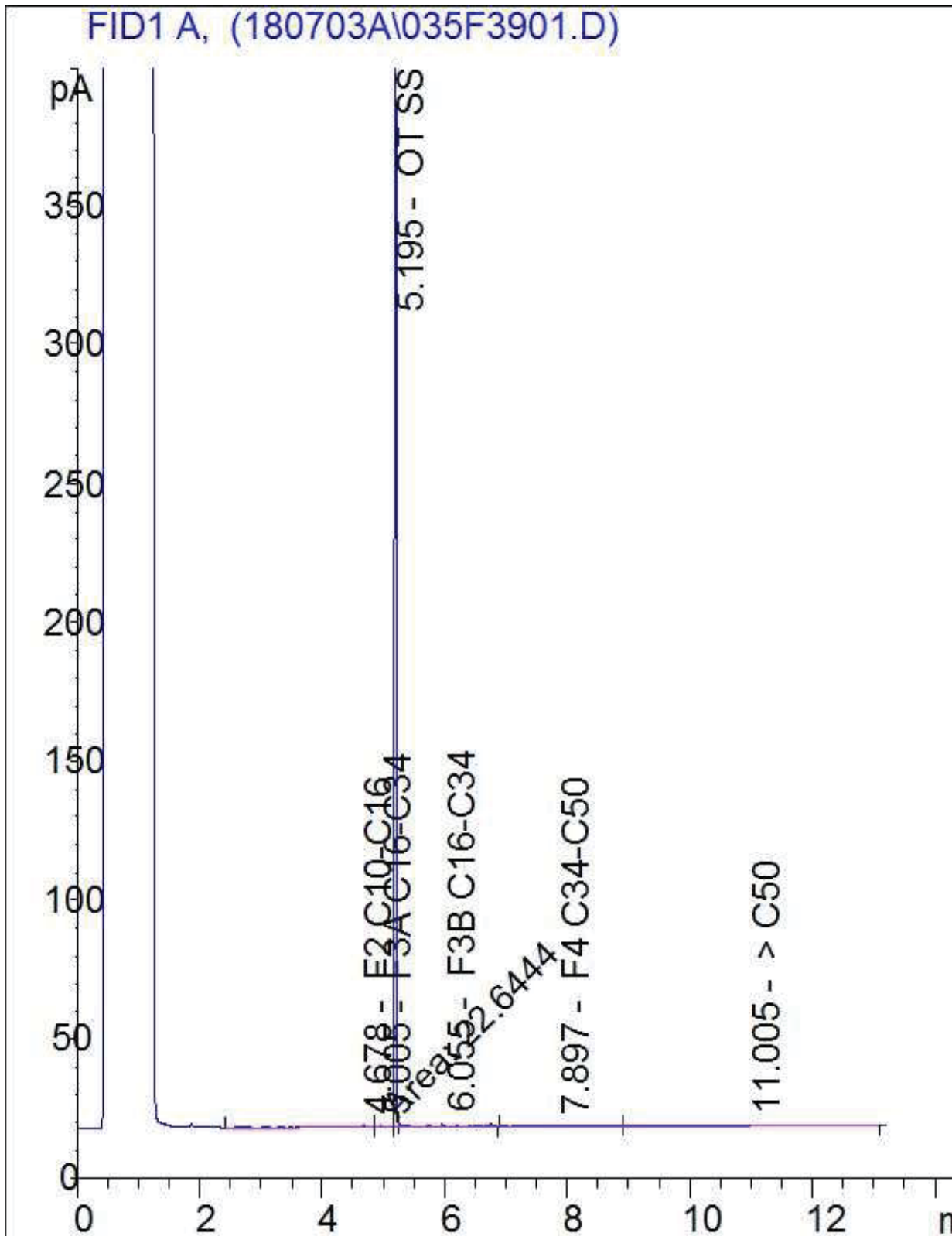
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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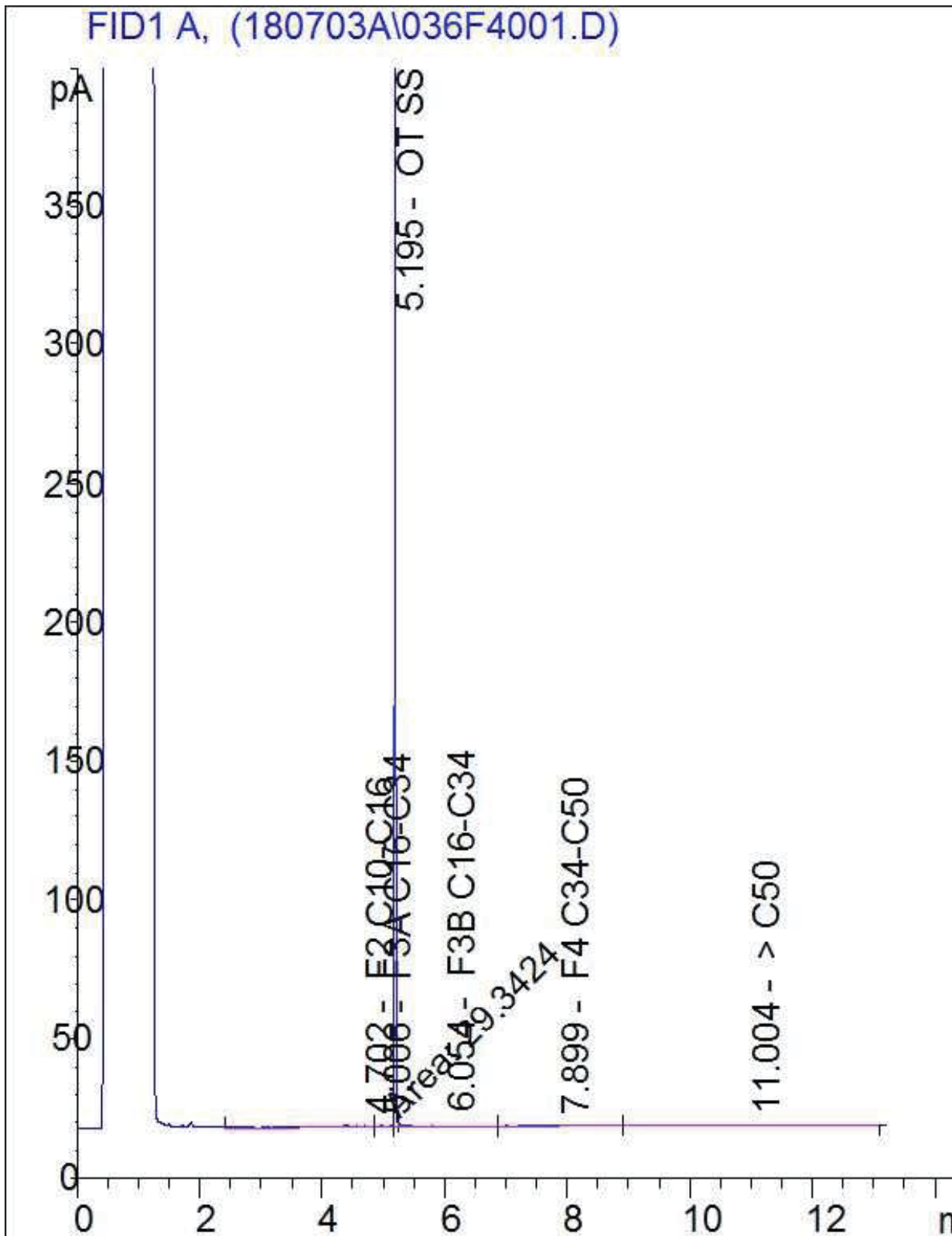
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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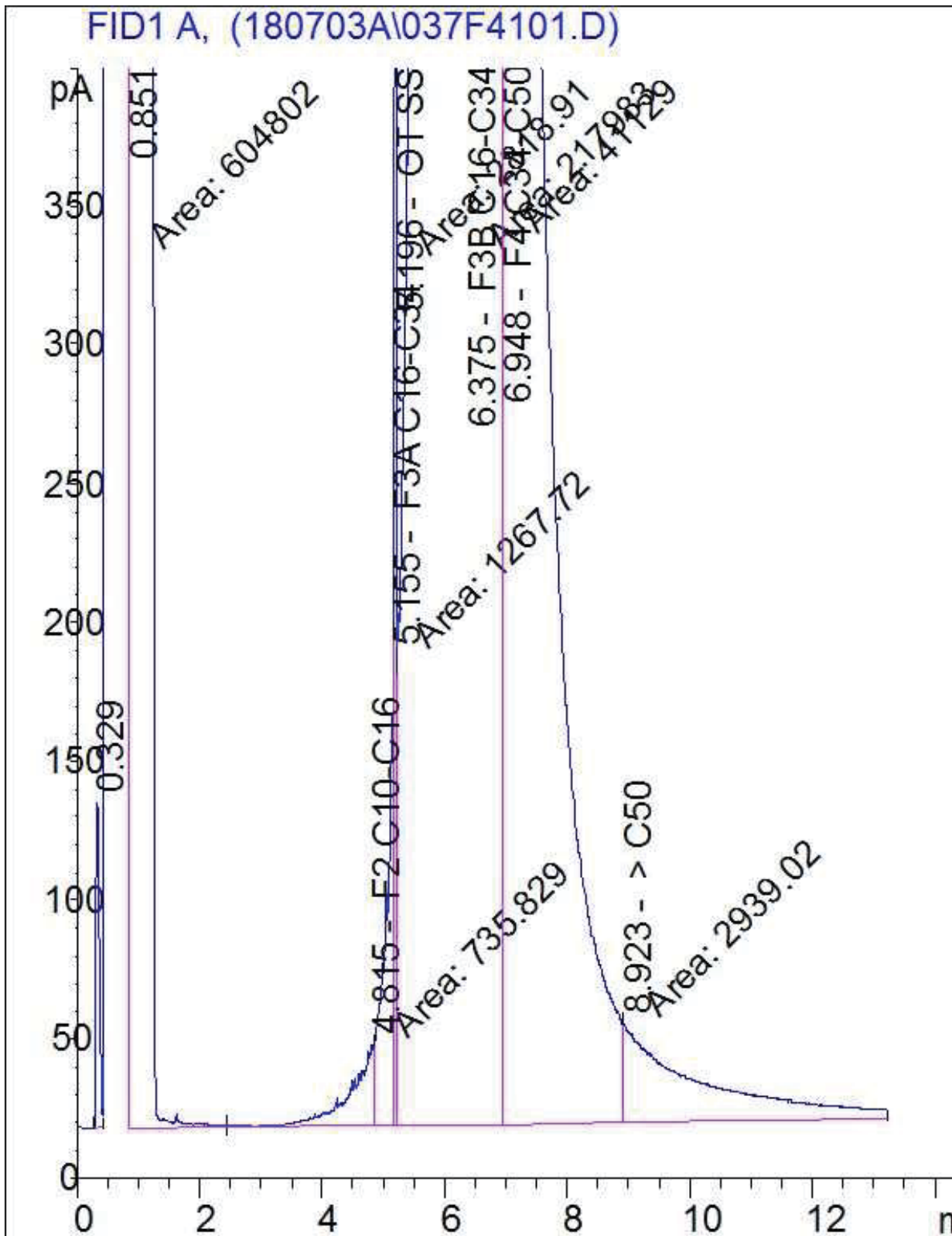


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



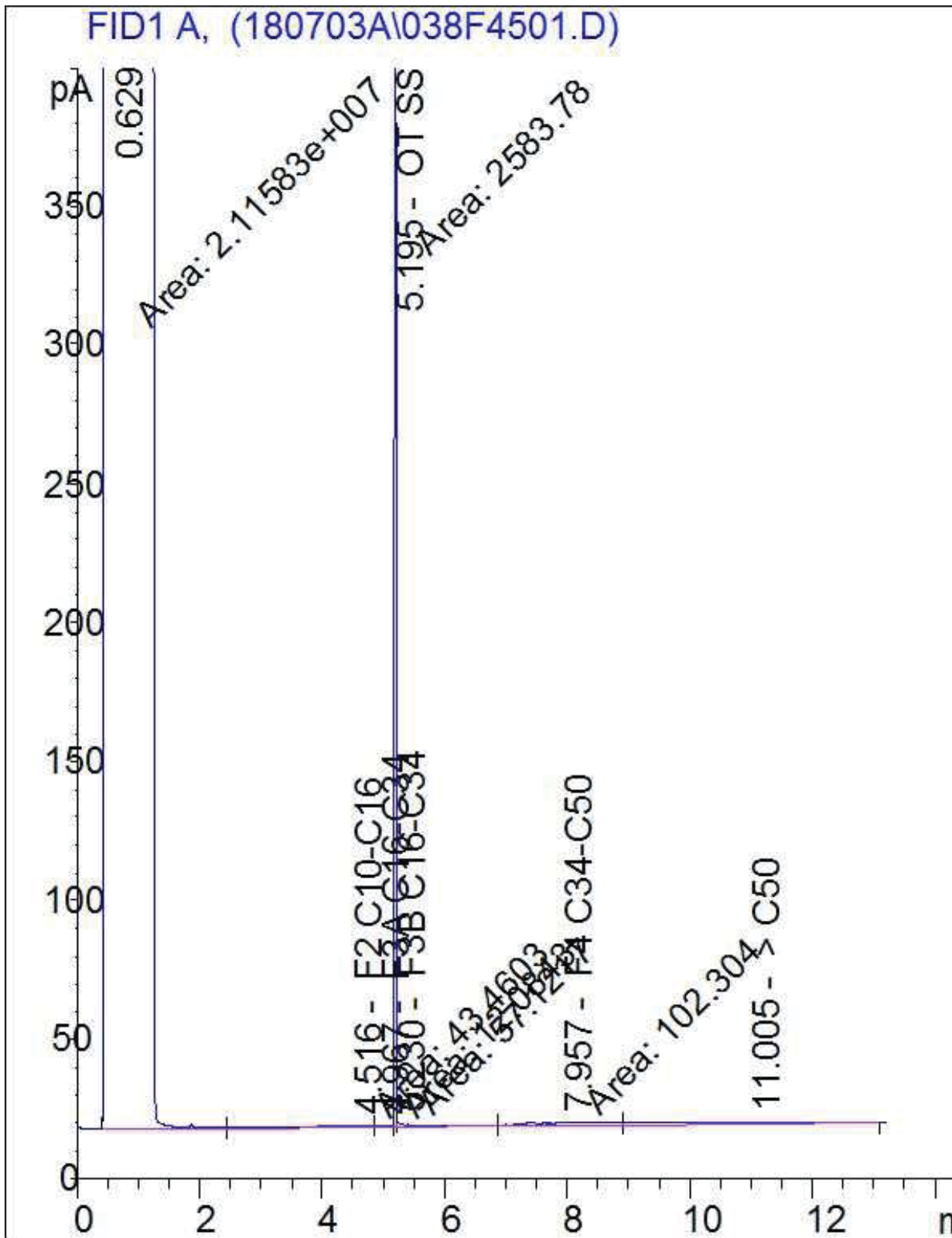
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



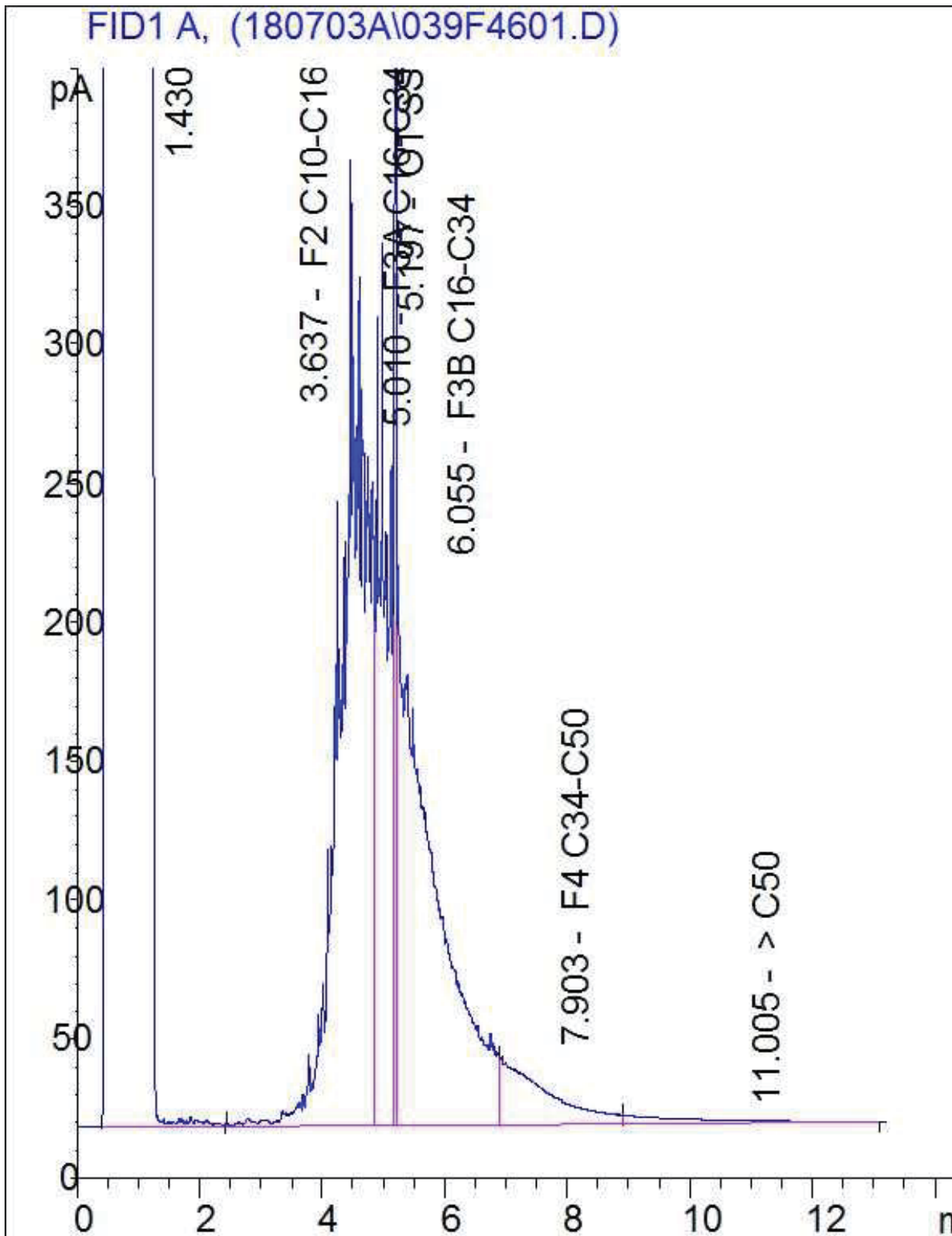
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



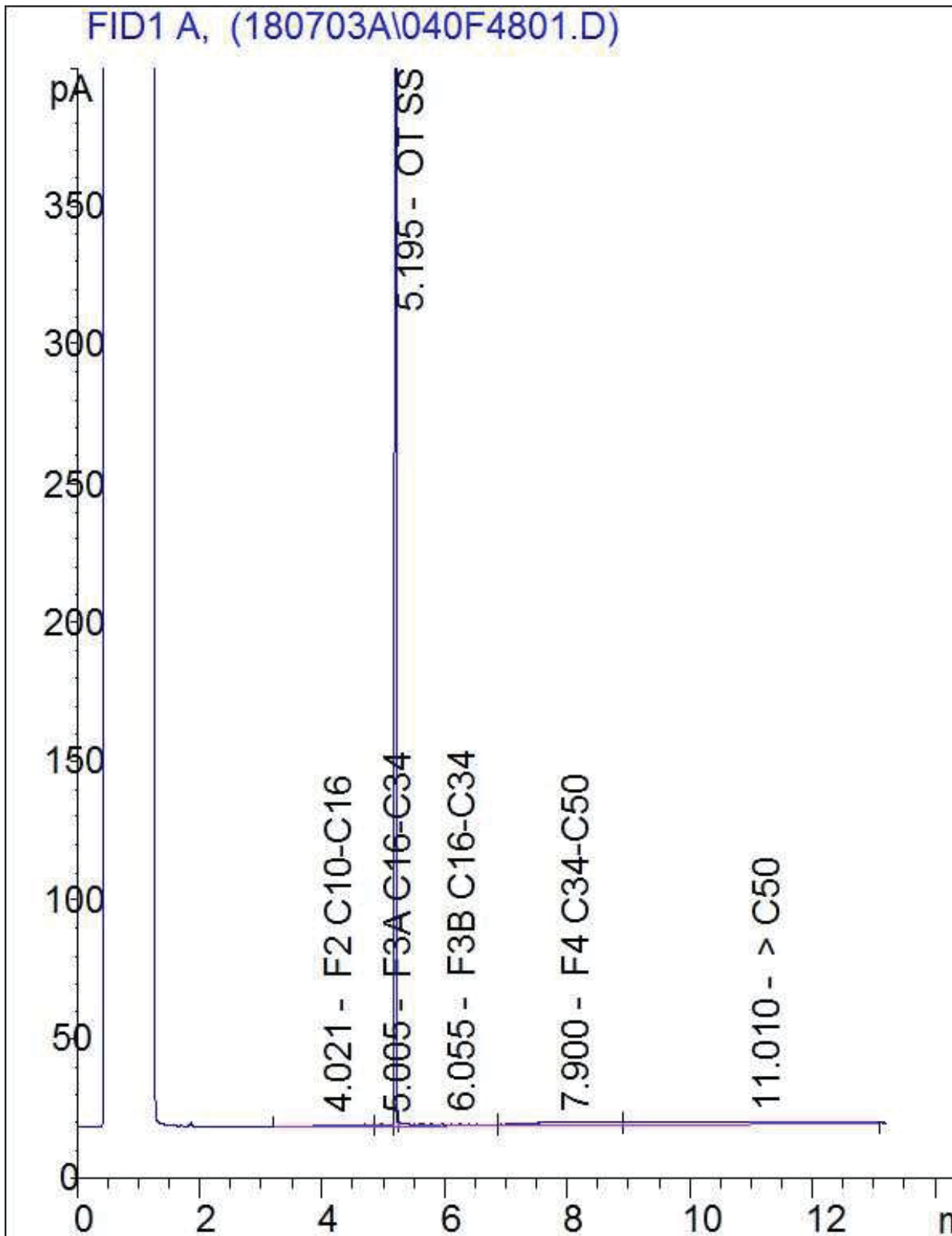
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



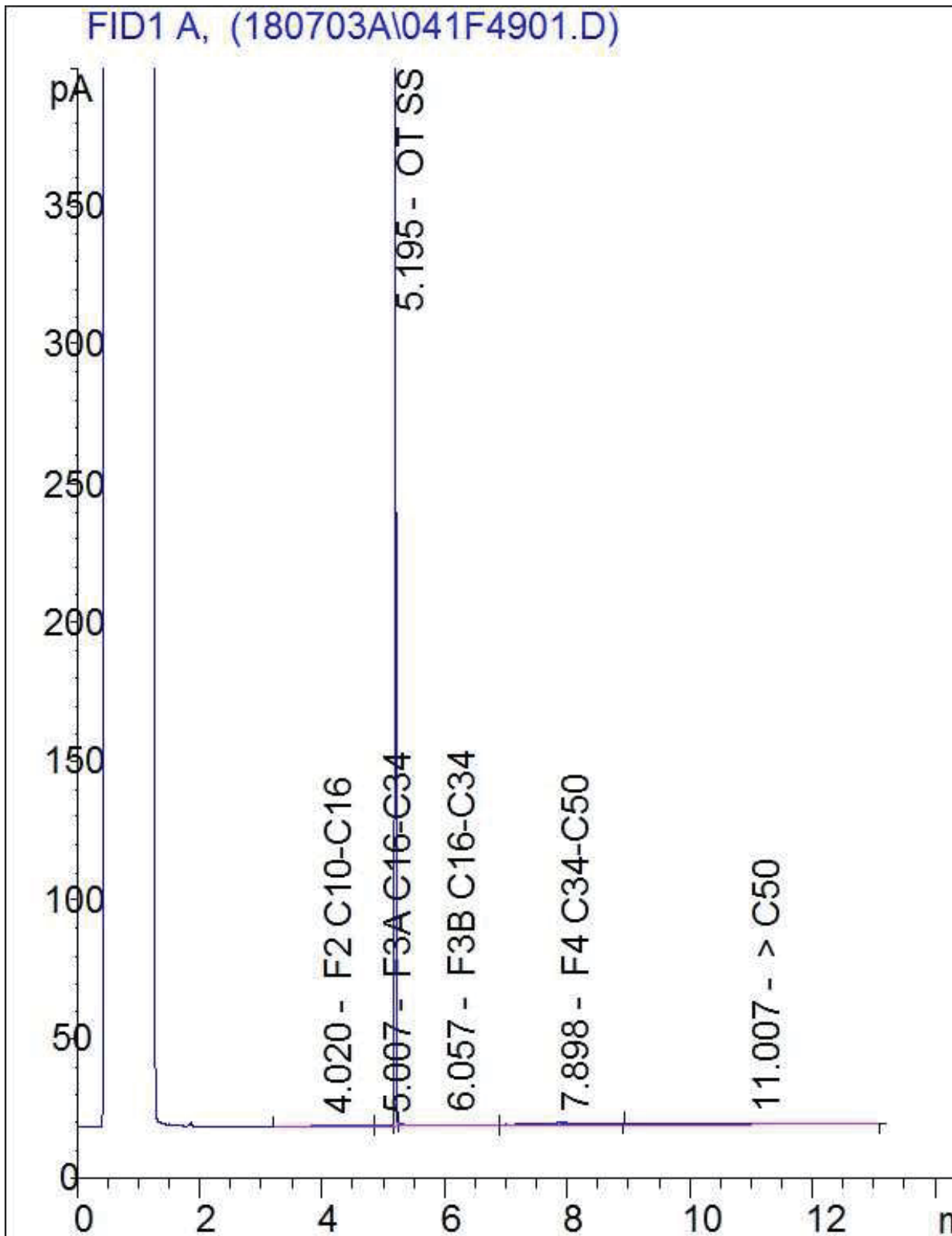
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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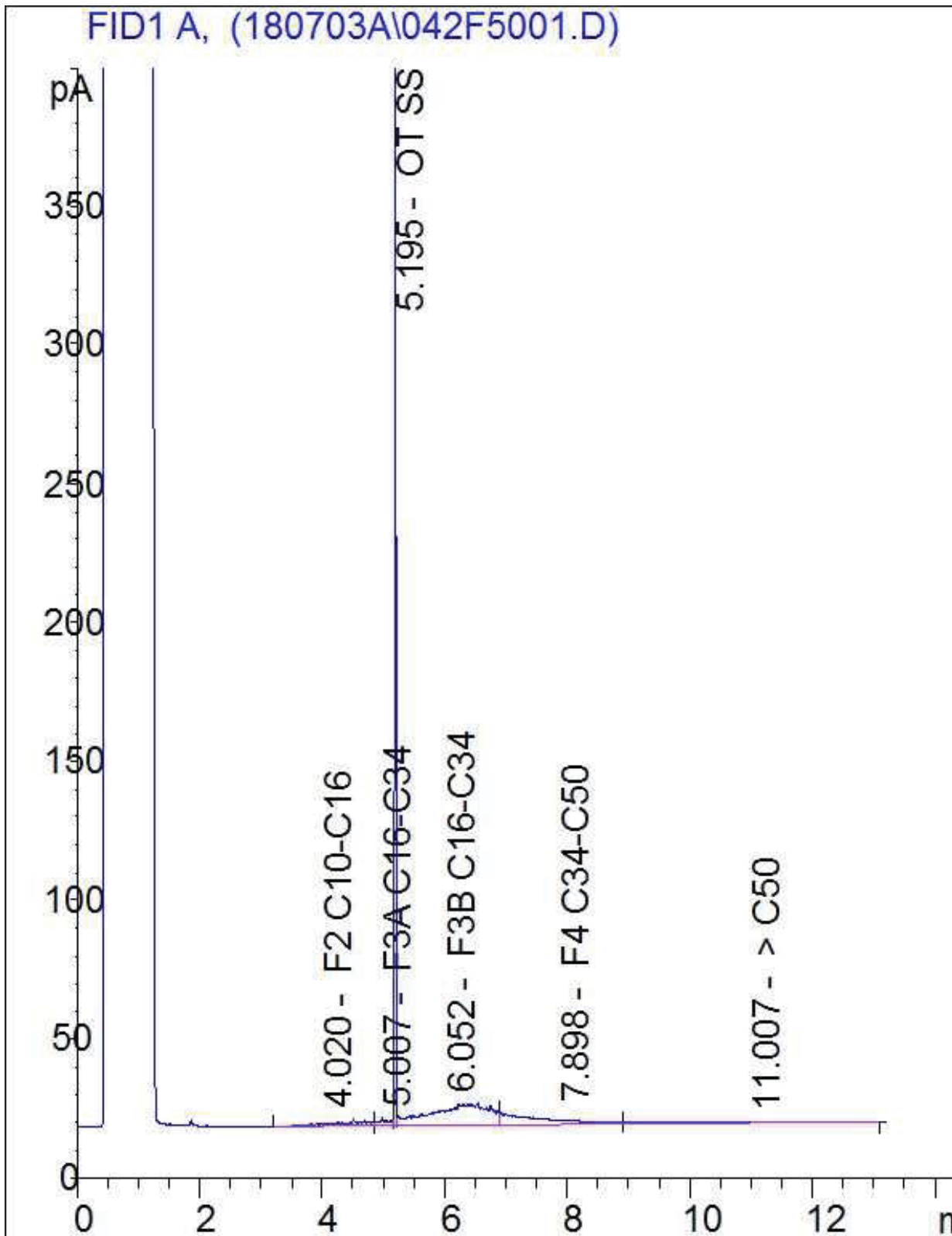
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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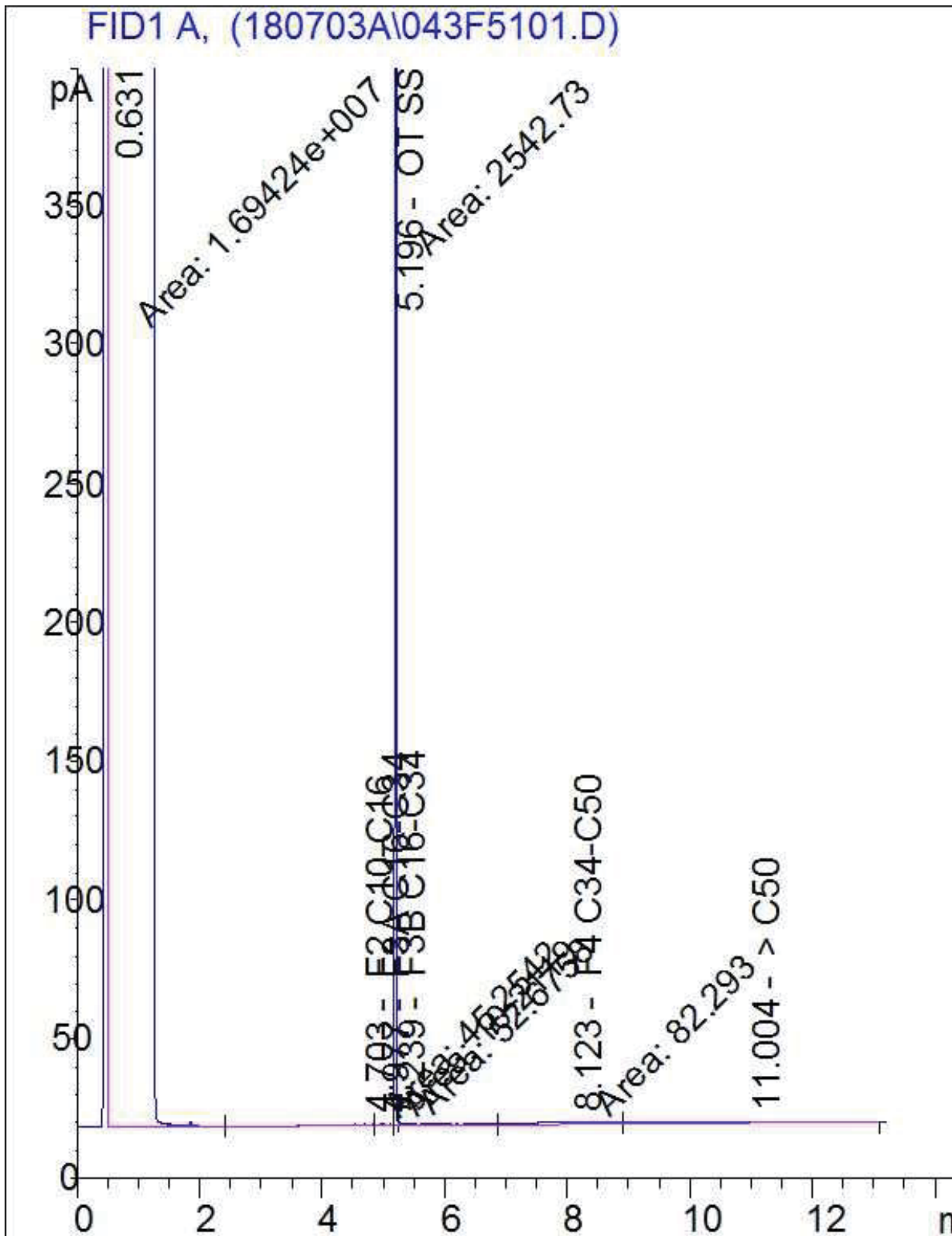


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



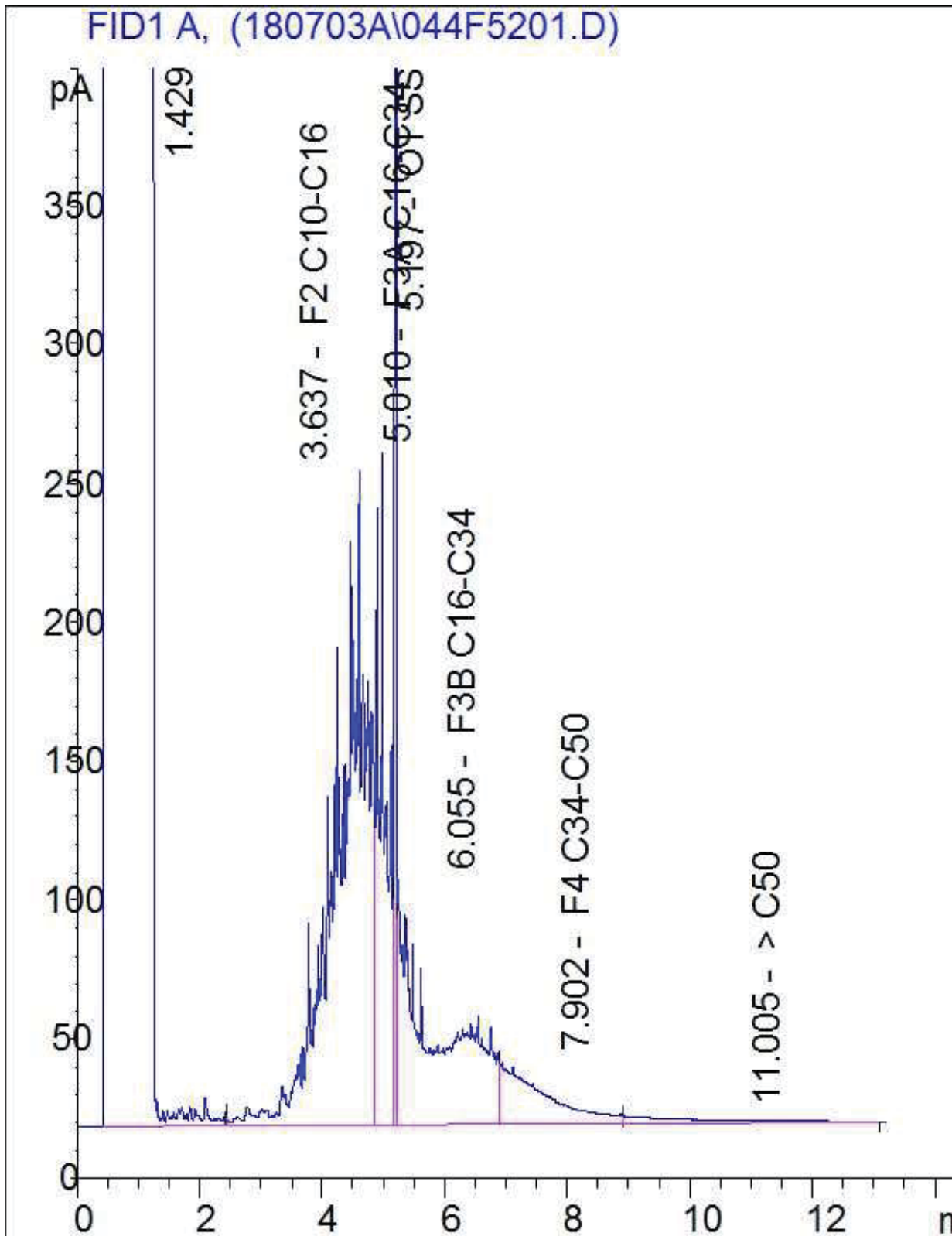
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



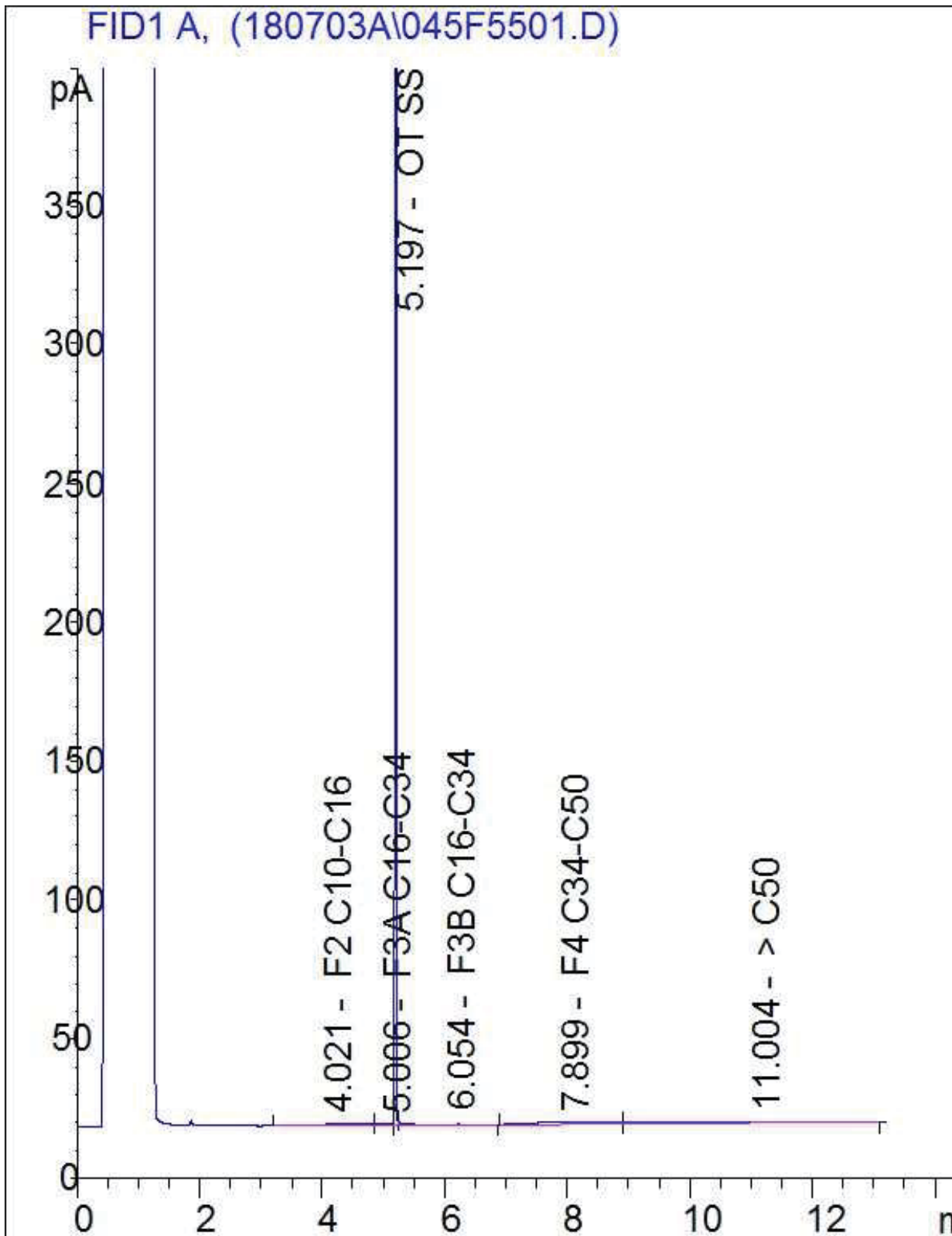
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



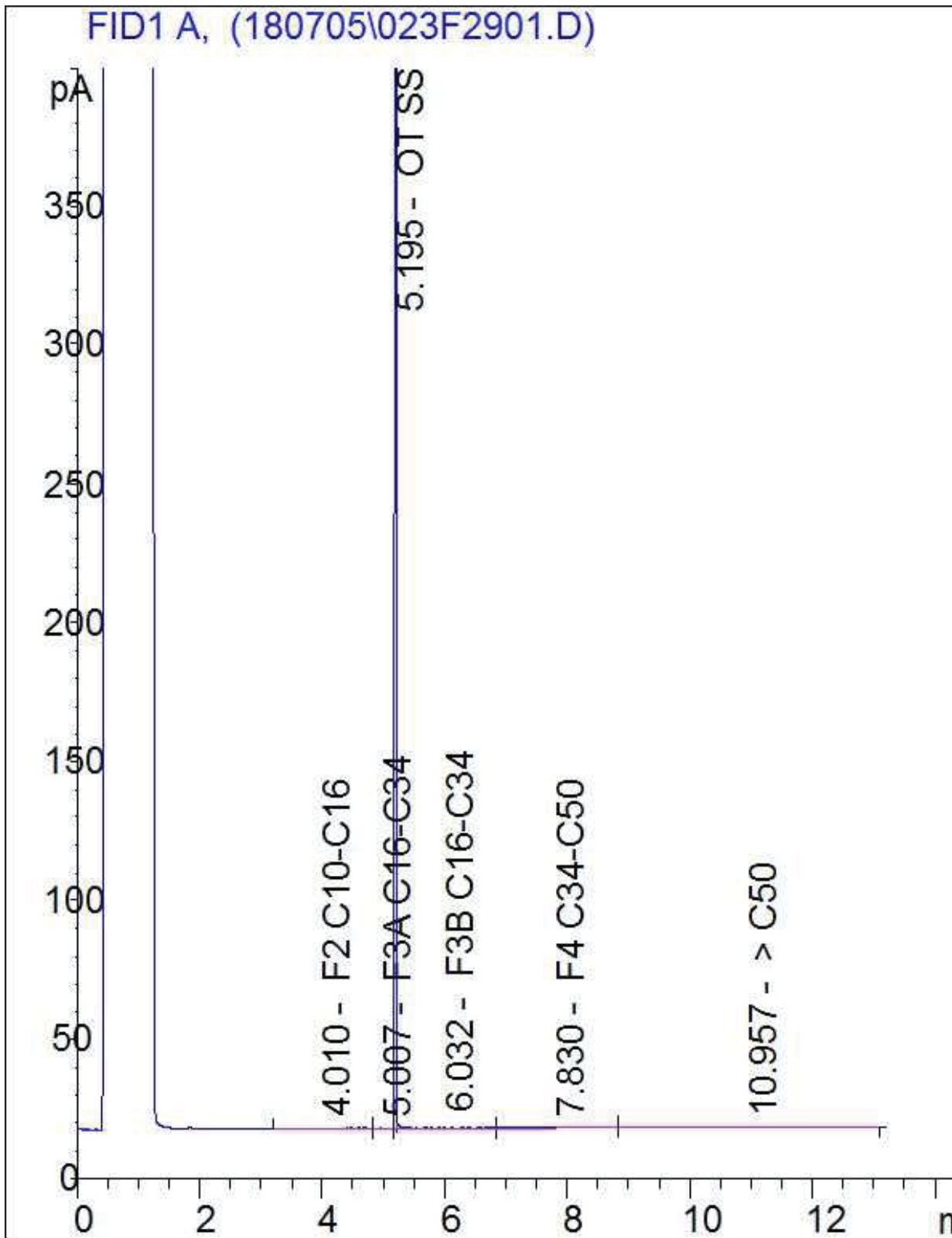
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



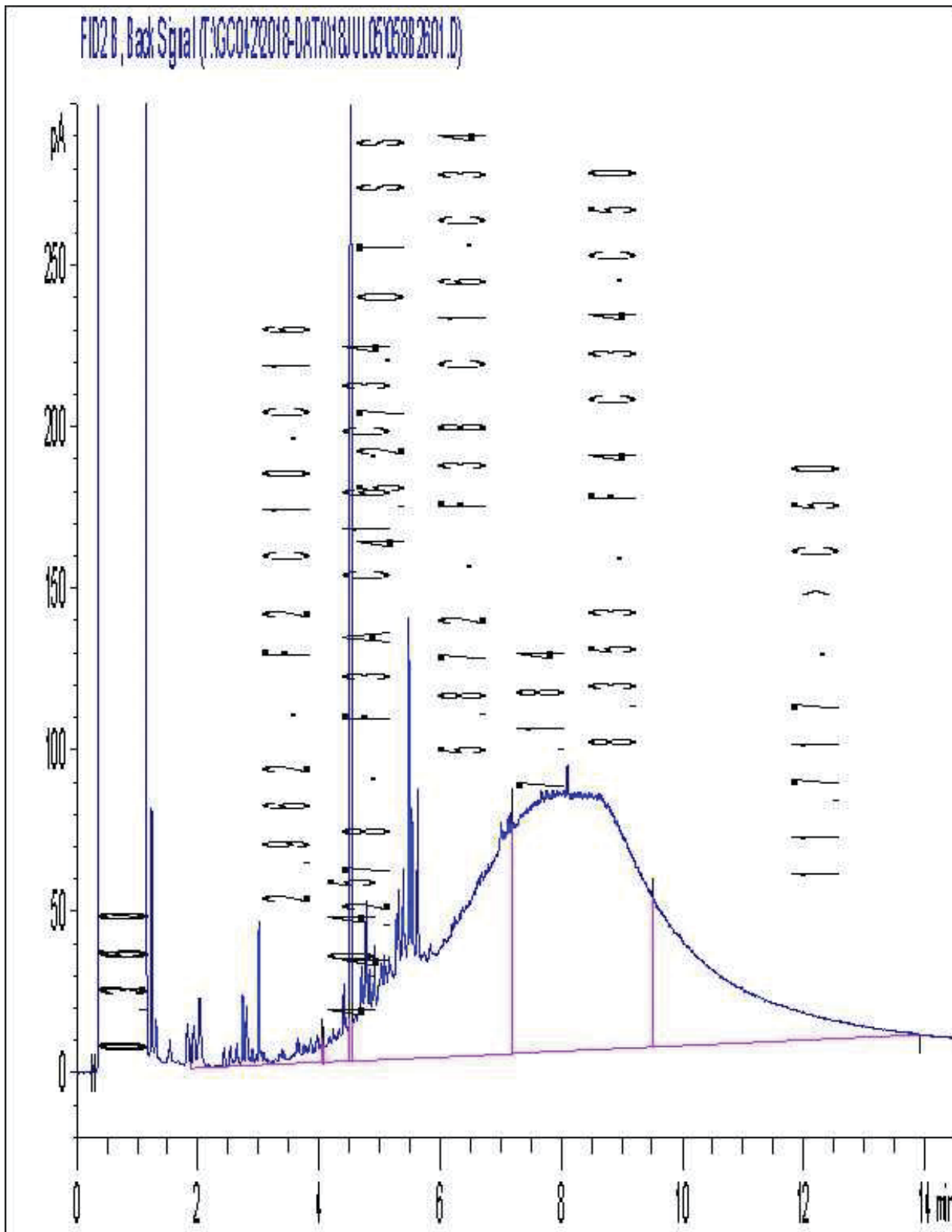
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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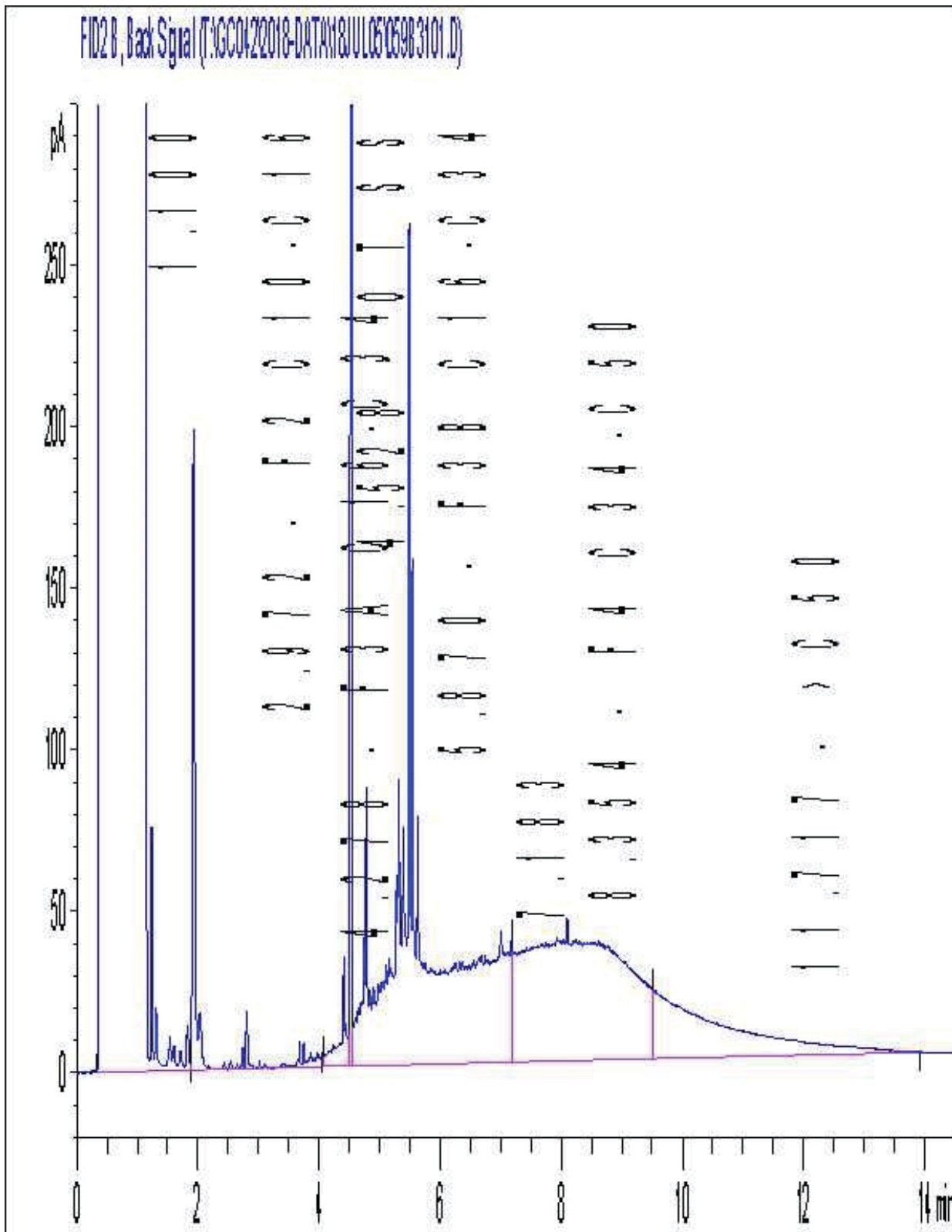
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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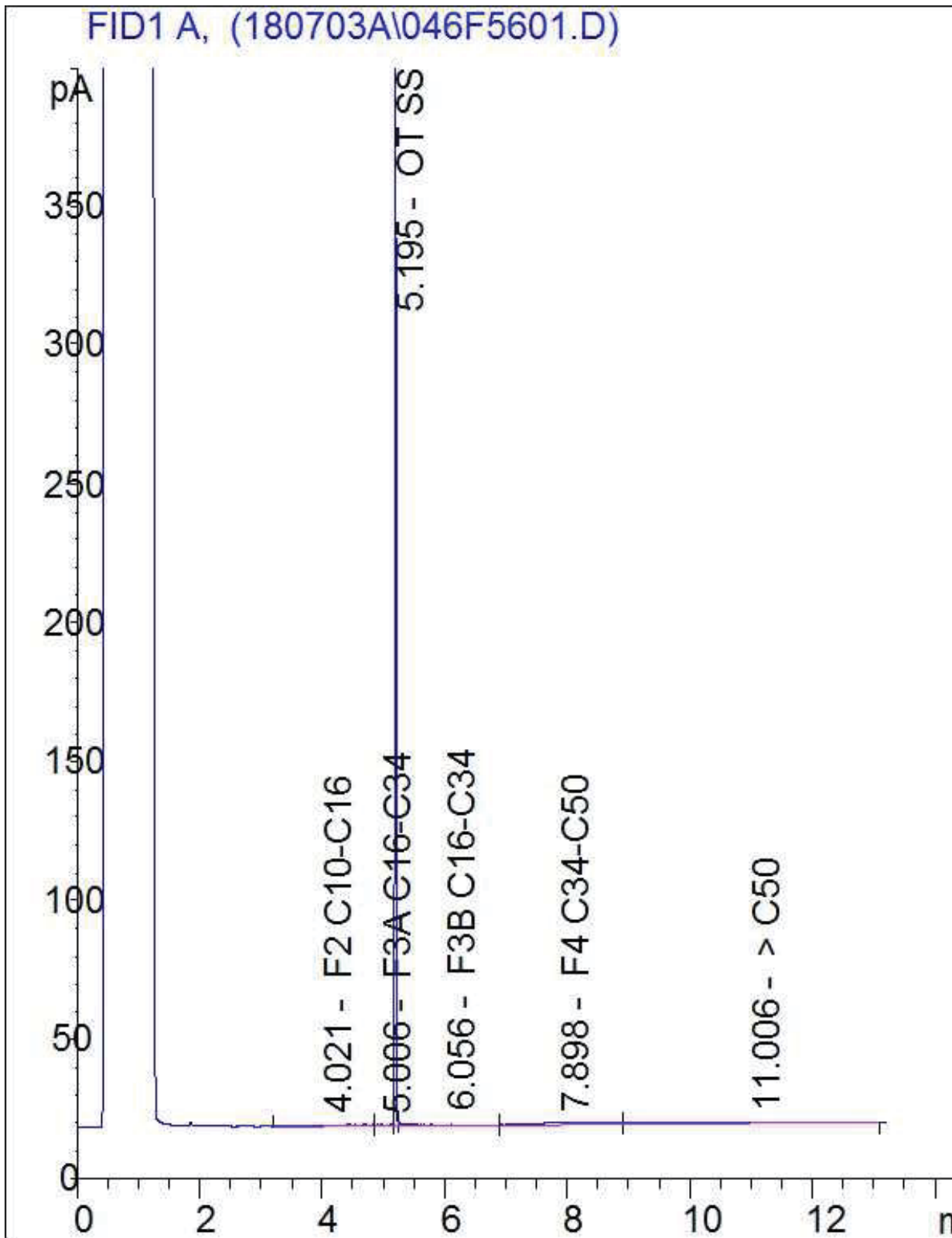


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



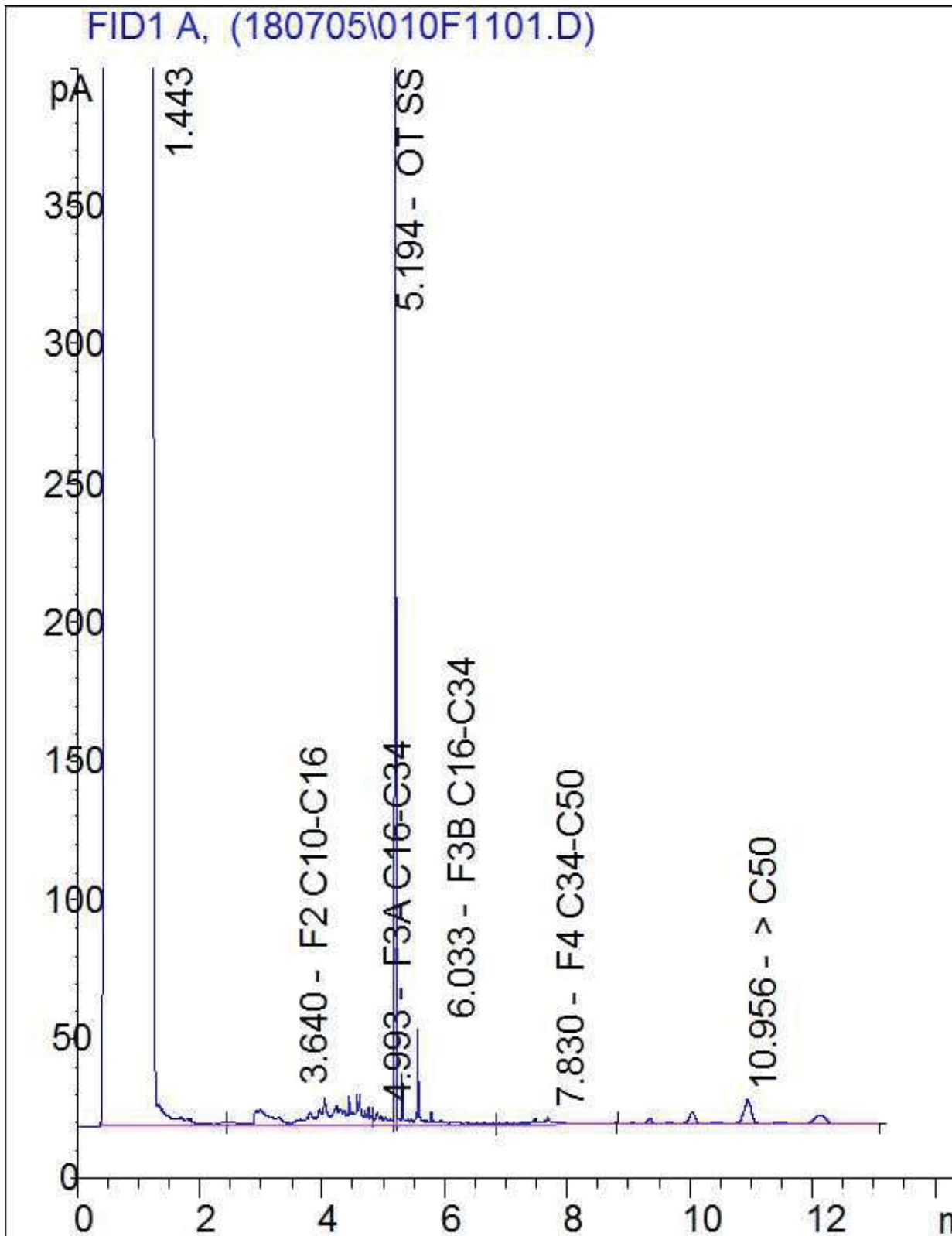
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



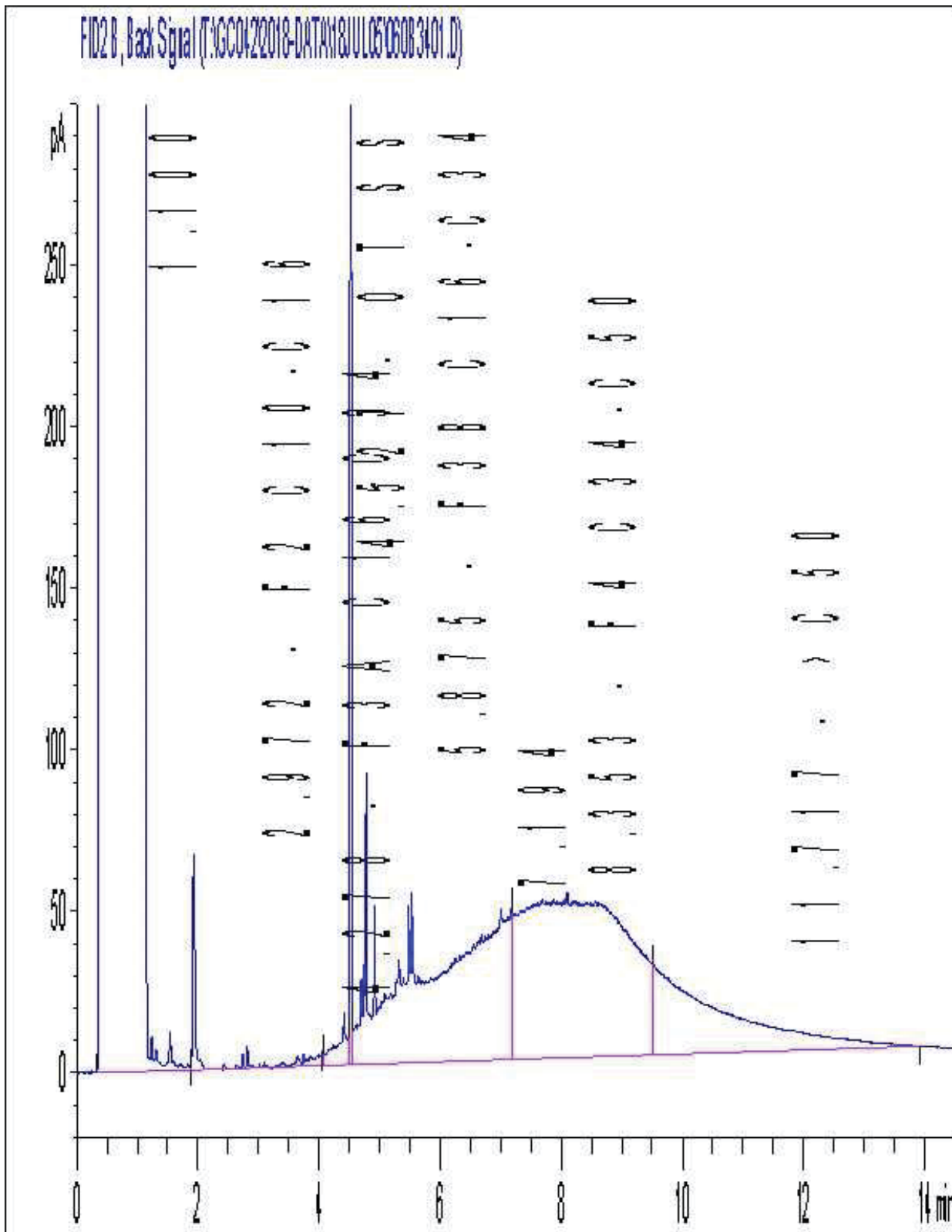
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



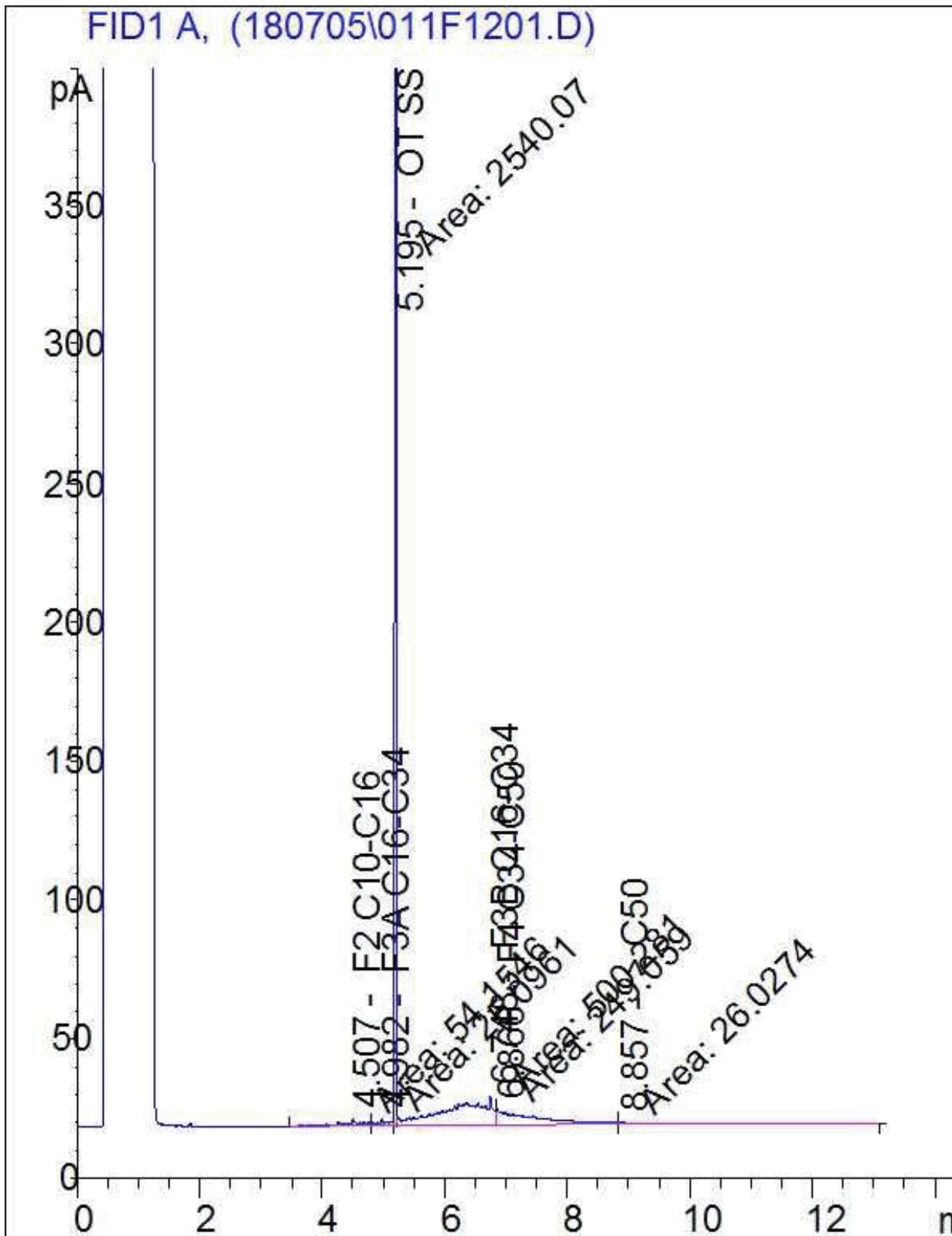
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



