Phase Two Environmental Site Assessment

2480 Walkley Road
Ottawa, Ontario

Prepared for:

Giant Tiger Stores Limited
2480 Walkley Road
Ottawa, ON K1G 6A9

Attn: Mr. Jean-Marc Desjarlais

January 11, 2019

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MEMBER OF
THE PINCHIN GROUP

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EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) was retained by Giant Tiger Stores Limited (Client) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the property located at 2480 Walkley Road in Ottawa, Ontario (hereafter referred to as the Site or Phase Two Property). The Phase Two Property is presently developed with a single-storey commercial/warehouse building complete with a two-storey office portion (the Site Building).

The Phase Two ESA was conducted at the request of the Client for the purpose of filing a Site Plan Approval application with the City of Ottawa and was completed in accordance with the Province of Ontario's *Ontario Regulation 153/04: Records of Site Condition – Part XV.1 of the Act*, which was last amended by Ontario Regulation 312/17 on July 28, 2017 (O. Reg. 153/04).

The objectives of this Phase Two ESA were to assess the soil and groundwater quality in relation to five areas of potential environmental concern (APECs) and related potentially contaminating activities (PCAs) and contaminants of potential concern (COPCs) identified in a Phase One ESA completed by Pinchin in accordance with O. Reg. 153/04. The identified APECs, PCAs and COPCs are summarized in the following table:

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #1 (Former on-Site PFO)	South-central portion of Phase One Property	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #2 (Former on-Site automotive repair/servicing operation with in-ground hoist and significant hazardous waste generation)	South-central portion of the Site Building	Item 52 – Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems	On-Site	PHCs BTEX PAHs VOCs	Soil and Groundwater

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #3 (Former waste oil underground storage tank associated with the former on-Site automotive repair/servicing operation)	South-central portion of the Site Building	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #4 (three-stage oil/water separator associated with the former on-Site automotive repair/servicing operation)	South-central portion of the Site Building	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #5 (former railway spur line located on the southeast portion of the Phase One Property)	Southeast portion of the Phase One Property	Item 46 – Rail Yards, Tracks and Spurs	On-Site	PAHs	Soil

Notes:

BTEX – benzene, toluene, ethylbenzene and total xylenes
PHCs – petroleum hydrocarbon fractions F1-F4
PAHs – polycyclic aromatic hydrocarbons
VOCs – volatile organic compounds

The Phase Two ESA was completed by Pinchin between November 6, 2018 and November 15, 2016, and included the advancement of eight boreholes at the Phase Two Property, four of which were completed as groundwater monitoring wells. The boreholes were advanced to a maximum depth of 6.1 metres below ground surface (mbgs). Select soil samples collected from each of the borehole locations were submitted for laboratory analysis of petroleum hydrocarbons (PHCs) (F1-F4), volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). In addition, groundwater samples were collected from each of the newly-installed monitoring wells and submitted for laboratory analysis of PHCs (F1-F4), VOCs and PAHs.

Based on Site-specific information, the applicable regulatory standards for the Phase Two Property were determined to be the *"Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition",* provided in the MECP document entitled, "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*" dated April 15, 2011 *(Table 3 Standards)* for medium and fine-textured soils and industrial/commercial/community property use.

The laboratory results for the submitted soil and groundwater samples indicated that all reported concentrations for the parameters analyzed met the corresponding *Table 3 Standards*.

It is the opinion of the Qualified Person (QP) who supervised the Phase Two ESA that the applicable *Table 3 Standards* for soil and groundwater at the Phase Two Property have been met, and that no further subsurface investigation is required in relation to assessing the environmental quality of soil and groundwater at the Phase Two Property as a result of the APECs identified in the Pinchin Phase One ESA. It should be noted that impacts may be encountered during the redevelopment of the Phase Two Property that were not identified in areas investigated by Pinchin as part this Phase Two ESA. Should potential impacts be identified, Pinchin recommends that the Client contact Pinchin for further consultation.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.

1.0 INTRODUCTION

A Phase Two ESA is defined as an "assessment of property conducted in accordance with the regulations by or under the supervision of a QP to determine the location and concentration of one or more contaminants in the land or water on, in or under the property". Under O. Reg. 153/04, the purpose of a Phase Two ESA is as follows:

- To determine the location and concentration of contaminants in the land or water on, in or under the Phase Two Property;
- To obtain information about environmental conditions in the land or water on, in or under the Phase Two Property necessary to undertake a Risk Assessment, in accordance with O. Reg. 153/04, with respect to one or more contaminants of concern; and
- To determine if applicable Site Condition Standards and standards specified in a Risk Assessment for contaminants on, in or under the Phase Two Property were met by developing an understanding of the geological and hydrogeological conditions at the Phase Two Property and conducting one or more rounds of field sampling for all contaminants associated with any APEC identified in the Phase Two ESA and for any such contaminants identified during subsequent Phase Two ESA activities and analyses of environmental conditions at the Phase Two Property.

This Phase Two ESA was conducted at the request of the Client for the purpose of filing a Site Plan Approval application with the City of Ottawa and was completed in accordance with the Province of Ontario's *Ontario Regulation 153/04: Records of Site Condition – Part XV.1 of the Act*, which was last amended by Ontario Regulation 312/17 on July 28, 2017 (O. Reg. 153/04).

The overall objectives of this Phase Two ESA were to assess the soil and groundwater quality in relation to APECs and related COPCs identified in a Phase One ESA completed by Pinchin, the findings of which were summarized in the report entitled "*Phase One Environmental Site Assessment*, *2480 Walkley Road, Ottawa, Ontario*", completed by Pinchin for the Client and dated October 18, 2018. The property assessed by the Pinchin Phase One ESA is referred to herein as the Phase One Property. The Phase Two ESA was conducted on the whole Phase One Property, at specific APECs identified during the Phase One ESA.

1.1 Site Description

The Phase Two Property consists of Part of Lots A and I, Concession 5 (Rideau Front), Geographical Township of Gloucester, located at the municipal address of 2480 Walkley Road, Ottawa, Ontario, which is currently owned by the Client. The Phase Two Property is 25.31 acres (10.24 hectares) in size and is located on the south side of Walkley Road, approximately 40 metres (m) west of Russell Road. A Key

Map showing the Phase Two Property location is provided on Figure 1 and a detailed plan of the Phase Two Property and surrounding lands is provided on Figures 2 through 5 (all Figures are provided within Section 9.0).

The Phase Two Property is presently developed with a single-storey commercial/warehouse building complete with a two-storey office portion (the Site Building).

A summary of the pertinent details of the Phase Two Property is provided in the following table:

Detail	Source / Reference	Information
Legal Description	Site Plan Drawing provided by the Client	Part of Lots A and I, Concession 5 (Rideau Front), Geographical Township of Gloucester, Ottawa
Municipal Address	http://maps.ottawa.ca/geoottawa/ City of Ottawa, Client	2480 Walkley Road Ottawa, ON K1G 6A9
Parcel Identification Number (PIN)	http://maps.ottawa.ca/geoottawa/ City of Ottawa	041650665
Current Owner	Client	Giant Tiger Stores Limited
Current Occupant	Client	Giant Tiger
Client	Authorization to Proceed Form	Giant Tiger Stores Limited
Client Contact Information	Authorization to Proceed Form	Mr. Jean-Marc Desjarlais Giant Tiger Stores Limited 2480 Walkley Road Ottawa, ON K1G 6A9 Phone: 613-260-6397 jdesjarl@gianttiger.com
Site Area	http://maps.ottawa.ca/geoottawa/ City of Ottawa	10.24 hectares (25.31 acres).
Current Zoning	http://maps.ottawa.ca/geoottawa/ City of Ottawa	LI – Light Industrial

A legal survey showing the Phase Two Property is provided in Appendix A (all Appendices are provided in Section 10.0).

1.2 Property Ownership

The entirety of the Phase Two Property is currently owned by the Client (Giant Tiger Stores Limited), located at 2480 Walkley Road, Ottawa, Ontario. Contact information for the Phase Two Property owner is provided in the preceding section.

Pinchin was retained by Mr. Jean-Marc Desjarlais of the Client to conduct the Phase Two ESA of the Site. Contact information for Mr. Desjarlais is provided in the preceding section.

1.3 Current and Proposed Future Uses

The Phase Two Property is presently utilized for commercial land use (i.e., Giant Tiger Stores Limited). The proposed future use of the Site is to remain commercial. The proposed change of land use does not require that an RSC be filed as per Section 168.3.1 of the Province of Ontario's *Environmental Protection Act*.

1.4 Applicable Site Condition Standards

The Phase Two Property is a commercial property located within the City of Ottawa and the proposed future land use is to remain commercial. It is Pinchin's understanding that drinking water for the Phase Two Property and surrounding properties within 250 metres of the Phase Two Property is supplied by the City of Ottawa. Source water is obtained by the City of Ottawa from the Ottawa River.

Bedrock was not encountered at any of the boreholes completed at the Phase Two Property during the Phase Two ESA, which were advanced to a maximum depth of approximately 6.1 mbgs and, as such, the Phase Two Property is not a shallow soil property as defined in Section 43.1 of O. Reg. 153/04.

The Phase Two Property does not contain a water body nor is it located within 30 metres of a water body and the use of standards for properties situated within 30 metres of a water body is not required.

Section 41 of O. Reg. 153/04 states that a property is classified as an "environmentally sensitive area" if the pH of the surface soil (less than 1.5 mbgs) is less than 5 or greater than 9, if the pH of the subsurface soil (greater than 1.5 mbgs) is less than 5 or greater than 11, or if the property is an area of natural significance or is adjacent to or contains land within 30 metres of an area of natural significance. A total of four representative soil samples collected from the boreholes advanced at the Phase Two Property were submitted for pH analysis. The pH analytical results are summarized in Table 3 (all Tables are provided in Section 9.0). The pH values measured in the submitted soil samples were within the limits for non-sensitive sites. The Phase Two Property is also not an area of natural significance and it is not adjacent to, nor does it contain land within 30 metres of, an area of natural significance. As such, the Phase Two Property is not an environmentally sensitive area.

As discussed further in Section 6.4, based on the results of grain size analysis completed on representative soil samples collected during the Phase Two ESA and the observed stratigraphy at the borehole locations at the Phase Two Property, it is the QP's opinion that over two-thirds of the overburden at the Phase Two Property is medium and fine-textured as defined by O. Reg. 153/04.

Therefore, the soil at the Phase Two Property has been considered medium and fine-textured for the purpose of establishing the applicable MECP Site Condition Standards.

Based on the above, the appropriate Site Condition Standards for the Phase Two Property are the Table 3 Standards for:

- Medium and fine-textured soils; and
- Industrial/commercial/community property use.

As such, all analytical results have been compared to these *Table 3 Standards*.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

The Phase Two Property is an irregular-shaped parcel of land approximately 25.31 acres (10.24 hectares) in size located on the south side of Walkley Road, approximately 40 m west of Russell Road, in the City of Ottawa. The Phase Two Property is located in the southeast portion of the City of Ottawa at an elevation of approximately 77 metres above mean sea level (mamsl). The general topography in the local and surrounding area is fairly flat with a slight slope to the south-southwest. No bedrock outcrops were observed on-Site or in the surrounding area. There are no drainage features (e.g., open ditches or swales) present on-Site. Surface water (e.g., storm runoff) is inferred to run overland and drain into the on-Site municipal storm sewer catch basins.

There are no open water bodies or areas of natural significance located on-Site or within the area assessed by the Pinchin Phase One ESA (the Phase One Study Area). A plan showing the Phase One Study Area is presented on Figure 3. The nearest surface water body is a tributary of Ramsay Creek located approximately 260 m south-southwest of the Phase One Property at an elevation of approximately 74 mamsl. The nearest major water body is the Rideau River, located approximately 4.7 kilometres west-northwest of the Phase One Property at an elevation of approximately 58 mamsl.

2.2 Past Investigations

2.2.1 Summary of Previous Environmental Investigations by Others

Reports summarizing the following environmental investigations completed by others and by Pinchin and pertaining to the Phase Two Property were reviewed as part of the Pinchin Phase One ESA:

- *"Phase II Environmental Site Assessment, 2480 Walkley Road, Ottawa, Ontario"* prepared by Golder Associates Ltd. (Golder) for the Client, and dated May 1996 (the 1996 Golder Phase II ESA Report); and

- *"Phase I Environmental Site Assessment, 2480 Walkley Road, Ottawa, Ontario"* prepared by Pinchin for the Client, and dated August 2013 (the 2013 Pinchin Phase I ESA Report

A summary of the salient information identified in the above-referenced reports prepared by others is provided below.

1996 Golder Phase II ESA Report

The 1996 Golder Phase II ESA Report was completed in May 1996 to assess potential soil impacts on-Site associated with the following APECs:

- Historical underground storage tanks (USTs) and fuel distribution pumps associated with a private fuel outlet (PFO) located on the south-central portion of the Site. The USTs and fuel distribution pumps were reportedly removed in the mid-1990s;
- A historical waste oil UST associated with a private automotive repair/servicing facility located in the south-central portion of the Site Building; and
- An in-ground hydraulic hoist, which reportedly leaked hydraulic fluid below the Site Building's concrete floor slab in the south-central portion of the Site Building.

A total of 12 boreholes were advanced at the Site. Nine boreholes were advanced in the vicinity of the historical USTs and fuel distribution pumps, one borehole was advanced in the vicinity of the waste oil UST and two boreholes were advanced in the area of the in-ground hydraulic hoist. Boreholes were advanced to a maximum depth of 3.84 m below ground surface (mbgs). One borehole in the vicinity of the historical fuel distribution pumps and one borehole in the vicinity of the waste oil UST were instrumented with a groundwater monitoring well.

No visual or olfactory evidence of petroleum hydrocarbon (PHC) subsurface impacts were reported in soil samples collected in the vicinity of the former waste oil UST or in-ground hydraulic hoist. Visual and olfactory evidence of PHC subsurface impacts were reported in soil samples collected in the vicinity of the historical fuel distribution pumps and associated USTs. Golder reported free product in the monitoring well located in the vicinity of the fuel distribution pumps.

Golder submitted a soil sample from the vicinity of the historical USTs and a soil sample from the vicinity of the former fuel distribution pumps for laboratory analysis. Soil samples were compared to the 1993 Ministry of Environment and Energy (MOEE) Interim *"Guidelines for the Assessment and Management of Petroleum Contaminated Sites in Ontario"*, for a property with moderate sensitivity (Level II) (*1993 MOEE Standards*). Golder submitted a groundwater sample collected in the vicinity of the fuel distribution pumps and a groundwater sample collected in the vicinity of the waste oil UST. Groundwater samples were compared to the Table 2 *Ontario Drinking Water Objectives* (ODWO). Soil and groundwater samples

were analyzed for total petroleum hydrocarbons (TPH) (gas/diesel and heavy oils), benzene, toluene, ethylbenzene, and xylenes (BTEX), gasoline organic ranges (GOR) and diesel ranges organics (DRO).

The soil sample collected in the vicinity of the historical USTs met the *1993 MOEE Standards* for all parameters analyzed. The soil sample collected in the vicinity of the fuel distribution pumps exceeded the *1993 MOEE Standards* for TPHs and BTEX and met the *1993 MOEE Standards* for GOR and DRO.

The groundwater sample collected in the vicinity of the historical waste oil UST met the ODWO for all parameters analyzed. The groundwater sample collected in the vicinity of the of the fuel distribution pumps exceeded the ODWO for BTEX. It should be noted that there were no ODWO guidelines for TPHs, GRO and DRO and elevated groundwater concentrations of TPH (12,800 µg/L), GRO (12,200 µg/L) and DRO (600 µg/L) were reported in the groundwater sample collected in the vicinity of the fuel distribution pumps.

Golder concluded that no subsurface impacts existed in the vicinity of the former waste oil UST and inside the service garage in the vicinity of the in-ground hydraulic hoist. Golder reported that a zone of PHC subsurface impacts of approximately 1,000 m^3 existed in the vicinity of the former UST and fuel distribution pumps.

As previously noted, based on the site-specific conditions at the Site, the analytical data presented in the 1996 Golder Phase II ESA Report was compared to the *Table 3 Standards.*

All reported concentrations of BTEX in the soil and groundwater samples submitted for analysis met the *Table 3 Standards*, with the following exceptions:

- Soil sample collected at borehole BH96-4 collected in the vicinity of the fuel distribution pumps exceeded the *Table 3 Standards* for benzene (1.04 micrograms per gram (µg/g) vs. the *Table 3 Standard* of 0.32 µg/g), toluene (12.6 µg/g vs. the *Table 3 Standard* of 9.3 µg/g) and xylenes (55 µg/g vs. the *Table 3 Standard* of 26 µg/g); and
- Groundwater collected at borehole BH96-4 collected in the vicinity of the fuel distribution pumps exceeded the *Table 3 Standards* for benzene (8,400 µg/L vs. 44 µg/L).

There is no clear method to compare measured concentrations of TPH, GOR and DRO to the *Table 3 Standards,* as the *Table 3 Standards* utilize carbon fractions in hydrocarbons to characterize soil and groundwater. Based on a review of the analytical data presented in the 1996 Golder Phase II ESA Report, it is Pinchin's opinion that hydrocarbon constituents may be present in the soil and/or groundwater at concentrations which may exceed the *Table 3 Standards*.

2013 Pinchin Phase I ESA Report

The 2013 Pinchin Phase I ESA Report was completed by Pinchin in general accordance with the CSA document entitled "*Phase I Environmental Site Assessment*" (CSA Document Z768-01), dated November 2001 (reaffirmed 2016), including a review of readily available historical records and reasonably ascertainable regulatory information, a Site reconnaissance, interviews, an evaluation of information and reporting. In addition, the 2013 Pinchin Phase I ESA Report reviewed the 1996 Golder Phase II ESA Report.

Based on Pinchin's review of the 2013 Pinchin Phase I ESA Report, Pinchin indicated that the following could result in potential subsurface impacts at the Site:

- Historical USTs and fuel distribution pumps associated with a former PFO were located on the south-central portion of the Site. The USTs and fuel distribution pumps were reportedly removed in the mid-1990s. A previous environmental investigation completed in the vicinity of the historical USTs and fuel distribution pumps reported concentrations of benzene, toluene and xylenes in exceedance of the *Table 3 Standards*. Groundwater collected in the vicinity of the fuel distribution pumps also exceeded the *Table 3 Standards* for benzene. In addition, elevated groundwater concentrations of TPHs, GOR and DRO were reported in the soil and groundwater samples collected in the vicinity of the fuel distribution pumps. However, there is no clear method to compare measured concentrations of TPH, GOR and DRO to the *Table 3 Standards* which utilizes carbon fractions in hydrocarbons to characterize soil and groundwater. It should be noted that the previous environmental investigation completed at the Site did not conduct adequate soil and groundwater confirmatory sampling at the Site to characterize subsurface impacts in the vicinity of the historical USTs and fuel distribution pumps;
- A waste oil UST, formerly associated with a private automotive repair/servicing facility located in the south-central portion of the Site Building, was reportedly removed in the mid-1990s. A previous environmental investigation completed at the Site did not conduct adequate soil and groundwater confirmatory sampling in the vicinity of a historical waste oil UST to characterize subsurface impacts; and
- An in-ground hydraulic hoist was historically located in the south-central portion of the Site Building. In addition, the previous environmental investigation noted that the in-ground hydraulic hoist leaked hydraulic fluid below the Site Building's concrete floor. A previous environmental investigation completed at the Site did not conduct soil and groundwater confirmatory sampling in the vicinity of this former in-ground hydraulic hoist.

Previous Environmental Report Summary

Based on Pinchin's review of the above-referenced reports prepared by others, the following could result in potential subsurface impacts, or are known subsurface impacts, at the Phase Two Property:

- Historical USTs and fuel distribution pumps associated with a former PFO were located on the south-central portion of the Site. The USTs and fuel distribution pumps were reportedly removed in the mid-1990s. A previous environmental investigation completed in the vicinity of the historical USTs and fuel distribution pumps, reported concentrations of benzene, toluene and xylenes in exceedance of the *Table 3 Standards*. Groundwater collected in the vicinity of the fuel distribution pumps also exceeded the *Table 3 Standards* for benzene. In addition, elevated groundwater concentrations of TPHs, GOR and DRO were reported in the soil and groundwater samples collected in the vicinity of the fuel distribution pumps. However, there is no clear method to compare measured concentrations of TPH, GOR and DRO to the *Table 3 Standards* which utilizes carbon fractions in hydrocarbons to characterize soil and groundwater. It should be noted that the previous environmental investigation completed at the Site did not conduct adequate soil and groundwater confirmatory sampling at the Site to characterize subsurface impacts in the vicinity of the historical USTs and fuel distribution pumps;
- A waste oil UST, formerly associated with a private automotive repair/servicing facility located in the south-central portion of the Site Building, was reportedly removed in the mid-1990s. A previous environmental investigation completed at the Site did not conduct adequate soil and groundwater confirmatory sampling in the vicinity of a historical waste oil UST to characterize subsurface impacts; and
- An in-ground hydraulic hoist was historically located in the south-central portion of the Site Building. In addition, the previous environmental investigation noted that the in-ground hydraulic hoist leaked hydraulic fluid below the Site Building's concrete floor. A previous environmental investigation completed at the Site did not conduct soil and groundwater confirmatory sampling in the vicinity of this former in-ground hydraulic hoist.

2.2.2 Pinchin Phase One ESA Summary

Pinchin conducted a Phase One ESA in support of a Site Plan Approval with the City of Ottawa. The Phase One ESA consisted of a Site visit, interviews with Site personnel, records review, evaluation of information, and preparation of a written report which was completed under the supervision of a QP. A plan showing the Phase One Study Area is attached as Figure 3.

The Phase One ESA was completed recently (i.e., within three months of the start of the Phase Two ESA) and in accordance with the requirements of O. Reg. 153/04. Therefore, the information provided within the Phase One ESA Report is considered adequate such that it can be relied upon for the purpose of this Phase Two ESA.

Based on information obtained during the Phase One ESA, a total of five APECs and corresponding PCAs and COPCs were identified that could potentially affect the environmental condition of the subsurface media on, in or under the Phase Two Property. The COPCs associated with each APEC were determined based on a review of the PCAs and substances associated with the related activities, and on several sources of information, including but not limited to, Pinchin's experience with environmental contamination and hazardous substances, common industry practices for analysis of such contaminants and point sources, literature reviews of COPCs and associated hazardous substances, and evaluations of contaminant mobility and susceptibility for migration in the subsurface.

The following table presents the APECs and their associated PCAs and COPCs:

Summary of APECs

Area of Potential Environmental Concern	**Location of Area of Potential Environmental Concern on Phase One Property**	**Potentially Contaminating Activity**	**Location of PCA (On-Site or Off-Site)**	**Contaminants of Potential Concern**	**Media Potentially Impacted (Groundwater, Soil and/or Sediment)**
APEC #1 (Former on-Site PFO)	South-central portion of Phase One Property	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #2 (Former on-Site automotive repair/servicing operation with in-ground hoist and significant hazardous waste generation)	South-central portion of the Site Building	Item 52 – Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems	On-Site	PHCs BTEX PAHs VOCs	Soil and Groundwater

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #3 (Former waste oil underground storage tank associated with the former on-Site automotive repair/servicing operation)	South-central portion of the Site Building	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #4 (three-stage oil/water separator associated with the former on-Site automotive repair/servicing operation)	South-central portion of the Site Building	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #5 (former railway spur line located on the southeast portion of the Phase One Property)	Southeast portion of the Phase One Property	Item 46 – Rail Yards, Tracks and Spurs	On-Site	PAHs	Soil

Notes:

BTEX – benzene, toluene, ethylbenzene and total xylenes
PHCs – petroleum hydrocarbon fractions F1-F4
PAHs – polycyclic aromatic hydrocarbons
VOCs – volatile organic compounds

Plans showing the locations of the identified PCAs and APECs with respect to the Phase Two Property and surrounding properties are presented as Figures 3 and 4.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The scope of work for this Phase Two ESA was prepared to address the APECs identified for the Phase Two Property and consisted of the following:

- Prepared a health and safety plan and arranged for the completion of underground utility locates prior to the commencement of drilling activities;
- Retained Strata Drilling Group Inc. (Strata) to advance boreholes and complete monitoring well installations using a Geoprobe 7822DT™ drill rig and Geoprobe 420M™ drill rig. Strata is licensed by the MECP in accordance with Ontario Regulation 903 (as amended) (O. Reg. 903) to undertake borehole drilling/well installation activities. Strata advanced eight boreholes at the Phase Two Property to investigate the potential for soil contaminants associated with the APECs identified in the Phase One ESA. Four of the advanced boreholes were instrumented with a monitoring well in accordance with O. Reg. 903 for the purpose of monitoring hydrogeological conditions and groundwater quality on-Site;
- Collected soil samples at regular intervals within each borehole;
- Field screened soil samples for petroleum-derived vapours in soil headspace using a combustible gas indicator (CGI) calibrated to hexane and VOC-derived vapours in soil headspace using a photoionization detector (PID), in addition to visual and olfactory considerations;
- Submitted a minimum of one “worst case” soil sample from each borehole for chemical analysis of:
  - PHCs F1-F4;
  - VOCs; and
  - PAHs.
- Developed each of the newly-installed monitoring wells prior to the collection of groundwater samples;
- Submitted one representative groundwater sample from each of the newly-installed monitoring wells and for the chemical analysis of the following parameters:
  - PHCs F1-F4;
  - VOCs; and
  - PAHs.

- Submitted one duplicate soil sample and one duplicate groundwater sample for chemical analysis of the above-noted parameters for quality assurance/quality control (QA/QC) purposes;
- Submitted one trip blank for the groundwater sampling program for the chemical analysis of VOCs for QA/QC purposes;
- Submitted one representative soil samples for the laboratory analysis of grain size and four representative soil samples for the laboratory analysis of pH in order to confirm the appropriate MECP Site Condition Standards;
- Conducted groundwater monitoring at each of the newly-installed groundwater monitoring wells by measuring depth to groundwater from both the top of casing and ground surface reference points, and assessing the presence/absence of non-aqueous phase liquid (NAPL) using an oil/water interface probe;
- Compared the soil and groundwater analytical results to the applicable criteria stipulated in the *Table 3 Standards*; and
- Prepared a report (this report) documenting the findings of the Phase Two ESA which meets the reporting requirements listed in *Schedule E* and *Table 1 – Mandatory Requirements for Phase Two Environmental Site Assessment Reports* of O. Reg. 153/04.

3.2 Media Investigated

The scope of work for this Phase Two ESA was prepared to address the APECs and corresponding media at the Phase Two Property as identified through completion of the Phase One ESA.

The media of concern for the Phase Two ESA were soil and groundwater. Pinchin did not conduct sediment sampling as part of this Phase Two ESA as there are no surface water bodies and, therefore, no sources of sediment present on-Site.

For assessing the soil at the Phase Two Property for the presence of COPCs, a total of eight boreholes were advanced at locations across the Phase Two Property for the purpose of collecting soil samples. A total of eight soil samples, comprising select “worst case” samples collected from each of the boreholes, were submitted for laboratory analysis of the COPCs.

For assessing the groundwater at the Phase Two Property for the presence of COPCs, groundwater monitoring wells were installed in four of the boreholes completed at the Phase Two Property to permit the collection of groundwater samples. Four groundwater samples were submitted to the analytical laboratory for analysis of the COPCs.

3.3 Phase One Conceptual Site Model

A conceptual site model (CSM) was created to provide a summary of the findings of the Phase One ESA. The Phase One CSM is summarized in Figures 1 through 4, which illustrate the following features within the Phase One Study Area, where present:

- Existing buildings and structures;
- Water bodies located in whole or in part within the Phase One Study Area;
- Areas of natural significance located in whole or in part within the Phase One Study Area;
- Drinking water wells located at the Phase One Property;
- Land use of adjacent properties;
- Roads within the Phase One Study Area;
- PCAs within the Phase One Study Area, including the locations of tanks; and
- APECs at the Phase One Property.

The following provides a narrative summary of the Phase One CSM:

- The Phase One Property is an irregular-shaped parcel of land approximately 25.31 acres (10.24 hectares) in size located on the south side of Walkley Road, approximately 40 m west of Russell Road, in the City of Ottawa. The Phase One Property is improved with a single-storey commercial office/warehouse building complete with a two-storey portion (Site Building) that occupies the central and west portions of the Phase One Property. The Phase One Property has been used for various commercial purposes (primarily warehousing) since initial development in approximately 1972;
- No water bodies were identified within the Phase One Study Area. The nearest water body is a tributary of Ramsay Creek located approximately 260 m south-southwest of the Phase One Property at an elevation of approximately 74 mamsl;
- No areas of natural significance were identified within the Phase One Study Area;
- No drinking water wells were located on the Phase One Property;
- A total of 13 PCAs were identified within the Phase One Study Area, consisting of 11 PCAs at the Phase One Property and two PCAs within the Phase One Study Area, outside of the Phase One Property. As shown on Figure 4, two of the off-Site PCAs are a former PFO located approximately 40 m west of the Phase One Property (2370 Walkley Road) and an existing railway line located approximately 10 m south of the Phase One Property. Groundwater flow within the Phase One Study Area is interpreted to be to the south towards the tributary of Ramsay Creek and these off-Site PCAs are inferred to be

hydraulically down/transgradient of the Phase One Property. Given the distances between these PCAs and the Phase One Property, as well as the fact that these PCAs are located down/transgradient in relation to the inferred groundwater flow direction from the Phase One Property, these off-Site PCAs are not considered to result in APECs at the Phase One Property. All PCAs identified at the Phase One Property, with the exception of the current on-Site diesel and waste oil ASTs and the hydraulic oil reservoirs, or the on-Site oil-cooled transformers, represent APECs at the Phase One Property. Figures 3 and 4 provide a detailed summary of the APECs and associated PCAs;

- Underground utilities at the Phase One Property provide potable water, natural gas, electrical, telephone, cable and sewer services to the Site Building. Plans were not available to confirm the depths of these utilities, but they are estimated to be located approximately 2 to 3 mbgs. The known depth to groundwater at the Phase One Property is approximately 1.8-2.0 mbgs and as such, the utility corridors may act as preferential pathways for contaminant distribution and transport in the event that shallow subsurface contaminants exist at the Phase One Property;
- The Phase One Property and the surrounding properties located within the Phase One Study Area are located within alluvial deposits consisting of stratified gravel, sand, silt and clay. Bedrock is expected to consist of sedimentary rocks consisting of limestone, dolomite, shale, argillite, sandstone, quartzite, and/or grit. During a previous on-Site environmental investigation (i.e., the 1996 Golder Phase II ESA Report), the soil stratigraphy was observed to consist of grey brown silty clay to a depth of approximately 3.84 mbgs; and
- The Phase One Property is relatively flat, with the exception of an elevated area of vacant undeveloped land located on the east-central and southeast portions of the Phase One Property. The area surrounding the Phase One Property slopes gradually to the south-southwest. Local groundwater flow is inferred to be to the south, based on the topography of the area surrounding the Phase One Property and the location of the tributary of Ramsay Creek. Regional groundwater flow is inferred to be to the northwest towards the Rideau River and the Ottawa River.

There were no deviations from the Phase One ESA requirements specified in O. Reg. 153/04 or absence of information that have resulted in uncertainty that would affect the validity of the Phase One CSM.

3.4 Impediments

Pinchin had full access to the Phase Two Property throughout the completion of the Phase Two ESA.

4.0 INVESTIGATION METHOD

4.1 General

The Phase Two ESA field work was conducted in accordance with Pinchin's standard operating procedures (SOPs), which have been developed in accordance with the procedures and protocols provided in the MECP document entitled "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*", dated December 1996, in the Association of Professional Geoscientists of Ontario document entitled *"Guidance for Environmental Site Assessments under Ontario Regulation 153/04 (as amended)"*, dated April 2011, and in O. Reg. 153/04.

In addition, Pinchin's SOP for groundwater sampling using low-flow purging and sampling procedures is based upon the United States Environmental Protection Agency Region I document entitled *"Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells"* dated January 19, 2010 (Low Flow Sampling Protocol).

No deviations from Pinchin's SOPs occurred during the Phase Two ESA.

4.2 Drilling and Excavating

Pinchin retained Strata to advance a total of eight boreholes at the Phase Two Property on November 6 and 7, 2018 to investigate the potential presence of COPCs associated with the APECs identified in the Phase One ESA. Four of the advanced boreholes (MW-1, MW-2, MW-3 and MW-8) were completed as monitoring wells in accordance with O. Reg. 903 for the purpose of monitoring hydrogeological conditions and groundwater quality on-Site. The boreholes were drilled to a maximum depth of 6.1 mbgs using a Geoprobe 7822DT™ drill rig and Geoprobe 420M™ drill rig. Upon completion of the drilling and monitoring well installations, Strata completed and filed a Water Well Record with the MECP for the well cluster in accordance with O. Reg. 903.

The locations of the boreholes, test pits and monitoring wells are provided on Figure 5. A description of the subsurface stratigraphy encountered during the drilling program is documented in the borehole logs included in Appendix B. Well completion details and elevation data are provided in Table 1 and on the borehole logs provided in Appendix B.

Measures taken to minimize the potential for cross-contamination during the borehole drilling program included:

- The use of dedicated, disposable PVC soil sample liners for soil sample collection during direct-push drilling;
- The extraction of soil samples from the interior of the sampling device (where possible), rather than from areas in contact with the sampler walls;
- The cleaning of all non-dedicated drilling and soil sampling equipment before initial use and between sample and borehole locations; and
- The use of dedicated and disposable nitrile gloves for all soil sample handling.

Soil samples were collected at continuous intervals during direct-push drilling at a general frequency of one soil sample for every 0.75 metres drilled.

4.3 Soil Sampling

Soil samples were collected in the boreholes at continuous intervals using 3.8 cm inner diameter direct push soil samplers with dedicated single-use sample liners.

Discrete soil samples were collected from the dedicated sample liners using a stainless-steel knife. Dedicated and disposable nitrile gloves were worn during the collection of each soil sample. A portion of each sample was placed in a re-sealable plastic bag for field screening and a portion was containerized in laboratory-supplied glass sampling jars. Following sample collection, the sample jars were placed into dedicated coolers with ice for storage pending transport to Maxxam Analytics Inc. (Maxxam) in Ottawa, Ontario. Formal chain of custody records were maintained between Pinchin and the staff at Maxxam.

Subsurface soil conditions were logged on-Site by Pinchin personnel at the time of borehole drilling. Based on the soil samples recovered during the borehole drilling program, the soil stratigraphy at the drilling locations generally consists of sand and gravel, and sandy silt to a maximum depth of approximately 3.2 mbgs, followed by silty clay and clay that extended to the maximum investigation depth of 6.1 mbgs.

No odours or staining were observed in the soil samples collected during the borehole drilling program.

A detailed description of the subsurface stratigraphy encountered during the borehole drilling and test pitting program is documented in the borehole logs included in Appendix B.

4.4 Field Screening Measurements

Soil samples were collected at each of the sampling intervals during the drilling activities and analyzed in the field for solvent-derived vapour concentrations in soil headspace with a MiniRae 3000™ photo-ionization detector (PID). The soil samples collected for field-screening purposes were placed in re-sealable plastic bags. The plastic bags were stored in a warm environment for a minimum of five minutes and agitated in order to release organic vapours within the soil pore space prior to analysis with the PID.

Based on a review of the operator's manual, the MiniRae 3000™ PID has an accuracy/precision of up to 0.1 parts per million (ppm). The PID was calibrated prior to field use by Pinchin.

In general, the soil samples with the highest measured vapour concentrations (i.e., "worst case") from a given borehole were submitted for laboratory analysis. Sample depth and visual and olfactory observations of potential contaminants were also used in conjunction with the vapour concentrations in making the final selection of "worst case" soil samples for laboratory analysis.

4.5 Groundwater Monitoring Well Installation

Following soil sampling, Strata installed a groundwater monitoring well in boreholes MW-1, MW-2, MW-3 and MW-8, under the full-time supervision of a Pinchin field representative.

Each of the monitoring wells was constructed with 51-millimetre (2-inch) inner diameter (ID) flush-threaded schedule 40 polyvinyl chloride (PVC) risers followed by a 3.1 metre length of No. 10 slot PVC screen which intersected to perceived water table. Each well screen was sealed at the bottom using a threaded cap and each riser was sealed at the top with a lockable J-plug cap. Silica sand was placed around and above the screened interval to form a filter pack around the well screen. A layer of bentonite was placed above the silica sand and was extended to just below the ground surface. A Schedule 40 PVC outer casing, approximately 15 cm in length, was installed in each well around the top of the riser and into the top of the bentonite seal. A bentonite seal was then placed between the riser and outer casing. A protective flush-mount cover was installed at the ground surface over each riser pipe and outer casing and cemented in place.

All monitoring wells were installed in accordance with O. Reg. 903. The monitoring well construction details are provided on the borehole logs in Appendix B. Upon completion of the monitoring well installations, Strata completed and filed a Water Well Record with the MECP for the well cluster.

No additional soil sampling or groundwater sampling was completed during the well installations.

4.6 Groundwater Sampling

The monitoring wells were sampled a minimum of 24 hours after the completion of well development activities (see Section 5.5). Monitoring wells MW-1, MW-2, MW-3 and MW-8 were sampled in accordance with the Low Flow Sampling Protocol as described below.

Well purging was completed using a Geopump™ peristaltic pump. Groundwater was returned to the surface from the peristaltic pump via dedicated 0.64-cm (1/4-inch) ID polyethylene tubing. A Horiba Water Quality Meter connected to a flow-through cell was used to monitor water quality parameters during groundwater purging to ensure water quality parameter stabilization (i.e., steady-state conditions) was achieved prior to sample collection. The flow rate of the peristaltic pump was adjusted accordingly to minimize drawdown of the water table and the introduction of sediment into the samples.

At each well, once field parameter stabilization was achieved, groundwater samples were collected using the peristaltic pump and dedicated polyethylene tubing by pumping groundwater directly into new laboratory-supplied sample bottles at a pumping rate of less than 0.5 litres per minute.

Following sample collection, the sample bottles were placed into dedicated coolers with ice for storage pending transport to Maxxam. Formal chain of custody records were maintained between Pinchin and the staff at Maxxam.

4.7 Sediment Sampling

Sediment sampling was not completed as part of this Phase Two ESA.

4.8 Analytical Testing

All collected soil and groundwater samples were delivered to Maxxam for analysis. Maxxam is an independent laboratory accredited by the Canadian Association for Laboratory Accreditation. Formal chain of custody records of the sample submissions were maintained between Pinchin and the staff at Maxxam. Maxxam conducted the laboratory analysis in accordance with the MECP document entitled *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* dated March 9, 2004 and revised on July 1, 2011 (*Analytical Protocol)*.

4.9 Residue Management Procedures

Soil cuttings generated by the borehole drilling program were containerized in two 205-L drums that were stored adjacent to the east boundary of the Phase Two Property.

One composite soil sample (representative of the excess soil cuttings generated by the borehole drilling program) collected from the boreholes was submitted for the laboratory analysis of the leachate concentrations of inorganics, VOCs, PCBs and benzo(a)pyrene in accordance with the Toxicity Characteristic Leachate Procedure (TCLP) analysis as per Ontario Regulation 347/90 (O. Reg. 347/90) in order to characterize the soil cuttings for off-Site disposal purposes. The TCLP analytical results reported that the excess soil cuttings are classified as non-hazardous waste in accordance with O. Reg. 347/90.

Given that the laboratory results for the submitted groundwater samples indicated that all reported concentrations for the parameters analyzed met the corresponding *Table 3 Standards*, and no evidence of NAPL, odours or sheens was observed during sampling and monitoring activities, the purge water and equipment cleaning fluids were deposited on the ground surface at the Phase Two Property.

4.10 Quality Assurance and Quality Control Measures

The QA/QC protocols that were followed during borehole drilling and soil and groundwater sampling so that representative samples were obtained are described in the following subsections.

4.10.1 Sample Containers, Preservation, Labelling, Handling and Custody of Samples

Soil and groundwater samples were containerized within laboratory-prepared sample containers in accordance with the *Analytical Protocol*.

The following soil sample containers and preservatives were used:

- VOCs and PHCs F1: 40 millilitre (mL) glass vials with septum-lids, pre-charged with methanol preservative; and
- PHCs F2-F4, PAHs, metals, inorganics, pH and grain size: 120 or 250 mL unpreserved clear glass wide-mouth jars with a Teflon™–lined lid.

The following groundwater sample containers and preservatives were used:

- VOCs and PHCs F1: 40 mL clear glass vials with septum-lids, pre-charged with sodium bisulphate preservative;
- PHCs F2-F4: 250 mL amber glass bottles with Teflon™–lined lids, pre-charged with sodium bisulphate preservative; and
- PAHs: 250 mL unpreserved amber glass bottles with Teflon™–lined lids.

Trip blank water samples for VOC parameter analysis were provided by Maxxam in 40 mL clear glass vials filled with VOC-free water.

Each soil, groundwater and QA/QC sample was labelled with a unique sample identifier along with the company name, sampling date, Pinchin project number and analysis required.

Each sample was placed in a cooler on ice immediately upon collection and prior to submission to Maxxam for analysis. Formal chain of custody records of the sample submissions were maintained between Pinchin and the staff at Maxxam.

