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REPORT ON

**PHASE II
ENVIRONMENTAL SITE ASSESSMENT
257 McARTHUR AVENUE
CITY OF OTTAWA, ONTARIO**

Submitted to:

Bergeron Construction
172 St. Thomas Road
Vars, Ontario
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DATE: May 1, 2018

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ATTACHMENTS

Record of Boreholes BH1, BH2, BH3 and BH4

Figure 1, Key Plan

Figure 2, Site Plan - Conceptual Site Model

Attachment A - Laboratory Testing Results



1.0 EXECUTIVE SUMMARY

Kollaard Associates Inc. was retained by Bergeron Construction to carry out a Phase II Environmental Site Assessment (ESA) of the property located at 257 McArthur Avenue, Ottawa, Ontario. The Phase II is to address issues of potential environmental concern from a previous Phase I ESA dated April 20, 2018 by Kollaard Associates Inc. The subject site for this assessment is located at 257 McArthur Avenue, in the City of Ottawa, Ontario (see Key Plan, Figure 1). The site consists of about a 0.07 hectares (0.17 acres) parcel of land located on the north side of McArthur Avenue, about 445 metres east of the intersection of Vanier Parkway and McArthur Avenue, City of Ottawa, Ontario. The site is currently occupied by a vacant three storey building and a detached garage scheduled for demolition and new development.

The Executive Summary highlights key points from the report only; for complete information and findings, as well as limitations, the reader should examine the complete report.

The Phase II ESA was completed in general accordance with the requirements of Schedule E of Ontario Regulation (O. Reg.) 153/04 (as amended.) It is understood that the Phase II ESA is being carried out for Site Plan Application with the City of Ottawa and that a Record of Site Condition (RSC) pursuant to Ontario Regulation 153/04 - Records of Site Condition - Part XV.1 of the Act, made under the Environmental Protection Act, will not be filed for the site as there is no change of use proposed for the site.

The historical land use of the property, based on the results of the above noted Phase I ESA, has been for residential and commercial use. The results of the Phase I ESA indicated that the most significant environmental related issues identified at the site are the potential for subsurface contamination related to a fire that occurred at the site on October 31, 2015 and destroyed most of the interior of the building. At the time, the tenants of the building were Melody Cafe, Hookah Lounge and a residential apartment. Since the fire, the building has remained vacant. The debris may contain deleterious material, including metals, hydrocarbons and semi-volatiles.

There were no current or historical Potentially Contaminating Activities (PCAs) identified at the subject site. Offsite current or historical PCAs were identified within the Phase I ESA study area. However, they are mostly identified to be south or southeast of the subject property. Given their distances and the groundwater flow direction which is indicated to be to west towards the Rideau River, and that many of the properties have been redeveloped (i.e. PCAs are mostly historical not current), there are no resulting



Areas of Potential Environmental Concern (APECs) at the subject site from the PCAs in the Phase I Study Area.

However, in view of the results of this Phase I ESA, Kollaard Associates considered that a Phase II ESA should be carried out to address, at minimum, the potential for subsurface contamination from the fire that occurred at the site. The Phase II ESA should include testing of building debris and/or other imported fill materials for metals, hydrocarbons and semi-volatiles.

The Phase Two ESA scope of work included the following:

- Drilling of two exterior and two interior boreholes, collection of soil samples from the boreholes and submitting six select soils samples from the boreholes for laboratory analysis for petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and metals.
- The results were compared to the Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, Residential/Parkland/Institutional, coarse-textured soil, April 15, 2011 are considered applicable and were used to assess the environmental quality of soil at the Site.
- Based on the results of soil sampling and testing carried out for this Phase II ESA, there were no exceedances of the applicable criteria and all of the soil samples meet the applicable MOECC standards. No further testing is required at the site.

2.0 INTRODUCTION

2.1 BACKGROUND

This Phase II Environmental Site Assessment (ESA) was carried out by Kollaard Associates Inc. for Bergeron Construction of Ottawa, Ontario for the property at civic address 257 McArthur Avenue, in the City of Ottawa, Ontario. The site has a combined area of approximately of 0.13 hectares (0.31 acres). The Phase II ESA was carried out subsequent to a Phase I ESA for the same property that was dated April 20, 2018.