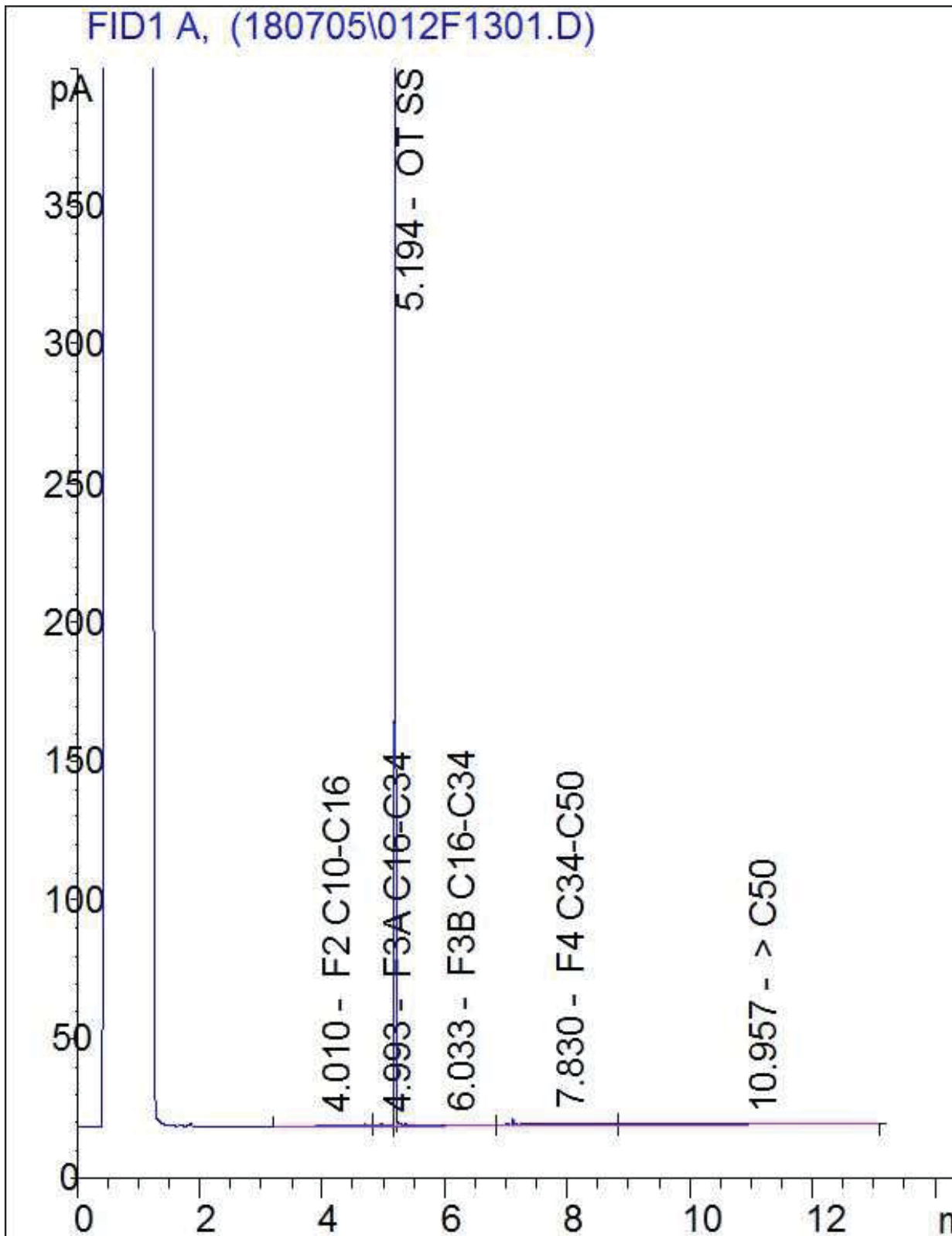
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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



**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/07/23**  
Report #: R5311261  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8H5687**

**Received: 2018/07/13, 09:19**

Sample Matrix: Soil  
# Samples Received: 14

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Methylnaphthalene Sum	9	N/A	2018/07/19	CAM SOP-00301	EPA 8270D m
Free (WAD) Cyanide	9	2018/07/17	2018/07/18	CAM SOP-00457	OMOE E3015 m
Conductivity	9	2018/07/18	2018/07/18	CAM SOP-00414	OMOE E3530 v1 m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	9	N/A	2018/07/17	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	2	N/A	2018/07/18	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	2	2018/07/16	2018/07/17	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	5	2018/07/18	2018/07/19	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	2	2018/07/20	2018/07/20	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	9	2018/07/17	2018/07/17	CAM SOP-00447	EPA 6020B m
Moisture	13	N/A	2018/07/16	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	3	2018/07/18	2018/07/18	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	6	2018/07/18	2018/07/19	CAM SOP-00318	EPA 8270D m
Sodium Adsorption Ratio (SAR)	9	N/A	2018/07/20	CAM SOP-00102	EPA 6010C

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Your Project #: 6820-001  
Your C.O.C. #: C#672833-01-01, C#665865-06-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/07/23**  
Report #: R5311261  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8H5687**

**Received: 2018/07/13, 09:19**

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

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

Encryption Key



Gina Baybayan  
Project Manager  
23 Jul 2018 11:37:53

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager  
Email: GBaybayan@maxxam.ca  
Phone# (905)817-5766

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

**O.REG 153 ICPCS METALS (SOIL)**

Maxxam ID			HFE525	HFE526	HFE527	HFE528		
Sampling Date			2018/07/11	2018/07/11	2018/07/11	2018/07/11		
COC Number			C#672833-01-01	C#672833-01-01	C#672833-01-01	C#672833-01-01		
	UNITS	Criteria	SS18-01	SS18-02	SS18-05	SS18-06	RDL	QC Batch
<b>Metals</b>								
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	0.25	<0.20	<0.20	<b>1.5</b>	0.20	5632342
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	2.8	<1.0	1.0	<b>96</b>	1.0	5632342
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	20	33	27	41	0.50	5632342
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	<0.20	<0.20	<0.20	0.37	0.20	5632342
Acid Extractable Boron (B)	ug/g	<b>36</b>	<5.0	<5.0	<5.0	9.7	5.0	5632342
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	0.15	<0.10	0.12	0.22	0.10	5632342
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	5.8	6.2	7.2	11	1.0	5632342
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	3.1	2.4	2.6	9.3	0.10	5632342
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	10	11	19	47	0.50	5632342
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	11	3.5	14	42	1.0	5632342
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	<0.50	<0.50	1.3	0.50	5632342
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	6.2	3.8	4.9	14	0.50	5632342
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	<0.50	<0.50	<b>3.5</b>	0.50	5632342
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5632342
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.072	0.050	0.063	0.33	0.050	5632342
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.38	0.47	0.35	0.48	0.050	5632342
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	12	14	15	20	5.0	5632342
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	33	14	59	50	5.0	5632342
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	<0.050	<0.050	0.061	0.050	5632342
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition								
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

**O.REG 153 ICPMS METALS (SOIL)**

Maxxam ID			HFE530	HFE531	HFE532	HFE533		
Sampling Date			2018/07/11	2018/07/11	2018/07/11	2018/07/11		
COC Number			C#672833-01-01	C#672833-01-01	C#672833-01-01	C#672833-01-01		
	UNITS	Criteria	SS18-08A	SS18-08B	SS18-09	SS18-10	RDL	QC Batch
<b>Metals</b>								
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	0.34	<0.20	<0.20	0.20	5632342
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	<1.0	2.3	<1.0	1.2	1.0	5632342
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	20	63	17	40	0.50	5632342
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	<0.20	0.22	<0.20	<0.20	0.20	5632342
Acid Extractable Boron (B)	ug/g	<b>36</b>	<5.0	7.0	<5.0	5.2	5.0	5632342
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	<0.10	<0.10	<0.10	0.19	0.10	5632342
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	6.2	9.9	6.2	14	1.0	5632342
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	2.2	4.5	2.1	3.7	0.10	5632342
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	6.8	15	5.3	18	0.50	5632342
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	9.3	15	1.3	31	1.0	5632342
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	<0.50	<0.50	<0.50	0.50	5632342
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	4.4	9.2	3.8	9.2	0.50	5632342
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5632342
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5632342
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	<0.050	0.13	<0.050	0.088	0.050	5632342
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.30	0.40	0.39	0.31	0.050	5632342
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	14	21	13	22	5.0	5632342
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	19	33	9.1	55	5.0	5632342
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	<0.050	<0.050	<0.050	0.050	5632342
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition								
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

**O.REG 153 ICPMS METALS (SOIL)**

Maxxam ID			HFE541		
Sampling Date			2018/07/11		
COC Number			C#665865-06-01		
	UNITS	Criteria	QA/QC #3	RDL	QC Batch
<b>Metals</b>					
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	0.20	5632342
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	1.0	1.0	5632342
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	28	0.50	5632342
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	<0.20	0.20	5632342
Acid Extractable Boron (B)	ug/g	<b>36</b>	<5.0	5.0	5632342
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	0.14	0.10	5632342
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	7.1	1.0	5632342
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	2.5	0.10	5632342
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	23	0.50	5632342
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	20	1.0	5632342
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	0.50	5632342
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	4.9	0.50	5632342
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	0.50	5632342
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	0.20	5632342
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.073	0.050	5632342
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.27	0.050	5632342
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	14	5.0	5632342
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	76	5.0	5632342
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	0.050	5632342
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)					
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition					
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

**O.REG 153 METALS & INORGANICS PKG (SOIL)**

Maxxam ID			HFE525	HFE526	HFE527		HFE528		
Sampling Date			2018/07/11	2018/07/11	2018/07/11		2018/07/11		
COC Number			C#672833-01-01	C#672833-01-01	C#672833-01-01		C#672833-01-01		
	UNITS	Criteria	SS18-01	SS18-02	SS18-05	RDL	SS18-06	RDL	QC Batch
<b>Calculated Parameters</b>									
Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.29	0.35	0.28		0.26		5629086
<b>Inorganics</b>									
Conductivity	mS/cm	<b>0.7</b>	0.11	0.076	0.11	0.002	0.13	0.002	5632952
WAD Cyanide (Free)	ug/g	<b>0.051</b>	0.02	<0.01	0.02	0.01	0.02	0.02	5632500
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

Maxxam ID			HFE530			HFE530			HFE531		
Sampling Date			2018/07/11			2018/07/11			2018/07/11		
COC Number			C#672833-01-01			C#672833-01-01			C#672833-01-01		
	UNITS	Criteria	SS18-08A	RDL	QC Batch	SS18-08A Lab-Dup	RDL	QC Batch	SS18-08B	RDL	QC Batch
<b>Calculated Parameters</b>											
Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.30		5629086				0.29		5629086
<b>Inorganics</b>											
Conductivity	mS/cm	<b>0.7</b>	0.099	0.002	5632952				0.11	0.002	5632952
WAD Cyanide (Free)	ug/g	<b>0.051</b>	0.02	0.01	5632500	0.02	0.01	5632500	0.01	0.01	5632500
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use											



**O.REG 153 METALS & INORGANICS PKG (SOIL)**

<b>Maxxam ID</b>			HFE531			HFE532		
<b>Sampling Date</b>			2018/07/11			2018/07/11		
<b>COC Number</b>			C#672833-01-01			C#672833-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>SS18-08B Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>SS18-09</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>								
Sodium Adsorption Ratio	N/A	<b>5.0</b>				0.43		5629086
<b>Inorganics</b>								
Conductivity	mS/cm	<b>0.7</b>	0.11	0.002	5632952	0.055	0.002	5632952
WAD Cyanide (Free)	ug/g	<b>0.051</b>				<0.01	0.01	5632500
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

<b>Maxxam ID</b>			HFE533	HFE541		
<b>Sampling Date</b>			2018/07/11	2018/07/11		
<b>COC Number</b>			C#672833-01-01	C#665865-06-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>SS18-10</b>	<b>QA/QC #3</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>						
Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.28	0.29		5629086
<b>Inorganics</b>						
Conductivity	mS/cm	<b>0.7</b>	0.12	0.10	0.002	5632952
Moisture	%	-	2.6	8.0	1.0	5631082
WAD Cyanide (Free)	ug/g	<b>0.051</b>	0.04	0.02	0.01	5632500
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use						

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HF525	HF526		HF527		
Sampling Date			2018/07/11	2018/07/11		2018/07/11		
COC Number			C#672833-01-01	C#672833-01-01		C#672833-01-01		
	UNITS	Criteria	SS18-01	SS18-02	QC Batch	SS18-05	RDL	QC Batch
<b>Inorganics</b>								
Moisture	%	-	14	3.6	5630527	9.9	1.0	5630850
<b>Calculated Parameters</b>								
Methylnaphthalene, 2-(1-)	ug/g	-	0.33	<0.0071	5629085	0.38	0.0071	5629085
<b>Polyaromatic Hydrocarbons</b>								
Acenaphthene	ug/g	<b>0.072</b>	0.0089	<0.0050	5636173	0.0094	0.0050	5634610
Acenaphthylene	ug/g	<b>0.093</b>	0.013	<0.0050	5636173	0.011	0.0050	5634610
Anthracene	ug/g	<b>0.22</b>	0.026	<0.0050	5636173	0.0077	0.0050	5634610
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.051	0.0065	5636173	0.022	0.0050	5634610
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.044	0.0075	5636173	0.024	0.0050	5634610
Benzo(b,j)fluoranthene	ug/g	<b>0.47</b>	0.071	0.012	5636173	0.039	0.0050	5634610
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.049	0.0066	5636173	0.021	0.0050	5634610
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.022	<0.0050	5636173	0.0097	0.0050	5634610
Chrysene	ug/g	<b>2.8</b>	0.046	0.0060	5636173	0.030	0.0050	5634610
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	0.0094	<0.0050	5636173	<0.0050	0.0050	5634610
Fluoranthene	ug/g	<b>0.69</b>	0.12	0.011	5636173	0.041	0.0050	5634610
Fluorene	ug/g	<b>0.19</b>	0.0096	<0.0050	5636173	0.0056	0.0050	5634610
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.044	0.0073	5636173	0.021	0.0050	5634610
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.16	<0.0050	5636173	0.19	0.0050	5634610
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.17	<0.0050	5636173	0.20	0.0050	5634610
Naphthalene	ug/g	<b>0.09</b>	<b>0.10</b>	<0.0050	5636173	<b>0.12</b>	0.0050	5634610
Phenanthrene	ug/g	<b>0.69</b>	0.17	<0.0050	5636173	0.10	0.0050	5634610
Pyrene	ug/g	<b>1</b>	0.090	0.011	5636173	0.037	0.0050	5634610
<b>Surrogate Recovery (%)</b>								
D10-Anthracene	%	-	73	73	5636173	87		5634610
D14-Terphenyl (FS)	%	-	77	81	5636173	82		5634610
D8-Acenaphthylene	%	-	74	72	5636173	81		5634610
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition								
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HF528			HF530		
Sampling Date			2018/07/11			2018/07/11		
COC Number			C#672833-01-01			C#672833-01-01		
	UNITS	Criteria	SS18-06	RDL	QC Batch	SS18-08A	RDL	QC Batch
<b>Inorganics</b>								
Moisture	%	-	7.4	1.0	5630850			
<b>Calculated Parameters</b>								
Methylnaphthalene, 2-(1-)	ug/g	-	2.2	0.0071	5629085	0.083	0.0071	5629085
<b>Polyaromatic Hydrocarbons</b>								
Acenaphthene	ug/g	<b>0.072</b>	0.025	0.0050	5635115	<0.0050	0.0050	5635115
Acenaphthylene	ug/g	<b>0.093</b>	<b>0.19</b>	0.0050	5635115	0.0065	0.0050	5635115
Anthracene	ug/g	<b>0.22</b>	0.18	0.0050	5635115	0.0062	0.0050	5635115
Benzo(a)anthracene	ug/g	<b>0.36</b>	<b>0.37</b>	0.0050	5635115	0.017	0.0050	5635115
Benzo(a)pyrene	ug/g	<b>0.3</b>	<b>0.44</b>	0.0050	5635115	0.020	0.0050	5635115
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	<b>0.89</b>	0.0050	5635115	0.040	0.0050	5635115
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.39	0.0050	5635115	0.019	0.0050	5635115
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.29	0.0050	5635115	0.013	0.0050	5635115
Chrysene	ug/g	<b>2.8</b>	0.45	0.0050	5635115	0.020	0.0050	5635115
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	<b>0.11</b>	0.0050	5635115	<0.0050	0.0050	5635115
Fluoranthene	ug/g	<b>0.69</b>	0.61	0.0050	5635115	0.031	0.0050	5635115
Fluorene	ug/g	<b>0.19</b>	0.026	0.0050	5635115	<0.0050	0.0050	5635115
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	<b>0.40</b>	0.0050	5635115	0.019	0.0050	5635115
1-Methylnaphthalene	ug/g	<b>0.59</b>	<b>1.0</b>	0.0050	5635115	0.039	0.0050	5635115
2-Methylnaphthalene	ug/g	<b>0.59</b>	<b>1.1</b>	0.0050	5635115	0.043	0.0050	5635115
Naphthalene	ug/g	<b>0.09</b>	<b>0.66</b>	0.0050	5635115	0.026	0.0050	5635115
Phenanthrene	ug/g	<b>0.69</b>	0.65	0.0050	5635115	0.033	0.0050	5635115
Pyrene	ug/g	<b>1</b>	0.57	0.0050	5635115	0.029	0.0050	5635115
<b>Surrogate Recovery (%)</b>								
D10-Anthracene	%	-	75		5635115	82		5635115
D14-Terphenyl (FS)	%	-	81		5635115	79		5635115
D8-Acenaphthylene	%	-	79		5635115	78		5635115
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HFE530			HFE531		HFE532		
Sampling Date			2018/07/11			2018/07/11		2018/07/11		
COC Number			C#672833-01-01			C#672833-01-01		C#672833-01-01		
	UNITS	Criteria	SS18-08A Lab-Dup	RDL	QC Batch	SS18-08B	QC Batch	SS18-09	RDL	QC Batch
<b>Calculated Parameters</b>										
Methylnaphthalene, 2-(1-)	ug/g	-				0.45	5629085	<0.0071	0.0071	5629085
<b>Polyaromatic Hydrocarbons</b>										
Acenaphthene	ug/g	<b>0.072</b>	<0.0050	0.0050	5635115	<0.0050	5635115	<0.0050	0.0050	5634610
Acenaphthylene	ug/g	<b>0.093</b>	0.0062	0.0050	5635115	0.029	5635115	<0.0050	0.0050	5634610
Anthracene	ug/g	<b>0.22</b>	0.0064	0.0050	5635115	0.025	5635115	<0.0050	0.0050	5634610
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.017	0.0050	5635115	0.059	5635115	<0.0050	0.0050	5634610
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.020	0.0050	5635115	0.073	5635115	<0.0050	0.0050	5634610
Benzo(b,j)fluoranthene	ug/g	<b>0.47</b>	0.039	0.0050	5635115	0.12	5635115	<0.0050	0.0050	5634610
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.020	0.0050	5635115	0.053	5635115	<0.0050	0.0050	5634610
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.012	0.0050	5635115	0.038	5635115	<0.0050	0.0050	5634610
Chrysene	ug/g	<b>2.8</b>	0.020	0.0050	5635115	0.061	5635115	<0.0050	0.0050	5634610
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	<0.0050	0.0050	5635115	0.016	5635115	<0.0050	0.0050	5634610
Fluoranthene	ug/g	<b>0.69</b>	0.036	0.0050	5635115	0.090	5635115	<0.0050	0.0050	5634610
Fluorene	ug/g	<b>0.19</b>	<0.0050	0.0050	5635115	0.0052	5635115	<0.0050	0.0050	5634610
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.020	0.0050	5635115	0.062	5635115	<0.0050	0.0050	5634610
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.046	0.0050	5635115	0.21	5635115	<0.0050	0.0050	5634610
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.046	0.0050	5635115	0.24	5635115	<0.0050	0.0050	5634610
Naphthalene	ug/g	<b>0.09</b>	0.025	0.0050	5635115	<b>0.13</b>	5635115	<0.0050	0.0050	5634610
Phenanthrene	ug/g	<b>0.69</b>	0.038	0.0050	5635115	0.12	5635115	<0.0050	0.0050	5634610
Pyrene	ug/g	<b>1</b>	0.032	0.0050	5635115	0.092	5635115	<0.0050	0.0050	5634610
<b>Surrogate Recovery (%)</b>										
D10-Anthracene	%	-	89		5635115	86	5635115	88		5634610
D14-Terphenyl (FS)	%	-	99		5635115	85	5635115	84		5634610
D8-Acenaphthylene	%	-	85		5635115	84	5635115	76		5634610
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Lab-Dup = Laboratory Initiated Duplicate										
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)										
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition										
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HFE534	HFE540		
Sampling Date			2018/07/11	2018/07/11		
COC Number			C#672833-01-01	C#665865-06-01		
	UNITS	Criteria	SS18-11	QA/QC #2	RDL	QC Batch
<b>Inorganics</b>						
Moisture	%	-	15	11	1.0	5630527
<b>Calculated Parameters</b>						
Methylnaphthalene, 2-(1-)	ug/g	-	7.1	7.1	0.0071	5629085
<b>Polyaromatic Hydrocarbons</b>						
Acenaphthene	ug/g	<b>0.072</b>	<b>0.073</b>	0.051	0.0050	5636173
Acenaphthylene	ug/g	<b>0.093</b>	0.052	0.056	0.0050	5636173
Anthracene	ug/g	<b>0.22</b>	0.11	0.13	0.0050	5636173
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.27	0.26	0.0050	5636173
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.12	0.12	0.0050	5636173
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	0.29	0.28	0.0050	5636173
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.084	0.084	0.0050	5636173
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.071	0.079	0.0050	5636173
Chrysene	ug/g	<b>2.8</b>	0.27	0.29	0.0050	5636173
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	0.033	0.033	0.0050	5636173
Fluoranthene	ug/g	<b>0.69</b>	0.40	0.36	0.0050	5636173
Fluorene	ug/g	<b>0.19</b>	0.040	0.039	0.0050	5636173
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.083	0.084	0.0050	5636173
1-Methylnaphthalene	ug/g	<b>0.59</b>	<b>3.4</b>	<b>3.5</b>	0.0050	5636173
2-Methylnaphthalene	ug/g	<b>0.59</b>	<b>3.6</b>	<b>3.6</b>	0.0050	5636173
Naphthalene	ug/g	<b>0.09</b>	<b>2.0</b>	<b>2.0</b>	0.0050	5636173
Phenanthrene	ug/g	<b>0.69</b>	<b>1.7</b>	<b>1.7</b>	0.0050	5636173
Pyrene	ug/g	<b>1</b>	0.37	0.34	0.0050	5636173
<b>Surrogate Recovery (%)</b>						
D10-Anthracene	%	-	60	63		5636173
D14-Terphenyl (FS)	%	-	70	71		5636173
D8-Acenaphthylene	%	-	64	67		5636173
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)						
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition						
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use						

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HFE527		HFE528			HFE529		
Sampling Date			2018/07/11		2018/07/11			2018/07/11		
COC Number			C#672833-01-01		C#672833-01-01			C#672833-01-01		
	UNITS	Criteria	SS18-05	QC Batch	SS18-06	RDL	QC Batch	SS18-07	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-						6.2	1.0	5630850
<b>BTEX &amp; F1 Hydrocarbons</b>										
Benzene	ug/g	<b>0.02</b>	<b>0.087</b>	5630514	<b>1.4</b>	0.020	5630514	<b>1.7</b>	0.020	5630514
Toluene	ug/g	<b>0.2</b>	<b>0.39</b>	5630514	<b>8.5</b>	0.020	5630514	<b>14</b>	0.020	5630514
Ethylbenzene	ug/g	<b>0.05</b>	<b>0.11</b>	5630514	<b>1.9</b>	0.020	5630514	<b>2.6</b>	0.020	5630514
o-Xylene	ug/g	-	0.40	5630514	6.5	0.020	5630514	11	0.020	5630514
p+m-Xylene	ug/g	-	0.45	5630514	7.4	0.040	5630514	14	0.040	5630514
Total Xylenes	ug/g	<b>0.05</b>	<b>0.85</b>	5630514	<b>14</b>	0.040	5630514	<b>25</b>	0.040	5630514
F1 (C6-C10)	ug/g	<b>25</b>	<10	5630514	<b>130</b>	10	5630514	<b>230</b>	10	5630514
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	5630514	<b>100</b>	10	5630514	<b>180</b>	10	5630514
<b>F2-F4 Hydrocarbons</b>										
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	5634611	<b>35</b>	10	5635048	<b>100</b>	10	5630360
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	5634611	170	50	5635048	<b>360</b>	50	5630360
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	5634611	59	50	5635048	<b>130</b>	50	5630360
Reached Baseline at C50	ug/g	-	Yes	5634611	No		5635048	No		5630360
<b>Surrogate Recovery (%)</b>										
1,4-Difluorobenzene	%	-	100	5630514	98		5630514	99		5630514
4-Bromofluorobenzene	%	-	100	5630514	97		5630514	100		5630514
D10-Ethylbenzene	%	-	93	5630514	87		5630514	93		5630514
D4-1,2-Dichloroethane	%	-	106	5630514	102		5630514	104		5630514
o-Terphenyl	%	-	94	5634611	94		5635048	88		5630360
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)										
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition										
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										



**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID	HFE530					HFE530					HFE531				
Sampling Date	2018/07/11					2018/07/11					2018/07/11				
COC Number	C#672833-01-01					C#672833-01-01					C#672833-01-01				
	UNITS	Criteria	SS18-08A	RDL	QC Batch	SS18-08A Lab-Dup	RDL	QC Batch	SS18-08B	RDL	QC Batch				

<b>Inorganics</b>											
Moisture	%	-	1.8	1.0	5630850				2.7	1.0	5630850

<b>BTEX &amp; F1 Hydrocarbons</b>											
Benzene	ug/g	<b>0.02</b>	<0.020	0.020	5630514				<b>0.088</b>	0.020	5630514
Toluene	ug/g	<b>0.2</b>	0.10	0.020	5630514				<b>0.39</b>	0.020	5630514
Ethylbenzene	ug/g	<b>0.05</b>	0.022	0.020	5630514				<b>0.077</b>	0.020	5630514
o-Xylene	ug/g	-	0.090	0.020	5630514				0.24	0.020	5630514
p+m-Xylene	ug/g	-	0.10	0.040	5630514				0.29	0.040	5630514
Total Xylenes	ug/g	<b>0.05</b>	<b>0.19</b>	0.040	5630514				<b>0.53</b>	0.040	5630514
F1 (C6-C10)	ug/g	<b>25</b>	<10	10	5630514				<10	10	5630514
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	10	5630514				<10	10	5630514

<b>F2-F4 Hydrocarbons</b>											
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	10	5635048	<10	10	5635048	<10	10	5635048
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	50	5635048	<50	50	5635048	<50	50	5635048
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	50	5635048	<50	50	5635048	<50	50	5635048
Reached Baseline at C50	ug/g	-	Yes		5635048	Yes		5635048	Yes		5635048

<b>Surrogate Recovery (%)</b>											
1,4-Difluorobenzene	%	-	98		5630514				99		5630514
4-Bromofluorobenzene	%	-	98		5630514				98		5630514
D10-Ethylbenzene	%	-	90		5630514				88		5630514
D4-1,2-Dichloroethane	%	-	102		5630514				104		5630514
o-Terphenyl	%	-	105		5635048	98		5635048	96		5635048

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Lab-Dup = Laboratory Initiated Duplicate  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition  
 Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HFE531			HFE532		HFE539		
Sampling Date			2018/07/11			2018/07/11		2018/07/11		
COC Number			C#672833-01-01			C#672833-01-01		C#665865-06-01		
	UNITS	Criteria	SS18-08B Lab-Dup	RDL	QC Batch	SS18-09	QC Batch	QA/QC #1	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-	2.9	1.0	5630850	2.6	5630850	1.3	1.0	5630850
<b>BTEX &amp; F1 Hydrocarbons</b>										
Benzene	ug/g	<b>0.02</b>				<0.020	5630514	<0.020	0.020	5630514
Toluene	ug/g	<b>0.2</b>				<0.020	5630514	<0.020	0.020	5630514
Ethylbenzene	ug/g	<b>0.05</b>				<0.020	5630514	<0.020	0.020	5630514
o-Xylene	ug/g	-				<0.020	5630514	<0.020	0.020	5630514
p+m-Xylene	ug/g	-				<0.040	5630514	<0.040	0.040	5630514
Total Xylenes	ug/g	<b>0.05</b>				<0.040	5630514	<0.040	0.040	5630514
F1 (C6-C10)	ug/g	<b>25</b>				<10	5630514	<10	10	5630514
F1 (C6-C10) - BTEX	ug/g	<b>25</b>				<10	5630514	<10	10	5630514
<b>F2-F4 Hydrocarbons</b>										
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>				<10	5634611	<10	10	5630360
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>				<50	5634611	<50	50	5630360
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>				<50	5634611	<50	50	5630360
Reached Baseline at C50	ug/g	-				Yes	5634611	Yes		5630360
<b>Surrogate Recovery (%)</b>										
1,4-Difluorobenzene	%	-				98	5630514	101		5630514
4-Bromofluorobenzene	%	-				99	5630514	99		5630514
D10-Ethylbenzene	%	-				93	5630514	89		5630514
D4-1,2-Dichloroethane	%	-				102	5630514	104		5630514
o-Terphenyl	%	-				93	5634611	89		5630360
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

<b>Maxxam ID</b>			HFE539		
<b>Sampling Date</b>			2018/07/11		
<b>COC Number</b>			C#665865-06-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>QA/QC #1 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
<b>F2-F4 Hydrocarbons</b>					
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	10	5630360
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	50	5630360
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	50	5630360
Reached Baseline at C50	ug/g	-	Yes		5630360
<b>Surrogate Recovery (%)</b>					
o-Terphenyl	%	-	103		5630360
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			HF525	HF526			HF528		
Sampling Date			2018/07/11	2018/07/11			2018/07/11		
COC Number			C#672833-01-01	C#672833-01-01			C#672833-01-01		
	UNITS	Criteria	SS18-01	SS18-02	RDL	QC Batch	SS18-06	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>	<b>0.092</b>	<0.020	0.020	5630514			
Toluene	ug/g	<b>0.2</b>	<b>0.52</b>	<0.020	0.020	5630514			
Ethylbenzene	ug/g	<b>0.05</b>	<b>0.12</b>	<0.020	0.020	5630514			
o-Xylene	ug/g	-	0.43	<0.020	0.020	5630514			
p+m-Xylene	ug/g	-	0.52	<0.040	0.040	5630514			
Total Xylenes	ug/g	<b>0.05</b>	<b>0.95</b>	<0.040	0.040	5630514			
<b>F2-F4 Hydrocarbons</b>									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<b>120</b>					<b>200</b>	100	5639354
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-	100	101		5630514			
4-Bromofluorobenzene	%	-	98	99		5630514			
D10-Ethylbenzene	%	-	90	90		5630514			
D4-1,2-Dichloroethane	%	-	105	104		5630514			
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition									
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			HFE529	HFE529			HFE533		
Sampling Date			2018/07/11	2018/07/11			2018/07/11		
COC Number			C#672833-01-01	C#672833-01-01			C#672833-01-01		
	UNITS	Criteria	SS18-07	SS18-07 Lab-Dup	RDL	QC Batch	SS18-10	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	0.02					<0.020	0.020	5630514
Toluene	ug/g	0.2					0.040	0.020	5630514
Ethylbenzene	ug/g	0.05					<0.020	0.020	5630514
o-Xylene	ug/g	-					0.045	0.020	5630514
p+m-Xylene	ug/g	-					0.050	0.040	5630514
Total Xylenes	ug/g	0.05					0.095	0.040	5630514
<b>F2-F4 Hydrocarbons</b>									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	120	510	510	100	5639354			
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-					100		5630514
4-Bromofluorobenzene	%	-					99		5630514
D10-Ethylbenzene	%	-					88		5630514
D4-1,2-Dichloroethane	%	-					103		5630514
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			HFE542		
Sampling Date			2018/07/11		
COC Number			C#665865-06-01		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>					
Benzene	ug/g	<b>0.02</b>	<0.020	0.020	5630514
Toluene	ug/g	<b>0.2</b>	<0.020	0.020	5630514
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	0.020	5630514
o-Xylene	ug/g	-	<0.020	0.020	5630514
p+m-Xylene	ug/g	-	<0.040	0.040	5630514
Total Xylenes	ug/g	<b>0.05</b>	<0.040	0.040	5630514
F1 (C6-C10)	ug/g	<b>25</b>	<10	10	5630514
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	10	5630514
<b>Surrogate Recovery (%)</b>					
1,4-Difluorobenzene	%	-	98		5630514
4-Bromofluorobenzene	%	-	98		5630514
D10-Ethylbenzene	%	-	85		5630514
D4-1,2-Dichloroethane	%	-	105		5630514
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)					
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition					
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					



### TEST SUMMARY

**Maxxam ID:** HFE525  
**Sample ID:** SS18-01  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5630527	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5636173	2018/07/18	2018/07/19	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE526  
**Sample ID:** SS18-02  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5630527	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5636173	2018/07/18	2018/07/19	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE527  
**Sample ID:** SS18-05  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5634611	2018/07/18	2018/07/19	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5634610	2018/07/18	2018/07/18	Jiaxuan (Simon) Xi
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE528  
**Sample ID:** SS18-06  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake

### TEST SUMMARY

**Maxxam ID:** HFE528  
**Sample ID:** SS18-06  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5635048	2018/07/18	2018/07/19	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	5639354	2018/07/20	2018/07/20	Sandeep Kaur
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5635115	2018/07/18	2018/07/19	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE529  
**Sample ID:** SS18-07  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5630360	2018/07/16	2018/07/17	Anna Stuglik Rolland
F4G (CCME Hydrocarbons Gravimetric)	BAL	5639354	2018/07/20	2018/07/20	Sandeep Kaur
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan

**Maxxam ID:** HFE529 Dup  
**Sample ID:** SS18-07  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
F4G (CCME Hydrocarbons Gravimetric)	BAL	5639354	2018/07/20	2018/07/20	Sandeep Kaur

**Maxxam ID:** HFE530  
**Sample ID:** SS18-08A  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5635048	2018/07/18	2018/07/19	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5635115	2018/07/18	2018/07/18	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE530 Dup  
**Sample ID:** SS18-08A  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5635048	2018/07/18	2018/07/19	Zhiyue (Frank) Zhu

### TEST SUMMARY

**Maxxam ID:** HFE530 Dup  
**Sample ID:** SS18-08A  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5635115	2018/07/18	2018/07/18	Mitesh Raj

**Maxxam ID:** HFE531  
**Sample ID:** SS18-08B  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5635048	2018/07/18	2018/07/19	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5635115	2018/07/18	2018/07/19	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE531 Dup  
**Sample ID:** SS18-08B  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan

**Maxxam ID:** HFE532  
**Sample ID:** SS18-09  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5634611	2018/07/18	2018/07/19	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5634610	2018/07/18	2018/07/18	Jiaxuan (Simon) Xi
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE533  
**Sample ID:** SS18-10  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake

### TEST SUMMARY

**Maxxam ID:** HFE533  
**Sample ID:** SS18-10  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/17	Georgeta Rusu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu
Moisture	BAL	5631082	N/A	2018/07/16	Chun Yan
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE534  
**Sample ID:** SS18-11  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Moisture	BAL	5630527	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5636173	2018/07/18	2018/07/19	Mitesh Raj

**Maxxam ID:** HFE539  
**Sample ID:** QA/QC #1  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/18	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5630360	2018/07/16	2018/07/17	Anna Stuglik Rolland
Moisture	BAL	5630850	N/A	2018/07/16	Chun Yan

**Maxxam ID:** HFE539 Dup  
**Sample ID:** QA/QC #1  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5630360	2018/07/16	2018/07/17	Anna Stuglik Rolland

**Maxxam ID:** HFE540  
**Sample ID:** QA/QC #2  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5629085	N/A	2018/07/19	Automated Statchk
Moisture	BAL	5630527	N/A	2018/07/16	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5636173	2018/07/18	2018/07/19	Mitesh Raj

**Maxxam ID:** HFE541  
**Sample ID:** QA/QC #3  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5632500	2018/07/17	2018/07/18	Louise Harding
Conductivity	AT	5632952	2018/07/18	2018/07/18	Neil Dassanayake
Strong Acid Leachable Metals by ICPMS	ICP/MS	5632342	2018/07/17	2018/07/17	Daniel Teclu

**TEST SUMMARY**

**Maxxam ID:** HFE541  
**Sample ID:** QA/QC #3  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5631082	N/A	2018/07/16	Chun Yan
Sodium Adsorption Ratio (SAR)	CALC/MET	5629086	N/A	2018/07/20	Automated Statchk

**Maxxam ID:** HFE542  
**Sample ID:** TRIP BLANK  
**Matrix:** Soil

**Collected:** 2018/07/11  
**Shipped:**  
**Received:** 2018/07/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5630514	N/A	2018/07/18	Georgeta Rusu

### GENERAL COMMENTS

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

Package 1	8.3°C
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Cooler custody seal was present and intact.

Sample HFE525 [SS18-01] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE526 [SS18-02] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE527 [SS18-05] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE528 [SS18-06] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE530 [SS18-08A] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE531 [SS18-08B] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE532 [SS18-09] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE533 [SS18-10] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HFE541 [QA/QC #3] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

**Results relate only to the items tested.**





Maxxam Job #: B8H5687  
Report Date: 2018/07/23

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5630360	o-Terphenyl	2018/07/17	90	60 - 130	89	60 - 130	89	%		
5630514	1,4-Difluorobenzene	2018/07/17	95	60 - 140	99	60 - 140	98	%		
5630514	4-Bromofluorobenzene	2018/07/17	99	60 - 140	99	60 - 140	99	%		
5630514	D10-Ethylbenzene	2018/07/17	78	60 - 140	83	60 - 140	86	%		
5630514	D4-1,2-Dichloroethane	2018/07/17	133	60 - 140	104	60 - 140	104	%		
5634610	D10-Anthracene	2018/07/18	84	50 - 130	82	50 - 130	79	%		
5634610	D14-Terphenyl (FS)	2018/07/18	81	50 - 130	81	50 - 130	74	%		
5634610	D8-Acenaphthylene	2018/07/18	78	50 - 130	75	50 - 130	69	%		
5634611	o-Terphenyl	2018/07/18	95	60 - 130	91	60 - 130	82	%		
5635048	o-Terphenyl	2018/07/19	96	60 - 130	96	60 - 130	99	%		
5635115	D10-Anthracene	2018/07/18	80	50 - 130	82	50 - 130	88	%		
5635115	D14-Terphenyl (FS)	2018/07/18	86	50 - 130	90	50 - 130	92	%		
5635115	D8-Acenaphthylene	2018/07/18	77	50 - 130	82	50 - 130	83	%		
5636173	D10-Anthracene	2018/07/18	71	50 - 130	69	50 - 130	72	%		
5636173	D14-Terphenyl (FS)	2018/07/18	77	50 - 130	76	50 - 130	80	%		
5636173	D8-Acenaphthylene	2018/07/18	68	50 - 130	67	50 - 130	70	%		
5630360	F2 (C10-C16 Hydrocarbons)	2018/07/17	96	50 - 130	96	80 - 120	<10	ug/g	NC	30
5630360	F3 (C16-C34 Hydrocarbons)	2018/07/17	88	50 - 130	86	80 - 120	<50	ug/g	NC	30
5630360	F4 (C34-C50 Hydrocarbons)	2018/07/17	84	50 - 130	87	80 - 120	<50	ug/g	NC	30
5630514	Benzene	2018/07/17	95	60 - 140	105	60 - 140	<0.020	ug/g	NC	50
5630514	Ethylbenzene	2018/07/17	80	60 - 140	97	60 - 140	<0.020	ug/g	NC	50
5630514	F1 (C6-C10) - BTEX	2018/07/17					<10	ug/g	NC	30
5630514	F1 (C6-C10)	2018/07/17	65	60 - 140	88	80 - 120	<10	ug/g	NC	30
5630514	o-Xylene	2018/07/17	86	60 - 140	100	60 - 140	<0.020	ug/g	NC	50
5630514	p+m-Xylene	2018/07/17	78	60 - 140	92	60 - 140	<0.040	ug/g	NC	50
5630514	Toluene	2018/07/17	83	60 - 140	95	60 - 140	<0.020	ug/g	NC	50
5630514	Total Xylenes	2018/07/17					<0.040	ug/g	NC	50
5630527	Moisture	2018/07/16							3.8	20
5630850	Moisture	2018/07/16							7.1	20
5631082	Moisture	2018/07/16							0.36	20
5632342	Acid Extractable Antimony (Sb)	2018/07/17	77	75 - 125	98	80 - 120	<0.20	ug/g	17	30
5632342	Acid Extractable Arsenic (As)	2018/07/17	94	75 - 125	99	80 - 120	<1.0	ug/g	1.1	30



Maxxam Job #: B8H5687  
Report Date: 2018/07/23

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5632342	Acid Extractable Barium (Ba)	2018/07/17	NC	75 - 125	99	80 - 120	<0.50	ug/g	0.56	30
5632342	Acid Extractable Beryllium (Be)	2018/07/17	99	75 - 125	98	80 - 120	<0.20	ug/g	1.2	30
5632342	Acid Extractable Boron (B)	2018/07/17	99	75 - 125	99	80 - 120	<5.0	ug/g	9.6	30
5632342	Acid Extractable Cadmium (Cd)	2018/07/17	98	75 - 125	100	80 - 120	<0.10	ug/g	20	30
5632342	Acid Extractable Chromium (Cr)	2018/07/17	NC	75 - 125	102	80 - 120	<1.0	ug/g	2.9	30
5632342	Acid Extractable Cobalt (Co)	2018/07/17	100	75 - 125	103	80 - 120	<0.10	ug/g	1.5	30
5632342	Acid Extractable Copper (Cu)	2018/07/17	NC	75 - 125	100	80 - 120	<0.50	ug/g	1.5	30
5632342	Acid Extractable Lead (Pb)	2018/07/17	102	75 - 125	102	80 - 120	<1.0	ug/g	3.3	30
5632342	Acid Extractable Mercury (Hg)	2018/07/17	104	75 - 125	107	80 - 120	<0.050	ug/g	NC	30
5632342	Acid Extractable Molybdenum (Mo)	2018/07/17	99	75 - 125	100	80 - 120	<0.50	ug/g	NC	30
5632342	Acid Extractable Nickel (Ni)	2018/07/17	NC	75 - 125	101	80 - 120	<0.50	ug/g	0.65	30
5632342	Acid Extractable Selenium (Se)	2018/07/17	97	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
5632342	Acid Extractable Silver (Ag)	2018/07/17	98	75 - 125	96	80 - 120	<0.20	ug/g	NC	30
5632342	Acid Extractable Thallium (Tl)	2018/07/17	102	75 - 125	103	80 - 120	<0.050	ug/g	13	30
5632342	Acid Extractable Uranium (U)	2018/07/17	100	75 - 125	101	80 - 120	<0.050	ug/g	0.43	30
5632342	Acid Extractable Vanadium (V)	2018/07/17	NC	75 - 125	100	80 - 120	<5.0	ug/g	1.6	30
5632342	Acid Extractable Zinc (Zn)	2018/07/17	NC	75 - 125	104	80 - 120	<5.0	ug/g	3.0	30
5632500	WAD Cyanide (Free)	2018/07/18	95	75 - 125	102	80 - 120	<0.01	ug/g	4.2	35
5632952	Conductivity	2018/07/18			100	90 - 110	<0.002	mS/cm	0.091	10
5634610	1-Methylnaphthalene	2018/07/18	98	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5634610	2-Methylnaphthalene	2018/07/18	90	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5634610	Acenaphthene	2018/07/18	90	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5634610	Acenaphthylene	2018/07/18	87	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5634610	Anthracene	2018/07/18	97	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5634610	Benzo(a)anthracene	2018/07/18	92	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5634610	Benzo(a)pyrene	2018/07/18	84	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5634610	Benzo(b,j)fluoranthene	2018/07/18	92	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
5634610	Benzo(g,h,i)perylene	2018/07/18	75	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5634610	Benzo(k)fluoranthene	2018/07/18	79	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
5634610	Chrysene	2018/07/18	95	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
5634610	Dibenz(a,h)anthracene	2018/07/18	75	50 - 130	74	50 - 130	<0.0050	ug/g	NC	40
5634610	Fluoranthene	2018/07/18	91	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40



Maxxam Job #: B8H5687  
Report Date: 2018/07/23

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5634610	Fluorene	2018/07/18	87	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5634610	Indeno(1,2,3-cd)pyrene	2018/07/18	80	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5634610	Naphthalene	2018/07/18	80	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5634610	Phenanthrene	2018/07/18	94	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5634610	Pyrene	2018/07/18	91	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5634611	F2 (C10-C16 Hydrocarbons)	2018/07/19	99	50 - 130	95	80 - 120	<10	ug/g	NC	30
5634611	F3 (C16-C34 Hydrocarbons)	2018/07/19	100	50 - 130	96	80 - 120	<50	ug/g	NC	30
5634611	F4 (C34-C50 Hydrocarbons)	2018/07/19	101	50 - 130	95	80 - 120	<50	ug/g	NC	30
5635048	F2 (C10-C16 Hydrocarbons)	2018/07/19	103	50 - 130	102	80 - 120	<10	ug/g	NC	30
5635048	F3 (C16-C34 Hydrocarbons)	2018/07/19	102	50 - 130	102	80 - 120	<50	ug/g	NC	30
5635048	F4 (C34-C50 Hydrocarbons)	2018/07/19	103	50 - 130	100	80 - 120	<50	ug/g	NC	30
5635115	1-Methylnaphthalene	2018/07/18	128	50 - 130	98	50 - 130	<0.0050	ug/g	15	40
5635115	2-Methylnaphthalene	2018/07/18	115	50 - 130	91	50 - 130	<0.0050	ug/g	4.9	40
5635115	Acenaphthene	2018/07/18	104	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
5635115	Acenaphthylene	2018/07/18	103	50 - 130	100	50 - 130	<0.0050	ug/g	4.3	40
5635115	Anthracene	2018/07/18	106	50 - 130	94	50 - 130	<0.0050	ug/g	2.9	40
5635115	Benzo(a)anthracene	2018/07/18	107	50 - 130	97	50 - 130	<0.0050	ug/g	3.0	40
5635115	Benzo(a)pyrene	2018/07/18	102	50 - 130	98	50 - 130	<0.0050	ug/g	1.2	40
5635115	Benzo(b/j)fluoranthene	2018/07/18	97	50 - 130	97	50 - 130	<0.0050	ug/g	0.83	40
5635115	Benzo(g,h,i)perylene	2018/07/18	103	50 - 130	95	50 - 130	<0.0050	ug/g	4.6	40
5635115	Benzo(k)fluoranthene	2018/07/18	106	50 - 130	103	50 - 130	<0.0050	ug/g	3.0	40
5635115	Chrysene	2018/07/18	110	50 - 130	100	50 - 130	<0.0050	ug/g	0.63	40
5635115	Dibenz(a,h)anthracene	2018/07/18	105	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
5635115	Fluoranthene	2018/07/18	122	50 - 130	104	50 - 130	<0.0050	ug/g	14	40
5635115	Fluorene	2018/07/18	105	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40
5635115	Indeno(1,2,3-cd)pyrene	2018/07/18	112	50 - 130	101	50 - 130	<0.0050	ug/g	7.6	40
5635115	Naphthalene	2018/07/18	102	50 - 130	94	50 - 130	<0.0050	ug/g	2.5	40
5635115	Phenanthrene	2018/07/18	116	50 - 130	94	50 - 130	<0.0050	ug/g	13	40
5635115	Pyrene	2018/07/18	114	50 - 130	106	50 - 130	<0.0050	ug/g	7.7	40
5636173	1-Methylnaphthalene	2018/07/18	105	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
5636173	2-Methylnaphthalene	2018/07/18	97	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5636173	Acenaphthene	2018/07/18	87	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40



Maxxam Job #: B8H5687  
Report Date: 2018/07/23

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5636173	Acenaphthylene	2018/07/18	86	50 - 130	77	50 - 130	<0.0050	ug/g	NC	40
5636173	Anthracene	2018/07/18	85	50 - 130	76	50 - 130	<0.0050	ug/g	NC	40
5636173	Benzo(a)anthracene	2018/07/18	94	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5636173	Benzo(a)pyrene	2018/07/18	91	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5636173	Benzo(b/j)fluoranthene	2018/07/18	86	50 - 130	83	50 - 130	<0.0050	ug/g	3.7	40
5636173	Benzo(g,h,i)perylene	2018/07/18	99	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40
5636173	Benzo(k)fluoranthene	2018/07/18	96	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5636173	Chrysene	2018/07/18	91	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5636173	Dibenz(a,h)anthracene	2018/07/18	106	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
5636173	Fluoranthene	2018/07/18	91	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5636173	Fluorene	2018/07/18	91	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5636173	Indeno(1,2,3-cd)pyrene	2018/07/18	105	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
5636173	Naphthalene	2018/07/18	82	50 - 130	75	50 - 130	<0.0050	ug/g	NC	40
5636173	Phenanthrene	2018/07/18	86	50 - 130	80	50 - 130	<0.0050	ug/g	5.7	40
5636173	Pyrene	2018/07/18	89	50 - 130	81	50 - 130	<0.0050	ug/g	24	40
5639354	F4G-sg (Grav. Heavy Hydrocarbons)	2018/07/20	91	65 - 135	100	65 - 135	<100	ug/g	0.021	50

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Service Specialist

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

<b>Company Name</b> #17950 Cambium Environmental Inc <b>Attention</b> ACCOUNTS PAYABLE <b>Address</b> 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 <b>Tel</b> (705) 742-7900 <b>Fax</b> (705) 742-7907 <b>Email</b> accounting@cambium-env.com, Evan.Black@cambium		<b>Company Name</b> #24915 Cambium Environmental Inc <b>Attention</b> Natalie Wright <b>Address</b> 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 <b>Tel</b> (705) 719-0700 Ext: 402 <b>Fax</b> (705) 719-0700 <b>Email</b> Natalie.Wright@BEScMPEIT@cambium-inc.com		<b>Quotation #</b> B33923 <b>P.O. #</b> <b>Project</b> 6820-001 <b>Project Name</b> <b>Site #</b> <b>Sampled By</b>		<b>Maxxam Job #</b> <b>Bottle Order #</b> <b>E.O.C. #</b> <b>Project Manager</b> Gina Baybayan <b>Barcode</b> 04672833-01-01	
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MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY				Field Filtration (please circle)	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)				Turnaround Time (TAT) Required	Please provide advance notice for rush projects									
Regulation 153 (2011)		Other Regulations			Metals / Hg / Cr VI	13 Parameters (F1-F4)	13 Parameters (F1-F4)	13 Parameters (F1-F4)			Regular (Standard) TAT:	Job Specific Rush TAT (if applies to entire submission)							
Table 1	Table 2	Table 3	Table 4	CCME	Sanitary Sewer Bylaw	Reg 555	Storm Sewer Bylaw	MGA	Municipality	PWOD	Other	Standard TAT = 5* Working days for most tests	Please note: Standard TAT for certain tests such as BOD and Coliforms are + 5 days - contact your Project Manager for details.	Date Required	Time Required	Rush Confirmation Number	(Call us for #)	Comments	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5							
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5							
Include Criteria on Certificate of Analysis (Y/N)? <input checked="" type="checkbox"/>																			
Sample Barcode Label	Sample/Location Identification	Date Sampled	Time Sampled	Matrix															
1	SS18-01	26/07/11		Soil															
2	SS18-02																		
3	SS18-05																		
4	SS18-06																		
5	SS18-07																		
6	SS18-08A																		
7	SS18-08B																		
8	SS18-09																		
9	SS18-10																		
10	SS18-11																		

13-Jul-18 09:19  
 Gina Baybayan  
 B8H5687  
 TLI ENV-1265

<b>RELINQUISHED BY:</b> (Signature/Print) <i>[Signature]</i> <b>Date:</b> (YY/MM/DD) 18/07/12 <b>Time:</b> 12:00	<b>RECEIVED BY:</b> (Signature/Print) <i>[Signature]</i> <b>Date:</b> (YY/MM/DD) 09/19	<b># Jars used and not submitted</b> <b>Time Sensitive</b>	<b>Laboratory Use Only</b> <b>Temperature (°C) on Receipt</b> 7/8/10 <b>Custody Seal</b> <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b> <b>Product</b> <input checked="" type="checkbox"/> <b>Intact</b>
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\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.  
 \*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WWW.CONTENT/UPLOADS/ONTARIO-COC.PDF





Maxxam Analytica International Corporation via Maxxam Analytica  
 6743 Cambella Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-Free 800-563-4268 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 2 of 2

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: (705) 719-0700 Email: Natalie.Wright@BESCPMEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: B82843 P.O. #: 6820 Project Name: Site #: Sampled By:		<b>Laboratory Use Only:</b> Maxxam Job #: Bottle Order #: COC #: Project Manager: Gina Baybayan	
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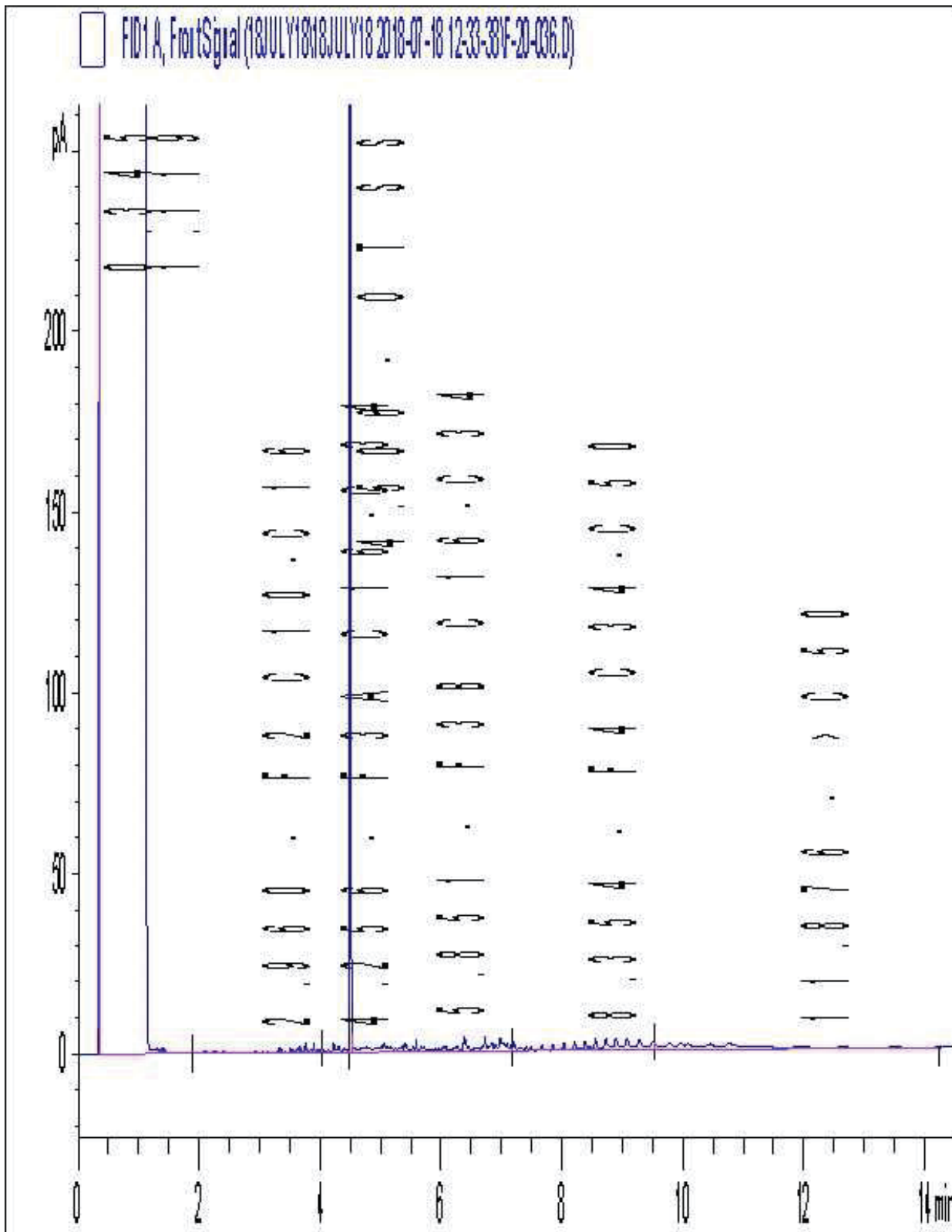
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY				ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required						
Regulation 163 (2011)				Other Regulations		Special Instructions		Field Filtered (please circle): Metals / Hg / Cr VI										Regular (Standard) TAT: (will be applied if Rush TAT is not specified)		
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw			<input type="checkbox"/> D Reg 153 VOCs by HS & PFA (Water) <input type="checkbox"/> D Reg 153 Potassium Hydroxide (Water) <input type="checkbox"/> D Reg 153 PHAs (Water) <input type="checkbox"/> D Reg 153 Metals & Inorganic Phos (Water) <input type="checkbox"/> D Reg 153 PCBs (Water) <input type="checkbox"/> D Reg 153 PCBs (Water)										Please provide advance notice for rush projects <input checked="" type="checkbox"/> Regular (Standard) TAT: Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Fluores are + 5 days - contact your Project Manager for details. <input type="checkbox"/> Job Specific Rush TAT (if applies to entire submission) Rush Confirmation Number: _____ Time Required: _____			
Include Criteria on Certificate of Analysis (Y/N)?				Sample (Location) Identification		Date Sampled	Time Sampled	Matrix											# of Bottles	Comments
<input checked="" type="checkbox"/> Table 9				QA/QC #1		2016/07/11		GW Soil	<input checked="" type="checkbox"/> D Reg 153 <input checked="" type="checkbox"/> PHC Filter BTEX <input checked="" type="checkbox"/> C. Reg 153 <input checked="" type="checkbox"/> C. Reg 153 IC-PHAs <input checked="" type="checkbox"/> Metals + Inorganics <input checked="" type="checkbox"/> C. Reg 153 PHC F1 <input checked="" type="checkbox"/> BTEX										3	
				QA/QC #2				GW Soil											1	
				QA/QC #3				GW Soil											1	
				Trip Blank				GW											1	
								GW												
								GW												
								GW												
								GW												
								GW												
								GW												

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted	Laboratory Use Only			
W. C. / Matt Cunningham		18/07/12	12:00	See p.c.					Time Sensitive	Temperature (°C) on Rack	Custody Seal Present	Yes No

\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.  
 \*\* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.  
 \*\*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF

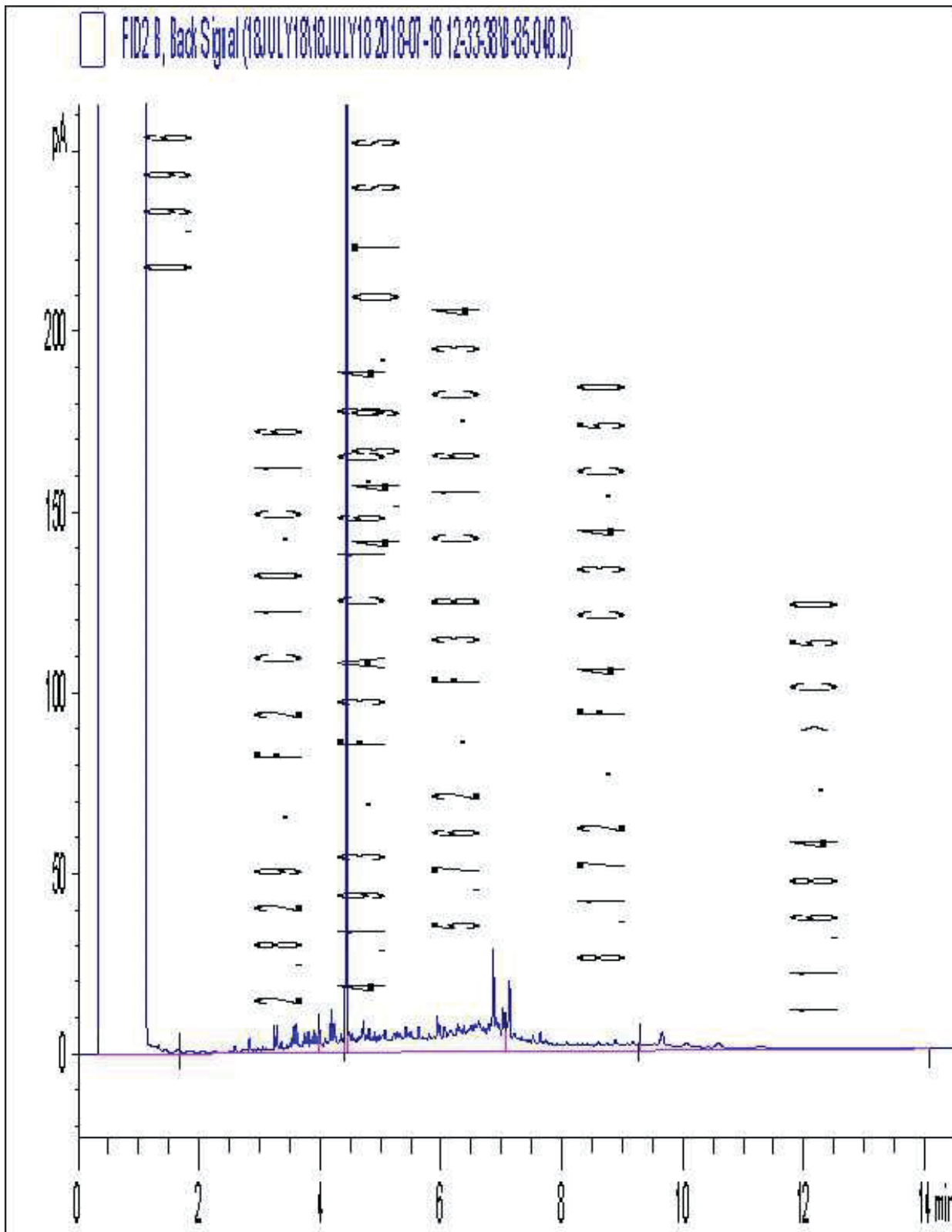
White: Maxxam Yellow: Client  
 Maxxam Analytica International Corporation via Maxxam Analytica

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



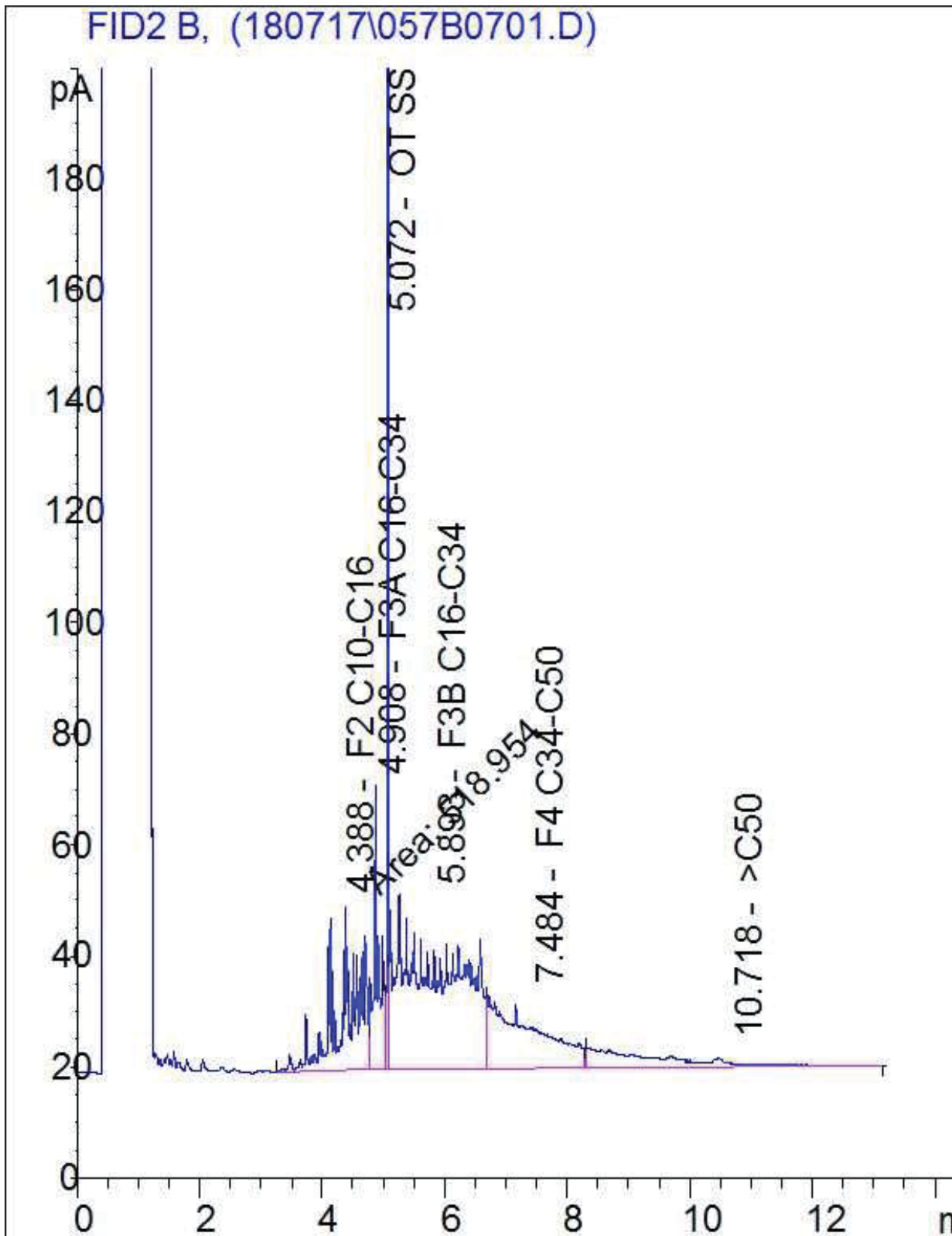
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