4.10.2 Equipment Cleaning Procedures

Dedicated, single-use PVC sample liners were used for each soil sample collected, which precluded the need for drilling equipment cleaning during soil sample collection. Equipment utilized in soil sample collection and handling (i.e., spatulas used to remove soil from the sample liners) was cleaned with a solution of Alconox™ detergent and potable water prior to initial use and between samples.

4.10.3 Field Quality Control Measures

One field duplicate soil sample was collected by Pinchin during the Phase Two ESA for analysis of one or more of the COPCs. The frequency of field duplicate soil sample analysis complied with the requirement that one field duplicate soil sample is analyzed for every ten regular soil samples submitted for analysis of the COPCs. The soil sample field duplicate pairings and corresponding analytical schedules are summarized as follows:

- Soil sample “MW-3 SS-4” and its corresponding field duplicate “DUP-1” were submitted for laboratory analysis of PHCs (F1-F4), VOCs and PAHs.

One field duplicate groundwater sample was collected by Pinchin during the Phase Two ESA for analysis of the COPCs. The frequency of field duplicate groundwater sample analysis complied with the requirement that one field duplicate groundwater sample is analyzed for every ten regular groundwater samples submitted for analysis of the COPCs. The groundwater sample field duplicate pairings and corresponding analytical schedules are summarized as follows:

- Groundwater sample “MW-1” and its corresponding field duplicate “DUP-2” were submitted for laboratory analysis of PHCs (F1-F4), VOCs and PAHs.

Laboratory-prepared trip blanks were analyzed for PHC and VOC parameters to comply with the requirement that one trip blank be analyzed for each submission of groundwater samples for PHC and VOC parameter analysis.

The calibrations of the MiniRae 3000™ PID used for field screening and the Horiba Water Quality Meter used for water quality parameter measurements were checked by the equipment supplier (Pine Environmental) prior to use in the field by Pinchin.

Pine completed the calibration checks in accordance with the equipment manufacturers’ specifications and/or Pine’s SOPs.

4.10.4 QA/QC Sampling Program Deviations

There were no deviations from the QA/QC sampling program.

5.0 REVIEW AND EVALUATION

5.1 Geology

The elevation of the Phase Two Property, based on information obtained from the Ontario Base Map series, is approximately 77 mamsl. The general topography in the local and surrounding area is generally flat, with a slight slope towards the southwest. Bedrock outcrops were not observed on-Site or in the surrounding area.

Bedrock is expected to consist of sedimentary rocks consisting of limestone, dolomite, shale, argillite, sandstone, quartzite, and/or grit. The topography is considered to be mainly flat to rolling low local relief with dry surface water drainage conditions.

Based on Pinchin's observations noted during the drilling activities completed as part of this Phase Two ESA, the Phase Two Property is the soil stratigraphy at the drilling locations generally consists of sand and gravel, and sandy silt to a maximum depth of approximately 3.2 mbgs, followed by silty clay and clay that extended to the maximum investigation depth of 6.1 mbgs. Bedrock was not encountered in any of the boreholes advanced by Pinchin.

Water level measurements collected as part of this Phase Two ESA indicate that the shallow water table at the Phase Two Property is present at a depth range of approximately 1.53 mbgs to 2.36 mbgs. Based on the depth to groundwater, the migration of COPCs at the Phase Two Property is not anticipated to be influenced by near surface fill materials or underground utility conduits.

The APECs investigated by the Phase Two ESA related to surface soil impacted with PHC, VOC and PAH parameters. Any potential impacts on groundwater quality from these contaminants would be expected in the shallow groundwater zone and, as such, the water table groundwater quality (unconfined aquifer) was assessed during the Phase Two ESA.

No groundwater impacts were identified in the unconfined aquifer and, as such, assessment of groundwater quality at deeper depths was not required.

5.2 Groundwater Elevations and Flow Direction

The wells screens in each monitoring well installed by Pinchin were of a consistent length (i.e., 3.05 m) All monitoring wells were installed at depth intervals intended to investigate groundwater quality in the shallow groundwater zone within the unconfined aquifer. Given that PHCs were a COPC for groundwater at the Phase Two Property the monitoring wells were installed at the Phase Two Property such that the well screens intersected the water table, where applicable.

The following summarizes the findings of a groundwater monitoring event completed on November 14 and 15, 2018:

- The depths to groundwater measured within the on-Site monitoring wells installed within the unconfined aquifer ranged from 1.53 mbgs at monitoring well MW-1 to 2.36 mbgs at monitoring well MW-8; and
- No NAPL thicknesses were measured with the oil/water interface probe or observed in the dedicated bailers in any of the groundwater monitoring wells.

There is insufficient information available for Pinchin to assess the potential for temporal variability in groundwater depths at the Phase Two Property.

Interaction of the groundwater at the Phase Two Property with buried utilities is possible given that the water table in some areas of the Phase Two Property is located at approximate depths of between 1.53 and 2.36 mbgs and the utilities are known to be located at depths ranging from approximately 2 to 3 mbgs. However; given that groundwater impacts were not identified at the Phase Two Property, preferential migration of contaminants along utility corridors is not considered to be a concern at this time.

5.3 Fine-Medium Soil Texture

One soil sample collected from the boreholes advanced at the Phase Two Property was submitted for 75 micron single-sieve grain size analysis. The soil sample selected for analysis was considered to be representative of the stratigraphic units most likely to be impacted based on the stratigraphy observed during borehole drilling. The soil sample selected for analysis was considered to be representative of the primary stratigraphic units observed at the borehole locations, which was a native silty clay and clay unit. The soil sample of the native silty clay and clay unit present beneath the surficial fill material at the Phase Two Property were classified as medium to fine-textured.

Based on the grain size analysis results and the observed stratigraphy at the borehole locations at the Phase Two Property, it is the QP's opinion that over one-third of the overburden at the Phase Two Property is medium to fine-textured as defined by O. Reg. 153/04. Therefore, the soil at the Phase Two Property was interpreted to be medium to fine-textured for the purpose of determining the MECP Site Condition Standards applicable to the Phase Two Property.

5.4 Soil Field Screening

Soil vapour headspace concentrations measured in the soil samples collected as part of this Phase Two ESA are presented in the borehole logs. Soil vapour headspace values measured with the PID ranged from 0.0 ppm_v to 0.2 ppm_v from soil samples collected at the Phase Two Property.

One most apparent "worst case" soil samples recovered from each borehole were submitted for laboratory analysis of PHCs F1-F4, VOCs and PAHs, based on vapour concentrations as well as visual and/or olfactory considerations and groundwater depths.

5.5 Soil Quality

A total of eight boreholes were advanced at the Phase Two Property at the locations shown on Figure 5 in order to assess for the presence of subsurface impacts resulting from the APECs identified in the Pinchin Phase One ESA. Select soil samples were collected from each of the advanced boreholes and submitted for laboratory analysis of the COPCs. The soil sample locations, depths and laboratory analyses are summarized in the borehole logs.

The soil sample analytical results were compared to the *Table 3 Standards* and the following subsections provide a discussion of the findings.

5.5.1 VOCs

The soil sample analytical results for VOCs, along with the corresponding *Table 3 Standards*, are presented in Table 6. As indicated in Table 6, all reported concentrations of VOCs in the soil samples submitted for analysis were below the *Table 3 Standards*.

5.5.2 PHCs F1-F4

The soil sample analytical results for PHCs (F1-F4), along with the corresponding *Table 3 Standards*, are presented in Table 5. As indicated in Table 5, all reported concentrations of PHCs (F1- F4) in the soil samples submitted for analysis were below the *Table 3 Standards*.

5.5.3 PAHs

The soil sample analytical results for PAHs, along with the corresponding *Table 3 Standards*, are presented in Table 7. As indicated in Table 7, all reported concentrations of PAHs in the soil samples submitted for analysis were below the *Table 3 Standards*.

5.5.4 General Comments on Soil Quality

The soil sample results show no evidence of chemical or biological transformations of chemical parameters in the subsurface.

The soil sample analytical results also show no evidence of NAPLs in the subsurface at the Site. In addition, no evidence of NAPL was observed during borehole drilling.

5.6 Groundwater Quality

Groundwater samples were collected from monitoring wells MW-1, MW-2 MW-3 and MW-8 and submitted for analysis of the COPCs to assess for the presence of subsurface impacts within the APECs identified in the Pinchin Phase One ESA. The locations of the monitoring wells are shown on Figure 5. The groundwater sample collection depths and laboratory analysis are summarized in Table 5. In addition, all groundwater samples collected for benzo(a)pyrene analysis were filtered by Maxxam prior to analysis as permitted by the *Analytical Protocol*.

The groundwater sample analytical results were compared to the *Table 3 Standards* and the following subsections provide a discussion of the findings.

5.6.1 VOCs

The groundwater analytical results for VOCs, along with the corresponding *Table 3 Standards*, are presented in Table 9. As indicated in Table 9, all reported concentrations of VOCs in the groundwater samples submitted for analysis were below the *Table 3 Standards.*

5.6.2 PHCs F1-F4

The groundwater analytical results for PHCs F1-F4, along with the corresponding *Table 3 Standards*, are presented in Table 8. As indicated in Table 8, all reported concentrations of PHCs F1-F4 in the groundwater samples submitted for analysis met the *Table 3 Standards.*

5.6.3 PAHs

The groundwater analytical results for PAHs, along with the corresponding *Table 3 Standards*, are presented in Table 10. As indicated in Table 10, all reported concentrations of PAHs in the groundwater samples submitted for analysis met the *Table 3 Standards*.

5.6.4 General Comments on Groundwater Quality

The groundwater sample results show no evidence of chemical or biological transformations of chemical parameters in the subsurface.

The groundwater sample analytical results also show no evidence of NAPLs in the subsurface at the Site.

5.7 Sediment Quality

Sediment sampling was not completed as part of this Phase Two ESA.

5.8 Quality Assurance and Quality Control Results

QA/QC comprises technical activities that are used to measure or assess the effect of errors or variability in sampling and analysis. QA/QC may also include specification of acceptance criteria for the data and corrective action(s) required when criteria are exceeded. QA/QC also includes checks performed to evaluate laboratory analytical quality, checks designed to assess the combined influence of field sampling and laboratory analysis and checks to specifically evaluate the potential for cross contamination during sampling and sample handling.

The QA/QC samples collected and submitted for analysis by Pinchin during the Phase Two ESA consisted of the following:

- Field duplicate soil and groundwater samples to assess the suitability of field sampling methods and laboratory performance; and
- A trip blank water sample to assess whether ambient conditions during transport of groundwater sample containers from the analytical laboratory to the Phase Two Property and back to the analytical laboratory may have biased the groundwater sample results with respect to volatile constituents.

In addition to the above, laboratory quality control activities and sample checks employed by Maxxam included:

- Method blanks - where a clean sample is processed simultaneously with and under the same conditions (i.e., using the same reagents and solvents) as the samples being analyzed. These are used to confirm whether the instrument, reagents and solvents used are contaminant free;
- Laboratory duplicates - where two samples obtained from the sample container are analyzed. These are used to evaluate laboratory precision;

- Surrogate spike samples - where a known mass of compound not found in nature (e.g., deuterated compounds such as toluene-d8) but that has similar characteristics to the analyzed compounds is added to a sample at a known concentration. These are used to assess the recovery efficiency;
- Matrix spike samples - where a known mass of target analyte is added to a matrix sample with known concentrations. These are used to evaluate the influence of the matrix on a method's recovery efficiency; and
- Use of standard or certified reference materials - a reference material where the content or concentration has been established to a very high level of certainty (usually by a national regulatory agency). These are used to assess accuracy.

The results of the field QA/QC samples are discussed in the following subsections.

5.8.1 Soil Duplicate Results

During borehole soil sampling activities, one soil duplicate sample pair, consisting of soil sample "MW-3 SS-4" and its corresponding field duplicate "DUP-1" were submitted for laboratory analysis of PHCs (F1-F4), VOCs and PAHs.

The quality of the analytical results was evaluated by calculating relative percent differences (RPDs) for the parameters analyzed for the original and field duplicate samples. The RPD for each parameter was calculated using the following equation:

$$RPD = \frac{(\text{Original Concentration} - \text{Duplicate Concentration}) \times 100}{(\text{Original Concentration} + \text{Duplicate Concentration})/2}$$

An RPD was not calculated unless the parameter concentration in both the original and duplicate sample had detectable concentrations above the corresponding practical quantitation limit for the parameter, which is equal to five times the lowest laboratory reportable detection limit (RDL).

The calculated RPDs for the original and field duplicate soil samples have been compared to performance standards provided in the *Analytical Protocol.* Pinchin notes that although these performance standards only strictly apply to laboratory duplicate samples, they have been considered suitable for comparison to the field duplicate soil sample results as well.

Each of the calculated RPDs met the corresponding performance standards.

Based on Pinchin's review of the calculated RPD values for the submitted soil sample duplicate pairing, the level of observed variance in the reported analytical results is considered acceptable for the purpose of meeting the data quality objectives of this Phase Two ESA.

5.8.2 Groundwater Sample Duplicate Results

During groundwater sampling activities, one groundwater duplicate sample pair, consisting of groundwater sample “MW-1” and its corresponding field duplicate “DUP-2” were submitted for laboratory analysis of PHCs (F1-F4), VOCs and PAHs.

The calculated RPDs for the original and field duplicate groundwater samples have been compared to performance standards provided in the *Analytical Protocol.* Pinchin notes that although these performance standards only strictly apply to laboratory duplicate samples, they have been considered suitable for comparison to the field duplicate groundwater sample results as well.

Each of the calculated RPDs met the corresponding performance standard.

Based on Pinchin’s review of the calculated RPD values for the submitted groundwater sample duplicate pairing, the level of observed variance in the reported analytical results is considered acceptable for the purpose of meeting the data quality objectives of this Phase Two ESA.

5.8.3 Groundwater Trip Blank Results

A trip blank sample, consisting of VOC-free water contained within a set of VOC sample vials, was prepared by Maxxam and accompanied the VOC groundwater sample containers during transportation to the Phase Two Property and was stored in the cooler with the VOC groundwater samples in the field and during transportation back to Maxxam. The trip blank sample was submitted to Maxxam for chemical analysis for VOCs during the groundwater sampling activities completed as part of this Phase Two ESA.

As indicated in Table 9, the concentrations of the VOC parameters analyzed in the trip blank sample were below the laboratory RDLs. These findings indicate that ambient conditions during the transportation of the sample containers to and from the Phase Two Property, and during groundwater sampling, did not bias the VOC analytical results for the groundwater samples.

5.8.4 Deviations from Analytical Protocol

There were no deviations from the holding times, preservation methods, storage requirements and container types specified in the *Analytical Protocol* during the completion of the Phase Two ESA.

5.8.5 Laboratory Certificates of Analysis

Pinchin has reviewed the laboratory Certificates of Analysis provided by Maxxam for the samples submitted during the Phase Two ESA and confirms the following:

- All laboratory Certificates of Analysis contain a complete record of the sample submission and analysis and meet the requirements of Section 47(3) of O. Reg. 153/04;

- A laboratory Certificate of Analysis has been received for each sample submitted for analysis during the Phase Two ESA;
- All laboratory Certificates of Analysis have been included in full in Appendix H; and
- All of the analytical data reported in the Certificates of Analysis have been summarized, in full, in Tables 1 and 5.

5.8.6 Laboratory Comments Regarding Sample Analysis

Maxxam routinely conducts internal QA/QC analyses in order to satisfy regulatory QA/QC requirements. The results of the Maxxam QA/QC analyses for the submitted soil samples are summarized in the laboratory Certificates of Analyses.

The following general comments apply to the laboratory Certificates of Analysis received from Maxxam as part of this Phase Two ESA:

- The temperatures of the submitted soil and groundwater samples upon receipt met the sample preservation requirements of the *Analytical Protocol* of 5 ± 3ºC (i.e., between 2 and 8ºC); and
- The custody seal was present and intact on all submissions, where applicable.

5.8.7 QA/QC Sample Summary

The overall evaluation of the QA/QC sample results indicates no issues with respect to field collection methods and laboratory performance, and no apparent bias due to ambient conditions at the Phase Two Property and during transportation of the sample containers/samples to and from the analytical laboratory.

As such, it is the QP's opinion that the soil and groundwater analytical data obtained during the Phase Two ESA are representative of actual Site conditions and are appropriate for meeting the objective of assessing whether the soil and groundwater at the Phase Two Property meets the applicable MECP Site Condition Standards.

5.9 Phase Two Conceptual Site Model

The Phase Two Property consists of Part of Lots A and I, Concession 5 (Rideau Front), Geographical Township of Gloucester, located at the municipal address of 2480 Walkley Road, Ottawa, Ontario, which is currently owned by the Client. The Phase Two Property is 25.31 acres (10.24 hectares) in size and is located on the south side of Walkley Road, approximately 40 metres (m) west of Russell Road. A key map showing the Phase Two Property location is provided as Figure 1.

A Phase One CSM was created during the Pinchin Phase One ESA in order to provide a detailed visualization of the APECs which could occur on, in, under, or affecting the Phase Two Property. The Phase One CSM is summarized in Figures 1 through 4, which illustrate the following features within the Phase One Study Area, where present:

- Existing buildings and structures;
- Water bodies located in whole or in part within the Phase One Study Area;
- Areas of natural significance located in whole or in part within the Phase One Study Area;
- Drinking water wells located at the Phase One Property;
- Land use of adjacent properties;
- Roads within the Phase One Study Area;
- PCAs within the Phase One Study Area, including the locations of tanks; and
- APECs at the Phase One Property.

The following subsections expand on the Phase One CSM with the information collected during the completion of the Phase Two ESA.

5.9.1 Potentially Contaminating Activities

The Phase One ESA identified a total of 13 PCAs within the Phase One Study Area, consisting of 11 PCAs at the Phase One Property and two PCAs within the Phase One Study Area, outside of the Phase One Property. Two of the off-Site PCAs are a former PFO located approximately 40 m west of the Phase One Property (2370 Walkley Road) and an existing railway line located approximately 10 m south of the Phase One Property. Groundwater flow within the Phase One Study Area is interpreted to be to the south towards the tributary of Ramsay Creek and these off-Site PCAs are inferred to be hydraulically down/transgradient of the Phase One Property. Given the distances between these PCAs and the Phase One Property, as well as the fact that these PCAs are located down/transgradient in relation to the inferred groundwater flow direction from the Phase One Property, these off-Site PCAs are not considered to result in APECs at the Phase One Property. All PCAs identified at the Phase One Property, with the exception of the current on-Site diesel and waste oil ASTs and the hydraulic oil reservoirs, or the on-Site

oil-cooled transformers, represent APECs at the Phase One Property. The PCAs and their corresponding APECs at the Phase Two Property are summarized in the following table:

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #1 (Former on-Site PFO)	South-central portion of Phase One Property	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #2 (Former on-Site automotive repair/servicing operation with in-ground hoist and significant hazardous waste generation)	South-central portion of the Site Building	Item 52 – Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems	On-Site	PHCs BTEX PAHs VOCs	Soil and Groundwater
APEC #3 (Former waste oil underground storage tank associated with the former on-Site automotive repair/servicing operation)	South-central portion of the Site Building	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater
APEC #4 (three-stage oil/water separator associated with the former on-Site automotive repair/servicing operation)	South-central portion of the Site Building	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX PAHs	Soil and Groundwater

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #5 (former railway spur line located on the southeast portion of the Phase One Property)	Southeast portion of the Phase One Property	Item 46 – Rail Yards, Tracks and Spurs	On-Site	PAHs	Soil

Notes:

BTEX – benzene, toluene, ethylbenzene and total xylenes
PHCs – petroleum hydrocarbon fractions F1-F4
PAHs – polycyclic aromatic hydrocarbons
VOCs – volatile organic compounds

5.9.2 Subsurface Utilities and Construction Features

Underground utilities at the Phase Two Property provide potable water, natural gas, electrical, telephone, cable and sewer services to the Site Building. Plans were not available to confirm the depths of these utilities, but they are estimated to be located approximately 2 to 3 mbgs. The known depth to groundwater at the Phase Two Property is approximately 1.5-2.3 mbgs and as such, the utility corridors may act as preferential pathways for contaminant distribution and transport in the event that shallow subsurface contaminants exist at the Phase Two Property;

5.9.3 Physical Setting

Based on the work completed as part of this Phase Two ESA, the following subsections provide a summary of the physical setting of the Phase Two Property.

Stratigraphy

Based on Pinchin's observations noted during the drilling activities completed as part of this Phase Two ESA, the Phase Two Property is the soil stratigraphy at the drilling locations generally consists of sand and gravel, and sandy silt to a maximum depth of approximately 3.2 mbgs, followed by silty clay and clay that extended to the maximum investigation depth of 6.1 mbgs. Bedrock was not encountered at any of the boreholes advanced by Pinchin. The borehole locations are shown on Figure 5.

Hydrogeological Characteristics

The groundwater flow direction in the unconfined aquifer at the Phase Two Property is inferred to be towards the west.

Depth to Bedrock and Shallow Soil Property Assessment

Bedrock was not encountered at any of the borehole locations up to the maximum depth drilled of approximately 4.6 mbgs and based on the available water well records, bedrock depth at the Phase Two Property is greater than 20 mbgs. As such, the Phase Two Property is not a shallow soil property, as defined by Section 43.1 of O. Reg. 153/04.

Depth to Water Table

The water table at the Phase Two Property is located primarily within the shallow silt/silty sand unit located above the silty clay aquitard that has been interpreted to be an unconfined aquifer. The depth to the water table across the Phase Two Property ranges from approximately 1.5 to 2.3 mbgs.

Site Sensitivity

The pH values measured in the submitted soil samples were within the limits for non-sensitive sites. The Phase Two Property is also not an area of natural significance and it is not adjacent to, nor does it contain land within 30 metres of, an area of natural significance. As such, the Phase Two Property is not an environmentally sensitive area as defined by Section 41 of O. Reg. 153/04.

Soil Imported to Phase Two Property

No soil was imported to the Phase Two Property during completion of the Phase Two ESA.

Proposed Buildings and Other Structures

Pinchin understands that the future use of the Phase Two Property will remain as a warehousing operation and that no buildings are proposed to be constructed at the Phase Two Property.

5.9.4 Applicable Site Condition Standards

Based on the grain size analysis of representative soil samples collected during the Phase Two ESA and the observed stratigraphy at the borehole locations, Pinchin concluded that over two-thirds of the overburden at the Phase Two Property is medium and fine-textured as defined by O. Reg. 153/04 and Site Condition Standards for coarse-textured soil were not applied.

Based on the information obtained from the Phase One and Two ESAs, the appropriate Site Condition Standards for the Phase Two Property are:

- "Table 3: Full Depth Generic Site Condition Standards for Use in a Non-Potable Ground Water Condition", provided in the Ontario Ministry of the Environment, Conservation and Parks (MECP) document entitled, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" dated April 15, 2011 (*Table 3 Standards*) for:
  - Medium-fine textured soils; and
  - Industrial/Commercial/Community property use.

5.9.5 Contaminants Exceeding Applicable Site Condition Standards in Soil

All soil samples collected during the Phase Two ESA met the applicable *Table 3 Standards* for the parameters analyzed.

5.9.6 Contaminants Exceeding Applicable Site Condition Standards in Groundwater

All groundwater samples collected during the Phase Two ESA met the applicable *Table 3 Standards* for the parameters analyzed.

5.9.7 Meteorological and Climatic Conditions

It is the QP's opinion that meteorological or climatic conditions experienced during the Phase Two ESA activities would not have influenced the distribution or migration of potential contaminants at the Phase Two Property.

5.9.8 Soil Vapour Intrusion

No volatile parameters were identified at concentrations exceeding the *Table 3 Standards*. As such, soil vapour intrusion into buildings at the Phase Two Property is not considered a concern.

5.9.9 Contaminant Exposure Assessment

Given that all soil and groundwater samples collected during the Phase Two ESA met the applicable *Table 3 Standards*, Pinchin considered that an evaluation of potential exposure pathways and receptors was unnecessary.

6.0 CONCLUSIONS

Pinchin completed a Phase Two ESA at the Phase Two Property in accordance with the requirements stipulated in O. Reg. 153/04 for the purpose of filing a Site Plan Approval application with the City of Ottawa.

The Phase Two ESA completed by Pinchin included the advancement of eight boreholes at the Phase Two Property, four of which were completed as groundwater monitoring wells to facilitate the sampling of groundwater.

Based on Site-specific information, the applicable regulatory standards for the Phase Two Property were determined to be the *Table 3 Standards* for commercial land use and medium and fine-textured soils. Soil samples were collected from each of the borehole locations and submitted for laboratory analysis of VOCs, PHCs, and PAHs. In addition, groundwater samples were collected from the four newly-installed monitoring wells, and submitted for laboratory analysis of VOCs, PHCs, and PAHs.

The laboratory results for the submitted soil and groundwater samples indicated that all reported concentrations for the parameters analyzed met the corresponding *Table 3 Standards*.

It is the opinion of the QP who supervised the Phase Two ESA that the applicable *Table 3 Standards* for soil and groundwater at the Phase Two Property have been met and that no further subsurface investigation is required in relation to assessing the environmental quality of soil and groundwater at the Phase Two Property. It should be noted that impacts may be encountered during the redevelopment of the Phase Two Property that were not identified in areas investigated by Pinchin as part this Phase Two ESA. Should potential impacts be identified, Pinchin recommends that the Client contact Pinchin for further consultation.

6.1 Signatures

This Phase Two ESA was undertaken under the supervision of Scott Mather, P.Eng., QP_{ESA} in accordance with the requirements of O. Reg. 153/04.

6.2 Terms and Limitations

This Phase Two ESA was performed for Giant Tiger Stores Limited (Client) in order to investigate potential environmental impacts at 2480 Walkley Road in Ottawa, Ontario (Site). The term recognized environmental condition means the presence or likely presence of any hazardous substance on a property under conditions that indicate an existing release, past release, or a material threat of a release of a hazardous substance into structures on the property or into the ground, groundwater, or surface water of the property. This Phase Two ESA does not quantify the extent of the current and/or recognized environmental condition or the cost of any remediation.

Conclusions derived are specific to the immediate area of study and cannot be extrapolated extensively away from sample locations. Samples have been analyzed for a limited number of contaminants that are expected to be present at the Site, and the absence of information relating to a specific contaminant does not indicate that it is not present.

No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions on a property. Performance of this Phase Two ESA to the standards established by Pinchin is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions on the Site, and recognizes reasonable limits on time and cost.

This Phase Two ESA was performed in general compliance with currently acceptable practices for environmental site investigations, and specific Client requests, as applicable to this Site.

This report was prepared for the exclusive use of the Client, subject to the terms, conditions and limitations contained within the duly authorized proposal for this project. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted.

If additional parties require reliance on this report, written authorization from Pinchin will be required. Pinchin disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed. Furthermore, this report should not be construed as legal advice. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and these interpretations may change over time.

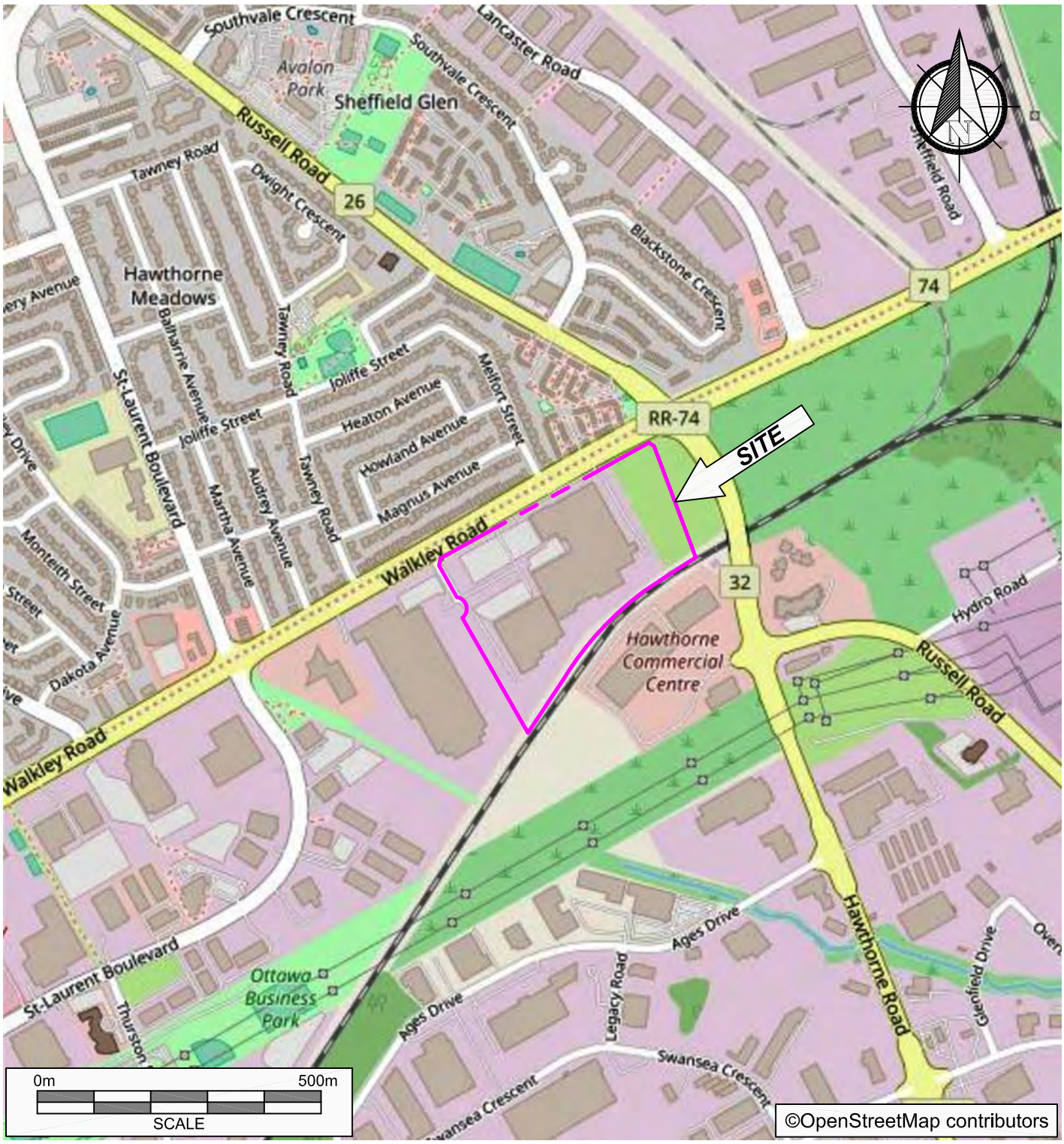
7.0 REFERENCES

The following documents provided information used in this report:

- *"Phase II Environmental Site Assessment, 2480 Walkley Road, Ottawa, Ontario"* prepared by Golder Associates Ltd. for Giant Tiger Stores Limited, and dated May, 1996.
- *"Phase I Environmental Site Assessment, 2480 Walkley Road, Ottawa, Ontario"* prepared by Pinchin Environmental Ltd. for Giant Tiger Stores Limited, and dated August 2013.
- *"Phase One Environmental Site Assessment, 2480 Walkley Road, Ottawa, Ontario"*, prepared by Pinchin Ltd. for Giant Tiger Stores Limited, and dated October 18, 2018.
- Association of Professional Geoscientists of Ontario. Guidance for Environmental Site Assessments under Ontario Regulation 153/04 (as amended). April 2011.

- Ontario Ministry of the Environment. Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario. December 1996.
- Ontario Ministry of the Environment. Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. March 9, 2004 amended July 1, 2011.
- Ontario Ministry of the Environment. Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. April 15, 2011.
- Pinchin Ltd. Phase One Environmental Site Assessment, 77 Florence Street West, Kitchener, Ontario. Prepared for Bloorston Farms Ltd., February 15, 2015.
- Province of Ontario. Environmental Protection Act, R.S.O 1990, Chapter E.19.
- Province of Ontario. R.R.O. 1990, Regulation 347, General – Waste Management, as amended by Ontario Regulation 234/11.
- Province of Ontario. Ontario Regulation 153/04: Records of Site Condition – Part XV.1 of the Act. Last amended by Ontario Regulation 312/17 on July 28, 2017.
- U.S. Environmental Protection Agency - Region 1. Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells. Revised January 19, 2010.

8.0 FIGURES AND TABLES



PINCHIN

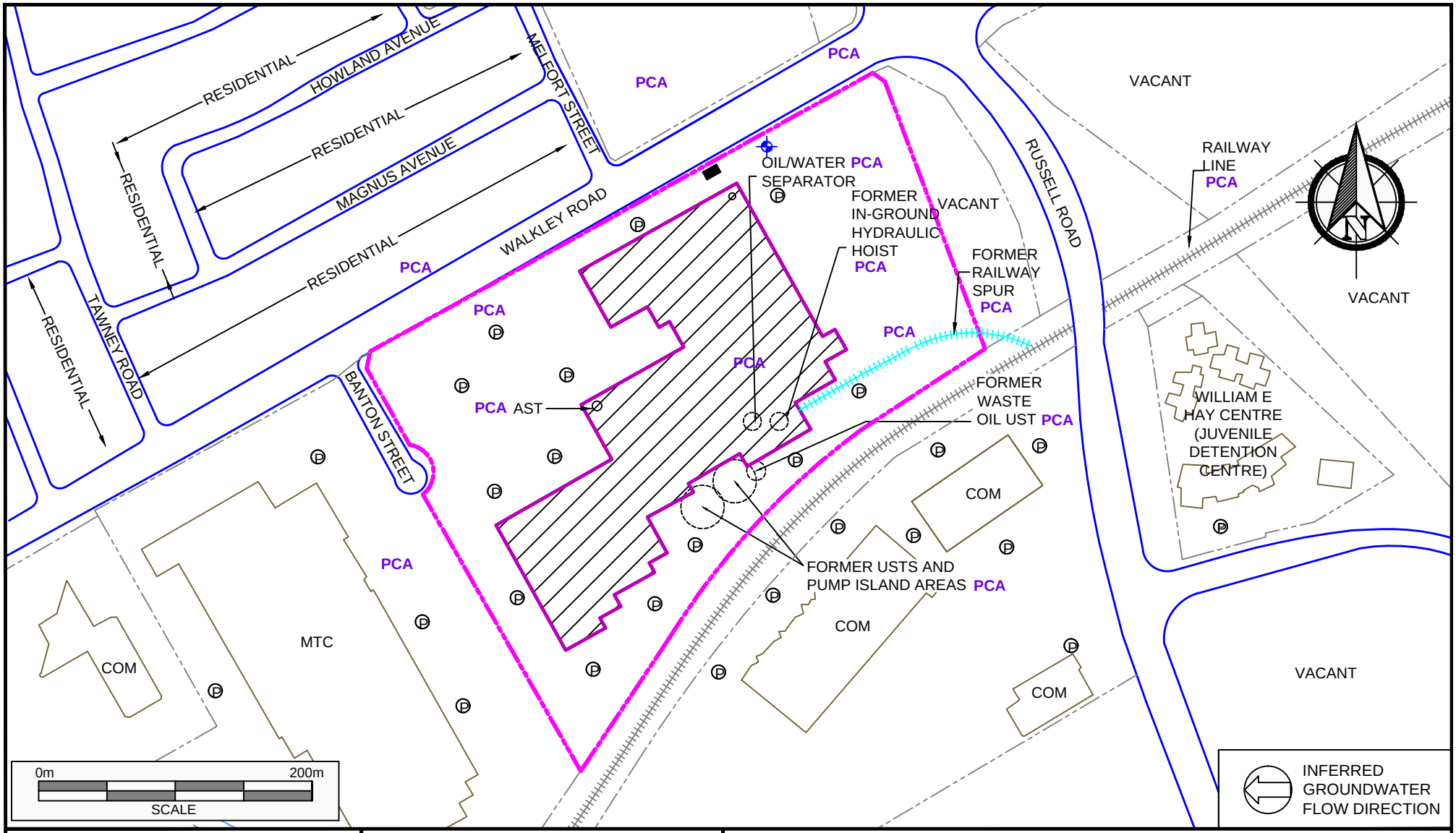
PROJECT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT			
CLIENT NAME: GIANT TIGER STORES LIMITED			
PROJECT LOCATION: 2480 WALKLEY ROAD, OTTAWA, ONTARIO			
FIGURE NAME: KEY MAP			FIGURE NO.: 1
SCALE: AS SHOWN	PROJECT NO.: 229085.001	DATE: JAN. 2019	

PINCHIN

LEGEND

- COMMUNITY/COMMERCIAL/ INDUSTRIAL LAND USE
- INSTITUTIONAL/PARK/ RESIDENTIAL LAND USE
- PHASE ONE STUDY AREA BOUNDARY
- PHASE TWO PROPERTY BOUNDARY
- SITE BUILDING
- COM COMMERCIAL
- MTC MULTI-TENANT COMMERCIAL
- Ⓟ PARKING

PROJECT NAME	PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
CLIENT NAME	GIANT TIGER STORES LIMITED
PROJECT LOCATION	2480 WALKLEY ROAD, OTTAWA, ONTARIO
FIGURE NAME	PHASE ONE STUDY AREA
FIGURE NO.	2
SCALE	AS SHOWN
PROJECT NO.	229085.001
DATE	JAN. 2019



PINCHIN

LEGEND

	PHASE TWO PROPERTY BOUNDARY
	SITE BUILDING
COM	COMMERCIAL
	RAILWAY
Ⓟ	PARKING
AST	ABOVEGROUND STORAGE TANK
UST	UNDERGROUND STORAGE TANK
MTC	MULTI-TENANT COMMERCIAL
PCA	POTENTIALLY CONTAMINATING AREA

PROJECT NAME
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

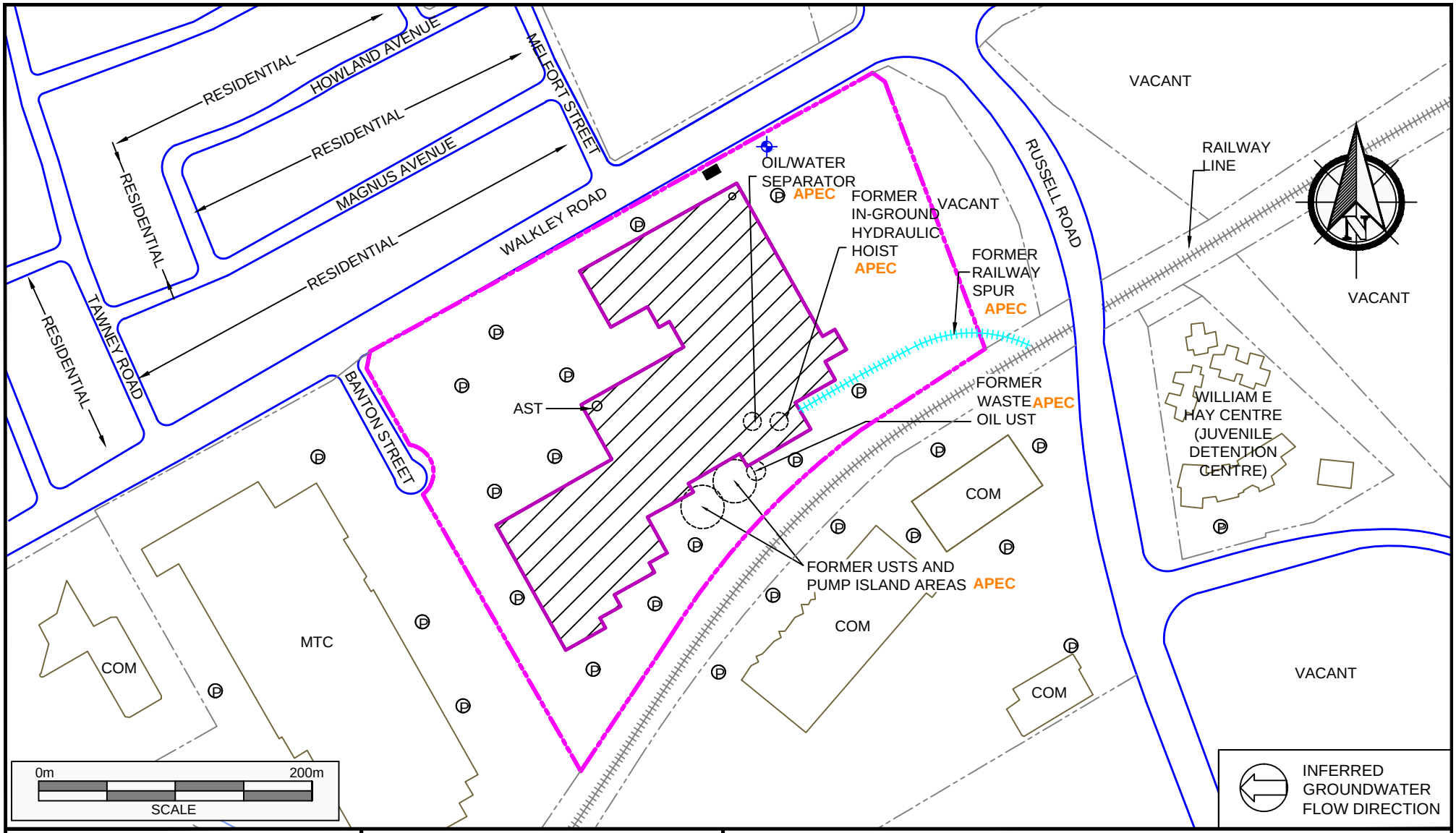
CLIENT NAME
GIANT TIGER STORES LTD.