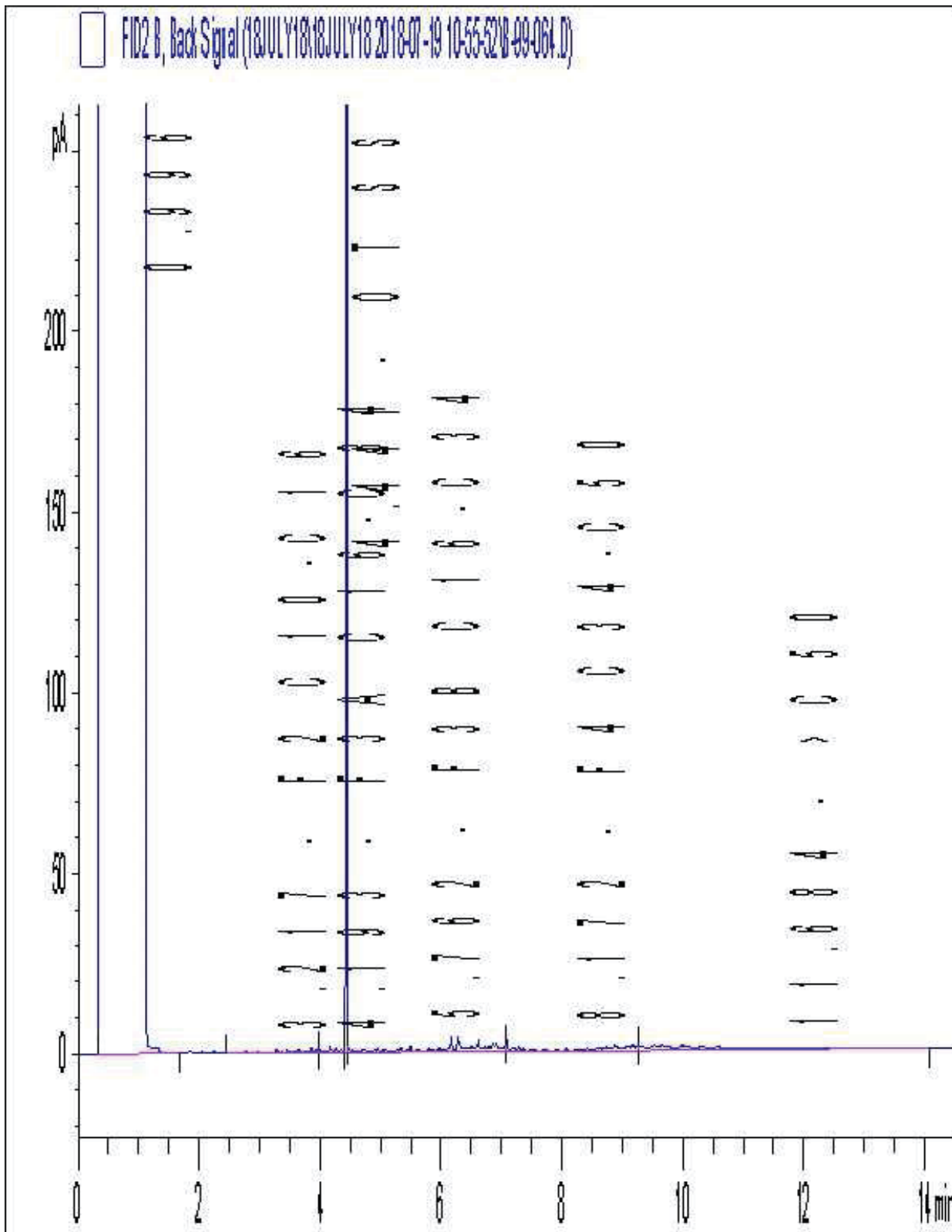
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



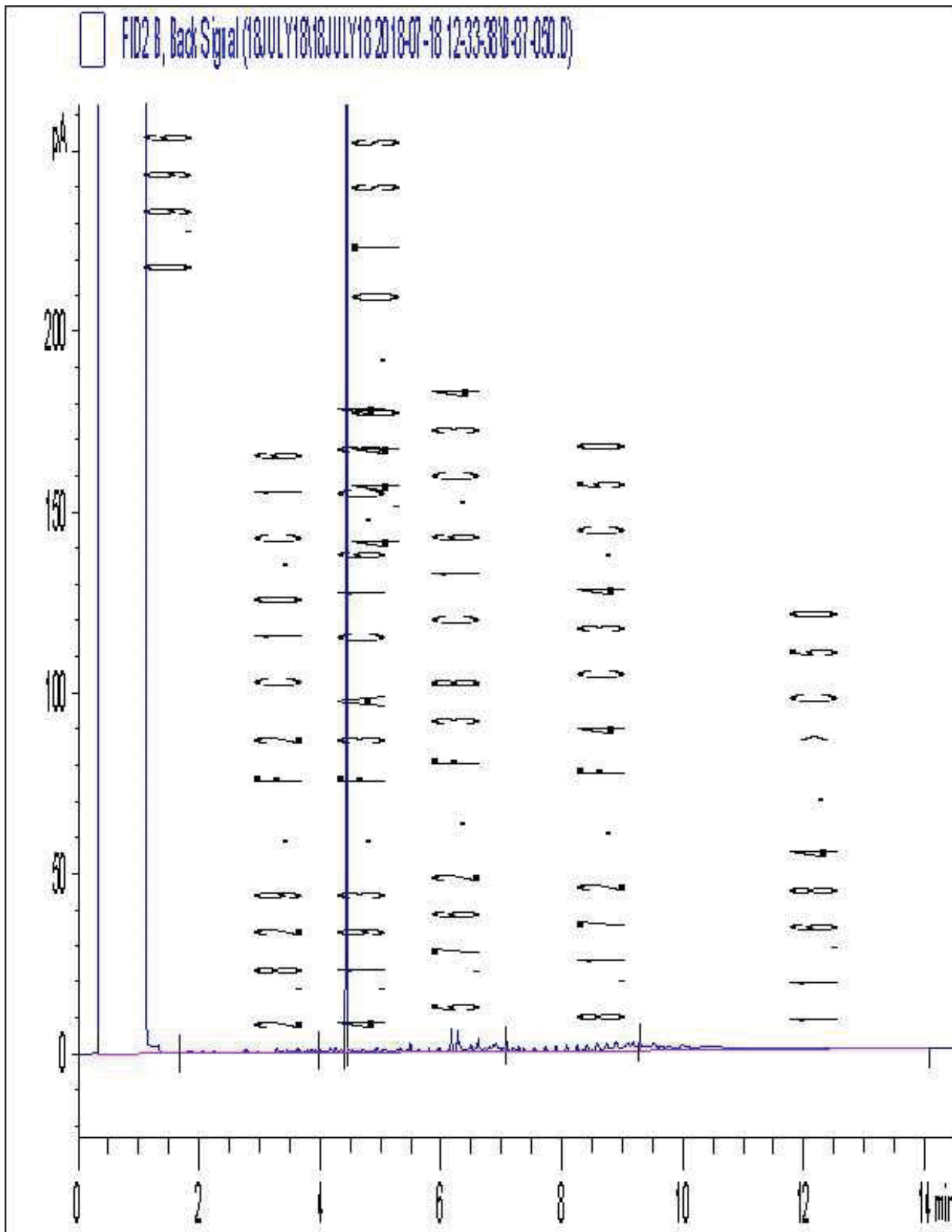
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

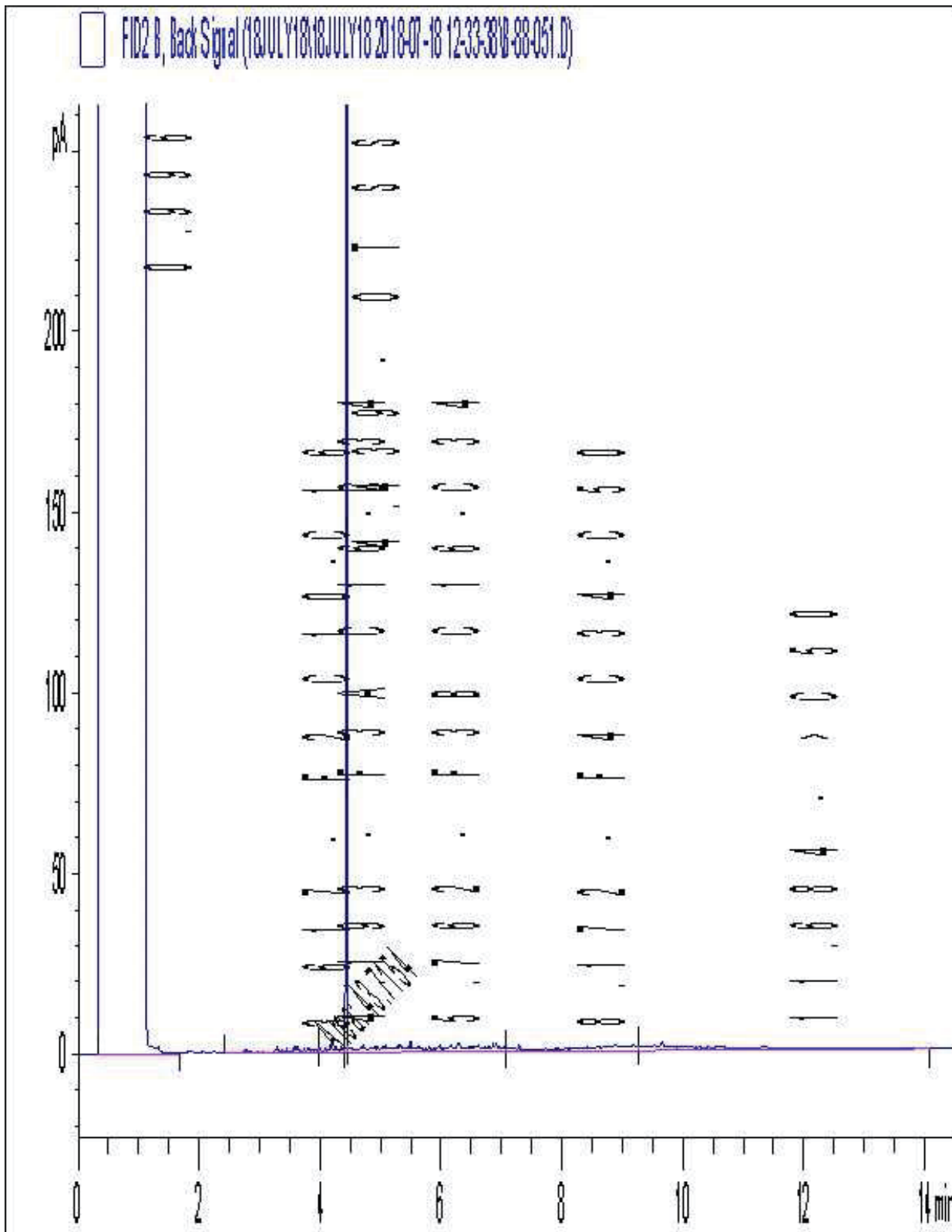
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

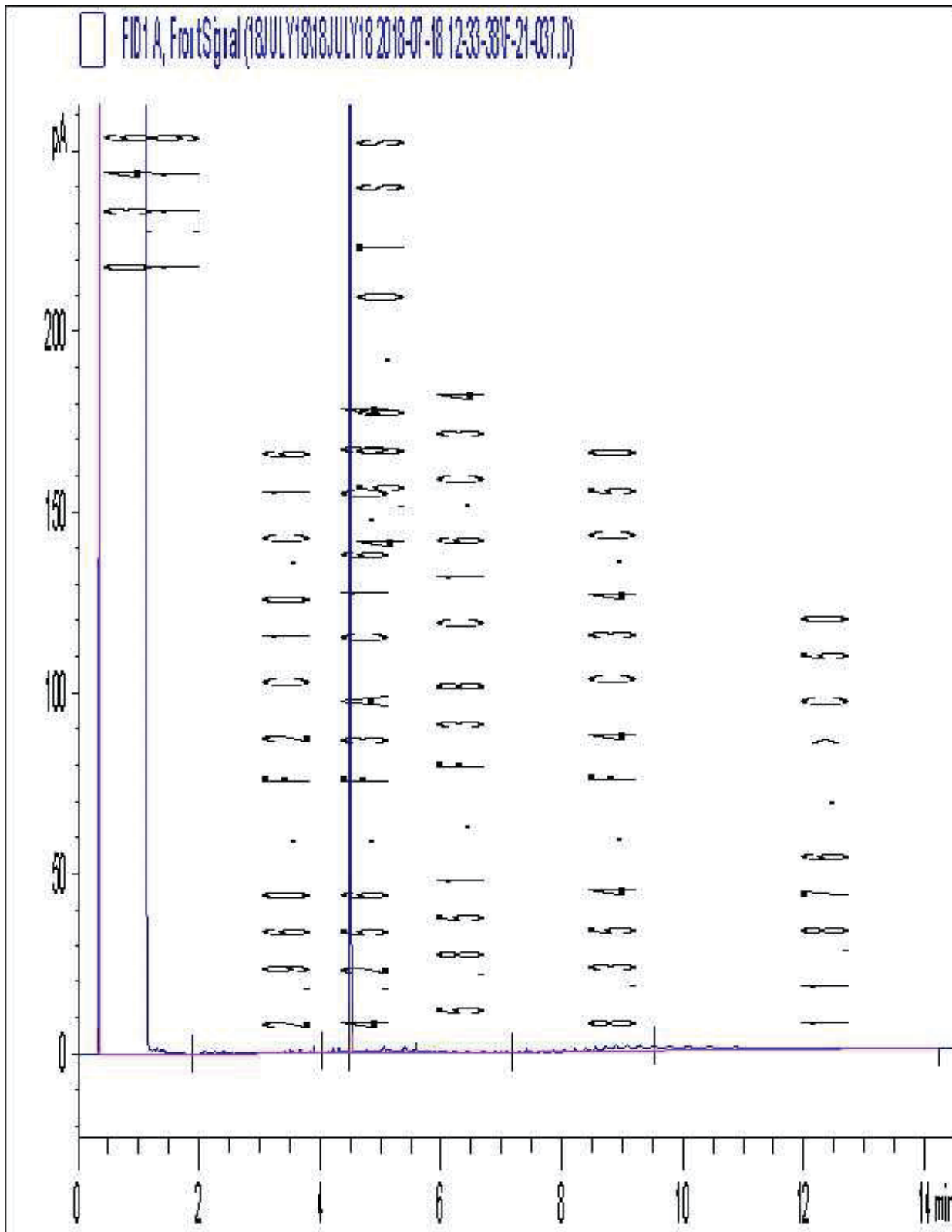


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



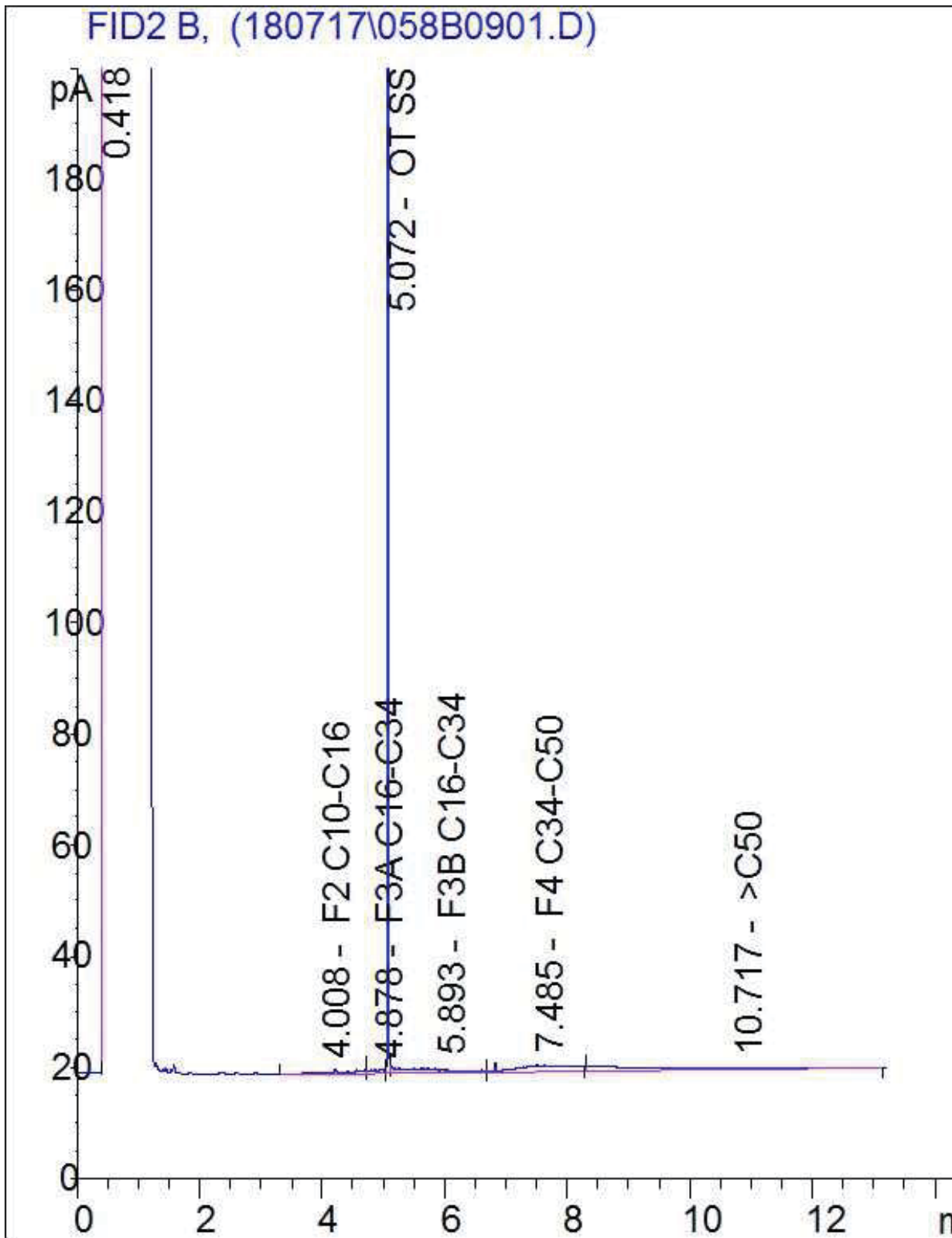
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



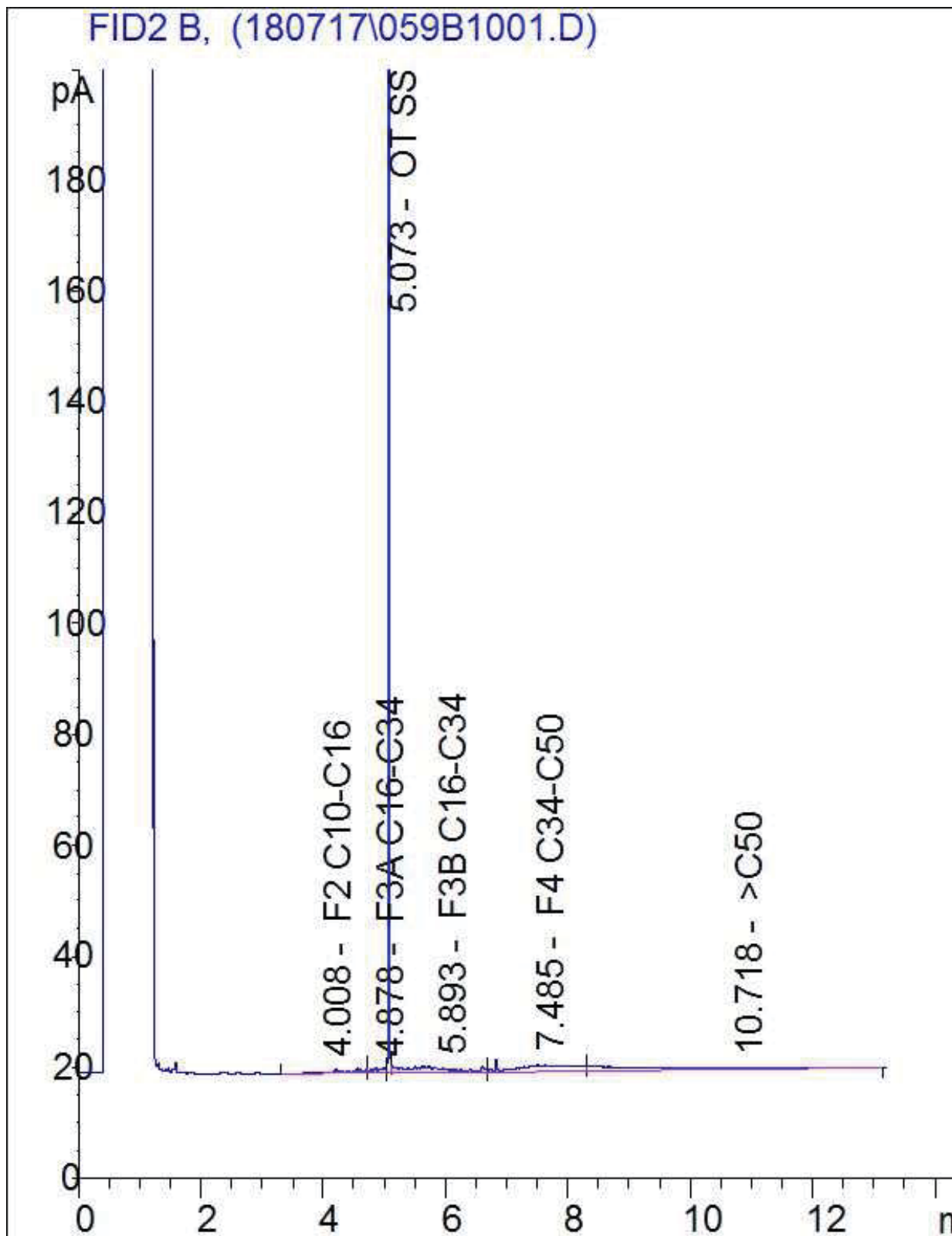
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/08/27**  
Report #: R5375770  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8L0090**

**Received: 2018/08/16, 09:04**

Sample Matrix: Soil  
# Samples Received: 38

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Methylnaphthalene Sum	4	N/A	2018/08/22	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum	10	N/A	2018/08/23	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	3	N/A	2018/08/23		EPA 8260C m
Free (WAD) Cyanide	8	2018/08/20	2018/08/21	CAM SOP-00457	OMOE E3015 m
Conductivity	2	2018/08/21	2018/08/21	CAM SOP-00414	OMOE E3530 v1 m
Conductivity	7	2018/08/21	2018/08/22	CAM SOP-00414	OMOE E3530 v1 m
Conductivity	6	2018/08/22	2018/08/22	CAM SOP-00414	OMOE E3530 v1 m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	9	N/A	2018/08/19	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	2	N/A	2018/08/20	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	1	N/A	2018/08/27	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	4	2018/08/17	2018/08/19	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	9	2018/08/17	2018/08/20	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	2	2018/08/23	2018/08/23	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	2	2018/08/20	2018/08/20	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	6	2018/08/20	2018/08/21	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2018/08/20	2018/08/22	CAM SOP-00447	EPA 6020B m
Moisture	23	N/A	2018/08/17	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	5	N/A	2018/08/20	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	4	2018/08/17	2018/08/18	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	10	2018/08/20	2018/08/21	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	4	2018/08/20	2018/08/21	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	8	N/A	2018/08/22	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs	3	N/A	2018/08/22	CAM SOP-00230	EPA 8260C m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All

Your Project #: 6820-001  
Your C.O.C. #: 677308-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/08/27**  
Report #: R5375770  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8L0090**

**Received: 2018/08/16, 09:04**

data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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

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

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

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

Encryption Key



Gina Baybayan  
Project Manager  
27 Aug 2018 16:08:57

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager  
Email: GBaybayan@maxxam.ca  
Phone# (905)817-5766

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



**O.REG 153 ICPMS METALS (SOIL)**

Maxxam ID			HML978		
Sampling Date			2018/08/13		
COC Number			677308-01-01		
	UNITS	Criteria	TP18-19 2-4 FT	RDL	QC Batch
<b>Metals</b>					
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<b>16</b>	0.20	5689215
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	9.6	1.0	5689215
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	<b>270</b>	0.50	5689215
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	0.69	0.20	5689215
Acid Extractable Boron (B)	ug/g	<b>36</b>	14	5.0	5689215
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	<b>1.8</b>	0.10	5689215
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	26	1.0	5689215
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	7.8	0.10	5689215
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	<b>280</b>	0.50	5689215
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	<b>810</b>	1.0	5689215
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<b>2.8</b>	0.50	5689215
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	25	0.50	5689215
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	1.2	0.50	5689215
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<b>1.2</b>	0.20	5689215
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.24	0.050	5689215
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.56	0.050	5689215
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	23	5.0	5689215
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	<b>710</b>	5.0	5689215
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

**O.REG 153 METALS & INORGANICS PKG (SOIL)**

<b>Maxxam ID</b>			HML941	HML942			HML954	HML963		
<b>Sampling Date</b>			2018/08/14	2018/08/14			2018/08/14	2018/08/13		
<b>COC Number</b>			677308-01-01	677308-01-01			677308-01-01	677308-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>TP18-01 10FT</b>	<b>TP18-02 6.5FT</b>	<b>RDL</b>	<b>QC Batch</b>	<b>TP18-09 0.5FT</b>	<b>TP18-15 11.5</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.40	0.49		5683328	0.31	1.2		5683328
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**Inorganics**

Conductivity	mS/cm	<b>0.7</b>	0.66	0.045	0.002	5690200	0.10	<b>2.9</b>	0.002	5690818
Moisture	%	-					2.9	27	1.0	5688332
WAD Cyanide (Free)	ug/g	<b>0.051</b>	0.01	<0.01	0.01	5689031	<0.01	<0.01	0.01	5688829

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

<b>Maxxam ID</b>			HML964			HML965			HML965		
<b>Sampling Date</b>			2018/08/13			2018/08/13			2018/08/13		
<b>COC Number</b>			677308-01-01			677308-01-01			677308-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>TP18-16 11.5FT</b>	<b>RDL</b>	<b>QC Batch</b>	<b>TP18-16 5-6FT</b>	<b>RDL</b>	<b>QC Batch</b>	<b>TP18-16 5-6FT Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.49		5683328	0.27		5683328		
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**Inorganics**

Conductivity	mS/cm	<b>0.7</b>	0.42	0.002	5690818	0.16	0.002	5690818	0.16	0.002	5690818
Moisture	%	-				14	1.0	5688332			
WAD Cyanide (Free)	ug/g	<b>0.051</b>	<0.01	0.01	5688829	<0.01	0.01	5688829			

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 METALS & INORGANICS PKG (SOIL)**

Maxxam ID			HML967	HML970		
Sampling Date			2018/08/14	2018/08/13		
COC Number			677308-01-01	677308-01-01		
	UNITS	Criteria	TP18-17 6.5FT	QA/QC 2	RDL	QC Batch
<b>Calculated Parameters</b>						
Sodium Adsorption Ratio	N/A	<b>5.0</b>	0.19	0.23		5683328
<b>Inorganics</b>						
Conductivity	mS/cm	<b>0.7</b>	0.40	<b>2.4</b>	0.002	5690818
Moisture	%	-	16	30	1.0	5688332
WAD Cyanide (Free)	ug/g	<b>0.051</b>	<0.01	<0.01	0.01	5688829
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)						
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition						
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use						

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HML941			HML942	HML944	HML945		
Sampling Date			2018/08/14			2018/08/14	2018/08/14	2018/08/14		
COC Number			677308-01-01			677308-01-01	677308-01-01	677308-01-01		
	UNITS	Criteria	TP18-01 10FT	RDL	QC Batch	TP18-02 6.5FT	TP18-03 6.5FT	TP18-04 13FT	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-	21	1.0	5685804					
<b>Calculated Parameters</b>										
Methylnaphthalene, 2-(1-)	ug/g	-	0.036	0.0071	5682934	<0.0071	<0.0071	<0.0071	0.0071	5682934
<b>Polyaromatic Hydrocarbons</b>										
Acenaphthene	ug/g	<b>0.072</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Acenaphthylene	ug/g	<b>0.093</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Anthracene	ug/g	<b>0.22</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Benzo(a)anthracene	ug/g	<b>0.36</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Benzo(a)pyrene	ug/g	<b>0.3</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Chrysene	ug/g	<b>2.8</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Fluoranthene	ug/g	<b>0.69</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Fluorene	ug/g	<b>0.19</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.014	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.022	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Naphthalene	ug/g	<b>0.09</b>	0.0082	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Phenanthrene	ug/g	<b>0.69</b>	0.011	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
Pyrene	ug/g	<b>1</b>	<0.0050	0.0050	5688331	<0.0050	<0.0050	<0.0050	0.0050	5686693
<b>Surrogate Recovery (%)</b>										
D10-Anthracene	%	-	87		5688331	82	84	92		5686693
D14-Terphenyl (FS)	%	-	89		5688331	79	82	91		5686693
D8-Acenaphthylene	%	-	83		5688331	70	75	78		5686693
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)										
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition										
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HML946		HML948	HML950	HML956		
Sampling Date			2018/08/13		2018/08/13	2018/08/13	2018/08/14		
COC Number			677308-01-01		677308-01-01	677308-01-01	677308-01-01		
	UNITS	Criteria	TP18-05 0.5FT	QC Batch	TP18-06 0.5FT	TP18-07 0.5FT	TP18-10 6.5	RDL	QC Batch
<b>Inorganics</b>									
Moisture	%	-	4.8	5685804	5.1	9.9	18	1.0	5685804
<b>Calculated Parameters</b>									
Methylnaphthalene, 2-(1-)	ug/g	-	0.69	5682934	0.016	5.7	<0.0071	0.0071	5684125
<b>Polyaromatic Hydrocarbons</b>									
Acenaphthene	ug/g	<b>0.072</b>	0.0088	5688331	<0.0050	<b>0.076</b>	<0.0050	0.0050	5688331
Acenaphthylene	ug/g	<b>0.093</b>	0.016	5688331	<0.0050	0.021	0.0074	0.0050	5688331
Anthracene	ug/g	<b>0.22</b>	0.020	5688331	<0.0050	0.11	<0.0050	0.0050	5688331
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.075	5688331	<0.0050	0.18	0.0073	0.0050	5688331
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.081	5688331	<0.0050	0.086	0.014	0.0050	5688331
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	0.13	5688331	<0.0050	0.12	0.018	0.0050	5688331
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.054	5688331	<0.0050	0.043	0.014	0.0050	5688331
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.034	5688331	<0.0050	0.022	0.0056	0.0050	5688331
Chrysene	ug/g	<b>2.8</b>	0.080	5688331	<0.0050	0.18	0.0071	0.0050	5688331
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	0.014	5688331	<0.0050	0.016	<0.0050	0.0050	5688331
Fluoranthene	ug/g	<b>0.69</b>	0.085	5688331	<0.0050	0.22	0.012	0.0050	5688331
Fluorene	ug/g	<b>0.19</b>	0.011	5688331	<0.0050	0.078	<0.0050	0.0050	5688331
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.052	5688331	<0.0050	0.036	0.013	0.0050	5688331
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.34	5688331	0.0076	<b>2.5</b>	<0.0050	0.0050	5688331
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.35	5688331	0.0080	<b>3.2</b>	<0.0050	0.0050	5688331
Naphthalene	ug/g	<b>0.09</b>	<b>0.18</b>	5688331	0.0055	<b>1.9</b>	<0.0050	0.0050	5688331
Phenanthrene	ug/g	<b>0.69</b>	0.19	5688331	<0.0050	<b>1.5</b>	0.0057	0.0050	5688331
Pyrene	ug/g	<b>1</b>	0.092	5688331	<0.0050	0.25	0.016	0.0050	5688331
<b>Surrogate Recovery (%)</b>									
D10-Anthracene	%	-	81	5688331	89	88	93		5688331
D14-Terphenyl (FS)	%	-	83	5688331	89	88	94		5688331
D8-Acenaphthylene	%	-	78	5688331	86	81	85		5688331
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition									
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HML958		HML959	HML960		
Sampling Date			2018/08/14		2018/08/14	2018/08/14		
COC Number			677308-01-01		677308-01-01	677308-01-01		
	UNITS	Criteria	TP18-11 6.5FT	RDL	TP18-12 6.5FT	TP18-13 0.5FT	RDL	QC Batch
<b>Inorganics</b>								
Moisture	%	-	32	1.0	14	5.4	1.0	5685804
<b>Calculated Parameters</b>								
Methylnaphthalene, 2-(1-)	ug/g	-	1.0	0.014	0.066	0.56	0.0071	5684125
<b>Polyaromatic Hydrocarbons</b>								
Acenaphthene	ug/g	<b>0.072</b>	0.019	0.010	<0.0050	0.0067	0.0050	5688331
Acenaphthylene	ug/g	<b>0.093</b>	0.014	0.010	<0.0050	<0.0050	0.0050	5688331
Anthracene	ug/g	<b>0.22</b>	0.038	0.010	<0.0050	0.017	0.0050	5688331
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.076	0.010	<0.0050	0.043	0.0050	5688331
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.052	0.010	0.0053	0.038	0.0050	5688331
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	0.090	0.010	0.0093	0.096	0.0050	5688331
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.048	0.010	0.0051	0.069	0.0050	5688331
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.024	0.010	<0.0050	0.021	0.0050	5688331
Chrysene	ug/g	<b>2.8</b>	0.091	0.010	0.0088	0.065	0.0050	5688331
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	0.011	0.010	<0.0050	0.011	0.0050	5688331
Fluoranthene	ug/g	<b>0.69</b>	0.11	0.010	0.015	0.051	0.0050	5688331
Fluorene	ug/g	<b>0.19</b>	0.020	0.010	<0.0050	0.0061	0.0050	5688331
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.040	0.010	0.0054	0.070	0.0050	5688331
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.50	0.010	0.033	0.29	0.0050	5688331
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.55	0.010	0.033	0.27	0.0050	5688331
Naphthalene	ug/g	<b>0.09</b>	<b>0.29</b>	0.010	0.020	<b>0.16</b>	0.0050	5688331
Phenanthrene	ug/g	<b>0.69</b>	0.34	0.010	0.029	0.20	0.0050	5688331
Pyrene	ug/g	<b>1</b>	0.11	0.010	0.016	0.060	0.0050	5688331
<b>Surrogate Recovery (%)</b>								
D10-Anthracene	%	-	86		87	84		5688331
D14-Terphenyl (FS)	%	-	84		84	85		5688331
D8-Acenaphthylene	%	-	83		84	80		5688331
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition								
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								



**O.REG 153 PAHS (SOIL)**

Maxxam ID			HML961			HML971		HML974		
Sampling Date			2018/08/14			2018/08/14		2018/08/14		
COC Number			677308-01-01			677308-01-01		677308-01-01		
	UNITS	Criteria	TP18-13 5FT-7FT	RDL	QC Batch	QA/QC 3	RDL	QA/QC 6	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-				19	1.0	34	1.0	5685804
<b>Calculated Parameters</b>										
Methylnaphthalene, 2-(1-)	ug/g	-	<0.0071	0.0071	5684125	0.021	0.0071	1.4	0.014	5684125
<b>Polyaromatic Hydrocarbons</b>										
Acenaphthene	ug/g	<b>0.072</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.024	0.010	5688331
Acenaphthylene	ug/g	<b>0.093</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.013	0.010	5688331
Anthracene	ug/g	<b>0.22</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.041	0.010	5688331
Benzo(a)anthracene	ug/g	<b>0.36</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.086	0.010	5688331
Benzo(a)pyrene	ug/g	<b>0.3</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.056	0.010	5688331
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.10	0.010	5688331
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.052	0.010	5688331
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.024	0.010	5688331
Chrysene	ug/g	<b>2.8</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.10	0.010	5688331
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.012	0.010	5688331
Fluoranthene	ug/g	<b>0.69</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.13	0.010	5688331
Fluorene	ug/g	<b>0.19</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.024	0.010	5688331
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.043	0.010	5688331
1-Methylnaphthalene	ug/g	<b>0.59</b>	<0.0050	0.0050	5686693	0.0098	0.0050	<b>0.68</b>	0.010	5688331
2-Methylnaphthalene	ug/g	<b>0.59</b>	<0.0050	0.0050	5686693	0.011	0.0050	<b>0.76</b>	0.010	5688331
Naphthalene	ug/g	<b>0.09</b>	<0.0050	0.0050	5686693	0.0067	0.0050	<b>0.40</b>	0.010	5688331
Phenanthrene	ug/g	<b>0.69</b>	<0.0050	0.0050	5686693	0.0073	0.0050	0.46	0.010	5688331
Pyrene	ug/g	<b>1</b>	<0.0050	0.0050	5686693	<0.0050	0.0050	0.13	0.010	5688331
<b>Surrogate Recovery (%)</b>										
D10-Anthracene	%	-	82		5686693	86		87		5688331
D14-Terphenyl (FS)	%	-	61		5686693	84		85		5688331
D8-Acenaphthylene	%	-	70		5686693	83		83		5688331
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)										
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition										
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HML945			HML955		HML957		
Sampling Date			2018/08/14			2018/08/14		2018/08/14		
COC Number			677308-01-01			677308-01-01		677308-01-01		
	UNITS	Criteria	TP18-04 13FT	RDL	QC Batch	TP18-09 10FT	RDL	TP18-10 0-2	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-	21	1.0	5686634	38	1.0	1.6	1.0	5685804
<b>BTEX &amp; F1 Hydrocarbons</b>										
Benzene	ug/g	<b>0.02</b>	<0.020	0.020	5687740	<b>&lt;0.040 (1)</b>	0.040	<0.020	0.020	5687740
Toluene	ug/g	<b>0.2</b>	<0.020	0.020	5687740	<0.040	0.040	<0.020	0.020	5687740
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	0.020	5687740	<0.040	0.040	<0.020	0.020	5687740
o-Xylene	ug/g	-	<0.020	0.020	5687740	<0.040	0.040	<0.020	0.020	5687740
p+m-Xylene	ug/g	-	<0.040	0.040	5687740	<0.080	0.080	<0.040	0.040	5687740
Total Xylenes	ug/g	<b>0.05</b>	<0.040	0.040	5687740	<b>&lt;0.080 (1)</b>	0.080	<0.040	0.040	5687740
F1 (C6-C10)	ug/g	<b>25</b>	<10	10	5687740	<20	20	<10	10	5687740
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	10	5687740	<20	20	<10	10	5687740
<b>F2-F4 Hydrocarbons</b>										
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	10	5686702	<10	10	<10	10	5686460
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	50	5686702	<50	50	<50	50	5686460
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	50	5686702	<50	50	<50	50	5686460
Reached Baseline at C50	ug/g	-	Yes		5686702	Yes		Yes		5686460
<b>Surrogate Recovery (%)</b>										
1,4-Difluorobenzene	%	-	103		5687740	101		101		5687740
4-Bromofluorobenzene	%	-	106		5687740	105		103		5687740
D10-Ethylbenzene	%	-	88		5687740	89		80		5687740
D4-1,2-Dichloroethane	%	-	102		5687740	102		99		5687740
o-Terphenyl	%	-	86		5686702	96		95		5686460
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)										
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition										
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										
(1) RDL exceeds criteria										

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HML957			HML961		HML962		
Sampling Date			2018/08/14			2018/08/14		2018/08/13		
COC Number			677308-01-01			677308-01-01		677308-01-01		
	UNITS	Criteria	TP18-10 0-2 Lab-Dup	RDL	QC Batch	TP18-13 5FT-7FT	QC Batch	TP18-14 10FT	RDL	QC Batch
<b>Inorganics</b>										
Moisture	%	-				16	5686634	20	1.0	5685804
<b>BTEX &amp; F1 Hydrocarbons</b>										
Benzene	ug/g	<b>0.02</b>				<0.020	5687740	<0.020	0.020	5687740
Toluene	ug/g	<b>0.2</b>				<0.020	5687740	<0.020	0.020	5687740
Ethylbenzene	ug/g	<b>0.05</b>				<0.020	5687740	<0.020	0.020	5687740
o-Xylene	ug/g	-				<0.020	5687740	<0.020	0.020	5687740
p+m-Xylene	ug/g	-				<0.040	5687740	<0.040	0.040	5687740
Total Xylenes	ug/g	<b>0.05</b>				<0.040	5687740	<0.040	0.040	5687740
F1 (C6-C10)	ug/g	<b>25</b>				<10	5687740	<10	10	5687740
F1 (C6-C10) - BTEX	ug/g	<b>25</b>				<10	5687740	<10	10	5687740
<b>F2-F4 Hydrocarbons</b>										
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	10	5686460	<10	5686702	<10	10	5686460
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	50	5686460	<50	5686702	<50	50	5686460
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	50	5686460	<50	5686702	<50	50	5686460
Reached Baseline at C50	ug/g	-	Yes		5686460	Yes	5686702	Yes		5686460
<b>Surrogate Recovery (%)</b>										
1,4-Difluorobenzene	%	-				102	5687740	104		5687740
4-Bromofluorobenzene	%	-				102	5687740	100		5687740
D10-Ethylbenzene	%	-				93	5687740	90		5687740
D4-1,2-Dichloroethane	%	-				102	5687740	102		5687740
o-Terphenyl	%	-	89		5686460	86	5686702	92		5686460
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use										

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HML964			HML964			HML968		
Sampling Date			2018/08/13			2018/08/13			2018/08/14		
COC Number			677308-01-01			677308-01-01			677308-01-01		
	UNITS	Criteria	TP18-16 11.5FT	RDL	QC Batch	TP18-16 11.5FT Lab-Dup	RDL	QC Batch	TP18-18 4-6FT	RDL	QC Batch
<b>Inorganics</b>											
Moisture	%	-	19	1.0	5685804	19	1.0	5685804	22	1.0	5685804
<b>BTEX &amp; F1 Hydrocarbons</b>											
Benzene	ug/g	<b>0.02</b>	<0.020	0.020	5687740				<0.020	0.020	5687740
Toluene	ug/g	<b>0.2</b>	<0.020	0.020	5687740				<0.020	0.020	5687740
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	0.020	5687740				<0.020	0.020	5687740
o-Xylene	ug/g	-	<0.020	0.020	5687740				<0.020	0.020	5687740
p+m-Xylene	ug/g	-	<0.040	0.040	5687740				<0.040	0.040	5687740
Total Xylenes	ug/g	<b>0.05</b>	<0.040	0.040	5687740				<0.040	0.040	5687740
F1 (C6-C10)	ug/g	<b>25</b>	<10	10	5687740				<10	10	5687740
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	10	5687740				<10	10	5687740
<b>F2-F4 Hydrocarbons</b>											
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	10	5686460				<10	10	5686460
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	50	5686460				<50	50	5686460
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	50	5686460				<50	50	5686460
Reached Baseline at C50	ug/g	-	Yes		5686460				Yes		5686460
<b>Surrogate Recovery (%)</b>											
1,4-Difluorobenzene	%	-	106		5687740				96		5687740
4-Bromofluorobenzene	%	-	99		5687740				105		5687740
D10-Ethylbenzene	%	-	81		5687740				86		5687740
D4-1,2-Dichloroethane	%	-	104		5687740				95		5687740
o-Terphenyl	%	-	91		5686460				92		5686460
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use											

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HML972	HML978		
Sampling Date			2018/08/14	2018/08/13		
COC Number			677308-01-01	677308-01-01		
	UNITS	Criteria	QA/QC 4	TP18-19 2-4 FT	RDL	QC Batch
<b>Inorganics</b>						
Moisture	%	-	21	29	1.0	5685804
<b>BTEX &amp; F1 Hydrocarbons</b>						
Benzene	ug/g	<b>0.02</b>	<0.020	<b>0.17</b>	0.020	5687740
Toluene	ug/g	<b>0.2</b>	<0.020	<b>0.55</b>	0.020	5687740
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	<b>0.15</b>	0.020	5687740
o-Xylene	ug/g	-	<0.020	0.31	0.020	5687740
p+m-Xylene	ug/g	-	<0.040	0.60	0.040	5687740
Total Xylenes	ug/g	<b>0.05</b>	<0.040	<b>0.91</b>	0.040	5687740
F1 (C6-C10)	ug/g	<b>25</b>	<10	12	10	5687740
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	11	10	5687740
<b>F2-F4 Hydrocarbons</b>						
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	<b>140</b>	10	5686460
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	<b>1800</b>	50	5686460
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	<b>850</b>	50	5686460
Reached Baseline at C50	ug/g	-	Yes	No		5686460
<b>Surrogate Recovery (%)</b>						
1,4-Difluorobenzene	%	-	106	112		5687740
4-Bromofluorobenzene	%	-	105	103		5687740
D10-Ethylbenzene	%	-	79	75		5687740
D4-1,2-Dichloroethane	%	-	104	107		5687740
o-Terphenyl	%	-	90	91		5686460
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)						
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition						
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use						

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

Maxxam ID			HML942			HML942		
Sampling Date			2018/08/14			2018/08/14		
COC Number			677308-01-01			677308-01-01		
	UNITS	Criteria	TP18-02 6.5FT	RDL	QC Batch	TP18-02 6.5FT Lab-Dup	RDL	QC Batch
<b>Inorganics</b>								
Moisture	%	-	2.4	1.0	5686634	2.7	1.0	5686634
<b>Calculated Parameters</b>								
1,3-Dichloropropene (cis+trans)	ug/g	0.05	<0.050	0.050	5682935			
<b>Volatile Organics</b>								
Acetone (2-Propanone)	ug/g	0.5	<0.50	0.50	5688338			
Benzene	ug/g	0.02	<0.020	0.020	5688338			
Bromodichloromethane	ug/g	0.05	<0.050	0.050	5688338			
Bromoform	ug/g	0.05	<0.050	0.050	5688338			
Bromomethane	ug/g	0.05	<0.050	0.050	5688338			
Carbon Tetrachloride	ug/g	0.05	<0.050	0.050	5688338			
Chlorobenzene	ug/g	0.05	<0.050	0.050	5688338			
Chloroform	ug/g	0.05	<0.050	0.050	5688338			
Dibromochloromethane	ug/g	0.05	<0.050	0.050	5688338			
1,2-Dichlorobenzene	ug/g	0.05	<0.050	0.050	5688338			
1,3-Dichlorobenzene	ug/g	0.05	<0.050	0.050	5688338			
1,4-Dichlorobenzene	ug/g	0.05	<0.050	0.050	5688338			
Dichlorodifluoromethane (FREON 12)	ug/g	0.05	<0.050	0.050	5688338			
1,1-Dichloroethane	ug/g	0.05	<0.050	0.050	5688338			
1,2-Dichloroethane	ug/g	0.05	<0.050	0.050	5688338			
1,1-Dichloroethylene	ug/g	0.05	<0.050	0.050	5688338			
cis-1,2-Dichloroethylene	ug/g	0.05	<0.050	0.050	5688338			
trans-1,2-Dichloroethylene	ug/g	0.05	<0.050	0.050	5688338			
1,2-Dichloropropane	ug/g	0.05	<0.050	0.050	5688338			
cis-1,3-Dichloropropene	ug/g	0.05	<0.030	0.030	5688338			
trans-1,3-Dichloropropene	ug/g	0.05	<0.040	0.040	5688338			
Ethylbenzene	ug/g	0.05	<0.020	0.020	5688338			
Ethylene Dibromide	ug/g	0.05	<0.050	0.050	5688338			
Hexane	ug/g	0.05	<0.050	0.050	5688338			
Methylene Chloride(Dichloromethane)	ug/g	0.05	<0.050	0.050	5688338			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								



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

Maxxam ID			HML942			HML942		
Sampling Date			2018/08/14			2018/08/14		
COC Number			677308-01-01			677308-01-01		
	UNITS	Criteria	TP18-02 6.5FT	RDL	QC Batch	TP18-02 6.5FT Lab-Dup	RDL	QC Batch
Methyl Ethyl Ketone (2-Butanone)	ug/g	0.5	<0.50	0.50	5688338			
Methyl Isobutyl Ketone	ug/g	0.5	<0.50	0.50	5688338			
Methyl t-butyl ether (MTBE)	ug/g	0.05	<0.050	0.050	5688338			
Styrene	ug/g	0.05	<0.050	0.050	5688338			
1,1,1,2-Tetrachloroethane	ug/g	0.05	<0.050	0.050	5688338			
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.050	0.050	5688338			
Tetrachloroethylene	ug/g	0.05	<0.050	0.050	5688338			
Toluene	ug/g	0.2	<0.020	0.020	5688338			
1,1,1-Trichloroethane	ug/g	0.05	<0.050	0.050	5688338			
1,1,2-Trichloroethane	ug/g	0.05	<0.050	0.050	5688338			
Trichloroethylene	ug/g	0.05	<0.050	0.050	5688338			
Trichlorofluoromethane (FREON 11)	ug/g	0.25	<0.050	0.050	5688338			
Vinyl Chloride	ug/g	0.02	<0.020	0.020	5688338			
p+m-Xylene	ug/g	-	<0.020	0.020	5688338			
o-Xylene	ug/g	-	<0.020	0.020	5688338			
Total Xylenes	ug/g	0.05	<0.020	0.020	5688338			
F1 (C6-C10)	ug/g	25	<10	10	5688338			
F1 (C6-C10) - BTEX	ug/g	25	<10	10	5688338			
<b>F2-F4 Hydrocarbons</b>								
F2 (C10-C16 Hydrocarbons)	ug/g	10	<10	10	5686702			
F3 (C16-C34 Hydrocarbons)	ug/g	240	<50	50	5686702			
F4 (C34-C50 Hydrocarbons)	ug/g	120	<50	50	5686702			
Reached Baseline at C50	ug/g	-	Yes		5686702			
<b>Surrogate Recovery (%)</b>								
o-Terphenyl	%	-	87		5686702			
4-Bromofluorobenzene	%	-	85		5688338			
D10-o-Xylene	%	-	96		5688338			
D4-1,2-Dichloroethane	%	-	109		5688338			
D8-Toluene	%	-	91		5688338			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

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

Maxxam ID			HML944		HML973		
Sampling Date			2018/08/14		2018/08/14		
COC Number			677308-01-01		677308-01-01		
	UNITS	Criteria	TP18-03 6.5FT	QC Batch	QA/QC 5	RDL	QC Batch
<b>Inorganics</b>							
Moisture	%	-	19	5686634	21	1.0	5685804
<b>Calculated Parameters</b>							
1,3-Dichloropropene (cis+trans)	ug/g	<b>0.05</b>	<0.050	5682935	<0.050	0.050	5682935
<b>Volatile Organics</b>							
Acetone (2-Propanone)	ug/g	<b>0.5</b>	<0.50	5688338	<0.50	0.50	5688338
Benzene	ug/g	<b>0.02</b>	<0.020	5688338	<0.020	0.020	5688338
Bromodichloromethane	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Bromoform	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Bromomethane	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Carbon Tetrachloride	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Chlorobenzene	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Chloroform	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Dibromochloromethane	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
1,2-Dichlorobenzene	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
1,3-Dichlorobenzene	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
1,4-Dichlorobenzene	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Dichlorodifluoromethane (FREON 12)	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
1,1-Dichloroethane	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
1,2-Dichloroethane	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
1,1-Dichloroethylene	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
cis-1,2-Dichloroethylene	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
trans-1,2-Dichloroethylene	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
1,2-Dichloropropane	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
cis-1,3-Dichloropropene	ug/g	<b>0.05</b>	<0.030	5688338	<0.030	0.030	5688338
trans-1,3-Dichloropropene	ug/g	<b>0.05</b>	<0.040	5688338	<0.040	0.040	5688338
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	5688338	<0.020	0.020	5688338
Ethylene Dibromide	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Hexane	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Methylene Chloride(Dichloromethane)	ug/g	<b>0.05</b>	<0.050	5688338	<0.050	0.050	5688338
Methyl Ethyl Ketone (2-Butanone)	ug/g	<b>0.5</b>	<0.50	5688338	<0.50	0.50	5688338
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition							
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							

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

Maxxam ID			HML944		HML973		
Sampling Date			2018/08/14		2018/08/14		
COC Number			677308-01-01		677308-01-01		
	UNITS	Criteria	TP18-03 6.5FT	QC Batch	QA/QC 5	RDL	QC Batch
Methyl Isobutyl Ketone	ug/g	0.5	<0.50	5688338	<0.50	0.50	5688338
Methyl t-butyl ether (MTBE)	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
Styrene	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
1,1,1,2-Tetrachloroethane	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
Tetrachloroethylene	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
Toluene	ug/g	0.2	<0.020	5688338	<0.020	0.020	5688338
1,1,1-Trichloroethane	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
1,1,2-Trichloroethane	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
Trichloroethylene	ug/g	0.05	<0.050	5688338	<0.050	0.050	5688338
Trichlorofluoromethane (FREON 11)	ug/g	0.25	<0.050	5688338	<0.050	0.050	5688338
Vinyl Chloride	ug/g	0.02	<0.020	5688338	<0.020	0.020	5688338
p+m-Xylene	ug/g	-	<0.020	5688338	<0.020	0.020	5688338
o-Xylene	ug/g	-	<0.020	5688338	<0.020	0.020	5688338
Total Xylenes	ug/g	0.05	<0.020	5688338	<0.020	0.020	5688338
F1 (C6-C10)	ug/g	25	<10	5688338	<10	10	5688338
F1 (C6-C10) - BTEX	ug/g	25	<10	5688338	<10	10	5688338
<b>F2-F4 Hydrocarbons</b>							
F2 (C10-C16 Hydrocarbons)	ug/g	10	<10	5686702	<10	10	5686460
F3 (C16-C34 Hydrocarbons)	ug/g	240	<50	5686702	<50	50	5686460
F4 (C34-C50 Hydrocarbons)	ug/g	120	<50	5686702	<50	50	5686460
Reached Baseline at C50	ug/g	-	Yes	5686702	Yes		5686460
<b>Surrogate Recovery (%)</b>							
o-Terphenyl	%	-	86	5686702	91		5686460
4-Bromofluorobenzene	%	-	85	5688338	84		5688338
D10-o-Xylene	%	-	94	5688338	91		5688338
D4-1,2-Dichloroethane	%	-	108	5688338	112		5688338
D8-Toluene	%	-	92	5688338	92		5688338
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							

**RESULTS OF ANALYSES OF SOIL**

Maxxam ID			HML943	HML947	HML949	HML951		
Sampling Date			2018/08/14	2018/08/13	2018/08/13	2018/08/13		
COC Number			677308-01-01	677308-01-01	677308-01-01	677308-01-01		
	UNITS	Criteria	TP18-03 4.5-6FT	TP18-05 4.5-6FT	TP18-06 4.5-6FT	TP18-07 4.5-6FT	RDL	QC Batch
<b>Inorganics</b>								
Conductivity	mS/cm	0.7	0.17	2.3	0.38	2.4	0.002	5690918
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

Maxxam ID			HML952		HML953	HML962		
Sampling Date			2018/08/13		2018/08/13	2018/08/13		
COC Number			677308-01-01		677308-01-01	677308-01-01		
	UNITS	Criteria	TP18-08 2-4FT	QC Batch	TP18-08 10FT	TP18-14 10FT	RDL	QC Batch
<b>Inorganics</b>								
Conductivity	mS/cm	0.7			0.43	2.3	0.002	5690918
Available (CaCl2) pH	pH	-	6.45	5689062				
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

Maxxam ID			HML966			HML969			HML975	HML976	
Sampling Date			2018/08/13			2018/08/13			2018/08/13	2018/08/13	
COC Number			677308-01-01			677308-01-01			677308-01-01	677308-01-01	
	UNITS	Criteria	TP18-16 0-2FT	RDL	QC Batch	QA/QC 1	RDL	QC Batch	TP18-08 A	TP18-08 B	QC Batch
<b>Inorganics</b>											
Conductivity	mS/cm	0.7				2.5	0.002	5690918			
Moisture	%	-	3.3	1.0	5685804						
Available (CaCl2) pH	pH	-							7.35	7.27	5689062
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use											

**RESULTS OF ANALYSES OF SOIL**

<b>Maxxam ID</b>			HML977	
<b>Sampling Date</b>			2018/08/13	
<b>COC Number</b>			677308-01-01	
	<b>UNITS</b>	<b>Criteria</b>	<b>TP18-08 C</b>	<b>QC Batch</b>
<b>Inorganics</b>				
Available (CaCl2) pH	pH	-	7.20	5689062
QC Batch = Quality Control Batch				
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)				
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition				
Soil -				
Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use				

**ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

<b>Maxxam ID</b>			HML941	HML942		HML954		
<b>Sampling Date</b>			2018/08/14	2018/08/14		2018/08/14		
<b>COC Number</b>			677308-01-01	677308-01-01		677308-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>TP18-01 10FT</b>	<b>TP18-02 6.5FT</b>	<b>QC Batch</b>	<b>TP18-09 0.5FT</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>								
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	<0.20	5688679	<0.20	0.20	5688639
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	2.1	<1.0	5688679	1.2	1.0	5688639
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	78	17	5688679	52	0.50	5688639
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	0.30	<0.20	5688679	0.23	0.20	5688639
Acid Extractable Boron (B)	ug/g	<b>36</b>	<5.0	<5.0	5688679	<5.0	5.0	5688639
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	<0.10	<0.10	5688679	0.14	0.10	5688639
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	13	4.5	5688679	12	1.0	5688639
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	5.5	1.8	5688679	3.9	0.10	5688639
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	10	4.1	5688679	21	0.50	5688639
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	3.8	<1.0	5688679	24	1.0	5688639
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	<0.50	5688679	<0.50	0.50	5688639
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	10	2.8	5688679	7.2	0.50	5688639
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	<0.50	5688679	<0.50	0.50	5688639
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	<0.20	5688679	<0.20	0.20	5688639
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.070	<0.050	5688679	0.063	0.050	5688639
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.83	0.33	5688679	0.42	0.050	5688639
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	23	12	5688679	22	5.0	5688639
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	29	8.2	5688679	38	5.0	5688639
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	<0.050	5688679	<0.050	0.050	5688639

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use



**ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

Maxxam ID			HML963	HML964	HML965	HML967	HML967		
Sampling Date			2018/08/13	2018/08/13	2018/08/13	2018/08/14	2018/08/14		
COC Number			677308-01-01	677308-01-01	677308-01-01	677308-01-01	677308-01-01		
	UNITS	Criteria	TP18-15 11.5	TP18-16 11.5FT	TP18-16 5-6FT	TP18-17 6.5FT	TP18-17 6.5FT Lab-Dup	RDL	QC Batch

<b>Metals</b>									
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	<0.20	0.75	<0.20	<0.20	0.20	5688487
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	1.8	<1.0	2.9	<1.0	<1.0	1.0	5688487
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	61	26	64	70	67	0.50	5688487
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	1.1	<0.20	0.36	0.26	0.24	0.20	5688487
Acid Extractable Boron (B)	ug/g	<b>36</b>	9.9	<5.0	6.7	6.3	6.3	5.0	5688487
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	0.14	<0.10	0.16	<0.10	<0.10	0.10	5688487
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	19	4.9	17	13	13	1.0	5688487
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	8.5	2.3	6.1	5.4	5.4	0.10	5688487
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	12	2.8	25	12	12	0.50	5688487
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	3.0	11	37	3.5	3.5	1.0	5688487
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	0.64	<0.50	0.73	<0.50	<0.50	0.50	5688487
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	22	4.9	13	9.9	9.6	0.50	5688487
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5688487
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5688487
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.12	<0.050	0.099	0.099	0.097	0.050	5688487
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.82	0.59	0.85	0.43	0.42	0.050	5688487
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	28	12	26	26	25	5.0	5688487
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	43	22	54	28	25	5.0	5688487
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	<0.050	0.062	<0.050	<0.050	0.050	5688487

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

Maxxam ID			HML970		
Sampling Date			2018/08/13		
COC Number			677308-01-01		
	UNITS	Criteria	QA/QC 2	RDL	QC Batch
<b>Metals</b>					
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	<0.20	0.20	5688487
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	<1.0	1.0	5688487
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	150	0.50	5688487
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	<b>3.2</b>	0.20	5688487
Acid Extractable Boron (B)	ug/g	<b>36</b>	13	5.0	5688487
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	<b>1.3</b>	0.10	5688487
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	40	1.0	5688487
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	<b>48</b>	0.10	5688487
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	29	0.50	5688487
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	7.0	1.0	5688487
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<0.50	0.50	5688487
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	<b>84</b>	0.50	5688487
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<0.50	0.50	5688487
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	0.20	5688487
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.26	0.050	5688487
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	<b>3.1</b>	0.050	5688487
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	61	5.0	5688487
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	200	5.0	5688487
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	<0.050	0.050	5688487
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)					
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition					
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			HML941	HML958			HML966		
Sampling Date			2018/08/14	2018/08/14			2018/08/13		
COC Number			677308-01-01	677308-01-01			677308-01-01		
	UNITS	Criteria	TP18-01 10FT	TP18-11 6.5FT	RDL	QC Batch	TP18-16 0-2FT	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>	<0.020	<b>0.14</b>	0.020	5687740	<0.020	0.020	5698973
Toluene	ug/g	<b>0.2</b>	<0.020	<b>0.46</b>	0.020	5687740	0.040	0.020	5698973
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	<b>0.098</b>	0.020	5687740	<0.020	0.020	5698973
o-Xylene	ug/g	-	<0.020	0.23	0.020	5687740	0.027	0.020	5698973
p+m-Xylene	ug/g	-	<0.040	0.36	0.040	5687740	0.050	0.040	5698973
Total Xylenes	ug/g	<b>0.05</b>	<0.040	<b>0.59</b>	0.040	5687740	<b>0.077</b>	0.040	5698973
F1 (C6-C10)	ug/g	<b>25</b>	<10	10	10	5687740	<10	10	5698973
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	<10	10	5687740	<10	10	5698973
<b>F2-F4 Hydrocarbons</b>									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<b>120</b>					<b>590</b>	100	5694854
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>					<10	10	5686460
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>					150	50	5686460
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>					<b>190</b>	50	5686460
Reached Baseline at C50	ug/g	-					No		5686460
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-	101	103		5687740	113		5698973
4-Bromofluorobenzene	%	-	105	99		5687740	100		5698973
D10-Ethylbenzene	%	-	80	82		5687740	77		5698973
D4-1,2-Dichloroethane	%	-	101	100		5687740	113		5698973
o-Terphenyl	%	-					93		5686460
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition									
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**PETROLEUM HYDROCARBONS (CCME)**

<b>Maxxam ID</b>			HML978		
<b>Sampling Date</b>			2018/08/13		
<b>COC Number</b>			677308-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>TP18-19 2-4 FT</b>	<b>RDL</b>	<b>QC Batch</b>
<b>F2-F4 Hydrocarbons</b>					
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<b>120</b>	<b>4900</b>	100	5694854
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

### TEST SUMMARY

**Maxxam ID:** HML941  
**Sample ID:** TP18-01 10FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/23	Automated Statchk
Free (WAD) Cyanide	TECH	5689031	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690200	2018/08/21	2018/08/21	Tahir Anwar
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688679	2018/08/20	2018/08/20	Daniel Teclu
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk

**Maxxam ID:** HML942  
**Sample ID:** TP18-02 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	5682935	N/A	2018/08/23	Automated Statchk
Free (WAD) Cyanide	TECH	5689031	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690200	2018/08/21	2018/08/21	Tahir Anwar
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686702	2018/08/17	2018/08/19	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688679	2018/08/20	2018/08/20	Daniel Teclu
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5686693	2018/08/17	2018/08/18	Jett Wu
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5688338	N/A	2018/08/22	Xueming Jiang

**Maxxam ID:** HML942 Dup  
**Sample ID:** TP18-02 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh

**Maxxam ID:** HML943  
**Sample ID:** TP18-03 4.5-6FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690918	2018/08/21	2018/08/22	Tahir Anwar

**Maxxam ID:** HML944  
**Sample ID:** TP18-03 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	5682935	N/A	2018/08/23	Automated Statchk

### TEST SUMMARY

**Maxxam ID:** HML944  
**Sample ID:** TP18-03 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686702	2018/08/17	2018/08/19	Zhiyue (Frank) Zhu
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5686693	2018/08/17	2018/08/18	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5688338	N/A	2018/08/22	Xueming Jiang

**Maxxam ID:** HML945  
**Sample ID:** TP18-04 13FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686702	2018/08/17	2018/08/19	Zhiyue (Frank) Zhu
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5686693	2018/08/17	2018/08/18	Jett Wu

**Maxxam ID:** HML946  
**Sample ID:** TP18-05 0.5FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/23	Automated Statchk
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML947  
**Sample ID:** TP18-05 4.5-6FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690918	2018/08/21	2018/08/22	Tahir Anwar

**Maxxam ID:** HML948  
**Sample ID:** TP18-06 0.5FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj



### TEST SUMMARY

**Maxxam ID:** HML949  
**Sample ID:** TP18-06 4.5-6FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690918	2018/08/21	2018/08/22	Tahir Anwar

**Maxxam ID:** HML950  
**Sample ID:** TP18-07 0.5FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML951  
**Sample ID:** TP18-07 4.5-6FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690918	2018/08/21	2018/08/22	Tahir Anwar

**Maxxam ID:** HML952  
**Sample ID:** TP18-08 2-4FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	5689062	2018/08/20	2018/08/21	Gnana Thomas

**Maxxam ID:** HML953  
**Sample ID:** TP18-08 10FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690918	2018/08/21	2018/08/22	Tahir Anwar

**Maxxam ID:** HML954  
**Sample ID:** TP18-09 0.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5688829	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690818	2018/08/22	2018/08/22	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688639	2018/08/20	2018/08/21	Daniel Teclu
Moisture	BAL	5688332	N/A	2018/08/20	Mithunaa Sasitheepan
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk

### TEST SUMMARY

**Maxxam ID:** HML955  
**Sample ID:** TP18-09 10FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

**Maxxam ID:** HML956  
**Sample ID:** TP18-10 6.5  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML957  
**Sample ID:** TP18-10 0-2  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

**Maxxam ID:** HML957 Dup  
**Sample ID:** TP18-10 0-2  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko

**Maxxam ID:** HML958  
**Sample ID:** TP18-11 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML959  
**Sample ID:** TP18-12 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

### TEST SUMMARY

**Maxxam ID:** HML959  
**Sample ID:** TP18-12 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML960  
**Sample ID:** TP18-13 0.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML961  
**Sample ID:** TP18-13 5FT-7FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686702	2018/08/17	2018/08/19	Zhiyue (Frank) Zhu
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5686693	2018/08/17	2018/08/18	Jett Wu

**Maxxam ID:** HML962  
**Sample ID:** TP18-14 10FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690918	2018/08/21	2018/08/22	Tahir Anwar
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/20	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

**Maxxam ID:** HML963  
**Sample ID:** TP18-15 11.5  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5688829	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690818	2018/08/22	2018/08/22	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688487	2018/08/20	2018/08/21	Daniel Teclu
Moisture	BAL	5688332	N/A	2018/08/20	Mithunaa Sasitheepan
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk

**TEST SUMMARY**

**Maxxam ID:** HML964  
**Sample ID:** TP18-16 11.5FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5688829	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690818	2018/08/22	2018/08/22	Tahir Anwar
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688487	2018/08/20	2018/08/21	Daniel Teclu
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk

**Maxxam ID:** HML964 Dup  
**Sample ID:** TP18-16 11.5FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

**Maxxam ID:** HML965  
**Sample ID:** TP18-16 5-6FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5688829	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690818	2018/08/22	2018/08/22	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688487	2018/08/20	2018/08/21	Daniel Teclu
Moisture	BAL	5688332	N/A	2018/08/20	Mithunaa Sasitheepan
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk

**Maxxam ID:** HML965 Dup  
**Sample ID:** TP18-16 5-6FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690818	2018/08/22	2018/08/22	Tahir Anwar

**Maxxam ID:** HML966  
**Sample ID:** TP18-16 0-2FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5698973	N/A	2018/08/27	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
F4G (CCME Hydrocarbons Gravimetric)	BAL	5694854	2018/08/23	2018/08/23	Simarpreet Kaur
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

### TEST SUMMARY

**Maxxam ID:** HML967  
**Sample ID:** TP18-17 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5688829	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690818	2018/08/22	2018/08/22	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688487	2018/08/20	2018/08/21	Daniel Teclu
Moisture	BAL	5688332	N/A	2018/08/20	Mithunaa Sasitheepan
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk

**Maxxam ID:** HML967 Dup  
**Sample ID:** TP18-17 6.5FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688487	2018/08/20	2018/08/21	Daniel Teclu

**Maxxam ID:** HML968  
**Sample ID:** TP18-18 4-6FT  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

**Maxxam ID:** HML969  
**Sample ID:** QA/QC 1  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5690918	2018/08/21	2018/08/22	Tahir Anwar

**Maxxam ID:** HML970  
**Sample ID:** QA/QC 2  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5688829	2018/08/20	2018/08/21	Louise Harding
Conductivity	AT	5690818	2018/08/22	2018/08/22	Tahir Anwar
Strong Acid Leachable Metals by ICPMS	ICP/MS	5688487	2018/08/20	2018/08/21	Daniel Teclu
Moisture	BAL	5688332	N/A	2018/08/20	Mithunaa Sasitheepan
Sodium Adsorption Ratio (SAR)	CALC/MET	5683328	N/A	2018/08/22	Automated Statchk

**Maxxam ID:** HML971  
**Sample ID:** QA/QC 3  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk

### TEST SUMMARY

**Maxxam ID:** HML971  
**Sample ID:** QA/QC 3  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML972  
**Sample ID:** QA/QC 4  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/19	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

**Maxxam ID:** HML973  
**Sample ID:** QA/QC 5  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5682935	N/A	2018/08/23	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5688338	N/A	2018/08/22	Xueming Jiang

**Maxxam ID:** HML974  
**Sample ID:** QA/QC 6  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5684125	N/A	2018/08/23	Automated Statchk
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5688331	2018/08/20	2018/08/21	Mitesh Raj

**Maxxam ID:** HML975  
**Sample ID:** TP18-08 A  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	5689062	2018/08/20	2018/08/21	Gnana Thomas

**Maxxam ID:** HML976  
**Sample ID:** TP18-08 B  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	5689062	2018/08/20	2018/08/21	Gnana Thomas



**TEST SUMMARY**

**Maxxam ID:** HML977  
**Sample ID:** TP18-08 C  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	5689062	2018/08/20	2018/08/21	Gnana Thomas

**Maxxam ID:** HML978  
**Sample ID:** TP18-19 2-4 FT  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5687740	N/A	2018/08/20	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
F4G (CCME Hydrocarbons Gravimetric)	BAL	5694854	2018/08/23	2018/08/23	Simarpreet Kaur
Strong Acid Leachable Metals by ICPMS	ICP/MS	5689215	2018/08/20	2018/08/22	Daniel Teclu
Moisture	BAL	5685804	N/A	2018/08/17	Mithunaa Sasitheepan

### GENERAL COMMENTS

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

Package 1	4.3°C
Package 2	4.0°C

Cooler custody seal was present and intact.