PROJECT LOCATION
2480 WALKLEY ROAD, OTTAWA ONTARIO

FIGURE NAME
POTENTIALLY CONTAMINATING ACTIVITIES

FIGURE NO.
3

SCALE	PROJECT NO.	DATE
AS SHOWN	229085.001	JAN. 2019



PINCHIN

LEGEND

	PHASE TWO PROPERTY BOUNDARY
	SITE BUILDING
COM	COMMERCIAL
	RAILWAY
Ⓟ	PARKING
AST	ABOVEGROUND STORAGE TANK
UST	UNDERGROUND STORAGE TANK
MTC	MULTI-TENANT COMMERCIAL
APEC	AREA OF POTENTIAL ENVIRONMENTAL CONCERN

PROJECT NAME
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

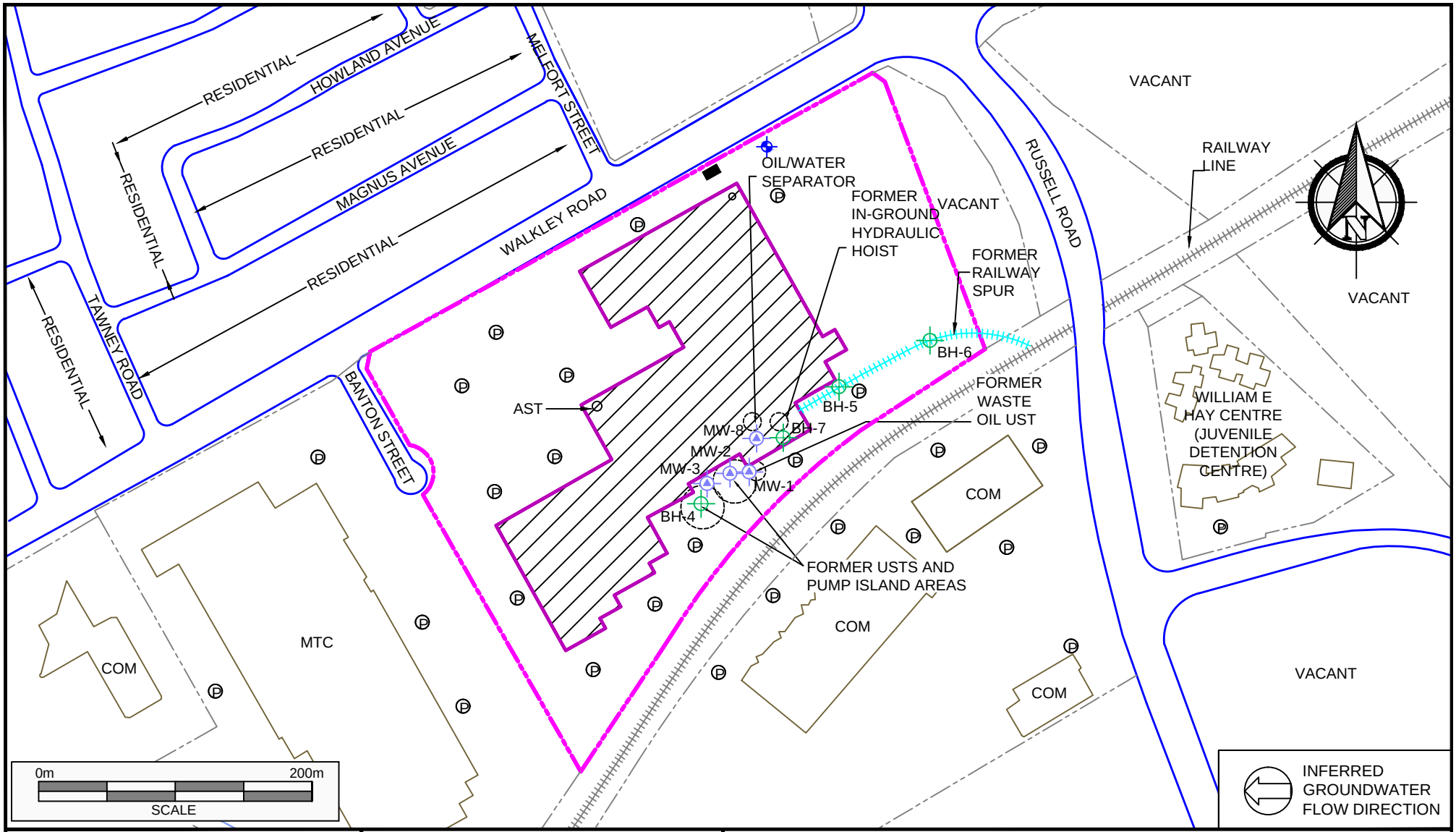
CLIENT NAME
GIANT TIGER STORES LTD.

PROJECT LOCATION
2480 WALKLEY ROAD, OTTAWA ONTARIO

FIGURE NAME
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

FIGURE NO.
4

SCALE	PROJECT NO.	DATE
AS SHOWN	229085.001	JAN. 2019



PINCHIN

LEGEND

- PHASE TWO PROPERTY BOUNDARY
- SITE BUILDING
- COM COMMERCIAL
- RAILWAY
- (P) PARKING
- AST ABOVEGROUND STORAGE TANK
- MTC MULTI-TENANT COMMERCIAL
- UST UNDERGROUND STORAGE TANK
- BOREHOLE
- MONITORING WELL

PROJECT NAME
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CLIENT NAME
GIANT TIGER STORES LTD.

PROJECT LOCATION
2480 WALKLEY ROAD, OTTAWA ONTARIO

FIGURE NAME
BOREHOLE AND MONITORING WELL LOCATION PLAN

FIGURE NO.
5

SCALE	PROJECT NO.	DATE
AS SHOWN	229085.001	JAN. 2019

TABLE 1
MONITORING WELL CONSTRUCTION DETAILS
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Well Number	*Surveyed TOC Elevation (mREL)*	*Surveyed Ground Elevation (mREL)*	*Calculated Difference Between Ground and TOC (m)*	*Length of Screen (m)*
MW-1	100.05	100.20	NM	3.05
MW-2	100.09	100.23	NM	3.05
MW-3	100.04	100.17	NM	3.05
MW-8	NM	NM	NM	3.05

Notes:

mREL	Indicates Groundwater Elevation (metres) Relative to Site Benchmark with Assumed Elevation of 100.00 Metres
TOC	Indicates Top of Casing
NM	Not Measured
m	Metres

Pinchin File: 229085.001

TABLE 2
SAMPLES SUBMITTED FOR LABORATORY ANALYSIS
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Samples		Parameters													
		SOIL SAMPLES							GROUNDWATER SAMPLES						
Borehole / Monitoring Well ID	Sample ID	PHCs (F1-F4) & BTEX	VOCs	PAHs	pH	Grain Size Analysis	TCLP		PHCs (F1-F4)	PHCs (F1-F4) & BTEX	VOCs	PAHs	Rationale/Notes
MW-1	SS-2				●								Shallwo pH to confirm applicable MECP standards.
	SS-5	●	●	●		●							Assess soil and groundwater quality at former on-Site waste oil UST location/Confirm applicable MECP standards and QA/QC duplicate groundwater sample.
	MW-1								●	●	●	●	
	DUP-2								●	●	●	●	
MW-2	SS-5	●	●	●	●								Assess soil and groundwater quality at former on-Site UST and pump island location/Confirm applicable MECP standards.
	MW-2								●	●	●	●	
MW-3	SS-4	●	●	●									Assess soil and groundwater quality at former on-Site UST and pump island location/QA/QC duplicate soil sample.
	DUP-1	●	●	●									
	MW-3								●	●	●	●	
BH-4	SS-3	●	●	●	●								Assess soil quality at former on-Site UST and pump island location/Confirm applicable MECP standards.
BH-5	SS-1			●									Assess soil quality at former on-Site railway line/Confirm applicable MECP standards.
BH-6	SS-1			●									
BH-7	SS-6	●	●	●									Assess soil quality in relation to former on-Site in-ground hydraulic hoists.
MW-8	SS-5	●	●	●									Assess soil and groundwater quality in relation to former on-Site oil/water separator.
	MW-8								●	●	●	●	
NA	TRIP BLANK										●		QA/QC for VOCs in groundwater.
TCLP	TCLP						●						Classify excess soil generated by borehole drilling for off-Site disposal.

Notes:

PHCs (F1-F4)	Petroleum Hydrocarbons (Fraction 1 to Fraction 4)
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
PCBs	Polychlorinated Biphenyls
VOCs	Volatile Organic Compounds
FOC	Fraction of Organic Carbon
PAHs	Polycyclic Aromatic Hydrocarbons
TCLP	Toxicity Characteristic Leaching Procedure
mbgs	Metres Below Ground Surface
MECP	Ontario Ministry of the Environment, Conservation and Parks

Pinchin File: 229085.001

TABLE 3
pH AND GRAIN SIZE ANALYSIS FOR SOIL
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Parameter	*Units*	*MECP Site Condition Standard Selection Criteria*	*Sample Designation*				
			Sample Collection Date (dd/mm/yyyy)				
			Sample Depth (mbgs)				
			MW-1 SS-2	*MW-2 SS-6*	*BH-4 SS-3*	*BH-5 SS-1*	*MW-1 SS-5*
			06/11/2018	*06/11/2018*	*06/11/2018*	*06/11/2018*	*06/11/2018*
			0.8 - 1.5	*3.8 - 4.6*	*1.5 - 2.3*	*0.0 - 0.8*	*3.1 - 3.8*
			Surface	*Sub-Surface*	*Sub-Surface*	*Surface*	*NA*
pH		Surface: 5 < pH < 9 Subsurface: 5 < pH < 11	7.3	7.7	7.8	7.7	NA
Sieve #200 <0.075 mm	%	50%	NA	NA	NA	NA	91
Sieve #200 >0.075 mm	%	50%	NA	NA	NA	NA	9
		Grain Size Classification	NA	NA	NA	NA	MEDIUM/FINE

Notes:

BOLD	Environmentally Sensitive Area (Based Upon pH of Surface Soil)
BOLD	Environmentally Sensitive Area (Based Upon pH of Sub-Surface Soil)
NA	Not Analysed
mbgs	Metres Below Ground Surface

TABLE 4
GROUNDWATER ELEVATION DATA
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Well Number	*Date (dd/mm/yyyy)*	*NAPL Level Measurement from TOC (m)*	*Water Level Measurement from TOC (m)*	*Water Level Measurement from Ground (mbgs)*	*Product Thickness (m)*	*Calculated Water Level Elevation (mREL)*
MW-1	14/11/2018	ND	1.38	1.53	ND	98.67
MW-2	14/11/2018	ND	1.63	1.75	ND	98.46
MW-3	14/11/2018	ND	1.60	1.72	ND	98.44
MW-8	14/11/2018	ND	2.25	2.36	ND	NM

Notes:

mREL	Indicates Groundwater Elevation (metres) Relative To Site Benchmark with Assumed Elevation of 100.00 Metres
NAPL	Non-Aqueous Phase Liquid
ND	Not Detected
TOC	Indicates Top of Casing
m	Metres
mbgs	Metres Below Ground Surface

TABLE 5
PETROLEUM HYDROCARBON AND BTEX ANALYSIS FOR SOIL
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Parameter	*MECP Table 3 Standards**	*Sample Designation*						
		Sample Collection Date (dd/mm/yyyy)						
		Sample Depth (mbgs)						
		MW-1 SS-5	*MW-2 SS-6*	*MW-3 SS-4*	*BH-4 SS-3*	*DUP-1*	*BH-7 SS-6*	*MW-8 SS-5*
		06/11/2011	*06/11/2011*	*06/11/2011*	*06/11/2011*	*06/11/2011*	*07/11/2018*	*07/11/2018*
		3.1 - 3.8	*3.8 - 4.6*	*2.3 - 3.1*	*1.5 - 2.3*	*2.3 - 3.1*	*3.8 - 4.6*	*3.1 - 3.8*
Benzene	0.4	-	-	-	-	-	-	-
Toluene	78	-	-	-	-	-	-	-
Ethylbenzene	19	-	-	-	-	-	-	-
Xylenes (Total)	30	-	-	-	-	-	-	-
Petroleum Hydrocarbons F1 (C_6 - C_{10})	65	<10	<10	<10	<10	<10	<10	<10
Petroleum Hydrocarbons F2 (>C_{10} - C_{16})	250	<10	<10	<10	<10	<10	<10	<10
Petroleum Hydrocarbons F3 (>C_{16} - C_{34})	2500	<50	<50	57	<50	78	<50	<50
Petroleum Hydrocarbons F4 (>C_{34} - C_{50})	6600	85	<50	220	<50	340	<50	<50

Notes:

MECP Table 3 Standards* — Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, Table 3 Standards, Medium/Fine-Textured Soils, Non-Potable Groundwater Condition, for Industrial/Commercial/Community Property Use.

BOLD — Exceeds Site Condition Standard

BOLD — Reportable Detection Limit Exceeds Site Condition Standard

Units — All Units in µg/g

mbgs — Metres Below Ground Surface

BTEX — Benzene, Toluene, Ethylbenzene and Xylenes

TABLE 6
VOLATILE ORGANIC COMPOUND ANALYSIS FOR SOIL
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Parameter	*MECP Table 3 Standards**	*Sample Designation*						
		Sample Collection Date (dd/mm/yyyy)						
		Sample Depth (mbgs)						
		MW-1 SS-5	*MW-2 SS-6*	*MW-3 SS-4*	*BH-4 SS-3*	*DUP-1*	*BH-7 SS-6*	*MW-8 SS-5*
		06/11/2011	*06/11/2011*	*06/11/2011*	*06/11/2011*	*06/11/2011*	*07/11/2018*	*07/11/2018*
		3.1 - 3.8	*3.8 - 4.6*	*2.3 - 3.1*	*1.5 - 2.3*	*2.3 - 3.1*	*3.8 - 4.6*	*3.1 - 3.8*
Acetone	28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.4	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	18	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	1.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	1.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.18	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	8.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	12	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	0.84	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	21	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	0.48	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cis-1,2-Dichloroethylene	37	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trans-1,2-Dichloroethylene	9.3	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	0.68	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cis-1,3-Dichloropropylene	NV	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Trans-1,3-Dichloropropylene	NV	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Ethylbenzene	19	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	88	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Isobutyl Ketone	210	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-t-Butyl Ether	3.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	43	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.11	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.094	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	78	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tetrachloroethylene	21	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.11
1,1,1-Trichloroethane	12	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	0.11	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.61	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
m-Xylene & p-Xylene	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
o-Xylene	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	30	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Dichlorodifluoromethane	25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dioxane, 1,4-	1.8	-	-	-	-	-	-	-
Hexane(n)	88	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	5.8	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropene (cis + trans)	0.21	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Notes:

MECP Table 3 Standards* — Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, Table 3 Standards, Medium/Fine-Textured Soils, Non-Potable Groundwater Condition, for Industrial/Commercial/Community Property Use.

BOLD — Exceeds Site Condition Standard
BOLD — Reportable Detection Limit Exceeds Site Condition Standard
Units — All Units in µg/g
mbgs — Metres Below Ground Surface

TABLE 7

POLYCYCLIC AROMATIC HYDROCARBON ANALYSIS FOR SOIL

Giant Tiger Stores Limited

2480 Walkley Road, Ottawa, Ontario

Parameter	*MECP Table 3 Standards**	*Sample Designation*								
		Sample Collection Date (dd/mm/yyyy)								
		Sample Depth (mbgs)								
		MW-1 SS-5	*MW-2 SS-6*	*MW-3 SS-4*	*BH-4 SS-3*	*BH-5 SS-1*	*BH-6 SS-1*	*DUP-1*	*BH-7 SS-6*	*MW-8 SS-5*
		06/11/2011	*06/11/2011*	*06/11/2011*	*06/11/2011*	*06/11/2011*	*06/11/2011*	*06/11/2011*	*07/11/2018*	*07/11/2018*
		3.1 - 3.8	*3.8 - 4.6*	*2.3 - 3.1*	*1.5 - 2.3*	*0.0 - 0.8*	*0.0 - 0.8*	*2.3 - 3.1*	*3.8 - 4.6*	*3.1 - 3.8*
Acenaphthene	96	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.17	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene	0.74	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)anthracene	0.96	<0.0050	<0.0050	0.011	<0.0050	<0.0050	<0.0050	0.015	<0.0050	<0.0050
Benzo(a)pyrene	0.3	<0.0050	<0.0050	0.012	<0.0050	<0.0050	<0.0050	0.016	<0.0050	<0.0050
Benzo(b)fluoranthene	0.96	<0.0050	<0.0050	0.017	<0.0050	0.0055	<0.0050	0.019	<0.0050	<0.0050
Benzo(ghi)perylene	9.6	<0.0050	<0.0050	0.015	<0.0050	0.031	<0.0050	0.017	<0.0050	<0.0050
Benzo(k)fluoranthene	0.96	<0.0050	<0.0050	0.0054	<0.0050	<0.0050	<0.0050	0.0064	<0.0050	<0.0050
Chrysene	9.6	<0.0050	<0.0050	0.011	<0.0050	<0.0050	<0.0050	0.014	<0.0050	<0.0050
Dibenzo(a,h)anthracene	0.1	<0.0050	<0.0050	0.0057	<0.0050	<0.0050	<0.0050	0.0064	<0.0050	<0.0050
Fluoranthene	9.6	<0.0050	<0.0050	0.027	<0.0050	0.01	<0.0050	0.053	<0.0050	<0.0050
Fluorene	69	<0.0050	<0.0050	0.0089	<0.0050	0.0085	<0.0050	0.0084	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	0.95	<0.0050	<0.0050	0.012	<0.0050	0.0076	<0.0050	0.012	<0.0050	<0.0050
Methylnaphthalene 2-(1-)	85	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Naphthalene	28	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phenanthrene	16	<0.0050	<0.0050	0.027	<0.0050	0.024	0.0075	0.025	<0.0050	<0.0050
Pyrene	96	<0.0050	<0.0050	0.032	<0.0050	0.0094	<0.0050	0.058	<0.0050	<0.0050

Notes:

MECP Table 3 Standards* — Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, Table 3 Standards, Medium/Fine-Textured Soils, Non-Potable Groundwater Condition, for Industrial/Commercial/Community Property Use.

BOLD — Exceeds Site Condition Standard

BOLD — Reportable Detection Limit Exceeds Site Condition Standard

Units — All Units in µg/g

mbgs — Metres Below Ground Surface

TABLE 8
PETROLEUM HYDROCARBON AND BTEX ANALYSIS FOR GROUNDWATER
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Parameter	*MECP Table 3 Standards**	*Sample Designation*				
		Sample Collection Date (dd/mm/yyyy)				
		MW-1	*DUP-2*	*MW-2*	*MW-3*	*MW-8*
		15/11/2018	*15/11/2018*	*14/11/2018*	*14/11/2018*	*14/11/2018*
Benzene	430	-	-	-	-	-
Toluene	18000	-	-	-	-	-
Ethylbenzene	2300	-	-	-	-	-
Xylenes (Total)	4200	-	-	-	-	-
Petroleum Hydrocarbons F1 (C_6 - C_{10})	750	<25	<25	<25	<25	<25
Petroleum Hydrocarbons F2 (>C_{10} - C_{16})	150	<100	<100	<100	<100	<100
Petroleum Hydrocarbons F3 (>C_{16} - C_{34})	500	<200	<200	<200	<200	<200
Petroleum Hydrocarbons F4 (>C_{34} - C_{50})	500	<200	<200	<200	<200	<200

Notes:

MECP Table 3 Standards*	Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, Table 3 Standards, Medium/Fine-Textured Soils, Non-Potable Groundwater Condition, for All Types of Property Use.
BOLD	Exceeds Site Condition Standard
BOLD	Reportable Detection Limit Exceeds Site Condition Standard
Units	All Units in µg/L
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes

Pinchin File: 229085.001

TABLE 9

VOLATILE ORGANIC COMPOUND ANALYSIS FOR GROUNDWATER

Giant Tiger Stores Limited

2480 Walkley Road, Ottawa, Ontario

Parameter	*MECP Table 3 Standards**	*Sample Designation*					
		Sample Collection Date (dd/mm/yyyy)					
		MW-1	*DUP-2*	*MW-2*	*MW-3*	*MW-8*	*TRIP BLANK*
		15/11/2018	*15/11/2018*	*14/11/2018*	*14/11/2018*	*14/11/2018*	*14/11/2018*
Acetone	130000	<10	<10	<10	<10	<10	<10
Benzene	430	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	85000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	770	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	56	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	8.4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	630	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	22	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	82000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	9600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	9600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	67	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	3100	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	12	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	17	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cis-1,2-Dichloroethylene	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trans-1,2-Dichloroethylene	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	140	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cis-1,3-Dichloropropylene	NV	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Trans-1,3-Dichloropropylene	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	2300	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide	0.83	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Ethyl Ketone	1500000	<10	<10	<10	<10	<10	<10
Methylene Chloride	5500	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl Isobutyl Ketone	580000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl-t-Butyl Ether	1400	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	9100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	15	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	18000	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrachloroethylene	17	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	6700	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	17	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	1.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m-Xylene & p-Xylene	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Xylenes	4200	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorodifluoromethane	4400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dioxane, 1,4-	7300000	-	-	-	-	-	-
Hexane(n)	520	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	2500	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis + trans)	45	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Notes:

MECP Table 3 Standards* — Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, Table 3 Standards, Medium/Fine-Textured Soils, Non-Potable Groundwater Condition, for All Types of Property Use.

BOLD — Exceeds Site Condition Standard

BOLD — Reportable Detection Limit Exceeds Site Condition Standard

Units — All Units in µg/L

Pinchin File: 229085.001

TABLE 10
POLYCYCLIC AROMATIC HYDROCARBON ANALYSIS FOR GROUNDWATER
Giant Tiger Stores Limited
2480 Walkley Road, Ottawa, Ontario

Parameter	*MECP Table 3 Standards**	*Sample Designation*				
		Sample Collection Date (dd/mm/yyyy)				
		MW-1	*DUP-2*	*MW-2*	*MW-3*	*MW-8*
		15/11/2018	*15/11/2018*	*14/11/2018*	*14/11/2018*	*14/11/2018*
Acenaphthene	1700	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	1.8	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	2.4	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	4.7	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	0.81	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	0.75	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(ghi)perylene	0.2	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	0.4	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	1	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenzo(a,h)anthracene	0.52	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	130	0.062	<0.050	<0.050	<0.050	<0.050
Fluorene	400	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.2	<0.050	<0.050	<0.050	<0.050	<0.050
Methylnaphthalene 2-(1-)	1800	<0.050	<0.050	<0.050	<0.050	<0.050
Naphthalene	6400	<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	580	<0.030	<0.030	<0.030	<0.030	<0.030
Pyrene	68	0.06	<0.050	<0.050	<0.050	<0.050

Notes:

MECP Table 3 Standards* — Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, Table 3 Standards, Medium/Fine-Textured Soils, Non-Potable Groundwater Condition, for All Types of Property Use.

BOLD — Exceeds Site Condition Standard

BOLD — Reportable Detection Limit Exceeds Site Condition Standard

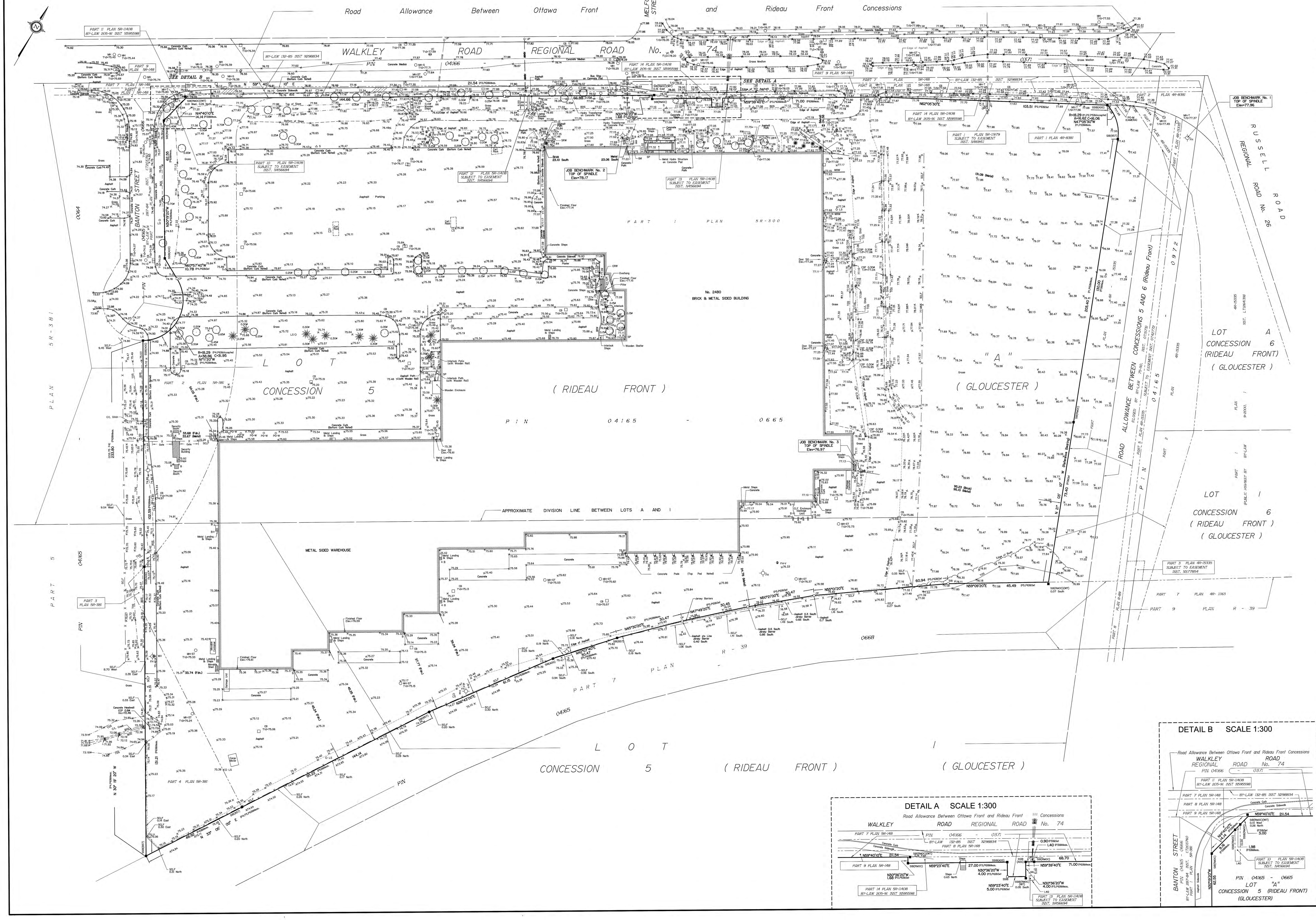
Units — All Units in µg/L

Pinchin File: 229085.001

9.0 APPENDICES

APPENDIX A

Legal Survey and Survey Data



TOPOGRAPHICAL PLAN OF SURVEY OF

PART OF LOTS "A" and I CONCESSION 5 (RIDEAU FRONT) Geographical Township of Gloucester CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 500

20 15 10 5 0 10 20 Metres

Metric

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

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 the 23rd day of August, 2018.

Aug 24 2018 — Date

E. H. Herweyer
Ontario Land Surveyor

Notes & Legend

	Denotes	
—□—	"	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
CC	"	Cut Cross
CP	"	Concrete Pin
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(PI)	"	Plan 4R-15335
(P2)	"	Plan 4R-8381
(P3)	"	Plan 5R-11408
(P4)	"	Plan 5R-381
(P5)	"	Plan 5R-300
(P6)	"	(AOG) Plan December 22, 2000
FH	"	Fire Hydrant
WV	"	Water Valve
FH-V	"	Fire Hydrant Valve
SP	"	Water Stand Post
MH-ST	"	Maintenance Hole (Storm Sewer)
MH-S	"	Maintenance Hole (Sanitary)
MH-B	"	Maintenance Hole (Bell Telephone)
MH-T	"	Maintenance Hole (Traffic)
MH-H	"	Maintenance Hole (Hydro)
MH	"	Maintenance Hole (Unidentified)
VC	"	Valve Chamber (Watermain)
— OHW —	"	Overhead Wires
CB	"	Catch Basin
CSP	"	Corrugated Steel Pipe
CPP	"	Corrugated Plastic Pipe
T/P	"	Top of Pipe
T/G	"	Top of Grate
Inv.	"	Invert
HH	"	Handhole
GM	"	Gas Meter
TB-T	"	Traffic Terminal Box
TSP	"	Traffic Signal Post
B	"	Bollard
S	"	Sign
SCLF	"	Security Chain Link Fence
CLF	"	Chain Link Fence
BF	"	Board Fence
PO-M	"	Metal Pole
PO-W	"	Wood Pole
TSP	"	Traffic Signal Post
TSL	"	Traffic Light
UP	"	Utility Pole
AN	"	Anchor
LS	"	Light Standard
FP	"	Flag Pole
Ø	"	Diameter
+65.00	"	Location of Elevations
+65.00	"	Top of Curb Elevation
+65.00*	"	Top of Wall Elevation
WRW	"	Wooden Retaining Wall
SRW	"	Stone Retaining Wall
CRW	"	Concrete Retaining Wall
BRW	"	Brick Retaining Wall
RW	"	Retaining Wall
C/L	"	Centreline
	"	Deciduous Tree
	"	Coniferous Tree
TOS	"	Top of Slope
BOS	"	Bottom of Slope
	"	Shrub
Fdn.	"	Foundation

Bearings are grid, derived from the westerly limit of Part 7 on Plan 4R-15335 shown to be N21°03'10"W thereon and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

SITE AREA = 10.9341 Hectares

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2058285
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Ontario Land Surveyors
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079

Job No. [illegible]

APPENDIX B

Borehole and Test Pit Logs

Log of Borehole: MW-1

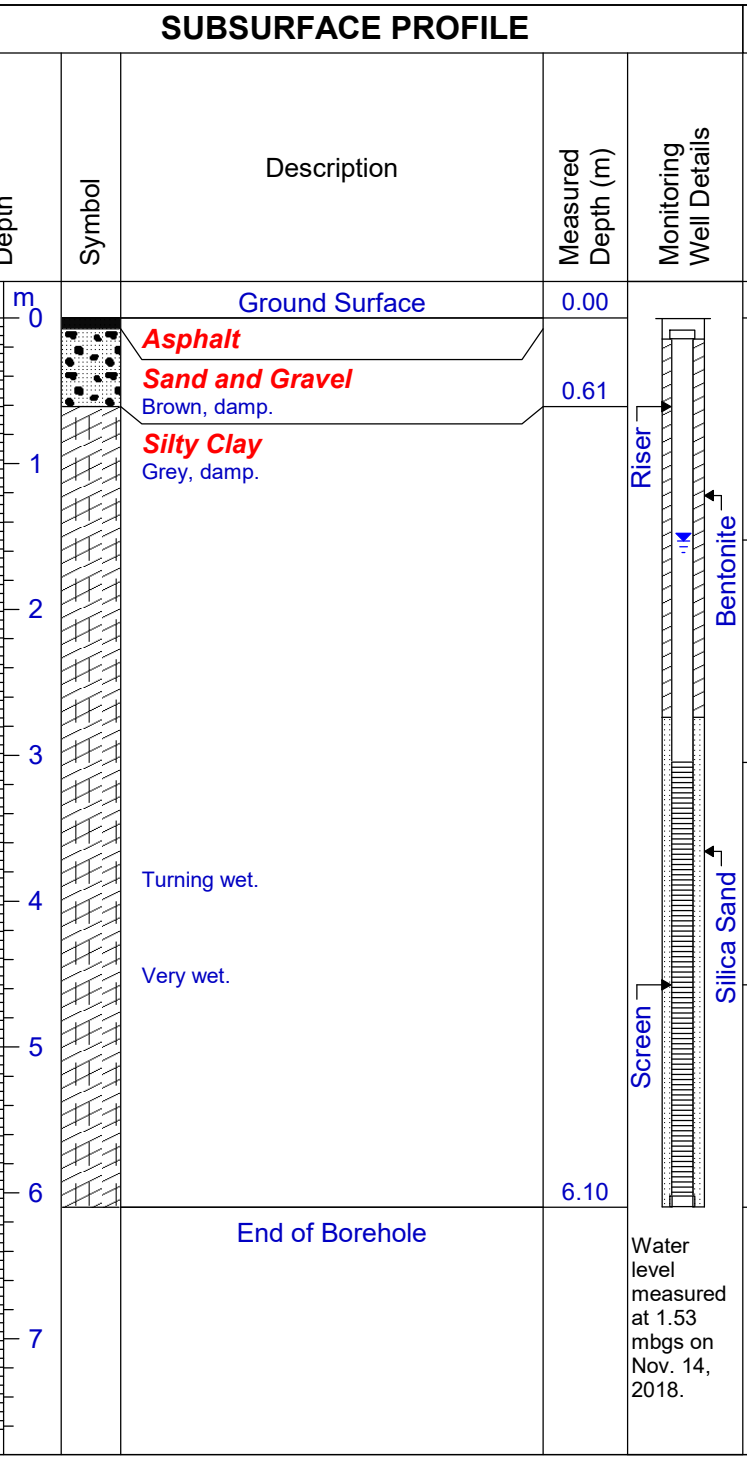
Project #: 229085.001 **Logged By:** MK

Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018



SUBSURFACE PROFILE					SAMPLE				
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
Ground Surface			0.00					
Asphalt					100	SS-1	0.0	
Sand and Gravel, Brown, damp.			0.61			SS-2	0.0	pH
Silty Clay, Grey, damp.					100	SS-3	0.1	
						SS-4	0.0	
					100	SS-5	0.0	PHCs, VOCs, PAHs, GrainSize
						SS-6	0.0	
						SS-7	0.0	
						SS-8	0.0	
End of Borehole			6.10					

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: 5.08 cm

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: 100.20m

Top of Casing Elevation: 100.05m

Sheet: 1 of 1

Log of Borehole: MW-2

Project #: 229085.001 **Logged By:** MK

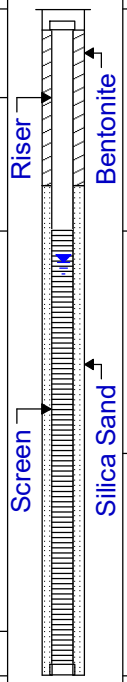
Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
0 / 0		Ground Surface	0.00					
		Asphalt			60	SS-1	0.2	
1		**Sand and Gravel** Brown, some asphalt fragments.	0.61					
2		**Silty Sand** Brown, damp.				SS-2	0.1	
3 / 1			1.52					
4		**Sand** Brown, some silt, damp.			50	SS-3	0.0	
5						SS-4	0.0	
6 / 2								
7					100	SS-5	0.0	PHCs, VOCs, PAHs, pH
8								
9						SS-6	0.1	
10 / 3								
11								
12								
13 / 4			4.27					
14		**Silty Clay** Grey, very wet.	4.57					
15								
16 / 5		End of Borehole						
17								
18								
19								
20 / 6								
21								
22								
23 / 7								
24								
25								



Water level measured at 1.75 mbgs on Nov. 14, 2018.

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: 5.08 cm

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: 100.23m

Top of Casing Elevation: 100.23m

Sheet: 1 of 1

Log of Borehole: MW-3

Project #: 229085.001 **Logged By:** MK

Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
0 / 0		Ground Surface	0.00					
0 / 0		***Asphalt***						
1 /		***Sand and Gravel*** Brown, with silt, damp.	0.76		50	SS-1	0.0	
2 /						SS-2	0.0	
3 / 1		***Silty Sand*** Brown, damp.			50	SS-3	0.0	
4 /						SS-4	0.0	PHCs, VOCs, PAHs
5 /								
6 / 2								
7 /								
8 /								
9 /								
10 / 3			3.05					
11 /		***Silty Clay*** Grey/brown, wet.			100	SS-5	0.0	
12 /								
13 / 4						SS-6	0.0	
14 /								
15 /			4.57					
16 /		End of Borehole						
17 / 5								
18 /								
19 /								
20 / 6								
21 /								
22 /								
23 / 7								
24 /								
25 /								

Monitoring Well Details: Riser, Bentonite, Screen, Silica Sand

Water level measured at 1.72 mbgs on Nov. 14, 2018.

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: 5.08 cm

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: 100.17m

Top of Casing Elevation: 100.04m

Sheet: 1 of 1

Log of Borehole: BH-4

Project #: 229085.001 ***Logged By:*** MK

Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
0 / 0		Ground Surface	0.00					
		Asphalt						
1 /		***Sand and Gravel*** Brown, with silt, damp.		No Monitoring Well Installed	50	SS-1	0.0	
2 / 1						SS-2	0.1	
3 /								
4 /								
5 /					100	SS-3	0.0	PHCs, VOCs, PAHs, pH
6 /								
7 / 2			2.29			SS-4	0.0	
8 /		***Silty Clay*** Grey/brown, wet.						
9 /								
10 / 3		Some sand.				SS-5	0.0	
11 /								
12 /								
13 / 4						SS-6	0.0	
14 /								
15 /			4.57					
16 /		End of Borehole						
17 / 5								
18 /								
19 /								
20 / 6								
21 /								
22 /								
23 / 7								
24 /								
25 /								

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: NA

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NA

Sheet: 1 of 1

Log of Borehole: BH-5

Project #: 229085.001 ***Logged By:*** MK

Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
0 / 0		Ground Surface	0.00	No Monitoring Well Installed				
1		***Asphalt***			50	SS-1	0.1	PAHs, pH
2		***Sand and Gravel*** Brown, damp.	0.76					
3 / 1		***Silty Clay*** Grey, damp.				SS-2	0.0	
4			1.52					
5		End of Borehole						
6 / 2								
7								
8								
9								
10 / 3								
11								
12								
13 / 4								
14								
15								
16 / 5								
17								
18								
19 / 6								
20								
21								
22								
23 / 7								
24								
25								

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: NA

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NA

Sheet: 1 of 1

Log of Borehole: BH-6

Project #: 229085.001 ***Logged By:*** MK

Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
0 / 0		Ground Surface	0.00	No Monitoring Well Installed				
1		***Asphalt***			50	SS-1	0.2	PAHs
2		***Sand and Gravel*** Brown, damp.						
3 / 1			1.07			SS-2	0.0	
4		***Silty Clay*** Grey, damp.	1.52					
5		End of Borehole						
6 / 2								
7								
8								
9								
10 / 3								
11								
12								
13 / 4								
14								
15								
16 / 5								
17								
18								
19 / 6								
20								
21								
22								
23 / 7								
24								
25								

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: NA

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NA

Sheet: 1 of 1

Log of Borehole: BH-7

Project #: 229085.001 **Logged By:** MK

Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018

SUBSURFACE PROFILE					SAMPLE			
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
0		Floor Surface	0.00	No Monitoring Well Installed				
0		***Concrete***	0.15					
1		***Silty Clay*** Grey/brown, damp.			100	SS-1	0.1	
2						SS-2	0.2	
3					100	SS-3	0.2	
4						SS-4	0.1	
5					100	SS-5	0.1	
6		Moist.				SS-6	0.2	PHCs, VOCs, PAHs
7			3.66					
8		End of Borehole						

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: NA

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NA

Sheet: 1 of 1

Log of Borehole: MW-8

Project #: 229085.001 ***Logged By:*** MK

Project: Phase Two Environmental Site Assessment

Client: Giant Tiger Stores Limited

Location: 2480 Walkley Road, Ottawa, Ontario

Drill Date: November 6, 2018

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil Vapour Concentration* (ppm) PID	Laboratory Analysis
0 / 0		Floor Surface	0.00					
		Concrete	0.15					
1		***Sand*** Brown, damp.			50	SS-1	0.2	
2 / 1						SS-2	0.2	
3					100	SS-3	0.1	
4						SS-4	0.1	
5			1.83					
6 / 2		***Silty Clay*** Grey, damp.			100	SS-5	0.1	PHCs, VOCs, PAHs
7						SS-6	0.1	
8								
9 / 3					100	SS-7	0.0	
10						SS-8	0.0	
11								
12								
13 / 4								
14								
15								
16 / 5			4.88					
17		End of Borehole		Water level measured at 2.36 mbgs on Nov. 14, 2018.				
18								
19								
20 / 6								

Monitoring Well Details: Riser, Bentonite, Screen, Silica Sand

Contractor: Strata Drilling Group

Drilling Method: Direct Push

Well Casing Size: 3.18 cm

Note:
* Soil vapour concentrations measured using a photoionization detector (PID).

Grade Elevation: NM

Top of Casing Elevation: NM

Sheet: 1 of 1

APPENDIX C

Field Instrument Calibration Records

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
159 Colonnade Road
Unit 3
Ottawa, Ontario K2E 7L9

Pine Environmental Services, Inc.

Instrument ID 38262
Description ppbRAE 3000, 10.6eV
Calibrated 9/26/2018 9:45:36AM

Manufacturer Rae Systems
Model Number PGM7340
Serial Number/ Lot Number 594-908505
Location Ottawa
Department

State Certified
Status Pass
Temp °C 22.7
Humidity % 61

Calibration Specifications

Group # 1
Group Name Isobutylene (VOC)
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.0

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.0 / 0.0	PPM	0.0	PPM	0.0	0.0	0.00%	Pass
100.0 / 100.0	PPM	100.0	PPM	105.2	100.0	0.00%	Pass

Group # 2
Group Name Functional Test: Datalog/ Date & Time

Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	(As Of Cal Entry Date) Next Cal Date / Last Cal Date/ Expiration Date Opened Date
R0D AIR ZERO 704523	R0D Air Zero 704523	Calgaz		704523	
R0D ISO 100PPM_842707	R0D ISO 100PPM_842707	Calgaz	R0D ISO 100PPM_842707	842707	

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Eric Evans

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
159 Colonnade Road
Unit 3
Ottawa, Ontario K2E 7L9

Pine Environmental Services, Inc.

Instrument ID 38262
Description ppbRAE 3000, 10.6eV
Calibrated 9/26/2018 9:45:36AM

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
159 Colonnade Road
Unit 3
Ottawa, Ontario K2E 7L9

Pine Environmental Services, Inc.

Instrument ID 21109
Description Horiba U-52
Calibrated 9/26/2018 12:30:03PM

Manufacturer Horiba
Model Number U-52
Serial Number/ Lot Number YVUNUWW0
Location Ottawa
Department

State Certified
Status Pass
Temp °C 22.4
Humidity % 76

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.01 / 7.01	PH	7.01	PH	7.47	7.01	0.00%	Pass
4.01 / 4.01	PH	4.01	PH	4.09	4.01	0.00%	Pass

Group # 2
Group Name Turbidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	NTU	0.00	NTU	5.80	0.00	0.00%	Pass
800.00 / 800.00	NTU	800.00	NTU	898.00	800.00	0.00%	Pass

Group # 3
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.718 / 0.718	ms/cm	0.718	ms/cm	0.701	0.718	0.00%	Pass
5.000 / 5.000	ms/cm	5.000	ms/cm	5.200	5.000	0.00%	Pass
80.000 / 80.000	ms/cm	80.000	ms/cm	81.300	80.000	0.00%	Pass

Group # 4
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.00	mv	223.00	240.00	0.00%	Pass

Group # 5
Group Name Disolved Oxygen Zero
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
159 Colonnade Road
Unit 3
Ottawa, Ontario K2E 7L9

Pine Environmental Services, Inc.

Instrument ID 21109
Description Horiba U-52
Calibrated 9/26/2018 12:30:03PM

Group # 5 | **Range Acc %** 0.0000
Group Name Disolved Oxygen Zero | **Reading Acc %** 3.0000
Stated Accy Pct of Reading | **Plus/Minus** 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	mg/L	0.00	mg/L	0.31	0.00	0.00%	Pass

Group # 6 | **Range Acc %** 0.0000
Group Name Temperature DO Span | **Reading Acc %** 0.0000
Stated Accy Plus / Minus | **Plus/Minus** 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
20.00 / 20.40	degrees C	8.78	mg/L	9.29	8.78	0.00%	Pass

Test Instruments Used During the Calibration (As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Shawn Neely

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
159 Colonnade Road
Unit 3
Ottawa, Ontario K2E 7L9

Pine Environmental Services, Inc.

Instrument ID 39060
Description Heron Interface Meter 30m
Calibrated 9/26/2018 10:23:08AM

Manufacturer Heron
Model Number H.OIL
Serial Number/ Lot Number 01-7086
Location Ottawa
Department

State Certified
Status Pass
Temp °C 23
Humidity % 61

Calibration Specifications

Group # 1
Group Name Detect Oil/Water
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration (As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Next Cal Date / Last Cal Date/ Expiration Date Opened Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Eric Evans

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

APPENDIX D

Field Measured Parameters

PINCHIN

LOW FLOW GROUNDWATER SAMPLING

Well ID MW-1

Project No. 229085.001 Site Location 2480 Wilkley Rd

Field Technician DL Date Nov 14

Project Manager MR Weather clear

Well Depth (From BH Log/Notes) 6.1 mbgs Screen Length 3.05 metres

Well Interior Diameter 1.5 inches Well Stick Up — metres

Initial (Static) Water Level 1.36 mbtoc Depth to LNAPL/Water Interface — mbtoc

Interface Probe (Make & Model) heron oil/water

Water Quality Meter (Make & Model) horiba

Purging/Sampling Equipment Used (Check Applicable) Pump Intake Depth for Sampling ~4 mbgs

Peristaltic Pump ✓ Centrifugal Pump — Bladder Pump —

Sample Collection Time — Metals Field Filtered? Yes / No / NA Circled NA If Yes, Type of Filter —

Parameters Sampled (Check All Applicable)

VOCs	✓	BTEX		PHCs (F1)	✓	PHCs (F2-F4)	✓
Metals		Hg		Cr (VI)		Inorganics (List)	
PCBs		ABNs		OCPs		Other	

PAHs	✓

Water Quality Parameter Stabilization Criteria (Over Three Consecutive Readings)

pH: ± 0.1 pH units | Specific Conductance: ± 3% | Temperature: ± 3% | ORP: ± 10 mV

DO: ± 10% for values > 0.5 mg/L or three consecutive readings < 0.5 mg/L

Turbidity: ± 10% for values > 5 NTU or three consecutive readings < 5 NTU

PINCHIN

WATER QUALITY PARAMETERS

Well ID MW-1

Project No. 2290655

Field Technician AL

Site Location 2480 Walkley Rd

Date Nov 14

Time	Water Level (mbtoc)	Pumping Rate (mL/min)	Total Purge Volume (litres)	pH (pH units)	Specific Cond (mS/cm) (µS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments (e.g., sheen, odour, free-phase product, sediment content, clarity, colour, etc.)
										Run pump at
										~ 150 mL/min
										for 30 mins
										prior to turning on
										horiba. ~ 4.5 L
5	2.1	150	4.5	7.53	4.77	8.72	2.60	-50	190	
10	2.4	|	5.25	7.53	4.72	8.76	2.60	-51	189	
15	2.7	|	6	7.52	4.64	8.70	2.59	-52	187	
20	3	|	6.75	7.52	4.65	7.94	2.60	-53	187	
25	3	|	7.5	7.52	4.66	7.90	2.58	-53	186	

PINCHIN

LOW FLOW GROUNDWATER SAMPLING

Well ID MW-2

Project No.	229085.001	**Site Location**	2480 Wilkley Rd
Field Technician	AL	**Date**	Nov 14
Project Manager	MR	**Weather**	clear
Well Depth (From BH Log/Notes)	4.57 mbgs	**Screen Length**	3.05 metres
Well Interior Diameter	1.5 inches	**Well Stick Up**	— metres
Initial (Static) Water Level	1.63 mbtoc	**Depth to LNAPL/Water Interface**	— mbtoc
Interface Probe (Make & Model)	heron oil/water		
Water Quality Meter (Make & Model)	horiba		

Purging/Sampling Equipment Used (Check Applicable)

Pump Intake Depth for Sampling ~4 mbgs

Peristaltic Pump	✓	Centrifugal Pump		Bladder Pump	
Sample Collection Time		**Metals Field Filtered?**	Yes / No / NA	**If Yes, Type of Filter**	

Parameters Sampled (Check All Applicable)

VOCs	✓	BTEX		PHCs (F1)	✓	PHCs (F2-F4)	✓	PAHs	✓
Metals		Hg		Cr (VI)		Inorganics (List)			
PCBs		ABNs		OCPs		Other			

Water Quality Parameter Stabilization Criteria (Over Three Consecutive Readings)

pH: ± 0.1 pH units | Specific Conductance: ± 3% | Temperature: ± 3% | ORP: ± 10 mV

DO: ± 10% for values > 0.5 mg/L or three consecutive readings < 0.5 mg/L

Turbidity: ± 10% for values > 5 NTU or three consecutive readings < 5 NTU

PINCHIN

WATER QUALITY PARAMETERS

Well ID MW-2

Project No. 229065

Field Technician AL

Site Location 2480 Walkley Rd

Date Nov 14

Time	Water Level (mbtoc)	Pumping Rate (mL/min)	Total Purge Volume (litres)	pH (pH units)	Specific Cond (mS/cm) (µS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments (e.g., sheen, odour, free-phase product, sediment content, clarity, colour, etc.)
										Ran pump at
										~ 150 mL/min
										for 30 mins
										prior to turning on
										horiba. ~ 4.5 L
5	2.4	4.5	150	8.14	3.57	8.60	9.98	46	414	
10	2.8	5.25	↓	8.10	3.60	8.59	9.98	45	410	
15	3.1	6		8.04	3.50	8.57	9.99	44	412	
20	3.4	6.75		7.99	3.55	8.55	9.94	44	411	
25	3.5	7.5		7.98	3.55	8.49	9.93	45	414	
30	3.6	8.25		7.96	3.54	8.43	9.94	46	412	

PINCHIN

LOW FLOW GROUNDWATER SAMPLING

Well ID MW-3

Project No. 229085.001 **Site Location** 2480 Wilkley Rd

Field Technician AL **Date** Nov 14

Project Manager MR **Weather** clear

Well Depth (From BH Log/Notes) 4.27 mbgs **Screen Length** 3 to 5 metres

Well Interior Diameter 1.5 inches **Well Stick Up** — metres

Initial (Static) Water Level 1.60 mbtoc **Depth to LNAPL/Water Interface** — mbtoc

Interface Probe (Make & Model) heron oil/water

Water Quality Meter (Make & Model) horiba

Purging/Sampling Equipment Used (Check Applicable)

Pump Intake Depth for Sampling ~4 mbgs

Peristaltic Pump ✓ Centrifugal Pump _____ Bladder Pump _____

Sample Collection Time _____ **Metals Field Filtered?** Yes / No / NA **If Yes, Type of Filter** _____

Parameters Sampled (Check All Applicable)

VOCs	✓	BTEX		PHCs (F1)	✓	PHCs (F2-F4)	✓
Metals		Hg		Cr (VI)		Inorganics (List)	
PCBs		ABNs		OCPs		Other	

PAHs ✓

Water Quality Parameter Stabilization Criteria (Over Three Consecutive Readings)			
pH: ± 0.1 pH units	Specific Conductance: ± 3%	Temperature: ± 3%	ORP: ± 10 mV
DO: ± 10% for values > 0.5 mg/L or three consecutive readings < 0.5 mg/L			
Turbidity: ± 10% for values > 5 NTU or three consecutive readings < 5 NTU			

PINCHIN

WATER QUALITY PARAMETERS

Well ID MW-3

Project No. 229065

Field Technician AL

Site Location 2480 Walkley Rd

Date Nov 14

Time	Water Level (mbtoc)	Pumping Rate (mL/min)	Total Purge Volume (litres)	pH (pH units)	Specific Cond (mS/cm) (µS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments (e.g., sheen, odour, free-phase product, sediment content, clarity, colour, etc.)
										Ran pump at
										~150 mL/min
										for 30 mins
										prior to turning on
										horiba. ~4.5 L
5	2.3	150	4.5	7.14	7.96	8.14	2.42	-98	358	
10	2.6	|	5.25	7.16	7.73	8.10	2.28	-96	357	
15	2.8	|	6	7.14	7.77	8.08	2.39	-91	356	
20	2.8	|	6.75	7.15	7.76	8.04	2.36	-91	355	
25	2.3	|	7.5	7.14	7.75	8.01	2.37	-91	355	

PINCHIN

LOW FLOW GROUNDWATER SAMPLING

Well ID MW-8

Project No. 229085.001 **Site Location** 2480 Wilkley Rd

Field Technician AL **Date** Nov 14

Project Manager MR **Weather** clear

Well Depth (From BH Log/Notes) 4.84 mbgs **Screen Length** 3.05 metres

Well Interior Diameter 1.5 inches **Well Stick Up** — metres

Initial (Static) Water Level 2.25 mbtoc **Depth to LNAPL/Water Interface** — mbtoc

Interface Probe (Make & Model) heron oil/water

Water Quality Meter (Make & Model) horiba

Purging/Sampling Equipment Used (Check Applicable) **Pump Intake Depth for Sampling** ~4 mbgs

Peristaltic Pump ✓ Centrifugal Pump _____ Bladder Pump _____

Sample Collection Time _____ **Metals Field Filtered?** Yes / No / NA **If Yes, Type of Filter** _____

Parameters Sampled (Check All Applicable)

VOCs	✓	BTEX		PHCs (F1)	✓	PHCs (F2-F4)	✓
Metals		Hg		Cr (VI)		Inorganics (List)	
PCBs		ABNs		OCPs		Other	

PAHs	✓

Water Quality Parameter Stabilization Criteria (Over Three Consecutive Readings)

pH: ± 0.1 pH units | Specific Conductance: ± 3% | Temperature: ± 3% | ORP: ± 10 mV

DO: ± 10% for values > 0.5 mg/L or three consecutive readings < 0.5 mg/L

Turbidity: ± 10% for values > 5 NTU or three consecutive readings < 5 NTU

PINCHIN

WATER QUALITY PARAMETERS

Well ID MW-8

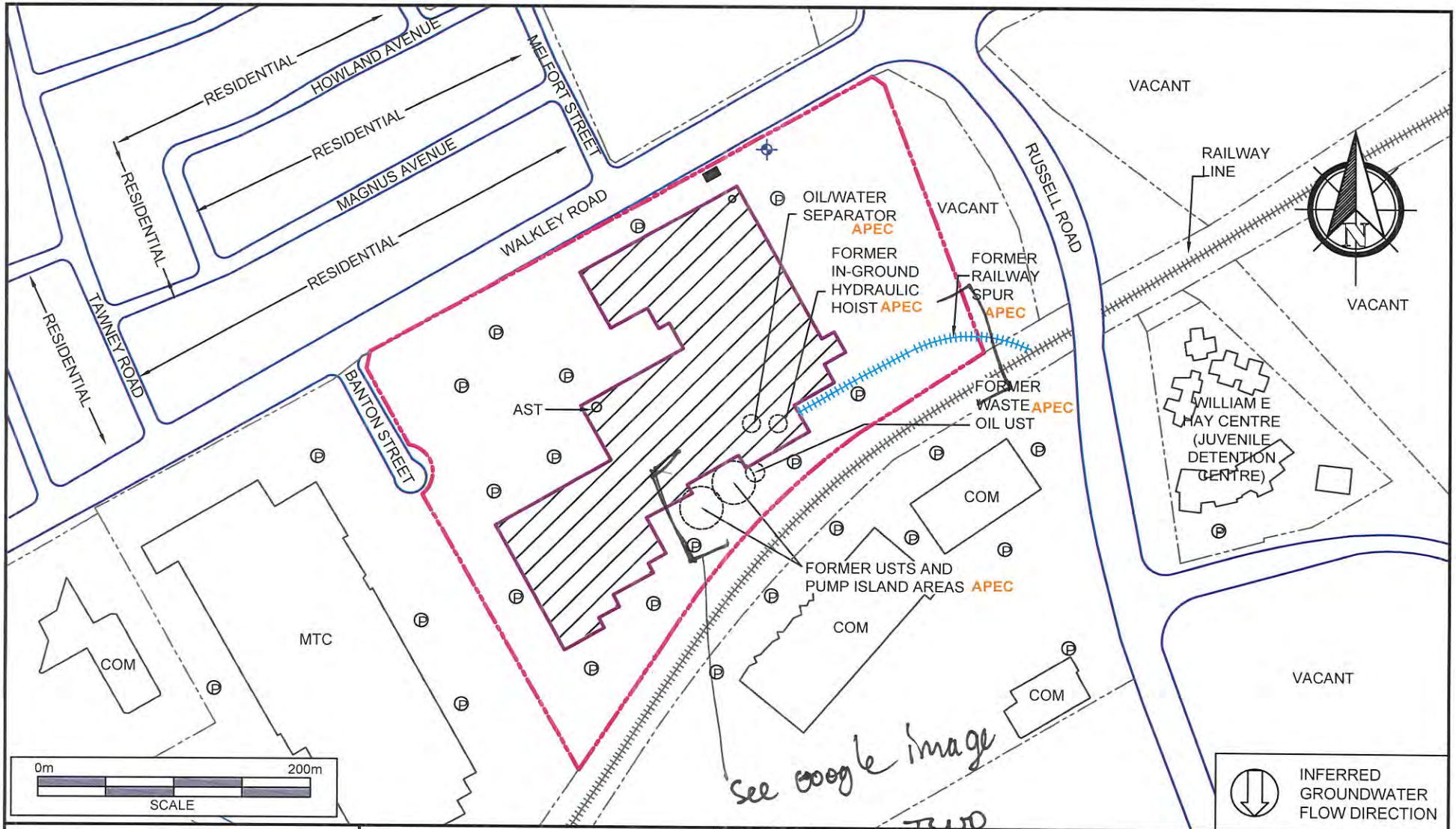
Project No. 229065

Field Technician RL

Site Location 2480 Walkley Rd

Date Nov 14

Time	Water Level (mbtoc)	Pumping Rate (mL/min)	Total Purge Volume (litres)	pH (pH units)	Specific Cond (mS/cm) (µS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments (e.g., sheen, odour, free-phase product, sediment content, clarity, colour, etc.)
										Rm pump at
										~ 150 mL/min
										for 30 mins
										prior to turning on
										horiba. ~ 4.5 L
5	3		4.5	7.40	4.93	8.19	2.90	-62	195	
10	3.4		5.25	7.41	4.80	8.10	2.91	-64	194	
15	3.6		6	7.41	4.76	8.04	2.86	-66	190	
20	3.6		6.75	7.41	4.75	7.98	2.85	-65	197	
25	3.7		7.5	7.41	4.74	7.99	2.84	-64	198	
30	3.7		8.25	7.40	4.77	7.96	2.86	-64	185	



PINCHIN

LEGEND

	PHASE ONE PROPERTY BOUNDARY
	SITE BUILDING
COM	COMMERCIAL
	RAILWAY
P	PARKING
AST	ABOVEGROUND STORAGE TANK
UST	UNDERGROUND STORAGE TANK
MTC	MULTI-TENANT COMMERCIAL
APEC	AREA OF POTENTIAL ENVIRONMENTAL CONCERN

PROJECT NAME
PHASE ~~ONE~~ TWO ENVIRONMENTAL SITE ASSESSMENT

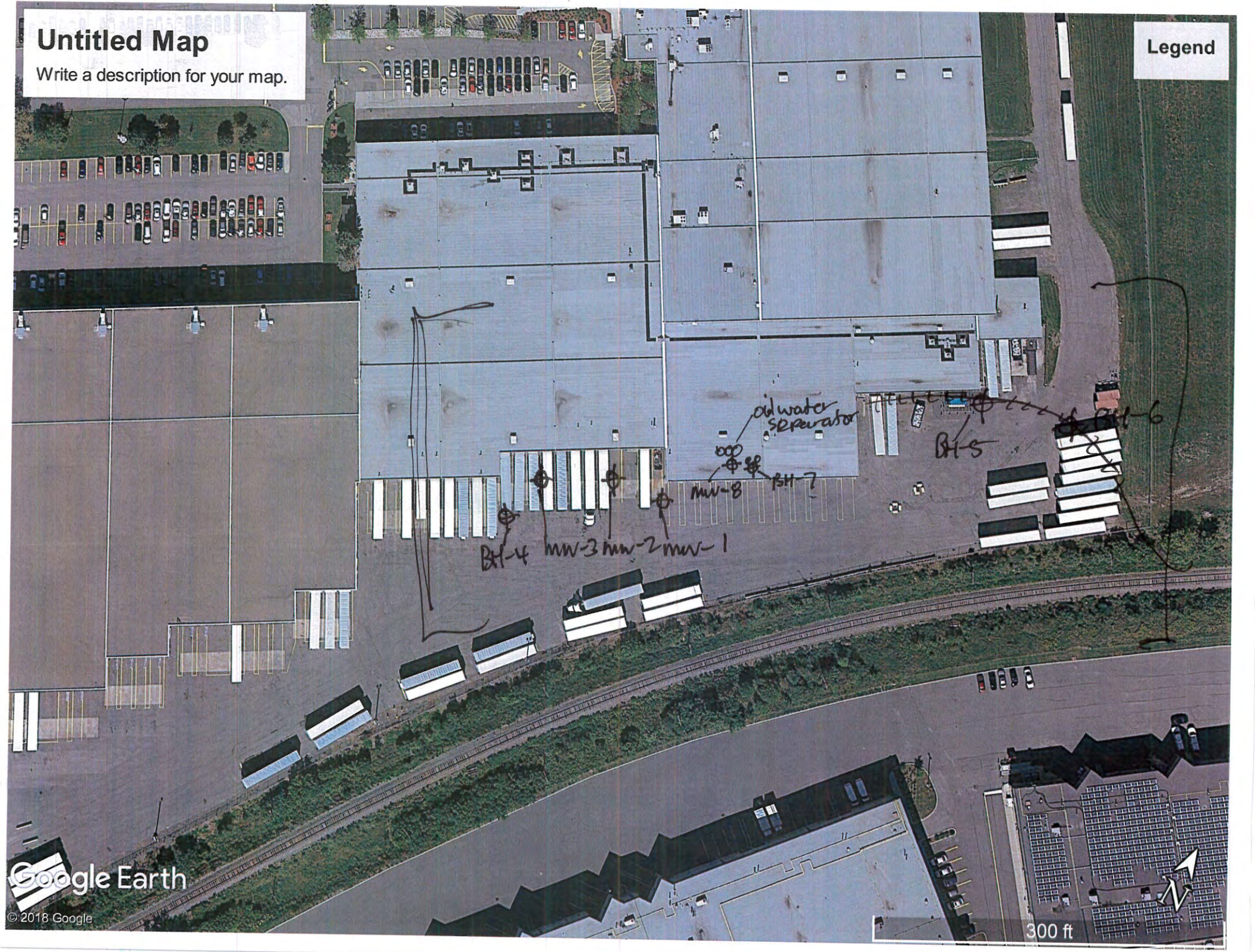
CLIENT NAME
GIANT TIGER STORES LIMITED

PROJECT LOCATION
2480 WALKLEY ROAD, OTTAWA ONTARIO

FIGURE NAME
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

FIGURE NO.
4

SCALE	PROJECT NO.	DATE
AS SHOWN	229085.001	~~OCT. 2018~~ Dec


Untitled Map
Write a description for your map.
Legend
oil water separator
MW-8
BH-7
BH-5
BH-6
BH-4
MW-3
MW-2
MW-1
Google Earth
© 2018 Google
300 ft
N

BOREHOLE LOG: MW-1 Drilling Company: Strata Geoprobe 7822DT

PINCHIN ENVIRONMENTAL

JOB NUMBER: 229085.001 Driller:

CLIENT: 6T

PROJECT NAME: Phase TWO ESA Helper:

LOCATION: 2480 Wall Kley Rd, DFT

DATUM: SURFACE (m)

DRILLING DATA

DESCRIPTION: ~~track~~ O truck O other

METHOD: O hollow stem O std ~~other~~

DIAMETER: O 150mm (6") O 200mm (8") ~~other~~

START DATE: Nov 6 FINISH DATE: 11

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION	Water Well Constr. & Materials	REMARKS
	0.15						0.5	Asphalt 4"		
	0.30	SS			N/A	N/A	1	Sand and gravel		
0.0	0.46		1				1.5	brown, damp, no odours		
	0.51			100			2			
	0.75						2.5	Silty gray, grey		
	0.91	SS			N/A	N/A	3	no odours damp		
0.0	1.07		2				3.5			pH
	1.22						4			
	1.37						4.5			
	1.52	SS			N/A	N/A				
	1.68						5.5	S.A.A		
	1.83						6			
0.1	1.98		3				6.5			
	2.13	SS			N/A	N/A	7			
	0.75						7.5			
	2.44			100			8			
	2.58						8.5			
	2.74	SS	4		N/A	N/A	9			
0.0	2.90						9.5			
	3.05									
	3.20						10.5	S.A.A		
	3.35	SS			N/A	N/A	11			PHC, VOC, PAHs
0.0	3.51		5				11.5			Grain size
	3.66						12			
	1.68						12.5			
	3.96	SS			N/A	N/A	13	Turnity wet		~ GW table
	4.11			100			13.5			
0.0	4.27		6				14			
	4.42						14.5			
	4.57	SS			N/A	N/A				
	4.72						15.5	S.A.A. very wet		
	4.88						16			
0.0	5.03		7				16.5			
	5.18	SS			N/A	N/A	17			
	5.33						17.5			
	5.49						18			
0.0	5.54		8				18.5			(20 ft well
	5.79	SS			N/A	N/A	19			10 screen
	5.94						19.5			2 inch)

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Logged By: MK

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Sheet 1 of 1

end no refusal

BOREHOLE LOG: MW-2 Drilling Company: Strata Probe 7822 DT

PINCHIN ENVIRONMENTAL

JOB NUMBER: Driller:

CLIENT:

PROJECT NAME: see MW1 Helper:

LOCATION:

DATUM: SURFACE (m)

DRILLING DATA

DESCRIPTION: track O truck O other

METHOD: O hollow stem O std other direct push

DIAMETER: O 150mm (6") O 200mm (8") O other

START DATE: Nov 6 FINISH DATE:

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION (NOTES: describe moisture, colour and material, identify grainsize, stratigraphy and thickness.)	Water Well Constr. & Materials	REMARKS (NOTES: weather, frost, coring and casing diameters, refusal, topography and well details, etc...)
	0.15	SS			N/A	N/A	0.5	~~Asphalt 4"~~ Sand and gravel brown, no odours		
0.2	0.30		1	60%			1			
	0.46						1.5	some asphalt fragments		
	0.51						2			
	0.75	SS			N/A	N/A	2.5	Silty sand, brown damp, no odours		
	0.91						3			
0.1	1.07		2				3.5			
	1.22						4			
	1.37	SS			N/A	N/A	4.5			
	1.52						5			
	1.68						5.5	Sand w some silt, brown, no odours, damp		
	1.83						6			
0.6	1.98		3				6.5			
	2.13	SS			N/A	N/A	7			
	0.75			50%			7.5			
	2.44						8			
	2.58						8.5			
0.0	2.74	SS	4		N/A	N/A	9			
	2.90						9.5			
	3.05						10			
	3.20						10.5	S.G.A		
	3.35	SS	5		N/A	N/A	11			
0.0	3.51						11.5			
	3.66						12			
	1.68			100%			12.5			
	3.96	SS			N/A	N/A	13			
0.1	4.11		6				13.5			
	4.27						14			PHC, VOC, PAHs, pH
	4.42						14.5	Silty grey clay very wet		
	4.57	SS			N/A	N/A	15			
	4.72						15.5	end @ 15ft		
	4.88		7				16	no refusal		
	5.03						16.5			15 ft well
	5.18	SS			N/A	N/A	17			10 screen
	5.33						17.5			2 inch
	5.49						18			
	5.54		8				18.5			
	5.79	SS			N/A	N/A	19			
	5.94						19.5			

Date & Time: @ am/pm Water Level: m Cave In: m Logged By: MK

Date & Time: @ am/pm Water Level: m Cave In: m Sheet 1 of 1

SS 6 @ bottom of last next

BOREHOLE LOG: [redacted] MW-3 Drilling Company: 7822 DT Direct Push

JOB NUMBER: Driller:

CLIENT:

PROJECT NAME: See previous Helper:

LOCATION:

DATUM: SURFACE (m)

PINCHIN ENVIRONMENTAL

DRILLING DATA

DESCRIPTION: track O truck O other

METHOD: O hollow stem O std other

DIAMETER: O 150mm (6") O 200mm (8") O other

START DATE: Nov 6 FINISH DATE: 1

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION (NOTES: describe moisture, colour and material, identify grainsize, stratigraphy and thickness.)	Water Well Constr. & Materials	REMARKS (NOTES: weather, frost, coring and casing diameters, refusal, topography and well details, etc...)
	0.15						0.5	Asphalt + 4"		
	0.30	SS			N/A	N/A	1	Sand and gravel with silt Brown		
0.0	0.46		1				1.5	damp no odours		
	0.51						2			
	0.75			50%			2.5	Silty sand, brown		
	0.91	SS			N/A	N/A	3	damp no odours		
0.0	1.07		2				3.5			
	1.22						4			
	1.37						4.5			
	1.52	SS			N/A	N/A				
	1.68						5.5	S.A.A		
	1.83						6			
6.0	1.98		3				6.5			
	2.13	SS			N/A	N/A	7			
	0.75			50%			7.5			
	2.44						8			
0.0	2.58						8.5			
	2.74	SS	4		N/A	N/A	9			PHC, VOC, PAHs
	2.90						9.5			
	3.05									
	3.20						10.5	Silty clay, grey/		
	3.35	SS			N/A	N/A	11	brown, wet,		
0.0	3.51		5				11.5	no odours		
	3.66						12			
	1.68			100%			12.5			
	3.96	SS			N/A	N/A	13			
	4.11						13.5			
0.0	4.27		6				14			14ft wet
	4.42						14.5			
	4.57	SS			N/A	N/A				10 Screen
	4.72						15.5			
	4.88						16	End @		2 inch
	5.03		7				16.5	15ft no		
	5.18	SS			N/A	N/A	17	refusal		
	5.33						17.5			
	5.49						18			
	5.54		8				18.5			
	5.79	SS			N/A	N/A	19			
	5.94						19.5			

Date & Time: @ am/pm Water Level: m Cave In: m Logged By: MK

Date & Time: @ am/pm Water Level: m Cave In: m Sheet 1 of 1

SS-4 @ bottom of sand fill + Dup-1

BOREHOLE LOG: BH-4 Drilling Company: Strata 7822ST

PINCHIN ENVIRONMENTAL

JOB NUMBER: Driller:

CLIENT:

PROJECT NAME: see previous Helper:

LOCATION:

DATUM: SURFACE (m)

DRILLING DATA

DESCRIPTION: track O truck O other

METHOD: O hollow stem O std other

DIAMETER: O 150mm (6") O 200mm (8") O other

START DATE: Nov 6 FINISH DATE: "

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION (NOTES: describe moisture, colour and material, identify grainsize, stratigraphy and thickness.)	Water Well Constr. & Materials	REMARKS (NOTES: weather, frost, coring and casing diameters, refusal, topography and well details, etc...)
	0.15	SS			N/A	N/A	0.5	Asphalt 4"		
0.0	0.30		1				1	Sand and gravel w silt brown		
	0.46						1.5	no odours		
	0.51						2	damp		
	0.75	SS		50%	N/A	N/A	2.5	↓		
	0.91						3			
0.1	1.07		2				3.5			
	1.22						4			
	1.37	SS			N/A	N/A	4.5			
	1.52						5	S.A.A		
	1.68						5.5	↓		
	1.83						6			
0.0	1.98		3				6.5			PHC, VOC, PAHs, PH
	2.13	SS			N/A	N/A	7			
	0.75			100%			7.5	Silty clay grey brown wet, no odours		& GS tube
	2.44						8			
	2.58						8.5			
0.0	2.74	SS	4		N/A	N/A	9			
	2.90						9.5			
	3.05						10			
	3.20						10.5	S.A.A, w some sand, wet		
	3.35	SS			N/A	N/A	11			
0.0	3.51		5				11.5			
	3.66						12			
	1.68						12.5			
	3.96	SS			N/A	N/A	13			
0.0	4.11		6				13.5			
	4.27						14			
	4.42						14.5			
	4.57	SS			N/A	N/A	15			
	4.72						15.5	End of BH		
	4.88		7				16	no refusal		
	5.03	SS			N/A	N/A	16.5			
	5.18						17			
	5.33						17.5			
	5.49						18			
	5.54		8				18.5			
	5.79	SS			N/A	N/A	19			
	5.94						19.5			

NO WELL

Date & Time: @ am/pm Water Level: m Cave In: m Logged By: MK

Date & Time: @ am/pm Water Level: m Cave In: m Sheet 1 of 1

BOREHOLE LOG: BH-5 Drilling Company: Strata 782205

JOB NUMBER: Driller:

CLIENT:

PROJECT NAME: See previous Helper:

LOCATION:

DATUM: SURFACE (m)

PINCHIN ENVIRONMENTAL

DRILLING DATA

DESCRIPTION: track O truck O other

METHOD: O hollow stem O std other

DIAMETER: O 150mm (6") O 200mm (8") other

START DATE: Nov 6 FINISH DATE: 4

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION (NOTES: describe moisture, colour and material, identify grainsize, stratigraphy and thickness.)	Water Well Constr. & Materials	REMARKS (NOTES: weather, frost, coring and casing diameters, refusal, topography and wall details, etc...)
	0.15						0.5	Asphalt 4"		
	0.30	SS			N/A	N/A	1	Sand and gravel		
0.9	0.46		1				1.5	brown dump, no odour		PAHs, pH
	0.51			8%			2			
	0.75	SS			N/A	N/A	2.5	Silty clay grey		
	0.91						3	dump w. odours		
6.0	1.07		2				3.5			
	1.22						4			
	1.37						4.5			
	1.52	SS			N/A	N/A	5			
	1.68						5.5	End no refusal		
	1.83						6			
	1.98		3				6.5			
	2.13	SS			N/A	N/A	7			
	0.75						7.5			
	2.44						8			
	2.58						8.5			
	2.74	SS	4		N/A	N/A	9			
	2.90						9.5			
	3.05						10			
	3.20						10.5			
	3.35	SS	5		N/A	N/A	11			
	3.51						11.5			
	3.66						12			
	1.68						12.5			
	3.96	SS			N/A	N/A	13			
	4.11		6				13.5			
	4.27						14			
	4.42						14.5			
	4.57	SS			N/A	N/A	15			
	4.72						15.5			
	4.88		7				16			
	5.03						16.5			
	5.18	SS			N/A	N/A	17			
	5.33						17.5			
	5.49						18			
	5.54		8				18.5			
	5.79	SS			N/A	N/A	19			
	5.94						19.5			

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Logged By: MK

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Sheet 1 of 1

BOREHOLE LOG: BH-6 Drilling Company: 7822 PS

JOB NUMBER: Driller:

CLIENT:

PROJECT NAME: See previous Helper:

LOCATION:

DATUM: SURFACE (m)

PINCHIN ENVIRONMENTAL

DRILLING DATA

DESCRIPTION: track O truck O other

METHOD: O hollow stem O std other

DIAMETER: O 150mm (6") O 200mm (8") other

START DATE: Nov 6 FINISH DATE: 11

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION (NOTES: describe moisture, colour and material, identify grainsize, stratigraphy and thickness.)	Water Well Constr. & Materials	REMARKS (NOTES: weather, frost, coring and casing diameters, refusal, topography and well details, etc...)
	0.15						0.5	Asphalt 4"		
	0.30	SS			N/A	N/A	1	Sand and gravel		
0.2	0.46		1				1.5	Brown damp, no odours		PAHs
	0.51			50%			2			
	0.75	SS			N/A	N/A	2.5			
	0.91						3			
0.0	1.07		2				3.5			
	1.22						4			
	1.37	SS			N/A	N/A	4.5	Silty clay grey no odours, damp		
	1.52						5			
	1.68						5.5	End no refusal		
	1.83						6			
	1.98		3				6.5			
	2.13	SS			N/A	N/A	7			
	0.75						7.5			
	2.44						8			
	2.58						8.5			
	2.74	SS	4		N/A	N/A	9			
	2.90						9.5			
	3.05						10			
	3.20	SS			N/A	N/A	10.5			
	3.35		5				11			
	3.51						11.5			
	3.66						12			
	1.68						12.5			
	3.96	SS			N/A	N/A	13			
	4.11		6				13.5			
	4.27						14			
	4.42						14.5			
	4.57	SS			N/A	N/A	15			
	4.72						15.5			
	4.88		7				16			
	5.03						16.5			
	5.18	SS			N/A	N/A	17			
	5.33						17.5			
	5.49						18			
	5.54		8				18.5			
	5.79	SS			N/A	N/A	19			
	5.94						19.5			

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Logged By: MK

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Sheet 1 of 1

BOREHOLE LOG: BH-7 Drilling Company: 420m Direct Push

PINCHIN ENVIRONMENTAL

JOB NUMBER: Driller:

CLIENT: Seepmetrix

PROJECT NAME: Helper:

LOCATION:

DATUM: SURFACE (m)

DRILLING DATA

DESCRIPTION: O track O truck Other

METHOD: O hollow stem O std O other

DIAMETER: O 150mm (6") O 200mm (8") O other

START DATE: Nov 7 FINISH DATE: 4

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION (NOTES: describe moisture, colour and material, identify grainsize, stratigraphy and thickness.)	Water Well Constr. & Materials	REMARKS (NOTES: weather, frost, coring and casing diameters, refusal, topography and well details, etc...)
	0.15						0.5	Concrete ~6"		
0.1	0.30	SS	1		N/A	N/A	1	Silty clay grey, brown, damp, no odours		
	0.46						1.5			
	0.51									
	0.75			100%			2.5			
0.2	0.91	SS	2		N/A	N/A	3		No	
	1.07		2				3.5			
	1.22									
	1.37						4.5	S.A.A		
	1.52	SS	3		N/A	N/A			Well	
0.2	1.68		3				5.5			
	1.83			100%						
	1.98		4				6.5			
	2.13	SS	4		N/A	N/A	7			
0.1	0.75		4				7.5			
	2.44									
	2.58						8.5	S.A.A		
0.1	2.74	SS	5		N/A	N/A	9			
	2.90						9.5			
	3.05			100%						
* 0.7	3.20						10.5			
	3.35	SS	6		N/A	N/A	11	Moist		VHC, VOC, PAHs
	3.51		6				11.5			
	3.66									
	1.68						12.5	end no refusal		
	3.96	SS			N/A	N/A	13			
	4.11		6				13.5			
	4.27						14			
	4.42						14.5			
	4.57	SS			N/A	N/A				
	4.72						15.5			
	4.88		7				16			
	5.03						16.5			
	5.18	SS			N/A	N/A	17			
	5.33						17.5			
	5.49						18			
	5.54		8				18.5			
	5.79	SS			N/A	N/A	19			
	5.94						19.5			

Date & Time: @ am/pm Water Level: m Cave In: m Logged By: MK

Date & Time: @ am/pm Water Level: m Cave In: m Sheet 1 of 1

BOREHOLE LOG: MW-8 Drilling Company: 420m direct push

PINCHIN ENVIRONMENTAL

JOB NUMBER:	Driller:	DRILLING DATA	
CLIENT:		DESCRIPTION: O track	O truck X other
PROJECT NAME: See previous	Helper:	METHOD: O hollow stem	O std X other
LOCATION:		DIAMETER: O 150mm (6")	O 200mm (8") X other
DATUM:	SURFACE (m)	START DATE: Nov 2	FINISH DATE: n

FIELD DATA: Total Org Vapour ppm	Depth form surf. M	SAMPLES: SAMPLE TYPE	SAMPLE NUMBER	RECOV. Per 0.61m	BLOWS per 0.15m	N-VALUE or OCPT	Depth from surf. (ft.)	MATERIAL DESCRIPTION (NOTES: describe moisture, colour and material, identify grainsize, stratigraphy and thickness.)	Water Well Constr. & Materials	REMARKS (NOTES: weather, frost, coring and casing diameters, refusal, topography and wall details, etc...)
	0.15						0.5	Concrete, 6"		
	0.30	SS			N/A	N/A	1	sand, brown,		
0.2	0.46		1				1.5	damp, no odour		
	0.51						2			
	0.75			50%			2.5			
	0.91	SS	2		N/A	N/A	3			
0.2	1.07						3.5			
	1.22						4			
	1.37						4.5	S, D, A		
	1.52	SS	3		N/A	N/A	5			
0.1	1.68						5.5			
	1.83						6	silty clay grey		
	1.98		4	100%			6.5	no odour, S, damp		
0.1	2.13	SS			N/A	N/A	7			
	0.75						7.5			
	2.44						8			
	2.58						8.5	S, A, A, wet		~ GW table
0.1	2.74	SS	5		N/A	N/A	9			
*	2.90						9.5			PHC, VOC,
	3.05						10			PAHs
	3.20			100%			10.5			
0.1	3.35	SS	6		N/A	N/A	11			
	3.51						11.5			
	3.66						12			
	1.68						12.5	S, A, A		
	3.96	SS			N/A	N/A	13			
0.0	4.11		7				13.5			
	4.27						14			
	4.42			100%			14.5			
0.0	4.57	SS	8		N/A	N/A	15			
	4.72						15.5			
	4.88		7				16			
	5.03						16.5	end @ 16ft		(16 ft well
	5.18	SS			N/A	N/A	17	no refusal		10 screen
	5.33						17.5			1.25 inch
	5.49						18			
	5.54		8				18.5			
	5.79	SS			N/A	N/A	19			
	5.94						19.5			

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Logged By: MK

Date & Time: _____ @ _____ am/pm Water Level: _____ m Cave In: _____ m Sheet 1 of 1

APPENDIX E

Laboratory Certificates of Analysis

Your Project #: 229085.001
Your C.O.C. #: 102886

Attention: Mike Kosiw

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

Report Date: 2018/11/15
Report #: R5485609
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8T9480
Received: 2018/11/08, 15:00