Revised Report (2018/08/27): Client sample IDs changed as per client request.

Sample HML942 [TP18-02 6.5FT] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HML954 [TP18-09 0.5FT] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HML955 [TP18-09 10FT] : F1 BTEX :  
- Detection limits were adjusted for sample weight .

Sample HML958 [TP18-11 6.5FT] : PAH analysis: Detection limits were adjusted for high moisture content.

Sample HML965 [TP18-16 5-6FT] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HML966 [TP18-16 0-2FT] : BTEX/F1 analysis has been included in this report.

Sample HML974 [QA/QC 6] : PAH analysis: Detection limits were adjusted for high moisture content.

**Results relate only to the items tested.**



Maxxam Job #: B8L0090  
Report Date: 2018/08/27

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5686460	o-Terphenyl	2018/08/20	97	60 - 130	96	60 - 130	101	%		
5686693	D10-Anthracene	2018/08/17	84	50 - 130	83	50 - 130	80	%		
5686693	D14-Terphenyl (FS)	2018/08/17	81	50 - 130	80	50 - 130	77	%		
5686693	D8-Acenaphthylene	2018/08/17	75	50 - 130	75	50 - 130	72	%		
5686702	o-Terphenyl	2018/08/19	97	60 - 130	93	60 - 130	91	%		
5687740	1,4-Difluorobenzene	2018/08/19	97	60 - 140	96	60 - 140	92	%		
5687740	4-Bromofluorobenzene	2018/08/19	104	60 - 140	97	60 - 140	102	%		
5687740	D10-Ethylbenzene	2018/08/19	90	60 - 140	89	60 - 140	78	%		
5687740	D4-1,2-Dichloroethane	2018/08/19	86	60 - 140	97	60 - 140	95	%		
5688331	D10-Anthracene	2018/08/20	91	50 - 130	86	50 - 130	89	%		
5688331	D14-Terphenyl (FS)	2018/08/20	90	50 - 130	87	50 - 130	89	%		
5688331	D8-Acenaphthylene	2018/08/20	84	50 - 130	80	50 - 130	81	%		
5688338	4-Bromofluorobenzene	2018/08/22	102	60 - 140	105	60 - 140	85	%		
5688338	D10-o-Xylene	2018/08/22	119	60 - 130	104	60 - 130	106	%		
5688338	D4-1,2-Dichloroethane	2018/08/22	102	60 - 140	99	60 - 140	112	%		
5688338	D8-Toluene	2018/08/22	103	60 - 140	105	60 - 140	92	%		
5698973	1,4-Difluorobenzene	2018/08/25	99	60 - 140	101	60 - 140	101	%		
5698973	4-Bromofluorobenzene	2018/08/25	104	60 - 140	102	60 - 140	102	%		
5698973	D10-Ethylbenzene	2018/08/25	84	60 - 140	88	60 - 140	70	%		
5698973	D4-1,2-Dichloroethane	2018/08/25	91	60 - 140	94	60 - 140	96	%		
5685804	Moisture	2018/08/17							1.0	20
5686460	F2 (C10-C16 Hydrocarbons)	2018/08/20	102	50 - 130	100	80 - 120	<10	ug/g	NC	30
5686460	F3 (C16-C34 Hydrocarbons)	2018/08/20	98	50 - 130	97	80 - 120	<50	ug/g	NC	30
5686460	F4 (C34-C50 Hydrocarbons)	2018/08/20	98	50 - 130	94	80 - 120	<50	ug/g	NC	30
5686634	Moisture	2018/08/17							12	20
5686693	1-Methylnaphthalene	2018/08/17	84	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5686693	2-Methylnaphthalene	2018/08/17	77	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5686693	Acenaphthene	2018/08/17	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5686693	Acenaphthylene	2018/08/17	79	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5686693	Anthracene	2018/08/17	81	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5686693	Benzo(a)anthracene	2018/08/17	93	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40



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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5686693	Benzo(a)pyrene	2018/08/17	91	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5686693	Benzo(b/j)fluoranthene	2018/08/17	83	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5686693	Benzo(g,h,i)perylene	2018/08/17	87	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5686693	Benzo(k)fluoranthene	2018/08/17	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5686693	Chrysene	2018/08/17	85	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5686693	Dibenz(a,h)anthracene	2018/08/17	96	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
5686693	Fluoranthene	2018/08/17	86	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5686693	Fluorene	2018/08/17	83	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5686693	Indeno(1,2,3-cd)pyrene	2018/08/17	93	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
5686693	Naphthalene	2018/08/17	77	50 - 130	77	50 - 130	<0.0050	ug/g	NC	40
5686693	Phenanthrene	2018/08/17	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5686693	Pyrene	2018/08/17	85	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5686702	F2 (C10-C16 Hydrocarbons)	2018/08/19	104	50 - 130	99	80 - 120	<10	ug/g	NC	30
5686702	F3 (C16-C34 Hydrocarbons)	2018/08/19	105	50 - 130	99	80 - 120	<50	ug/g	NC	30
5686702	F4 (C34-C50 Hydrocarbons)	2018/08/19	102	50 - 130	96	80 - 120	<50	ug/g	NC	30
5687740	Benzene	2018/08/19	64	60 - 140	75	60 - 140	<0.020	ug/g	NC	50
5687740	Ethylbenzene	2018/08/19	76	60 - 140	83	60 - 140	<0.020	ug/g	NC	50
5687740	F1 (C6-C10) - BTEX	2018/08/19					<10	ug/g	NC	30
5687740	F1 (C6-C10)	2018/08/19	85	60 - 140	93	80 - 120	<10	ug/g	NC	30
5687740	o-Xylene	2018/08/19	74	60 - 140	82	60 - 140	<0.020	ug/g	NC	50
5687740	p+m-Xylene	2018/08/19	75	60 - 140	81	60 - 140	<0.040	ug/g	NC	50
5687740	Toluene	2018/08/19	74	60 - 140	79	60 - 140	<0.020	ug/g	NC	50
5687740	Total Xylenes	2018/08/19					<0.040	ug/g	NC	50
5688331	1-Methylnaphthalene	2018/08/20	100	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
5688331	2-Methylnaphthalene	2018/08/20	86	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5688331	Acenaphthene	2018/08/20	83	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5688331	Acenaphthylene	2018/08/20	78	50 - 130	74	50 - 130	<0.0050	ug/g	NC	40
5688331	Anthracene	2018/08/20	83	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5688331	Benzo(a)anthracene	2018/08/20	84	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5688331	Benzo(a)pyrene	2018/08/20	83	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5688331	Benzo(b/j)fluoranthene	2018/08/20	83	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40



Maxxam Job #: B8L0090  
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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5688331	Benzo(g,h,i)perylene	2018/08/20	82	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5688331	Benzo(k)fluoranthene	2018/08/20	83	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5688331	Chrysene	2018/08/20	85	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5688331	Dibenz(a,h)anthracene	2018/08/20	85	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5688331	Fluoranthene	2018/08/20	88	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5688331	Fluorene	2018/08/20	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5688331	Indeno(1,2,3-cd)pyrene	2018/08/20	83	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5688331	Naphthalene	2018/08/20	83	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5688331	Phenanthrene	2018/08/20	86	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5688331	Pyrene	2018/08/20	88	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5688332	Moisture	2018/08/20							2.9	20
5688338	1,1,1,2-Tetrachloroethane	2018/08/22	87	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5688338	1,1,1-Trichloroethane	2018/08/22	85	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5688338	1,1,2,2-Tetrachloroethane	2018/08/22	94	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5688338	1,1,2-Trichloroethane	2018/08/22	91	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5688338	1,1-Dichloroethane	2018/08/22	86	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5688338	1,1-Dichloroethylene	2018/08/22	85	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5688338	1,2-Dichlorobenzene	2018/08/22	88	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5688338	1,2-Dichloroethane	2018/08/22	90	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5688338	1,2-Dichloropropane	2018/08/22	82	60 - 140	88	60 - 130	<0.050	ug/g	NC	50
5688338	1,3-Dichlorobenzene	2018/08/22	90	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5688338	1,4-Dichlorobenzene	2018/08/22	75	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
5688338	Acetone (2-Propanone)	2018/08/22	101	60 - 140	94	60 - 140	<0.50	ug/g	NC	50
5688338	Benzene	2018/08/22	83	60 - 140	91	60 - 130	<0.020	ug/g	NC	50
5688338	Bromodichloromethane	2018/08/22	87	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5688338	Bromoform	2018/08/22	88	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
5688338	Bromomethane	2018/08/22	60	60 - 140	93	60 - 140	<0.050	ug/g	NC	50
5688338	Carbon Tetrachloride	2018/08/22	85	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5688338	Chlorobenzene	2018/08/22	82	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5688338	Chloroform	2018/08/22	85	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
5688338	cis-1,2-Dichloroethylene	2018/08/22	84	60 - 140	93	60 - 130	<0.050	ug/g	NC	50



Maxxam Job #: B8L0090  
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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5688338	cis-1,3-Dichloropropene	2018/08/22	53 (1)	60 - 140	85	60 - 130	<0.030	ug/g	NC	50
5688338	Dibromochloromethane	2018/08/22	88	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5688338	Dichlorodifluoromethane (FREON 12)	2018/08/22	84	60 - 140	108	60 - 140	<0.050	ug/g	NC	50
5688338	Ethylbenzene	2018/08/22	80	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
5688338	Ethylene Dibromide	2018/08/22	90	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5688338	F1 (C6-C10) - BTEX	2018/08/22					<10	ug/g	NC	30
5688338	F1 (C6-C10)	2018/08/22	100	60 - 140	93	80 - 120	<10	ug/g	NC	30
5688338	Hexane	2018/08/22	82	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
5688338	Methyl Ethyl Ketone (2-Butanone)	2018/08/22	100	60 - 140	95	60 - 140	<0.50	ug/g	NC	50
5688338	Methyl Isobutyl Ketone	2018/08/22	96	60 - 140	95	60 - 130	<0.50	ug/g	NC	50
5688338	Methyl t-butyl ether (MTBE)	2018/08/22	90	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5688338	Methylene Chloride(Dichloromethane)	2018/08/22	96	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
5688338	o-Xylene	2018/08/22	82	60 - 140	95	60 - 130	<0.020	ug/g	NC	50
5688338	p+m-Xylene	2018/08/22	62	60 - 140	73	60 - 130	<0.020	ug/g	NC	50
5688338	Styrene	2018/08/22	61	60 - 140	72	60 - 130	<0.050	ug/g	NC	50
5688338	Tetrachloroethylene	2018/08/22	83	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5688338	Toluene	2018/08/22	83	60 - 140	95	60 - 130	<0.020	ug/g	NC	50
5688338	Total Xylenes	2018/08/22					<0.020	ug/g	NC	50
5688338	trans-1,2-Dichloroethylene	2018/08/22	79	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
5688338	trans-1,3-Dichloropropene	2018/08/22	43 (1)	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
5688338	Trichloroethylene	2018/08/22	81	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
5688338	Trichlorofluoromethane (FREON 11)	2018/08/22	90	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5688338	Vinyl Chloride	2018/08/22	84	60 - 140	98	60 - 130	<0.020	ug/g	NC	50
5688487	Acid Extractable Antimony (Sb)	2018/08/21	99	75 - 125	105	80 - 120	<0.20	ug/g	NC	30
5688487	Acid Extractable Arsenic (As)	2018/08/21	93	75 - 125	103	80 - 120	<1.0	ug/g	NC	30
5688487	Acid Extractable Barium (Ba)	2018/08/21	NC	75 - 125	96	80 - 120	<0.50	ug/g	4.1	30
5688487	Acid Extractable Beryllium (Be)	2018/08/21	95	75 - 125	97	80 - 120	<0.20	ug/g	5.4	30
5688487	Acid Extractable Boron (B)	2018/08/21	92	75 - 125	102	80 - 120	<5.0	ug/g	0.062	30
5688487	Acid Extractable Cadmium (Cd)	2018/08/21	97	75 - 125	102	80 - 120	<0.10	ug/g	NC	30
5688487	Acid Extractable Chromium (Cr)	2018/08/21	99	75 - 125	98	80 - 120	<1.0	ug/g	2.0	30
5688487	Acid Extractable Cobalt (Co)	2018/08/21	95	75 - 125	101	80 - 120	<0.10	ug/g	0.0046	30





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**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5688487	Acid Extractable Copper (Cu)	2018/08/21	92	75 - 125	102	80 - 120	<0.50	ug/g	1.0	30
5688487	Acid Extractable Lead (Pb)	2018/08/21	97	75 - 125	103	80 - 120	<1.0	ug/g	0.40	30
5688487	Acid Extractable Mercury (Hg)	2018/08/21	90	75 - 125	96	80 - 120	<0.050	ug/g	NC	30
5688487	Acid Extractable Molybdenum (Mo)	2018/08/21	100	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5688487	Acid Extractable Nickel (Ni)	2018/08/21	93	75 - 125	101	80 - 120	<0.50	ug/g	3.1	30
5688487	Acid Extractable Selenium (Se)	2018/08/21	102	75 - 125	105	80 - 120	<0.50	ug/g	NC	30
5688487	Acid Extractable Silver (Ag)	2018/08/21	97	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
5688487	Acid Extractable Thallium (Tl)	2018/08/21	98	75 - 125	102	80 - 120	<0.050	ug/g	2.1	30
5688487	Acid Extractable Uranium (U)	2018/08/21	98	75 - 125	100	80 - 120	<0.050	ug/g	3.2	30
5688487	Acid Extractable Vanadium (V)	2018/08/21	NC	75 - 125	99	80 - 120	<5.0	ug/g	2.3	30
5688487	Acid Extractable Zinc (Zn)	2018/08/21	NC	75 - 125	106	80 - 120	<5.0	ug/g	10	30
5688639	Acid Extractable Antimony (Sb)	2018/08/21	96	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
5688639	Acid Extractable Arsenic (As)	2018/08/21	102	75 - 125	97	80 - 120	<1.0	ug/g	3.4	30
5688639	Acid Extractable Barium (Ba)	2018/08/21	NC	75 - 125	96	80 - 120	<0.50	ug/g	0.80	30
5688639	Acid Extractable Beryllium (Be)	2018/08/21	99	75 - 125	97	80 - 120	<0.20	ug/g	0.29	30
5688639	Acid Extractable Boron (B)	2018/08/21	96	75 - 125	91	80 - 120	<5.0	ug/g	NC	30
5688639	Acid Extractable Cadmium (Cd)	2018/08/21	100	75 - 125	99	80 - 120	<0.10	ug/g	18	30
5688639	Acid Extractable Chromium (Cr)	2018/08/21	96	75 - 125	96	80 - 120	<1.0	ug/g	7.6	30
5688639	Acid Extractable Cobalt (Co)	2018/08/21	100	75 - 125	96	80 - 120	<0.10	ug/g	1.6	30
5688639	Acid Extractable Copper (Cu)	2018/08/21	92	75 - 125	97	80 - 120	<0.50	ug/g	9.0	30
5688639	Acid Extractable Lead (Pb)	2018/08/21	98	75 - 125	102	80 - 120	<1.0	ug/g	0.68	30
5688639	Acid Extractable Mercury (Hg)	2018/08/21	100	75 - 125	102	80 - 120	<0.050	ug/g		
5688639	Acid Extractable Molybdenum (Mo)	2018/08/21	98	75 - 125	99	80 - 120	<0.50	ug/g	6.0	30
5688639	Acid Extractable Nickel (Ni)	2018/08/21	92	75 - 125	99	80 - 120	<0.50	ug/g	6.1	30
5688639	Acid Extractable Selenium (Se)	2018/08/21	100	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
5688639	Acid Extractable Silver (Ag)	2018/08/21	97	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
5688639	Acid Extractable Thallium (Tl)	2018/08/21	98	75 - 125	100	80 - 120	<0.050	ug/g	17	30
5688639	Acid Extractable Uranium (U)	2018/08/21	103	75 - 125	102	80 - 120	<0.050	ug/g	3.2	30
5688639	Acid Extractable Vanadium (V)	2018/08/21	102	75 - 125	95	80 - 120	<5.0	ug/g	2.8	30
5688639	Acid Extractable Zinc (Zn)	2018/08/21	NC	75 - 125	107	80 - 120	<5.0	ug/g	2.0	30
5688679	Acid Extractable Antimony (Sb)	2018/08/20	98	75 - 125	100	80 - 120	<0.20	ug/g	NC	30



Maxxam Job #: B8L0090  
Report Date: 2018/08/27

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5688679	Acid Extractable Arsenic (As)	2018/08/20	99	75 - 125	104	80 - 120	<1.0	ug/g	9.7	30
5688679	Acid Extractable Barium (Ba)	2018/08/20	94	75 - 125	95	80 - 120	<0.50	ug/g	5.5	30
5688679	Acid Extractable Beryllium (Be)	2018/08/20	97	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
5688679	Acid Extractable Boron (B)	2018/08/20	94	75 - 125	92	80 - 120	<5.0	ug/g	NC	30
5688679	Acid Extractable Cadmium (Cd)	2018/08/20	95	75 - 125	98	80 - 120	<0.10	ug/g	1.8	30
5688679	Acid Extractable Chromium (Cr)	2018/08/20	101	75 - 125	102	80 - 120	<1.0	ug/g	1.4	30
5688679	Acid Extractable Cobalt (Co)	2018/08/20	98	75 - 125	102	80 - 120	<0.10	ug/g	1.7	30
5688679	Acid Extractable Copper (Cu)	2018/08/20	98	75 - 125	102	80 - 120	<0.50	ug/g	3.2	30
5688679	Acid Extractable Lead (Pb)	2018/08/20	96	75 - 125	100	80 - 120	<1.0	ug/g	0.39	30
5688679	Acid Extractable Mercury (Hg)	2018/08/20	91	75 - 125	94	80 - 120	<0.050	ug/g		
5688679	Acid Extractable Molybdenum (Mo)	2018/08/20	101	75 - 125	97	80 - 120	<0.50	ug/g	NC	30
5688679	Acid Extractable Nickel (Ni)	2018/08/20	99	75 - 125	104	80 - 120	<0.50	ug/g	0.13	30
5688679	Acid Extractable Selenium (Se)	2018/08/20	98	75 - 125	98	80 - 120	<0.50	ug/g	NC	30
5688679	Acid Extractable Silver (Ag)	2018/08/20	94	75 - 125	96	80 - 120	<0.20	ug/g	NC	30
5688679	Acid Extractable Thallium (Tl)	2018/08/20	94	75 - 125	99	80 - 120	<0.050	ug/g	NC	30
5688679	Acid Extractable Uranium (U)	2018/08/20	99	75 - 125	102	80 - 120	<0.050	ug/g	4.5	30
5688679	Acid Extractable Vanadium (V)	2018/08/20	105	75 - 125	102	80 - 120	<5.0	ug/g	7.9	30
5688679	Acid Extractable Zinc (Zn)	2018/08/20	NC	75 - 125	96	80 - 120	<5.0	ug/g	4.3	30
5688829	WAD Cyanide (Free)	2018/08/21	101	75 - 125	102	80 - 120	<0.01	ug/g	NC	35
5689031	WAD Cyanide (Free)	2018/08/21	93	75 - 125	101	80 - 120	<0.01	ug/g	NC	35
5689062	Available (CaCl2) pH	2018/08/21			100	97 - 103			1.2	N/A
5689215	Acid Extractable Antimony (Sb)	2018/08/22	94	75 - 125	104	80 - 120	<0.20	ug/g	NC	30
5689215	Acid Extractable Arsenic (As)	2018/08/22	105	75 - 125	98	80 - 120	<1.0	ug/g	0.76	30
5689215	Acid Extractable Barium (Ba)	2018/08/22	NC	75 - 125	100	80 - 120	<0.50	ug/g	4.2	30
5689215	Acid Extractable Beryllium (Be)	2018/08/22	98	75 - 125	103	80 - 120	<0.20	ug/g	3.1	30
5689215	Acid Extractable Boron (B)	2018/08/22	95	75 - 125	103	80 - 120	<5.0	ug/g	NC	30
5689215	Acid Extractable Cadmium (Cd)	2018/08/22	98	75 - 125	101	80 - 120	<0.10	ug/g	NC	30
5689215	Acid Extractable Chromium (Cr)	2018/08/22	100	75 - 125	95	80 - 120	<1.0	ug/g	3.6	30
5689215	Acid Extractable Cobalt (Co)	2018/08/22	98	75 - 125	98	80 - 120	<0.10	ug/g	1.3	30
5689215	Acid Extractable Copper (Cu)	2018/08/22	95	75 - 125	97	80 - 120	<0.50	ug/g	1.9	30
5689215	Acid Extractable Lead (Pb)	2018/08/22	102	75 - 125	103	80 - 120	<1.0	ug/g	2.1	30



Maxxam Job #: B8L0090  
Report Date: 2018/08/27

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5689215	Acid Extractable Molybdenum (Mo)	2018/08/22	103	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
5689215	Acid Extractable Nickel (Ni)	2018/08/22	94	75 - 125	96	80 - 120	<0.50	ug/g	4.0	30
5689215	Acid Extractable Selenium (Se)	2018/08/22	100	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5689215	Acid Extractable Silver (Ag)	2018/08/22	99	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
5689215	Acid Extractable Thallium (Tl)	2018/08/22	96	75 - 125	101	80 - 120	<0.050	ug/g	NC	30
5689215	Acid Extractable Uranium (U)	2018/08/22	101	75 - 125	101	80 - 120	<0.050	ug/g	7.5	30
5689215	Acid Extractable Vanadium (V)	2018/08/22	105	75 - 125	96	80 - 120	<5.0	ug/g	5.3	30
5689215	Acid Extractable Zinc (Zn)	2018/08/22	101	75 - 125	97	80 - 120	<5.0	ug/g	2.0	30
5690200	Conductivity	2018/08/21			103	90 - 110	<0.002	mS/cm	0	10
5690818	Conductivity	2018/08/22			104	90 - 110	<0.002	mS/cm	0.38	10
5690918	Conductivity	2018/08/22			105	90 - 110	<0.002	mS/cm	0	10
5694854	F4G-sg (Grav. Heavy Hydrocarbons)	2018/08/23	109	65 - 135	102	65 - 135	<100	ug/g	24	50
5698973	Benzene	2018/08/25	67	60 - 140	84	60 - 140	<0.020	ug/g	NC	50
5698973	Ethylbenzene	2018/08/25	NC	60 - 140	82	60 - 140	<0.020	ug/g	10	50
5698973	F1 (C6-C10) - BTEX	2018/08/25					<10	ug/g	8.1	30
5698973	F1 (C6-C10)	2018/08/25	NC	60 - 140	87	80 - 120	<10	ug/g	8.1	30
5698973	o-Xylene	2018/08/25	NC	60 - 140	81	60 - 140	<0.020	ug/g	12	50
5698973	p+m-Xylene	2018/08/25	70	60 - 140	85	60 - 140	<0.040	ug/g	NC	50
5698973	Toluene	2018/08/25	70	60 - 140	84	60 - 140	<0.020	ug/g	NC	50
5698973	Total Xylenes	2018/08/25					<0.040	ug/g	12	50

N/A = Not Applicable

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.



Maxxam Job #: B8L0090  
Report Date: 2018/08/27



**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: SM

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### VALIDATION SIGNATURE PAGE

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

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Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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



6740 Campobello Road, Mississauga, Ontario L5N 2L8  
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 CAM FCD-01191/3

**CHAIN OF CUSTODY RECORD**

Page 1 of 4

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required													
Company Name: <u>Combius Inc</u>		Company Name: <u>Combius Inc</u>		Quotation #: <u>B33923</u>		<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses													
Contact Name: <u>Natalie Wright</u>		Contact Name: _____		P.O. #/AFE: _____		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS													
Address: <u>52 Hunter St E PO Box 325</u> <u>Peterborough ON K9H 1G5</u>		Address: _____		Project #: <u>6820-001</u>		Rush TAT (Surcharges will be applied)													
Phone: <u>705 742-7900 ext 705 742-7902</u>		Phone: _____ Fax: _____		Site Location: _____		<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days													
Email: <u>Natalie.wright@combius-inc.com</u>		Email: _____		Site #: _____		Date Required: _____													
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY																			
Regulation 153		Other Regulations		Analysis Requested				LABORATORY USE ONLY											
<input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input checked="" type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input checked="" type="checkbox"/> Table 9 FOR RSC (PLEASE CIRCLE) <input checked="" type="radio"/> Y <input type="radio"/> N		<input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWOO <input type="checkbox"/> Region <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> REG 55R (MIN. 3 DAY TAT REQUIRED)		<input type="checkbox"/> pH <input type="checkbox"/> Temperature <input type="checkbox"/> Turbidity <input type="checkbox"/> Conductivity <input type="checkbox"/> TSS <input type="checkbox"/> Total Hardness <input type="checkbox"/> Total Solids <input type="checkbox"/> Total Dissolved Solids <input type="checkbox"/> Ammonia Nitrogen <input type="checkbox"/> Nitrate Nitrogen <input type="checkbox"/> Nitrite Nitrogen <input type="checkbox"/> Chloride <input type="checkbox"/> Sulfate <input type="checkbox"/> Calcium <input type="checkbox"/> Magnesium <input type="checkbox"/> Iron <input type="checkbox"/> Manganese <input type="checkbox"/> Zinc <input type="checkbox"/> Copper <input type="checkbox"/> Lead <input type="checkbox"/> Cadmium <input type="checkbox"/> Barium <input type="checkbox"/> Strontium <input type="checkbox"/> Selenium <input type="checkbox"/> Silver <input type="checkbox"/> Mercury <input type="checkbox"/> Chromium <input type="checkbox"/> Vanadium <input type="checkbox"/> Molybdenum <input type="checkbox"/> Boron <input type="checkbox"/> Fluoride <input type="checkbox"/> Antimony <input type="checkbox"/> Arsenic <input type="checkbox"/> Bismuth <input type="checkbox"/> Cadmium <input type="checkbox"/> Cobalt <input type="checkbox"/> Chromium <input type="checkbox"/> Copper <input type="checkbox"/> Lead <input type="checkbox"/> Manganese <input type="checkbox"/> Mercury <input type="checkbox"/> Molybdenum <input type="checkbox"/> Nickel <input type="checkbox"/> Silver <input type="checkbox"/> Selenium <input type="checkbox"/> Strontium <input type="checkbox"/> Vanadium <input type="checkbox"/> Zinc <input type="checkbox"/> Zirconium				CUSTODY SEAL Y/N Present Intact COOLER TEMPERATURES 4/5/6 7/3/2 COOLING MEDIA PRESENT: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COMMENTS											
Include Criteria on Certificate of Analysis: Y / N																			
SAMPLES MUST BE KEPT COOL (+/- 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																			
SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	NR/TRX	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	REGULATED UNDER MAND. / PRE / COM	
1 TP18-01 10ft	15/08/11		S 5																
2 TP18-02 6.5ft			1 5																
3 TP18-03 4.5ft			1 1																
4 TP18-03 6.5ft			4 4																
5 TP18-04 13ft			4 4																
6 TP18-04																			
7 TP18-05 0.5ft	18/08/13		1 1																
8 TP18-05 4.5ft			1 1																
9 TP18-06 0.5ft			1 1																
10 TP18-06 4.5ft			1 1																
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #											
J. MacNeil		18/08/15		R. Patel		2018/08/16	09:04												

16-Aug-18 09:04  
 Gina Baybayan  
  
 B8L0090  
 DSG ENV-1341



**CHAIN OF CUSTODY RECORD**

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required								
Company Name: <u>Cambium Inc</u>		Company Name:				Quotation #: <u>B33923</u>				<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Rush TAT (Surcharges will be applied) <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days								
Contact Name: <u>Natalie Wright</u>		Contact Name:				P.O. #/ A/E/R:				Date Required:								
Address: <u>52 Hunter St. Po Box 325 Peterborough ON K9H 1G5</u>		Address:				Project #: <u>6820-001</u>												
Phone: <u>705-741-0200</u> Fax:		Phone: Fax:				Site Location:												
Email: <u>Natalie.Wright@Cambium-inc.com</u>		Email:				Site #:												
						Sampled By:												
MDE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY																		
Regulation 153 <input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/Flow <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input checked="" type="checkbox"/> Course <input type="checkbox"/> Table 3 <input type="checkbox"/> Agr/Other <input checked="" type="checkbox"/> Table 4				Other Regulations <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO <input type="checkbox"/> Region <input type="checkbox"/> Other (Specify) <input type="checkbox"/> REG 55R (MIN. 3 DAY TAT REQUIRED)				Analysis Requested # OF COMPANIES SUBMITTED # OF HETERO (GRAB) SAMPLES / # / C/S STEEL PINCEL PHS 172-14 BIKER PHS 133 METALS & ORGANICS (IC, SAR) PHS 132 PHS 135 HALL Mercury PHS 131 PHS BIKER Conductivity pH HOLD: DO NOT ANALYZE				LABORATORY USE ONLY CUSTODY SEAL Y / N Present Intact COOLER TEMPERATURES ✓ ✓ 7/3/2 ✓ ✓ 4/5/4 COOLING MEDIA PRESENT: 0/1/1 COMMENTS						
FOR RSC (PLEASE CIRCLE) <input checked="" type="radio"/> N <input type="radio"/> Y Include Criteria on Certificate of Analysis: <input checked="" type="radio"/> N <input type="radio"/> Y SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF COMPANIES SUBMITTED	# OF HETERO (GRAB) SAMPLES / # / C/S	STEEL PINCEL	PHS 172-14	BIKER	PHS 133 METALS & ORGANICS (IC, SAR)	PHS 132 PHS 135 HALL	Mercury	PHS 131 PHS	BIKER	Conductivity	pH	HOLD: DO NOT ANALYZE	COOLING MEDIA PRESENT	COMMENTS
1 TP18-07	0.5 FT	15/08/13	S	1								✓						
2 TP18-07	4.5-6 FT			1									✓					
3 TP18-08	2-9 FT			1										✓				
4 TP18-08	10 FT			1										✓				
5 TP18-09	0.5 FT	15/08/14		1					✓									
6 TP18-09	10 FT			3		✓	✓											
7 TP18-10	6.5			1									✓					
8 TP18-10	0-2			3		✓	✓											
9 TP18-11	6.5 FT			4									✓	✓				
10 TP18-12	6.5 FT			1									✓					
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #										
<i>J. Macphail</i>		15/10/15		<i>R. K. Patel</i>		2014/08/16	09:09											



6740 Campbell Road, Mississauga, Ontario L5N 2L8  
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 CAM FCD-01191/3

CHAIN OF CUSTODY RECORD

Page 3 of 4

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required												
Company Name: <u>Combe Inc</u>	Company Name:	Quotation #: <u>833923</u>	<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS													
Contact Name: <u>Natalie Wright</u>	Contact Name:	P.O. #/ A/E/R:	Rush TAT (Surcharges will be applied)		<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days													
Address: <u>57 Hunter St Po Box 325</u>	Address:	Project #: <u>6820-001</u>	Site Location:		Date Required:													
Phone: <u>705-742-0200</u>	Phone:	Site #:	Sampled By:															
Email: <u>Natalie.wright@combe-inc.ca</u>	Email:																	
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY																		
<b>Regulation 153</b> <input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Other <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input checked="" type="checkbox"/> Table 4 FOR RSC (PLEASE CIRCLE) <u>Y</u> / N		<b>Other Regulations</b> <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWOO <input type="checkbox"/> Region <input type="checkbox"/> Other (Specify) <input type="checkbox"/> REG 558 (MIN. 1 DAY TAT REQUIRED)		<b>Analysis Requested</b> # OF CONTAINERS SUBMITTED BTEX/PACFI AMB/2-4 VOL REG 153 METALS & TRACE ORGANICS (IC, SAR) REG 153 TRACE ORGANICS Specifics REG 153 PCBs BTEX Ammonia PH PACFI HOLD-DO NOT ANALYZE				<b>LABORATORY USE ONLY</b> CUSTODY SEAL Y / N Present Intact COOLER TEMPERATURES 2/3/2 4/5/4 COOLING MEDIA PRESENT: <u>Y</u> / N COMMENTS										
SAMPLES MUST BE KEPT COOL (+/- 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	DEPTH	# OF CONTAINERS SUBMITTED	BTEX/PACFI	AMB/2-4	VOL	REG 153 METALS & TRACE ORGANICS (IC, SAR)	REG 153 TRACE ORGANICS	Specifics	REG 153 PCBs	BTEX	Ammonia	PH	PACFI	HOLD-DO NOT ANALYZE	
1	TP18-13	0.5ft	18/08/14	5	1													
2	TP18-13	5-7ft	↓		4													
3	TP18-14	10ft	18/08/13		4													
4	<del>TP18-14</del>																	
5	TP18-15	11.5	↓		1													
6	TP18-16	11.5ft	↓		4													
7	TP18-16	5-6ft	↓		1													
8	TP18-16	0-2ft	↓		3													
9	TP18-17	6.5ft	18/08/14		1													
10	TP18-18	4-6ft	↓		3													
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #										
<u>J. Patel</u>		18/08/15		<u>R. Patel</u>		2018/08/16	09:04											

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@Cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barré ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: (705) 719-0700 Email: Natalie.Wright@BESCPMPEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: B33923 P.O. #: _____ Project: 6820 - DCOI Project Name: _____ Site #: _____ Sampled By: _____		<b>Laboratory Use Only:</b> Maxxam Job #: _____ Bottle Order #: 877359 COC #: _____ Project Manager: Gria Baybayam CMB77359-02-01	
---	--	--	--	--	--	--	--

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

<b>Regulation 153 (2011)</b> <input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Par <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Com <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input checked="" type="checkbox"/> For RSC		<b>Other Regulations</b> <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Municipality <input type="checkbox"/> PWOD <input type="checkbox"/> Other		<b>Special Instructions</b> _____ _____ _____	
<b>Include Criteria on Certificate of Analysis (Y/N)?</b>					
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Matrix	Field Filged (please circle): Metals / Hg / Cr / V
1	QA/QC 1	16/09/13		Se-1	
2	QA/QC 2	↓			✓
3	QA/QC 3	19/09/14			✓
4	QA/QC 4	↓			✓
5	QA/QC 5	↓			✓
6	QA/QC 6	↓			✓
7	TP18-18A	↓			
8	TP18-18B	↓			
9	TP18-18C	↓			
10	TP18-19 2-4f4	13/08/13			✓

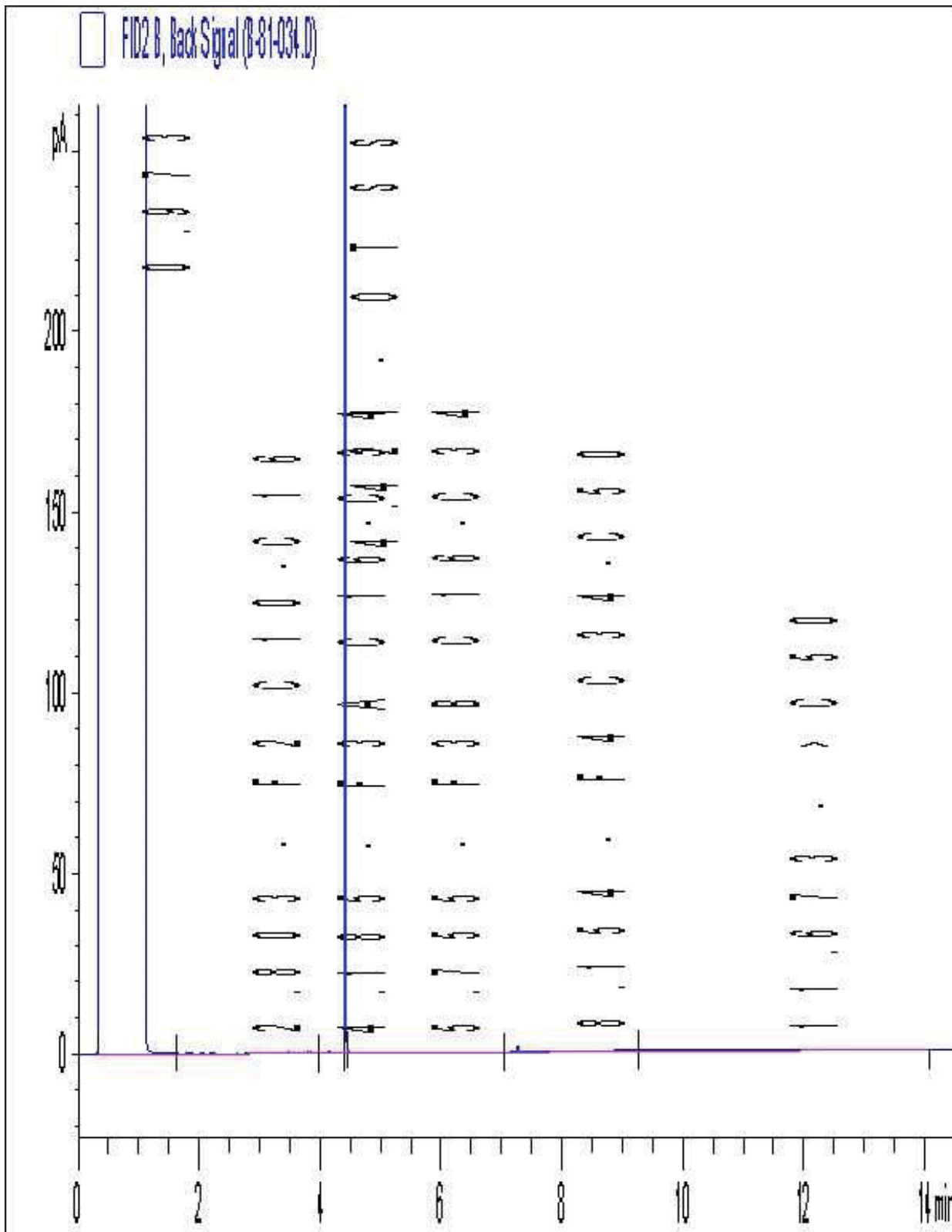
RELINQUISHED BY: (Signature/Print) J. Wright / JWR		RECEIVED BY: (Signature/Print) R. K. ... / R. K. ...		# Jars used and not submitted: _____	
Date: (YY/MM/DD)	Time	Date: (YY/MM/DD)	Time	Laboratory Use Only Time Sensitive: _____ Temperature (°C) of Reqs: 15/10 15/10 Custody Seal Present: _____ Impact: _____	

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

\*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

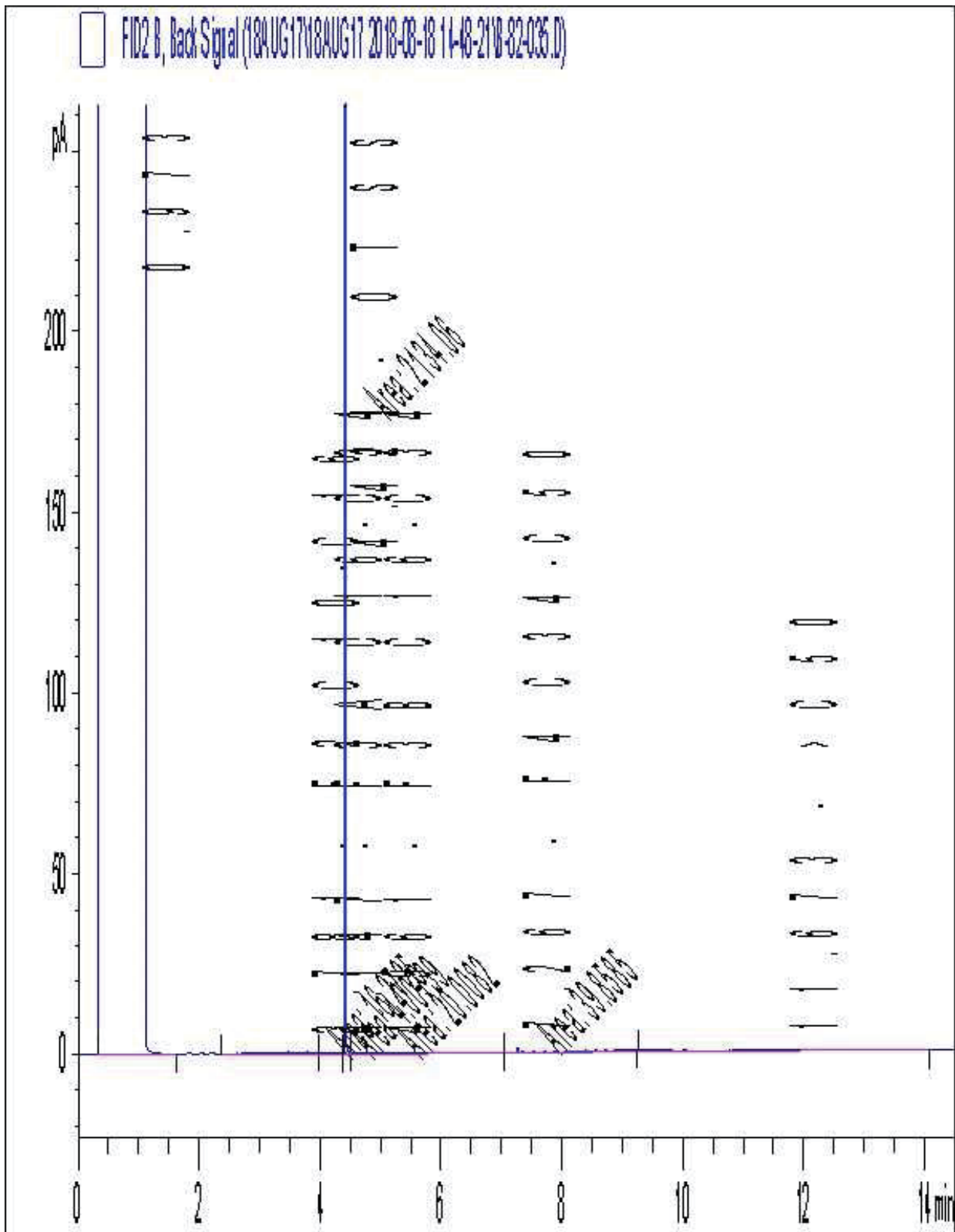
White: Maxxam Yellow: Client

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

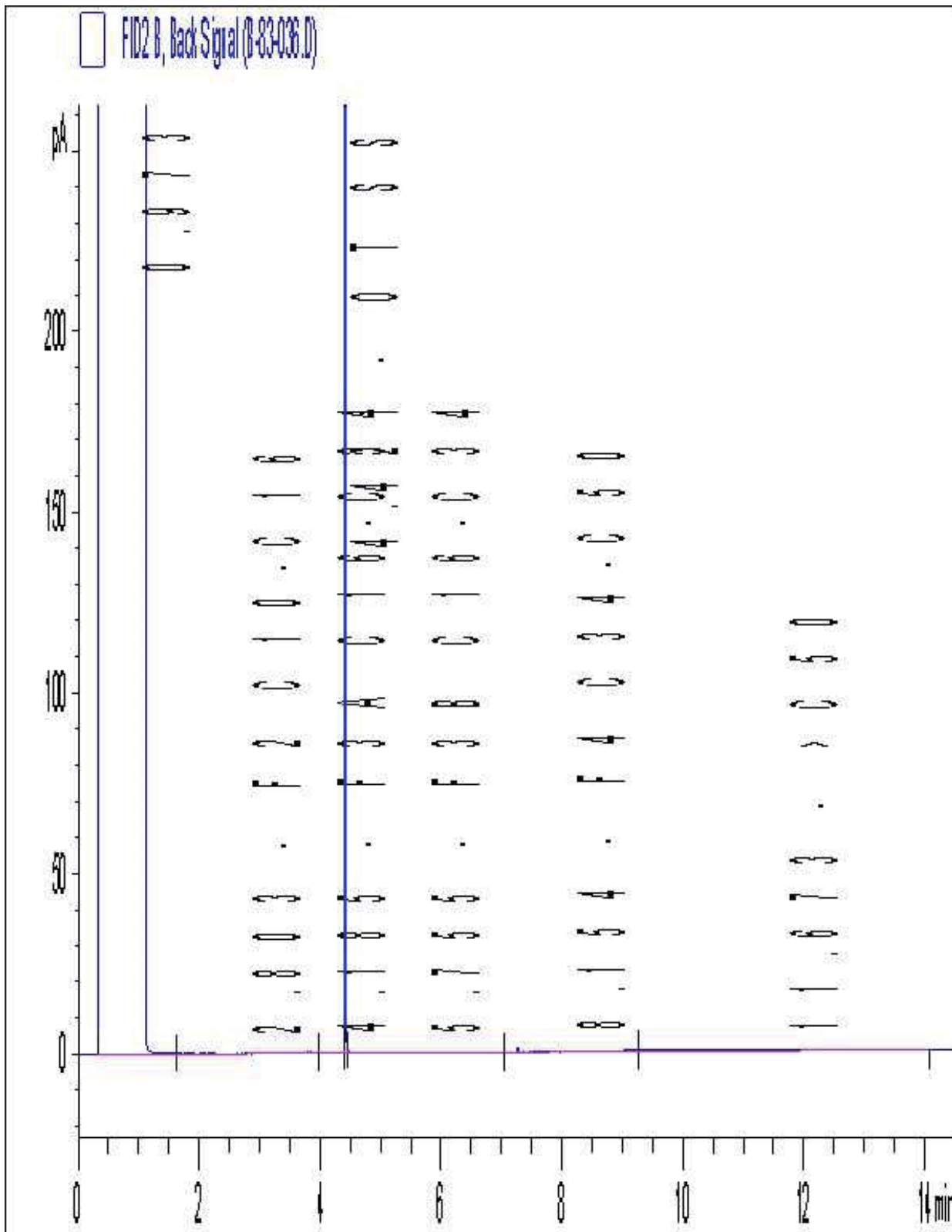
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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



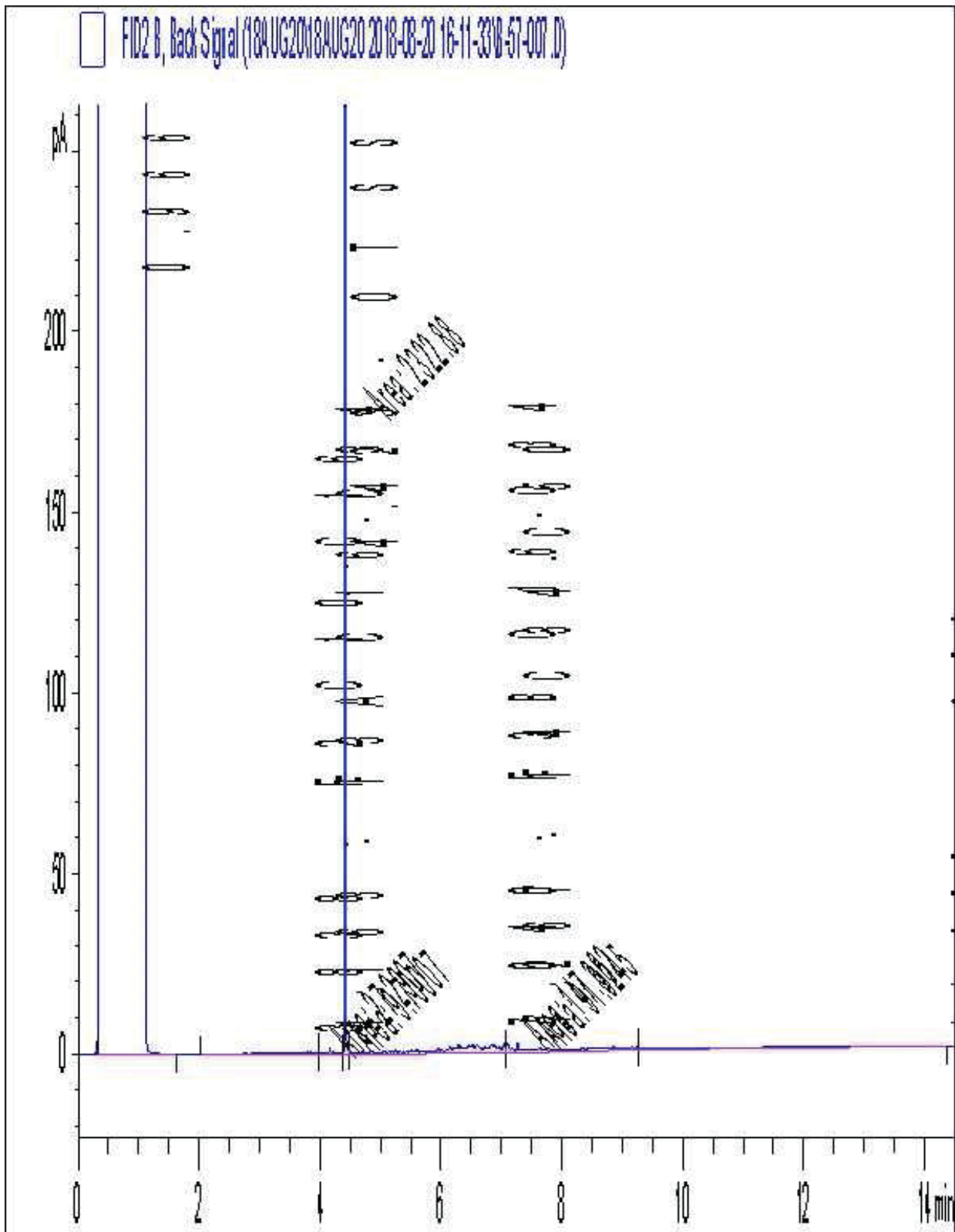
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

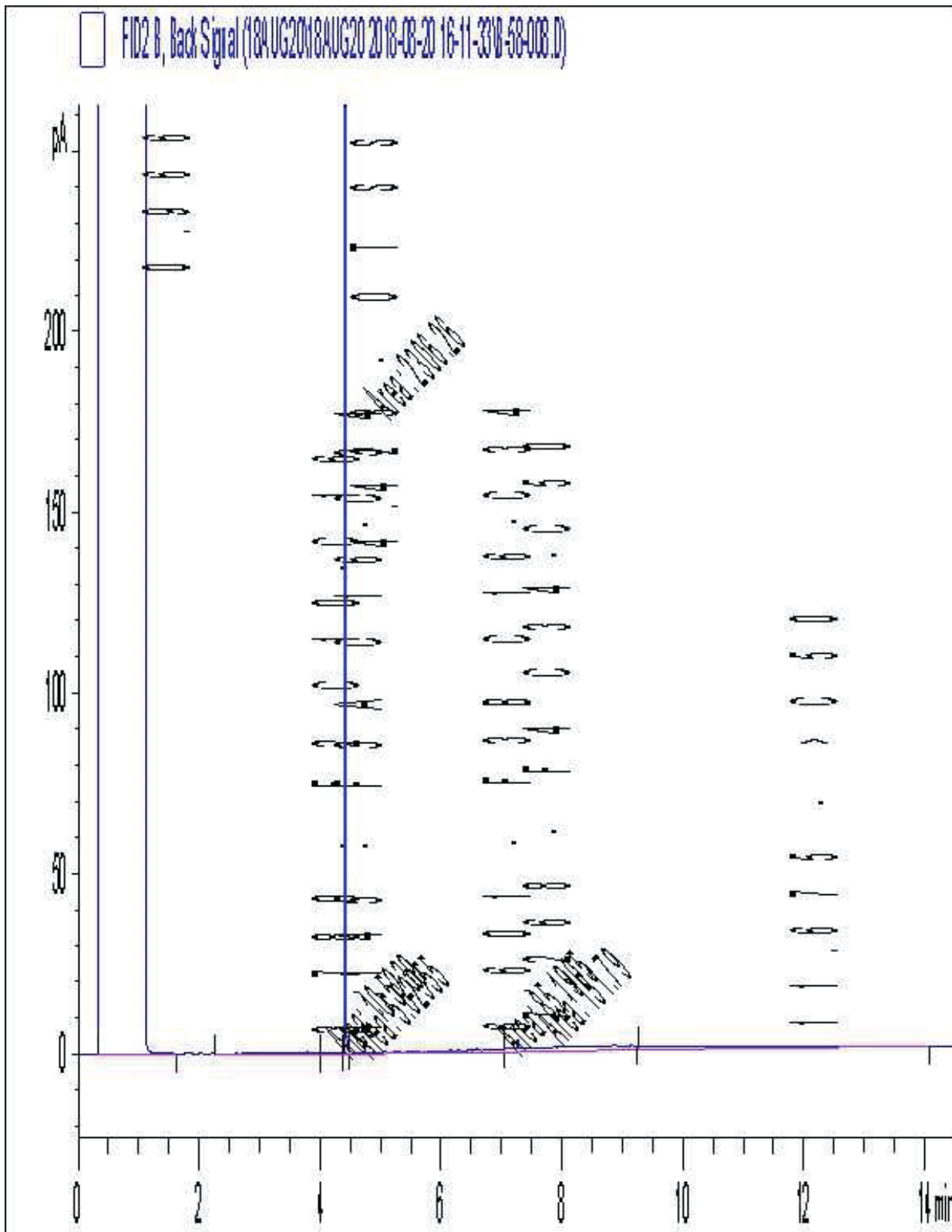


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



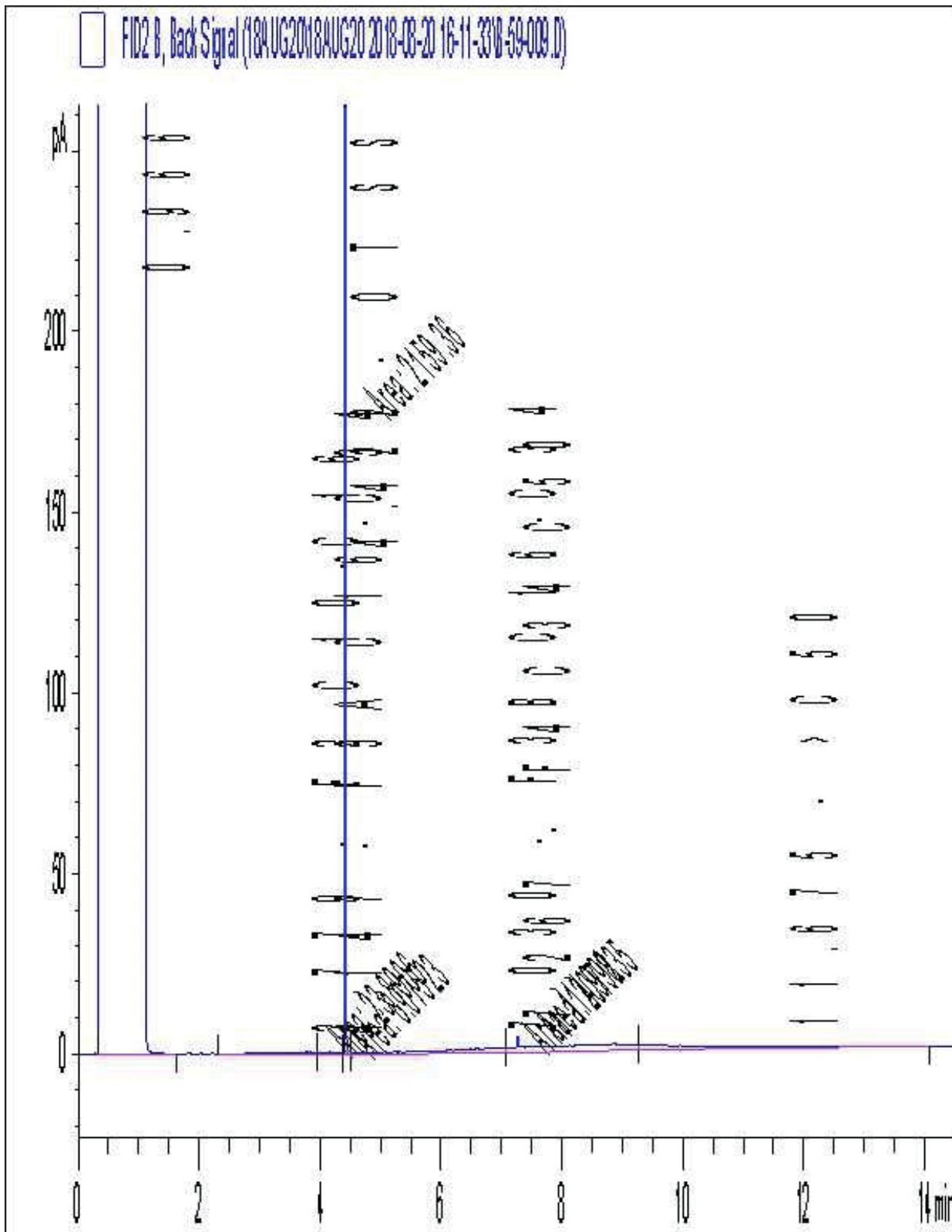
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



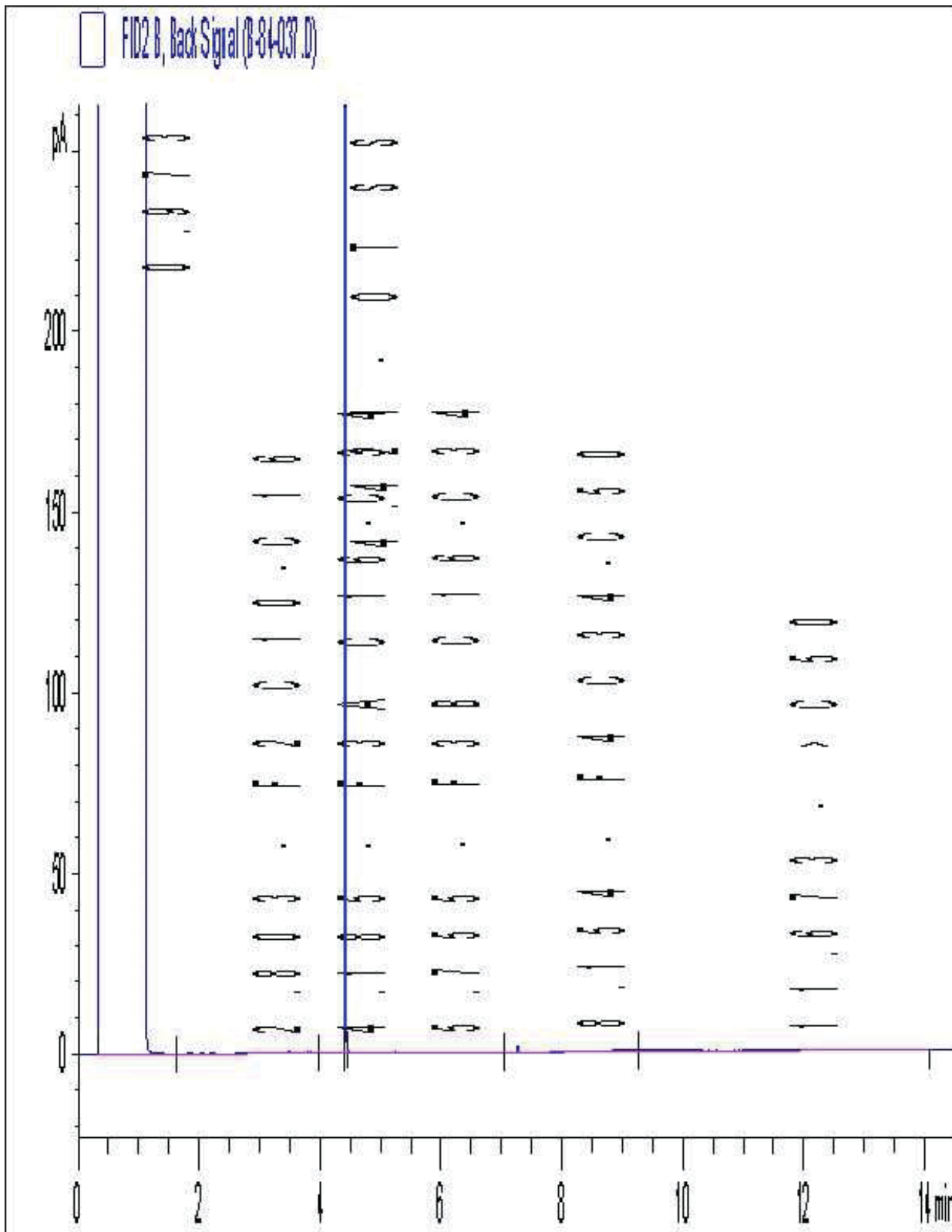
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