Sample Matrix: Soil
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	9	N/A	2018/11/12	CAM SOP-00301	EPA 8270D m
Semivolatile Organic Compounds (TCLP) (1)	1	2018/11/14	2018/11/15	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	7	N/A	2018/11/13	OTT SOP-00002	EPA 8260C m
CCME F1 Hydrocarbons/BTEX in Leachate (1)	1	2018/11/14	2018/11/14	CAM SOP-00315	CCME PHC-CWS m
CCME F2-F4 Hydrocarbons in Leachate (1, 2)	1	2018/11/14	2018/11/14	CAM SOP-00316	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	5	2018/11/09	2018/11/10	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (2)	2	2018/11/09	2018/11/13	OTT SOP-00001	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	2	2018/11/13	2018/11/14	OTT SOP-00001	CCME CWS
Moisture	9	N/A	2018/11/12	CAM SOP-00445	McKeague 2nd ed 1978
PAH Compounds in Soil by GC/MS (SIM)	6	2018/11/09	2018/11/09	OTT SOP-00011	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	3	2018/11/09	2018/11/12	OTT SOP-00011	EPA 8270D m
pH CaCl2 EXTRACT (1)	4	2018/11/13	2018/11/13	CAM SOP-00413	EPA 9045 D m
Sieve, 75um (1)	1	N/A	2018/11/13	CAM SOP-00467	Carter 2nd ed m
TCLP - % Solids (1)	1	2018/11/13	2018/11/14	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid (1)	1	N/A	2018/11/14	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH (1)	1	N/A	2018/11/14	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction (1)	1	2018/11/13	2018/11/14	CAM SOP-00430	EPA 1311 m
Volatile Organic Compounds and F1 PHCs	7	N/A	2018/11/12	OTT SOP-00002	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

Your Project #: 229085.001
Your C.O.C. #: 102886

Attention: Mike Kosiw

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

Report Date: 2018/11/15
Report #: R5485609
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8T9480
Received: 2018/11/08, 15:00

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.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Analytics Mississauga
(2) 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

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

==========

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

Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

O.REG 153 PAHS (SOIL)

Maxxam ID			IGG129	IGG130			IGG130		
Sampling Date			2018/11/06	2018/11/06			2018/11/06		
COC Number			102886	102886			102886		
	UNITS	Criteria	MW-1 SS-5	MW-2 SS-6	RDL	QC Batch	MW-2 SS-6 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	**85**	<0.014	<0.014	0.014	5829413			
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	**96**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Acenaphthylene	ug/g	**0.17**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Anthracene	ug/g	**0.74**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Benzo(a)anthracene	ug/g	**0.96**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Benzo(a)pyrene	ug/g	**0.3**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Benzo(b/j)fluoranthene	ug/g	**0.96**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Benzo(g,h,i)perylene	ug/g	**9.6**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Benzo(k)fluoranthene	ug/g	**0.96**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Chrysene	ug/g	**9.6**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Dibenz(a,h)anthracene	ug/g	**0.1**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Fluoranthene	ug/g	**9.6**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Fluorene	ug/g	**69**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Indeno(1,2,3-cd)pyrene	ug/g	**0.95**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
1-Methylnaphthalene	ug/g	**85**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
2-Methylnaphthalene	ug/g	**85**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Naphthalene	ug/g	**28**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Phenanthrene	ug/g	**16**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Pyrene	ug/g	**96**	<0.0050	<0.0050	0.0050	5829459	<0.0050	0.0050	5829459
Surrogate Recovery (%)									
D10-Anthracene	%	-	84	73		5829459	78		5829459
D14-Terphenyl (FS)	%	-	85	75		5829459	78		5829459
D8-Acenaphthylene	%	-	79	79		5829459	76		5829459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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

Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

O.REG 153 PAHS (SOIL)

Maxxam ID			IGG131	IGG132			IGG133	IGG134		
Sampling Date			2018/11/06	2018/11/06			2018/11/06	2018/11/06		
COC Number			102886	102886			102886	102886		
	UNITS	Criteria	MW-3 SS-4	BH-4 SS-3	RDL	QC Batch	BH-5 SS-1	BH-6 SS-1	RDL	QC Batch
Inorganics										
Moisture	%	-					22	4.5	0.2	5829454
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	**85**	<0.014	<0.014	0.014	5829413	<0.014	<0.014	0.014	5829413
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	**96**	<0.0050	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Acenaphthylene	ug/g	**0.17**	<0.0050	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Anthracene	ug/g	**0.74**	<0.0050	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Benzo(a)anthracene	ug/g	**0.96**	0.011	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Benzo(a)pyrene	ug/g	**0.3**	0.012	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Benzo(b/j)fluoranthene	ug/g	**0.96**	0.017	<0.0050	0.0050	5829459	0.0055	<0.0050	0.0050	5829459
Benzo(g,h,i)perylene	ug/g	**9.6**	0.015	<0.0050	0.0050	5829459	0.031	<0.0050	0.0050	5829459
Benzo(k)fluoranthene	ug/g	**0.96**	0.0054	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Chrysene	ug/g	**9.6**	0.011	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Dibenz(a,h)anthracene	ug/g	**0.1**	0.0057	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Fluoranthene	ug/g	**9.6**	0.027	<0.0050	0.0050	5829459	0.010	<0.0050	0.0050	5829459
Fluorene	ug/g	**69**	0.0089	<0.0050	0.0050	5829459	0.0085	<0.0050	0.0050	5829459
Indeno(1,2,3-cd)pyrene	ug/g	**0.95**	0.012	<0.0050	0.0050	5829459	0.0076	<0.0050	0.0050	5829459
1-Methylnaphthalene	ug/g	**85**	<0.0050	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
2-Methylnaphthalene	ug/g	**85**	<0.0050	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Naphthalene	ug/g	**28**	<0.0050	<0.0050	0.0050	5829459	<0.0050	<0.0050	0.0050	5829459
Phenanthrene	ug/g	**16**	0.027	<0.0050	0.0050	5829459	0.024	0.0075	0.0050	5829459
Pyrene	ug/g	**96**	0.032	<0.0050	0.0050	5829459	0.0094	<0.0050	0.0050	5829459
Surrogate Recovery (%)										
D10-Anthracene	%	-	76	81		5829459	71	74		5829459
D14-Terphenyl (FS)	%	-	82	72		5829459	68	79		5829459
D8-Acenaphthylene	%	-	64	77		5829459	55	75		5829459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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

Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

O.REG 153 PAHS (SOIL)

Maxxam ID			IGG135	IGG136	IGG137		
Sampling Date			2018/11/06	2018/11/07	2018/11/07		
COC Number			102886	102886	102886		
	UNITS	Criteria	DUP-1	BH-7 SS-6	MW-8 SS-5	RDL	QC Batch
Calculated Parameters							
Methylnaphthalene, 2-(1-)	ug/g	**85**	<0.014	<0.014	<0.014	0.014	5829413
Polyaromatic Hydrocarbons							
Acenaphthene	ug/g	**96**	<0.0050	<0.0050	<0.0050	0.0050	5829459
Acenaphthylene	ug/g	**0.17**	<0.0050	<0.0050	<0.0050	0.0050	5829459
Anthracene	ug/g	**0.74**	<0.0050	<0.0050	<0.0050	0.0050	5829459
Benzo(a)anthracene	ug/g	**0.96**	0.015	<0.0050	<0.0050	0.0050	5829459
Benzo(a)pyrene	ug/g	**0.3**	0.016	<0.0050	<0.0050	0.0050	5829459
Benzo(b/j)fluoranthene	ug/g	**0.96**	0.019	<0.0050	<0.0050	0.0050	5829459
Benzo(g,h,i)perylene	ug/g	**9.6**	0.017	<0.0050	<0.0050	0.0050	5829459
Benzo(k)fluoranthene	ug/g	**0.96**	0.0064	<0.0050	<0.0050	0.0050	5829459
Chrysene	ug/g	**9.6**	0.014	<0.0050	<0.0050	0.0050	5829459
Dibenz(a,h)anthracene	ug/g	**0.1**	0.0064	<0.0050	<0.0050	0.0050	5829459
Fluoranthene	ug/g	**9.6**	0.053	<0.0050	<0.0050	0.0050	5829459
Fluorene	ug/g	**69**	0.0084	<0.0050	<0.0050	0.0050	5829459
Indeno(1,2,3-cd)pyrene	ug/g	**0.95**	0.012	<0.0050	<0.0050	0.0050	5829459
1-Methylnaphthalene	ug/g	**85**	<0.0050	<0.0050	<0.0050	0.0050	5829459
2-Methylnaphthalene	ug/g	**85**	<0.0050	<0.0050	<0.0050	0.0050	5829459
Naphthalene	ug/g	**28**	<0.0050	<0.0050	<0.0050	0.0050	5829459
Phenanthrene	ug/g	**16**	0.025	<0.0050	<0.0050	0.0050	5829459
Pyrene	ug/g	**96**	0.058	<0.0050	<0.0050	0.0050	5829459
Surrogate Recovery (%)							
D10-Anthracene	%	-	81	77	76		5829459
D14-Terphenyl (FS)	%	-	75	70	78		5829459
D8-Acenaphthylene	%	-	92	77	76		5829459

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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

Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

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

Maxxam ID			IGG129	IGG130	IGG131	IGG132	IGG135		
Sampling Date			2018/11/06	2018/11/06	2018/11/06	2018/11/06	2018/11/06		
COC Number			102886	102886	102886	102886	102886		
	UNITS	Criteria	MW-1 SS-5	MW-2 SS-6	MW-3 SS-4	BH-4 SS-3	DUP-1	RDL	QC Batch
Inorganics									
Moisture	%	-	24	26	14	24	11	0.2	5829454
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	**0.21**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829414
Volatile Organics									
Acetone (2-Propanone)	ug/g	**28**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5829787
Benzene	ug/g	**0.4**	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5829787
Bromodichloromethane	ug/g	**18**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Bromoform	ug/g	**1.7**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Bromomethane	ug/g	**0.05**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Carbon Tetrachloride	ug/g	**1.5**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Chlorobenzene	ug/g	**2.7**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Chloroform	ug/g	**0.18**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Dibromochloromethane	ug/g	**13**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,2-Dichlorobenzene	ug/g	**8.5**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,3-Dichlorobenzene	ug/g	**12**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,4-Dichlorobenzene	ug/g	**0.84**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Dichlorodifluoromethane (FREON 12)	ug/g	**25**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,1-Dichloroethane	ug/g	**21**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,2-Dichloroethane	ug/g	**0.05**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,1-Dichloroethylene	ug/g	**0.48**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
cis-1,2-Dichloroethylene	ug/g	**37**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
trans-1,2-Dichloroethylene	ug/g	**9.3**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,2-Dichloropropane	ug/g	**0.68**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
cis-1,3-Dichloropropene	ug/g	**0.21**	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5829787
trans-1,3-Dichloropropene	ug/g	**0.21**	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5829787
Ethylbenzene	ug/g	**19**	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5829787
Ethylene Dibromide	ug/g	**0.05**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Hexane	ug/g	**88**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Methylene Chloride(Dichloromethane)	ug/g	**2**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Methyl Ethyl Ketone (2-Butanone)	ug/g	**88**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5829787
Methyl Isobutyl Ketone	ug/g	**210**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5829787
Methyl t-butyl ether (MTBE)	ug/g	**3.2**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Styrene	ug/g	**43**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

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

Maxxam ID			IGG129	IGG130	IGG131	IGG132	IGG135		
Sampling Date			2018/11/06	2018/11/06	2018/11/06	2018/11/06	2018/11/06		
COC Number			102886	102886	102886	102886	102886		
	UNITS	Criteria	MW-1 SS-5	MW-2 SS-6	MW-3 SS-4	BH-4 SS-3	DUP-1	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/g	**0.11**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,1,2,2-Tetrachloroethane	ug/g	**0.094**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Tetrachloroethylene	ug/g	**21**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Toluene	ug/g	**78**	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5829787
1,1,1-Trichloroethane	ug/g	**12**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
1,1,2-Trichloroethane	ug/g	**0.11**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Trichloroethylene	ug/g	**0.61**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Trichlorofluoromethane (FREON 11)	ug/g	**5.8**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5829787
Vinyl Chloride	ug/g	**0.25**	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5829787
p+m-Xylene	ug/g	-	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5829787
o-Xylene	ug/g	-	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5829787
Total Xylenes	ug/g	**30**	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5829787
F1 (C6-C10)	ug/g	**65**	<10	<10	<10	<10	<10	10	5829787
F1 (C6-C10) - BTEX	ug/g	**65**	<10	<10	<10	<10	<10	10	5829787
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	**250**	<10	<10	<10	<10	<10	10	5829445
F3 (C16-C34 Hydrocarbons)	ug/g	**2500**	<50	<50	57	<50	78	50	5829445
F4 (C34-C50 Hydrocarbons)	ug/g	**6600**	85	<50	220	<50	340	50	5829445
Reached Baseline at C50	ug/g	-	Yes	Yes	No	Yes	No		5829445
Surrogate Recovery (%)									
o-Terphenyl	%	-	94	89	89	98	87		5829445
4-Bromofluorobenzene	%	-	70	73	84	87	81		5829787
D10-o-Xylene	%	-	103	103	96	82	90		5829787
D4-1,2-Dichloroethane	%	-	106	118	106	108	110		5829787
D8-Toluene	%	-	105	105	102	97	103		5829787

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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

Maxxam ID			IGG136	IGG137		
Sampling Date			2018/11/07	2018/11/07		
COC Number			102886	102886		
	UNITS	Criteria	BH-7 SS-6	MW-8 SS-5	RDL	QC Batch
Inorganics						
Moisture	%	-	24	21	0.2	5829454
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/g	**0.21**	<0.050	<0.050	0.050	5829414
Volatile Organics						
Acetone (2-Propanone)	ug/g	**28**	<0.50	<0.50	0.50	5829787
Benzene	ug/g	**0.4**	<0.020	<0.020	0.020	5829787
Bromodichloromethane	ug/g	**18**	<0.050	<0.050	0.050	5829787
Bromoform	ug/g	**1.7**	<0.050	<0.050	0.050	5829787
Bromomethane	ug/g	**0.05**	<0.050	<0.050	0.050	5829787
Carbon Tetrachloride	ug/g	**1.5**	<0.050	<0.050	0.050	5829787
Chlorobenzene	ug/g	**2.7**	<0.050	<0.050	0.050	5829787
Chloroform	ug/g	**0.18**	<0.050	<0.050	0.050	5829787
Dibromochloromethane	ug/g	**13**	<0.050	<0.050	0.050	5829787
1,2-Dichlorobenzene	ug/g	**8.5**	<0.050	<0.050	0.050	5829787
1,3-Dichlorobenzene	ug/g	**12**	<0.050	<0.050	0.050	5829787
1,4-Dichlorobenzene	ug/g	**0.84**	<0.050	<0.050	0.050	5829787
Dichlorodifluoromethane (FREON 12)	ug/g	**25**	<0.050	<0.050	0.050	5829787
1,1-Dichloroethane	ug/g	**21**	<0.050	<0.050	0.050	5829787
1,2-Dichloroethane	ug/g	**0.05**	<0.050	<0.050	0.050	5829787
1,1-Dichloroethylene	ug/g	**0.48**	<0.050	<0.050	0.050	5829787
cis-1,2-Dichloroethylene	ug/g	**37**	<0.050	<0.050	0.050	5829787
trans-1,2-Dichloroethylene	ug/g	**9.3**	<0.050	<0.050	0.050	5829787
1,2-Dichloropropane	ug/g	**0.68**	<0.050	<0.050	0.050	5829787
cis-1,3-Dichloropropene	ug/g	**0.21**	<0.030	<0.030	0.030	5829787
trans-1,3-Dichloropropene	ug/g	**0.21**	<0.040	<0.040	0.040	5829787
Ethylbenzene	ug/g	**19**	<0.020	<0.020	0.020	5829787
Ethylene Dibromide	ug/g	**0.05**	<0.050	<0.050	0.050	5829787
Hexane	ug/g	**88**	<0.050	<0.050	0.050	5829787
Methylene Chloride(Dichloromethane)	ug/g	**2**	<0.050	<0.050	0.050	5829787
Methyl Ethyl Ketone (2-Butanone)	ug/g	**88**	<0.50	<0.50	0.50	5829787
Methyl Isobutyl Ketone	ug/g	**210**	<0.50	<0.50	0.50	5829787
Methyl t-butyl ether (MTBE)	ug/g	**3.2**	<0.050	<0.050	0.050	5829787

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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

Maxxam ID			IGG136	IGG137		
Sampling Date			2018/11/07	2018/11/07		
COC Number			102886	102886		
	UNITS	Criteria	BH-7 SS-6	MW-8 SS-5	RDL	QC Batch
Styrene	ug/g	**43**	<0.050	<0.050	0.050	5829787
1,1,1,2-Tetrachloroethane	ug/g	**0.11**	<0.050	<0.050	0.050	5829787
1,1,2,2-Tetrachloroethane	ug/g	**0.094**	<0.050	<0.050	0.050	5829787
Tetrachloroethylene	ug/g	**21**	<0.050	0.11	0.050	5829787
Toluene	ug/g	**78**	<0.020	<0.020	0.020	5829787
1,1,1-Trichloroethane	ug/g	**12**	<0.050	<0.050	0.050	5829787
1,1,2-Trichloroethane	ug/g	**0.11**	<0.050	<0.050	0.050	5829787
Trichloroethylene	ug/g	**0.61**	<0.050	<0.050	0.050	5829787
Trichlorofluoromethane (FREON 11)	ug/g	**5.8**	<0.050	<0.050	0.050	5829787
Vinyl Chloride	ug/g	**0.25**	<0.020	<0.020	0.020	5829787
p+m-Xylene	ug/g	**-**	<0.020	<0.020	0.020	5829787
o-Xylene	ug/g	**-**	<0.020	<0.020	0.020	5829787
Total Xylenes	ug/g	**30**	<0.020	<0.020	0.020	5829787
F1 (C6-C10)	ug/g	**65**	<10	<10	10	5829787
F1 (C6-C10) - BTEX	ug/g	**65**	<10	<10	10	5829787
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	**250**	<10	<10	10	5829445
F3 (C16-C34 Hydrocarbons)	ug/g	**2500**	<50	<50	50	5829445
F4 (C34-C50 Hydrocarbons)	ug/g	**6600**	<50	<50	50	5829445
Reached Baseline at C50	ug/g	-	Yes	Yes		5829445
Surrogate Recovery (%)						
o-Terphenyl	%	-	92	88		5829445
4-Bromofluorobenzene	%	-	95	89		5829787
D10-o-Xylene	%	-	111	106		5829787
D4-1,2-Dichloroethane	%	-	110	122		5829787
D8-Toluene	%	-	108	100		5829787

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		IGX052		
Sampling Date		2018/11/07		
COC Number		102886		
	UNITS	**MW-1 SS-2**	**RDL**	**QC Batch**
Inorganics				
Final pH	pH	5.87		5834664
Initial pH	pH	8.92		5834664
TCLP - % Solids	%	100	0.2	5834656
TCLP Extraction Fluid	N/A	FLUID 1		5834663

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TCLP PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		IGX052			IGX052		
Sampling Date		2018/11/07			2018/11/07		
COC Number		102886			102886		
	UNITS	MW-1 SS-2	RDL	QC Batch	MW-1 SS-2 Lab-Dup	RDL	QC Batch
BTEX & F1 Hydrocarbons							
Leachable (ZHE) Benzene	ug/L	<0.8	0.8	5836337			
Leachable (ZHE) Toluene	ug/L	<0.8	0.8	5836337			
Leachable (ZHE) Ethylbenzene	ug/L	<0.8	0.8	5836337			
Leachable (ZHE) o-Xylene	ug/L	<0.8	0.8	5836337			
Leachable (ZHE) p+m-Xylene	ug/L	<2	2	5836337			
Leachable (ZHE) Total Xylenes	ug/L	<2	2	5836337			
Leachable (ZHE) F1 (C6-C10)	ug/L	<1000	1000	5836337			
Leachable (ZHE) F1 (C6-C10) - BTEX	ug/L	<1000	1000	5836337			
F2-F4 Hydrocarbons							
Leachable F2 (C10-C16 Hydrocarbons)	ug/L	900	100	5836465	950	100	5836465
Leachable F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	5836465	<200	200	5836465
Leachable F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	5836465	<200	200	5836465
Leachable Reached Baseline at C50	ug/L	Yes	N/A	5836465	Yes	N/A	5836465
Surrogate Recovery (%)							
Leachable (ZHE) 1,4-Difluorobenzene	%	102		5836337			
Leachable (ZHE) 4-Bromofluorobenzene	%	104		5836337			
Leachable (ZHE) D10-Ethylbenzene	%	92		5836337			
Leachable (ZHE) D4-1,2-Dichloroethane	%	94		5836337			
Leachable o-Terphenyl	%	99		5836465	101		5836465

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

O.REG 558 TCLP SEMI-VOLATILE ORGANICS (SOIL)

Maxxam ID		IGX052		
Sampling Date		2018/11/07		
COC Number		102886		
	UNITS	MW-1 SS-2	RDL	QC Batch
Semivolatile Organics				
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	5836943
Leachable m/p-Cresol	ug/L	<2.5	2.5	5836943
Leachable o-Cresol	ug/L	<2.5	2.5	5836943
Leachable Cresol Total	ug/L	<2.5	2.5	5836943
Leachable 2,4-Dichlorophenol	ug/L	<2.5	2.5	5836943
Leachable 2,4-Dinitrotoluene	ug/L	<10	10	5836943
Leachable Hexachlorobenzene	ug/L	<10	10	5836943
Leachable Hexachlorobutadiene	ug/L	<10	10	5836943
Leachable Hexachloroethane	ug/L	<10	10	5836943
Leachable Nitrobenzene	ug/L	<10	10	5836943
Leachable Pentachlorophenol	ug/L	<2.5	2.5	5836943
Leachable Pyridine	ug/L	<10	10	5836943
Leachable 2,3,4,6-Tetrachlorophenol	ug/L	<2.5	2.5	5836943
Leachable 2,4,5-Trichlorophenol	ug/L	<0.50	0.50	5836943
Leachable 2,4,6-Trichlorophenol	ug/L	<2.5	2.5	5836943
Surrogate Recovery (%)				
Leachable 2,4,6-Tribromophenol	%	94		5836943
Leachable 2-Fluorobiphenyl	%	71		5836943
Leachable 2-Fluorophenol	%	18		5836943
Leachable D14-Terphenyl (FS)	%	100		5836943
Leachable D5-Nitrobenzene	%	95		5836943
Leachable D5-Phenol	%	38		5836943

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

RESULTS OF ANALYSES OF SOIL

Maxxam ID		IGG128		IGG129			IGG130	IGG132	IGG133	
Sampling Date		2018/11/06		2018/11/06			2018/11/06	2018/11/06	2018/11/06	
COC Number		102886		102886			102886	102886	102886	
	UNITS	MW-1 SS-2	QC Batch	MW-1 SS-5	RDL	QC Batch	MW-2 SS-6	BH-4 SS-3	BH-5 SS-1	QC Batch
Inorganics										
Available (CaCl2) pH	pH	7.31	5834214				7.72	7.81	7.72	5834214
Miscellaneous Parameters										
Grain Size	%			FINE	N/A	5833825				
Sieve - #200 (<0.075mm)	%			91	1	5833825				
Sieve - #200 (>0.075mm)	%			9	1	5833825				

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

Maxxam ID		IGX052	
Sampling Date		2018/11/07	
COC Number		102886	
	UNITS	MW-1 SS-2	QC Batch
Charge/Prep Analysis			
Amount Extracted (Wet Weight) (g)	N/A	25	5834108

QC Batch = Quality Control Batch

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Pinchin Ltd
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Sampler Initials: MK

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			IGG131	IGG135		
Sampling Date			2018/11/06	2018/11/06		
COC Number			102886	102886		
	UNITS	Criteria	MW-3 SS-4	DUP-1	RDL	QC Batch
F2-F4 Hydrocarbons						
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**6600**	1200	1600	100	5834885

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Industrial/Commercial/Community- Medium and Fine Textured Soil

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Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

TEST SUMMARY

Maxxam ID: IGG128
Sample ID: MW-1 SS-2
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	5834214	2018/11/13	2018/11/13	Gnana Thomas

Maxxam ID: IGG129
Sample ID: MW-1 SS-5
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5829414	N/A	2018/11/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5829445	2018/11/09	2018/11/10	Mariana Vascan
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/09	Liliana Gaburici
Sieve, 75um	SIEV	5833825	N/A	2018/11/13	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5829787	N/A	2018/11/12	Liliana Gaburici

Maxxam ID: IGG130
Sample ID: MW-2 SS-6
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5829414	N/A	2018/11/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5829445	2018/11/09	2018/11/10	Mariana Vascan
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/09	Liliana Gaburici
pH CaCl2 EXTRACT	AT	5834214	2018/11/13	2018/11/13	Gnana Thomas
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5829787	N/A	2018/11/12	Liliana Gaburici

Maxxam ID: IGG130 Dup
Sample ID: MW-2 SS-6
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/09	Liliana Gaburici

Maxxam ID: IGG131
Sample ID: MW-3 SS-4
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5829414	N/A	2018/11/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5829445	2018/11/09	2018/11/10	Mariana Vascan
F4G (CCME Hydrocarbons Gravimetric)	BAL	5834885	2018/11/13	2018/11/14	Mariana Vascan
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/12	Liliana Gaburici

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Maxxam Job #: B8T9480
Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

TEST SUMMARY

Maxxam ID: IGG131
Sample ID: MW-3 SS-4
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5829787	N/A	2018/11/12	Liliana Gaburici

Maxxam ID: IGG132
Sample ID: BH-4 SS-3
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5829414	N/A	2018/11/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5829445	2018/11/09	2018/11/10	Mariana Vascan
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/09	Liliana Gaburici
pH CaCl2 EXTRACT	AT	5834214	2018/11/13	2018/11/13	Gnana Thomas
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5829787	N/A	2018/11/12	Liliana Gaburici

Maxxam ID: IGG133
Sample ID: BH-5 SS-1
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/12	Liliana Gaburici
pH CaCl2 EXTRACT	AT	5834214	2018/11/13	2018/11/13	Gnana Thomas

Maxxam ID: IGG134
Sample ID: BH-6 SS-1
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/09	Liliana Gaburici

Maxxam ID: IGG135
Sample ID: DUP-1
Matrix: Soil

Collected: 2018/11/06
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5829414	N/A	2018/11/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5829445	2018/11/09	2018/11/10	Mariana Vascan
F4G (CCME Hydrocarbons Gravimetric)	BAL	5834885	2018/11/13	2018/11/14	Mariana Vascan
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/12	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5829787	N/A	2018/11/12	Liliana Gaburici

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TEST SUMMARY

Maxxam ID: IGG136
Sample ID: BH-7 SS-6
Matrix: Soil

Collected: 2018/11/07
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5829414	N/A	2018/11/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5829445	2018/11/09	2018/11/13	Mariana Vascan
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/09	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5829787	N/A	2018/11/12	Liliana Gaburici

Maxxam ID: IGG137
Sample ID: MW-8 SS-5
Matrix: Soil

Collected: 2018/11/07
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5829413	N/A	2018/11/12	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5829414	N/A	2018/11/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5829445	2018/11/09	2018/11/13	Mariana Vascan
Moisture	BAL	5829454	N/A	2018/11/12	Fatemeh Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5829459	2018/11/09	2018/11/09	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5829787	N/A	2018/11/12	Liliana Gaburici

Maxxam ID: IGX052
Sample ID: MW-1 SS-2
Matrix: Soil

Collected: 2018/11/07
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Semivolatile Organic Compounds (TCLP)	GC/MS	5836943	2018/11/14	2018/11/15	Wendy Zhao
CCME F1 Hydrocarbons/BTEX in Leachate	HSGC/MSFD	5836337	2018/11/14	2018/11/14	Shahram Lalehparvar
CCME F2-F4 Hydrocarbons in Leachate	GC/FID	5836465	2018/11/14	2018/11/14	Dorina Popa
TCLP - % Solids	BAL	5834656	2018/11/13	2018/11/14	Jian (Ken) Wang
TCLP - Extraction Fluid		5834663	N/A	2018/11/14	Jian (Ken) Wang
TCLP - Initial and final pH	PH	5834664	N/A	2018/11/14	Jian (Ken) Wang
TCLP Zero Headspace Extraction		5834108	2018/11/13	2018/11/14	Walt Wang

Maxxam ID: IGX052 Dup
Sample ID: MW-1 SS-2
Matrix: Soil

Collected: 2018/11/07
Shipped:
Received: 2018/11/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
CCME F2-F4 Hydrocarbons in Leachate	GC/FID	5836465	2018/11/14	2018/11/14	Dorina Popa

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Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

GENERAL COMMENTS

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

Package 1	5.7°C

Sample IGX052 [MW-1 SS-2] : TCLP VOCs Extraction: samples jars, all containing headspace, were composited prior to extraction. Analysis was performed with client's consent.

Results relate only to the items tested.

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Report Date: 2018/11/15

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5829445	MVA	Matrix Spike	o-Terphenyl	2018/11/13		94	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2018/11/13		85	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2018/11/13		85	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2018/11/13		85	%	50 - 130
5829445	MVA	Spiked Blank	o-Terphenyl	2018/11/13		87	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2018/11/13		80	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2018/11/13		80	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2018/11/13		80	%	80 - 120
5829445	MVA	Method Blank	o-Terphenyl	2018/11/10		101	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2018/11/10	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2018/11/10	<50		ug/g	
			F4 (C34-C50 Hydrocarbons)	2018/11/10	<50		ug/g	
5829445	MVA	RPD	F2 (C10-C16 Hydrocarbons)	2018/11/10	27		%	50
			F3 (C16-C34 Hydrocarbons)	2018/11/10	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2018/11/10	NC		%	50
5829454	FHB	RPD	Moisture	2018/11/12	0.98		%	50
5829459	LGA	Matrix Spike [IGG129-01]	D10-Anthracene	2018/11/09		78	%	50 - 130
			D14-Terphenyl (FS)	2018/11/09		79	%	50 - 130
			D8-Acenaphthylene	2018/11/09		81	%	50 - 130
			Acenaphthene	2018/11/09		79	%	50 - 130
			Acenaphthylene	2018/11/09		79	%	50 - 130
			Anthracene	2018/11/09		68	%	50 - 130
			Benzo(a)anthracene	2018/11/09		73	%	50 - 130
			Benzo(a)pyrene	2018/11/09		72	%	50 - 130
			Benzo(b/j)fluoranthene	2018/11/09		68	%	50 - 130
			Benzo(g,h,i)perylene	2018/11/09		87	%	50 - 130
			Benzo(k)fluoranthene	2018/11/09		69	%	50 - 130
			Chrysene	2018/11/09		86	%	50 - 130
			Dibenz(a,h)anthracene	2018/11/09		100	%	50 - 130
			Fluoranthene	2018/11/09		91	%	50 - 130
			Fluorene	2018/11/09		79	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/11/09		86	%	50 - 130
			1-Methylnaphthalene	2018/11/09		78	%	50 - 130
			2-Methylnaphthalene	2018/11/09		85	%	50 - 130
			Naphthalene	2018/11/09		71	%	50 - 130
			Phenanthrene	2018/11/09		69	%	50 - 130
			Pyrene	2018/11/09		93	%	50 - 130
5829459	LGA	Spiked Blank	D10-Anthracene	2018/11/09		78	%	50 - 130
			D14-Terphenyl (FS)	2018/11/09		80	%	50 - 130
			D8-Acenaphthylene	2018/11/09		85	%	50 - 130
			Acenaphthene	2018/11/09		100	%	50 - 130
			Acenaphthylene	2018/11/09		81	%	50 - 130
			Anthracene	2018/11/09		68	%	50 - 130
			Benzo(a)anthracene	2018/11/09		78	%	50 - 130
			Benzo(a)pyrene	2018/11/09		93	%	50 - 130
			Benzo(b/j)fluoranthene	2018/11/09		76	%	50 - 130
			Benzo(g,h,i)perylene	2018/11/09		86	%	50 - 130
			Benzo(k)fluoranthene	2018/11/09		70	%	50 - 130
			Chrysene	2018/11/09		89	%	50 - 130
			Dibenz(a,h)anthracene	2018/11/09		98	%	50 - 130
			Fluoranthene	2018/11/09		86	%	50 - 130
			Fluorene	2018/11/09		78	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/11/09		83	%	50 - 130
			1-Methylnaphthalene	2018/11/09		80	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			2-Methylnaphthalene	2018/11/09		84	%	50 - 130
			Naphthalene	2018/11/09		73	%	50 - 130
			Phenanthrene	2018/11/09		69	%	50 - 130
			Pyrene	2018/11/09		91	%	50 - 130
5829459	LGA	Method Blank	D10-Anthracene	2018/11/09		89	%	50 - 130
			D14-Terphenyl (FS)	2018/11/09		82	%	50 - 130
			D8-Acenaphthylene	2018/11/09		83	%	50 - 130
			Acenaphthene	2018/11/09	<0.0050		ug/g	
			Acenaphthylene	2018/11/09	<0.0050		ug/g	
			Anthracene	2018/11/09	<0.0050		ug/g	
			Benzo(a)anthracene	2018/11/09	<0.0050		ug/g	
			Benzo(a)pyrene	2018/11/09	<0.0050		ug/g	
			Benzo(b/j)fluoranthene	2018/11/09	<0.0050		ug/g	
			Benzo(g,h,i)perylene	2018/11/09	<0.0050		ug/g	
			Benzo(k)fluoranthene	2018/11/09	<0.0050		ug/g	
			Chrysene	2018/11/09	<0.0050		ug/g	
			Dibenz(a,h)anthracene	2018/11/09	<0.0050		ug/g	
			Fluoranthene	2018/11/09	<0.0050		ug/g	
			Fluorene	2018/11/09	<0.0050		ug/g	
			Indeno(1,2,3-cd)pyrene	2018/11/09	<0.0050		ug/g	
			1-Methylnaphthalene	2018/11/09	<0.0050		ug/g	
			2-Methylnaphthalene	2018/11/09	<0.0050		ug/g	
			Naphthalene	2018/11/09	<0.0050		ug/g	
			Phenanthrene	2018/11/09	<0.0050		ug/g	
			Pyrene	2018/11/09	<0.0050		ug/g	
5829459	LGA	RPD [IGG130-01]	Acenaphthene	2018/11/09	NC		%	40
			Acenaphthylene	2018/11/09	NC		%	40
			Anthracene	2018/11/09	NC		%	40
			Benzo(a)anthracene	2018/11/09	NC		%	40
			Benzo(a)pyrene	2018/11/09	NC		%	40
			Benzo(b/j)fluoranthene	2018/11/09	NC		%	40
			Benzo(g,h,i)perylene	2018/11/09	NC		%	40
			Benzo(k)fluoranthene	2018/11/09	NC		%	40
			Chrysene	2018/11/09	NC		%	40
			Dibenz(a,h)anthracene	2018/11/09	NC		%	40
			Fluoranthene	2018/11/09	NC		%	40
			Fluorene	2018/11/09	NC		%	40
			Indeno(1,2,3-cd)pyrene	2018/11/09	NC		%	40
			1-Methylnaphthalene	2018/11/09	NC		%	40
			2-Methylnaphthalene	2018/11/09	NC		%	40
			Naphthalene	2018/11/09	NC		%	40
			Phenanthrene	2018/11/09	NC		%	40
			Pyrene	2018/11/09	NC		%	40
5829787	LGA	Spiked Blank	4-Bromofluorobenzene	2018/11/12		85	%	60 - 140
			D10-o-Xylene	2018/11/12		100	%	60 - 130
			D4-1,2-Dichloroethane	2018/11/12		99	%	60 - 140
			D8-Toluene	2018/11/12		112	%	60 - 140
			Acetone (2-Propanone)	2018/11/12		112	%	60 - 140
			Benzene	2018/11/12		104	%	60 - 130
			Bromodichloromethane	2018/11/12		114	%	60 - 130
			Bromoform	2018/11/12		105	%	60 - 130
			Bromomethane	2018/11/12		93	%	60 - 140
			Carbon Tetrachloride	2018/11/12		105	%	60 - 130
			Chlorobenzene	2018/11/12		91	%	60 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Chloroform	2018/11/12		106	%	60 - 130
			Dibromochloromethane	2018/11/12		116	%	60 - 130
			1,2-Dichlorobenzene	2018/11/12		110	%	60 - 130
			1,3-Dichlorobenzene	2018/11/12		88	%	60 - 130
			1,4-Dichlorobenzene	2018/11/12		90	%	60 - 130
			Dichlorodifluoromethane (FREON 12)	2018/11/12		99	%	60 - 140
			1,1-Dichloroethane	2018/11/12		106	%	60 - 130
			1,2-Dichloroethane	2018/11/12		110	%	60 - 130
			1,1-Dichloroethylene	2018/11/12		96	%	60 - 130
			cis-1,2-Dichloroethylene	2018/11/12		94	%	60 - 130
			trans-1,2-Dichloroethylene	2018/11/12		66	%	60 - 130
			1,2-Dichloropropane	2018/11/12		103	%	60 - 130
			cis-1,3-Dichloropropene	2018/11/12		118	%	60 - 130
			trans-1,3-Dichloropropene	2018/11/12		122	%	60 - 130
			Ethylbenzene	2018/11/12		82	%	60 - 130
			Ethylene Dibromide	2018/11/12		107	%	60 - 130
			Hexane	2018/11/12		109	%	60 - 130
			Methylene Chloride(Dichloromethane)	2018/11/12		96	%	60 - 130
			Methyl Ethyl Ketone (2-Butanone)	2018/11/12		110	%	60 - 140
			Methyl Isobutyl Ketone	2018/11/12		103	%	60 - 130
			Methyl t-butyl ether (MTBE)	2018/11/12		103	%	60 - 130
			Styrene	2018/11/12		77	%	60 - 130
			1,1,1,2-Tetrachloroethane	2018/11/12		119	%	60 - 130
			1,1,2,2-Tetrachloroethane	2018/11/12		129	%	60 - 130
			Tetrachloroethylene	2018/11/12		75	%	60 - 130
			Toluene	2018/11/12		98	%	60 - 130
			1,1,1-Trichloroethane	2018/11/12		105	%	60 - 130
			1,1,2-Trichloroethane	2018/11/12		127	%	60 - 130
			Trichloroethylene	2018/11/12		84	%	60 - 130
			Trichlorofluoromethane (FREON 11)	2018/11/12		101	%	60 - 130
			Vinyl Chloride	2018/11/12		78	%	60 - 130
			p+m-Xylene	2018/11/12		82	%	60 - 130
			o-Xylene	2018/11/12		95	%	60 - 130
			F1 (C6-C10)	2018/11/12		96	%	80 - 120
5829787	LGA	RPD	Acetone (2-Propanone)	2018/11/12	3.4		%	50
			Benzene	2018/11/12	2.8		%	50
			Bromodichloromethane	2018/11/12	1.5		%	50
			Bromoform	2018/11/12	7.2		%	50
			Bromomethane	2018/11/12	2.4		%	50
			Carbon Tetrachloride	2018/11/12	0.076		%	50
			Chlorobenzene	2018/11/12	2.0		%	50
			Chloroform	2018/11/12	4.3		%	50
			Dibromochloromethane	2018/11/12	4.0		%	50
			1,2-Dichlorobenzene	2018/11/12	3.2		%	50
			1,3-Dichlorobenzene	2018/11/12	10		%	50
			1,4-Dichlorobenzene	2018/11/12	4.0		%	50
			Dichlorodifluoromethane (FREON 12)	2018/11/12	0.42		%	50
			1,1-Dichloroethane	2018/11/12	2.7		%	50
			1,2-Dichloroethane	2018/11/12	1.1		%	50
			1,1-Dichloroethylene	2018/11/12	1.6		%	50
			cis-1,2-Dichloroethylene	2018/11/12	2.7		%	50
			trans-1,2-Dichloroethylene	2018/11/12	33		%	50
			1,2-Dichloropropane	2018/11/12	0.99		%	50
			cis-1,3-Dichloropropene	2018/11/12	1.0		%	50

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			trans-1,3-Dichloropropene	2018/11/12	8.7		%	50
			Ethylbenzene	2018/11/12	12		%	50
			Ethylene Dibromide	2018/11/12	8.3		%	50
			Hexane	2018/11/12	6.7		%	50
			Methylene Chloride(Dichloromethane)	2018/11/12	3.6		%	50
			Methyl Ethyl Ketone (2-Butanone)	2018/11/12	8.6		%	50
			Methyl Isobutyl Ketone	2018/11/12	2.4		%	50
			Methyl t-butyl ether (MTBE)	2018/11/12	3.0		%	50
			Styrene	2018/11/12	3.5		%	50
			1,1,1,2-Tetrachloroethane	2018/11/12	3.2		%	50
			1,1,2,2-Tetrachloroethane	2018/11/12	15		%	50
			Tetrachloroethylene	2018/11/12	6.6		%	50
			Toluene	2018/11/12	8.1		%	50
			1,1,1-Trichloroethane	2018/11/12	5.6		%	50
			1,1,2-Trichloroethane	2018/11/12	8.9		%	50
			Trichloroethylene	2018/11/12	4.2		%	50
			Trichlorofluoromethane (FREON 11)	2018/11/12	13		%	50
			Vinyl Chloride	2018/11/12	4.9		%	50
			p+m-Xylene	2018/11/12	3.4		%	50
			o-Xylene	2018/11/12	8.8		%	50
			F1 (C6-C10)	2018/11/12	6.7		%	30
5829787	LGA	Method Blank	4-Bromofluorobenzene	2018/11/12		101	%	60 - 140
			D10-o-Xylene	2018/11/12		100	%	60 - 130
			D4-1,2-Dichloroethane	2018/11/12		101	%	60 - 140
			D8-Toluene	2018/11/12		90	%	60 - 140
			Acetone (2-Propanone)	2018/11/12	<0.50		ug/g	
			Benzene	2018/11/12	<0.020		ug/g	
			Bromodichloromethane	2018/11/12	<0.050		ug/g	
			Bromoform	2018/11/12	<0.050		ug/g	
			Bromomethane	2018/11/12	<0.050		ug/g	
			Carbon Tetrachloride	2018/11/12	<0.050		ug/g	
			Chlorobenzene	2018/11/12	<0.050		ug/g	
			Chloroform	2018/11/12	<0.050		ug/g	
			Dibromochloromethane	2018/11/12	<0.050		ug/g	
			1,2-Dichlorobenzene	2018/11/12	<0.050		ug/g	
			1,3-Dichlorobenzene	2018/11/12	<0.050		ug/g	
			1,4-Dichlorobenzene	2018/11/12	<0.050		ug/g	
			Dichlorodifluoromethane (FREON 12)	2018/11/12	<0.050		ug/g	
			1,1-Dichloroethane	2018/11/12	<0.050		ug/g	
			1,2-Dichloroethane	2018/11/12	<0.050		ug/g	
			1,1-Dichloroethylene	2018/11/12	<0.050		ug/g	
			cis-1,2-Dichloroethylene	2018/11/12	<0.050		ug/g	
			trans-1,2-Dichloroethylene	2018/11/12	<0.050		ug/g	
			1,2-Dichloropropane	2018/11/12	<0.050		ug/g	
			cis-1,3-Dichloropropene	2018/11/12	<0.030		ug/g	
			trans-1,3-Dichloropropene	2018/11/12	<0.040		ug/g	
			Ethylbenzene	2018/11/12	<0.020		ug/g	
			Ethylene Dibromide	2018/11/12	<0.050		ug/g	
			Hexane	2018/11/12	<0.050		ug/g	
			Methylene Chloride(Dichloromethane)	2018/11/12	<0.050		ug/g	
			Methyl Ethyl Ketone (2-Butanone)	2018/11/12	<0.50		ug/g	
			Methyl Isobutyl Ketone	2018/11/12	<0.50		ug/g	
			Methyl t-butyl ether (MTBE)	2018/11/12	<0.050		ug/g	
			Styrene	2018/11/12	<0.050		ug/g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,1,2-Tetrachloroethane	2018/11/12	<0.050		ug/g	
			1,1,2,2-Tetrachloroethane	2018/11/12	<0.050		ug/g	
			Tetrachloroethylene	2018/11/12	<0.050		ug/g	
			Toluene	2018/11/12	<0.020		ug/g	
			1,1,1-Trichloroethane	2018/11/12	<0.050		ug/g	
			1,1,2-Trichloroethane	2018/11/12	<0.050		ug/g	
			Trichloroethylene	2018/11/12	<0.050		ug/g	
			Trichlorofluoromethane (FREON 11)	2018/11/12	<0.050		ug/g	
			Vinyl Chloride	2018/11/12	<0.020		ug/g	
			p+m-Xylene	2018/11/12	<0.020		ug/g	
			o-Xylene	2018/11/12	<0.020		ug/g	
			Total Xylenes	2018/11/12	<0.020		ug/g	
			F1 (C6-C10)	2018/11/12	<10		ug/g	
			F1 (C6-C10) - BTEX	2018/11/12	<10		ug/g	
5833825	MYG	QC Standard	Sieve - #200 (<0.075mm)	2018/11/13		56	%	53 - 58
			Sieve - #200 (>0.075mm)	2018/11/13		44	%	42 - 47
5833825	MYG	RPD	Sieve - #200 (<0.075mm)	2018/11/13	0.46		%	20
			Sieve - #200 (>0.075mm)	2018/11/13	18		%	20
5834214	GTO	Spiked Blank	Available (CaCl2) pH	2018/11/13		100	%	97 - 103
5834214	GTO	RPD	Available (CaCl2) pH	2018/11/13	0.80		%	N/A
5834885	MVA	Spiked Blank	F4G-sg (Grav. Heavy Hydrocarbons)	2018/11/14		110	%	65 - 135
5834885	MVA	RPD	F4G-sg (Grav. Heavy Hydrocarbons)	2018/11/14	0		%	50
5834885	MVA	Method Blank	F4G-sg (Grav. Heavy Hydrocarbons)	2018/11/14	<100		ug/g	
5836337	SL3	Matrix Spike	Leachable (ZHE) 1,4-Difluorobenzene	2018/11/14		105	%	60 - 140
			Leachable (ZHE) 4-Bromofluorobenzene	2018/11/14		104	%	60 - 140
			Leachable (ZHE) D10-Ethylbenzene	2018/11/14		89	%	30 - 130
			Leachable (ZHE) D4-1,2-Dichloroethane	2018/11/14		98	%	60 - 140
			Leachable (ZHE) Benzene	2018/11/14		88	%	70 - 130
			Leachable (ZHE) Toluene	2018/11/14		92	%	70 - 130
			Leachable (ZHE) Ethylbenzene	2018/11/14		89	%	70 - 130
			Leachable (ZHE) o-Xylene	2018/11/14		84	%	70 - 130
			Leachable (ZHE) p+m-Xylene	2018/11/14		91	%	70 - 130
			Leachable (ZHE) F1 (C6-C10)	2018/11/14		125	%	70 - 130
5836337	SL3	Leachate Blank	Leachable (ZHE) 1,4-Difluorobenzene	2018/11/14		104	%	60 - 140
			Leachable (ZHE) 4-Bromofluorobenzene	2018/11/14		98	%	60 - 140
			Leachable (ZHE) D10-Ethylbenzene	2018/11/14		103	%	30 - 130
			Leachable (ZHE) D4-1,2-Dichloroethane	2018/11/14		97	%	60 - 140
			Leachable (ZHE) Benzene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) Toluene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) Ethylbenzene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) o-Xylene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) p+m-Xylene	2018/11/14	<2		ug/L	
			Leachable (ZHE) Total Xylenes	2018/11/14	<2		ug/L	
			Leachable (ZHE) F1 (C6-C10)	2018/11/14	<1000		ug/L	
			Leachable (ZHE) F1 (C6-C10) - BTEX	2018/11/14	<1000		ug/L	
5836337	SL3	Spiked Blank	Leachable (ZHE) 1,4-Difluorobenzene	2018/11/14		102	%	60 - 140
			Leachable (ZHE) 4-Bromofluorobenzene	2018/11/14		98	%	60 - 140
			Leachable (ZHE) D10-Ethylbenzene	2018/11/14		96	%	30 - 130
			Leachable (ZHE) D4-1,2-Dichloroethane	2018/11/14		97	%	60 - 140
			Leachable (ZHE) Benzene	2018/11/14		98	%	70 - 130
			Leachable (ZHE) Toluene	2018/11/14		100	%	70 - 130
			Leachable (ZHE) Ethylbenzene	2018/11/14		96	%	70 - 130
			Leachable (ZHE) o-Xylene	2018/11/14		96	%	70 - 130
			Leachable (ZHE) p+m-Xylene	2018/11/14		96	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable (ZHE) F1 (C6-C10)	2018/11/14		93	%	70 - 130
5836337	SL3	Method Blank	Leachable (ZHE) 1,4-Difluorobenzene	2018/11/14		100	%	60 - 140
			Leachable (ZHE) 4-Bromofluorobenzene	2018/11/14		97	%	60 - 140
			Leachable (ZHE) D10-Ethylbenzene	2018/11/14		100	%	30 - 130
			Leachable (ZHE) D4-1,2-Dichloroethane	2018/11/14		98	%	60 - 140
			Leachable (ZHE) Benzene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) Toluene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) Ethylbenzene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) o-Xylene	2018/11/14	<0.8		ug/L	
			Leachable (ZHE) p+m-Xylene	2018/11/14	<2		ug/L	
			Leachable (ZHE) Total Xylenes	2018/11/14	<2		ug/L	
			Leachable (ZHE) F1 (C6-C10)	2018/11/14	<1000		ug/L	
			Leachable (ZHE) F1 (C6-C10) - BTEX	2018/11/14	<1000		ug/L	
5836337	SL3	RPD	Leachable (ZHE) Benzene	2018/11/14	NC		%	40
			Leachable (ZHE) Toluene	2018/11/14	3.5		%	40
			Leachable (ZHE) Ethylbenzene	2018/11/14	6.1		%	40
			Leachable (ZHE) o-Xylene	2018/11/14	3.0		%	40
			Leachable (ZHE) p+m-Xylene	2018/11/14	1.5		%	40
			Leachable (ZHE) Total Xylenes	2018/11/14	2.2		%	40
			Leachable (ZHE) F1 (C6-C10)	2018/11/14	NC		%	40
			Leachable (ZHE) F1 (C6-C10) - BTEX	2018/11/14	NC		%	40
5836465	DPO	Matrix Spike [IGX052-00]	Leachable o-Terphenyl	2018/11/14		104	%	60 - 130
			Leachable F2 (C10-C16 Hydrocarbons)	2018/11/14		NC	%	50 - 130
			Leachable F3 (C16-C34 Hydrocarbons)	2018/11/14		NC	%	50 - 130
			Leachable F4 (C34-C50 Hydrocarbons)	2018/11/14		106	%	50 - 130
5836465	DPO	Leachate Blank	Leachable o-Terphenyl	2018/11/14		102	%	60 - 130
			Leachable F2 (C10-C16 Hydrocarbons)	2018/11/14	<100		ug/L	
			Leachable F3 (C16-C34 Hydrocarbons)	2018/11/14	<200		ug/L	
			Leachable F4 (C34-C50 Hydrocarbons)	2018/11/14	<200		ug/L	
5836465	DPO	Spiked Blank	Leachable o-Terphenyl	2018/11/14		107	%	60 - 130
			Leachable F2 (C10-C16 Hydrocarbons)	2018/11/14		95	%	60 - 130
			Leachable F3 (C16-C34 Hydrocarbons)	2018/11/14		107	%	60 - 130
			Leachable F4 (C34-C50 Hydrocarbons)	2018/11/14		105	%	60 - 130
5836465	DPO	Method Blank	Leachable o-Terphenyl	2018/11/14		103	%	60 - 130
			Leachable F2 (C10-C16 Hydrocarbons)	2018/11/14	<100		ug/L	
			Leachable F3 (C16-C34 Hydrocarbons)	2018/11/14	<200		ug/L	
			Leachable F4 (C34-C50 Hydrocarbons)	2018/11/14	<200		ug/L	
5836465	DPO	RPD [IGX052-00]	Leachable F2 (C10-C16 Hydrocarbons)	2018/11/14	4.9		%	40
			Leachable F3 (C16-C34 Hydrocarbons)	2018/11/14	NC		%	40
			Leachable F4 (C34-C50 Hydrocarbons)	2018/11/14	NC		%	40
			Leachable Reached Baseline at C50	2018/11/14	NC		%	40
5836943	WZ	Matrix Spike	Leachable 2,4,6-Tribromophenol	2018/11/15		89	%	10 - 130
			Leachable 2-Fluorobiphenyl	2018/11/15		69	%	30 - 130
			Leachable 2-Fluorophenol	2018/11/15		18	%	10 - 130
			Leachable D14-Terphenyl (FS)	2018/11/15		102	%	30 - 130
			Leachable D5-Nitrobenzene	2018/11/15		86	%	30 - 130
			Leachable D5-Phenol	2018/11/15		42	%	10 - 130
			Leachable Benzo(a)pyrene	2018/11/15		111	%	30 - 130
			Leachable m/p-Cresol	2018/11/15		84	%	10 - 130
			Leachable o-Cresol	2018/11/15		97	%	10 - 130
			Leachable Cresol Total	2018/11/15		91	%	10 - 130
			Leachable 2,4-Dichlorophenol	2018/11/15		91	%	10 - 130
			Leachable 2,4-Dinitrotoluene	2018/11/15		101	%	30 - 130
			Leachable Hexachlorobenzene	2018/11/15		102	%	30 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable Hexachlorobutadiene	2018/11/15		81	%	30 - 130
			Leachable Hexachloroethane	2018/11/15		80	%	30 - 130
			Leachable Nitrobenzene	2018/11/15		107	%	30 - 130
			Leachable Pentachlorophenol	2018/11/15		102	%	30 - 130
			Leachable Pyridine	2018/11/15		31	%	10 - 130
			Leachable 2,3,4,6-Tetrachlorophenol	2018/11/15		115	%	10 - 130
			Leachable 2,4,5-Trichlorophenol	2018/11/15		101	%	10 - 130
			Leachable 2,4,6-Trichlorophenol	2018/11/15		95	%	10 - 130
5836943	WZ	Spiked Blank	Leachable 2,4,6-Tribromophenol	2018/11/15		93	%	10 - 130
			Leachable 2-Fluorobiphenyl	2018/11/15		71	%	30 - 130
			Leachable 2-Fluorophenol	2018/11/15		21	%	10 - 130
			Leachable D14-Terphenyl (FS)	2018/11/15		102	%	30 - 130
			Leachable D5-Nitrobenzene	2018/11/15		95	%	30 - 130
			Leachable D5-Phenol	2018/11/15		42	%	10 - 130
			Leachable Benzo(a)pyrene	2018/11/15		103	%	30 - 130
			Leachable m/p-Cresol	2018/11/15		79	%	10 - 130
			Leachable o-Cresol	2018/11/15		97	%	10 - 130
			Leachable Cresol Total	2018/11/15		88	%	10 - 130
			Leachable 2,4-Dichlorophenol	2018/11/15		91	%	10 - 130
			Leachable 2,4-Dinitrotoluene	2018/11/15		92	%	30 - 130
			Leachable Hexachlorobenzene	2018/11/15		96	%	30 - 130
			Leachable Hexachlorobutadiene	2018/11/15		83	%	30 - 130
			Leachable Hexachloroethane	2018/11/15		84	%	30 - 130
			Leachable Nitrobenzene	2018/11/15		98	%	30 - 130
			Leachable Pentachlorophenol	2018/11/15		95	%	30 - 130
			Leachable Pyridine	2018/11/15		31	%	10 - 130
			Leachable 2,3,4,6-Tetrachlorophenol	2018/11/15		110	%	10 - 130
			Leachable 2,4,5-Trichlorophenol	2018/11/15		94	%	10 - 130
			Leachable 2,4,6-Trichlorophenol	2018/11/15		99	%	10 - 130
5836943	WZ	Method Blank	Leachable 2,4,6-Tribromophenol	2018/11/15		69	%	10 - 130
			Leachable 2-Fluorobiphenyl	2018/11/15		61	%	30 - 130
			Leachable 2-Fluorophenol	2018/11/15		12	%	10 - 130
			Leachable D14-Terphenyl (FS)	2018/11/15		81	%	30 - 130
			Leachable D5-Nitrobenzene	2018/11/15		75	%	30 - 130
			Leachable D5-Phenol	2018/11/15		21	%	10 - 130
			Leachable Benzo(a)pyrene	2018/11/15	<0.10		ug/L	
			Leachable m/p-Cresol	2018/11/15	<2.5		ug/L	
			Leachable o-Cresol	2018/11/15	<2.5		ug/L	
			Leachable Cresol Total	2018/11/15	<2.5		ug/L	
			Leachable 2,4-Dichlorophenol	2018/11/15	<2.5		ug/L	
			Leachable 2,4-Dinitrotoluene	2018/11/15	<10		ug/L	
			Leachable Hexachlorobenzene	2018/11/15	<10		ug/L	
			Leachable Hexachlorobutadiene	2018/11/15	<10		ug/L	
			Leachable Hexachloroethane	2018/11/15	<10		ug/L	
			Leachable Nitrobenzene	2018/11/15	<10		ug/L	
			Leachable Pentachlorophenol	2018/11/15	<2.5		ug/L	
			Leachable Pyridine	2018/11/15	<10		ug/L	
			Leachable 2,3,4,6-Tetrachlorophenol	2018/11/15	<2.5		ug/L	
			Leachable 2,4,5-Trichlorophenol	2018/11/15	<0.50		ug/L	
			Leachable 2,4,6-Trichlorophenol	2018/11/15	<2.5		ug/L	
5836943	WZ	RPD	Leachable Benzo(a)pyrene	2018/11/15	NC		%	40
			Leachable m/p-Cresol	2018/11/15	NC		%	40
			Leachable o-Cresol	2018/11/15	NC		%	40
			Leachable Cresol Total	2018/11/15	NC		%	40

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable 2,4-Dichlorophenol	2018/11/15	NC		%	40
			Leachable 2,4-Dinitrotoluene	2018/11/15	NC		%	40
			Leachable Hexachlorobenzene	2018/11/15	NC		%	40
			Leachable Hexachlorobutadiene	2018/11/15	NC		%	40
			Leachable Hexachloroethane	2018/11/15	NC		%	40
			Leachable Nitrobenzene	2018/11/15	NC		%	40
			Leachable Pentachlorophenol	2018/11/15	NC		%	40
			Leachable Pyridine	2018/11/15	NC		%	40
			Leachable 2,3,4,6-Tetrachlorophenol	2018/11/15	NC		%	40
			Leachable 2,4,5-Trichlorophenol	2018/11/15	NC		%	40
			Leachable 2,4,6-Trichlorophenol	2018/11/15	NC		%	40

N/A = Not Applicable

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

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

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the 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).

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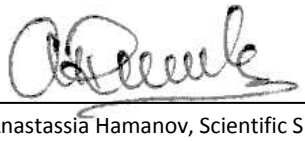
Maxxam Job #: B8T9480
Report Date: 2018/11/15

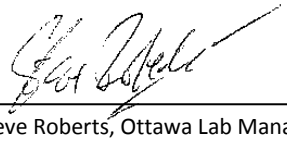
Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist



Steve Roberts, Ottawa Lab Manager

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

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CAM FCD-01191/3

CHAIN OF CUSTODY RECORD 102886 Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin Ltd.	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Mike Kosiba	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: Scott Mynther	Address: SAME	Project #: 229085.001	Rush TAT (Surcharges will be applied)
1 Hines Rd, Kanata		Site Location:	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Phone:	Phone: Fax:	Site #:	
Email:	Email:	Sampled By:	Date Required:

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

Rush Confirmation #:

Regulation 153: [ ] Table 1 [ ] Res/Park [ ] Med/ Fine; [ ] Table 2 [ ] Ind/Comm [ ] Coarse; [X] Table 3 [ ] Agri/ Other; [ ] Table ____
FOR RSC (PLEASE CIRCLE) Y / (N)

Other Regulations: [ ] CCME [ ] Sanitary Sewer Bylaw; [ ] MISA [ ] Storm Sewer Bylaw; [ ] PWQO Region ____; [ ] Other (Specify) ____; [ ] REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: (Y) / N

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

LABORATORY USE ONLY
CUSTODY SEAL Y / N: Present / Intact
COOLER TEMPERATURES: Y Y 6.5.6
COOLING MEDIA PRESENT: Y / N
COMMENTS: ON Ice

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAHs	pH	Texture (75um)	HOLD- DO NOT ANALYZE
1	MW-1 SS-2	Nov 6		SOIL	1									X		
2	MW-1 SS-5	2018			2		X	X	X				X		X	
3	MW-2 SS-6				2		X	X	X				X	X		
4	MW-3 SS-4				2		X	X	X				X			
5	BH-4 SS-3				1		X	X	X				X	X		
6	BH-5 SS-1				1								X	X		
7	BH-6 SS-1				1								X			
8	Dup-1				2		X	X	X				X			
9	BH-7 SS-6	Nov 7			2		X	X	X				X			
10	~~MW-8~~ MW-8 SS-5	"			2		X	X	X				X			

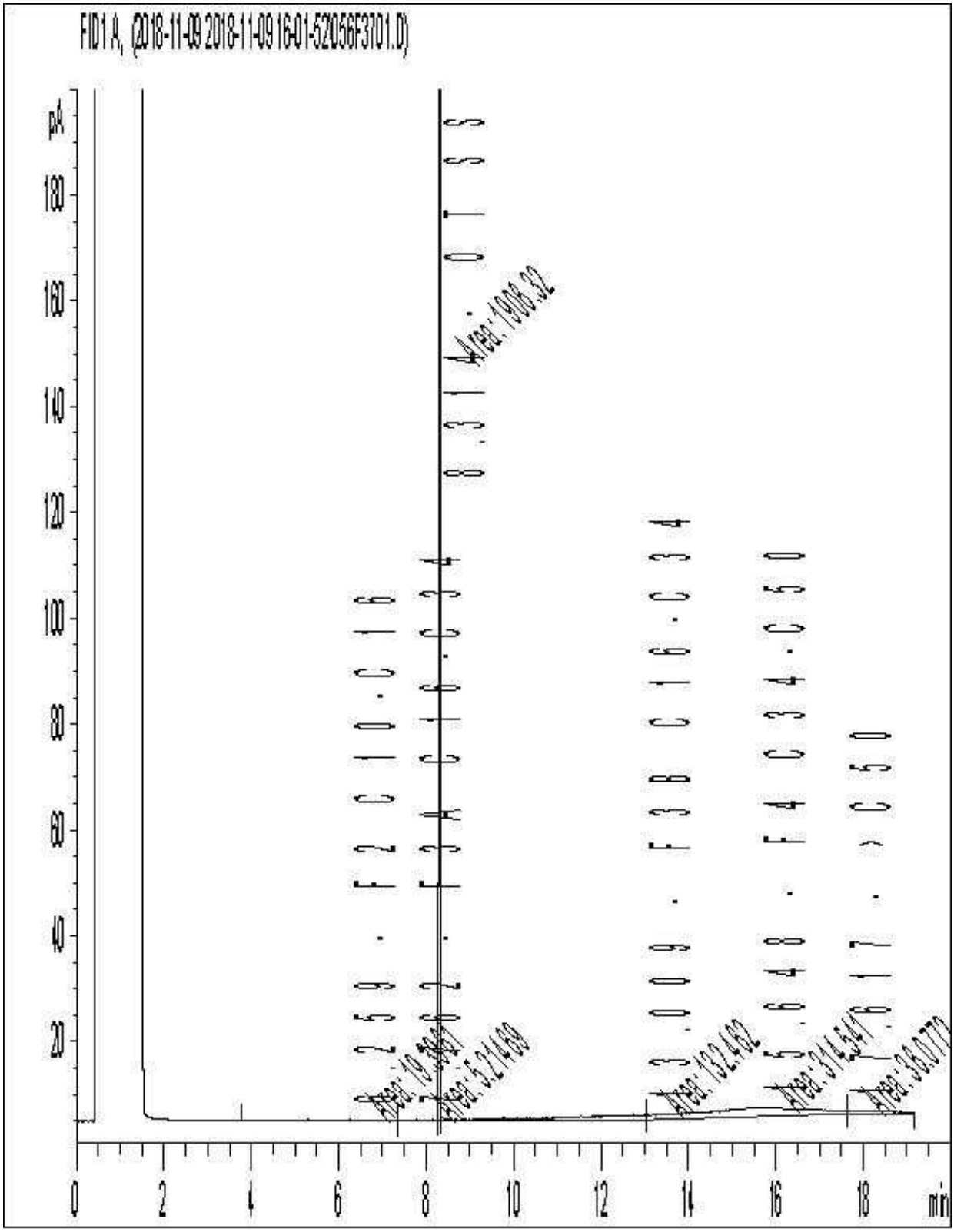
08-Nov-18 15:00
Alisha Williamson
B8T9480
KIV OTT-001

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME
	Nov 7,	3:00		2018/11/08	15:00
Mike Kosiba	2018				

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 packages information can be viewed at http://maxxam.ca/wp-content/uploads/Ontario-COC.pdf.

COC-1004 (03/17) White: Maxxam ~ Yellow: Client

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

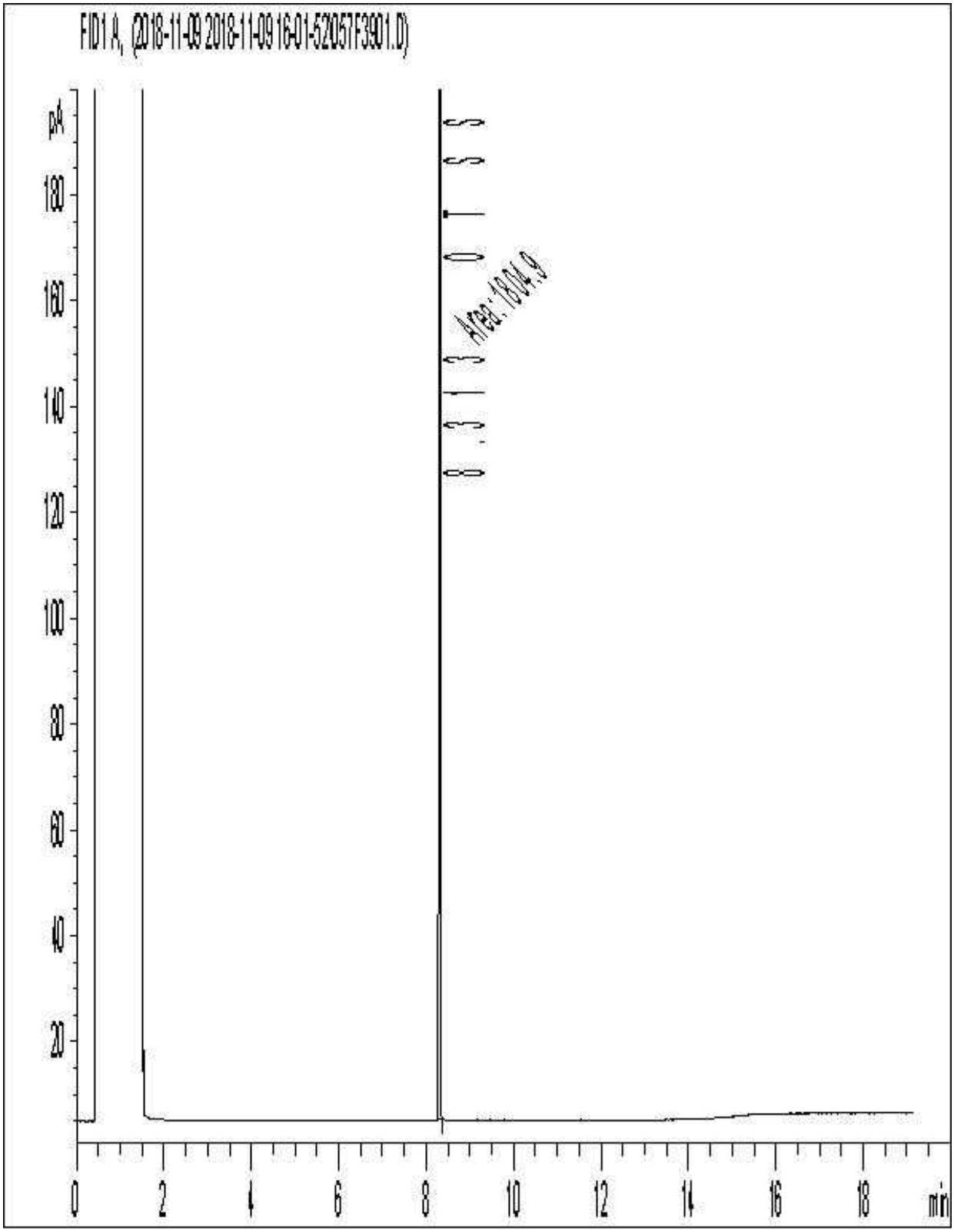


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGG130

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-2 SS-6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

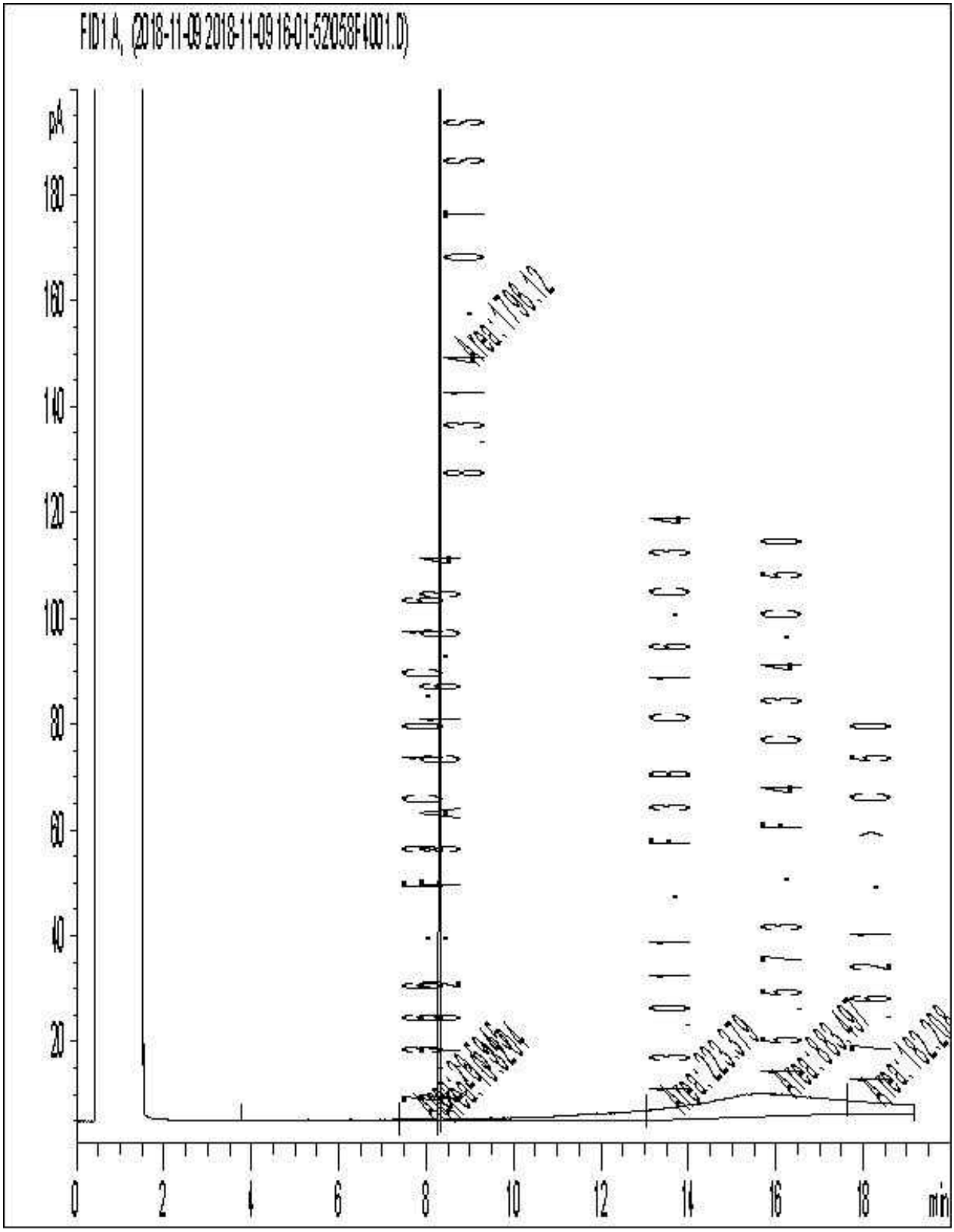


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGG131

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-3 SS-4

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

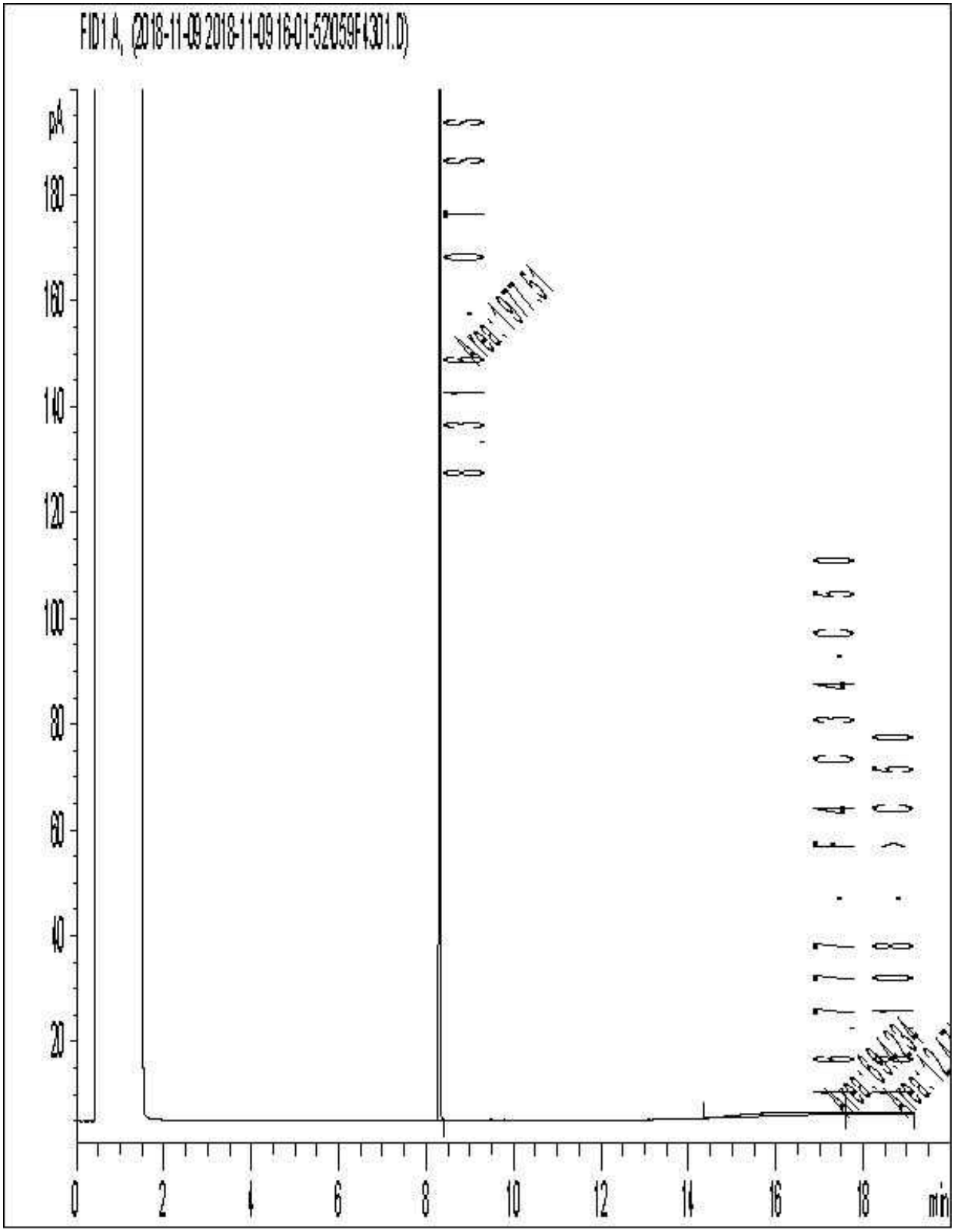


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGG132

Pinchin Ltd
Client Project #: 229085.001
Client ID: BH-4 SS-3

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

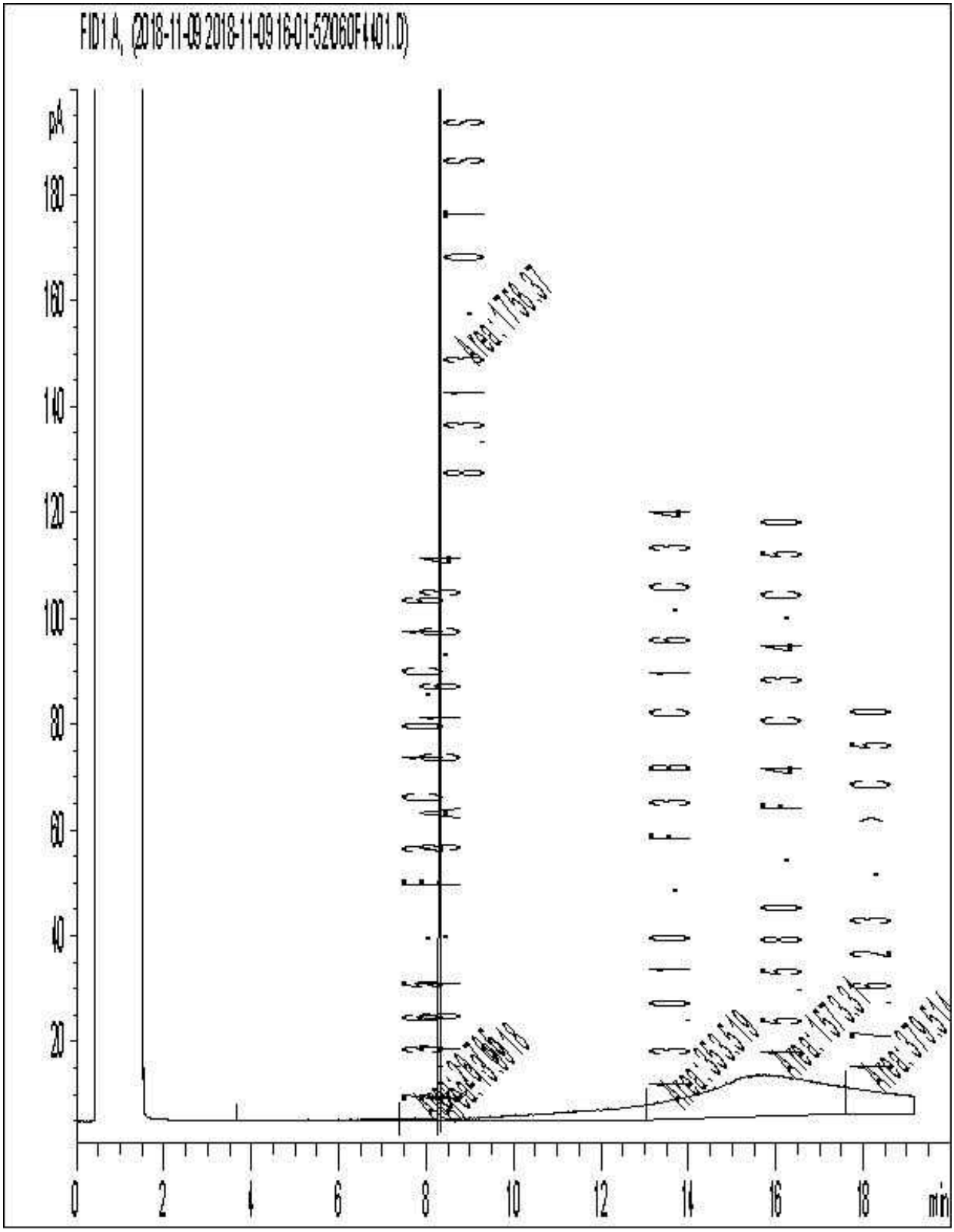


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGG135

Pinchin Ltd
Client Project #: 229085.001
Client ID: DUP-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