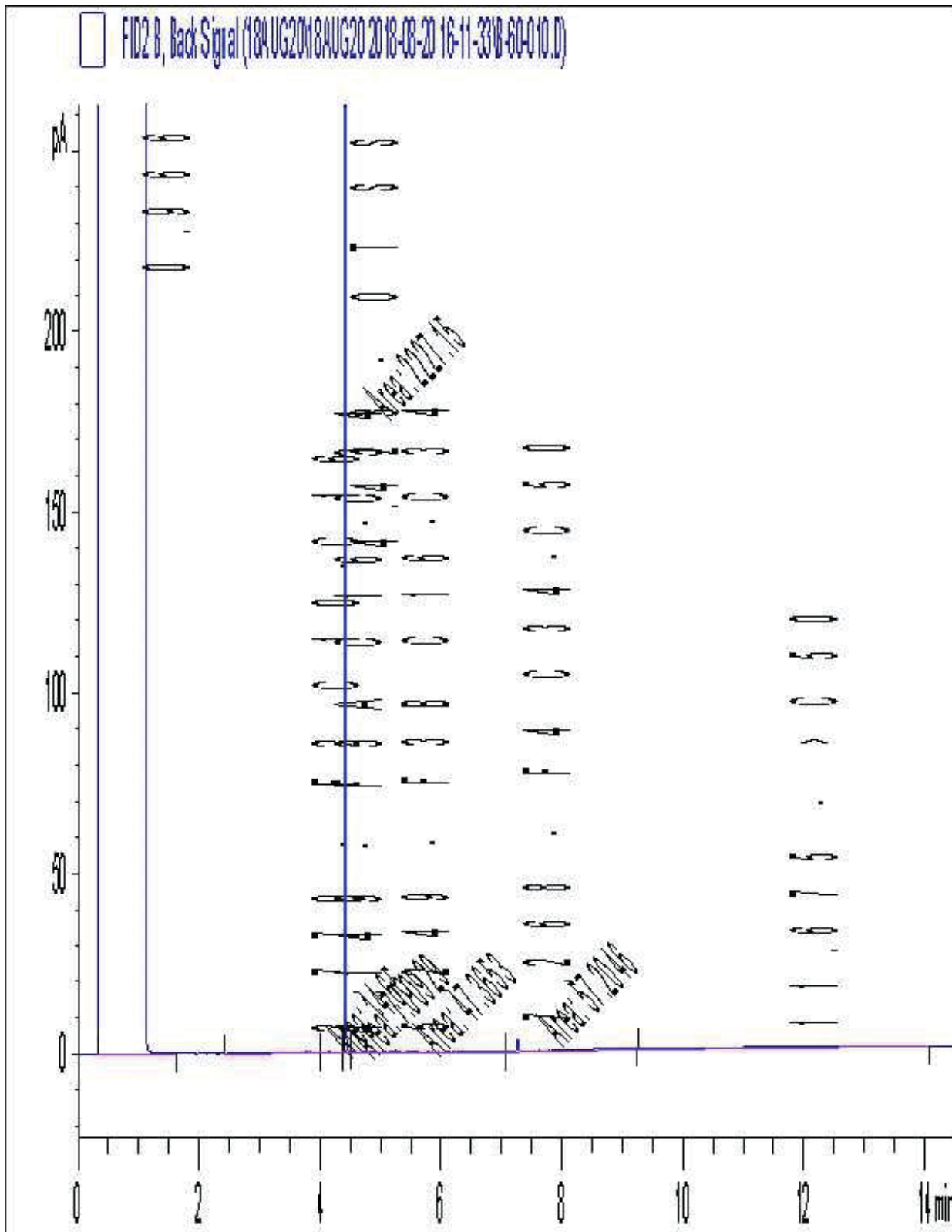
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



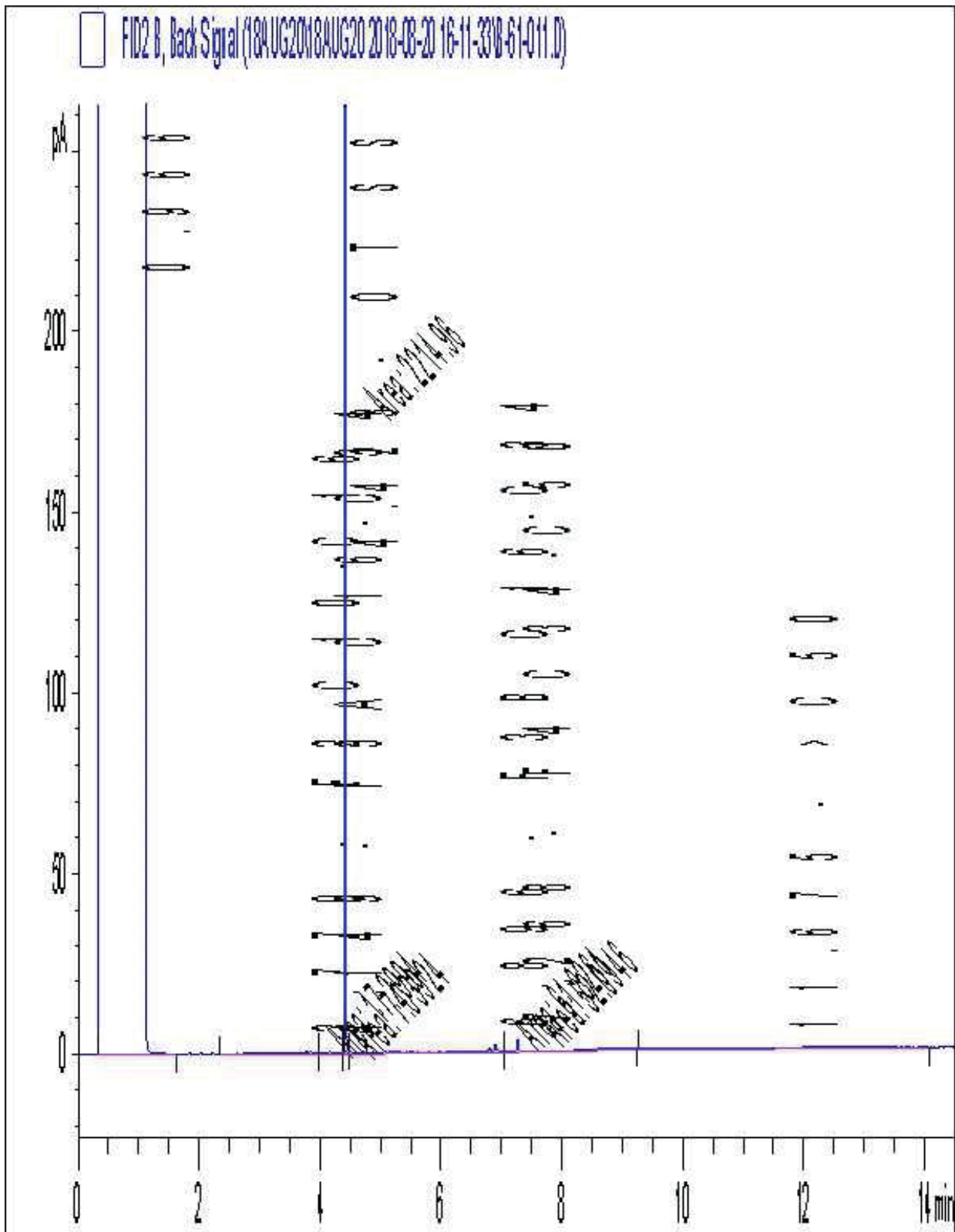
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

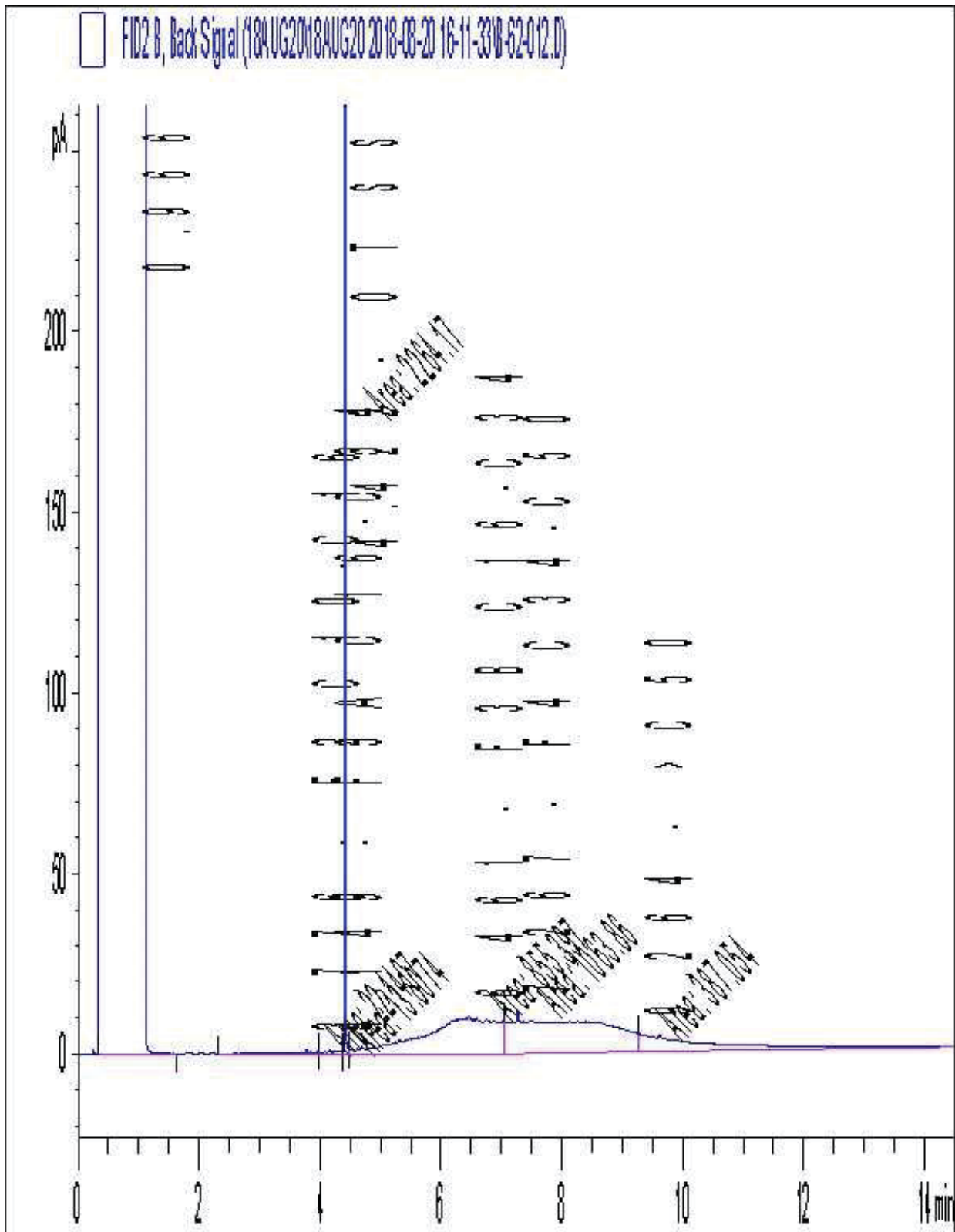
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

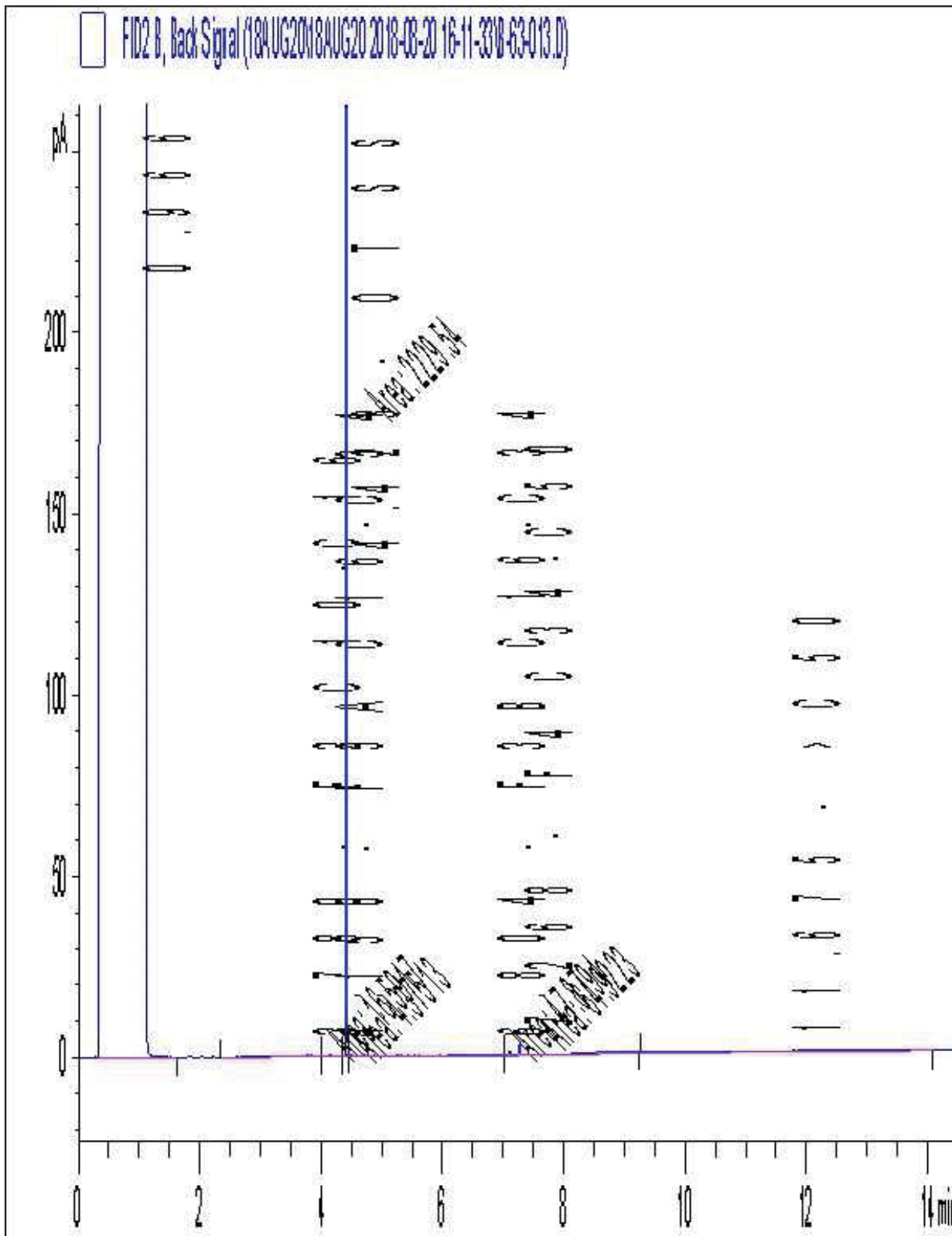


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



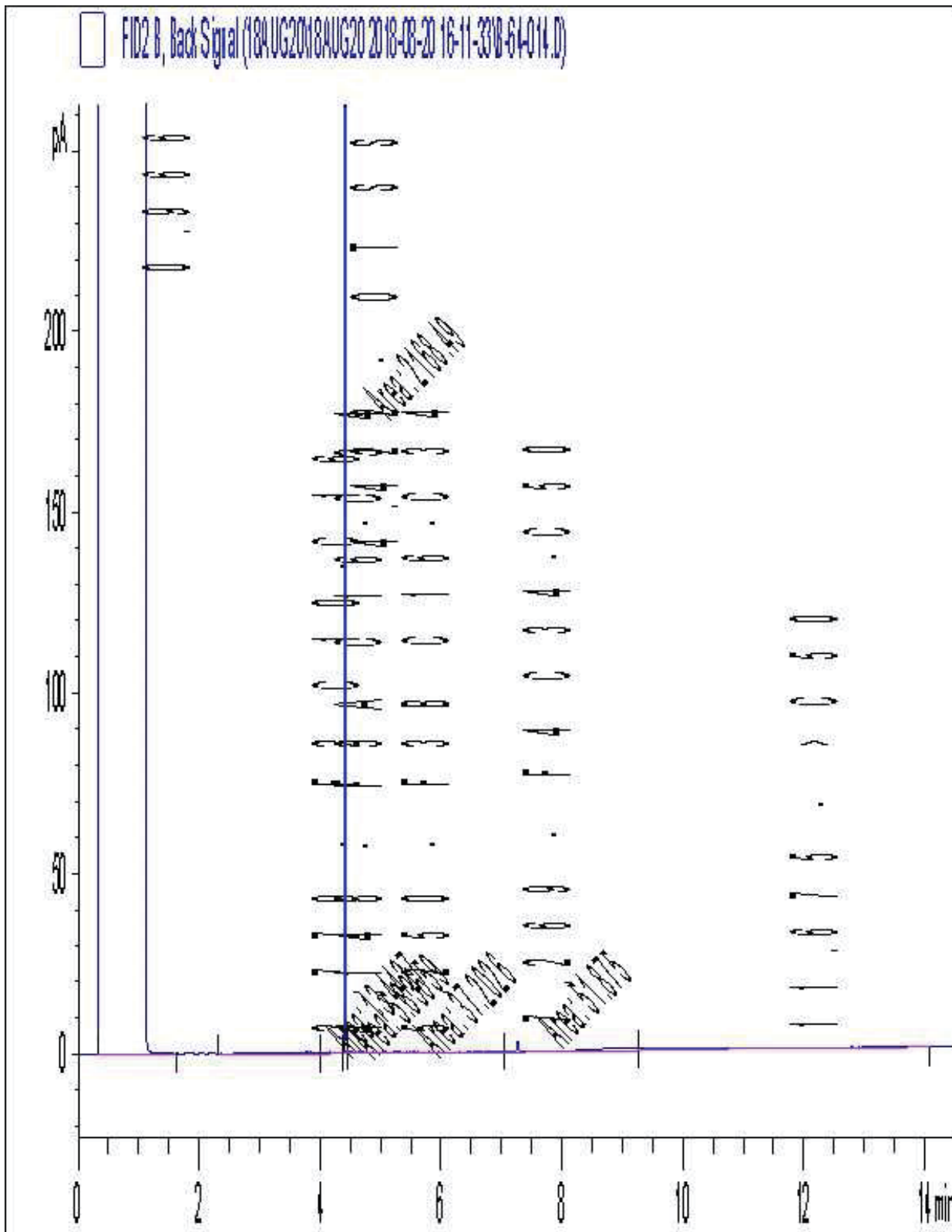
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



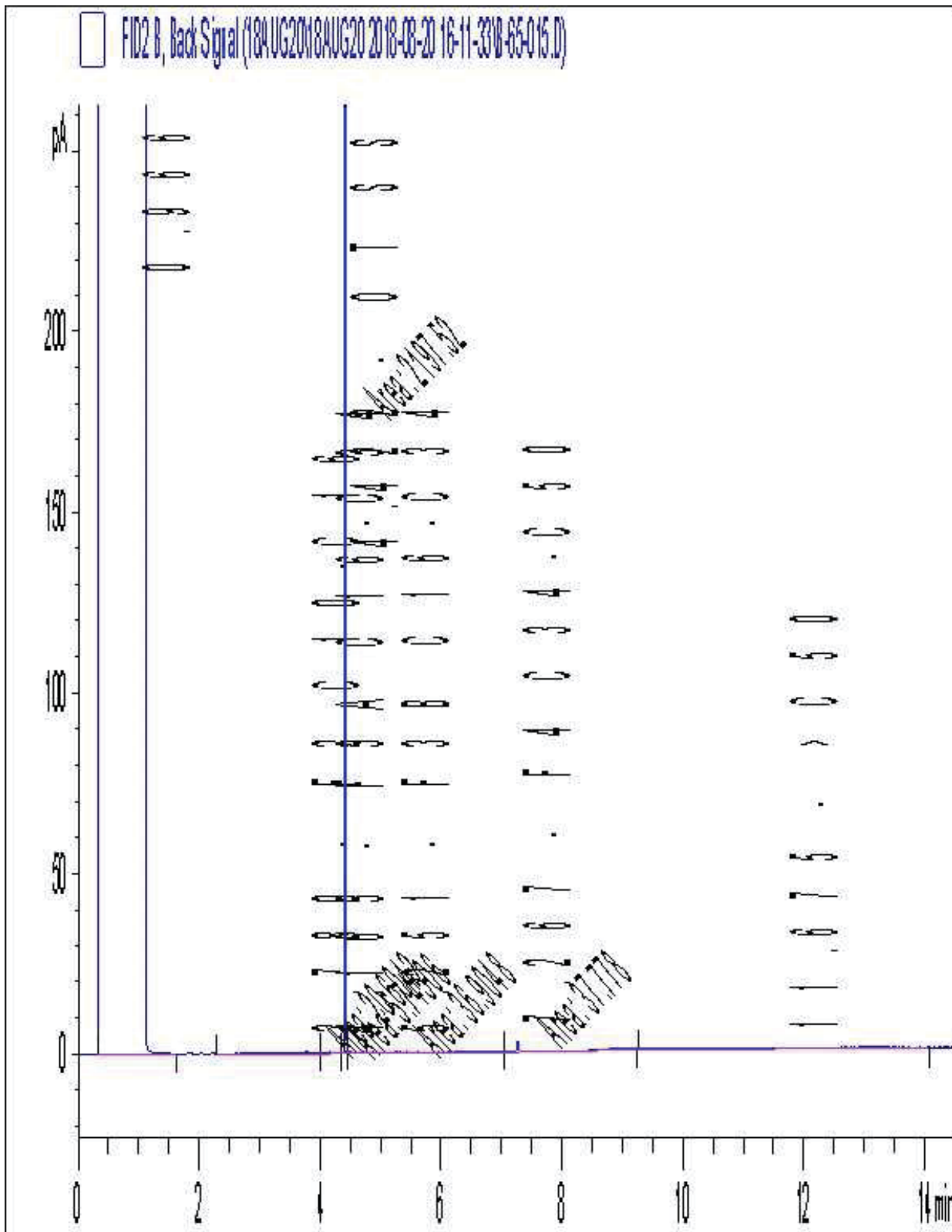
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



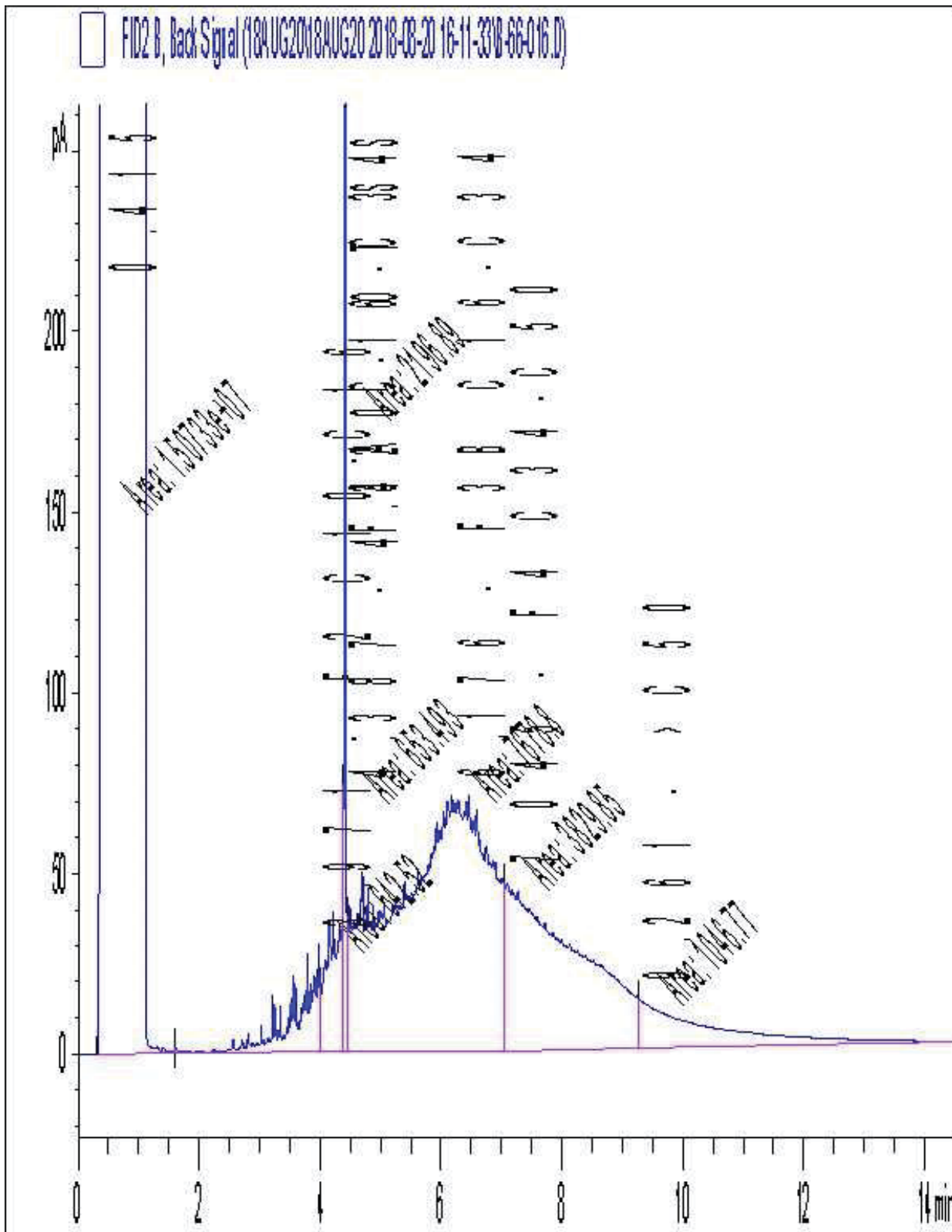
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Your Project #: 6820-001  
Your C.O.C. #: NA

**Attention: Natalie Wright**

Cambium Environmental Inc  
52 Hunter St E  
PO Box 325  
Peterborough, ON  
CANADA K9H 1G5

**Report Date: 2018/08/23**  
Report #: R5370165  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8L0208**

**Received: 2018/08/16, 09:04**

Sample Matrix: Soil  
# Samples Received: 5

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Methylnaphthalene Sum	2	N/A	2018/08/20	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum	1	N/A	2018/08/22	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	3	N/A	2018/08/20	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	2	2018/08/17	2018/08/20	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2018/08/21	2018/08/22	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	1	2018/08/23	2018/08/23	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	1	2018/08/18	2018/08/21	CAM SOP-00447	EPA 6020B m
Moisture	5	N/A	2018/08/17	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	2	2018/08/17	2018/08/18	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	1	2018/08/21	2018/08/22	CAM SOP-00318	EPA 8270D m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

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

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 6820-001  
Your C.O.C. #: NA

**Attention: Natalie Wright**

Cambium Environmental Inc  
52 Hunter St E  
PO Box 325  
Peterborough, ON  
CANADA K9H 1G5

**Report Date: 2018/08/23**  
Report #: R5370165  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8L0208**

**Received: 2018/08/16, 09:04**

- (1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
- (2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key



Gina Baybayan  
Project Manager  
23 Aug 2018 16:24:47

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager  
Email: GBaybayan@maxxam.ca  
Phone# (905)817-5766

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

**O.REG 153 ICPMS METALS (SOIL)**

Maxxam ID			HMM583		
Sampling Date			2018/08/13		
COC Number			NA		
	UNITS	Criteria	SS18-13	RDL	QC Batch
<b>Metals</b>					
Acid Extractable Antimony (Sb)	ug/g	<b>1.3</b>	1.2	0.20	5687568
Acid Extractable Arsenic (As)	ug/g	<b>18</b>	<b>110</b>	1.0	5687568
Acid Extractable Barium (Ba)	ug/g	<b>220</b>	38	0.50	5687568
Acid Extractable Beryllium (Be)	ug/g	<b>2.5</b>	0.39	0.20	5687568
Acid Extractable Boron (B)	ug/g	<b>36</b>	12	5.0	5687568
Acid Extractable Cadmium (Cd)	ug/g	<b>1.2</b>	0.23	0.10	5687568
Acid Extractable Chromium (Cr)	ug/g	<b>70</b>	7.2	1.0	5687568
Acid Extractable Cobalt (Co)	ug/g	<b>22</b>	5.5	0.10	5687568
Acid Extractable Copper (Cu)	ug/g	<b>92</b>	34	0.50	5687568
Acid Extractable Lead (Pb)	ug/g	<b>120</b>	33	1.0	5687568
Acid Extractable Molybdenum (Mo)	ug/g	<b>2</b>	<b>2.4</b>	0.50	5687568
Acid Extractable Nickel (Ni)	ug/g	<b>82</b>	12	0.50	5687568
Acid Extractable Selenium (Se)	ug/g	<b>1.5</b>	<b>9.2</b>	0.50	5687568
Acid Extractable Silver (Ag)	ug/g	<b>0.5</b>	<0.20	0.20	5687568
Acid Extractable Thallium (Tl)	ug/g	<b>1</b>	0.46	0.050	5687568
Acid Extractable Uranium (U)	ug/g	<b>2.5</b>	0.36	0.050	5687568
Acid Extractable Vanadium (V)	ug/g	<b>86</b>	13	5.0	5687568
Acid Extractable Zinc (Zn)	ug/g	<b>290</b>	53	5.0	5687568
Acid Extractable Mercury (Hg)	ug/g	<b>0.27</b>	0.11	0.050	5687568
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)					
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition					
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

**O.REG 153 PAHS (SOIL)**

Maxxam ID			HMM582			HMM583			HMM586		
Sampling Date			2018/08/14			2018/08/13			2018/08/14		
COC Number			NA			NA			NA		
	UNITS	Criteria	SS18-12	RDL	QC Batch	SS18-13	RDL	QC Batch	SS18-16	RDL	QC Batch
<b>Inorganics</b>											
Moisture	%	-	8.9	1.0	5686634				2.3	1.0	5686634
<b>Calculated Parameters</b>											
Methylnaphthalene, 2-(1-)	ug/g	-	0.095	0.0071	5682934	3.0	0.071	5682934	0.14	0.0071	5682934
<b>Polyaromatic Hydrocarbons</b>											
Acenaphthene	ug/g	<b>0.072</b>	<0.0050	0.0050	5686890	<b>0.28</b>	0.050	5691828	<0.0050	0.0050	5686890
Acenaphthylene	ug/g	<b>0.093</b>	0.015	0.0050	5686890	<b>0.38</b>	0.050	5691828	0.0072	0.0050	5686890
Anthracene	ug/g	<b>0.22</b>	0.0089	0.0050	5686890	<b>0.94</b>	0.050	5691828	0.012	0.0050	5686890
Benzo(a)anthracene	ug/g	<b>0.36</b>	0.033	0.0050	5686890	<b>2.6</b>	0.050	5691828	0.022	0.0050	5686890
Benzo(a)pyrene	ug/g	<b>0.3</b>	0.041	0.0050	5686890	<b>1.6</b>	0.050	5691828	0.019	0.0050	5686890
Benzo(b/j)fluoranthene	ug/g	<b>0.47</b>	0.058	0.0050	5686890	<b>3.1</b>	0.050	5691828	0.035	0.0050	5686890
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	0.049	0.0050	5686890	<b>0.85</b>	0.050	5691828	0.028	0.0050	5686890
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	0.018	0.0050	5686890	<b>1.1</b>	0.050	5691828	0.0069	0.0050	5686890
Chrysene	ug/g	<b>2.8</b>	0.031	0.0050	5686890	<b>2.6</b>	0.050	5691828	0.020	0.0050	5686890
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	0.0083	0.0050	5686890	<b>0.29</b>	0.050	5691828	<0.0050	0.0050	5686890
Fluoranthene	ug/g	<b>0.69</b>	0.052	0.0050	5686890	<b>8.7</b>	0.050	5691828	0.043	0.0050	5686890
Fluorene	ug/g	<b>0.19</b>	<0.0050	0.0050	5686890	<b>0.26</b>	0.050	5691828	<0.0050	0.0050	5686890
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	0.045	0.0050	5686890	<b>1.0</b>	0.050	5691828	0.024	0.0050	5686890
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.044	0.0050	5686890	<b>1.4</b>	0.050	5691828	0.067	0.0050	5686890
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.050	0.0050	5686890	<b>1.6</b>	0.050	5691828	0.077	0.0050	5686890
Naphthalene	ug/g	<b>0.09</b>	0.031	0.0050	5686890	<b>0.95</b>	0.050	5691828	0.054	0.0050	5686890
Phenanthrene	ug/g	<b>0.69</b>	0.038	0.0050	5686890	<b>6.4</b>	0.050	5691828	0.057	0.0050	5686890
Pyrene	ug/g	<b>1</b>	0.048	0.0050	5686890	<b>6.0</b>	0.050	5691828	0.036	0.0050	5686890
<b>Surrogate Recovery (%)</b>											
D10-Anthracene	%	-	100		5686890	93		5691828	100		5686890
D14-Terphenyl (FS)	%	-	81		5686890	90		5691828	82		5686890
D8-Acenaphthylene	%	-	111		5686890	85		5691828	110		5686890
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)											
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition											
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use											

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			HMM583			HMM584	HMM585		
Sampling Date			2018/08/13			2018/08/14	2018/08/13		
COC Number			NA			NA	NA		
	UNITS	Criteria	SS18-13	RDL	QC Batch	SS18-14	SS18-15	RDL	QC Batch
<b>Inorganics</b>									
Moisture	%	-	9.4	1.0	5686634	2.1	8.3	1.0	5686545
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>	<b>2.2</b>	0.040	5686006	<0.020	<0.020	0.020	5686006
Toluene	ug/g	<b>0.2</b>	<b>12</b>	0.040	5686006	<0.020	<0.020	0.020	5686006
Ethylbenzene	ug/g	<b>0.05</b>	<b>2.4</b>	0.040	5686006	<0.020	<0.020	0.020	5686006
o-Xylene	ug/g	-	7.7	0.040	5686006	<0.020	<0.020	0.020	5686006
p+m-Xylene	ug/g	-	11	0.080	5686006	<0.040	<0.040	0.040	5686006
Total Xylenes	ug/g	<b>0.05</b>	<b>19</b>	0.080	5686006	<0.040	<0.040	0.040	5686006
F1 (C6-C10)	ug/g	<b>25</b>	<b>250</b>	20	5686006	<10	<10	10	5686006
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<b>210</b>	20	5686006	<10	<10	10	5686006
<b>F2-F4 Hydrocarbons</b>									
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<b>51</b>	10	5691830	<10	<10	10	5686460
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<b>320</b>	50	5691830	<50	<50	50	5686460
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<b>83</b>	50	5691830	<50	<50	50	5686460
Reached Baseline at C50	ug/g	-	No		5691830	Yes	Yes		5686460
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-	99		5686006	99	104		5686006
4-Bromofluorobenzene	%	-	100		5686006	95	93		5686006
D10-Ethylbenzene	%	-	90		5686006	88	85		5686006
D4-1,2-Dichloroethane	%	-	96		5686006	98	98		5686006
o-Terphenyl	%	-	83		5691830	88	91		5686460
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition									
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use									

**PETROLEUM HYDROCARBONS (CCME)**

<b>Maxxam ID</b>			HMM583		
<b>Sampling Date</b>			2018/08/13		
<b>COC Number</b>			NA		
	<b>UNITS</b>	<b>Criteria</b>	<b>SS18-13</b>	<b>RDL</b>	<b>QC Batch</b>
<b>F2-F4 Hydrocarbons</b>					
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<b>120</b>	<b>430</b>	100	5694854
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

### TEST SUMMARY

**Maxxam ID:** HMM582  
**Sample ID:** SS18-12  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/20	Automated Statchk
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5686890	2018/08/17	2018/08/18	Jett Wu

**Maxxam ID:** HMM583  
**Sample ID:** SS18-13  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5686006	N/A	2018/08/20	Joe Paino
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5691830	2018/08/21	2018/08/22	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	5694854	2018/08/23	2018/08/23	Simarpreet Kaur
Strong Acid Leachable Metals by ICPMS	ICP/MS	5687568	2018/08/18	2018/08/21	Daniel Teclu
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5691828	2018/08/21	2018/08/22	Mitesh Raj

**Maxxam ID:** HMM584  
**Sample ID:** SS18-14  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5686006	N/A	2018/08/20	Joe Paino
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5686545	N/A	2018/08/17	Gargi Gireesh

**Maxxam ID:** HMM585  
**Sample ID:** SS18-15  
**Matrix:** Soil

**Collected:** 2018/08/13  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5686006	N/A	2018/08/20	Joe Paino
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5686460	2018/08/17	2018/08/20	Margaret Kulczyk-Stanko
Moisture	BAL	5686545	N/A	2018/08/17	Gargi Gireesh

**Maxxam ID:** HMM586  
**Sample ID:** SS18-16  
**Matrix:** Soil

**Collected:** 2018/08/14  
**Shipped:**  
**Received:** 2018/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5682934	N/A	2018/08/20	Automated Statchk
Moisture	BAL	5686634	N/A	2018/08/17	Gargi Gireesh
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5686890	2018/08/17	2018/08/18	Jett Wu



### GENERAL COMMENTS

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

Package 1	4.0°C
Package 2	4.3°C

Cooler custody seal was present and intact.

Sample HMM583 [SS18-13] : PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

**Results relate only to the items tested.**



Maxxam Job #: B8L0208  
Report Date: 2018/08/23

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5686006	1,4-Difluorobenzene	2018/08/17	113	60 - 140	97	60 - 140	107	%		
5686006	4-Bromofluorobenzene	2018/08/17	111	60 - 140	104	60 - 140	106	%		
5686006	D10-Ethylbenzene	2018/08/17	100	60 - 140	90	60 - 140	72	%		
5686006	D4-1,2-Dichloroethane	2018/08/17	112	60 - 140	97	60 - 140	98	%		
5686460	o-Terphenyl	2018/08/20	97	60 - 130	96	60 - 130	101	%		
5686890	D10-Anthracene	2018/08/17	102	50 - 130	98	50 - 130	96	%		
5686890	D14-Terphenyl (FS)	2018/08/17	85	50 - 130	82	50 - 130	80	%		
5686890	D8-Acenaphthylene	2018/08/17	108	50 - 130	105	50 - 130	101	%		
5691828	D10-Anthracene	2018/08/22	89	50 - 130	87	50 - 130	85	%		
5691828	D14-Terphenyl (FS)	2018/08/22	86	50 - 130	85	50 - 130	83	%		
5691828	D8-Acenaphthylene	2018/08/22	83	50 - 130	83	50 - 130	81	%		
5691830	o-Terphenyl	2018/08/22	91	60 - 130	88	60 - 130	87	%		
5686006	Benzene	2018/08/17	79	60 - 140	70	60 - 140	<0.020	ug/g		
5686006	Ethylbenzene	2018/08/17	88	60 - 140	80	60 - 140	<0.020	ug/g		
5686006	F1 (C6-C10) - BTEX	2018/08/17					<10	ug/g	NC	30
5686006	F1 (C6-C10)	2018/08/17	106	60 - 140	96	80 - 120	<10	ug/g	NC	30
5686006	o-Xylene	2018/08/17	81	60 - 140	79	60 - 140	<0.020	ug/g		
5686006	p+m-Xylene	2018/08/17	84	60 - 140	79	60 - 140	<0.040	ug/g		
5686006	Toluene	2018/08/17	75	60 - 140	79	60 - 140	<0.020	ug/g		
5686006	Total Xylenes	2018/08/17					<0.040	ug/g		
5686460	F2 (C10-C16 Hydrocarbons)	2018/08/20	102	50 - 130	100	80 - 120	<10	ug/g	NC	30
5686460	F3 (C16-C34 Hydrocarbons)	2018/08/20	98	50 - 130	97	80 - 120	<50	ug/g	NC	30
5686460	F4 (C34-C50 Hydrocarbons)	2018/08/20	98	50 - 130	94	80 - 120	<50	ug/g	NC	30
5686545	Moisture	2018/08/17							16	20
5686634	Moisture	2018/08/17							12	20
5686890	1-Methylnaphthalene	2018/08/17	115	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
5686890	2-Methylnaphthalene	2018/08/17	100	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
5686890	Acenaphthene	2018/08/17	92	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5686890	Acenaphthylene	2018/08/17	106	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
5686890	Anthracene	2018/08/17	96	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
5686890	Benzo(a)anthracene	2018/08/17	102	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5686890	Benzo(a)pyrene	2018/08/17	89	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40



Maxxam Job #: B8L0208  
Report Date: 2018/08/23

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5686890	Benzo(b/j)fluoranthene	2018/08/17	89	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5686890	Benzo(g,h,i)perylene	2018/08/17	91	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5686890	Benzo(k)fluoranthene	2018/08/17	73	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5686890	Chrysene	2018/08/17	97	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5686890	Dibenz(a,h)anthracene	2018/08/17	92	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5686890	Fluoranthene	2018/08/17	90	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5686890	Fluorene	2018/08/17	102	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
5686890	Indeno(1,2,3-cd)pyrene	2018/08/17	91	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5686890	Naphthalene	2018/08/17	88	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5686890	Phenanthrene	2018/08/17	97	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5686890	Pyrene	2018/08/17	93	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5687568	Acid Extractable Antimony (Sb)	2018/08/21	81	75 - 125	107	80 - 120	<0.20	ug/g	NC	30
5687568	Acid Extractable Arsenic (As)	2018/08/21	107	75 - 125	103	80 - 120	<1.0	ug/g	NC	30
5687568	Acid Extractable Barium (Ba)	2018/08/21	NC	75 - 125	99	80 - 120	<0.50	ug/g	4.3	30
5687568	Acid Extractable Beryllium (Be)	2018/08/21	104	75 - 125	95	80 - 120	<0.20	ug/g	9.0	30
5687568	Acid Extractable Boron (B)	2018/08/21	101	75 - 125	94	80 - 120	<5.0	ug/g	10	30
5687568	Acid Extractable Cadmium (Cd)	2018/08/21	106	75 - 125	100	80 - 120	<0.10	ug/g	5.0	30
5687568	Acid Extractable Chromium (Cr)	2018/08/21	NC	75 - 125	103	80 - 120	<1.0	ug/g	5.6	30
5687568	Acid Extractable Cobalt (Co)	2018/08/21	100	75 - 125	102	80 - 120	<0.10	ug/g	8.5	30
5687568	Acid Extractable Copper (Cu)	2018/08/21	NC	75 - 125	103	80 - 120	<0.50	ug/g	5.6	30
5687568	Acid Extractable Lead (Pb)	2018/08/21	104	75 - 125	101	80 - 120	<1.0	ug/g	2.1	30
5687568	Acid Extractable Mercury (Hg)	2018/08/21	94	75 - 125	97	80 - 120	<0.050	ug/g	NC	30
5687568	Acid Extractable Molybdenum (Mo)	2018/08/21	104	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
5687568	Acid Extractable Nickel (Ni)	2018/08/21	NC	75 - 125	99	80 - 120	<0.50	ug/g	7.7	30
5687568	Acid Extractable Selenium (Se)	2018/08/21	106	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5687568	Acid Extractable Silver (Ag)	2018/08/21	103	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
5687568	Acid Extractable Thallium (Tl)	2018/08/21	103	75 - 125	101	80 - 120	<0.050	ug/g	17	30
5687568	Acid Extractable Uranium (U)	2018/08/21	106	75 - 125	100	80 - 120	<0.050	ug/g	1.5	30
5687568	Acid Extractable Vanadium (V)	2018/08/21	NC	75 - 125	101	80 - 120	<5.0	ug/g	5.9	30
5687568	Acid Extractable Zinc (Zn)	2018/08/21	NC	75 - 125	101	80 - 120	<5.0	ug/g	1.4	30
5691828	1-Methylnaphthalene	2018/08/22	94	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
5691828	2-Methylnaphthalene	2018/08/22	80	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40



Maxxam Job #: B8L0208  
Report Date: 2018/08/23

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5691828	Acenaphthene	2018/08/22	82	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5691828	Acenaphthylene	2018/08/22	78	50 - 130	73	50 - 130	<0.0050	ug/g	NC	40
5691828	Anthracene	2018/08/22	79	50 - 130	74	50 - 130	<0.0050	ug/g	NC	40
5691828	Benzo(a)anthracene	2018/08/22	85	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5691828	Benzo(a)pyrene	2018/08/22	84	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5691828	Benzo(b/j)fluoranthene	2018/08/22	84	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5691828	Benzo(g,h,i)perylene	2018/08/22	79	50 - 130	76	50 - 130	<0.0050	ug/g	NC	40
5691828	Benzo(k)fluoranthene	2018/08/22	83	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5691828	Chrysene	2018/08/22	84	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5691828	Dibenz(a,h)anthracene	2018/08/22	83	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5691828	Fluoranthene	2018/08/22	85	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5691828	Fluorene	2018/08/22	82	50 - 130	77	50 - 130	<0.0050	ug/g	NC	40
5691828	Indeno(1,2,3-cd)pyrene	2018/08/22	84	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5691828	Naphthalene	2018/08/22	77	50 - 130	76	50 - 130	<0.0050	ug/g	NC	40
5691828	Phenanthrene	2018/08/22	81	50 - 130	77	50 - 130	<0.0050	ug/g	NC	40
5691828	Pyrene	2018/08/22	84	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
5691830	F2 (C10-C16 Hydrocarbons)	2018/08/22	97	50 - 130	92	80 - 120	<10	ug/g	NC	30
5691830	F3 (C16-C34 Hydrocarbons)	2018/08/22	91	50 - 130	88	80 - 120	<50	ug/g	NC	30
5691830	F4 (C34-C50 Hydrocarbons)	2018/08/22	97	50 - 130	92	80 - 120	<50	ug/g	NC	30
5694854	F4G-sg (Grav. Heavy Hydrocarbons)	2018/08/23	109	65 - 135	102	65 - 135	<100	ug/g	24	50

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

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

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

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



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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

### VALIDATION SIGNATURE PAGE

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

---

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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

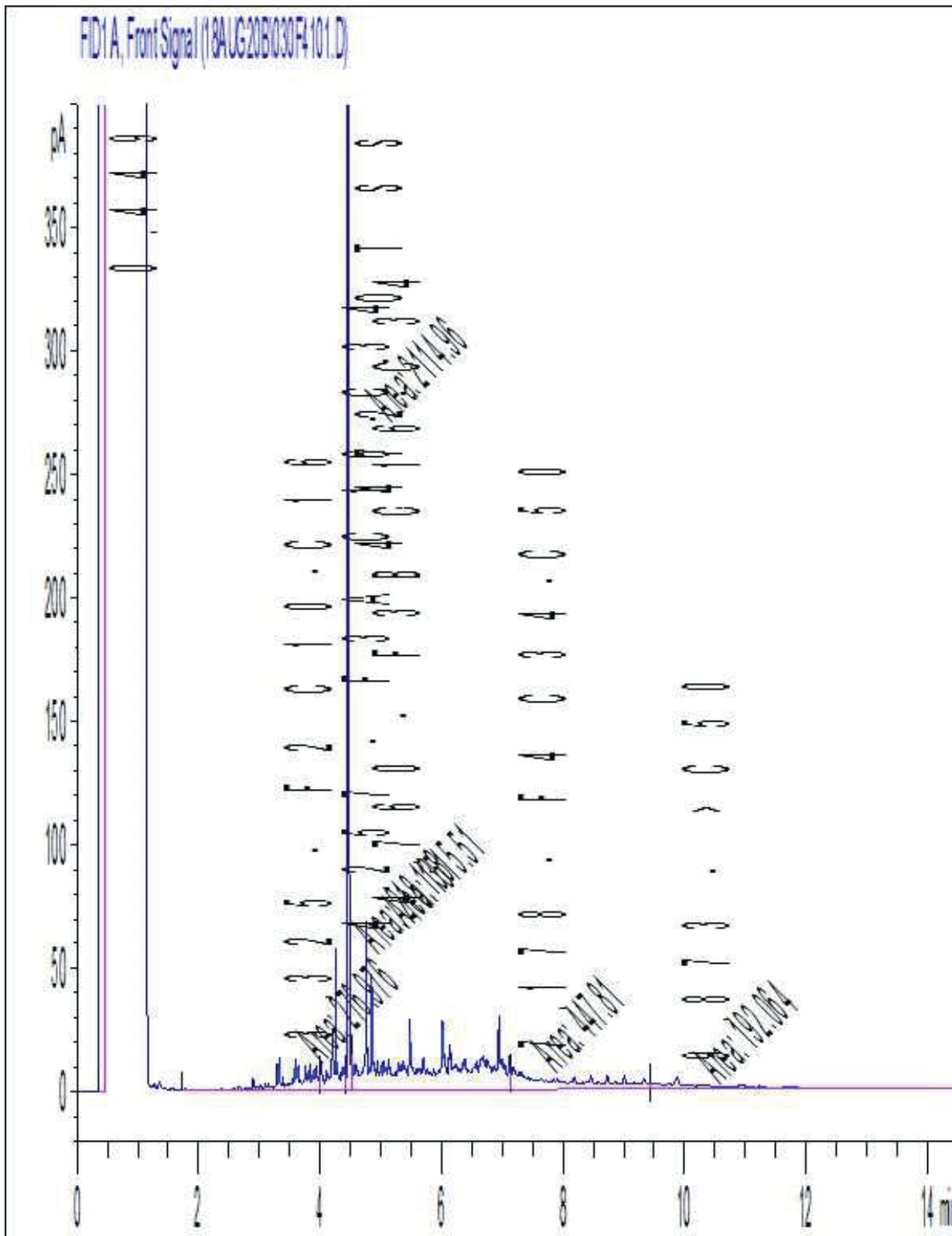
**CHAIN OF CUSTODY RECORD**

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required	
Company Name: <b>CAMBUM INC</b>		Company Name: <b>CAMBUM INC</b>		Quotation #: <b>B33923</b>		<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses	
Contact Name: <b>Natalie Wright</b>		Contact Name:		P.O. #/AF#: _____		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <b>52 Hunter St E 10th Fl Peterborough On K9H 1G5</b>		Address:		Project #: <b>6220-001</b>		Rush TAT (Surcharges will be applied)	
Phone: <b>705-742-7400 Fax: 705-742-7407</b>		Phone: _____ Fax: _____		Site Location: _____		<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days	
Email: <b>Natalie.Wright@CambiumInc.com</b>		Email: _____		Site #: _____		Date Required: _____	
Email: _____		Email: _____		Sampled By: _____		Rush Confirmation #: _____	
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY							
<b>Regulation 153</b> <input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input checked="" type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input checked="" type="checkbox"/> Table 9 FOR RSC (PLEASE CIRCLE) <input checked="" type="radio"/> Y <input type="radio"/> N		<b>Other Regulations</b> <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO <input type="checkbox"/> Region <input type="checkbox"/> Other (Specify) <input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED)		<b>Analysis Requested</b> WELDFILTERED (PACU) Mean/ Ni / Cr WELFA (PACU) PHC12 14 VOCS MB 153 METALS & INORGANICS MB 153 CPMS METALS MB 153 METALS MB 153 CPMS METALS (MB- B) Reg 153 CPMS METALS Reg 153 PAHS		<b>LABORATORY USE ONLY</b> CUSTODY SEAL Present Intact Y Y 7/3/2 Y Y 4/5/4 COOLING MEDIA PRESENT: <input checked="" type="radio"/> Y <input type="radio"/> N COMMENTS	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM							
SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	1	2	3	4
1 SS18-12	2018/08/14	5	S	1			
2 SS18-13	2018/08/13	1	S	5	✓	✓	✓
3 SS18-14	2018/08/14	1	S	3	✓	✓	
4 SS18-15	2018/08/13	1	S	3	✓	✓	
5 SS18-16	2018/08/14	1	S	1			✓
6							
7							
8							
9							
10							
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)
J. K. Patel		18/08/15		e.k. Patel Ravi Patel		20/08/16	09:04
MAXXAM JOB # _____							

16-Aug-18 09:04  
Gina Baybayan  
B8L0208  
GK1 ENV-1125

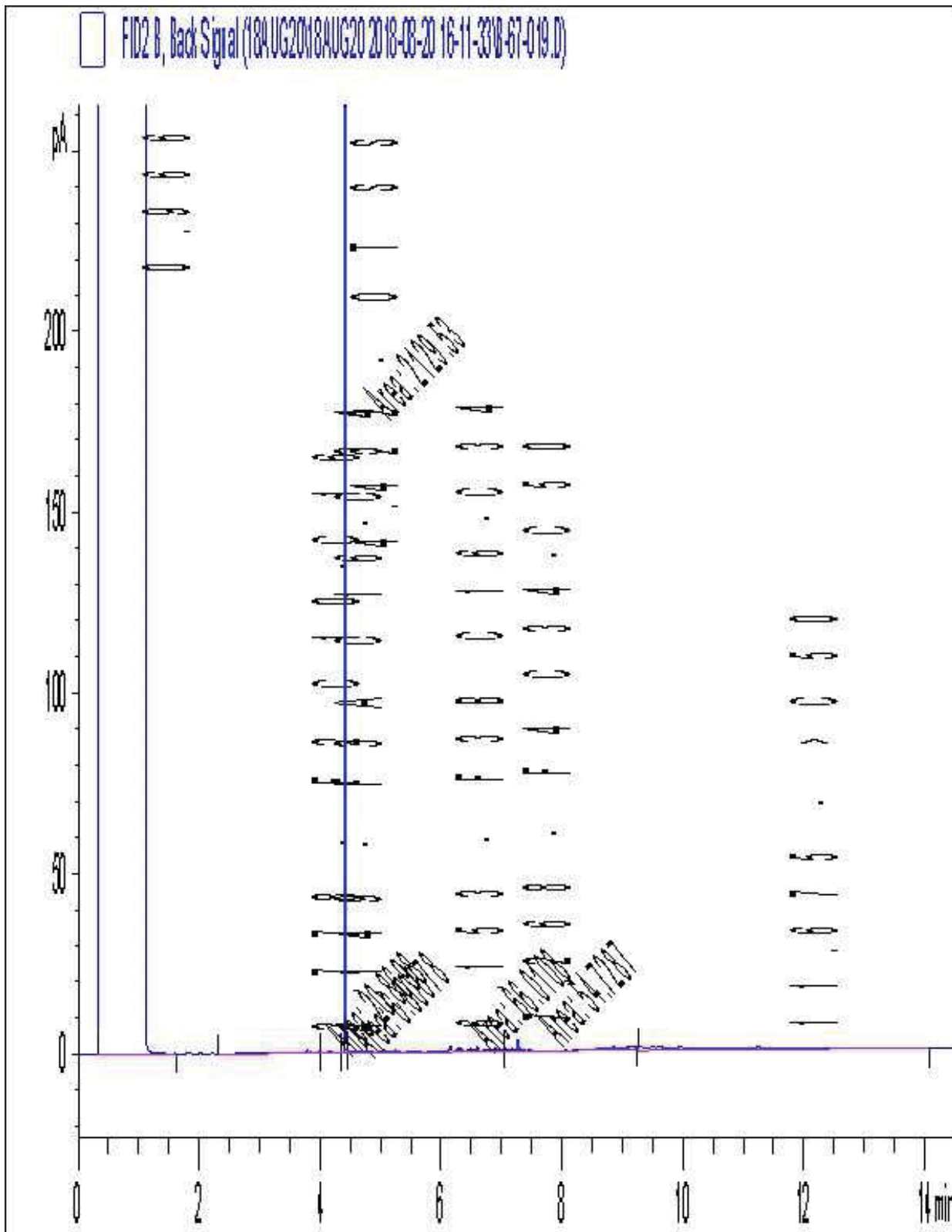


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



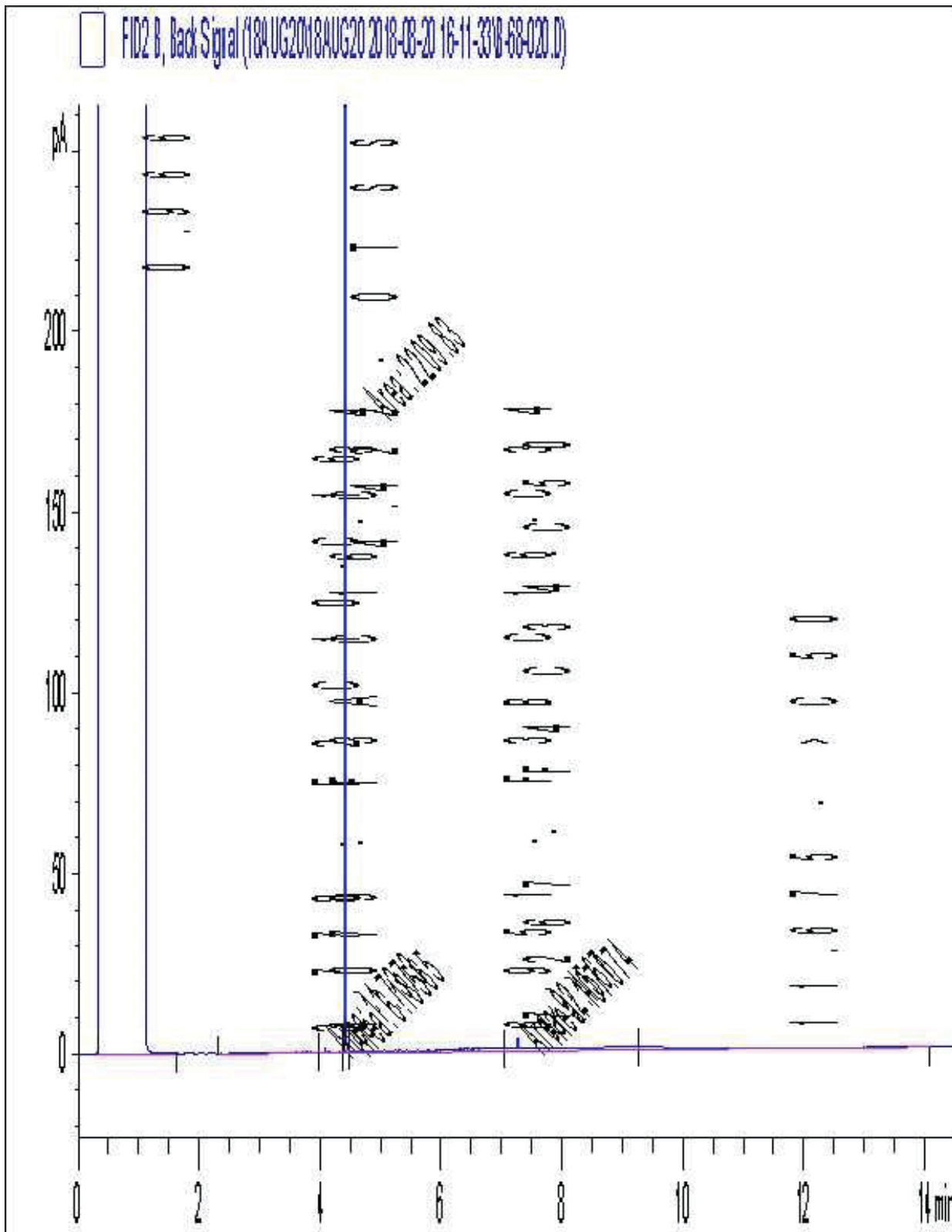
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Your Project #: 6820-001  
Your C.O.C. #: 679396-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/09/10**  
Report #: R5392716  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8M6361**  
**Received: 2018/08/31, 09:34**

Sample Matrix: Water  
# Samples Received: 10

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
1,3-Dichloropropene Sum	2	N/A	2018/09/06		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water	6	N/A	2018/09/09	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	2	2018/09/05	2018/09/05	CAM SOP-00316	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	4	2018/09/05	2018/09/06	CAM SOP-00316	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	1	2018/09/06	2018/09/07	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	3	N/A	2018/09/05	CAM SOP-00447	EPA 6020B m
Polychlorinated Biphenyl in Water	2	2018/09/04	2018/09/04	CAM SOP-00309	EPA 8082A m
Volatile Organic Compounds and F1 PHCs	2	N/A	2018/09/05	CAM SOP-00230	EPA 8260C m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

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

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 6820-001  
Your C.O.C. #: 679396-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/09/10**  
Report #: R5392716  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8M6361**

**Received: 2018/08/31, 09:34**

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

Encryption Key



Gina Baybayan  
Project Manager  
10 Sep 2018 16:52:25

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager

Email: GBaybayan@maxxam.ca

Phone# (905)817-5766

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

**O.REG 153 DISSOLVED ICPMS METALS (WATER)**

Maxxam ID		HPZ850	HPZ851	HPZ855		
Sampling Date		2018/08/28	2018/08/28	2018/08/28		
COC Number		679396-01-01	679396-01-01	679396-01-01		
	UNITS	BH18-06	BH18-07	QA/QC #2	RDL	QC Batch
<b>Metals</b>						
Dissolved Antimony (Sb)	ug/L	2.1	<0.50	<0.50	0.50	5710124
Dissolved Arsenic (As)	ug/L	2.9	<1.0	<1.0	1.0	5710124
Dissolved Barium (Ba)	ug/L	21	250	250	2.0	5710124
Dissolved Beryllium (Be)	ug/L	<0.50	<0.50	<0.50	0.50	5710124
Dissolved Boron (B)	ug/L	12	84	84	10	5710124
Dissolved Cadmium (Cd)	ug/L	<0.10	<0.10	<0.10	0.10	5710124
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	5.0	5710124
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	<0.50	0.50	5710124
Dissolved Copper (Cu)	ug/L	3.8	<1.0	<1.0	1.0	5710124
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	0.50	5710124
Dissolved Molybdenum (Mo)	ug/L	5.7	0.88	0.97	0.50	5710124
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	<1.0	1.0	5710124
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	<2.0	2.0	5710124
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	5710124
Dissolved Sodium (Na)	ug/L	920	120000	130000	100	5710124
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	0.050	5710124
Dissolved Uranium (U)	ug/L	1.3	1.8	1.8	0.10	5710124
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	<0.50	0.50	5710124
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	5.0	5710124
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						



**O.REG 153 PCBS (WATER)**

Maxxam ID		HPZ853	HPZ856		
Sampling Date		2018/08/28	2018/08/28		
COC Number		679396-01-01	679396-01-01		
	UNITS	BH18-12	QA/QC #3	RDL	QC Batch
<b>PCBs</b>					
Aroclor 1242	ug/L	<0.05	<0.05	0.05	5712728
Aroclor 1248	ug/L	<0.05	<0.05	0.05	5712728
Aroclor 1254	ug/L	<0.05	<0.05	0.05	5712728
Aroclor 1260	ug/L	<0.05	<0.05	0.05	5712728
Total PCB	ug/L	<0.05	<0.05	0.05	5712728
<b>Surrogate Recovery (%)</b>					
Decachlorobiphenyl	%	97	87		5712728
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					

**O.REG 153 PETROLEUM HYDROCARBONS (WATER)**

Maxxam ID		HPZ848	HPZ849			HPZ849			HPZ850		
Sampling Date		2018/08/28	2018/08/28			2018/08/28			2018/08/28		
COC Number		679396-01-01	679396-01-01			679396-01-01			679396-01-01		
	UNITS	BH18-01	BH18-05	RDL	QC Batch	BH18-05 Lab-Dup	RDL	QC Batch	BH18-06	RDL	QC Batch

<b>BTEX &amp; F1 Hydrocarbons</b>											
Benzene	ug/L	0.56	<0.20	0.20	5717450				<0.20	0.20	5717450
Toluene	ug/L	<0.20	<0.20	0.20	5717450				<0.20	0.20	5717450
Ethylbenzene	ug/L	<0.20	<0.20	0.20	5717450				<0.20	0.20	5717450
o-Xylene	ug/L	<0.20	<0.20	0.20	5717450				<0.20	0.20	5717450
p+m-Xylene	ug/L	<0.40	<0.40	0.40	5717450				<0.40	0.40	5717450
Total Xylenes	ug/L	<0.40	<0.40	0.40	5717450				<0.40	0.40	5717450
F1 (C6-C10)	ug/L	<25	<25	25	5717450				<25	25	5717450
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	5717450				<25	25	5717450

<b>F2-F4 Hydrocarbons</b>											
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	5714557	<100	100	5714557	<100	100	5714557
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	5714557	<200	200	5714557	<200	200	5714557
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	5714557	<200	200	5714557	<200	200	5714557
Reached Baseline at C50	ug/L	Yes	Yes		5714557	Yes		5714557	Yes		5714557

<b>Surrogate Recovery (%)</b>											
1,4-Difluorobenzene	%	103	104		5717450				105		5717450
4-Bromofluorobenzene	%	100	98		5717450				96		5717450
D10-Ethylbenzene	%	87	86		5717450				90		5717450
D4-1,2-Dichloroethane	%	95	97		5717450				93		5717450
o-Terphenyl	%	95	91		5714557	95		5714557	93		5714557

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

**O.REG 153 PETROLEUM HYDROCARBONS (WATER)**

Maxxam ID		HPZ851	HPZ853		HPZ854		
Sampling Date		2018/08/28	2018/08/28		2018/08/28		
COC Number		679396-01-01	679396-01-01		679396-01-01		
	UNITS	BH18-07	BH18-12	QC Batch	QA/QC #1	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>							
Benzene	ug/L	<0.20	<0.20	5717450	0.56	0.20	5717450
Toluene	ug/L	<0.20	<0.20	5717450	<0.20	0.20	5717450
Ethylbenzene	ug/L	<0.20	<0.20	5717450	<0.20	0.20	5717450
o-Xylene	ug/L	<0.20	<0.20	5717450	<0.20	0.20	5717450
p+m-Xylene	ug/L	<0.40	<0.40	5717450	<0.40	0.40	5717450
Total Xylenes	ug/L	<0.40	<0.40	5717450	<0.40	0.40	5717450
F1 (C6-C10)	ug/L	<25	<25	5717450	<25	25	5717450
F1 (C6-C10) - BTEX	ug/L	<25	<25	5717450	<25	25	5717450
<b>F2-F4 Hydrocarbons</b>							
F2 (C10-C16 Hydrocarbons)	ug/L	1000	<100	5714557	<100	100	5717796
F3 (C16-C34 Hydrocarbons)	ug/L	580	<200	5714557	<200	200	5717796
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	5714557	<200	200	5717796
Reached Baseline at C50	ug/L	Yes	Yes	5714557	Yes		5717796
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene	%	102	103	5717450	104		5717450
4-Bromofluorobenzene	%	105	98	5717450	98		5717450
D10-Ethylbenzene	%	87	90	5717450	90		5717450
D4-1,2-Dichloroethane	%	94	93	5717450	95		5717450
o-Terphenyl	%	97	94	5714557	95		5717796
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

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

Maxxam ID		HPZ852			HPZ857		
Sampling Date		2018/08/28			2018/08/28		
COC Number		679396-01-01			679396-01-01		
	UNITS	BH18-11	RDL	QC Batch	TRIP BLANK	RDL	QC Batch
<b>Calculated Parameters</b>							
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	5709845	<0.50	0.50	5709845
<b>Volatile Organics</b>							
Acetone (2-Propanone)	ug/L	<10	10	5709277	<10	10	5709277
Benzene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Bromodichloromethane	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
Bromoform	ug/L	<1.0	1.0	5709277	<1.0	1.0	5709277
Bromomethane	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
Carbon Tetrachloride	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Chlorobenzene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Chloroform	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Dibromochloromethane	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5709277	<1.0	1.0	5709277
1,1-Dichloroethane	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
1,2-Dichloroethane	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
1,1-Dichloroethylene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
cis-1,2-Dichloroethylene	ug/L	1.3	0.50	5709277	<0.50	0.50	5709277
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
1,2-Dichloropropane	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5709277	<0.30	0.30	5709277
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5709277	<0.40	0.40	5709277
Ethylbenzene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Ethylene Dibromide	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Hexane	ug/L	<1.0	1.0	5709277	<1.0	1.0	5709277
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5709277	<2.0	2.0	5709277
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5709277	<10	10	5709277
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5709277	<5.0	5.0	5709277
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
Styrene	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
Tetrachloroethylene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Toluene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

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

Maxxam ID		HPZ852			HPZ857		
Sampling Date		2018/08/28			2018/08/28		
COC Number		679396-01-01			679396-01-01		
	UNITS	BH18-11	RDL	QC Batch	TRIP BLANK	RDL	QC Batch
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
Trichloroethylene	ug/L	2.2	0.20	5709277	<0.20	0.20	5709277
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5709277	<0.50	0.50	5709277
Vinyl Chloride	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
p+m-Xylene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
o-Xylene	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
Total Xylenes	ug/L	<0.20	0.20	5709277	<0.20	0.20	5709277
F1 (C6-C10)	ug/L	<25	25	5709277	<25	25	5709277
F1 (C6-C10) - BTEX	ug/L	<25	25	5709277	<25	25	5709277
<b>F2-F4 Hydrocarbons</b>							
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	5714557			
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	5714557			
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	5714557			
Reached Baseline at C50	ug/L	Yes		5714557			
<b>Surrogate Recovery (%)</b>							
o-Terphenyl	%	91		5714557			
4-Bromofluorobenzene	%	79		5709277	84		5709277
D4-1,2-Dichloroethane	%	114		5709277	113		5709277
D8-Toluene	%	97		5709277	95		5709277
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

### TEST SUMMARY

**Maxxam ID:** HPZ848  
**Sample ID:** BH18-01  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5717450	N/A	2018/09/09	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5714557	2018/09/05	2018/09/05	Prabhjot Gulati

**Maxxam ID:** HPZ849  
**Sample ID:** BH18-05  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5717450	N/A	2018/09/09	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5714557	2018/09/05	2018/09/05	Prabhjot Gulati

**Maxxam ID:** HPZ849 Dup  
**Sample ID:** BH18-05  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5714557	2018/09/05	2018/09/05	Prabhjot Gulati

**Maxxam ID:** HPZ850  
**Sample ID:** BH18-06  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5717450	N/A	2018/09/09	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5714557	2018/09/05	2018/09/06	Prabhjot Gulati
Dissolved Metals by ICPMS	ICP/MS	5710124	N/A	2018/09/05	Matthew Ritenburg

**Maxxam ID:** HPZ851  
**Sample ID:** BH18-07  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5717450	N/A	2018/09/09	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5714557	2018/09/05	2018/09/06	Prabhjot Gulati
Dissolved Metals by ICPMS	ICP/MS	5710124	N/A	2018/09/05	Matthew Ritenburg

**Maxxam ID:** HPZ852  
**Sample ID:** BH18-11  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5709845	N/A	2018/09/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5714557	2018/09/05	2018/09/06	Prabhjot Gulati
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5709277	N/A	2018/09/05	Xueming Jiang



### TEST SUMMARY

**Maxxam ID:** HPZ853  
**Sample ID:** BH18-12  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5717450	N/A	2018/09/09	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5714557	2018/09/05	2018/09/06	Prabhjot Gulati
Polychlorinated Biphenyl in Water	GC/ECD	5712728	2018/09/04	2018/09/04	Sarah Huang

**Maxxam ID:** HPZ854  
**Sample ID:** QA/QC #1  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5717450	N/A	2018/09/09	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5717796	2018/09/06	2018/09/07	Zhiyue (Frank) Zhu

**Maxxam ID:** HPZ855  
**Sample ID:** QA/QC #2  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5710124	N/A	2018/09/05	Matthew Ritenburg

**Maxxam ID:** HPZ856  
**Sample ID:** QA/QC #3  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Water	GC/ECD	5712728	2018/09/04	2018/09/04	Sarah Huang

**Maxxam ID:** HPZ857  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2018/08/28  
**Shipped:**  
**Received:** 2018/08/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5709845	N/A	2018/09/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5709277	N/A	2018/09/05	Xueming Jiang

**GENERAL COMMENTS**

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

Package 1	7.0°C
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All samples, except BH18-01 and QA/QC samples, contained visible sediment.

**Results relate only to the items tested.**



Maxxam Job #: B8M6361  
Report Date: 2018/09/10

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5709277	4-Bromofluorobenzene	2018/09/05	102	70 - 130	99	70 - 130	85	%		
5709277	D4-1,2-Dichloroethane	2018/09/05	108	70 - 130	112	70 - 130	115	%		
5709277	D8-Toluene	2018/09/05	107	70 - 130	106	70 - 130	97	%		
5712728	Decachlorobiphenyl	2018/09/04	90	60 - 130	74	60 - 130	81	%		
5714557	o-Terphenyl	2018/09/05	94	60 - 130	95	60 - 130	91	%		
5717450	1,4-Difluorobenzene	2018/09/09	102	70 - 130	100	70 - 130	105	%		
5717450	4-Bromofluorobenzene	2018/09/09	100	70 - 130	101	70 - 130	99	%		
5717450	D10-Ethylbenzene	2018/09/09	86	70 - 130	91	70 - 130	92	%		
5717450	D4-1,2-Dichloroethane	2018/09/09	97	70 - 130	95	70 - 130	99	%		
5717796	o-Terphenyl	2018/09/07	99	60 - 130	99	60 - 130	96	%		
5709277	1,1,1,2-Tetrachloroethane	2018/09/05	102	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
5709277	1,1,1-Trichloroethane	2018/09/05	100	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5709277	1,1,2,2-Tetrachloroethane	2018/09/05	106	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
5709277	1,1,2-Trichloroethane	2018/09/05	105	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
5709277	1,1-Dichloroethane	2018/09/05	101	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5709277	1,1-Dichloroethylene	2018/09/05	97	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5709277	1,2-Dichlorobenzene	2018/09/05	96	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5709277	1,2-Dichloroethane	2018/09/05	104	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5709277	1,2-Dichloropropane	2018/09/05	99	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5709277	1,3-Dichlorobenzene	2018/09/05	97	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5709277	1,4-Dichlorobenzene	2018/09/05	105	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
5709277	Acetone (2-Propanone)	2018/09/05	105	60 - 140	108	60 - 140	<10	ug/L	4.9	30
5709277	Benzene	2018/09/05	94	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5709277	Bromodichloromethane	2018/09/05	101	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
5709277	Bromoform	2018/09/05	98	70 - 130	101	70 - 130	<1.0	ug/L	NC	30
5709277	Bromomethane	2018/09/05	90	60 - 140	86	60 - 140	<0.50	ug/L	NC	30
5709277	Carbon Tetrachloride	2018/09/05	101	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5709277	Chlorobenzene	2018/09/05	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5709277	Chloroform	2018/09/05	100	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5709277	cis-1,2-Dichloroethylene	2018/09/05	95	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5709277	cis-1,3-Dichloropropene	2018/09/05	76	70 - 130	65 (1)	70 - 130	<0.30	ug/L	NC	30
5709277	Dibromochloromethane	2018/09/05	101	70 - 130	103	70 - 130	<0.50	ug/L	NC	30



Maxxam Job #: B8M6361  
Report Date: 2018/09/10

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5709277	Dichlorodifluoromethane (FREON 12)	2018/09/05	118	60 - 140	125	60 - 140	<1.0	ug/L	NC	30
5709277	Ethylbenzene	2018/09/05	89	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
5709277	Ethylene Dibromide	2018/09/05	99	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5709277	F1 (C6-C10) - BTEX	2018/09/05					<25	ug/L	NC	30
5709277	F1 (C6-C10)	2018/09/05	97	60 - 140	94	60 - 140	<25	ug/L	NC	30
5709277	Hexane	2018/09/05	97	70 - 130	98	70 - 130	<1.0	ug/L	NC	30
5709277	Methyl Ethyl Ketone (2-Butanone)	2018/09/05	102	60 - 140	104	60 - 140	<10	ug/L	NC	30
5709277	Methyl Isobutyl Ketone	2018/09/05	97	70 - 130	99	70 - 130	<5.0	ug/L	NC	30
5709277	Methyl t-butyl ether (MTBE)	2018/09/05	91	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5709277	Methylene Chloride(Dichloromethane)	2018/09/05	98	70 - 130	100	70 - 130	<2.0	ug/L	NC	30
5709277	o-Xylene	2018/09/05	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5709277	p+m-Xylene	2018/09/05	88	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
5709277	Styrene	2018/09/05	95	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5709277	Tetrachloroethylene	2018/09/05	99	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5709277	Toluene	2018/09/05	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5709277	Total Xylenes	2018/09/05					<0.20	ug/L	NC	30
5709277	trans-1,2-Dichloroethylene	2018/09/05	97	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5709277	trans-1,3-Dichloropropene	2018/09/05	76	70 - 130	62 (1)	70 - 130	<0.40	ug/L	NC	30
5709277	Trichloroethylene	2018/09/05	93	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5709277	Trichlorofluoromethane (FREON 11)	2018/09/05	104	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5709277	Vinyl Chloride	2018/09/05	102	70 - 130	112	70 - 130	<0.20	ug/L	NC	30
5710124	Dissolved Antimony (Sb)	2018/09/05	105	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5710124	Dissolved Arsenic (As)	2018/09/05	102	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
5710124	Dissolved Barium (Ba)	2018/09/05	103	80 - 120	99	80 - 120	<2.0	ug/L	1.6	20
5710124	Dissolved Beryllium (Be)	2018/09/05	102	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
5710124	Dissolved Boron (B)	2018/09/05	104	80 - 120	100	80 - 120	<10	ug/L	1.2	20
5710124	Dissolved Cadmium (Cd)	2018/09/05	100	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
5710124	Dissolved Chromium (Cr)	2018/09/05	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
5710124	Dissolved Cobalt (Co)	2018/09/05	99	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5710124	Dissolved Copper (Cu)	2018/09/05	102	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
5710124	Dissolved Lead (Pb)	2018/09/05	98	80 - 120	94	80 - 120	<0.50	ug/L	NC	20
5710124	Dissolved Molybdenum (Mo)	2018/09/05	104	80 - 120	101	80 - 120	<0.50	ug/L	6.7	20



Maxxam Job #: B8M6361  
Report Date: 2018/09/10

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5710124	Dissolved Nickel (Ni)	2018/09/05	99	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
5710124	Dissolved Selenium (Se)	2018/09/05	101	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
5710124	Dissolved Silver (Ag)	2018/09/05	100	80 - 120	96	80 - 120	<0.10	ug/L	NC	20
5710124	Dissolved Sodium (Na)	2018/09/05	106	80 - 120	102	80 - 120	<100	ug/L	0.67	20
5710124	Dissolved Thallium (Tl)	2018/09/05	97	80 - 120	94	80 - 120	<0.050	ug/L	NC	20
5710124	Dissolved Uranium (U)	2018/09/05	101	80 - 120	97	80 - 120	<0.10	ug/L	2.7	20
5710124	Dissolved Vanadium (V)	2018/09/05	102	80 - 120	98	80 - 120	<0.50	ug/L	0.66	20
5710124	Dissolved Zinc (Zn)	2018/09/05	101	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
5712728	Aroclor 1242	2018/09/04					<0.05	ug/L		
5712728	Aroclor 1248	2018/09/04					<0.05	ug/L		
5712728	Aroclor 1254	2018/09/04					<0.05	ug/L		
5712728	Aroclor 1260	2018/09/04	100	60 - 130	81	60 - 130	<0.05	ug/L		
5712728	Total PCB	2018/09/04	100	60 - 130	81	60 - 130	<0.05	ug/L	NC	40
5714557	F2 (C10-C16 Hydrocarbons)	2018/09/05	94	50 - 130	96	60 - 130	<100	ug/L	NC	30
5714557	F3 (C16-C34 Hydrocarbons)	2018/09/05	NC	50 - 130	105	60 - 130	<200	ug/L	NC	30
5714557	F4 (C34-C50 Hydrocarbons)	2018/09/05	101	50 - 130	103	60 - 130	<200	ug/L	NC	30
5717450	Benzene	2018/09/09	NC (2)	70 - 130	82	70 - 130	<0.20	ug/L		
5717450	Ethylbenzene	2018/09/09	74	70 - 130	83	70 - 130	<0.20	ug/L		
5717450	F1 (C6-C10) - BTEX	2018/09/09					<25	ug/L	4.3	30
5717450	F1 (C6-C10)	2018/09/09	83	70 - 130	84	70 - 130	<25	ug/L	4.6	30
5717450	o-Xylene	2018/09/09	70	70 - 130	78	70 - 130	<0.20	ug/L		
5717450	p+m-Xylene	2018/09/09	72	70 - 130	82	70 - 130	<0.40	ug/L		
5717450	Toluene	2018/09/09	74	70 - 130	81	70 - 130	<0.20	ug/L		
5717450	Total Xylenes	2018/09/09					<0.40	ug/L		
5717796	F2 (C10-C16 Hydrocarbons)	2018/09/07	103	50 - 130	95	60 - 130	<100	ug/L	NC	30
5717796	F3 (C16-C34 Hydrocarbons)	2018/09/07	NC	50 - 130	101	60 - 130	<200	ug/L	NC	30



Maxxam Job #: B8M6361  
 Report Date: 2018/09/10

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
 Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5717796	F4 (C34-C50 Hydrocarbons)	2018/09/07	92	50 - 130	94	60 - 130	<200	ug/L	NC	30
<p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)</p> <p>NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference &lt;= 2x RDL).</p> <p>(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.</p> <p>(2) The recovery in the matrix spiked is not calculated (NC) due to high concentration of this compound in the parent sample. The relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit a reliable recovery.</p>										



### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Service Specialist

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



Maxxam Analytics International Corporation via Maxxam Analytics  
 6740 Campopelo Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-9700 Toll-Free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

31-Aug-18 09:34

Gina Baybayan

B8M6361

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name: #17950 Cambium Environmental Inc	Company Name: #24915 Cambium Environmental Inc	Quotation #: B82843	Gina Baybayan		
Attention: ACCOUNTS PAYABLE	Attention: Natalie Wright	P.O. #:	B8M6361		
Address: 52 Hunter St E PO Box 325	Address: 74 Cedar Pointe Driv. Unit 1009	Project: 6820-001	VMK	ENV-1118	
Address: Peterborough ON K9H 1G5	Address: Barrie ON L4N 5R7	Project Name:			
Tel: (705) 742-7900 Fax: (705) 742-7907	Tel: (705) 719-0700 Ext: 402 Fax:	Site #:			
Email: accounting@cambium-env.com, Evan.Black@cambium	Email: Natalie.Wright@CPMPEIT@cambium-inc.com	Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY					ANALYSIS REQUESTED (PLEASE BE SPECIFIC):										Retention Time (TAT) Required								
Regulation 153 (2011) <input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC <input checked="" type="checkbox"/> Table 4					Other Regulations <input type="checkbox"/> OCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Municipality <input type="checkbox"/> FWDO <input type="checkbox"/> Other:					Special Instructions					Field Filtered (please circle): (M) (S) (C) (V)					Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Phosphorus are + 8 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call us for it)			
Include Criteria on Certificate of Analysis (Y/N)?																							
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): (M) (S) (C) (V)	D Reg 153 Maximum Hydrocarbons (Total)	D Reg 153 VOCs by MS & FT 4 (Water)	D Reg 153 PCBs (Water)	D Reg 153 Dissolved ICMS Metals (Water)	BTEX	PK	FI					# of Bottles	Comments					
1	BH18-01	18/08/18		GW	X	X				X							4						
2	BH18-05			GW	X	X				X							4						
3	BH18-06			GW	✓	X			X	X							5						
4	BH18-07			GW	✓	X			X	X							5						
5	BH18-11			GW		X											5						
6	BH18-12			GW		X		X									6						
7	QA/QC #1			GW		X			X								5	Hold Analysis					
8	QA/QC #2			GW	✓				X								1						
9	QA/QC #3			GW				X									2						
10	Trip Blank						X			X	X						4						
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)		Time		RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)		Time		# jars used and not submitted		Laboratory Use Only		Time Signature		Temperature (°C) on Receipt		Custody Seal Present (Yes/No)		White: Maxxa Yellow: Client	
J. Mughal		18/08/18				TRISHNA PATEL		2018/08/18		09:34								6/16		Yes		Yes	

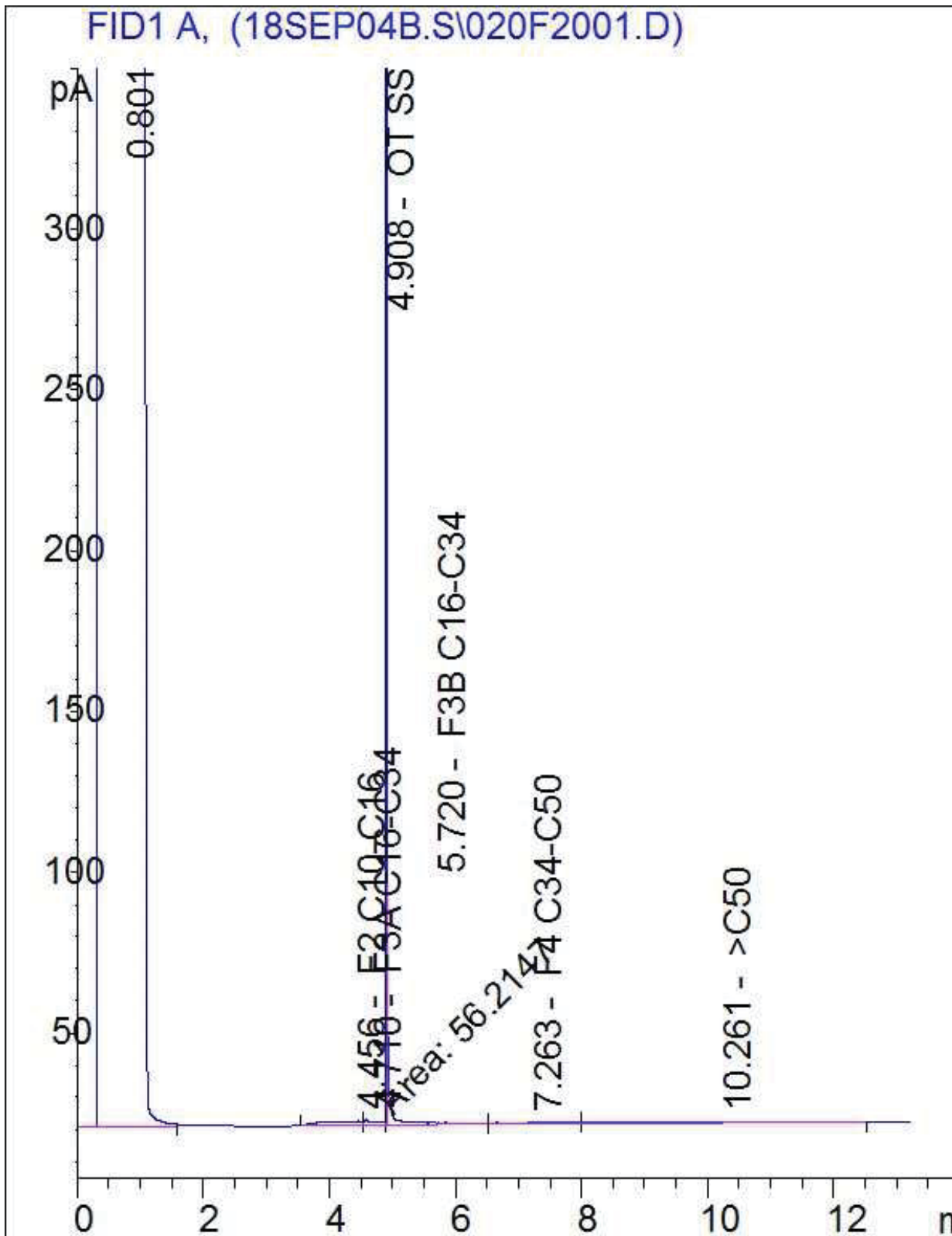
\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS

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

\*\*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF

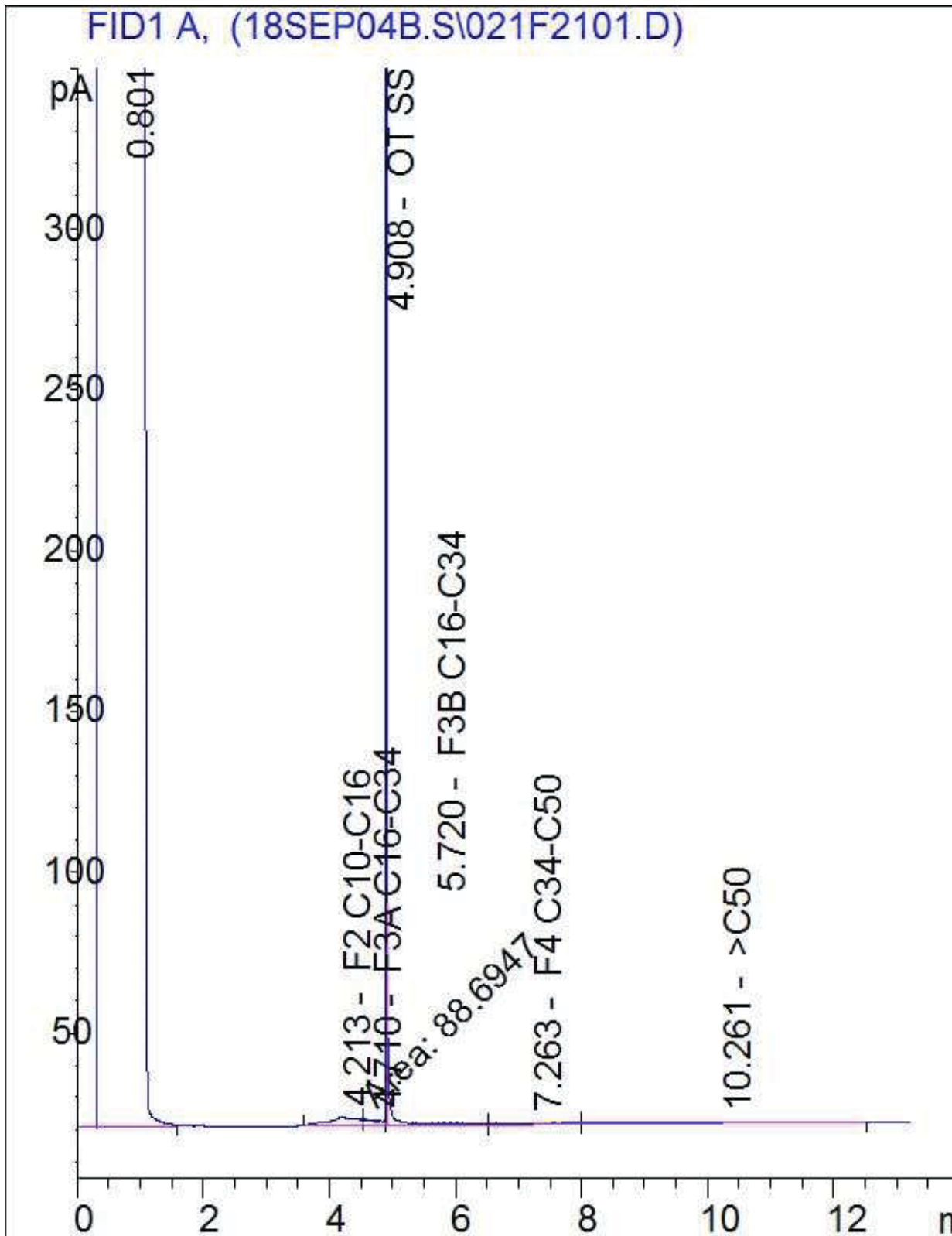
SAMPLES MUST BE KEPT COOL (+ 10° C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



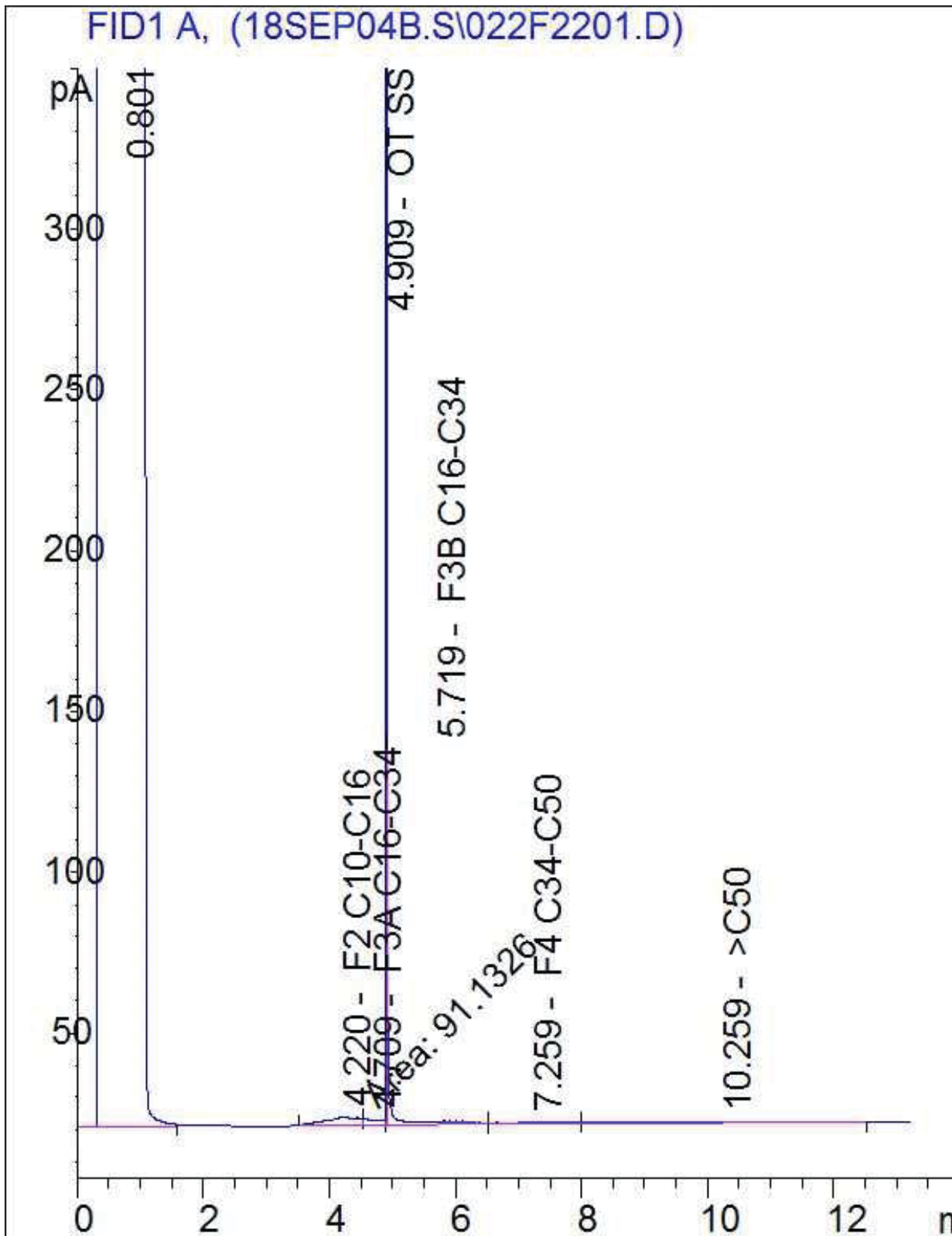
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



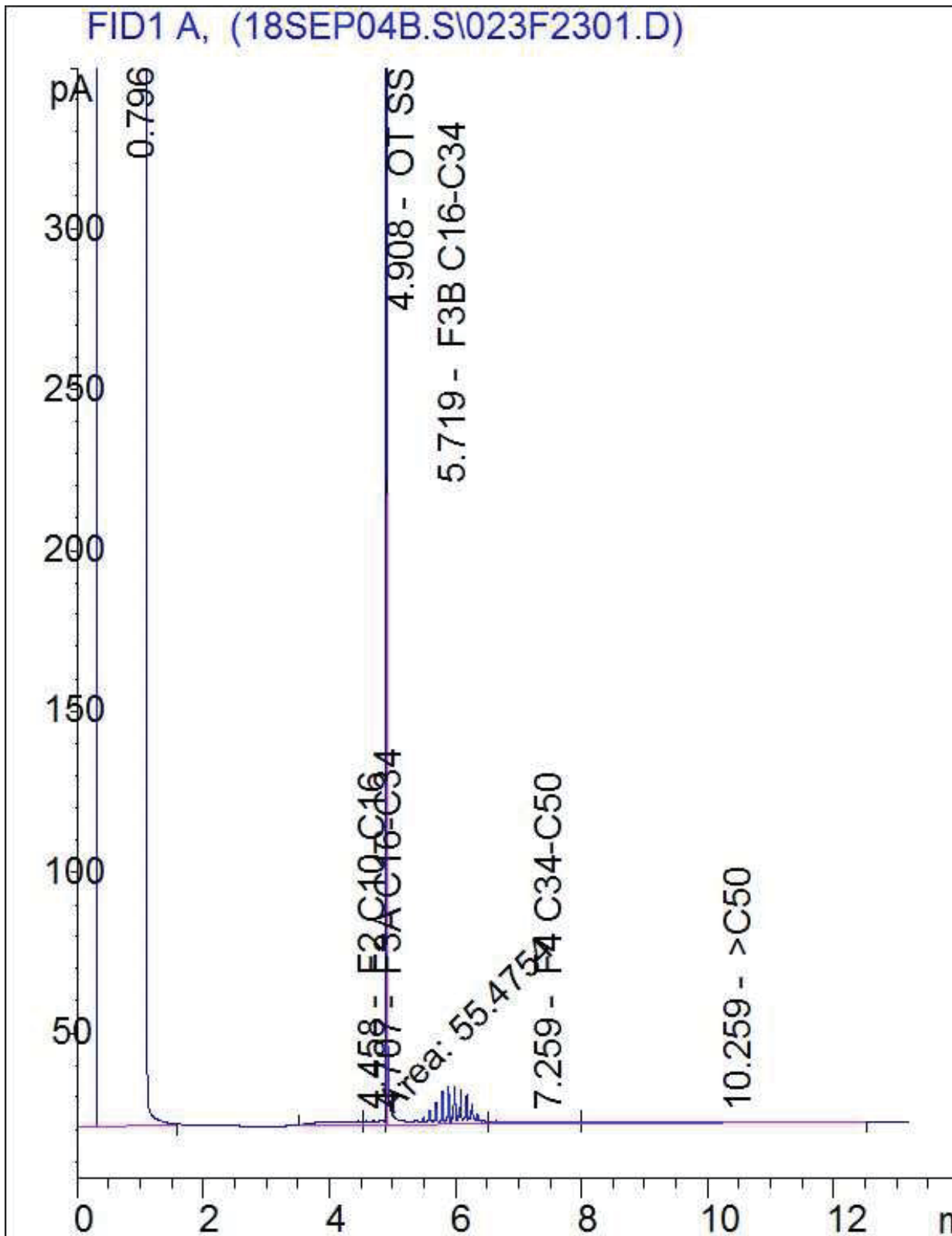
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



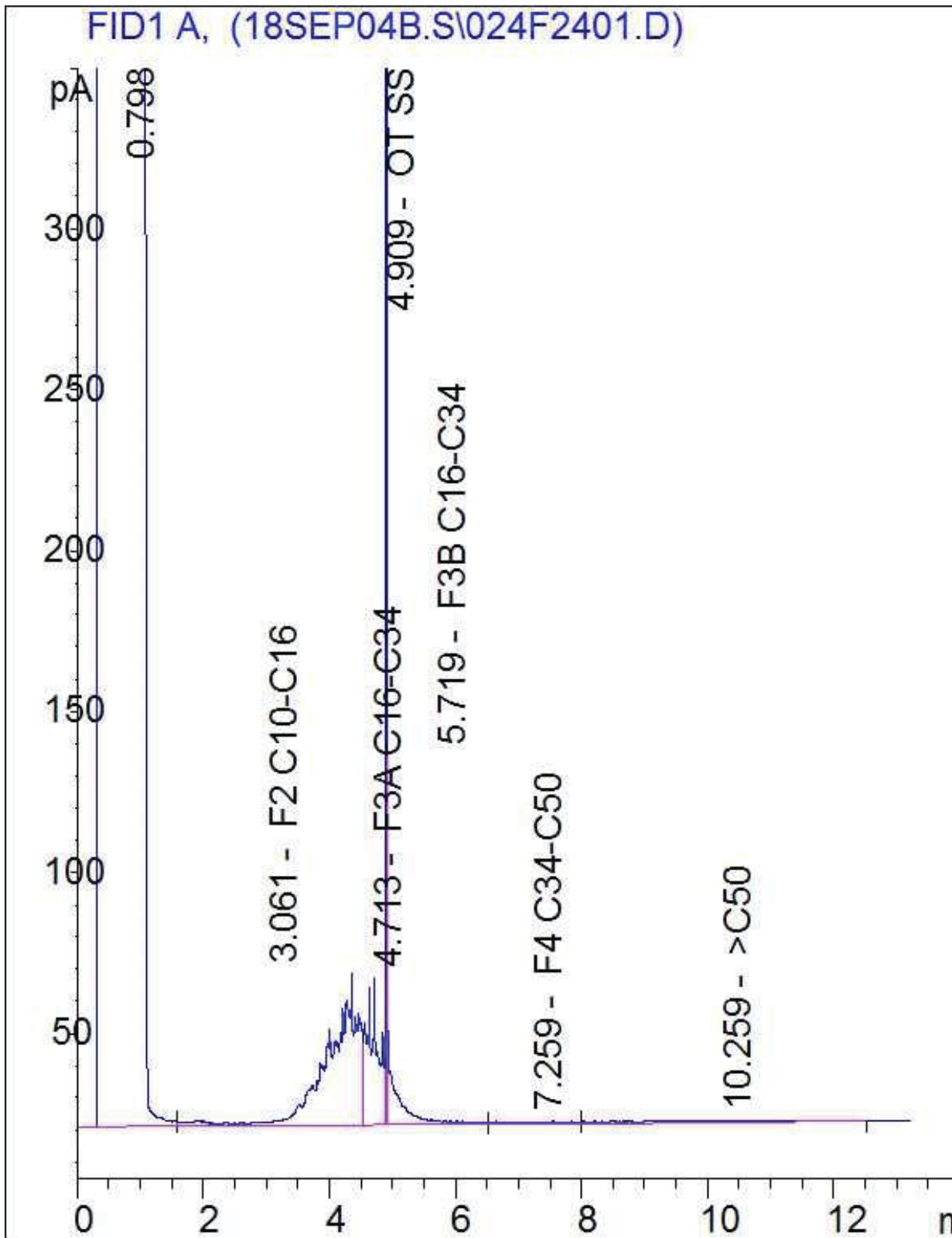
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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

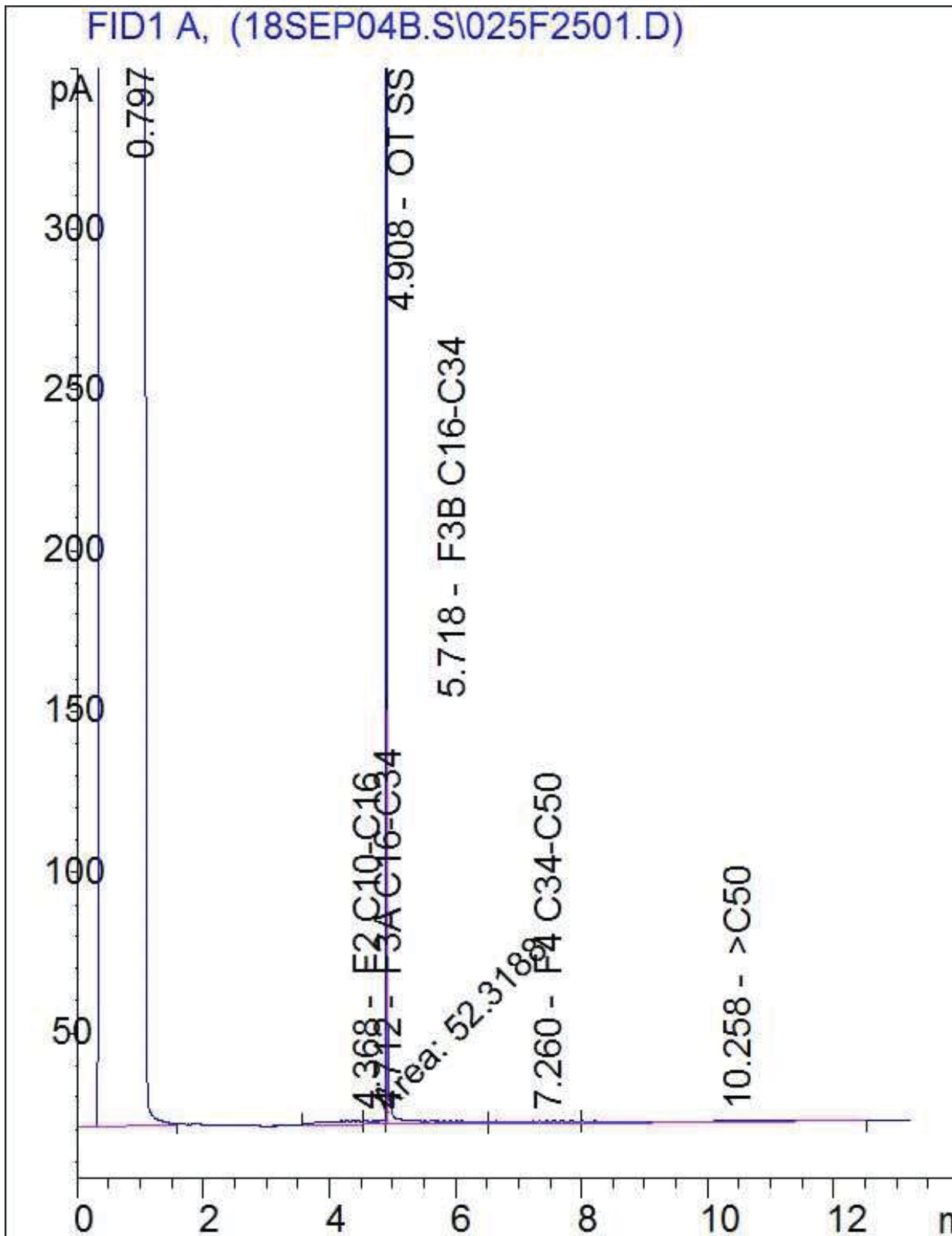
Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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

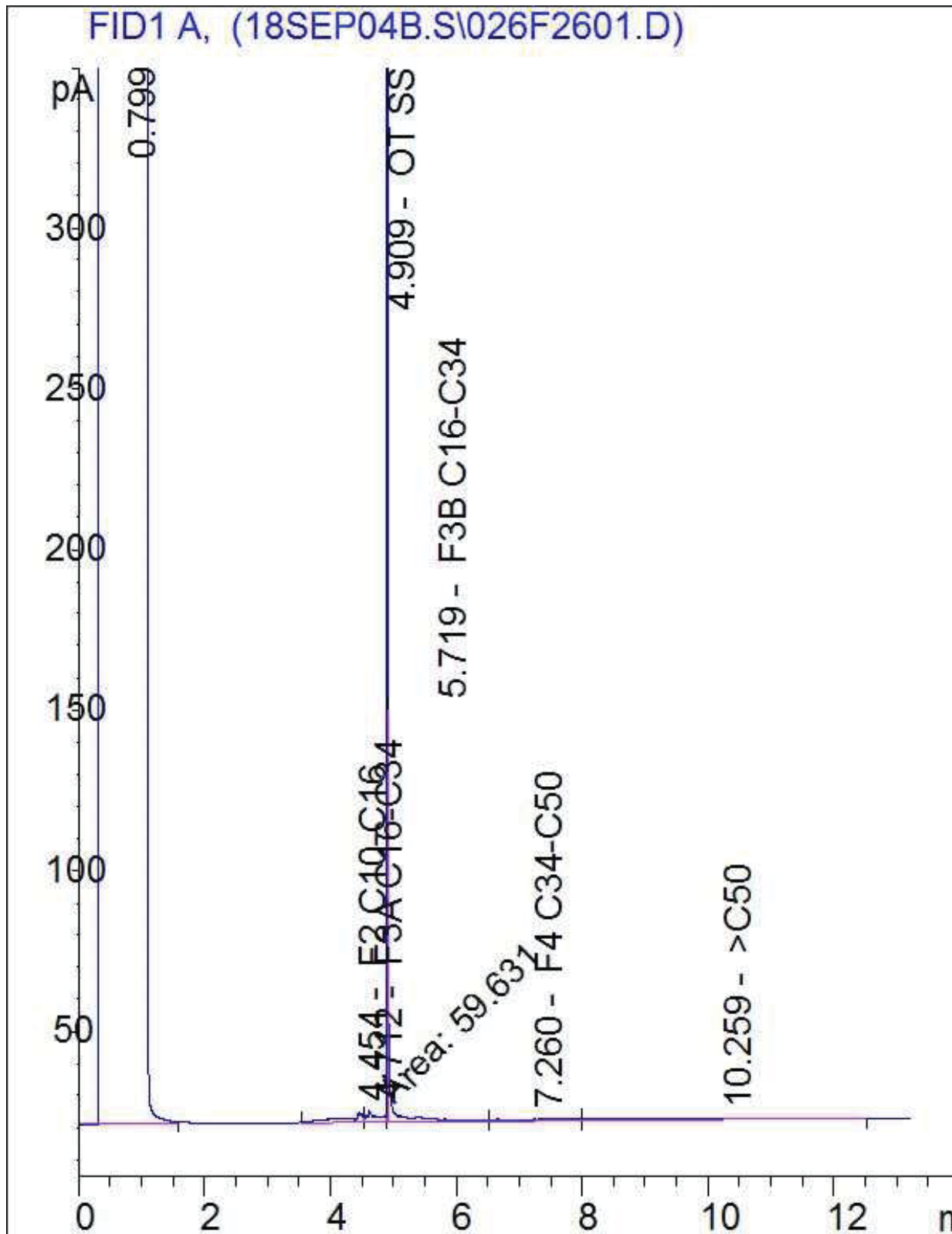


Petroleum Hydrocarbons F2-F4 in Water Chromatogram



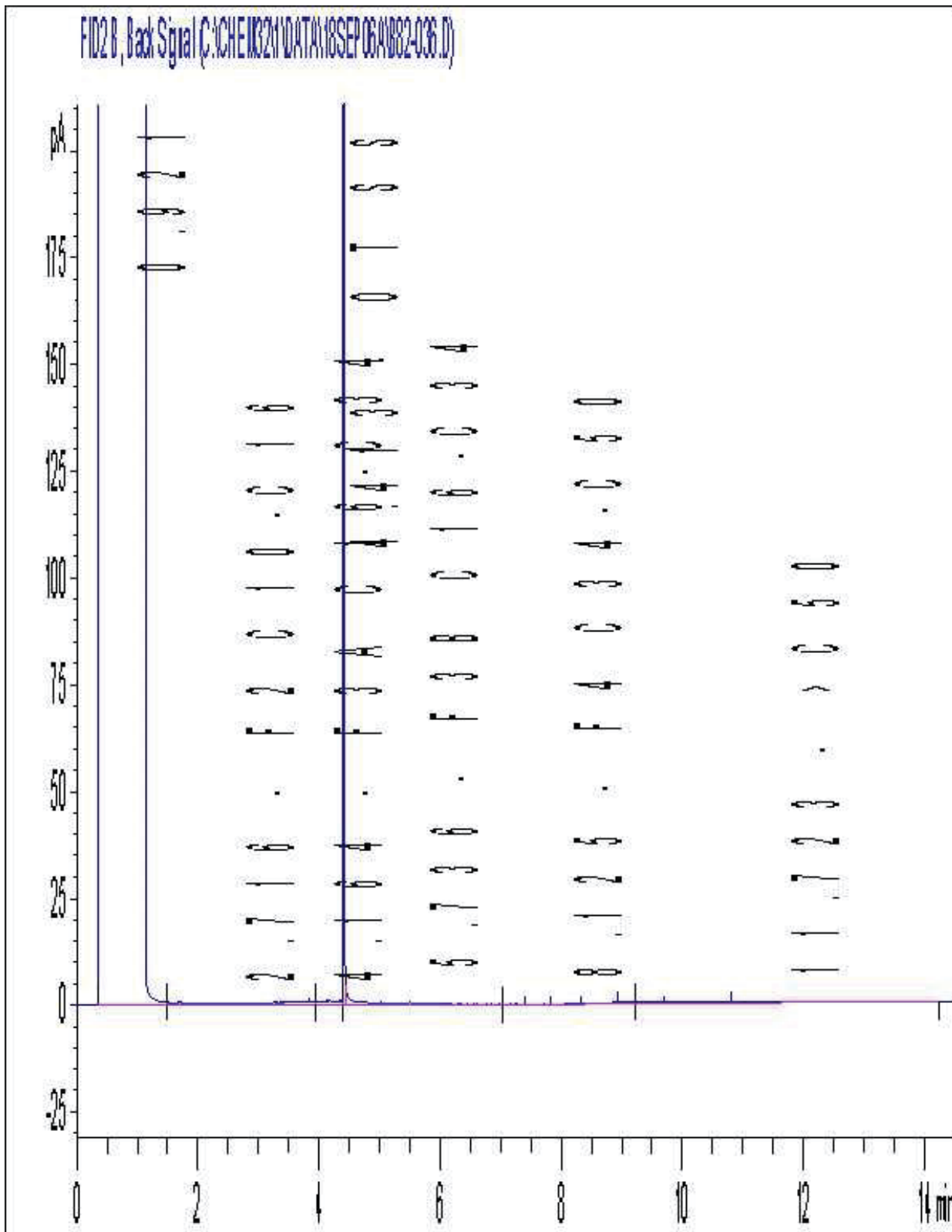
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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

Your Project #: 6820-001  
Your C.O.C. #: 695203-01-01, 691040-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/12/18**  
Report #: R5531006  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8X2478**  
**Received: 2018/12/12, 10:35**

Sample Matrix: Soil  
# Samples Received: 9

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Methylnaphthalene Sum	1	N/A	2018/12/18	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	8	N/A	2018/12/17	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	5	2018/12/15	2018/12/17	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	3	2018/12/15	2018/12/18	CAM SOP-00316	CCME CWS m
Moisture	8	N/A	2018/12/13	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	1	N/A	2018/12/14	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	2018/12/17	2018/12/17	CAM SOP-00318	EPA 8270D m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

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

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
- (2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data

Your Project #: 6820-001  
Your C.O.C. #: 695203-01-01, 691040-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2018/12/18**  
Report #: R5531006  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B8X2478**

**Received: 2018/12/12, 10:35**

reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key



Gina Baybayan  
Project Manager  
18 Dec 2018 17:21:07

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager

Email: GBaybayan@maxxam.ca

Phone# (905)817-5766

=====

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

**O.REG 153 PAHS (SOIL)**

Maxxam ID			INO682			INO682		
Sampling Date			2018/12/06 12:30			2018/12/06 12:30		
COC Number			695203-01-01			695203-01-01		
	UNITS	Criteria	SS18-21	RDL	QC Batch	SS18-21 Lab-Dup	RDL	QC Batch
<b>Inorganics</b>								
Moisture	%	-	11	1.0	5887636	11	1.0	5887636
<b>Calculated Parameters</b>								
Methylnaphthalene, 2-(1-)	ug/g	<b>0.59</b>	0.012	0.0071	5884763			
<b>Polyaromatic Hydrocarbons</b>								
Acenaphthene	ug/g	<b>0.072</b>	<0.0050	0.0050	5891746			
Acenaphthylene	ug/g	<b>0.093</b>	<0.0050	0.0050	5891746			
Anthracene	ug/g	<b>0.16</b>	<0.0050	0.0050	5891746			
Benzo(a)anthracene	ug/g	<b>0.36</b>	<0.0050	0.0050	5891746			
Benzo(a)pyrene	ug/g	<b>0.3</b>	<0.0050	0.0050	5891746			
Benzo(b,j)fluoranthene	ug/g	<b>0.47</b>	0.0053	0.0050	5891746			
Benzo(g,h,i)perylene	ug/g	<b>0.68</b>	<0.0050	0.0050	5891746			
Benzo(k)fluoranthene	ug/g	<b>0.48</b>	<0.0050	0.0050	5891746			
Chrysene	ug/g	<b>2.8</b>	<0.0050	0.0050	5891746			
Dibenz(a,h)anthracene	ug/g	<b>0.1</b>	<0.0050	0.0050	5891746			
Fluoranthene	ug/g	<b>0.56</b>	0.0072	0.0050	5891746			
Fluorene	ug/g	<b>0.12</b>	<0.0050	0.0050	5891746			
Indeno(1,2,3-cd)pyrene	ug/g	<b>0.23</b>	<0.0050	0.0050	5891746			
1-Methylnaphthalene	ug/g	<b>0.59</b>	0.0061	0.0050	5891746			
2-Methylnaphthalene	ug/g	<b>0.59</b>	0.0057	0.0050	5891746			
Naphthalene	ug/g	<b>0.09</b>	<0.0050	0.0050	5891746			
Phenanthrene	ug/g	<b>0.69</b>	0.0053	0.0050	5891746			
Pyrene	ug/g	<b>1</b>	0.0062	0.0050	5891746			
<b>Surrogate Recovery (%)</b>								
D10-Anthracene	%	-	95		5891746			
D14-Terphenyl (FS)	%	-	81		5891746			
D8-Acenaphthylene	%	-	83		5891746			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use								

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			INO676		INO677		
Sampling Date			2018/12/06 09:15		2018/12/06 11:00		
COC Number			695203-01-01		695203-01-01		
	UNITS	Criteria	BH18-29 17.5'-19.5'	QC Batch	BH18-27 12.5'-13.6'	RDL	QC Batch
<b>Inorganics</b>							
Moisture	%	-	12	5887483	8.6	1.0	5888975
<b>BTEX &amp; F1 Hydrocarbons</b>							
Benzene	ug/g	<b>0.02</b>	<0.020	5892056	<0.020	0.020	5892056
Toluene	ug/g	<b>0.2</b>	<0.020	5892056	<0.020	0.020	5892056
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	5892056	<0.020	0.020	5892056
o-Xylene	ug/g	-	<0.020	5892056	<0.020	0.020	5892056
p+m-Xylene	ug/g	-	<0.040	5892056	<0.040	0.040	5892056
Total Xylenes	ug/g	<b>0.05</b>	<0.040	5892056	<0.040	0.040	5892056
F1 (C6-C10)	ug/g	<b>25</b>	<10	5892056	<10	10	5892056
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	5892056	<10	10	5892056
<b>F2-F4 Hydrocarbons</b>							
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	5890851	<10	10	5890851
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	5890851	<50	50	5890851
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	5890851	<50	50	5890851
Reached Baseline at C50	ug/g	-	Yes	5890851	Yes		5890851
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene	%	-	104	5892056	102		5892056
4-Bromofluorobenzene	%	-	97	5892056	99		5892056
D10-Ethylbenzene	%	-	90	5892056	86		5892056
D4-1,2-Dichloroethane	%	-	104	5892056	103		5892056
o-Terphenyl	%	-	98	5890851	101		5890851
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use							



**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

<b>Maxxam ID</b>			INO677			INO679	INO680		
<b>Sampling Date</b>			2018/12/06 11:00			2018/12/06 13:45	2018/12/06 13:55		
<b>COC Number</b>			695203-01-01			695203-01-01	695203-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>BH18-27 12.5'-13.6' Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH18-28 12.5'-14.5'</b>	<b>BH18-28 15'-16'</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Inorganics</b>									
Moisture	%	-	8.9	1.0	5888975	9.0	10	1.0	5887483
<b>BTEX &amp; F1 Hydrocarbons</b>									
Benzene	ug/g	<b>0.02</b>				<0.020	<0.020	0.020	5892056
Toluene	ug/g	<b>0.2</b>				<0.020	0.15	0.020	5892056
Ethylbenzene	ug/g	<b>0.05</b>				<0.020	0.036	0.020	5892056
o-Xylene	ug/g	-				<0.020	<0.020	0.020	5892056
p+m-Xylene	ug/g	-				<0.040	<0.040	0.040	5892056
Total Xylenes	ug/g	<b>0.05</b>				<0.040	<0.040	0.040	5892056
F1 (C6-C10)	ug/g	<b>25</b>				<10	<10	10	5892056
F1 (C6-C10) - BTEX	ug/g	<b>25</b>				<10	<10	10	5892056
<b>F2-F4 Hydrocarbons</b>									
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>				<10	<b>20</b>	10	5890851
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>				<50	65	50	5890851
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>				<50	<50	50	5890851
Reached Baseline at C50	ug/g	-				Yes	Yes		5890851
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene	%	-				104	102		5892056
4-Bromofluorobenzene	%	-				97	97		5892056
D10-Ethylbenzene	%	-				90	87		5892056
D4-1,2-Dichloroethane	%	-				103	102		5892056
o-Terphenyl	%	-				91	96		5890851

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Lab-Dup = Laboratory Initiated Duplicate  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 1: Full Depth Background Site Condition Standards  
 Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			INO683			INO684			INO685		
Sampling Date			2018/12/06 15:00			2018/12/06 16:00			2018/12/07 13:30		
COC Number			695203-01-01			695203-01-01			695203-01-01		
	UNITS	Criteria	SS18-22	RDL	QC Batch	SS18-19	RDL	QC Batch	SS18-20	RDL	QC Batch

Inorganics											
Moisture	%	-	12	1.0	5887919	32	1.0	5887483	19	1.0	5887919
BTEX & F1 Hydrocarbons											
Benzene	ug/g	<b>0.02</b>	<b>0.26</b>	0.020	5892056	<b>&lt;0.060 (1)</b>	0.060	5892056	<0.020	0.020	5892056
Toluene	ug/g	<b>0.2</b>	<b>0.87</b>	0.020	5892056	<0.060	0.060	5892056	0.051	0.020	5892056
Ethylbenzene	ug/g	<b>0.05</b>	<b>0.17</b>	0.020	5892056	<b>&lt;0.060 (1)</b>	0.060	5892056	<0.020	0.020	5892056
o-Xylene	ug/g	-	0.65	0.020	5892056	<0.060	0.060	5892056	0.062	0.020	5892056
p+m-Xylene	ug/g	-	0.81	0.040	5892056	<0.12	0.12	5892056	0.081	0.040	5892056
Total Xylenes	ug/g	<b>0.05</b>	<b>1.5</b>	0.040	5892056	<b>&lt;0.12 (1)</b>	0.12	5892056	<b>0.14</b>	0.040	5892056
F1 (C6-C10)	ug/g	<b>25</b>	17	10	5892056	<b>&lt;30 (1)</b>	30	5892056	<10	10	5892056
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	14	10	5892056	<b>&lt;30 (1)</b>	30	5892056	<10	10	5892056
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	10	5890851	<10	10	5890851	<10	10	5890851
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	50	5890851	62	50	5890851	<50	50	5890851
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	50	5890851	<50	50	5890851	<50	50	5890851
Reached Baseline at C50	ug/g	-	Yes		5890851	Yes		5890851	Yes		5890851
Surrogate Recovery (%)											
1,4-Difluorobenzene	%	-	103		5892056	102		5892056	102		5892056
4-Bromofluorobenzene	%	-	98		5892056	97		5892056	99		5892056
D10-Ethylbenzene	%	-	87		5892056	109		5892056	101		5892056
D4-1,2-Dichloroethane	%	-	104		5892056	104		5892056	103		5892056
o-Terphenyl	%	-	96		5890851	98		5890851	99		5890851

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 1: Full Depth Background Site Condition Standards

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

(1) RDL exceeds criteria

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

Maxxam ID			INO686		
Sampling Date			2018/12/06		
COC Number			691040-01-01		
	UNITS	Criteria	QA/QC#1	RDL	QC Batch
<b>Inorganics</b>					
Moisture	%	-	8.4	1.0	5887483
<b>BTEX &amp; F1 Hydrocarbons</b>					
Benzene	ug/g	<b>0.02</b>	<0.020	0.020	5892056
Toluene	ug/g	<b>0.2</b>	<0.020	0.020	5892056
Ethylbenzene	ug/g	<b>0.05</b>	<0.020	0.020	5892056
o-Xylene	ug/g	-	<0.020	0.020	5892056
p+m-Xylene	ug/g	-	<0.040	0.040	5892056
Total Xylenes	ug/g	<b>0.05</b>	<0.040	0.040	5892056
F1 (C6-C10)	ug/g	<b>25</b>	<10	10	5892056
F1 (C6-C10) - BTEX	ug/g	<b>25</b>	<10	10	5892056
<b>F2-F4 Hydrocarbons</b>					
F2 (C10-C16 Hydrocarbons)	ug/g	<b>10</b>	<10	10	5890851
F3 (C16-C34 Hydrocarbons)	ug/g	<b>240</b>	<50	50	5890851
F4 (C34-C50 Hydrocarbons)	ug/g	<b>120</b>	<50	50	5890851
Reached Baseline at C50	ug/g	-	Yes		5890851
<b>Surrogate Recovery (%)</b>					
1,4-Difluorobenzene	%	-	101		5892056
4-Bromofluorobenzene	%	-	98		5892056
D10-Ethylbenzene	%	-	93		5892056
D4-1,2-Dichloroethane	%	-	102		5892056
o-Terphenyl	%	-	101		5890851
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use					

### TEST SUMMARY

**Maxxam ID:** INO676  
**Sample ID:** BH18-29 17.5'-19.5'  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/17	Margaret Kulczyk-Stanko
Moisture	BAL	5887483	N/A	2018/12/13	Min Yang

**Maxxam ID:** INO677  
**Sample ID:** BH18-27 12.5'-13.6'  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/17	Margaret Kulczyk-Stanko
Moisture	BAL	5888975	N/A	2018/12/14	Gurpreet Kaur

**Maxxam ID:** INO677 Dup  
**Sample ID:** BH18-27 12.5'-13.6'  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5888975	N/A	2018/12/14	Gurpreet Kaur

**Maxxam ID:** INO679  
**Sample ID:** BH18-28 12.5'-14.5'  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/17	Margaret Kulczyk-Stanko
Moisture	BAL	5887483	N/A	2018/12/13	Min Yang

**Maxxam ID:** INO680  
**Sample ID:** BH18-28 15'-16'  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/17	Margaret Kulczyk-Stanko
Moisture	BAL	5887483	N/A	2018/12/13	Min Yang

**Maxxam ID:** INO682  
**Sample ID:** SS18-21  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5884763	N/A	2018/12/18	Automated Statchk
Moisture	BAL	5887636	N/A	2018/12/13	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5891746	2018/12/17	2018/12/17	Lingyun Feng

**TEST SUMMARY**

**Maxxam ID:** INO682 Dup  
**Sample ID:** SS18-21  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5887636	N/A	2018/12/13	Min Yang

**Maxxam ID:** INO683  
**Sample ID:** SS18-22  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/17	Margaret Kulczyk-Stanko
Moisture	BAL	5887919	N/A	2018/12/13	Min Yang

**Maxxam ID:** INO684  
**Sample ID:** SS18-19  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/18	Margaret Kulczyk-Stanko
Moisture	BAL	5887483	N/A	2018/12/13	Min Yang

**Maxxam ID:** INO685  
**Sample ID:** SS18-20  
**Matrix:** Soil

**Collected:** 2018/12/07  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/18	Margaret Kulczyk-Stanko
Moisture	BAL	5887919	N/A	2018/12/13	Min Yang

**Maxxam ID:** INO686  
**Sample ID:** QA/QC#1  
**Matrix:** Soil

**Collected:** 2018/12/06  
**Shipped:**  
**Received:** 2018/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5892056	N/A	2018/12/17	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5890851	2018/12/15	2018/12/18	Margaret Kulczyk-Stanko
Moisture	BAL	5887483	N/A	2018/12/13	Min Yang

**GENERAL COMMENTS**

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

Package 1	3.3°C
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Cooler custody seal was present and intact.

Sample INO684 [SS18-19] : F1/BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.