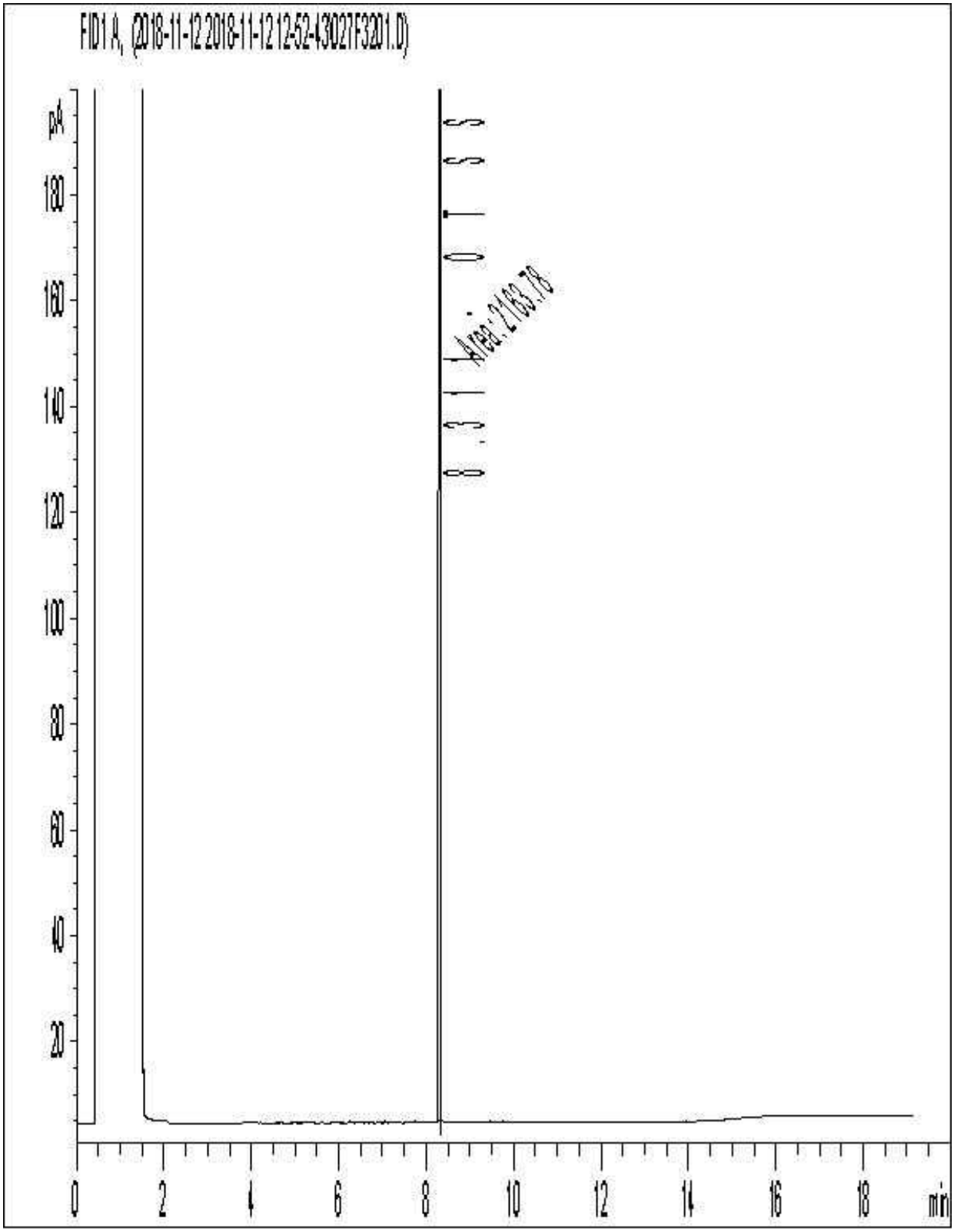


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGG136

Pinchin Ltd
Client Project #: 229085.001
Client ID: BH-7 SS-6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

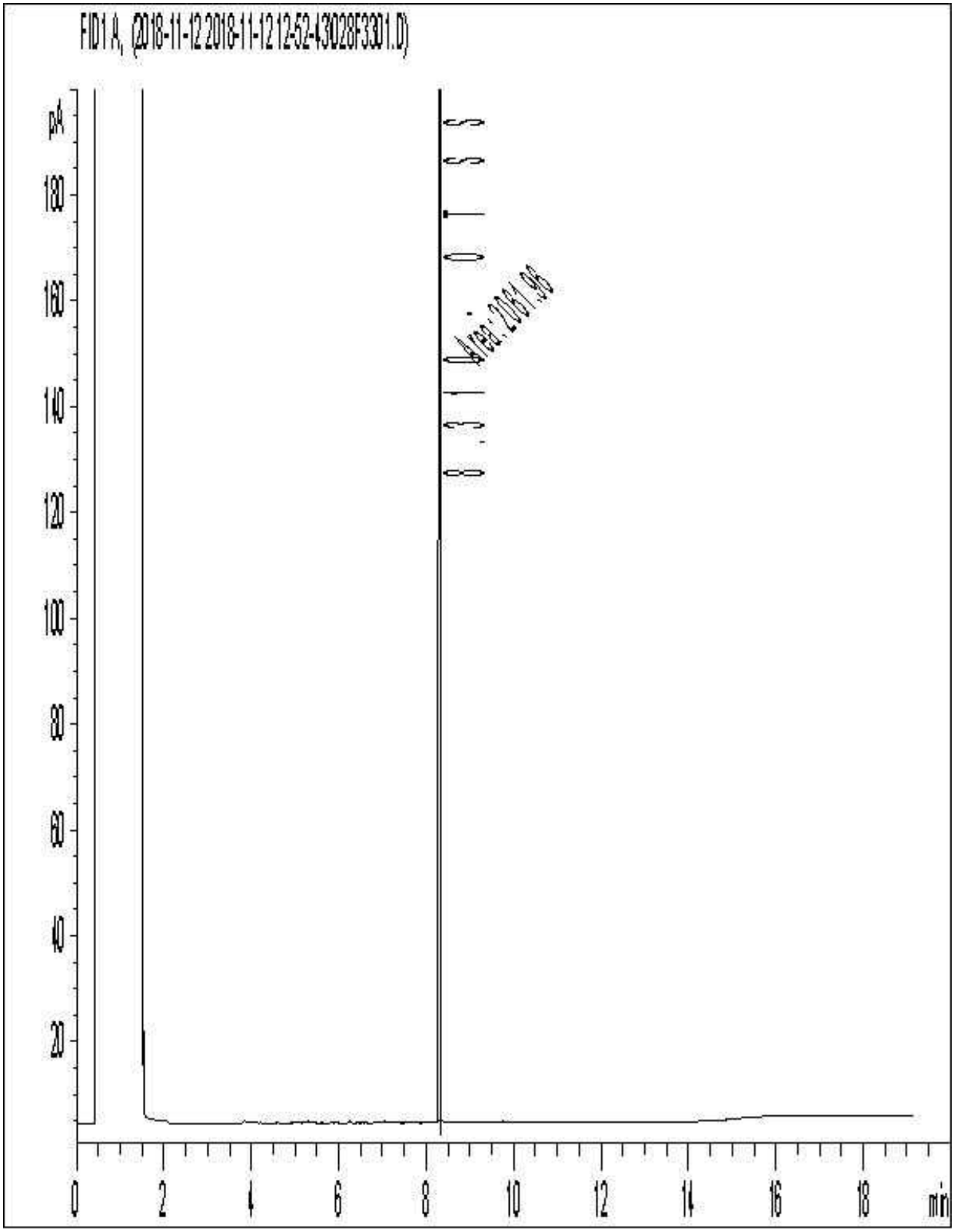


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGG137

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-8 SS-5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

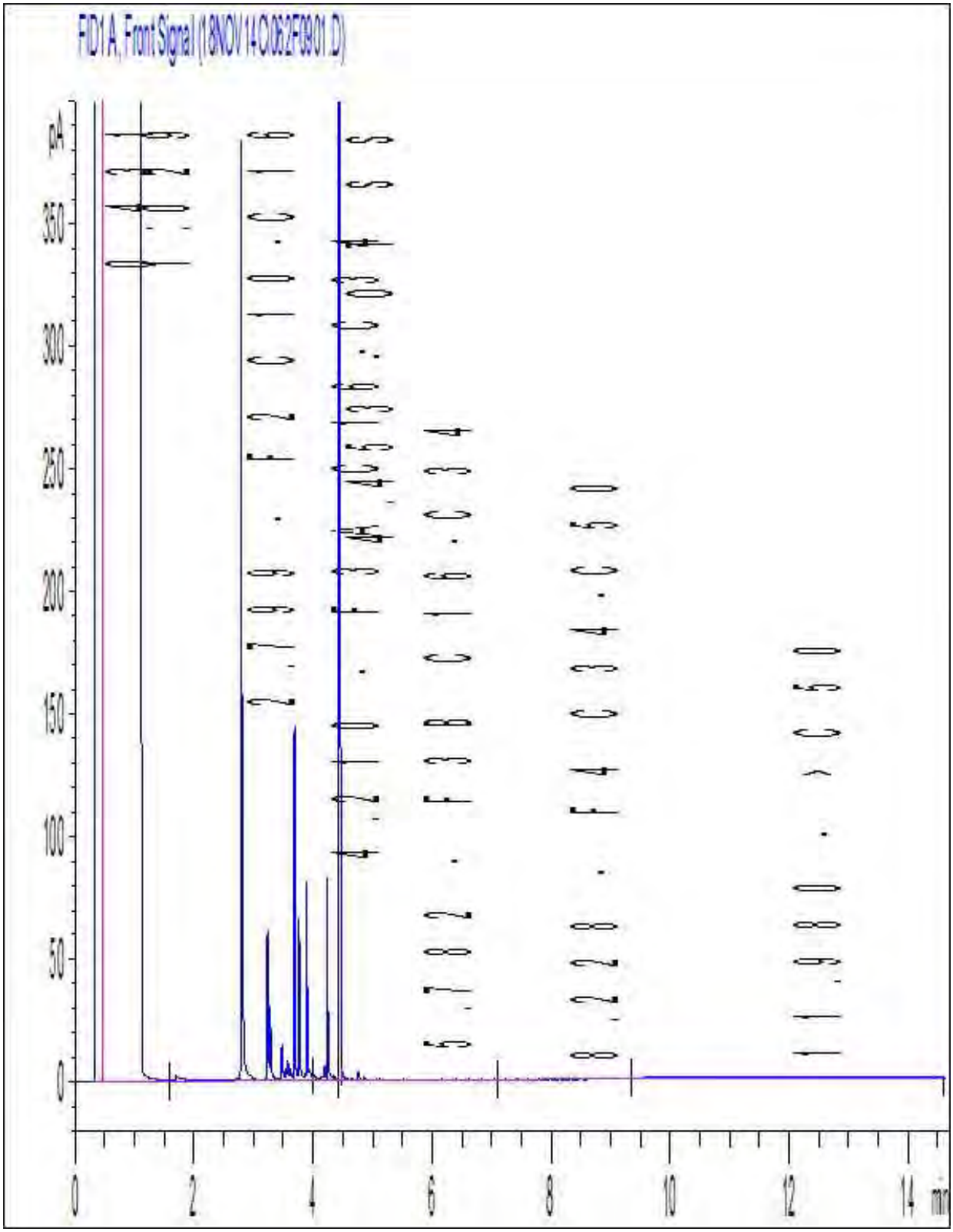


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGX052

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-1 SS-2

CCME F2-F4 Hydrocarbons in Leachate Chromatogram

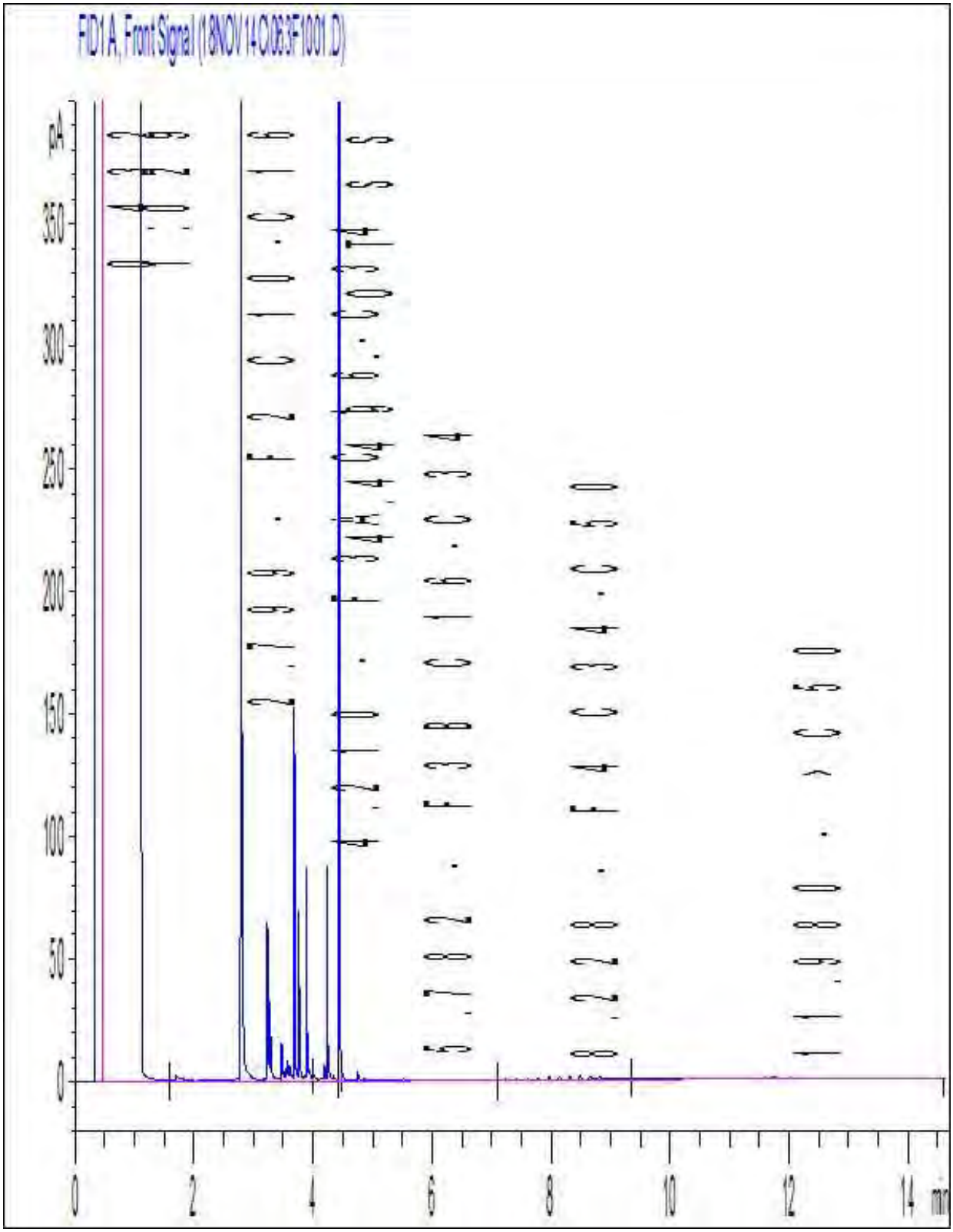


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8T9480
Report Date: 2018/11/15
Maxxam Sample: IGX052 Lab-Dup

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-1 SS-2

CCME F2-F4 Hydrocarbons in Leachate Chromatogram



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

Your Project #: 229085.001
Your C.O.C. #: 102890

Attention: Mike Kosiw

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

Report Date: 2018/11/26
Report #: R5499513
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8U8109
Received: 2018/11/16, 16:00

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	5	N/A	2018/11/22	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	6	N/A	2018/11/26	OTT SOP-00002	EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	4	2018/11/20	2018/11/21	OTT SOP-00001	CCME Hydrocarbons
Petroleum Hydrocarbons F2-F4 in Water (1)	1	2018/11/20	2018/11/22	OTT SOP-00001	CCME Hydrocarbons
PAH Compounds in Water by GC/MS (SIM)	5	2018/11/20	2018/11/21	OTT SOP-00011	EPA 8270D m
Volatile Organic Compounds and F1 PHCs	5	N/A	2018/11/26	OTT SOP-00002	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2018/11/26	OTT SOP-00002	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.

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 #: 229085.001
Your C.O.C. #: 102890

Attention: Mike Kosiw

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

Report Date: 2018/11/26
Report #: R5499513
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8U8109
Received: 2018/11/16, 16:00

(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

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

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

O.REG 153 PAHS (WATER)

Maxxam ID			IIE479	IIE480	IIE481	IIE482	IIE483		
Sampling Date			2018/11/15	2018/11/15	2018/11/14	2018/11/14	2018/11/14		
COC Number			102890	102890	102890	102890	102890		
	UNITS	Criteria	MW-1	DUP-2	MW-2	MW-3	MW-8	RDL	QC Batch
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/L	**1800**	<0.071	<0.071	<0.071	<0.071	<0.071	0.071	5844252
Polyaromatic Hydrocarbons									
Acenaphthene	ug/L	**1700**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Acenaphthylene	ug/L	**1.8**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Anthracene	ug/L	**2.4**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Benzo(a)anthracene	ug/L	**4.7**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Benzo(a)pyrene	ug/L	**0.81**	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	5847357
Benzo(b/j)fluoranthene	ug/L	**0.75**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Benzo(g,h,i)perylene	ug/L	**0.2**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Benzo(k)fluoranthene	ug/L	**0.4**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Chrysene	ug/L	**1**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Dibenz(a,h)anthracene	ug/L	**0.52**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Fluoranthene	ug/L	**130**	0.062	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Fluorene	ug/L	**400**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Indeno(1,2,3-cd)pyrene	ug/L	**0.2**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
1-Methylnaphthalene	ug/L	**1800**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
2-Methylnaphthalene	ug/L	**1800**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Naphthalene	ug/L	**6400**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Phenanthrene	ug/L	**580**	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5847357
Pyrene	ug/L	**68**	0.060	<0.050	<0.050	<0.050	<0.050	0.050	5847357
Surrogate Recovery (%)									
D10-Anthracene	%	-	104	90	89	99	101		5847357
D14-Terphenyl (FS)	%	-	84	85	90	84	85		5847357
D8-Acenaphthylene	%	-	93	93	94	94	92		5847357

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

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

Maxxam ID			IIE479			IIE479			IIE480		
Sampling Date			2018/11/15			2018/11/15			2018/11/15		
COC Number			102890			102890			102890		
	UNITS	Criteria	MW-1	RDL	QC Batch	MW-1 Lab-Dup	RDL	QC Batch	DUP-2	RDL	QC Batch
Calculated Parameters											
1,3-Dichloropropene (cis+trans)	ug/L	**45**	<0.50	0.50	5844253				<0.50	0.50	5844253
Volatile Organics											
Acetone (2-Propanone)	ug/L	**130000**	<10	10	5855900	<10	10	5855900	<10	10	5855900
Benzene	ug/L	**430**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Bromodichloromethane	ug/L	**85000**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
Bromoform	ug/L	**770**	<1.0	1.0	5855900	<1.0	1.0	5855900	<1.0	1.0	5855900
Bromomethane	ug/L	**56**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
Carbon Tetrachloride	ug/L	**8.4**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Chlorobenzene	ug/L	**630**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Chloroform	ug/L	**22**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Dibromochloromethane	ug/L	**82000**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
1,2-Dichlorobenzene	ug/L	**9600**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
1,3-Dichlorobenzene	ug/L	**9600**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
1,4-Dichlorobenzene	ug/L	**67**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
Dichlorodifluoromethane (FREON 12)	ug/L	**4400**	<1.0	1.0	5855900	<1.0	1.0	5855900	<1.0	1.0	5855900
1,1-Dichloroethane	ug/L	**3100**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
1,2-Dichloroethane	ug/L	**12**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
1,1-Dichloroethylene	ug/L	**17**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
cis-1,2-Dichloroethylene	ug/L	**17**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
trans-1,2-Dichloroethylene	ug/L	**17**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
1,2-Dichloropropane	ug/L	**140**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
cis-1,3-Dichloropropene	ug/L	**45**	<0.30	0.30	5855900	<0.30	0.30	5855900	<0.30	0.30	5855900
trans-1,3-Dichloropropene	ug/L	**45**	<0.40	0.40	5855900	<0.40	0.40	5855900	<0.40	0.40	5855900
Ethylbenzene	ug/L	**2300**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Ethylene Dibromide	ug/L	**0.83**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Hexane	ug/L	**520**	<1.0	1.0	5855900	<1.0	1.0	5855900	<1.0	1.0	5855900
Methylene Chloride(Dichloromethane)	ug/L	**5500**	<2.0	2.0	5855900	<2.0	2.0	5855900	<2.0	2.0	5855900
Methyl Ethyl Ketone (2-Butanone)	ug/L	**1500000**	<10	10	5855900	<10	10	5855900	<10	10	5855900
Methyl Isobutyl Ketone	ug/L	**580000**	<5.0	5.0	5855900	<5.0	5.0	5855900	<5.0	5.0	5855900
Methyl t-butyl ether (MTBE)	ug/L	**1400**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
Styrene	ug/L	**9100**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
1,1,1,2-Tetrachloroethane	ug/L	**28**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

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

Maxxam ID			IIE479			IIE479			IIE480		
Sampling Date			2018/11/15			2018/11/15			2018/11/15		
COC Number			102890			102890			102890		
	UNITS	Criteria	MW-1	RDL	QC Batch	MW-1 Lab-Dup	RDL	QC Batch	DUP-2	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	**15**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
Tetrachloroethylene	ug/L	**17**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Toluene	ug/L	**18000**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
1,1,1-Trichloroethane	ug/L	**6700**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
1,1,2-Trichloroethane	ug/L	**30**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
Trichloroethylene	ug/L	**17**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Trichlorofluoromethane (FREON 11)	ug/L	**2500**	<0.50	0.50	5855900	<0.50	0.50	5855900	<0.50	0.50	5855900
Vinyl Chloride	ug/L	**1.7**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
p+m-Xylene	ug/L	-	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
o-Xylene	ug/L	-	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
Total Xylenes	ug/L	**4200**	<0.20	0.20	5855900	<0.20	0.20	5855900	<0.20	0.20	5855900
F1 (C6-C10)	ug/L	**750**	<25	25	5855900	<25	25	5855900	<25	25	5855900
F1 (C6-C10) - BTEX	ug/L	**750**	<25	25	5855900	<25	25	5855900	<25	25	5855900
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/L	**150**	<100	100	5847342				<100	100	5847342
F3 (C16-C34 Hydrocarbons)	ug/L	**500**	<200	200	5847342				<200	200	5847342
F4 (C34-C50 Hydrocarbons)	ug/L	**500**	<200	200	5847342				<200	200	5847342
Reached Baseline at C50	ug/L	-	Yes		5847342				Yes		5847342
Surrogate Recovery (%)											
o-Terphenyl	%	-	100		5847342				95		5847342
4-Bromofluorobenzene	%	-	94		5855900	98		5855900	89		5855900
D4-1,2-Dichloroethane	%	-	104		5855900	103		5855900	95		5855900
D8-Toluene	%	-	96		5855900	94		5855900	93		5855900

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil

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

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

Maxxam ID			IIE481	IIE482	IIE483		
Sampling Date			2018/11/14	2018/11/14	2018/11/14		
COC Number			102890	102890	102890		
	UNITS	Criteria	MW-2	MW-3	MW-8	RDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/L	**45**	<0.50	<0.50	<0.50	0.50	5844253
Volatile Organics							
Acetone (2-Propanone)	ug/L	**130000**	<10	<10	<10	10	5855900
Benzene	ug/L	**430**	<0.20	<0.20	<0.20	0.20	5855900
Bromodichloromethane	ug/L	**85000**	<0.50	<0.50	<0.50	0.50	5855900
Bromoform	ug/L	**770**	<1.0	<1.0	<1.0	1.0	5855900
Bromomethane	ug/L	**56**	<0.50	<0.50	<0.50	0.50	5855900
Carbon Tetrachloride	ug/L	**8.4**	<0.20	<0.20	<0.20	0.20	5855900
Chlorobenzene	ug/L	**630**	<0.20	<0.20	<0.20	0.20	5855900
Chloroform	ug/L	**22**	<0.20	<0.20	<0.20	0.20	5855900
Dibromochloromethane	ug/L	**82000**	<0.50	<0.50	<0.50	0.50	5855900
1,2-Dichlorobenzene	ug/L	**9600**	<0.50	<0.50	<0.50	0.50	5855900
1,3-Dichlorobenzene	ug/L	**9600**	<0.50	<0.50	<0.50	0.50	5855900
1,4-Dichlorobenzene	ug/L	**67**	<0.50	<0.50	<0.50	0.50	5855900
Dichlorodifluoromethane (FREON 12)	ug/L	**4400**	<1.0	<1.0	<1.0	1.0	5855900
1,1-Dichloroethane	ug/L	**3100**	<0.20	<0.20	<0.20	0.20	5855900
1,2-Dichloroethane	ug/L	**12**	<0.50	<0.50	<0.50	0.50	5855900
1,1-Dichloroethylene	ug/L	**17**	<0.20	<0.20	<0.20	0.20	5855900
cis-1,2-Dichloroethylene	ug/L	**17**	<0.50	<0.50	<0.50	0.50	5855900
trans-1,2-Dichloroethylene	ug/L	**17**	<0.50	<0.50	<0.50	0.50	5855900
1,2-Dichloropropane	ug/L	**140**	<0.20	<0.20	<0.20	0.20	5855900
cis-1,3-Dichloropropene	ug/L	**45**	<0.30	<0.30	<0.30	0.30	5855900
trans-1,3-Dichloropropene	ug/L	**45**	<0.40	<0.40	<0.40	0.40	5855900
Ethylbenzene	ug/L	**2300**	<0.20	<0.20	<0.20	0.20	5855900
Ethylene Dibromide	ug/L	**0.83**	<0.20	<0.20	<0.20	0.20	5855900
Hexane	ug/L	**520**	<1.0	<1.0	<1.0	1.0	5855900
Methylene Chloride(Dichloromethane)	ug/L	**5500**	<2.0	<2.0	<2.0	2.0	5855900
Methyl Ethyl Ketone (2-Butanone)	ug/L	**1500000**	<10	<10	<10	10	5855900
Methyl Isobutyl Ketone	ug/L	**580000**	<5.0	<5.0	<5.0	5.0	5855900
Methyl t-butyl ether (MTBE)	ug/L	**1400**	<0.50	<0.50	<0.50	0.50	5855900
Styrene	ug/L	**9100**	<0.50	<0.50	<0.50	0.50	5855900
1,1,1,2-Tetrachloroethane	ug/L	**28**	<0.50	<0.50	<0.50	0.50	5855900
1,1,2,2-Tetrachloroethane	ug/L	**15**	<0.50	<0.50	<0.50	0.50	5855900

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

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

Maxxam ID			IIE481	IIE482	IIE483		
Sampling Date			2018/11/14	2018/11/14	2018/11/14		
COC Number			102890	102890	102890		
	UNITS	Criteria	MW-2	MW-3	MW-8	RDL	QC Batch
Tetrachloroethylene	ug/L	**17**	<0.20	<0.20	<0.20	0.20	5855900
Toluene	ug/L	**18000**	<0.20	<0.20	<0.20	0.20	5855900
1,1,1-Trichloroethane	ug/L	**6700**	<0.20	<0.20	<0.20	0.20	5855900
1,1,2-Trichloroethane	ug/L	**30**	<0.50	<0.50	<0.50	0.50	5855900
Trichloroethylene	ug/L	**17**	<0.20	<0.20	<0.20	0.20	5855900
Trichlorofluoromethane (FREON 11)	ug/L	**2500**	<0.50	<0.50	<0.50	0.50	5855900
Vinyl Chloride	ug/L	**1.7**	<0.20	<0.20	<0.20	0.20	5855900
p+m-Xylene	ug/L	-	<0.20	<0.20	<0.20	0.20	5855900
o-Xylene	ug/L	-	<0.20	<0.20	<0.20	0.20	5855900
Total Xylenes	ug/L	**4200**	<0.20	<0.20	<0.20	0.20	5855900
F1 (C6-C10)	ug/L	**750**	<25	<25	<25	25	5855900
F1 (C6-C10) - BTEX	ug/L	**750**	<25	<25	<25	25	5855900
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	**150**	<100	<100	<100	100	5847342
F3 (C16-C34 Hydrocarbons)	ug/L	**500**	<200	<200	<200	200	5847342
F4 (C34-C50 Hydrocarbons)	ug/L	**500**	<200	<200	<200	200	5847342
Reached Baseline at C50	ug/L	-	Yes	Yes	Yes		5847342
Surrogate Recovery (%)							
o-Terphenyl	%	-	98	97	101		5847342
4-Bromofluorobenzene	%	-	95	91	93		5855900
D4-1,2-Dichloroethane	%	-	107	104	106		5855900
D8-Toluene	%	-	96	93	90		5855900

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

O.REG 153 VOCS (WATER)

Maxxam ID			IIE484		
Sampling Date			2018/11/14		
COC Number			102890		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	**45**	<0.50	0.50	5844253
Volatile Organics					
Acetone (2-Propanone)	ug/L	**130000**	<10	10	5855901
Benzene	ug/L	**430**	<0.20	0.20	5855901
Bromodichloromethane	ug/L	**85000**	<0.50	0.50	5855901
Bromoform	ug/L	**770**	<1.0	1.0	5855901
Bromomethane	ug/L	**56**	<0.50	0.50	5855901
Carbon Tetrachloride	ug/L	**8.4**	<0.20	0.20	5855901
Chlorobenzene	ug/L	**630**	<0.20	0.20	5855901
Chloroform	ug/L	**22**	<0.20	0.20	5855901
Dibromochloromethane	ug/L	**82000**	<0.50	0.50	5855901
1,2-Dichlorobenzene	ug/L	**9600**	<0.50	0.50	5855901
1,3-Dichlorobenzene	ug/L	**9600**	<0.50	0.50	5855901
1,4-Dichlorobenzene	ug/L	**67**	<0.50	0.50	5855901
Dichlorodifluoromethane (FREON 12)	ug/L	**4400**	<1.0	1.0	5855901
1,1-Dichloroethane	ug/L	**3100**	<0.20	0.20	5855901
1,2-Dichloroethane	ug/L	**12**	<0.50	0.50	5855901
1,1-Dichloroethylene	ug/L	**17**	<0.20	0.20	5855901
cis-1,2-Dichloroethylene	ug/L	**17**	<0.50	0.50	5855901
trans-1,2-Dichloroethylene	ug/L	**17**	<0.50	0.50	5855901
1,2-Dichloropropane	ug/L	**140**	<0.20	0.20	5855901
cis-1,3-Dichloropropene	ug/L	**45**	<0.30	0.30	5855901
trans-1,3-Dichloropropene	ug/L	**45**	<0.40	0.40	5855901
Ethylbenzene	ug/L	**2300**	<0.20	0.20	5855901
Ethylene Dibromide	ug/L	**0.83**	<0.20	0.20	5855901
Hexane	ug/L	**520**	<1.0	1.0	5855901
Methylene Chloride(Dichloromethane)	ug/L	**5500**	<2.0	2.0	5855901
Methyl Ethyl Ketone (2-Butanone)	ug/L	**1500000**	<10	10	5855901
Methyl Isobutyl Ketone	ug/L	**580000**	<5.0	5.0	5855901
Methyl t-butyl ether (MTBE)	ug/L	**1400**	<0.50	0.50	5855901
Styrene	ug/L	**9100**	<0.50	0.50	5855901

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soi

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

O.REG 153 VOCS (WATER)

Maxxam ID			IIE484		
Sampling Date			2018/11/14		
COC Number			102890		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	**28**	<0.50	0.50	5855901
1,1,2,2-Tetrachloroethane	ug/L	**15**	<0.50	0.50	5855901
Tetrachloroethylene	ug/L	**17**	<0.20	0.20	5855901
Toluene	ug/L	**18000**	<0.20	0.20	5855901
1,1,1-Trichloroethane	ug/L	**6700**	<0.20	0.20	5855901
1,1,2-Trichloroethane	ug/L	**30**	<0.50	0.50	5855901
Trichloroethylene	ug/L	**17**	<0.20	0.20	5855901
Trichlorofluoromethane (FREON 11)	ug/L	**2500**	<0.50	0.50	5855901
Vinyl Chloride	ug/L	**1.7**	<0.20	0.20	5855901
p+m-Xylene	ug/L	-	<0.20	0.20	5855901
o-Xylene	ug/L	-	<0.20	0.20	5855901
Total Xylenes	ug/L	**4200**	<0.20	0.20	5855901
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	-	92		5855901
D4-1,2-Dichloroethane	%	-	106		5855901
D8-Toluene	%	-	93		5855901

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soi

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

TEST SUMMARY

Maxxam ID: IIE479
Sample ID: MW-1
Matrix: Water

Collected: 2018/11/15
Shipped:
Received: 2018/11/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5844252	N/A	2018/11/22	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5844253	N/A	2018/11/26	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5847342	2018/11/20	2018/11/21	Mariana Vascan
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5847357	2018/11/20	2018/11/21	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5855900	N/A	2018/11/26	Liliana Gaburici

Maxxam ID: IIE479 Dup
Sample ID: MW-1
Matrix: Water

Collected: 2018/11/15
Shipped:
Received: 2018/11/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5855900	N/A	2018/11/26	Liliana Gaburici

Maxxam ID: IIE480
Sample ID: DUP-2
Matrix: Water

Collected: 2018/11/15
Shipped:
Received: 2018/11/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5844252	N/A	2018/11/22	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5844253	N/A	2018/11/26	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5847342	2018/11/20	2018/11/21	Mariana Vascan
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5847357	2018/11/20	2018/11/21	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5855900	N/A	2018/11/26	Liliana Gaburici

Maxxam ID: IIE481
Sample ID: MW-2
Matrix: Water

Collected: 2018/11/14
Shipped:
Received: 2018/11/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5844252	N/A	2018/11/22	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5844253	N/A	2018/11/26	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5847342	2018/11/20	2018/11/21	Mariana Vascan
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5847357	2018/11/20	2018/11/21	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5855900	N/A	2018/11/26	Liliana Gaburici

Maxxam ID: IIE482
Sample ID: MW-3
Matrix: Water

Collected: 2018/11/14
Shipped:
Received: 2018/11/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5844252	N/A	2018/11/22	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5844253	N/A	2018/11/26	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5847342	2018/11/20	2018/11/21	Mariana Vascan
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5847357	2018/11/20	2018/11/21	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5855900	N/A	2018/11/26	Liliana Gaburici

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

TEST SUMMARY

Maxxam ID: IIE483
Sample ID: MW-8
Matrix: Water

Collected: 2018/11/14
Shipped:
Received: 2018/11/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5844252	N/A	2018/11/22	Liliana Gaburici
1,3-Dichloropropene Sum	CALC	5844253	N/A	2018/11/26	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5847342	2018/11/20	2018/11/22	Mariana Vascan
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5847357	2018/11/20	2018/11/21	Liliana Gaburici
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5855900	N/A	2018/11/26	Liliana Gaburici

Maxxam ID: IIE484
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2018/11/14
Shipped:
Received: 2018/11/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5844253	N/A	2018/11/26	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5855901	N/A	2018/11/26	Liliana Gaburici

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Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

GENERAL COMMENTS

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

Package 1	5.7°C

Results relate only to the items tested.

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Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5847342	MVA	Matrix Spike	o-Terphenyl	2018/11/22		100	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2018/11/22		91	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2018/11/22		91	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2018/11/22		91	%	50 - 130
5847342	MVA	Spiked Blank	o-Terphenyl	2018/11/22		96	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2018/11/22		91	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2018/11/22		91	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2018/11/22		91	%	80 - 120
5847342	MVA	Method Blank	o-Terphenyl	2018/11/21		96	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2018/11/21	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2018/11/21	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2018/11/21	<200		ug/L	
5847342	MVA	RPD	F2 (C10-C16 Hydrocarbons)	2018/11/22	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2018/11/22	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2018/11/22	NC		%	50
5847357	LGA	Spiked Blank	D10-Anthracene	2018/11/21		99	%	50 - 130
			D14-Terphenyl (FS)	2018/11/21		89	%	50 - 130
			D8-Acenaphthylene	2018/11/21		92	%	50 - 130
			Acenaphthene	2018/11/21		84	%	50 - 130
			Acenaphthylene	2018/11/21		85	%	50 - 130
			Anthracene	2018/11/21		87	%	50 - 130
			Benzo(a)anthracene	2018/11/21		80	%	50 - 130
			Benzo(a)pyrene	2018/11/21		84	%	50 - 130
			Benzo(b/j)fluoranthene	2018/11/21		83	%	50 - 130
			Benzo(g,h,i)perylene	2018/11/21		69	%	50 - 130
			Benzo(k)fluoranthene	2018/11/21		68	%	50 - 130
			Chrysene	2018/11/21		89	%	50 - 130
			Dibenz(a,h)anthracene	2018/11/21		92	%	50 - 130
			Fluoranthene	2018/11/21		85	%	50 - 130
			Fluorene	2018/11/21		92	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/11/21		81	%	50 - 130
			1-Methylnaphthalene	2018/11/21		91	%	50 - 130
			2-Methylnaphthalene	2018/11/21		101	%	50 - 130
			Naphthalene	2018/11/21		83	%	50 - 130
			Phenanthrene	2018/11/21		81	%	50 - 130
			Pyrene	2018/11/21		82	%	50 - 130
5847357	LGA	RPD	Acenaphthene	2018/11/21	1.8		%	30
			Acenaphthylene	2018/11/21	5.7		%	30
			Anthracene	2018/11/21	1.7		%	30
			Benzo(a)anthracene	2018/11/21	3.1		%	30
			Benzo(a)pyrene	2018/11/21	7.1		%	30
			Benzo(b/j)fluoranthene	2018/11/21	1.8		%	30
			Benzo(g,h,i)perylene	2018/11/21	3.8		%	30
			Benzo(k)fluoranthene	2018/11/21	13		%	30
			Chrysene	2018/11/21	1.1		%	30
			Dibenz(a,h)anthracene	2018/11/21	4.7		%	30
			Fluoranthene	2018/11/21	1.6		%	30
			Fluorene	2018/11/21	6.8		%	30
			Indeno(1,2,3-cd)pyrene	2018/11/21	8.4		%	30
			1-Methylnaphthalene	2018/11/21	1.5		%	30
			2-Methylnaphthalene	2018/11/21	0.48		%	30
			Naphthalene	2018/11/21	0.53		%	30
			Phenanthrene	2018/11/21	2.1		%	30
			Pyrene	2018/11/21	0.18		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5847357	LGA	Method Blank	D10-Anthracene	2018/11/21		99	%	50 - 130
			D14-Terphenyl (FS)	2018/11/21		79	%	50 - 130
			D8-Acenaphthylene	2018/11/21		89	%	50 - 130
			Acenaphthene	2018/11/21	<0.050		ug/L	
			Acenaphthylene	2018/11/21	<0.050		ug/L	
			Anthracene	2018/11/21	<0.050		ug/L	
			Benzo(a)anthracene	2018/11/21	<0.050		ug/L	
			Benzo(a)pyrene	2018/11/21	<0.010		ug/L	
			Benzo(b/j)fluoranthene	2018/11/21	<0.050		ug/L	
			Benzo(g,h,i)perylene	2018/11/21	<0.050		ug/L	
			Benzo(k)fluoranthene	2018/11/21	<0.050		ug/L	
			Chrysene	2018/11/21	<0.050		ug/L	
			Dibenz(a,h)anthracene	2018/11/21	<0.050		ug/L	
			Fluoranthene	2018/11/21	<0.050		ug/L	
			Fluorene	2018/11/21	<0.050		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/11/21	<0.050		ug/L	
			1-Methylnaphthalene	2018/11/21	<0.050		ug/L	
			2-Methylnaphthalene	2018/11/21	<0.050		ug/L	
			Naphthalene	2018/11/21	<0.050		ug/L	
			Phenanthrene	2018/11/21	<0.030		ug/L	
			Pyrene	2018/11/21	<0.050		ug/L	
5855900	LGA	Matrix Spike [IIE480-02]	4-Bromofluorobenzene	2018/11/25		96	%	70 - 130
			D4-1,2-Dichloroethane	2018/11/25		114	%	70 - 130
			D8-Toluene	2018/11/25		92	%	70 - 130
			Acetone (2-Propanone)	2018/11/25		115	%	60 - 140
			Benzene	2018/11/25		94	%	70 - 130
			Bromodichloromethane	2018/11/25		98	%	70 - 130
			Bromoform	2018/11/25		98	%	70 - 130
			Bromomethane	2018/11/25		77	%	60 - 140
			Carbon Tetrachloride	2018/11/25		85	%	70 - 130
			Chlorobenzene	2018/11/25		89	%	70 - 130
			Chloroform	2018/11/25		88	%	70 - 130
			Dibromochloromethane	2018/11/25		101	%	70 - 130
			1,2-Dichlorobenzene	2018/11/25		94	%	70 - 130
			1,3-Dichlorobenzene	2018/11/25		91	%	70 - 130
			1,4-Dichlorobenzene	2018/11/25		93	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2018/11/25		73	%	60 - 140
			1,1-Dichloroethane	2018/11/25		89	%	70 - 130
			1,2-Dichloroethane	2018/11/25		107	%	70 - 130
			1,1-Dichloroethylene	2018/11/25		81	%	70 - 130
			cis-1,2-Dichloroethylene	2018/11/25		92	%	70 - 130
			trans-1,2-Dichloroethylene	2018/11/25		82	%	70 - 130
			1,2-Dichloropropane	2018/11/25		94	%	70 - 130
			cis-1,3-Dichloropropene	2018/11/25		92	%	70 - 130
			trans-1,3-Dichloropropene	2018/11/25		93	%	70 - 130
			Ethylbenzene	2018/11/25		90	%	70 - 130
			Ethylene Dibromide	2018/11/25		104	%	70 - 130
			Hexane	2018/11/25		86	%	70 - 130
			Methylene Chloride(Dichloromethane)	2018/11/25		90	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2018/11/25		104	%	60 - 140
			Methyl Isobutyl Ketone	2018/11/25		113	%	70 - 130
			Methyl t-butyl ether (MTBE)	2018/11/25		100	%	70 - 130
			Styrene	2018/11/25		96	%	70 - 130
			1,1,1,2-Tetrachloroethane	2018/11/25		86	%	70 - 130