**Results relate only to the items tested.**



Maxxam Job #: B8X2478  
Report Date: 2018/12/18

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: NW

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5890851	o-Terphenyl	2018/12/17	88	60 - 130	98	60 - 130	100	%		
5891746	D10-Anthracene	2018/12/17	121	50 - 130	98	50 - 130	92	%		
5891746	D14-Terphenyl (FS)	2018/12/17	111	50 - 130	104	50 - 130	100	%		
5891746	D8-Acenaphthylene	2018/12/17	98	50 - 130	88	50 - 130	80	%		
5892056	1,4-Difluorobenzene	2018/12/17	102	60 - 140	101	60 - 140	103	%		
5892056	4-Bromofluorobenzene	2018/12/17	99	60 - 140	99	60 - 140	97	%		
5892056	D10-Ethylbenzene	2018/12/17	81	60 - 140	82	60 - 140	83	%		
5892056	D4-1,2-Dichloroethane	2018/12/17	101	60 - 140	102	60 - 140	103	%		
5887483	Moisture	2018/12/13							9.8	20
5887636	Moisture	2018/12/13							0.89	20
5887919	Moisture	2018/12/13							2.6	20
5888975	Moisture	2018/12/14							3.4	20
5890851	F2 (C10-C16 Hydrocarbons)	2018/12/17	103	50 - 130	111	80 - 120	<10	ug/g	21	30
5890851	F3 (C16-C34 Hydrocarbons)	2018/12/17	NC	50 - 130	106	80 - 120	<50	ug/g	4.0	30
5890851	F4 (C34-C50 Hydrocarbons)	2018/12/17	92	50 - 130	97	80 - 120	<50	ug/g	1.6	30
5891746	1-Methylnaphthalene	2018/12/17	125	50 - 130	120	50 - 130	<0.0050	ug/g	NC	40
5891746	2-Methylnaphthalene	2018/12/17	103	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
5891746	Acenaphthene	2018/12/17	106	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
5891746	Acenaphthylene	2018/12/17	99	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5891746	Anthracene	2018/12/17	106	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5891746	Benzo(a)anthracene	2018/12/17	110	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
5891746	Benzo(a)pyrene	2018/12/17	102	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5891746	Benzo(b,j)fluoranthene	2018/12/17	96	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5891746	Benzo(g,h,i)perylene	2018/12/17	116	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
5891746	Benzo(k)fluoranthene	2018/12/17	91	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
5891746	Chrysene	2018/12/17	100	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
5891746	Dibenz(a,h)anthracene	2018/12/17	99	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
5891746	Fluoranthene	2018/12/17	121	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
5891746	Fluorene	2018/12/17	100	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5891746	Indeno(1,2,3-cd)pyrene	2018/12/17	97	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
5891746	Naphthalene	2018/12/17	99	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5891746	Phenanthrene	2018/12/17	115	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40





Maxxam Job #: B8X2478  
Report Date: 2018/12/18

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: NW

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5891746	Pyrene	2018/12/17	127	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
5892056	Benzene	2018/12/17	70	60 - 140	81	60 - 140	<0.020	ug/g		
5892056	Ethylbenzene	2018/12/17	73	60 - 140	83	60 - 140	<0.020	ug/g		
5892056	F1 (C6-C10) - BTEX	2018/12/17					<10	ug/g	NC	30
5892056	F1 (C6-C10)	2018/12/17	75	60 - 140	93	80 - 120	<10	ug/g	NC	30
5892056	o-Xylene	2018/12/17	74	60 - 140	85	60 - 140	<0.020	ug/g		
5892056	p+m-Xylene	2018/12/17	75	60 - 140	86	60 - 140	<0.040	ug/g		
5892056	Toluene	2018/12/17	75	60 - 140	86	60 - 140	<0.020	ug/g		
5892056	Total Xylenes	2018/12/17					<0.040	ug/g		

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

**VALIDATION SIGNATURE PAGE**

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



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Anastassia Hamanov, Scientific Specialist

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



Maxxam Analytics International Corporation (a Maxxam Analytics)  
 6740 Campbell Road Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-563-8296 Fax: (905) 817-5777 www.maxxam.ca

12-Dec-18 10:35

Page 1 of 2

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name: #17950 Cambium Environmental Inc	Company Name: #24915 Cambium Environmental Inc	Quotation #: B83408	Gina Baybayan		
Attention: ACCOUNTS PAYABLE	Attention: Natalie Wright	P.O. #:	B8X2478		
Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5	Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7	Project: 6820-001	VMK ENV-567		
Tel: (705) 742-7900 Fax: (705) 742-7907	Tel: (705) 719-0700 Ext: 402 Fax:	Site #:	Gina Baybayan		
Email: accounting@Cambium-env.com, Evan.Black@Cambium	Email: Natalie.Wright@Cambium-inc.com	Sampled By:	Gina Baybayan		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY					ANALYSIS REQUESTED (PLEASE BE SPECIFIC)					Turnaround Time (TAT) Request			
Regulation 153 (2011)					Other Regulations					Special Instructions		Regular (Standard) TAT:	
<input checked="" type="checkbox"/> Table 1	<input checked="" type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw						Please provide advance notice for rush projects <input checked="" type="checkbox"/>		Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Solids are > 3 days - contact your Project Manager for details.	
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input checked="" type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw									
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input checked="" type="checkbox"/> For RSC	<input type="checkbox"/> MISA	<input type="checkbox"/> Municipality									
<input type="checkbox"/> Table 4	<input type="checkbox"/> Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	<input type="checkbox"/> Municipality						Job Specific Rush TAT (if applies to entire submission)		Date Required: _____ Time Required: _____	
Include Criteria on Certificate of Analysis (Y/N)? <b>Y</b>					Field Filtered (please circle) Membrane / Mg / Cr / VI					Rush Confirmation Number: _____		Date Required: _____ Time Required: _____	
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	Membrane	Mg	Cr	VI	# of Batches	Comments		
1	BH18-29 17.5'-19.5'	2018/12/06	09:15	S	✓	✓	✓	✓	✓	3			
2	BH18-27 12.5'-13.6'		11:00		✓	✓	✓	✓	✓	3			
3	BH18-27 17.5'-18.8'		11:30							3	HOLD		
4	BH18-28 12.5'-14.5'		13:45		✓	✓	✓	✓	✓	3			
5	BH18-28 15'-16'		13:55		✓	✓	✓	✓	✓	3			
6	BH18-28 17.5'-18.4'		14:30							3	HOLD		
7	SS18-21		12:30						✓	1			
8	SS18-22		15:00		✓	✓	✓	✓	✓	3			
9	SS18-19	✓	16:00		✓	✓	✓	✓	✓	3			
10	SS18-20	2018/12/07	13:30	↓	✓	✓	✓	✓	✓	3			

RELINQUISHED BY: (Signature/Print) <i>Natalie Wright</i>	Date: (YY/MM/DD) 2018/12/10	Time	RECEIVED BY: (Signature/Print) <i>Gina Baybayan</i>	Date: (YY/MM/DD) 2018/12/12	Time 10:35	# jars used and not submitted	Laboratory Use Only					
						Time Sensitive	Temperature (°C) on Receipt 3/3/4	Custody Seal Present	Yes	No		

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

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

\*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-CDOC.PDF

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

White: Maxxam Yellow: Client

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: Email: Natalie.Wright@BESCPMPEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: 682843 683708 P.O. #: 6820-001 Project Name: Site #: Sampled By:		<b>Laboratory Use Only:</b> Maxxam Job #: Bottle Order #: COC #: Project Manager: Gria Baylisan:	
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**MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY**

<b>Regulation 153 (2011)</b> <input checked="" type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Part <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input checked="" type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input checked="" type="checkbox"/> For RSC <input type="checkbox"/> Table		<b>Other Regulations</b> <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Municipality <input type="checkbox"/> PWQG <input type="checkbox"/> Other		<b>Special Instructions</b>		<b>Turnaround Time (TAT) Required:</b> Please provide advance notice for rush projects Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not allocated) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BCO and Dissolved Metals are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (Call us for #)	
--	--	--	--	-----------------------------	--	---	--

Include Criteria on Certificate of Analysis (Y/N)?						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)												Turnaround Time (TAT) Required							
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please specify) Metals / Hg / Cr-VI																			# of Batches	Comments
QA/QC#1	→ QA/QC#1	2018/12/06	—	S	✓																				3
QA/QC#2	→ QA/QC#2	↓	—	↓		0-Reg, 153 PHCs (soil)	BTEX (soil)																		1
																									Hold

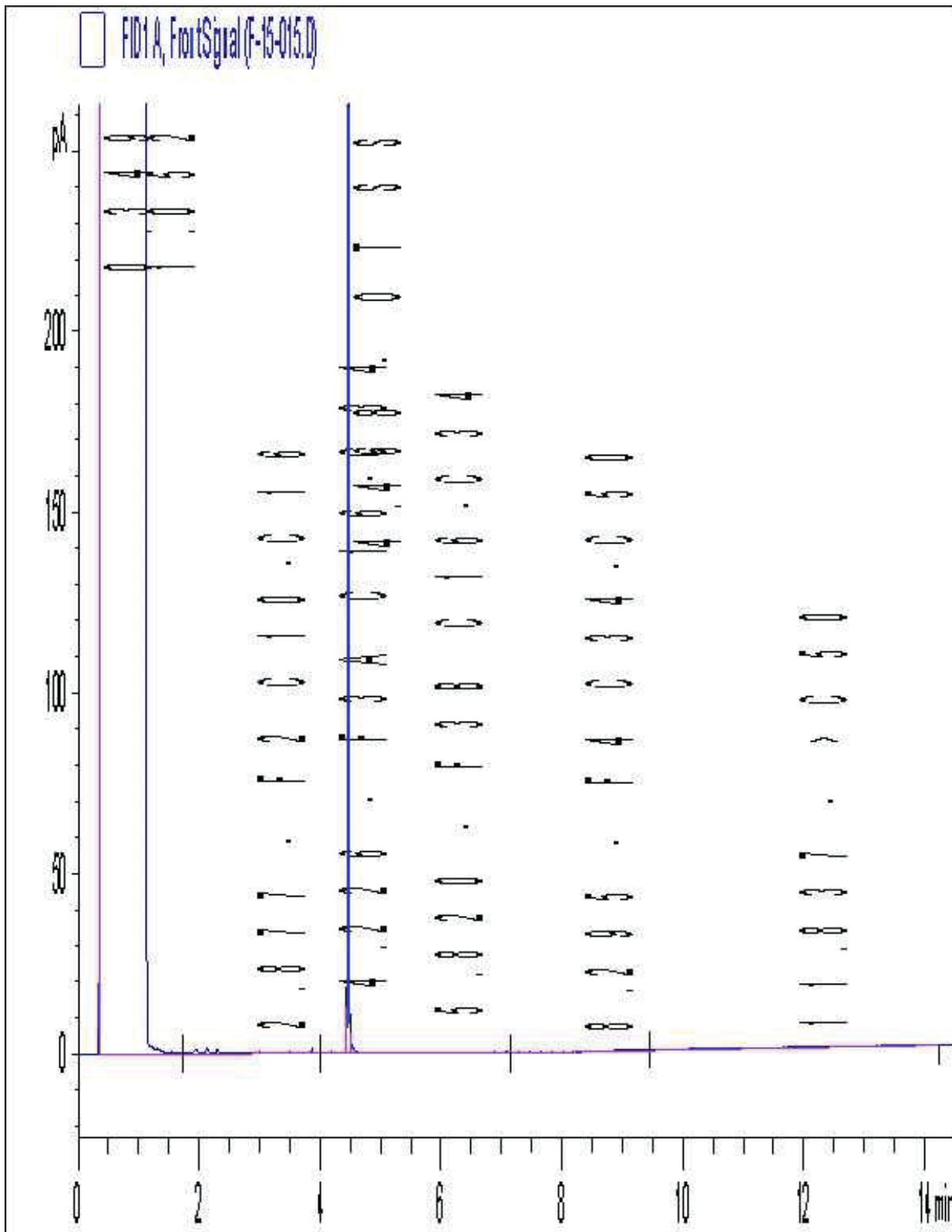
RELINQUISHED BY: (Signature/Print) Natalie Wright / Natalie Wright	Date: (YY/MM/DD) 2018/12/10	Time	RECEIVED BY: (Signature/Print) See page one	Date: (YY/MM/DD)	Time	# Jars used and not submitted	Laboratory Use Only							
							Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact	Yes	No			

\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.  
 \* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.  
 \*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WWW.CONTENT/UPLOADS/ONTARIO-COC.PDF

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

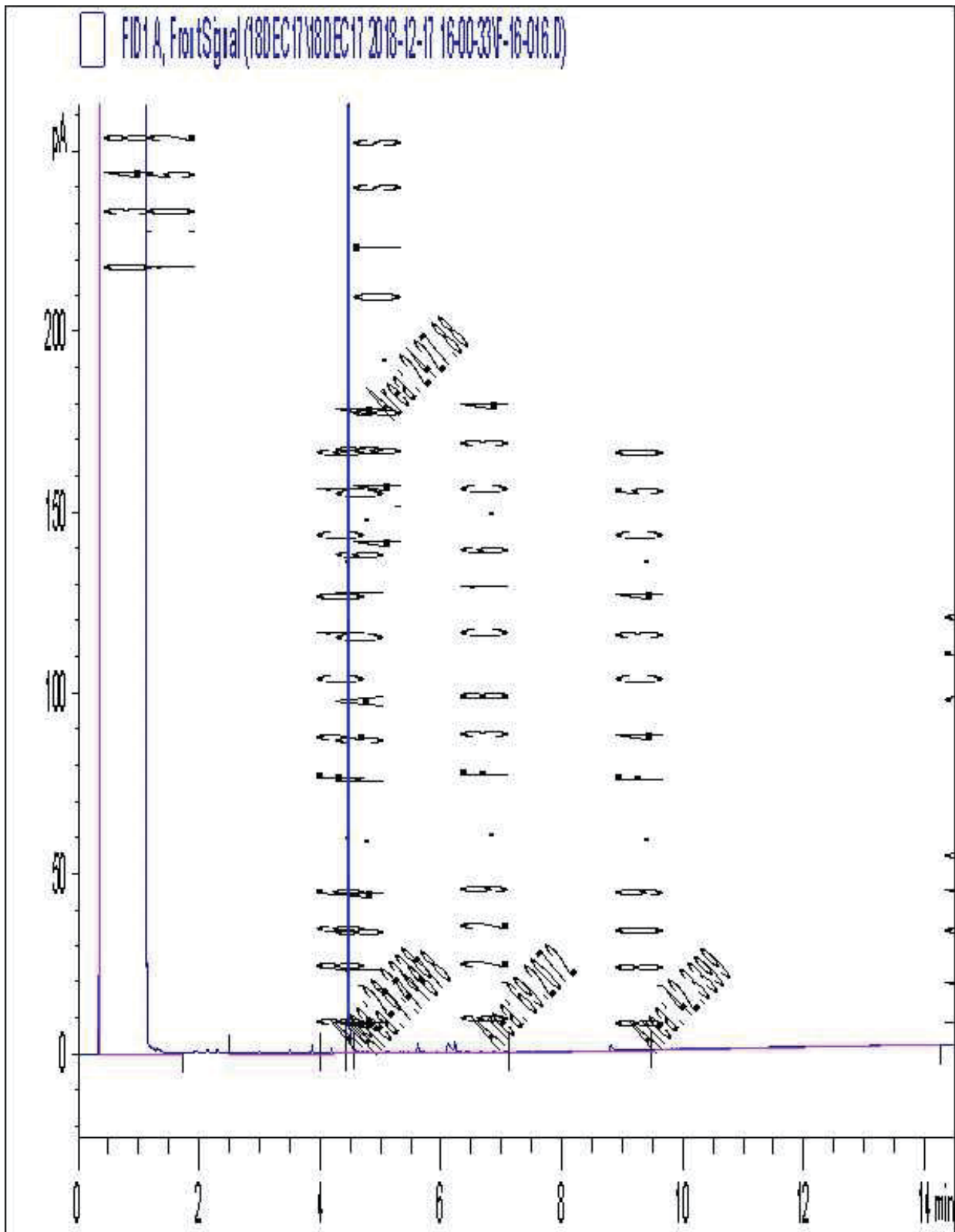
White: Maxxam Yellow: Client

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



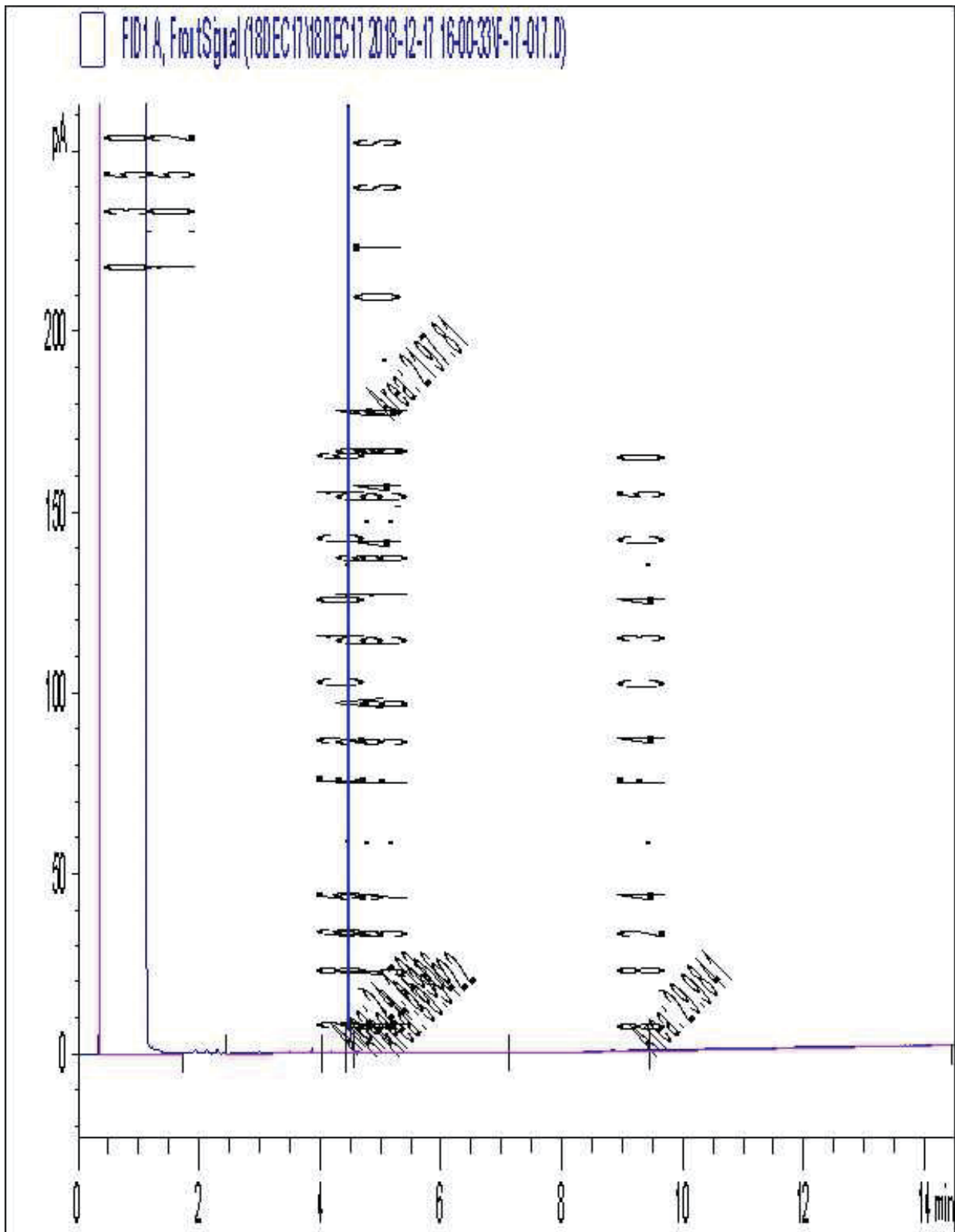
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

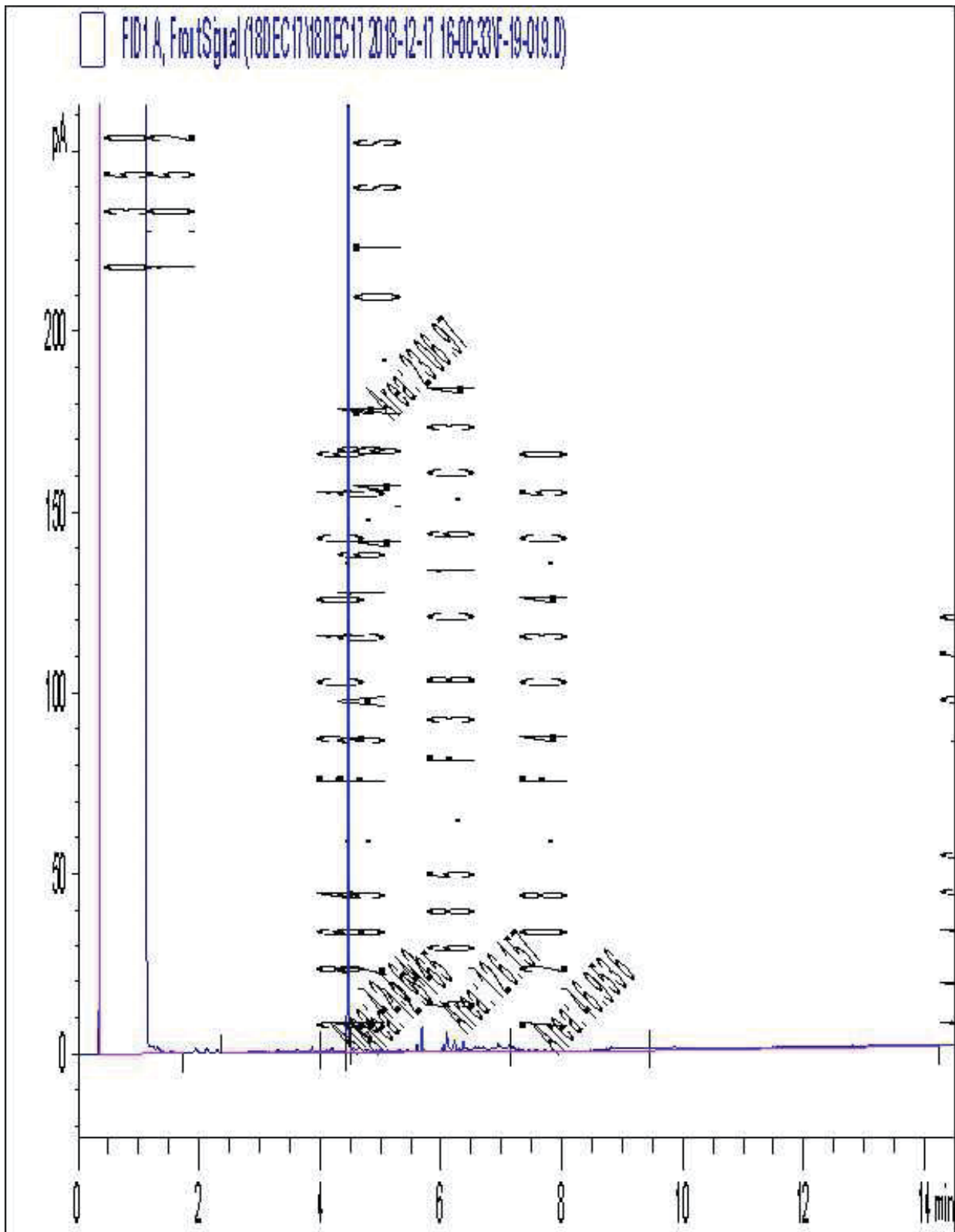


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



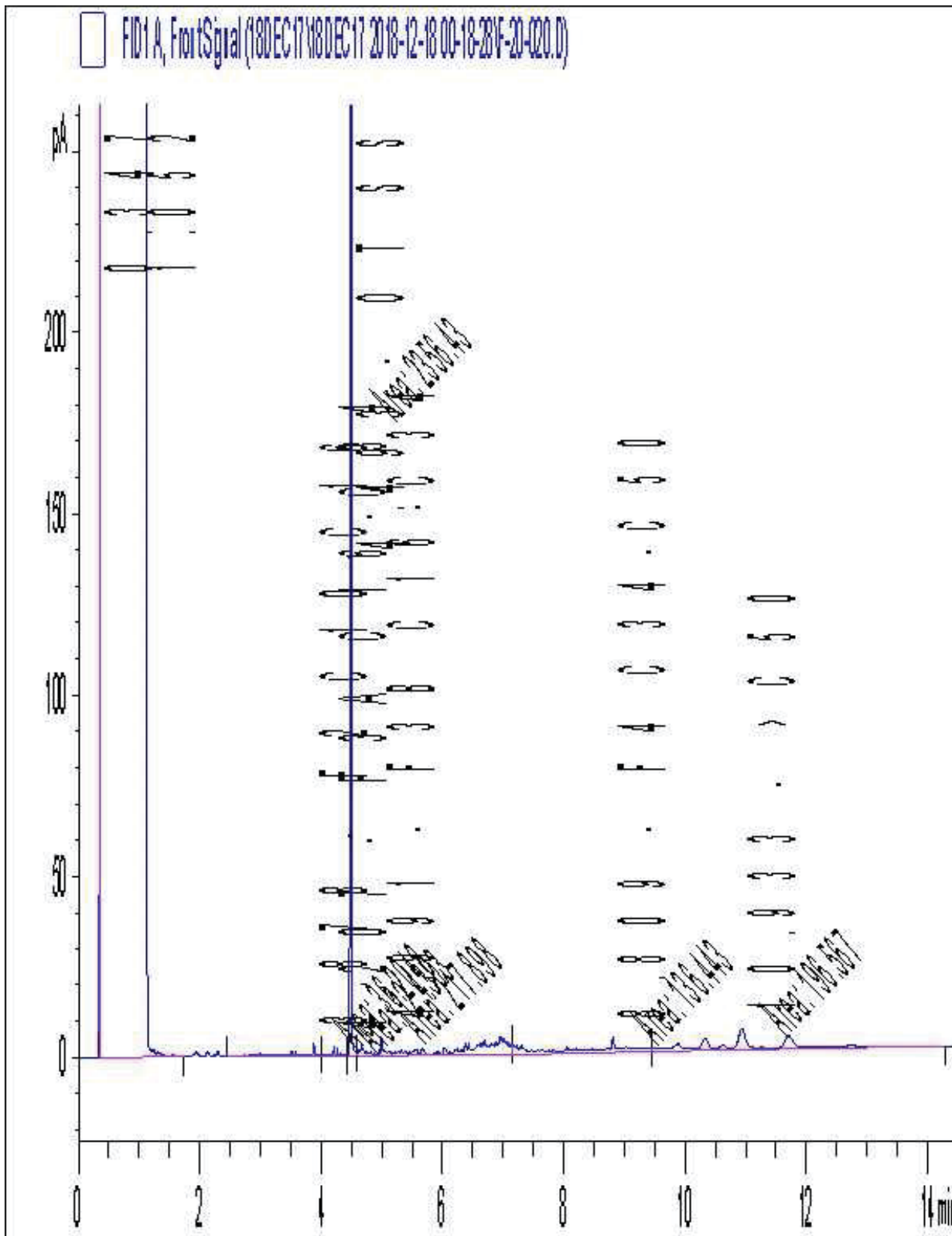
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



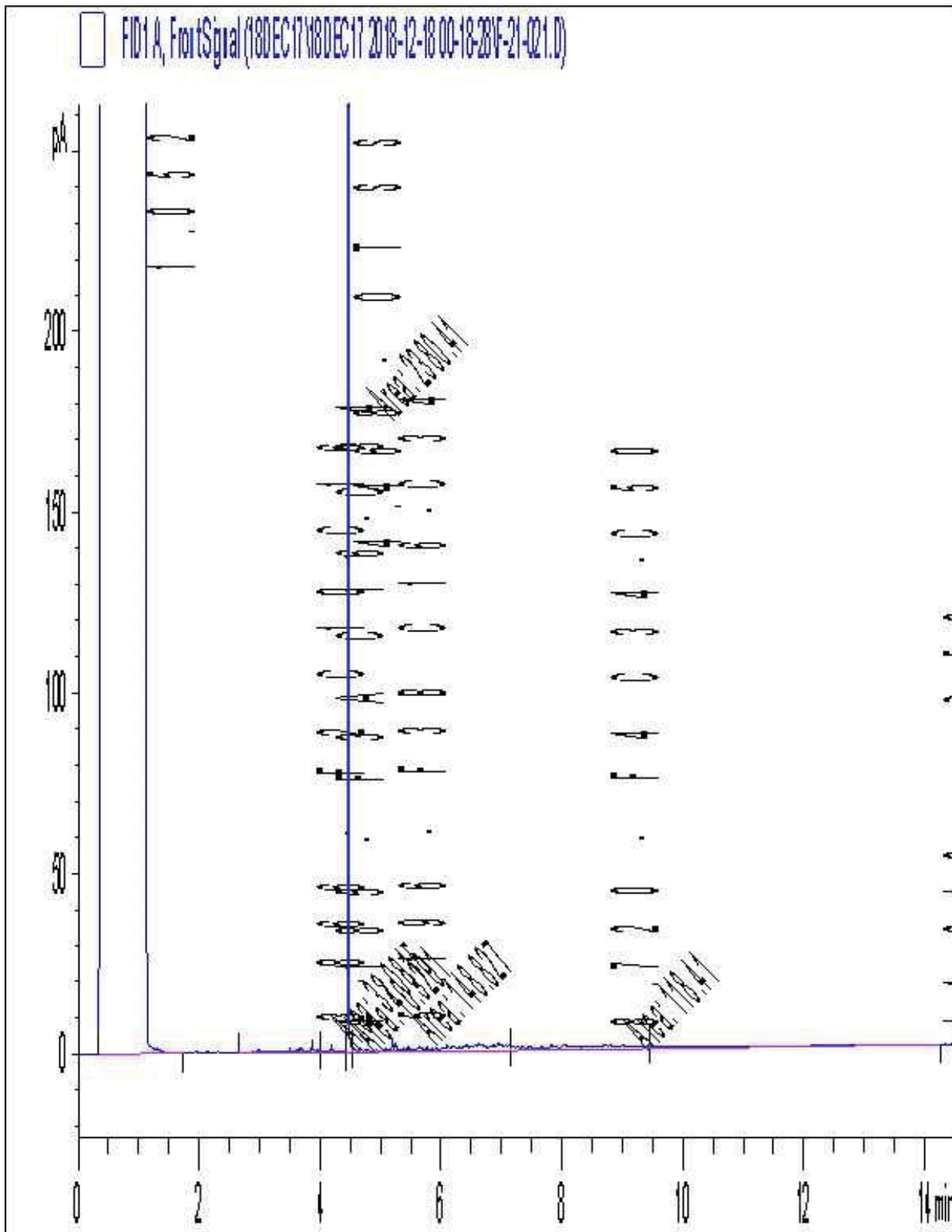
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



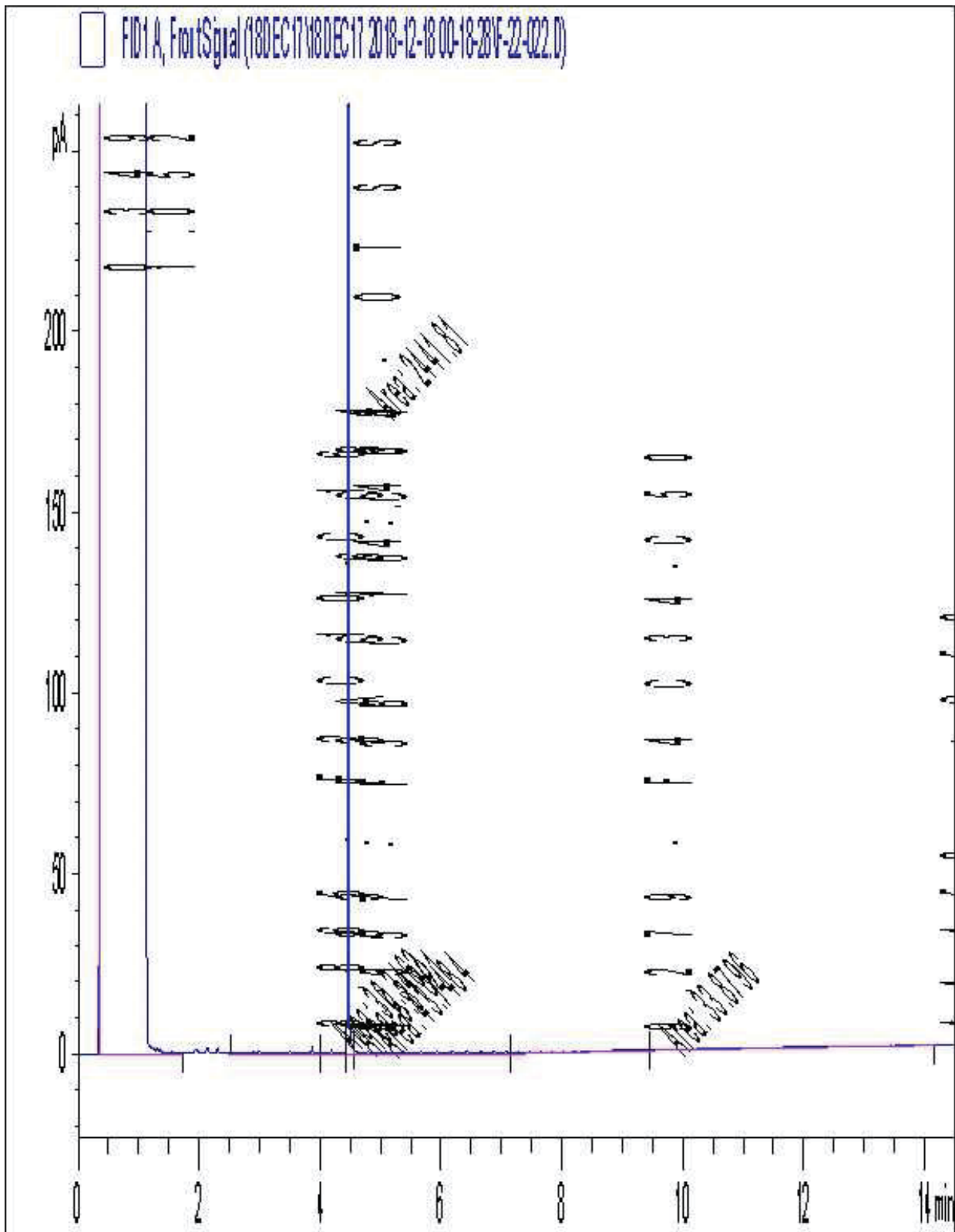
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

Your C.O.C. #: 695728-01-01, C#695728-01-01, n/a

**Report Date: 2019/01/10**  
Report #: R5553288  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8X9770**

**Received: 2018/12/19, 09:27**

Sample Matrix: Water  
# Samples Received: 12

Analyses	Date		Laboratory Method	Reference
	Quantity Extracted	Analyzed		
1,3-Dichloropropene Sum	7	N/A	2018/12/24	EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2018/12/21 CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	1	2018/12/22	2018/12/23 CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	9	N/A	2018/12/20 CAM SOP-00447	EPA 6020B m
Volatile Organic Compounds in Water	7	N/A	2018/12/21 CAM SOP-00228	EPA 8260C m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

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

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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

Your Project #: 6820-001

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

Your C.O.C. #: 695728-01-01, C#695728-01-01, n/a

**Report Date: 2019/01/10**  
Report #: R5553288  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B8X9770**

**Received: 2018/12/19, 09:27**

reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key



Gina Baybayan  
Project Manager  
10 Jan 2019 16:44:24

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager

Email: GBaybayan@maxxam.ca

Phone# (905)817-5766

=====

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



**O.REG 153 DISSOLVED ICPCMS METALS (WATER)**

Maxxam ID			IPB926	IPB927	IPB928	IPB929		
Sampling Date			2018/12/13 13:05	2018/12/13 13:40	2018/12/13 15:40	2018/12/13 16:15		
COC Number			C#695728-01-01	C#695728-01-01	C#695728-01-01	C#695728-01-01		
	UNITS	Criteria	BH18-13	BH18-16	MW114	MW113	RDL	QC Batch
<b>Metals</b>								
Dissolved Antimony (Sb)	ug/L	<b>1.5</b>	1.5	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Arsenic (As)	ug/L	<b>13</b>	<1.0	<1.0	<1.0	<1.0	1.0	5899057
Dissolved Barium (Ba)	ug/L	<b>610</b>	<b>730</b>	66	11	11	2.0	5899057
Dissolved Beryllium (Be)	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Boron (B)	ug/L	<b>1700</b>	48	53	150	140	10	5899057
Dissolved Cadmium (Cd)	ug/L	<b>0.5</b>	<0.10	<0.10	<0.10	<0.10	0.10	5899057
Dissolved Chromium (Cr)	ug/L	<b>11</b>	<5.0	<5.0	<5.0	<5.0	5.0	5899057
Dissolved Cobalt (Co)	ug/L	<b>3.8</b>	<0.50	2.4	<b>9.6</b>	3.7	0.50	5899057
Dissolved Copper (Cu)	ug/L	<b>5</b>	<1.0	<1.0	2.1	2.2	1.0	5899057
Dissolved Lead (Pb)	ug/L	<b>1.9</b>	<0.50	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Molybdenum (Mo)	ug/L	<b>23</b>	5.1	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Nickel (Ni)	ug/L	<b>14</b>	<1.0	3.0	3.5	3.8	1.0	5899057
Dissolved Selenium (Se)	ug/L	<b>5</b>	<2.0	<2.0	<2.0	<2.0	2.0	5899057
Dissolved Silver (Ag)	ug/L	<b>0.3</b>	<0.10	<0.10	<0.10	<0.10	0.10	5899057
Dissolved Sodium (Na)	ug/L	<b>490000</b>	33000	38000	32000	330000	100	5899057
Dissolved Thallium (Tl)	ug/L	<b>0.5</b>	<0.050	<0.050	<0.050	<0.050	0.050	5899057
Dissolved Uranium (U)	ug/L	<b>8.9</b>	1.0	0.14	1.7	<b>10</b>	0.10	5899057
Dissolved Vanadium (V)	ug/L	<b>3.9</b>	<0.50	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Zinc (Zn)	ug/L	<b>160</b>	16	32	<5.0	<5.0	5.0	5899057
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 1: Full Depth Background Site Condition Standards								
Ground Water - All Types of Property Uses								

**O.REG 153 DISSOLVED ICPMS METALS (WATER)**

Maxxam ID			IPB931	IPB932	IPB933	IPB934	IPB947		
Sampling Date			2018/12/14 11:00	2018/12/14 11:45	2018/12/14 12:35	2018/12/14 14:10	2018/12/13		
COC Number			C#695728-01-01	C#695728-01-01	C#695728-01-01	C#695728-01-01	n/a		
	UNITS	Criteria	BH18-15	BH18-17	MW117	MW123	QA/QC #1	RDL	QC Batch

<b>Metals</b>									
Dissolved Antimony (Sb)	ug/L	<b>1.5</b>	<0.50	<0.50	0.96	<0.50	1.5	0.50	5899057
Dissolved Arsenic (As)	ug/L	<b>13</b>	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5899057
Dissolved Barium (Ba)	ug/L	<b>610</b>	150	230	52	160	<b>700</b>	2.0	5899057
Dissolved Beryllium (Be)	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Boron (B)	ug/L	<b>1700</b>	39	130	18	43	48	10	5899057
Dissolved Cadmium (Cd)	ug/L	<b>0.5</b>	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5899057
Dissolved Chromium (Cr)	ug/L	<b>11</b>	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	5899057
Dissolved Cobalt (Co)	ug/L	<b>3.8</b>	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Copper (Cu)	ug/L	<b>5</b>	2.7	1.2	3.6	4.6	<1.0	1.0	5899057
Dissolved Lead (Pb)	ug/L	<b>1.9</b>	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5899057
Dissolved Molybdenum (Mo)	ug/L	<b>23</b>	0.51	5.2	0.69	1.0	4.8	0.50	5899057
Dissolved Nickel (Ni)	ug/L	<b>14</b>	<1.0	<1.0	<1.0	1.8	<1.0	1.0	5899057
Dissolved Selenium (Se)	ug/L	<b>5</b>	<2.0	<2.0	<2.0	2.0	<2.0	2.0	5899057
Dissolved Silver (Ag)	ug/L	<b>0.3</b>	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5899057
Dissolved Sodium (Na)	ug/L	<b>490000</b>	45000	54000	1100	9700	33000	100	5899057
Dissolved Thallium (Tl)	ug/L	<b>0.5</b>	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5899057
Dissolved Uranium (U)	ug/L	<b>8.9</b>	2.5	0.21	0.34	0.82	0.97	0.10	5899057
Dissolved Vanadium (V)	ug/L	<b>3.9</b>	<0.50	<0.50	0.76	<0.50	<0.50	0.50	5899057
Dissolved Zinc (Zn)	ug/L	<b>160</b>	<5.0	<5.0	<5.0	5.2	16	5.0	5899057

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)  
 Table 1: Full Depth Background Site Condition Standards  
 Ground Water - All Types of Property Uses

**O.REG 153 PETROLEUM HYDROCARBONS (WATER)**

Maxxam ID			IPB925			IPB925		
Sampling Date			2018/12/13 11:35			2018/12/13 11:35		
COC Number			C#695728-01-01			C#695728-01-01		
	UNITS	Criteria	BH18-18	RDL	QC Batch	BH18-18 Lab-Dup	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>								
Benzene	ug/L	<b>0.5</b>	<0.20	0.20	5900459	<0.20	0.20	5900459
Toluene	ug/L	<b>0.8</b>	<b>12</b>	0.20	5900459	<b>11</b>	0.20	5900459
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	0.20	5900459	0.22	0.20	5900459
o-Xylene	ug/L	-	<0.20	0.20	5900459	<0.20	0.20	5900459
p+m-Xylene	ug/L	-	<0.40	0.40	5900459	<0.40	0.40	5900459
Total Xylenes	ug/L	<b>72</b>	<0.40	0.40	5900459	<0.40	0.40	5900459
F1 (C6-C10)	ug/L	<b>420</b>	<25	25	5900459	<25	25	5900459
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	25	5900459	<25	25	5900459
<b>F2-F4 Hydrocarbons</b>								
F2 (C10-C16 Hydrocarbons)	ug/L	<b>150</b>	140	100	5902865			
F3 (C16-C34 Hydrocarbons)	ug/L	<b>500</b>	<200	200	5902865			
F4 (C34-C50 Hydrocarbons)	ug/L	<b>500</b>	<200	200	5902865			
Reached Baseline at C50	ug/L	-	Yes		5902865			
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene	%	-	97		5900459	94		5900459
4-Bromofluorobenzene	%	-	100		5900459	99		5900459
D10-Ethylbenzene	%	-	100		5900459	100		5900459
D4-1,2-Dichloroethane	%	-	101		5900459	97		5900459
o-Terphenyl	%	-	100		5902865			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses								

**O.REG 153 VOCS BY HS (WATER)**

Maxxam ID			IPB926	IPB927	IPB930	IPB931		
Sampling Date			2018/12/13 13:05	2018/12/13 13:40	2018/12/14 09:35	2018/12/14 11:00		
COC Number			C#695728-01-01	C#695728-01-01	C#695728-01-01	C#695728-01-01		
	UNITS	Criteria	BH18-13	BH18-16	BH18-19	BH18-15	RDL	QC Batch
<b>Calculated Parameters</b>								
1,3-Dichloropropene (cis+trans)	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5896304
<b>Volatile Organics</b>								
Acetone (2-Propanone)	ug/L	<b>2700</b>	<10	<10	<10	<10	10	5898708
Benzene	ug/L	<b>0.5</b>	<b>1.1</b>	<0.20	<b>2.4</b>	<0.20	0.20	5898708
Bromodichloromethane	ug/L	<b>2</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
Bromoform	ug/L	<b>5.0</b>	<1.0	<1.0	<1.0	<1.0	1.0	5898708
Bromomethane	ug/L	<b>0.89</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
Carbon Tetrachloride	ug/L	<b>0.2</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
Chlorobenzene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
Chloroform	ug/L	<b>2</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
Dibromochloromethane	ug/L	<b>2</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
1,2-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
1,3-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
1,4-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
Dichlorodifluoromethane (FREON 12)	ug/L	<b>590</b>	<1.0	<1.0	<1.0	<1.0	1.0	5898708
1,1-Dichloroethane	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
1,2-Dichloroethane	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
1,1-Dichloroethylene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
cis-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
trans-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
1,2-Dichloropropane	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
cis-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.30	<0.30	<0.30	<0.30	0.30	5898708
trans-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.40	<0.40	<0.40	<0.40	0.40	5898708
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	<0.20	<b>0.66</b>	<0.20	0.20	5898708
Ethylene Dibromide	ug/L	<b>0.2</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
Hexane	ug/L	<b>5</b>	<1.0	<1.0	<1.0	<1.0	1.0	5898708
Methylene Chloride(Dichloromethane)	ug/L	<b>5</b>	<2.0	<2.0	<2.0	<2.0	2.0	5898708
Methyl Ethyl Ketone (2-Butanone)	ug/L	<b>400</b>	<10	<10	<10	<10	10	5898708
Methyl Isobutyl Ketone	ug/L	<b>640</b>	<5.0	<5.0	<5.0	<5.0	5.0	5898708
Methyl t-butyl ether (MTBE)	ug/L	<b>15</b>	<0.50	<0.50	1.9	<0.50	0.50	5898708
Styrene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses								

**O.REG 153 VOCS BY HS (WATER)**

Maxxam ID			IPB926	IPB927	IPB930	IPB931		
Sampling Date			2018/12/13 13:05	2018/12/13 13:40	2018/12/14 09:35	2018/12/14 11:00		
COC Number			C#695728-01-01	C#695728-01-01	C#695728-01-01	C#695728-01-01		
	UNITS	Criteria	BH18-13	BH18-16	BH18-19	BH18-15	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<b>1.1</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
1,1,2,2-Tetrachloroethane	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
Tetrachloroethylene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
Toluene	ug/L	<b>0.8</b>	<0.20	<0.20	<b>3.4</b>	<0.20	0.20	5898708
1,1,1-Trichloroethane	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
1,1,2-Trichloroethane	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
Trichloroethylene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
Trichlorofluoromethane (FREON 11)	ug/L	<b>150</b>	<0.50	<0.50	<0.50	<0.50	0.50	5898708
Vinyl Chloride	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	5898708
p+m-Xylene	ug/L	-	<0.20	<0.20	0.78	<0.20	0.20	5898708
o-Xylene	ug/L	-	<0.20	<0.20	0.42	<0.20	0.20	5898708
Total Xylenes	ug/L	<b>72</b>	<0.20	<0.20	1.2	<0.20	0.20	5898708
<b>Surrogate Recovery (%)</b>								
4-Bromofluorobenzene	%	-	93	91	91	91		5898708
D4-1,2-Dichloroethane	%	-	111	113	110	111		5898708
D8-Toluene	%	-	92	91	91	91		5898708
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses								

**O.REG 153 VOCS BY HS (WATER)**

Maxxam ID			IPB932	IPB947	IPB948		
Sampling Date			2018/12/14 11:45	2018/12/13	2018/12/13		
COC Number			C#695728-01-01	n/a	n/a		
	UNITS	Criteria	BH18-17	QA/QC #1	TRIP BLANK LOT # 3512	RDL	QC Batch
<b>Calculated Parameters</b>							
1,3-Dichloropropene (cis+trans)	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5896304
<b>Volatile Organics</b>							
Acetone (2-Propanone)	ug/L	<b>2700</b>	<10	<10	<10	10	5898708
Benzene	ug/L	<b>0.5</b>	<b>1.9</b>	<b>1.1</b>	<0.20	0.20	5898708
Bromodichloromethane	ug/L	<b>2</b>	<0.50	<0.50	<0.50	0.50	5898708
Bromoform	ug/L	<b>5.0</b>	<1.0	<1.0	<1.0	1.0	5898708
Bromomethane	ug/L	<b>0.89</b>	<0.50	<0.50	<0.50	0.50	5898708
Carbon Tetrachloride	ug/L	<b>0.2</b>	<0.20	<0.20	<0.20	0.20	5898708
Chlorobenzene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
Chloroform	ug/L	<b>2</b>	<0.20	<0.20	<0.20	0.20	5898708
Dibromochloromethane	ug/L	<b>2</b>	<0.50	<0.50	<0.50	0.50	5898708
1,2-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5898708
1,3-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5898708
1,4-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5898708
Dichlorodifluoromethane (FREON 12)	ug/L	<b>590</b>	<1.0	<1.0	<1.0	1.0	5898708
1,1-Dichloroethane	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
1,2-Dichloroethane	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5898708
1,1-Dichloroethylene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
cis-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	0.50	5898708
trans-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	<0.50	<0.50	0.50	5898708
1,2-Dichloropropane	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
cis-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.30	<0.30	<0.30	0.30	5898708
trans-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.40	<0.40	<0.40	0.40	5898708
Ethylbenzene	ug/L	<b>0.5</b>	<b>0.63</b>	<0.20	<0.20	0.20	5898708
Ethylene Dibromide	ug/L	<b>0.2</b>	<0.20	<0.20	<0.20	0.20	5898708
Hexane	ug/L	<b>5</b>	1.1	<1.0	<1.0	1.0	5898708
Methylene Chloride(Dichloromethane)	ug/L	<b>5</b>	<2.0	<2.0	<2.0	2.0	5898708
Methyl Ethyl Ketone (2-Butanone)	ug/L	<b>400</b>	<10	<10	<10	10	5898708
Methyl Isobutyl Ketone	ug/L	<b>640</b>	<5.0	<5.0	<5.0	5.0	5898708
Methyl t-butyl ether (MTBE)	ug/L	<b>15</b>	<0.50	<0.50	<0.50	0.50	5898708
Styrene	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5898708
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 1: Full Depth Background Site Condition Standards							
Ground Water - All Types of Property Uses							

**O.REG 153 VOCS BY HS (WATER)**

Maxxam ID			IPB932	IPB947	IPB948		
Sampling Date			2018/12/14 11:45	2018/12/13	2018/12/13		
COC Number			C#695728-01-01	n/a	n/a		
	UNITS	Criteria	BH18-17	QA/QC #1	TRIP BLANK LOT # 3512	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<b>1.1</b>	<0.50	<0.50	<0.50	0.50	5898708
1,1,2,2-Tetrachloroethane	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5898708
Tetrachloroethylene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
Toluene	ug/L	<b>0.8</b>	<b>2.5</b>	<0.20	<0.20	0.20	5898708
1,1,1-Trichloroethane	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
1,1,2-Trichloroethane	ug/L	<b>0.5</b>	<0.50	<0.50	<0.50	0.50	5898708
Trichloroethylene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
Trichlorofluoromethane (FREON 11)	ug/L	<b>150</b>	<0.50	<0.50	<0.50	0.50	5898708
Vinyl Chloride	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5898708
p+m-Xylene	ug/L	-	1.4	<0.20	<0.20	0.20	5898708
o-Xylene	ug/L	-	0.45	<0.20	<0.20	0.20	5898708
Total Xylenes	ug/L	<b>72</b>	1.9	<0.20	<0.20	0.20	5898708
<b>Surrogate Recovery (%)</b>							
4-Bromofluorobenzene	%	-	93	96	90		5898708
D4-1,2-Dichloroethane	%	-	108	111	111		5898708
D8-Toluene	%	-	93	90	92		5898708
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses							



### TEST SUMMARY

**Maxxam ID:** IPB925  
**Sample ID:** BH18-18  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5900459	N/A	2018/12/21	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5902865	2018/12/22	2018/12/23	Zhiyue (Frank) Zhu

**Maxxam ID:** IPB925 Dup  
**Sample ID:** BH18-18  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5900459	N/A	2018/12/21	Lincoln Ramdahin

**Maxxam ID:** IPB926  
**Sample ID:** BH18-13  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5896304	N/A	2018/12/24	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad
Volatile Organic Compounds in Water	GC/MS	5898708	N/A	2018/12/21	Blair Gannon

**Maxxam ID:** IPB927  
**Sample ID:** BH18-16  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5896304	N/A	2018/12/24	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad
Volatile Organic Compounds in Water	GC/MS	5898708	N/A	2018/12/21	Blair Gannon

**Maxxam ID:** IPB928  
**Sample ID:** MW114  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad

**Maxxam ID:** IPB929  
**Sample ID:** MW113  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad

### TEST SUMMARY

**Maxxam ID:** IPB930  
**Sample ID:** BH18-19  
**Matrix:** Water

**Collected:** 2018/12/14  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5896304	N/A	2018/12/24	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5898708	N/A	2018/12/21	Blair Gannon

**Maxxam ID:** IPB931  
**Sample ID:** BH18-15  
**Matrix:** Water

**Collected:** 2018/12/14  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5896304	N/A	2018/12/24	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad
Volatile Organic Compounds in Water	GC/MS	5898708	N/A	2018/12/21	Blair Gannon

**Maxxam ID:** IPB932  
**Sample ID:** BH18-17  
**Matrix:** Water

**Collected:** 2018/12/14  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5896304	N/A	2018/12/24	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad
Volatile Organic Compounds in Water	GC/MS	5898708	N/A	2018/12/21	Blair Gannon

**Maxxam ID:** IPB933  
**Sample ID:** MW117  
**Matrix:** Water

**Collected:** 2018/12/14  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad

**Maxxam ID:** IPB934  
**Sample ID:** MW123  
**Matrix:** Water

**Collected:** 2018/12/14  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad

**Maxxam ID:** IPB947  
**Sample ID:** QA/QC #1  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5896304	N/A	2018/12/24	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	5899057	N/A	2018/12/20	Arefa Dabhad
Volatile Organic Compounds in Water	GC/MS	5898708	N/A	2018/12/21	Blair Gannon

**TEST SUMMARY**

**Maxxam ID:** IPB948  
**Sample ID:** TRIP BLANK LOT # 3512  
**Matrix:** Water

**Collected:** 2018/12/13  
**Shipped:**  
**Received:** 2018/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5896304	N/A	2018/12/24	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5898708	N/A	2018/12/21	Blair Gannon

**GENERAL COMMENTS**

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

Package 1	4.7°C
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Cooler custody seal was present and intact.

Sample IPB933 [MW117] : Revised Report (2019/01/10): Client sample ID has been amended.

**Results relate only to the items tested.**



Maxxam Job #: B8X9770  
Report Date: 2019/01/10

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: NW

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5898708	4-Bromofluorobenzene	2018/12/21	102	70 - 130	102	70 - 130	94	%		
5898708	D4-1,2-Dichloroethane	2018/12/21	106	70 - 130	103	70 - 130	107	%		
5898708	D8-Toluene	2018/12/21	104	70 - 130	103	70 - 130	92	%		
5900459	1,4-Difluorobenzene	2018/12/21	98	70 - 130	99	70 - 130	97	%		
5900459	4-Bromofluorobenzene	2018/12/21	100	70 - 130	103	70 - 130	103	%		
5900459	D10-Ethylbenzene	2018/12/21	101	70 - 130	104	70 - 130	101	%		
5900459	D4-1,2-Dichloroethane	2018/12/21	100	70 - 130	105	70 - 130	103	%		
5902865	o-Terphenyl	2018/12/22	108	60 - 130	108	60 - 130	110	%		
5898708	1,1,1,2-Tetrachloroethane	2018/12/21	86	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5898708	1,1,1-Trichloroethane	2018/12/21	76	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5898708	1,1,2,2-Tetrachloroethane	2018/12/21	98	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5898708	1,1,2-Trichloroethane	2018/12/21	97	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5898708	1,1-Dichloroethane	2018/12/21	81	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5898708	1,1-Dichloroethylene	2018/12/21	73	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5898708	1,2-Dichlorobenzene	2018/12/21	86	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5898708	1,2-Dichloroethane	2018/12/21	96	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5898708	1,2-Dichloropropane	2018/12/21	87	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5898708	1,3-Dichlorobenzene	2018/12/21	82	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5898708	1,4-Dichlorobenzene	2018/12/21	84	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5898708	Acetone (2-Propanone)	2018/12/21	108	60 - 140	103	60 - 140	<10	ug/L	NC	30
5898708	Benzene	2018/12/21	79	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5898708	Bromodichloromethane	2018/12/21	90	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5898708	Bromoform	2018/12/21	94	70 - 130	94	70 - 130	<1.0	ug/L	NC	30
5898708	Bromomethane	2018/12/21	83	60 - 140	100	60 - 140	<0.50	ug/L	NC	30
5898708	Carbon Tetrachloride	2018/12/21	74	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5898708	Chlorobenzene	2018/12/21	82	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5898708	Chloroform	2018/12/21	84	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5898708	cis-1,2-Dichloroethylene	2018/12/21	84	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5898708	cis-1,3-Dichloropropene	2018/12/21	94	70 - 130	98	70 - 130	<0.30	ug/L	NC	30
5898708	Dibromochloromethane	2018/12/21	90	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5898708	Dichlorodifluoromethane (FREON 12)	2018/12/21	72	60 - 140	106	60 - 140	<1.0	ug/L	NC	30
5898708	Ethylbenzene	2018/12/21	79	70 - 130	99	70 - 130	<0.20	ug/L	NC	30



Maxxam Job #: B8X9770  
Report Date: 2019/01/10

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: NW

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5898708	Ethylene Dibromide	2018/12/21	96	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5898708	Hexane	2018/12/21	71	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
5898708	Methyl Ethyl Ketone (2-Butanone)	2018/12/21	113	60 - 140	109	60 - 140	<10	ug/L	NC	30
5898708	Methyl Isobutyl Ketone	2018/12/21	118	70 - 130	116	70 - 130	<5.0	ug/L	NC	30
5898708	Methyl t-butyl ether (MTBE)	2018/12/21	96	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5898708	Methylene Chloride(Dichloromethane)	2018/12/21	82	70 - 130	93	70 - 130	<2.0	ug/L	NC	30
5898708	o-Xylene	2018/12/21	80	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5898708	p+m-Xylene	2018/12/21	82	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5898708	Styrene	2018/12/21	87	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
5898708	Tetrachloroethylene	2018/12/21	73	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5898708	Toluene	2018/12/21	79	70 - 130	97	70 - 130	<0.20	ug/L	5.9	30
5898708	Total Xylenes	2018/12/21					<0.20	ug/L	NC	30
5898708	trans-1,2-Dichloroethylene	2018/12/21	78	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5898708	trans-1,3-Dichloropropene	2018/12/21	96	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
5898708	Trichloroethylene	2018/12/21	76	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5898708	Trichlorofluoromethane (FREON 11)	2018/12/21	73	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5898708	Vinyl Chloride	2018/12/21	74	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5899057	Dissolved Antimony (Sb)	2018/12/20	114	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5899057	Dissolved Arsenic (As)	2018/12/20	109	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
5899057	Dissolved Barium (Ba)	2018/12/20	109	80 - 120	98	80 - 120	<2.0	ug/L	0.47	20
5899057	Dissolved Beryllium (Be)	2018/12/20	104	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5899057	Dissolved Boron (B)	2018/12/20	100	80 - 120	96	80 - 120	<10	ug/L	1.6	20
5899057	Dissolved Cadmium (Cd)	2018/12/20	111	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
5899057	Dissolved Chromium (Cr)	2018/12/20	103	80 - 120	93	80 - 120	<5.0	ug/L	NC	20
5899057	Dissolved Cobalt (Co)	2018/12/20	110	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
5899057	Dissolved Copper (Cu)	2018/12/20	110	80 - 120	96	80 - 120	<1.0	ug/L	2.4	20
5899057	Dissolved Lead (Pb)	2018/12/20	106	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5899057	Dissolved Molybdenum (Mo)	2018/12/20	109	80 - 120	98	80 - 120	<0.50	ug/L	6.9	20
5899057	Dissolved Nickel (Ni)	2018/12/20	105	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
5899057	Dissolved Selenium (Se)	2018/12/20	109	80 - 120	102	80 - 120	<2.0	ug/L	NC	20
5899057	Dissolved Silver (Ag)	2018/12/20	56 (1)	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
5899057	Dissolved Sodium (Na)	2018/12/20	109	80 - 120	98	80 - 120	<100	ug/L	2.3	20



Maxxam Job #: B8X9770  
Report Date: 2019/01/10

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: NW

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5899057	Dissolved Thallium (Tl)	2018/12/20	109	80 - 120	102	80 - 120	<0.050	ug/L	NC	20
5899057	Dissolved Uranium (U)	2018/12/20	109	80 - 120	101	80 - 120	<0.10	ug/L	3.5	20
5899057	Dissolved Vanadium (V)	2018/12/20	109	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
5899057	Dissolved Zinc (Zn)	2018/12/20	109	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
5900459	Benzene	2018/12/21	99	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5900459	Ethylbenzene	2018/12/21	101	70 - 130	100	70 - 130	<0.20	ug/L	7.7	30
5900459	F1 (C6-C10) - BTEX	2018/12/21					<25	ug/L	NC	30
5900459	F1 (C6-C10)	2018/12/21	79	70 - 130	93	70 - 130	<25	ug/L	NC	30
5900459	o-Xylene	2018/12/21	98	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5900459	p+m-Xylene	2018/12/21	99	70 - 130	99	70 - 130	<0.40	ug/L	NC	30
5900459	Toluene	2018/12/21	102	70 - 130	101	70 - 130	<0.20	ug/L	6.8	30
5900459	Total Xylenes	2018/12/21					<0.40	ug/L	NC	30
5902865	F2 (C10-C16 Hydrocarbons)	2018/12/22	105	50 - 130	105	60 - 130	<100	ug/L	14	30
5902865	F3 (C16-C34 Hydrocarbons)	2018/12/22	NC	50 - 130	105	60 - 130	<200	ug/L	6.8	30
5902865	F4 (C34-C50 Hydrocarbons)	2018/12/22	88	50 - 130	90	60 - 130	<200	ug/L	8.7	30

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

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



**VALIDATION SIGNATURE PAGE**

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



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Anastassia Hamanov, Scientific Specialist

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

19-Dec-18 09:27

Gina Baybayan  
 B8X9770

Page 1 of 2

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@Cambium-env.com, Evan.Black@Cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: Email: Natalie.Wright@BESCPMEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: B82843 P.O. #: Project: 6820-001 Project Name: URE ENV-883 Site #: Sampled By:		Only: Bottle Order #: 895728 Project Manager: Gina Baybayan
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MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011) <input checked="" type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Part <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Inv/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agr/Other <input checked="" type="checkbox"/> For RSC <input type="checkbox"/> Table		Other Regulations <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Municipality <input type="checkbox"/> PWQO <input type="checkbox"/> Other		Special Instructions	
---	--	---	--	----------------------	--

Field Filtered (please circle):  
 (Methyl) Hg / Cu / V  
 0 Reg 153 VOCs by MS (Water)  
 0 Reg 153 Metals & Inorganic (Water)  
 ICP HAS METALS  
 0 Reg 153 BTEX  
 0 Reg 153 PHCS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle)	0 Reg 153 VOCs by MS (Water)	0 Reg 153 Metals & Inorganic (Water)	ICP HAS METALS	0 Reg 153 BTEX	0 Reg 153 PHCS	# of Bottles	Comments
BH18-18	BH18-18	2018/12/13	11:35	GW							5	
BH18-13	BH18-13		13:05	GW	✓	✓	✓				3	
	BH18-16		13:40	GW	✓	✓	✓				3	
	MW114		15:40	GW	✓		✓				1	
	MW113		16:15	GW	✓		✓				1	
	BH18-19	2018/12/14	09:35	GW		✓					2	
	BH18-15		11:00	GW	✓	✓	✓				3	
	BH18-17		11:45	GW	✓	✓	✓				3	
	MW112		12:35	GW	✓		✓				1	
	MW123		14:10	GW	✓		✓				1	

Regular (Standard) TAT:  (will be applied if Rush TAT is not specified)  
 Standard TAT = 5-7 Working days for most tests.  
 Please note: Standard TAT for certain tests such as BOD and Dissolved Solids are > 5 days - check your Project Manager for details.

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

RELINQUISHED BY: (Signature/Print) Natalie Wright	Date: (YY/MM/DD) 18/12/17	Time 09:30	RECEIVED BY: (Signature/Print) Gina Baybayan	Date: (YY/MM/DD) 2018/12/19	Time 09:27	# jars used and not submitted	Laboratory Use Only					
							Temperature (°C) on Receipt 5/5/4 18	Custody Seal Present intact	Yes ✓	No ✓		

\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.  
 \* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.  
 \*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

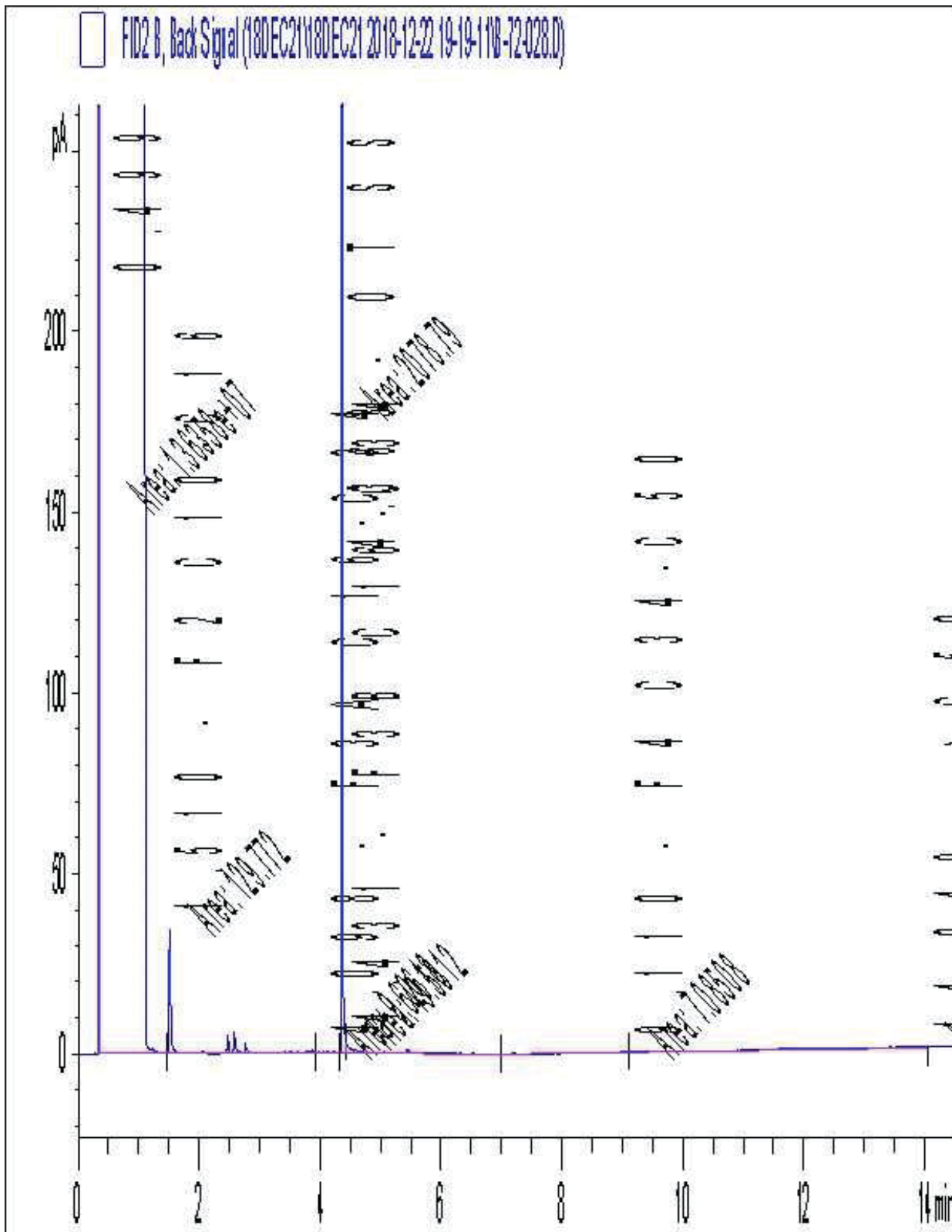


6740 Campobello Road, Mississauga, Ontario L5N 2L8  
 Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266  
 CAM FCD-01191/3

**CHAIN OF CUSTODY RECORD**

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required	
Company Name: <i>Refer to Page 1</i>		Company Name: <i>Refer to Page 1</i>				Quotation #: <i>B82843</i>				<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses	
Contact Name: <i>Refer to Page 1</i>		Contact Name: <i>Refer to Page 1</i>				P.O. #/ AFER:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address:		Address:				Project #: <i>6820-001</i>				Rush TAT (Surcharges will be applied)	
Phone: Fax:		Phone: Fax: <i>Page 1</i>				Site Location:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days	
Email:		Email:				Site #:				Date Required:	
						Sampled By:				Rush Confirmation #:	
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY											
Regulation 153		Other Regulations				Analysis Requested				LABORATORY USE ONLY	
<input checked="" type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input type="checkbox"/> Table _____ FOR RSC (PLEASE CIRCLE) <input checked="" type="radio"/> Y / N		<input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO Region <input type="checkbox"/> Other (Specify) <input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED)				# OF CONTAINERS SUBMITTED: _____ FIELD FILTERED (CIRCLE) <input checked="" type="radio"/> Med/Agri / Civi BTEX/ PHC F1 _____ PHG 12 - F4 _____ VOCs _____ REG 153 METALS & INORGANICS _____ REG 153 ICPCMS METALS _____ REG 153 METALS (Hg, Cr, V, ICPCMS Metals, HWS - B) _____				CUSTODY SEAL Y / N Present Intact 4 Y 5/5/14 COOLING MEDIA PRESENT: <input checked="" type="radio"/> Y / N COMMENTS	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM											
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX							
1 QA/QC#1		2018/12/13	09:30	GW	3	✓		✓			
2 Trip Blank		---	---	---	2			✓			
3											
4											
5											
6											
7											
8											
9											
10											
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #			
<i>Natalie Wright</i>		2018/12/17	09:30	<i>Jean Colene Clark</i>		2018/12/19	09:27				

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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

Your Project #: 6820-001  
Your C.O.C. #: 699652-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/01/24**  
Report #: R5569486  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B917959**

**Received: 2019/01/22, 08:51**

Sample Matrix: Water  
# Samples Received: 3

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2019/01/23	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Water	2	N/A	2019/01/24	CAM SOP-00315	CCME PHC-CWS m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

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

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 6820-001  
Your C.O.C. #: 699652-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/01/24**  
Report #: R5569486  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B917959**  
**Received: 2019/01/22, 08:51**

Encryption Key



Nazeema Rahaman  
Project Manager  
24 Jan 2019 16:51:52

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Gina Baybayan, Project Manager  
Email: GBaybayan@maxxam.ca  
Phone# (905)817-5766

=====

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

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			IUQ898	IUQ899	IUQ900		
Sampling Date			2019/01/16	2019/01/16			
COC Number			699652-01-01	699652-01-01	699652-01-01		
	UNITS	Criteria	BH18-17	BH18-19	TRIP BLANK	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>							
Benzene	ug/L	<b>0.5</b>	<b>0.91</b>	<0.20	<0.20	0.20	5942486
Toluene	ug/L	<b>0.8</b>	0.49	<b>1.6</b>	<0.20	0.20	5942486
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5942486
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	0.20	5942486
p+m-Xylene	ug/L	-	<0.40	<0.40	<0.40	0.40	5942486
Total Xylenes	ug/L	<b>72</b>	<0.40	<0.40	<0.40	0.40	5942486
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene	%	-	106	101	103		5942486
4-Bromofluorobenzene	%	-	100	100	102		5942486
D10-Ethylbenzene	%	-	108	104	105		5942486
D4-1,2-Dichloroethane	%	-	95	97	96		5942486
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 1: Full Depth Background Site Condition Standards							
Ground Water - All Types of Property Uses							



### TEST SUMMARY

**Maxxam ID:** IUQ898  
**Sample ID:** BH18-17  
**Matrix:** Water

**Collected:** 2019/01/16  
**Shipped:**  
**Received:** 2019/01/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5942486	N/A	2019/01/24	Joe Paino

**Maxxam ID:** IUQ899  
**Sample ID:** BH18-19  
**Matrix:** Water

**Collected:** 2019/01/16  
**Shipped:**  
**Received:** 2019/01/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5942486	N/A	2019/01/24	Joe Paino

**Maxxam ID:** IUQ900  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:**  
**Shipped:**  
**Received:** 2019/01/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5942486	N/A	2019/01/23	Joe Paino

**GENERAL COMMENTS**

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

Package 1	7.0°C
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**Results relate only to the items tested.**



Maxxam Job #: B917959  
 Report Date: 2019/01/24

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
 Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5942486	1,4-Difluorobenzene	2019/01/23	105	70 - 130	102	70 - 130	99	%		
5942486	4-Bromofluorobenzene	2019/01/23	100	70 - 130	103	70 - 130	102	%		
5942486	D10-Ethylbenzene	2019/01/23	101	70 - 130	97	70 - 130	102	%		
5942486	D4-1,2-Dichloroethane	2019/01/23	94	70 - 130	100	70 - 130	99	%		
5942486	Benzene	2019/01/23	100	70 - 130	102	70 - 130	<0.20	ug/L	9.0	30
5942486	Ethylbenzene	2019/01/23	107	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5942486	o-Xylene	2019/01/23	102	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5942486	p+m-Xylene	2019/01/23	110	70 - 130	105	70 - 130	<0.40	ug/L	NC	30
5942486	Toluene	2019/01/23	106	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5942486	Total Xylenes	2019/01/23					<0.40	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
 Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.  
 Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.  
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.  
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.  
 NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

**VALIDATION SIGNATURE PAGE**

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



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Anastassia Hamanov, Scientific Specialist

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

<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@Cambium-env.com, Evan.Black@Cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: (705) 719-0700 Email: Natalie.WrightBES@Cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: _____ P.O. #: 6820-D01 Project Name: _____ Site #: _____ Sampled By: _____		<b>Laboratory Use Only:</b> Maxxam Job #: _____ Bottle Order #: _____ GOC #: _____ Project Manager: Gina Baybayan Call: 905-822-0151	
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MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Please provide advance notice for rush projects	
Regulation 153 (2011)			Other Regulations			Special Instructions		Regular (Standard) TAT:	
<input checked="" type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> OCME	<input type="checkbox"/> Sanitary Sewer Bylaw				<input checked="" type="checkbox"/>	
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw					
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input checked="" type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality					
<input type="checkbox"/> Table			<input type="checkbox"/> P/WO						
<input type="checkbox"/> Other									
Include Criteria on Certificate of Analysis (Y/N)? <u>Y</u>						Field Filtered (please circle) Metals / Hg / Cr VI		Job Specific Rush TAT (if applies to entire submission)	
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Matrix				Date Required	Time Required
1	BH18-17	2019-01-16		GW	✓				
2	BH18-19	2019-01-16		GW	✓				
3	TRIP BLANK				✓				
4									
5									
6									
7									
8									
9									
10									

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only
<i>Matt Cunningham</i>	19/01/21	08:45	<i>Natalie Wright</i>	19/01/21	08:51		Time Sensitive: _____ Temperature (C) on Rack: 8/26 Custody Seal Present: <input checked="" type="checkbox"/> Intact: <input checked="" type="checkbox"/>

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

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

\*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF

SAMPLES MUST BE KEPT COOL (4-10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Your Project #: 6820-001  
Your C.O.C. #: 702993-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/02/26**  
Report #: R5607799  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B944373**

**Received: 2019/02/20, 08:50**

Sample Matrix: Water  
# Samples Received: 5

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
1,3-Dichloropropene Sum	1	N/A	2019/02/25		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water	3	N/A	2019/02/22	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	1	2019/02/25	2019/02/26	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds and F1 PHCs	1	N/A	2019/02/22	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2019/02/22	CAM SOP-00228	EPA 8260C m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

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

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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

Your Project #: 6820-001  
Your C.O.C. #: 702993-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/02/26**  
Report #: R5607799  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B944373**  
**Received: 2019/02/20, 08:50**

Encryption Key



Gina Baybayan  
Project Manager  
26 Feb 2019 14:32:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Gina Baybayan, Project Manager  
Email: GBaybayan@maxxam.ca  
Phone# (905)817-5766

=====

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



### VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID			JAE190		
Sampling Date					
COC Number			702993-01-01		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
<b>Volatile Organics</b>					
Acetone (2-Propanone)	ug/L	<b>2700</b>	<10	10	5982823
Benzene	ug/L	<b>0.5</b>	<0.20	0.20	5982823
Bromodichloromethane	ug/L	<b>2</b>	<0.50	0.50	5982823
Bromoform	ug/L	<b>5.0</b>	<1.0	1.0	5982823
Bromomethane	ug/L	<b>0.89</b>	<0.50	0.50	5982823
Carbon Tetrachloride	ug/L	<b>0.2</b>	<0.20	0.20	5982823
Chlorobenzene	ug/L	<b>0.5</b>	<0.20	0.20	5982823
Chloroform	ug/L	<b>2</b>	<0.20	0.20	5982823
Dibromochloromethane	ug/L	<b>2</b>	<0.50	0.50	5982823
1,2-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	0.50	5982823
1,3-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	0.50	5982823
1,4-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	0.50	5982823
Dichlorodifluoromethane (FREON 12)	ug/L	<b>590</b>	<1.0	1.0	5982823
1,1-Dichloroethane	ug/L	<b>0.5</b>	<0.20	0.20	5982823
1,2-Dichloroethane	ug/L	<b>0.5</b>	<0.50	0.50	5982823
1,1-Dichloroethylene	ug/L	<b>0.5</b>	<0.20	0.20	5982823
cis-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	0.50	5982823
trans-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	0.50	5982823
1,2-Dichloropropane	ug/L	<b>0.5</b>	<0.20	0.20	5982823
cis-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.30	0.30	5982823
trans-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.40	0.40	5982823
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	0.20	5982823
Ethylene Dibromide	ug/L	<b>0.2</b>	<0.20	0.20	5982823
Hexane	ug/L	<b>5</b>	<1.0	1.0	5982823
Methylene Chloride(Dichloromethane)	ug/L	<b>5</b>	<2.0	2.0	5982823
Methyl Ethyl Ketone (2-Butanone)	ug/L	<b>400</b>	<10	10	5982823
Methyl Isobutyl Ketone	ug/L	<b>640</b>	<5.0	5.0	5982823
Methyl t-butyl ether (MTBE)	ug/L	<b>15</b>	<0.50	0.50	5982823
Styrene	ug/L	<b>0.5</b>	<0.50	0.50	5982823
1,1,1,2-Tetrachloroethane	ug/L	<b>1.1</b>	<0.50	0.50	5982823
1,1,2,2-Tetrachloroethane	ug/L	<b>0.5</b>	<0.50	0.50	5982823
Tetrachloroethylene	ug/L	<b>0.5</b>	<0.20	0.20	5982823
Toluene	ug/L	<b>0.8</b>	<0.20	0.20	5982823
1,1,1-Trichloroethane	ug/L	<b>0.5</b>	<0.20	0.20	5982823
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses					

**VOLATILE ORGANICS BY GC/MS (WATER)**

Maxxam ID			JAE190		
Sampling Date					
COC Number			702993-01-01		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
1,1,2-Trichloroethane	ug/L	<b>0.5</b>	<0.50	0.50	5982823
Trichloroethylene	ug/L	<b>0.5</b>	<0.20	0.20	5982823
Trichlorofluoromethane (FREON 11)	ug/L	<b>150</b>	<0.50	0.50	5982823
Vinyl Chloride	ug/L	<b>0.5</b>	<0.20	0.20	5982823
p+m-Xylene	ug/L	-	<0.20	0.20	5982823
o-Xylene	ug/L	-	<0.20	0.20	5982823
Total Xylenes	ug/L	<b>72</b>	<0.20	0.20	5982823
F1 (C6-C10)	ug/L	<b>420</b>	<25	25	5982823
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	25	5982823
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	-	103		5982823
D4-1,2-Dichloroethane	%	-	98		5982823
D8-Toluene	%	-	95		5982823
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses					

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID			JAE187	JAE187	JAE189		
Sampling Date			2019/02/15 13:50	2019/02/15 13:50	2019/02/15 15:40		
COC Number			702993-01-01	702993-01-01	702993-01-01		
	UNITS	Criteria	BH18-13	BH18-13 Lab-Dup	BH18-19	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>							
Benzene	ug/L	<b>0.5</b>	<0.20	<0.20	<b>0.54</b>	0.20	5985979
Toluene	ug/L	<b>0.8</b>	<0.20	<0.20	0.53	0.20	5985979
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	0.20	5985979
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	0.20	5985979
p+m-Xylene	ug/L	-	<0.40	<0.40	<0.40	0.40	5985979
Total Xylenes	ug/L	<b>72</b>	<0.40	<0.40	<0.40	0.40	5985979
F1 (C6-C10)	ug/L	<b>420</b>	<25	<25	<25	25	5985979
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	<25	<25	25	5985979
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene	%	-	103	104	104		5985979
4-Bromofluorobenzene	%	-	98	99	98		5985979
D10-Ethylbenzene	%	-	88	89	87		5985979
D4-1,2-Dichloroethane	%	-	96	98	97		5985979
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses							

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

Maxxam ID			JAE188		
Sampling Date			2019/02/15 15:10		
COC Number			702993-01-01		
	UNITS	Criteria	BH18-17	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>					
Benzene	ug/L	<b>0.5</b>	<b>0.78</b>	0.20	5985979
Toluene	ug/L	<b>0.8</b>	0.63	0.20	5985979
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	0.20	5985979
o-Xylene	ug/L	-	<0.20	0.20	5985979
p+m-Xylene	ug/L	-	<0.40	0.40	5985979
Total Xylenes	ug/L	<b>72</b>	<0.40	0.40	5985979
F1 (C6-C10)	ug/L	<b>420</b>	<25	25	5985979
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	25	5985979
<b>F2-F4 Hydrocarbons</b>					
F2 (C10-C16 Hydrocarbons)	ug/L	<b>150</b>	<100	100	5989923
F3 (C16-C34 Hydrocarbons)	ug/L	<b>500</b>	<200	200	5989923
F4 (C34-C50 Hydrocarbons)	ug/L	<b>500</b>	<200	200	5989923
Reached Baseline at C50	ug/L	-	Yes		5989923
<b>Surrogate Recovery (%)</b>					
1,4-Difluorobenzene	%	-	104		5985979
4-Bromofluorobenzene	%	-	100		5985979
D10-Ethylbenzene	%	-	88		5985979
D4-1,2-Dichloroethane	%	-	98		5985979
o-Terphenyl	%	-	111		5989923
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses					

**O.REG 153 VOCS BY HS (WATER)**

Maxxam ID			JAE186		
Sampling Date			2019/02/15 13:00		
COC Number			702993-01-01		
	UNITS	Criteria	BH18-06	RDL	QC Batch
<b>Calculated Parameters</b>					
1,3-Dichloropropene (cis+trans)	ug/L	<b>0.5</b>	<0.50	0.50	5982087
<b>Volatile Organics</b>					
Acetone (2-Propanone)	ug/L	<b>2700</b>	<20 (1)	20	5985112
Benzene	ug/L	<b>0.5</b>	<0.20	0.20	5985112
Bromodichloromethane	ug/L	<b>2</b>	<0.50	0.50	5985112
Bromoform	ug/L	<b>5.0</b>	<1.0	1.0	5985112
Bromomethane	ug/L	<b>0.89</b>	<0.50	0.50	5985112
Carbon Tetrachloride	ug/L	<b>0.2</b>	<0.20	0.20	5985112
Chlorobenzene	ug/L	<b>0.5</b>	<0.20	0.20	5985112
Chloroform	ug/L	<b>2</b>	<0.20	0.20	5985112
Dibromochloromethane	ug/L	<b>2</b>	<0.50	0.50	5985112
1,2-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	0.50	5985112
1,3-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	0.50	5985112
1,4-Dichlorobenzene	ug/L	<b>0.5</b>	<0.50	0.50	5985112
Dichlorodifluoromethane (FREON 12)	ug/L	<b>590</b>	<1.0	1.0	5985112
1,1-Dichloroethane	ug/L	<b>0.5</b>	<0.20	0.20	5985112
1,2-Dichloroethane	ug/L	<b>0.5</b>	<0.50	0.50	5985112
1,1-Dichloroethylene	ug/L	<b>0.5</b>	<0.20	0.20	5985112
cis-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	0.50	5985112
trans-1,2-Dichloroethylene	ug/L	<b>1.6</b>	<0.50	0.50	5985112
1,2-Dichloropropane	ug/L	<b>0.5</b>	<0.20	0.20	5985112
cis-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.30	0.30	5985112
trans-1,3-Dichloropropene	ug/L	<b>0.5</b>	<0.40	0.40	5985112
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	0.20	5985112
Ethylene Dibromide	ug/L	<b>0.2</b>	<0.20	0.20	5985112
Hexane	ug/L	<b>5</b>	<1.0	1.0	5985112
Methylene Chloride(Dichloromethane)	ug/L	<b>5</b>	<2.0	2.0	5985112
Methyl Ethyl Ketone (2-Butanone)	ug/L	<b>400</b>	<10	10	5985112
Methyl Isobutyl Ketone	ug/L	<b>640</b>	<5.0	5.0	5985112
Methyl t-butyl ether (MTBE)	ug/L	<b>15</b>	<0.50	0.50	5985112
Styrene	ug/L	<b>0.5</b>	<0.50	0.50	5985112
1,1,1,2-Tetrachloroethane	ug/L	<b>1.1</b>	<0.50	0.50	5985112
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses (1) The detection limit was raised due to matrix interferences.					

**O.REG 153 VOCS BY HS (WATER)**

Maxxam ID			JAE186		
Sampling Date			2019/02/15 13:00		
COC Number			702993-01-01		
	UNITS	Criteria	BH18-06	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	0.5	<0.50	0.50	5985112
Tetrachloroethylene	ug/L	0.5	<0.20	0.20	5985112
Toluene	ug/L	0.8	<0.20	0.20	5985112
1,1,1-Trichloroethane	ug/L	0.5	<0.20	0.20	5985112
1,1,2-Trichloroethane	ug/L	0.5	<0.50	0.50	5985112
Trichloroethylene	ug/L	0.5	<0.20	0.20	5985112
Trichlorofluoromethane (FREON 11)	ug/L	150	<0.50	0.50	5985112
Vinyl Chloride	ug/L	0.5	<0.20	0.20	5985112
p+m-Xylene	ug/L	-	<0.20	0.20	5985112
o-Xylene	ug/L	-	<0.20	0.20	5985112
Total Xylenes	ug/L	72	<0.20	0.20	5985112
<b>Surrogate Recovery (%)</b>					
4-Bromofluorobenzene	%	-	97		5985112
D4-1,2-Dichloroethane	%	-	99		5985112
D8-Toluene	%	-	94		5985112
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 1: Full Depth Background Site Condition Standards Ground Water - All Types of Property Uses					

### TEST SUMMARY

**Maxxam ID:** JAE186  
**Sample ID:** BH18-06  
**Matrix:** Water

**Collected:** 2019/02/15  
**Shipped:**  
**Received:** 2019/02/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5982087	N/A	2019/02/25	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5985112	N/A	2019/02/22	Juan Pangilinan

**Maxxam ID:** JAE187  
**Sample ID:** BH18-13  
**Matrix:** Water

**Collected:** 2019/02/15  
**Shipped:**  
**Received:** 2019/02/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5985979	N/A	2019/02/22	Anca Ganea

**Maxxam ID:** JAE187 Dup  
**Sample ID:** BH18-13  
**Matrix:** Water

**Collected:** 2019/02/15  
**Shipped:**  
**Received:** 2019/02/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5985979	N/A	2019/02/22	Anca Ganea

**Maxxam ID:** JAE188  
**Sample ID:** BH18-17  
**Matrix:** Water

**Collected:** 2019/02/15  
**Shipped:**  
**Received:** 2019/02/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5985979	N/A	2019/02/22	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5989923	2019/02/25	2019/02/26	Barbara Wowk

**Maxxam ID:** JAE189  
**Sample ID:** BH18-19  
**Matrix:** Water

**Collected:** 2019/02/15  
**Shipped:**  
**Received:** 2019/02/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	5985979	N/A	2019/02/22	Anca Ganea

**Maxxam ID:** JAE190  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:**  
**Shipped:**  
**Received:** 2019/02/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5982823	N/A	2019/02/22	Denis Reid



### GENERAL COMMENTS

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

Package 1	3.0°C
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Cooler custody seal was present and intact.

**Results relate only to the items tested.**



Maxxam Job #: B944373  
Report Date: 2019/02/26

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5982823	4-Bromofluorobenzene	2019/02/22	105	70 - 130	107	70 - 130	103	%		
5982823	D4-1,2-Dichloroethane	2019/02/22	99	70 - 130	95	70 - 130	100	%		
5982823	D8-Toluene	2019/02/22	97	70 - 130	99	70 - 130	94	%		
5985112	4-Bromofluorobenzene	2019/02/22	104	70 - 130	102	70 - 130	100	%		
5985112	D4-1,2-Dichloroethane	2019/02/22	97	70 - 130	94	70 - 130	94	%		
5985112	D8-Toluene	2019/02/22	96	70 - 130	99	70 - 130	95	%		
5985979	1,4-Difluorobenzene	2019/02/22	106	70 - 130	106	70 - 130	103	%		
5985979	4-Bromofluorobenzene	2019/02/22	99	70 - 130	99	70 - 130	98	%		
5985979	D10-Ethylbenzene	2019/02/22	85	70 - 130	82	70 - 130	88	%		
5985979	D4-1,2-Dichloroethane	2019/02/22	98	70 - 130	100	70 - 130	101	%		
5989923	o-Terphenyl	2019/02/25	122	60 - 130	112	60 - 130	111	%		
5982823	1,1,1,2-Tetrachloroethane	2019/02/22	95	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5982823	1,1,1-Trichloroethane	2019/02/22	92	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5982823	1,1,2,2-Tetrachloroethane	2019/02/22	90	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5982823	1,1,2-Trichloroethane	2019/02/22	88	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
5982823	1,1-Dichloroethane	2019/02/22	89	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
5982823	1,1-Dichloroethylene	2019/02/22	91	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
5982823	1,2-Dichlorobenzene	2019/02/22	93	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5982823	1,2-Dichloroethane	2019/02/22	92	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5982823	1,2-Dichloropropane	2019/02/22	88	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
5982823	1,3-Dichlorobenzene	2019/02/22	94	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5982823	1,4-Dichlorobenzene	2019/02/22	95	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5982823	Acetone (2-Propanone)	2019/02/22	81	60 - 140	109	60 - 140	<10	ug/L	NC	30
5982823	Benzene	2019/02/22	88	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
5982823	Bromodichloromethane	2019/02/22	91	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5982823	Bromoform	2019/02/22	95	70 - 130	98	70 - 130	<1.0	ug/L	NC	30
5982823	Bromomethane	2019/02/22	97	60 - 140	93	60 - 140	<0.50	ug/L	NC	30
5982823	Carbon Tetrachloride	2019/02/22	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5982823	Chlorobenzene	2019/02/22	94	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5982823	Chloroform	2019/02/22	95	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5982823	cis-1,2-Dichloroethylene	2019/02/22	98	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5982823	cis-1,3-Dichloropropene	2019/02/22	88	70 - 130	85	70 - 130	<0.30	ug/L	NC	30
5982823	Dibromochloromethane	2019/02/22	95	70 - 130	97	70 - 130	<0.50	ug/L	NC	30



Maxxam Job #: B944373  
Report Date: 2019/02/26

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5982823	Dichlorodifluoromethane (FREON 12)	2019/02/22	93	60 - 140	95	60 - 140	<1.0	ug/L	NC	30
5982823	Ethylbenzene	2019/02/22	88	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
5982823	Ethylene Dibromide	2019/02/22	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5982823	F1 (C6-C10) - BTEX	2019/02/22					<25	ug/L	NC	30
5982823	F1 (C6-C10)	2019/02/22	86	60 - 140	88	60 - 140	<25	ug/L	NC	30
5982823	Hexane	2019/02/22	87	70 - 130	88	70 - 130	<1.0	ug/L	NC	30
5982823	Methyl Ethyl Ketone (2-Butanone)	2019/02/22	82	60 - 140	106	60 - 140	<10	ug/L	NC	30
5982823	Methyl Isobutyl Ketone	2019/02/22	86	70 - 130	96	70 - 130	<5.0	ug/L	NC	30
5982823	Methyl t-butyl ether (MTBE)	2019/02/22	90	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5982823	Methylene Chloride(Dichloromethane)	2019/02/22	90	70 - 130	90	70 - 130	<2.0	ug/L	NC	30
5982823	o-Xylene	2019/02/22	85	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
5982823	p+m-Xylene	2019/02/22	84	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
5982823	Styrene	2019/02/22	89	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5982823	Tetrachloroethylene	2019/02/22	97	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5982823	Toluene	2019/02/22	85	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
5982823	Total Xylenes	2019/02/22					<0.20	ug/L	NC	30
5982823	trans-1,2-Dichloroethylene	2019/02/22	99	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5982823	trans-1,3-Dichloropropene	2019/02/22	92	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
5982823	Trichloroethylene	2019/02/22	98	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5982823	Trichlorofluoromethane (FREON 11)	2019/02/22	98	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5982823	Vinyl Chloride	2019/02/22	104	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5985112	1,1,1,2-Tetrachloroethane	2019/02/22	100	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5985112	1,1,1-Trichloroethane	2019/02/22	96	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5985112	1,1,2,2-Tetrachloroethane	2019/02/22	104	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5985112	1,1,2-Trichloroethane	2019/02/22	96	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5985112	1,1-Dichloroethane	2019/02/22	99	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5985112	1,1-Dichloroethylene	2019/02/22	98	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5985112	1,2-Dichlorobenzene	2019/02/22	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5985112	1,2-Dichloroethane	2019/02/22	97	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5985112	1,2-Dichloropropane	2019/02/22	101	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5985112	1,3-Dichlorobenzene	2019/02/22	100	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5985112	1,4-Dichlorobenzene	2019/02/22	100	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5985112	Acetone (2-Propanone)	2019/02/22	94	60 - 140	97	60 - 140	<10	ug/L	1.5	30



Maxxam Job #: B944373  
Report Date: 2019/02/26

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5985112	Benzene	2019/02/22	99	70 - 130	97	70 - 130	<0.20	ug/L	0.19	30
5985112	Bromodichloromethane	2019/02/22	100	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5985112	Bromoform	2019/02/22	102	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
5985112	Bromomethane	2019/02/22	111	60 - 140	107	60 - 140	<0.50	ug/L	NC	30
5985112	Carbon Tetrachloride	2019/02/22	98	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5985112	Chlorobenzene	2019/02/22	98	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5985112	Chloroform	2019/02/22	99	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5985112	cis-1,2-Dichloroethylene	2019/02/22	99	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5985112	cis-1,3-Dichloropropene	2019/02/22	108	70 - 130	102	70 - 130	<0.30	ug/L	NC	30
5985112	Dibromochloromethane	2019/02/22	100	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5985112	Dichlorodifluoromethane (FREON 12)	2019/02/22	107	60 - 140	106	60 - 140	<1.0	ug/L	NC	30
5985112	Ethylbenzene	2019/02/22	96	70 - 130	96	70 - 130	<0.20	ug/L	1.6	30
5985112	Ethylene Dibromide	2019/02/22	102	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5985112	Hexane	2019/02/22	100	70 - 130	99	70 - 130	<1.0	ug/L	8.3	30
5985112	Methyl Ethyl Ketone (2-Butanone)	2019/02/22	102	60 - 140	101	60 - 140	<1.0	ug/L	NC	30
5985112	Methyl Isobutyl Ketone	2019/02/22	106	70 - 130	102	70 - 130	<5.0	ug/L	NC	30
5985112	Methyl t-butyl ether (MTBE)	2019/02/22	97	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5985112	Methylene Chloride(Dichloromethane)	2019/02/22	98	70 - 130	94	70 - 130	<2.0	ug/L	NC	30
5985112	o-Xylene	2019/02/22	94	70 - 130	94	70 - 130	<0.20	ug/L	0.90	30
5985112	p+m-Xylene	2019/02/22	NC	70 - 130	96	70 - 130	<0.20	ug/L	0.27	30
5985112	Styrene	2019/02/22	101	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5985112	Tetrachloroethylene	2019/02/22	102	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5985112	Toluene	2019/02/22	94	70 - 130	95	70 - 130	<0.20	ug/L	0.35	30
5985112	Total Xylenes	2019/02/22					<0.20	ug/L	0.45	30
5985112	trans-1,2-Dichloroethylene	2019/02/22	98	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5985112	trans-1,3-Dichloropropene	2019/02/22	102	70 - 130	98	70 - 130	<0.40	ug/L	NC	30
5985112	Trichloroethylene	2019/02/22	104	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5985112	Trichlorofluoromethane (FREON 11)	2019/02/22	99	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5985112	Vinyl Chloride	2019/02/22	107	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
5985979	Benzene	2019/02/22	110	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5985979	Ethylbenzene	2019/02/22	98	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5985979	F1 (C6-C10) - BTEX	2019/02/22					<25	ug/L	NC	30
5985979	F1 (C6-C10)	2019/02/22	105	70 - 130	114	70 - 130	<25	ug/L	NC	30



Maxxam Job #: B944373  
 Report Date: 2019/02/26

**QUALITY ASSURANCE REPORT(CONT'D)**

Cambium Environmental Inc  
 Client Project #: 6820-001

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5985979	o-Xylene	2019/02/22	95	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5985979	p+m-Xylene	2019/02/22	98	70 - 130	96	70 - 130	<0.40	ug/L	NC	30
5985979	Toluene	2019/02/22	98	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5985979	Total Xylenes	2019/02/22					<0.40	ug/L	NC	30
5989923	F2 (C10-C16 Hydrocarbons)	2019/02/25	NC	50 - 130	92	60 - 130	<100	ug/L	NC	30
5989923	F3 (C16-C34 Hydrocarbons)	2019/02/25	105	50 - 130	104	60 - 130	<200	ug/L	NC	30
5989923	F4 (C34-C50 Hydrocarbons)	2019/02/25	102	50 - 130	102	60 - 130	<200	ug/L	NC	30

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

**VALIDATION SIGNATURE PAGE**

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



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Brad Newman, Scientific Service Specialist

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



Maxxam Analytica International Corporation aka Maxxam Analytica  
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20-Feb-19 08:50

Gina Baybayan  
 B944373

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name: #1795 Cambium Environmental Inc	Company Name: #24915 Cambium Environmental Inc	Quotation #: 682843	PROJECT INFORMATION: 6820-001		
Address: ACCOUNTS PAYABLE, 52 Hunter St E PO Box 325, Peterborough ON K9H 1G5	Address: Natalie Wright, 74 Cedar Pointe Drive, Unit 1009, Barrie ON L4N 5R7	Project Name: J.L. ENV-748	COC #: [Barcode]		
Tel: (705) 742-7900	Tel: (705) 719-0700 Ext: 402	Site #:	Project Manager: Gina Baybayan		
Email: accounting@Cambium-env.com, Evan.Black@Cambium	Email: Natalie.Wright@ScPMPEIT@Cambium-inc.com	Sampled By:	COC#: 08102993-01-01		

MCE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY					ANALYSIS REQUESTED (PLEASE BE SPECIFIC)					Please provide reference codes for each project	
Regulation 152 (2011)					Field Filtered (please check)					Regular (Standard) TAT:	
<input checked="" type="checkbox"/> Table 1	<input checked="" type="checkbox"/> Res/Flk	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw	<input checked="" type="checkbox"/> Metals / ug / CrVI	<input checked="" type="checkbox"/> 0 Reg 152 VOCs 14 115 Water	<input type="checkbox"/> 0 Reg 152 PNCs: BTEX	<input type="checkbox"/> 0 Reg 152 PNCs: BTEX 1-4	<input type="checkbox"/> 0 Reg 152 PNCs: BTEX 1-4	<input checked="" type="checkbox"/> Standard TAT = 5-7 Working days for most tests	<input checked="" type="checkbox"/> Job Specific Rush TAT (if applies to entire submission)
<input type="checkbox"/> Table 2	<input type="checkbox"/> In/Clom	<input checked="" type="checkbox"/> Carcas	<input type="checkbox"/> Reg 156	<input type="checkbox"/> Storm Sewer Bylaw						<input type="checkbox"/> Standard TAT = 5-7 Working days for most tests	<input type="checkbox"/> Date Requested: _____ Time Required: _____
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input checked="" type="checkbox"/> For RSC	<input type="checkbox"/> MSA	<input type="checkbox"/> Municipality						<input type="checkbox"/> Please note: Standard TAT for certain tests such as BOD and Dissolved Phosphate are + 5 days - contact your Project Manager for details.	<input type="checkbox"/> Rush Confirmation Number: _____ (call us for #)
<input type="checkbox"/> Table			<input type="checkbox"/> PWGD	<input type="checkbox"/> Other							
1	BH18-06	13:00	19-02-19	GW							
2	BH18-13	13:50									
3	GH13-17	15:10									
4	BH18-19	15:40									
5	TRIP BLANK										

RELINQUISHED BY: (Signature/Print) <i>Natalie Wright</i>	Date: (YY/MM/DD) 19-02-19	Time: 11:00	RECEIVED BY: (Signature/Print) <i>TRISHNA PATEL</i>	Date: (YY/MM/DD) 02/19/20	Time: 08:50	# jars used and not submitted	Laboratory Use Only	Custody Seal	Yes	No
							Time Sensitive	Temperature (°C) on Recv	3/3/3	

UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

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

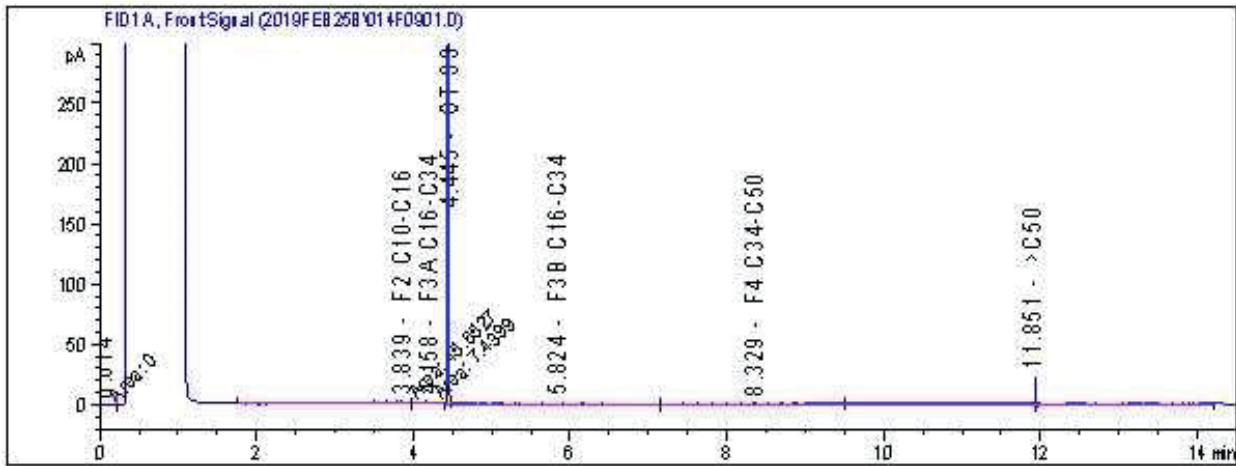
SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

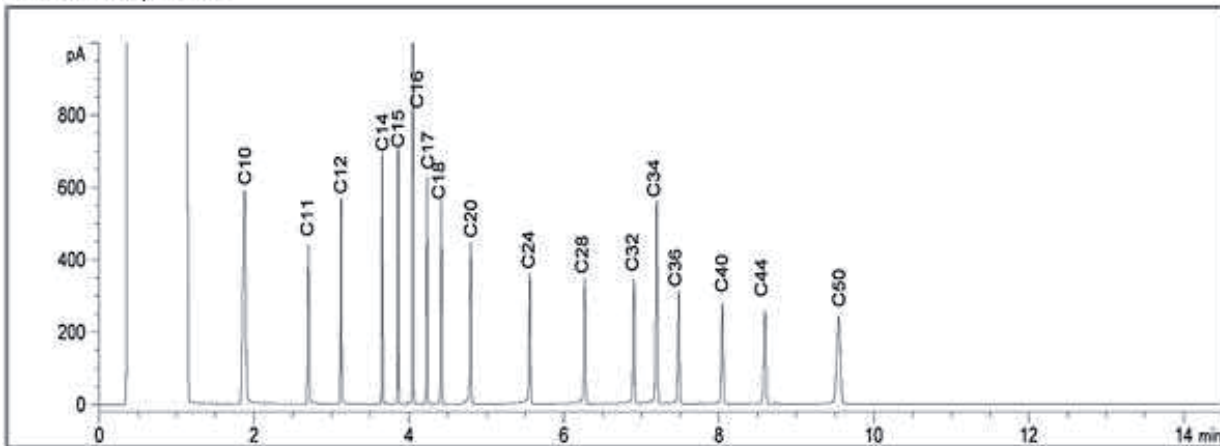
White: Maxxam Yellow: Client



**Petroleum Hydrocarbons F2-F4 in Water Chromatogram**



**Reference Spectrum**



**TYPICAL PRODUCT CARBON NUMBER RANGES**

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

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



Your Project #: 6820-001  
Your C.O.C. #: n/a

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/09/30**  
Report #: R5902379  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9542**  
**Received: 2019/09/26, 08:50**

Sample Matrix: Soil  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
pH CaCl2 EXTRACT	1	2019/09/30	2019/09/30	CAM SOP-00413	EPA 9045 D m

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

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

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

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

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 6820-001  
Your C.O.C. #: n/a

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/09/30**  
Report #: R5902379  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9542**

**Received: 2019/09/26, 08:50**

Encryption Key



**AUTHORIZED REPORT  
RAPPORT AUTORISÉ**

Bureau Veritas Laboratories  
30 Sep 2019 17:30:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager  
Email: Gina.Baybayan@bvlabs.com  
Phone# (905)817-5766

=====

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BUREAU  
VERITAS

BV Labs Job #: B9Q9542  
Report Date: 2019/09/30

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### RESULTS OF ANALYSES OF SOIL

<b>BV Labs ID</b>		KWO064	KWO064	
<b>Sampling Date</b>		2019/09/23 11:00	2019/09/23 11:00	
<b>COC Number</b>		n/a	n/a	
	<b>UNITS</b>	<b>BH19-03 0.60-1.20M</b>	<b>BH19-03 0.60-1.20M Lab-Dup</b>	<b>QC Batch</b>
<b>Inorganics</b>				
Available (CaCl2) pH	pH	7.44	7.30	6359823
QC Batch = Quality Control Batch				
Lab-Dup = Laboratory Initiated Duplicate				



BUREAU  
VERITAS

BV Labs Job #: B9Q9542  
Report Date: 2019/09/30

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### TEST SUMMARY

**BV Labs ID:** KWO064  
**Sample ID:** BH19-03 0.60-1.20M  
**Matrix:** Soil

**Collected:** 2019/09/23  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	6359823	2019/09/30	2019/09/30	Neil Dassanayake

**BV Labs ID:** KWO064 Dup  
**Sample ID:** BH19-03 0.60-1.20M  
**Matrix:** Soil

**Collected:** 2019/09/23  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	6359823	2019/09/30	2019/09/30	Neil Dassanayake



BUREAU  
VERITAS

BV Labs Job #: B9Q9542  
Report Date: 2019/09/30

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### GENERAL COMMENTS

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

Package 1	9.0°C
-----------	-------

**Results relate only to the items tested.**



BV Labs Job #: B9Q9542  
 Report Date: 2019/09/30

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
 Client Project #: 6820-001  
 Sampler Initials: MC

QC Batch	Parameter	Date	SPIKED BLANK		RPD	
			% Recovery	QC Limits	Value (%)	QC Limits
6359823	Available (CaCl2) pH	2019/09/30	99	97 - 103	1.8	N/A
N/A = Not Applicable Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement. Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.						





BUREAU  
VERITAS

BV Labs Job #: B9Q9542

Report Date: 2019/09/30

Cambium Environmental Inc

Client Project #: 6820-001

Sampler Initials: MC

### VALIDATION SIGNATURE PAGE

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

---

Anastassia Hamanov, Scientific Specialist

---

---

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



6740 Campobello Road, Mississauga, Ontario L5N 2J8  
 Phone: 905-817-5700 Fax: 905-817-7779 Toll Free: 800-563-6266  
 CAM FCD-01191/3

**CHAIN OF CUSTODY RECORD**

Page 1 of 1

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required		
Company Name: <b>Cambium Inc.</b>		Company Name:		Quotation #: <b>882843</b>		<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses <input type="checkbox"/> Rush TAT (Surcharges will be applied)		
Contact Name: <b>Nick Young / Natalie Wright</b>		Contact Name:		P.O. #/ A/FER:		<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b> <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days		
Address: <b>74 Cedar Pointe Drive, Unit 1009</b>		Address:		Project #: <b>6820-001</b>		<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days		
Phone: <b>705-719-0070</b> Fax: <b>705-742-7907</b>		Phone: Fax:		Site Location:		<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days		
Email: <b>Nick.Young@cambium-inc.com/Natalie.Wright@</b>		Email:		Site #: <b>M. Cunningham</b>		Date Required:		
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY								
Regulation 153 <input checked="" type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input type="checkbox"/> Table _____ FOR RSC (PLEASE CIRCLE) <input checked="" type="radio"/> Y <input type="radio"/> N		Other Regulations <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO <input type="checkbox"/> Region <input type="checkbox"/> Other (Specify) <input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED)		Analysis Requested (Columns for various analyses)		LABORATORY USE ONLY CUSTODY SEAL Y / N Present Intact 7 4 9/19 COOLING MEDIA PRESENT: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N COMMENTS		
Include Criteria on Certificate of Analysis: <input checked="" type="radio"/> Y <input type="radio"/> N								
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM								
SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	NO. CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Meq/L / mg / CVR	PHYSICAL	FIELD ANALYSIS DETAILS	REMARKS
1 BH19-03 0.60-1.20 m	2019/09/25	11:00	Soil	1				PH
2								
3								
4								
5								
6								
7								
8								
9								
10								
RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #		
<i>Nick Young</i>	2019/09/25	09:30	<i>SHWETA TRUSHWA PATEL</i>	2019/09/26	08:50			

26-Sep-19 08:50  
 Gina Baybayan  
  
 B9Q9542  
 FCN ENV-767



Your Project #: 6820-001  
Your C.O.C. #: 737561-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/10/01**  
Report #: R5903109  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9551**

**Received: 2019/09/26, 08:50**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Petroleum Hydro. CCME F1 & BTEX in Water	4	N/A	2019/09/30	CAM SOP-00315	CCME PHC-CWS m

**Remarks:**

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

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 6820-001  
Your C.O.C. #: 737561-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/10/01**  
Report #: R5903109  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9551**  
**Received: 2019/09/26, 08:50**

Encryption Key



**AUTHORIZED REPORT**  
**RAPPORT AUTORISÉ**

Bureau Veritas Laboratories  
01 Oct 2019 12:07:23

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager  
Email: Gina.Baybayan@bvlab.com  
Phone# (905)817-5766

=====

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BUREAU  
VERITAS

BV Labs Job #: B9Q9551  
Report Date: 2019/10/01

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### PETROLEUM HYDROCARBONS (CCME)

BV Labs ID			KWO092	KWO093	KWO094	KWO095		
Sampling Date			2019/09/24 10:35	2019/09/24 10:54	2019/09/24			
COC Number			737561-01-01	737561-01-01	737561-01-01	737561-01-01		
	UNITS	Criteria	BH19-01	BH19-02	QA/QC	TRIP BLANK	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>								
Benzene	ug/L	<b>0.5</b>	<0.20	0.36	0.35	<0.20	0.20	6358945
Toluene	ug/L	<b>0.8</b>	0.28	0.65	0.62	<0.20	0.20	6358945
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	6358945
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	<0.20	0.20	6358945
p+m-Xylene	ug/L	-	<0.40	0.48	0.45	<0.40	0.40	6358945
Total Xylenes	ug/L	<b>72</b>	<0.40	0.48	0.45	<0.40	0.40	6358945
F1 (C6-C10)	ug/L	-	<25	<25	<25	<25	25	6358945
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	<25	<25	<25	25	6358945
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene	%	-	103	102	104	102		6358945
4-Bromofluorobenzene	%	-	105	103	103	104		6358945
D10-Ethylbenzene	%	-	109	110	111	108		6358945
D4-1,2-Dichloroethane	%	-	106	108	107	108		6358945
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Combined Table 1: Full Depth Background Site Condition Standards Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use and Ground Water - All Types of Property Uses								



BUREAU  
VERITAS

BV Labs Job #: B9Q9551  
Report Date: 2019/10/01

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### TEST SUMMARY

**BV Labs ID:** KWO092  
**Sample ID:** BH19-01  
**Matrix:** Water

**Collected:** 2019/09/24  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino

**BV Labs ID:** KWO093  
**Sample ID:** BH19-02  
**Matrix:** Water

**Collected:** 2019/09/24  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino

**BV Labs ID:** KWO094  
**Sample ID:** QA/QC  
**Matrix:** Water

**Collected:** 2019/09/24  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino

**BV Labs ID:** KWO095  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:**  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino



BUREAU  
VERITAS

BV Labs Job #: B9Q9551

Report Date: 2019/10/01

Cambium Environmental Inc

Client Project #: 6820-001

Sampler Initials: MC

### GENERAL COMMENTS

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

Package 1	9.0°C
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**Results relate only to the items tested.**





BV Labs Job #: B9Q9551  
 Report Date: 2019/10/01

**QUALITY ASSURANCE REPORT**

Cambium Environmental Inc  
 Client Project #: 6820-001  
 Sampler Initials: MC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6358945	1,4-Difluorobenzene	2019/09/30	101	70 - 130	104	70 - 130	102	%		
6358945	4-Bromofluorobenzene	2019/09/30	99	70 - 130	102	70 - 130	99	%		
6358945	D10-Ethylbenzene	2019/09/30	105	70 - 130	110	70 - 130	120	%		
6358945	D4-1,2-Dichloroethane	2019/09/30	106	70 - 130	110	70 - 130	111	%		
6358945	Benzene	2019/09/30	97	70 - 130	98	70 - 130	<0.20	ug/L	2.5	30
6358945	Ethylbenzene	2019/09/30	106	70 - 130	111	70 - 130	<0.20	ug/L	NC	30
6358945	F1 (C6-C10) - BTEX	2019/09/30					<25	ug/L	NC	30
6358945	F1 (C6-C10)	2019/09/30	95	70 - 130	102	70 - 130	<25	ug/L	NC	30
6358945	o-Xylene	2019/09/30	105	70 - 130	110	70 - 130	<0.20	ug/L	NC	30
6358945	p+m-Xylene	2019/09/30	108	70 - 130	115	70 - 130	<0.40	ug/L	NC	30
6358945	Toluene	2019/09/30	96	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
6358945	Total Xylenes	2019/09/30					<0.40	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
 Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.  
 Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.  
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.  
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.  
 NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



BUREAU  
VERITAS

BV Labs Job #: B9Q9551

Report Date: 2019/10/01

Cambium Environmental Inc

Client Project #: 6820-001

Sampler Initials: MC

### VALIDATION SIGNATURE PAGE

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

---

Anastassia Hamanov, Scientific Specialist

---

---

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<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext. 402 Fax: (705) 719-0700 Email: Natalie.Wright@BES-PMPEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: B33923 P.O. #: 6820-001 Project: 6820-001 Project Name: Site #: Sampled By: M. Cunningham		<b>Laboratory Use Only:</b> BV Labs Job #: Bottle Order #: 737561 Project Manager: Gina Baybayan COD #: C9737561-01-01	
--	--	--	--	--	--	--	--

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY					ANALYSIS REQUESTED (PLEASE BE SPECIFIC)					Turnaround Time (TAT) Required Please provide advance notice for rush projects	
Regulation 453 (2011)			Other Regulations		Special Instructions		Field Filtered (please credit): Metals / hg / Cr VI		Regular (Standard) TAT: (will be applied if Rush TAT is not specified)		<input checked="" type="checkbox"/>
Table 1	Table 2	Table 3	CCME	Sanitary Sewer Bylaw	Reg 558	Storm Sewer Bylaw	Reg 153 PHCS	Reg 154	Standard TAT = 5-7 Working days for most tests.	Job Specific Rush TAT (if applies to entire submission)	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Include Criteria on Certificate of Analysis (Y/N)? <input checked="" type="checkbox"/>											
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	Reg 153 PHCS	Reg 154				
1	BH19-01	19-09-24	10:35	GW							2
2	BH19-02	19-09-24	10:54	GW							2
3	GA/6C	19-09-24	-	GW							2
4	Trip Blank	-	-	-							2
5											
6											
7											
8											
9											
10											

26-Sep-19 08:50  
Gina Baybayan  
B9Q9551  
FCN ENV-705

RELINQUISHED BY: (Signature/Print) M. Cunningham	Date: (YY/MM/DD) 19/09/25	Time 09:30	RECEIVED BY: (Signature/Print) ARUSHNA PATEL	Date: (YY/MM/DD) 20/09/26	Time 08:50	# jars used and not submitted	Laboratory Use Only
						Time Sensitive	Temperature (°C) on Receipt 9/19
						Custody Seal Present	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.  
 \*\* SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.  
 SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS.  
 Bureau Veritas Canada (2019) Inc.



Your Project #: 6820-001  
Your C.O.C. #: n/a

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/09/30**  
Report #: R5902379  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9542**

**Received: 2019/09/26, 08:50**

Sample Matrix: Soil  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
pH CaCl2 EXTRACT	1	2019/09/30	2019/09/30	CAM SOP-00413	EPA 9045 D m

**Remarks:**

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

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

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

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 6820-001  
Your C.O.C. #: n/a

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/09/30**  
Report #: R5902379  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9542**  
**Received: 2019/09/26, 08:50**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Gina Baybayan, Project Manager  
Email: Gina.Baybayan@bvlab.com  
Phone# (905)817-5766

=====

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BUREAU  
VERITAS

BV Labs Job #: B9Q9542  
Report Date: 2019/09/30

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### RESULTS OF ANALYSES OF SOIL

<b>BV Labs ID</b>		KWO064	KWO064	
<b>Sampling Date</b>		2019/09/23 11:00	2019/09/23 11:00	
<b>COC Number</b>		n/a	n/a	
	<b>UNITS</b>	<b>BH19-03 0.60-1.20M</b>	<b>BH19-03 0.60-1.20M Lab-Dup</b>	<b>QC Batch</b>
<b>Inorganics</b>				
Available (CaCl2) pH	pH	7.44	7.30	6359823
QC Batch = Quality Control Batch				
Lab-Dup = Laboratory Initiated Duplicate				



BUREAU  
VERITAS

BV Labs Job #: B9Q9542  
Report Date: 2019/09/30

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### TEST SUMMARY

**BV Labs ID:** KWO064  
**Sample ID:** BH19-03 0.60-1.20M  
**Matrix:** Soil

**Collected:** 2019/09/23  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	6359823	2019/09/30	2019/09/30	Neil Dassanayake

**BV Labs ID:** KWO064 Dup  
**Sample ID:** BH19-03 0.60-1.20M  
**Matrix:** Soil

**Collected:** 2019/09/23  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	6359823	2019/09/30	2019/09/30	Neil Dassanayake





BUREAU  
VERITAS

BV Labs Job #: B9Q9542  
Report Date: 2019/09/30

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### GENERAL COMMENTS

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

Package 1	9.0°C
-----------	-------

**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: B9Q9542  
Report Date: 2019/09/30

### QUALITY ASSURANCE REPORT

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

QC Batch	Parameter	Date	SPIKED BLANK		RPD	
			% Recovery	QC Limits	Value (%)	QC Limits
6359823	Available (CaCl2) pH	2019/09/30	99	97 - 103	1.8	N/A
<p>N/A = Not Applicable</p> <p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.</p>						



BUREAU  
VERITAS

BV Labs Job #: B9Q9542

Report Date: 2019/09/30

Cambium Environmental Inc

Client Project #: 6820-001

Sampler Initials: MC

### VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read 'Anastassia Hamanov', written over a horizontal line.

Anastassia Hamanov, Scientific Specialist

---

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6740 Campobello Road, Mississauga, Ontario L5N 2L8  
 Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266  
 CAM FCD-01191/3

**CHAIN OF CUSTODY RECORD**

Page 1 of 1

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required	
Company Name: <b>Cambium Inc.</b>		Company Name:		Quotation #: <b>BB2843</b>		<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses	
Contact Name: <b>Nick Young / Natalie Wright</b>		Contact Name:		P.O. #/ AFER:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <b>74 Cedar Pointe Drive, Unit 1009 Barrie, ON</b>		Address:		Project #: <b>6820-001</b>		Rush TAT (Surcharges will be applied)	
Phone: <b>705-719-0070</b> Fax: <b>705-742-7907</b>		Phone: Fax:		Site Location:		<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days	
Email: <b>Nick.Young@cambium-inc.com/Natalie.Wright@</b>		Email:		Site #: <b>M. Cunningham</b>		Date Required:	
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY							
Regulation 153		Other Regulations		Analysis Requested		LABORATORY USE ONLY	
<input checked="" type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input type="checkbox"/> Table _____ FOR RSC (PLEASE CIRCLE) <input checked="" type="radio"/> Y <input type="radio"/> N		<input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO Region <input type="checkbox"/> Other (Specify) <input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED)		# OF CONTAINERS SUBMITTED FIELD FILTERED (CIRCLE) Metals / Hg / CrVI BTEX / PHC F1 PHCS F2 - F4 VOCs REG 153 / PCPAS METALS FOC <b>SPH</b>		CUSTODY SEAL Y / N Present Intact <b>Y Y 9/9/19</b> COOLING MEDIA PRESENT: <input checked="" type="radio"/> Y <input type="radio"/> N COMMENTS	
Include Criteria on Certificate of Analysis: <input checked="" type="radio"/> Y <input type="radio"/> N							
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM							
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX			
1 BH19-03 0.60-1.20 m		2019/09/23	11:00	Soil			
2							
3							
4							
5							
6							
7							
8							
9							
10							
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
<i>Matt Cunningham</i> / Matt Cunningham		2019/09/25	09:30	<i>TRUSHWA PATEL</i> / TRUSHWA PATEL	2019/09/26	08:50	

26-Sep-19 08:50  
 Gina Baybayan  
  
 B9Q9542  
 FCN ENV-767



Your Project #: 6820-001  
Your C.O.C. #: 737561-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/10/01**  
Report #: R5903109  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9551**

**Received: 2019/09/26, 08:50**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Petroleum Hydro. CCME F1 & BTEX in Water	4	N/A	2019/09/30	CAM SOP-00315	CCME PHC-CWS m

**Remarks:**

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

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

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 6820-001  
Your C.O.C. #: 737561-01-01

**Attention: Natalie Wright**

Cambium Environmental Inc  
74 Cedar Pointe Drive,  
Unit 1009  
Barrie, ON  
Canada L4N 5R7

**Report Date: 2019/10/01**  
Report #: R5903109  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: B9Q9551**  
**Received: 2019/09/26, 08:50**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Gina Baybayan, Project Manager  
Email: Gina.Baybayan@bvlab.com  
Phone# (905)817-5766

=====

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**PETROLEUM HYDROCARBONS (CCME)**

BV Labs ID			KWO092	KWO093	KWO094	KWO095		
Sampling Date			2019/09/24 10:35	2019/09/24 10:54	2019/09/24			
COC Number			737561-01-01	737561-01-01	737561-01-01	737561-01-01		
	UNITS	Criteria	BH19-01	BH19-02	QA/QC	TRIP BLANK	RDL	QC Batch
<b>BTEX &amp; F1 Hydrocarbons</b>								
Benzene	ug/L	<b>0.5</b>	<0.20	0.36	0.35	<0.20	0.20	6358945
Toluene	ug/L	<b>0.8</b>	0.28	0.65	0.62	<0.20	0.20	6358945
Ethylbenzene	ug/L	<b>0.5</b>	<0.20	<0.20	<0.20	<0.20	0.20	6358945
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	<0.20	0.20	6358945
p+m-Xylene	ug/L	-	<0.40	0.48	0.45	<0.40	0.40	6358945
Total Xylenes	ug/L	<b>72</b>	<0.40	0.48	0.45	<0.40	0.40	6358945
F1 (C6-C10)	ug/L	-	<25	<25	<25	<25	25	6358945
F1 (C6-C10) - BTEX	ug/L	<b>420</b>	<25	<25	<25	<25	25	6358945
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene	%	-	103	102	104	102		6358945
4-Bromofluorobenzene	%	-	105	103	103	104		6358945
D10-Ethylbenzene	%	-	109	110	111	108		6358945
D4-1,2-Dichloroethane	%	-	106	108	107	108		6358945
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Combined Table 1: Full Depth Background Site Condition Standards Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use and Ground Water - All Types of Property Uses								





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VERITAS

BV Labs Job #: B9Q9551  
Report Date: 2019/10/01

Cambium Environmental Inc  
Client Project #: 6820-001  
Sampler Initials: MC

### TEST SUMMARY

**BV Labs ID:** KWO092  
**Sample ID:** BH19-01  
**Matrix:** Water

**Collected:** 2019/09/24  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino

**BV Labs ID:** KWO093  
**Sample ID:** BH19-02  
**Matrix:** Water

**Collected:** 2019/09/24  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino

**BV Labs ID:** KWO094  
**Sample ID:** QA/QC  
**Matrix:** Water

**Collected:** 2019/09/24  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino

**BV Labs ID:** KWO095  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:**  
**Shipped:**  
**Received:** 2019/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6358945	N/A	2019/09/30	Joe Paino



BUREAU  
VERITAS

BV Labs Job #: B9Q9551

Report Date: 2019/10/01

Cambium Environmental Inc

Client Project #: 6820-001

Sampler Initials: MC

### GENERAL COMMENTS

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

Package 1	9.0°C
-----------	-------

**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: B9Q9551

Report Date: 2019/10/01

### QUALITY ASSURANCE REPORT

Cambium Environmental Inc

Client Project #: 6820-001

Sampler Initials: MC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6358945	1,4-Difluorobenzene	2019/09/30	101	70 - 130	104	70 - 130	102	%		
6358945	4-Bromofluorobenzene	2019/09/30	99	70 - 130	102	70 - 130	99	%		
6358945	D10-Ethylbenzene	2019/09/30	105	70 - 130	110	70 - 130	120	%		
6358945	D4-1,2-Dichloroethane	2019/09/30	106	70 - 130	110	70 - 130	111	%		
6358945	Benzene	2019/09/30	97	70 - 130	98	70 - 130	<0.20	ug/L	2.5	30
6358945	Ethylbenzene	2019/09/30	106	70 - 130	111	70 - 130	<0.20	ug/L	NC	30
6358945	F1 (C6-C10) - BTEX	2019/09/30					<25	ug/L	NC	30
6358945	F1 (C6-C10)	2019/09/30	95	70 - 130	102	70 - 130	<25	ug/L	NC	30
6358945	o-Xylene	2019/09/30	105	70 - 130	110	70 - 130	<0.20	ug/L	NC	30
6358945	p+m-Xylene	2019/09/30	108	70 - 130	115	70 - 130	<0.40	ug/L	NC	30
6358945	Toluene	2019/09/30	96	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
6358945	Total Xylenes	2019/09/30					<0.40	ug/L	NC	30

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

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

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

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

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

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



BUREAU  
VERITAS

BV Labs Job #: B9Q9551

Report Date: 2019/10/01

Cambium Environmental Inc

Client Project #: 6820-001

Sampler Initials: MC

### VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read 'A. Hamanov', written over a horizontal line.

Anastassia Hamanov, Scientific Specialist

---

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<b>INVOICE TO:</b> Company Name: #17950 Cambium Environmental Inc Attention: ACCOUNTS PAYABLE Address: 52 Hunter St E PO Box 325 Peterborough ON K9H 1G5 Tel: (705) 742-7900 Fax: (705) 742-7907 Email: accounting@cambium-env.com, Evan.Black@cambium		<b>REPORT TO:</b> Company Name: #24915 Cambium Environmental Inc Attention: Natalie Wright Address: 74 Cedar Pointe Drive, Unit 1009 Barrie ON L4N 5R7 Tel: (705) 719-0700 Ext: 402 Fax: Email: Natalie.Wright@BESCPMEIT@cambium-inc.com		<b>PROJECT INFORMATION:</b> Quotation #: B33923 P.O. #: Project: 6820-001 Project Name: Site #: Sampled By: M. Cunningham		<b>Laboratory Use Only:</b> BV Labs Job #:  737561 Bottle Order #:  737561 COC #: C#737561-01-01 Project Manager: Gina Baybayan	
--	--	--	--	---	--	--	--

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

<b>Regulation 153 (2011)</b> <input checked="" type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input checked="" type="checkbox"/> For RSC <input type="checkbox"/> Table	<b>Other Regulations</b> <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA Municipality _____ <input checked="" type="checkbox"/> PWQO <input type="checkbox"/> Other _____	<b>Special Instructions</b>  
---	--	-------------------------------------

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

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr-VI	O Reg 153 PHCs, BTEX, FFA	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required: Please provide advance notice for rush projects	
1	BH19-01	19-09-24	10:35	GW														Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. <input checked="" type="checkbox"/>
2	BH19-02	19-09-24	10:54	GW														Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)
3	QA/QC	19-09-24	-	GW														# of Bottles: 2 Comments:
4	Trip Blank	-	-	-														# of Bottles: 2 Comments:
5																		
6																		
7																		
8																		
9																		
10																		

26-Sep-19 08:50  
Gina Baybayan  
 B9Q9551  
FCN ENV-705

* RELINQUISHED BY: (Signature/Print) M. Cunningham	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print) ARUSHNA PATEL	Date: (YY/MM/DD)	Time	# jars used and not submitted	<b>Laboratory Use Only</b> Time Sensitive Temperature (°C) on Receipt: 9/9/9 Custody Seal Present: <input checked="" type="checkbox"/> Intact: <input checked="" type="checkbox"/>
---	------------------	------	---	------------------	------	-------------------------------	--

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

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

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



---

## Appendix F

### Surface Water and Sediment Results

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Legend

- Approximate Site Boundary
- Sediment Sample Location (Stantec)
- Parameters Tested Do Not Exceed Regulatory Standards (Table 9)
- Parameters Tested Exceed Regulatory Standards (Table 9)

Sample ID	TR-1 : 6.1 m	Sample Depth
	04/11/2014	Sample Date
Parameter	Nickel	Value (µg/g)
	17	

MOE Table 9 SCS	
Constituent	Standard (µg/g)
Anthracene	0.22
Benzo(a)anthracene	0.32
Benzo(a)pyrene	0.37
Benzo(g,h,i)perylene	0.17
Benzo(k)fluoranthene	0.24
Chrysene	0.6
Chromium (Total)	26
Chrysene	0.34
Copper	16
Dibenzo(a,h)anthracene	0.06
Fluoranthene	0.75
Fluorene	0.19
Indeno(1,2,3-cd)pyrene	0.2
Lead	31
Nickel	16
Phenanthrene	0.56
Pyrene	0.49
Silver	0.5
Zinc	120

TS2-3 : 10 m	
	04/10/2014
Chromium (Total)	30
Copper	23
Lead	46
Nickel	24

TR-3 : 9.1 m	
	04/11/2014
Benzo(a)anthracene	0.34
Benzo(g,h,i)perylene	0.24
Chromium (Total)	36
Copper	22
Fluoranthene	0.82
Indeno(1,2,3-cd)pyrene	0.25
Lead	32
Nickel	27
Pyrene	0.66

TS2-2 : 8.4 m	
	04/10/2014
Copper	18
Lead	89/60
Nickel	17
Phenanthrene	0.65

TR-2 : 7.9 m	
	04/11/2014
Benzo(a)anthracene	0.36
Benzo(g,h,i)perylene	0.26
Chromium (Total)	36
Fluoranthene	0.82
Indeno(1,2,3-cd)pyrene	0.27
Nickel	23
Pyrene	0.66

TS2-1 : 9.1 m	
	04/10/2014
Benzo(g,h,i)perylene	0.20
Cadmium	0.64
Chromium (Total)	36
Copper	29
Lead	50
Nickel	26
Zinc	140

TR-1 : 6.1 m	
	04/11/2014
Benzo(g,h,i)perylene	0.18
Nickel	17

TS1-1 : 1 m	
	04/10/2014
Anthracene	1.4
Benzo(a)anthracene	0.85
Benzo(a)pyrene	0.61
Benzo(g,h,i)perylene	0.36
Benzo(k)fluoranthene	0.32
Chrysene	0.50
Dibenzo(a,h)anthracene	0.081
Fluoranthene	2.7
Fluorene	0.57
Indeno(1,2,3-cd)pyrene	0.37
Lead	130
Phenanthrene	3.3
Pyrene	2.1

TS3-3 : 10.9 m	
	04/11/2014
Anthracene	0.39
Benzo(a)anthracene	1.8
Benzo(a)pyrene	1.7
Benzo(g,h,i)perylene	1.1
Benzo(k)fluoranthene	0.89
Chromium (Total)	83
Chrysene	1.6
Copper	58
Dibenzo(a,h)anthracene	0.26
Fluoranthene	4.7
Indeno(1,2,3-cd)pyrene	1.1
Lead	94
Nickel	54
Phenanthrene	1.8
Pyrene	3.6
Silver	0.58
Zinc	160

Notes

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Client/Project

Town of Midland  
 Supplemental Phase II ESA  
 288 and 420 Bayshore Drive

Figure No.

6

Title

Sediment Analytical Results,  
 Table 9 SCS

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 Revised: 2014-05-28 By: mkkpatrick

4957000

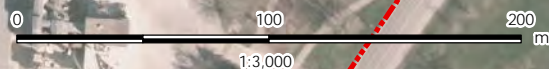
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Legend

- Approximate Site Boundary
- Approximate Surface Water Sample Location (Stantec)
- Parameters Tested Do Not Exceed Regulatory Standards (Table 2)
- Parameters Tested Exceed Regulatory Standards (Table 2)

Sample ID	TS1-1		Sample Date
	04/10/2014		
Parameter	Zinc	22 / 21	Duplicate Value (µg/L)
	Value (µg/L)		

PWQO Table 2 SCS	
Constituent	Standard (µg/L)
Copper	1
Zinc	20

TS1-1		
	04/10/2014	04/28/2014
Zinc	22	< 5.0

TS3-1	
	04/11/2014
Copper	< 1.0 / 1.3

Notes

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Town of Midland  
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288 and 420 Bayshore Drive

Figure No.

7

Title

Surface Water Analytical Results,  
PWQO

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Revised: 2014-05-28 By: mkkpatrick