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,2,2-Tetrachloroethane	2018/11/25		106	%	70 - 130
			Tetrachloroethylene	2018/11/25		79	%	70 - 130
			Toluene	2018/11/25		83	%	70 - 130
			1,1,1-Trichloroethane	2018/11/25		82	%	70 - 130
			1,1,2-Trichloroethane	2018/11/25		103	%	70 - 130
			Trichloroethylene	2018/11/25		85	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2018/11/25		82	%	70 - 130
			Vinyl Chloride	2018/11/25		80	%	70 - 130
			p+m-Xylene	2018/11/25		87	%	70 - 130
			o-Xylene	2018/11/25		91	%	70 - 130
			F1 (C6-C10)	2018/11/25		95	%	60 - 140
5855900	LGA	Spiked Blank	4-Bromofluorobenzene	2018/11/25		96	%	70 - 130
			D4-1,2-Dichloroethane	2018/11/25		113	%	70 - 130
			D8-Toluene	2018/11/25		93	%	70 - 130
			Acetone (2-Propanone)	2018/11/25		109	%	60 - 140
			Benzene	2018/11/25		102	%	70 - 130
			Bromodichloromethane	2018/11/25		103	%	70 - 130
			Bromoform	2018/11/25		99	%	70 - 130
			Bromomethane	2018/11/25		84	%	60 - 140
			Carbon Tetrachloride	2018/11/25		95	%	70 - 130
			Chlorobenzene	2018/11/25		95	%	70 - 130
			Chloroform	2018/11/25		91	%	70 - 130
			Dibromochloromethane	2018/11/25		101	%	70 - 130
			1,2-Dichlorobenzene	2018/11/25		100	%	70 - 130
			1,3-Dichlorobenzene	2018/11/25		98	%	70 - 130
			1,4-Dichlorobenzene	2018/11/25		98	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2018/11/25		83	%	60 - 140
			1,1-Dichloroethane	2018/11/25		98	%	70 - 130
			1,2-Dichloroethane	2018/11/25		109	%	70 - 130
			1,1-Dichloroethylene	2018/11/25		91	%	70 - 130
			cis-1,2-Dichloroethylene	2018/11/25		99	%	70 - 130
			trans-1,2-Dichloroethylene	2018/11/25		92	%	70 - 130
			1,2-Dichloropropane	2018/11/25		100	%	70 - 130
			cis-1,3-Dichloropropene	2018/11/25		93	%	70 - 130
			trans-1,3-Dichloropropene	2018/11/25		93	%	70 - 130
			Ethylbenzene	2018/11/25		98	%	70 - 130
			Ethylene Dibromide	2018/11/25		105	%	70 - 130
			Hexane	2018/11/25		96	%	70 - 130
			Methylene Chloride(Dichloromethane)	2018/11/25		97	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2018/11/25		119	%	60 - 140
			Methyl Isobutyl Ketone	2018/11/25		112	%	70 - 130
			Methyl t-butyl ether (MTBE)	2018/11/25		104	%	70 - 130
			Styrene	2018/11/25		99	%	70 - 130
			1,1,1,2-Tetrachloroethane	2018/11/25		93	%	70 - 130
			1,1,2,2-Tetrachloroethane	2018/11/25		106	%	70 - 130
			Tetrachloroethylene	2018/11/25		88	%	70 - 130
			Toluene	2018/11/25		91	%	70 - 130
			1,1,1-Trichloroethane	2018/11/25		91	%	70 - 130
			1,1,2-Trichloroethane	2018/11/25		107	%	70 - 130
			Trichloroethylene	2018/11/25		92	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2018/11/25		92	%	70 - 130
			Vinyl Chloride	2018/11/25		92	%	70 - 130
			p+m-Xylene	2018/11/25		96	%	70 - 130
			o-Xylene	2018/11/25		99	%	70 - 130

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			F1 (C6-C10)	2018/11/25		105	%	60 - 140
5855900	LGA	Method Blank	4-Bromofluorobenzene	2018/11/26		95	%	70 - 130
			D4-1,2-Dichloroethane	2018/11/26		96	%	70 - 130
			D8-Toluene	2018/11/26		97	%	70 - 130
			Acetone (2-Propanone)	2018/11/26	<10		ug/L	
			Benzene	2018/11/26	<0.20		ug/L	
			Bromodichloromethane	2018/11/26	<0.50		ug/L	
			Bromoform	2018/11/26	<1.0		ug/L	
			Bromomethane	2018/11/26	<0.50		ug/L	
			Carbon Tetrachloride	2018/11/26	<0.20		ug/L	
			Chlorobenzene	2018/11/26	<0.20		ug/L	
			Chloroform	2018/11/26	<0.20		ug/L	
			Dibromochloromethane	2018/11/26	<0.50		ug/L	
			1,2-Dichlorobenzene	2018/11/26	<0.50		ug/L	
			1,3-Dichlorobenzene	2018/11/26	<0.50		ug/L	
			1,4-Dichlorobenzene	2018/11/26	<0.50		ug/L	
			Dichlorodifluoromethane (FREON 12)	2018/11/26	<1.0		ug/L	
			1,1-Dichloroethane	2018/11/26	<0.20		ug/L	
			1,2-Dichloroethane	2018/11/26	<0.50		ug/L	
			1,1-Dichloroethylene	2018/11/26	<0.20		ug/L	
			cis-1,2-Dichloroethylene	2018/11/26	<0.50		ug/L	
			trans-1,2-Dichloroethylene	2018/11/26	<0.50		ug/L	
			1,2-Dichloropropane	2018/11/26	<0.20		ug/L	
			cis-1,3-Dichloropropene	2018/11/26	<0.30		ug/L	
			trans-1,3-Dichloropropene	2018/11/26	<0.40		ug/L	
			Ethylbenzene	2018/11/26	<0.20		ug/L	
			Ethylene Dibromide	2018/11/26	<0.20		ug/L	
			Hexane	2018/11/26	<1.0		ug/L	
			Methylene Chloride(Dichloromethane)	2018/11/26	<2.0		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2018/11/26	<10		ug/L	
			Methyl Isobutyl Ketone	2018/11/26	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2018/11/26	<0.50		ug/L	
			Styrene	2018/11/26	<0.50		ug/L	
			1,1,1,2-Tetrachloroethane	2018/11/26	<0.50		ug/L	
			1,1,2,2-Tetrachloroethane	2018/11/26	<0.50		ug/L	
			Tetrachloroethylene	2018/11/26	<0.20		ug/L	
			Toluene	2018/11/26	<0.20		ug/L	
			1,1,1-Trichloroethane	2018/11/26	<0.20		ug/L	
			1,1,2-Trichloroethane	2018/11/26	<0.50		ug/L	
			Trichloroethylene	2018/11/26	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2018/11/26	<0.50		ug/L	
			Vinyl Chloride	2018/11/26	<0.20		ug/L	
			p+m-Xylene	2018/11/26	<0.20		ug/L	
			o-Xylene	2018/11/26	<0.20		ug/L	
			Total Xylenes	2018/11/26	<0.20		ug/L	
			F1 (C6-C10)	2018/11/26	<25		ug/L	
			F1 (C6-C10) - BTEX	2018/11/26	<25		ug/L	
5855900	LGA	RPD [IIE479-02]	Acetone (2-Propanone)	2018/11/26	NC		%	30
			Benzene	2018/11/26	NC		%	30
			Bromodichloromethane	2018/11/26	NC		%	30
			Bromoform	2018/11/26	NC		%	30
			Bromomethane	2018/11/26	NC		%	30
			Carbon Tetrachloride	2018/11/26	NC		%	30
			Chlorobenzene	2018/11/26	NC		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Chloroform	2018/11/26	NC		%	30
			Dibromochloromethane	2018/11/26	NC		%	30
			1,2-Dichlorobenzene	2018/11/26	NC		%	30
			1,3-Dichlorobenzene	2018/11/26	NC		%	30
			1,4-Dichlorobenzene	2018/11/26	NC		%	30
			Dichlorodifluoromethane (FREON 12)	2018/11/26	NC		%	30
			1,1-Dichloroethane	2018/11/26	NC		%	30
			1,2-Dichloroethane	2018/11/26	NC		%	30
			1,1-Dichloroethylene	2018/11/26	NC		%	30
			cis-1,2-Dichloroethylene	2018/11/26	NC		%	30
			trans-1,2-Dichloroethylene	2018/11/26	NC		%	30
			1,2-Dichloropropane	2018/11/26	NC		%	30
			cis-1,3-Dichloropropene	2018/11/26	NC		%	30
			trans-1,3-Dichloropropene	2018/11/26	NC		%	30
			Ethylbenzene	2018/11/26	NC		%	30
			Ethylene Dibromide	2018/11/26	NC		%	30
			Hexane	2018/11/26	NC		%	30
			Methylene Chloride(Dichloromethane)	2018/11/26	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2018/11/26	NC		%	30
			Methyl Isobutyl Ketone	2018/11/26	NC		%	30
			Methyl t-butyl ether (MTBE)	2018/11/26	NC		%	30
			Styrene	2018/11/26	NC		%	30
			1,1,1,2-Tetrachloroethane	2018/11/26	NC		%	30
			1,1,2,2-Tetrachloroethane	2018/11/26	NC		%	30
			Tetrachloroethylene	2018/11/26	NC		%	30
			Toluene	2018/11/26	NC		%	30
			1,1,1-Trichloroethane	2018/11/26	NC		%	30
			1,1,2-Trichloroethane	2018/11/26	NC		%	30
			Trichloroethylene	2018/11/26	NC		%	30
			Trichlorofluoromethane (FREON 11)	2018/11/26	NC		%	30
			Vinyl Chloride	2018/11/26	NC		%	30
			p+m-Xylene	2018/11/26	NC		%	30
			o-Xylene	2018/11/26	NC		%	30
			Total Xylenes	2018/11/26	NC		%	30
			F1 (C6-C10)	2018/11/26	NC		%	30
			F1 (C6-C10) - BTEX	2018/11/26	NC		%	30
5855901	LGA	Spiked Blank	4-Bromofluorobenzene	2018/11/26		94	%	70 - 130
			D4-1,2-Dichloroethane	2018/11/26		111	%	70 - 130
			D8-Toluene	2018/11/26		89	%	70 - 130
			Acetone (2-Propanone)	2018/11/26		111	%	60 - 140
			Benzene	2018/11/26		103	%	70 - 130
			Bromodichloromethane	2018/11/26		100	%	70 - 130
			Bromoform	2018/11/26		91	%	70 - 130
			Bromomethane	2018/11/26		81	%	60 - 140
			Carbon Tetrachloride	2018/11/26		90	%	70 - 130
			Chlorobenzene	2018/11/26		96	%	70 - 130
			Chloroform	2018/11/26		88	%	70 - 130
			Dibromochloromethane	2018/11/26		97	%	70 - 130
			1,2-Dichlorobenzene	2018/11/26		101	%	70 - 130
			1,3-Dichlorobenzene	2018/11/26		97	%	70 - 130
			1,4-Dichlorobenzene	2018/11/26		97	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2018/11/26		83	%	60 - 140
			1,1-Dichloroethane	2018/11/26		97	%	70 - 130
			1,2-Dichloroethane	2018/11/26		111	%	70 - 130

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1-Dichloroethylene	2018/11/26		90	%	70 - 130
			cis-1,2-Dichloroethylene	2018/11/26		100	%	70 - 130
			trans-1,2-Dichloroethylene	2018/11/26		90	%	70 - 130
			1,2-Dichloropropane	2018/11/26		101	%	70 - 130
			cis-1,3-Dichloropropene	2018/11/26		81	%	70 - 130
			trans-1,3-Dichloropropene	2018/11/26		81	%	70 - 130
			Ethylbenzene	2018/11/26		100	%	70 - 130
			Ethylene Dibromide	2018/11/26		107	%	70 - 130
			Hexane	2018/11/26		93	%	70 - 130
			Methylene Chloride(Dichloromethane)	2018/11/26		97	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2018/11/26		107	%	60 - 140
			Methyl Isobutyl Ketone	2018/11/26		113	%	70 - 130
			Methyl t-butyl ether (MTBE)	2018/11/26		105	%	70 - 130
			Styrene	2018/11/26		98	%	70 - 130
			1,1,1,2-Tetrachloroethane	2018/11/26		89	%	70 - 130
			1,1,2,2-Tetrachloroethane	2018/11/26		109	%	70 - 130
			Tetrachloroethylene	2018/11/26		88	%	70 - 130
			Toluene	2018/11/26		91	%	70 - 130
			1,1,1-Trichloroethane	2018/11/26		90	%	70 - 130
			1,1,2-Trichloroethane	2018/11/26		107	%	70 - 130
			Trichloroethylene	2018/11/26		92	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2018/11/26		92	%	70 - 130
			Vinyl Chloride	2018/11/26		92	%	70 - 130
			p+m-Xylene	2018/11/26		93	%	70 - 130
			o-Xylene	2018/11/26		99	%	70 - 130
5855901	LGA	RPD	Acetone (2-Propanone)	2018/11/26	18		%	30
			Benzene	2018/11/26	4.7		%	30
			Bromodichloromethane	2018/11/26	2.5		%	30
			Bromoform	2018/11/26	9.6		%	30
			Bromomethane	2018/11/26	3.3		%	30
			Carbon Tetrachloride	2018/11/26	8.8		%	30
			Chlorobenzene	2018/11/26	4.2		%	30
			Chloroform	2018/11/26	5.2		%	30
			Dibromochloromethane	2018/11/26	2.6		%	30
			1,2-Dichlorobenzene	2018/11/26	3.1		%	30
			1,3-Dichlorobenzene	2018/11/26	7.8		%	30
			1,4-Dichlorobenzene	2018/11/26	7.5		%	30
			Dichlorodifluoromethane (FREON 12)	2018/11/26	11		%	30
			1,1-Dichloroethane	2018/11/26	4.5		%	30
			1,2-Dichloroethane	2018/11/26	6.5		%	30
			1,1-Dichloroethylene	2018/11/26	10		%	30
			cis-1,2-Dichloroethylene	2018/11/26	3.3		%	30
			trans-1,2-Dichloroethylene	2018/11/26	8.9		%	30
			1,2-Dichloropropane	2018/11/26	0.060		%	30
			cis-1,3-Dichloropropene	2018/11/26	2.8		%	30
			trans-1,3-Dichloropropene	2018/11/26	1.6		%	30
			Ethylbenzene	2018/11/26	9.6		%	30
			Ethylene Dibromide	2018/11/26	8.8		%	30
			Hexane	2018/11/26	15		%	30
			Methylene Chloride(Dichloromethane)	2018/11/26	0.010		%	30
			Methyl Ethyl Ketone (2-Butanone)	2018/11/26	7.6		%	30
			Methyl Isobutyl Ketone	2018/11/26	17		%	30
			Methyl t-butyl ether (MTBE)	2018/11/26	1.6		%	30
			Styrene	2018/11/26	3.3		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,1,2-Tetrachloroethane	2018/11/26	2.2		%	30
			1,1,2,2-Tetrachloroethane	2018/11/26	12		%	30
			Tetrachloroethylene	2018/11/26	11		%	30
			Toluene	2018/11/26	6.6		%	30
			1,1,1-Trichloroethane	2018/11/26	7.3		%	30
			1,1,2-Trichloroethane	2018/11/26	7.5		%	30
			Trichloroethylene	2018/11/26	10		%	30
			Trichlorofluoromethane (FREON 11)	2018/11/26	10		%	30
			Vinyl Chloride	2018/11/26	9.3		%	30
			p+m-Xylene	2018/11/26	9.3		%	30
			o-Xylene	2018/11/26	6.9		%	30
5855901	LGA	Method Blank	4-Bromofluorobenzene	2018/11/26		96	%	70 - 130
			D4-1,2-Dichloroethane	2018/11/26		105	%	70 - 130
			D8-Toluene	2018/11/26		92	%	70 - 130
			Acetone (2-Propanone)	2018/11/26	<10		ug/L	
			Benzene	2018/11/26	<0.20		ug/L	
			Bromodichloromethane	2018/11/26	<0.50		ug/L	
			Bromoform	2018/11/26	<1.0		ug/L	
			Bromomethane	2018/11/26	<0.50		ug/L	
			Carbon Tetrachloride	2018/11/26	<0.20		ug/L	
			Chlorobenzene	2018/11/26	<0.20		ug/L	
			Chloroform	2018/11/26	<0.20		ug/L	
			Dibromochloromethane	2018/11/26	<0.50		ug/L	
			1,2-Dichlorobenzene	2018/11/26	<0.50		ug/L	
			1,3-Dichlorobenzene	2018/11/26	<0.50		ug/L	
			1,4-Dichlorobenzene	2018/11/26	<0.50		ug/L	
			Dichlorodifluoromethane (FREON 12)	2018/11/26	<1.0		ug/L	
			1,1-Dichloroethane	2018/11/26	<0.20		ug/L	
			1,2-Dichloroethane	2018/11/26	<0.50		ug/L	
			1,1-Dichloroethylene	2018/11/26	<0.20		ug/L	
			cis-1,2-Dichloroethylene	2018/11/26	<0.50		ug/L	
			trans-1,2-Dichloroethylene	2018/11/26	<0.50		ug/L	
			1,2-Dichloropropane	2018/11/26	<0.20		ug/L	
			cis-1,3-Dichloropropene	2018/11/26	<0.30		ug/L	
			trans-1,3-Dichloropropene	2018/11/26	<0.40		ug/L	
			Ethylbenzene	2018/11/26	<0.20		ug/L	
			Ethylene Dibromide	2018/11/26	<0.20		ug/L	
			Hexane	2018/11/26	<1.0		ug/L	
			Methylene Chloride(Dichloromethane)	2018/11/26	<2.0		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2018/11/26	<10		ug/L	
			Methyl Isobutyl Ketone	2018/11/26	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2018/11/26	<0.50		ug/L	
			Styrene	2018/11/26	<0.50		ug/L	
			1,1,1,2-Tetrachloroethane	2018/11/26	<0.50		ug/L	
			1,1,2,2-Tetrachloroethane	2018/11/26	<0.50		ug/L	
			Tetrachloroethylene	2018/11/26	<0.20		ug/L	
			Toluene	2018/11/26	<0.20		ug/L	
			1,1,1-Trichloroethane	2018/11/26	<0.20		ug/L	
			1,1,2-Trichloroethane	2018/11/26	<0.50		ug/L	
			Trichloroethylene	2018/11/26	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2018/11/26	<0.50		ug/L	
			Vinyl Chloride	2018/11/26	<0.20		ug/L	
			p+m-Xylene	2018/11/26	<0.20		ug/L	
			o-Xylene	2018/11/26	<0.20		ug/L	

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

Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Xylenes	2018/11/26	<0.20		ug/L	

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

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

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

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

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

NC (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).

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Maxxam Job #: B8U8109
Report Date: 2018/11/26

Pinchin Ltd
Client Project #: 229085.001
Sampler Initials: MK

VALIDATION SIGNATURE PAGE

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

Steve Roberts, Ottawa Lab Manager

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

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16-Nov-18 16:00
Alisha Williamson
B8U8109

Presence of Visible Particulate/Sediment

Maxxam Analytics
CAM FCD-01013/5
Page 1 of 1

When there is >1cm of visible particulate/sediment, the amount will be recorded in the field below

	Sample ID	Bottle Types: All	Inorganics: CrVI	Inorganics: CN	Inorganics: General	Inorganics: Hg	Inorganics: Metals (Diss.)	Organics: Organic 1 of 2	Organics: Organic 2 of 2	Organics: PCB 1 of 2	Organics: PCB 2 of 2	Organics: Pest/Herb 1 of 2	Organics: Pest/Herb 2 of 2	Organics: SVOC/ABN 1 of 2	Organics: SVOC/ABN 2 of 2	Organics: PAH 1 of 2	Organics: PAH 2 of 2	Organics: Dioxin /Furan	Hydrocarbons: F1 Vial 1	Hydrocarbons: F1 Vial 2	Hydrocarbons: F1 Vial 3	Hydrocarbons: F1 Vial 4	Hydrocarbons: F2-F4 1 of 2	Hydrocarbons: F2-F4 2 of 2	Hydrocarbons: F4G	Volatiles: VOC Vial 1	Volatiles: VOC Vial 2	Volatiles: VOC Vial 3	Volatiles: VOC Vial 4	Other
1	MW-1	TS																											
2	Dup-2	TS																											
3	MW-2	TS																											
4	MW-3	TS																											
5	MW-8	TS																											
6	~~FB~~																												
7																													
8																													
9																													
10																													

Comments:

Legend:	
P	Suspended Particulate
TS	Trace Settled Sediment (just covers bottom of container or less)
S	Sediment greater than (>) Trace, but less than (<) 1 cm

Recorded By: (signature/print)

Maxxam
A Bureau Veritas Group Company

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CAM FCD-01191/3

CHAIN OF CUSTODY RECORD 102890 Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pilchin Ltd.	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Mike Kosiw	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: Matt Ryan	Address: C SAME	Project #: 229085.001	Rush TAT (Surcharges will be applied)
Phone: 1 Hales Fax: Rd.	Phone: Fax:	Site Location:	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Email: Kennata ON	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
[ ] Table 1 [ ] Res/Park [X] Med/ Fine
[ ] Table 2 [X] Ind/Comm [ ] Coarse
[X] Table 3 [ ] Agri/ Other
[ ] Table _____
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations
[ ] CCME [ ] Sanitary Sewer Bylaw
[ ] MISA [ ] Storm Sewer Bylaw
[ ] PWQO Region
[ ] Other (Specify)
[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: (Y) N

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

Analysis Requested

LABORATORY USE ONLY
CUSTODY SEAL Y / N: Present / Intact
COOLER TEMPERATURES: 6/6/15
COOLING MEDIA PRESENT: Y / N

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	Metals
1	MW-1	Nov 15 2018	PM	GW	4		X	X	X				X
2	Dup-2				4		X	X	X				X
3	MW-2	Nov 14 2015			4		X	X	X				X
4	MW-3				4		X	X	X				X
5	MW-8				4		X	X	X				X
6	Trip Blank				2				X				
7													
8													
9													
10													

16-Nov-18 16:00
Alisha Williamson
B8U8109

ON the ice pack

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
	Nov 16 2018	2:30		2018/11/16	16:00	
Mike Kosiw						

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 packages information can be viewed at http://maxxam.ca/wp-content/uploads/Ontario-COC.pdf.

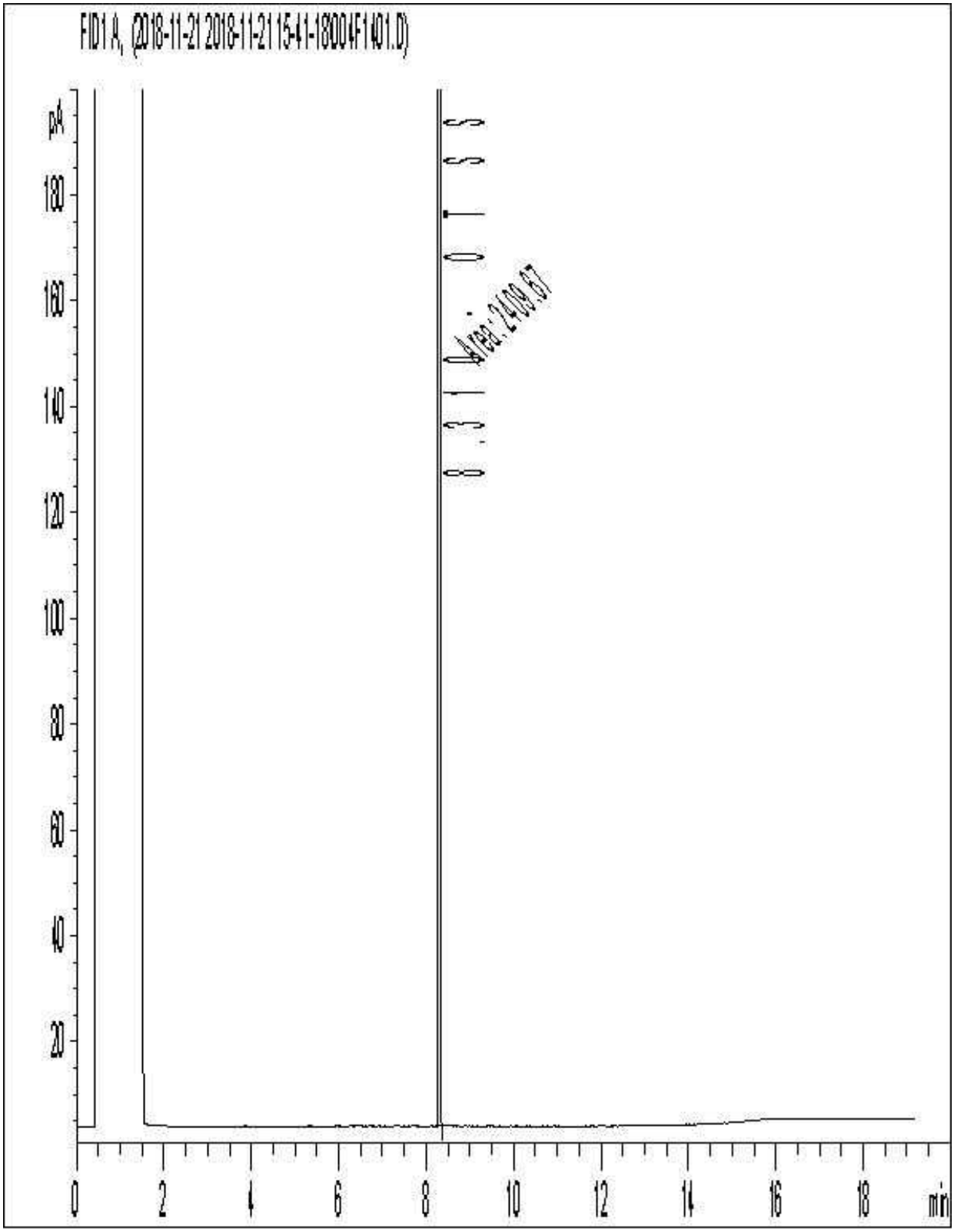
COC-1004 (03/17)

White: Maxxam – Yellow: Client

Maxxam Job #: B8U8109
Report Date: 2018/11/26
Maxxam Sample: IIE479

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-1

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

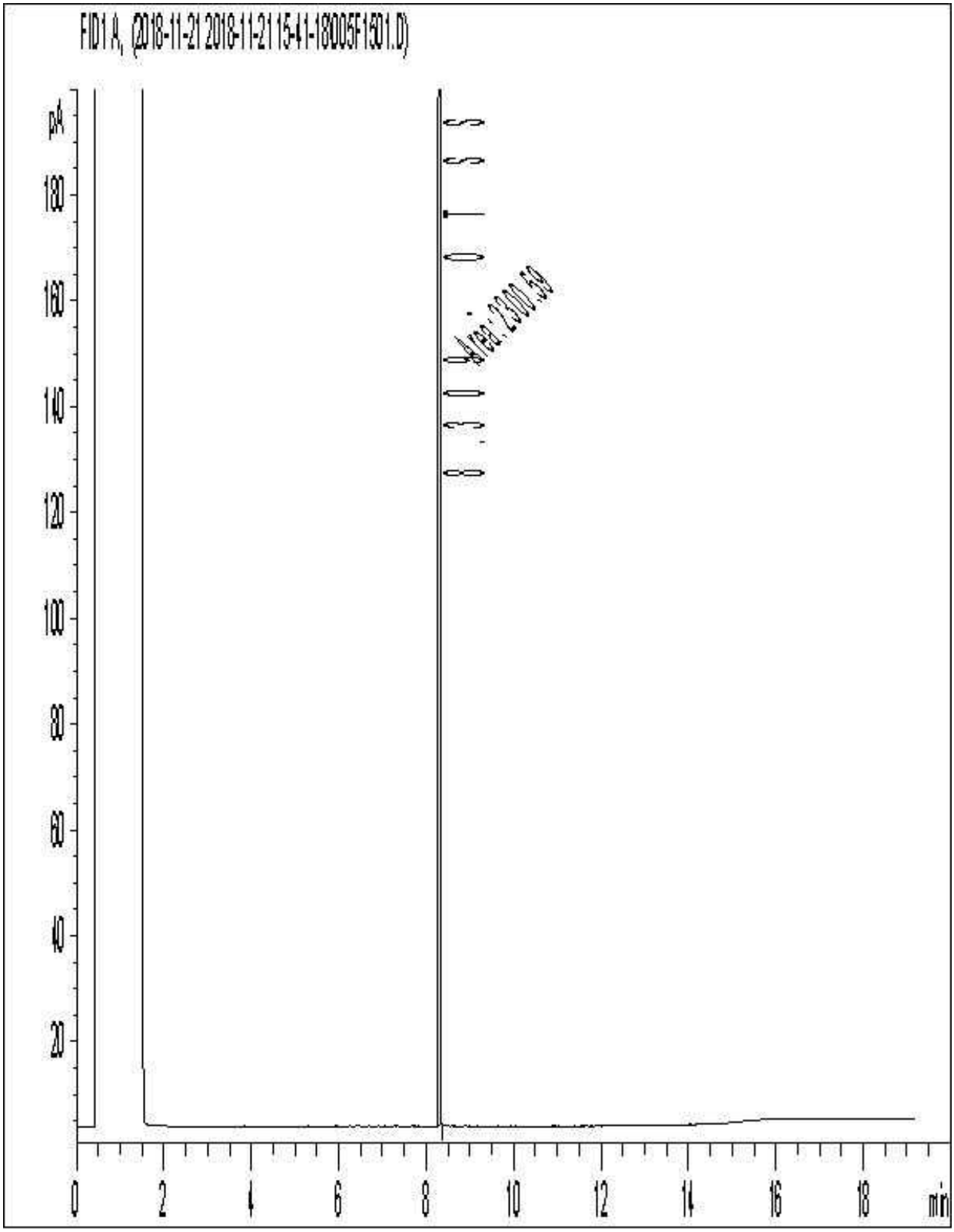


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8U8109
Report Date: 2018/11/26
Maxxam Sample: IIE480

Pinchin Ltd
Client Project #: 229085.001
Client ID: DUP-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

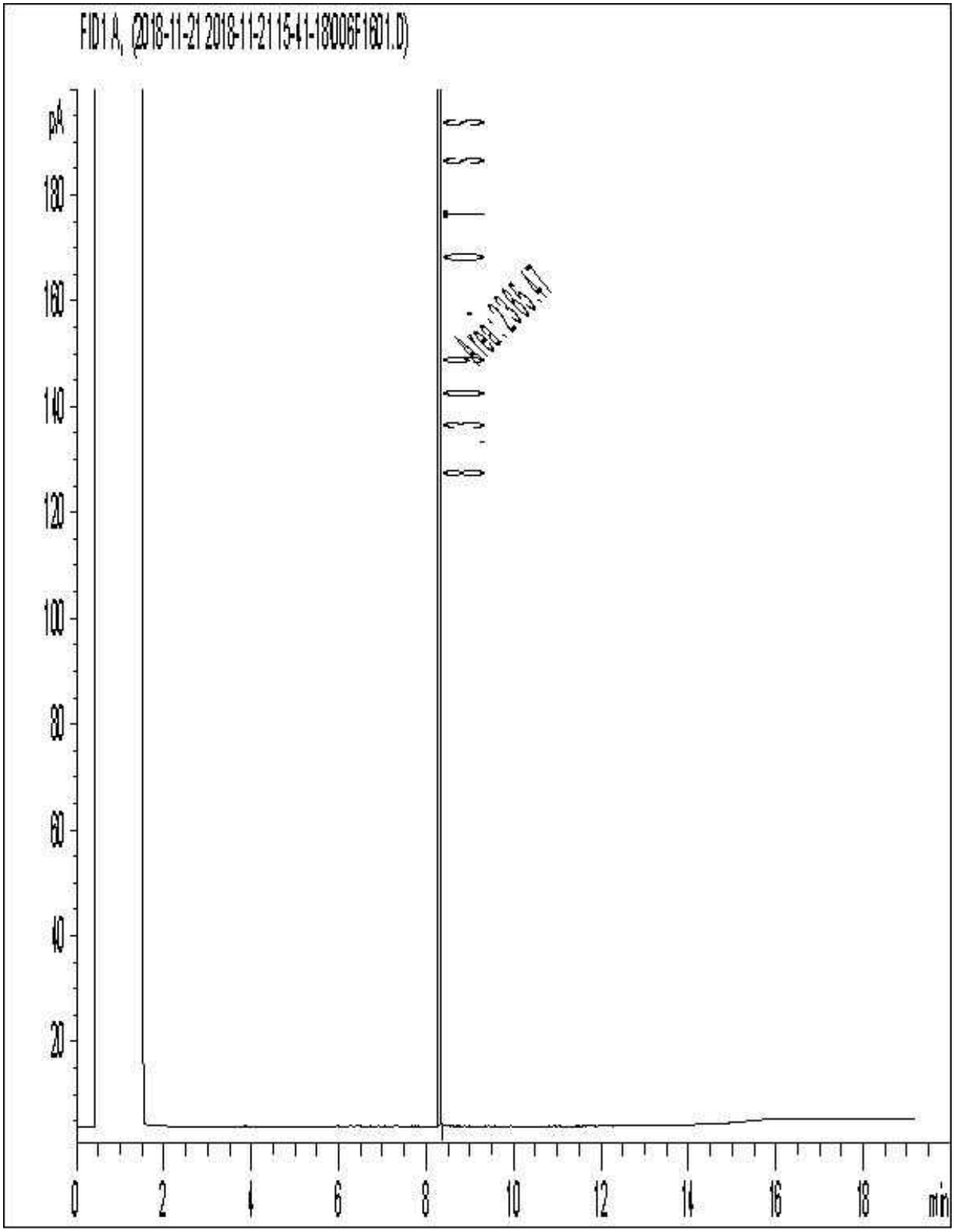


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8U8109
Report Date: 2018/11/26
Maxxam Sample: IIE481

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

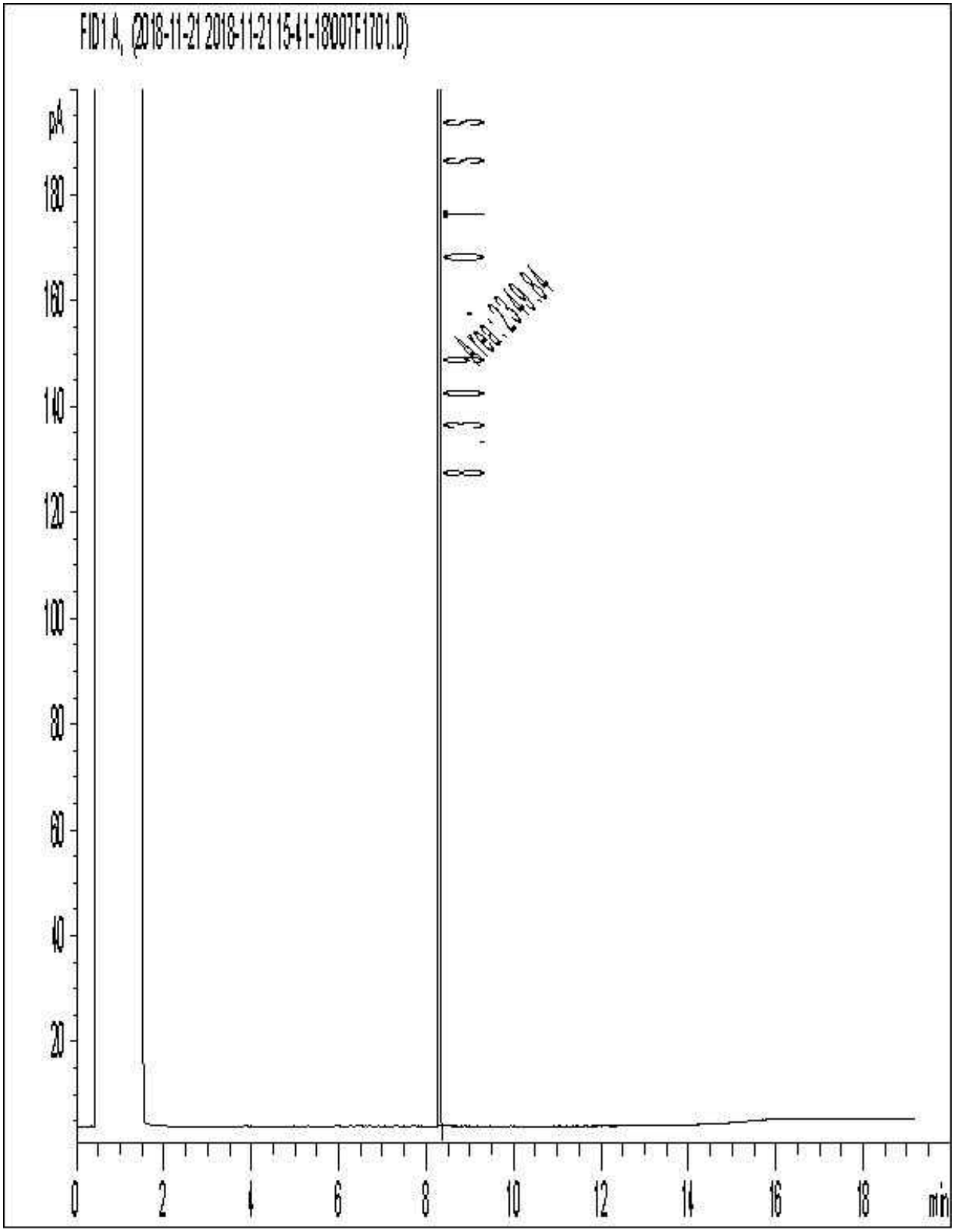


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8U8109
Report Date: 2018/11/26
Maxxam Sample: IIE482

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-3

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

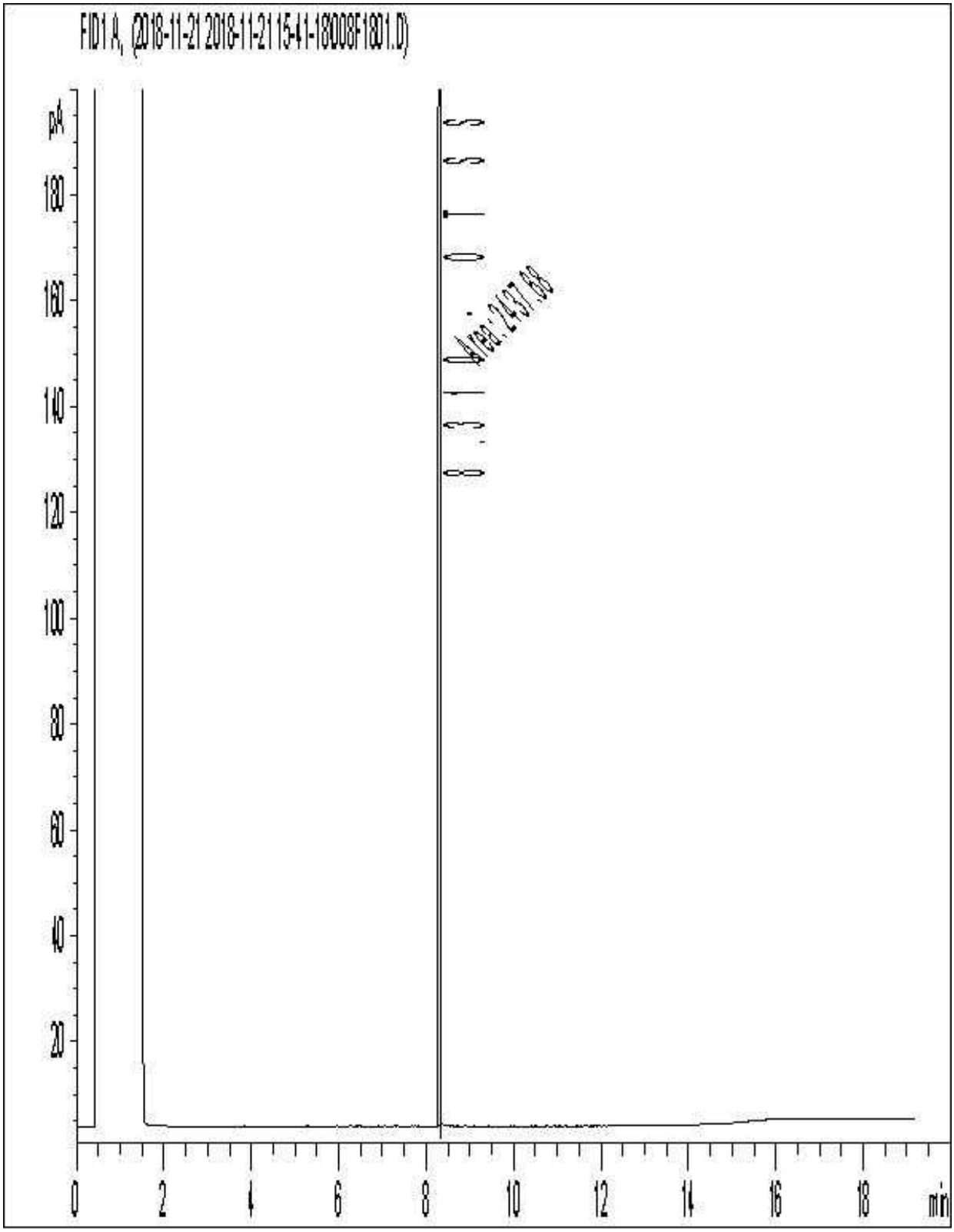


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B8U8109
Report Date: 2018/11/26
Maxxam Sample: IIE483

Pinchin Ltd
Client Project #: 229085.001
Client ID: MW-8

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.