It is understood that it is planned to develop the site into a three storey mixed-use building containing one commercial unit and four residential apartments. The historical use of the property was for residential purposes and commercial purposes. As such, there is no change of use or previous use for which a Record of Site Condition could be required under Ontario Regulation 153/04. A Phase II ESA is required to address concerns identified in a Phase I ESA report and to assist in site development approvals. It is understood that the City of Ottawa does not require that a Record of Site Condition (RSC) be filed for this property.

2.2 SITE DESCRIPTION

Address:	257 McArthur Avenue, Ottawa, Ontario.
Legal Description:	Part Lot G, Plan 381, as described in Instrument No. N295125, formerly City of Vanier, City of Ottawa, Ontario - PIN 04240-0003 (LT).
Location:	The site is located on the north side of McArthur Avenue, about 445 metres east of the intersection of Vanier Parkway and McArthur Avenue, City of Ottawa, Ontario. The location is shown on Figure 1 – Key Plan, appended to this report.
Latitude and Longitude:	45° 25' 54" N, 75° 39' 29" W
Configuration:	rectangular
Site Area:	0.07 hectares (0.17 acres)

The site location is provided on Figure 1. A site plan is provided on Figure 2.

The site is currently occupied by a vacant three storey building and a detached garage. The remaining areas not occupied by the building or garage are mostly asphaltic surfaced. It is understood that it is planned to develop the site into a three storey mixed-use building containing one commercial unit and four residential apartments.

Surrounding land use is a mix of residential, commercial and institutional development. The site is bordered on the west and north by institutional development (Horizon-Jeunesse Elementary School), on the east by vacant commercial development (formerly Eastview Animal Hospital) and



on the south by McArthur Avenue followed by a City of Ottawa office (Vanier Depot and City of Ottawa Community Police Centre).

2.3 PROPERTY OWNERSHIP

The property is currently owned by Quality Property Management Services Inc. Authorization to proceed with this work was granted by Mr. Jean Boulerice.

2.4 CURRENT AND PROPOSED FUTURE USES

The first developed use of the property was determined based on a review of aerial photographs of the site. The earliest air photograph that was reviewed was 1928. At that time, the site and the surrounding lands appear to be agricultural land. There is residential development of nearby properties. A 1958 air photograph indicates a single family dwelling at the site. As such, first developed use of the property is indicated to be sometime between 1928 and 1958 for a residential use. Development surrounding the site has steadily occurred over time.

The proposed future use of the site is for a multi-unit residential building, with a commercial unit.

2.5 APPLICABLE SITE CONDITION STANDARD

The results were compared to the Ministry of the Environment and Climate Change (MOECC) *Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act*. Table 3, dated April 15, 2011, full depth generic site condition standards for residential/parkland/institutional property use in a non-potable groundwater condition.

The following rationale was used for the selection of the standards to be used to compare the soil analytical results:

- The Site is currently zoned in a residential zone and the planned future land use of the Site is a residential land use;
- The Site is located further than 30 metres from the nearest surface water body, which is the Rideau River, located approximately 950 m west of the Site.

The site meets the following criteria for applying the non-potable groundwater standards, as per O. Reg. 153/04:



- the site and all sites within 100 metres of the property boundaries are serviced by municipal water supply;
- the site is not located in a municipal wellhead protection area or other groundwater protected area;
- A coarse grained soil texture was selected for comparison of analytical data to applicable provincial standards as the soils encountered during the drilling activities consisted mainly of glacial till.
- The Site is located further than 30 metres from the nearest surface water body which is the Rideau River, located approximately 950 metres west of the Site.
- the site is not an agricultural use;

3.0 BACKGROUND INFORMATION

3.1 PHYSICAL SETTING

The ground surface across the site and surrounding area is relatively flat lying with a gradual slope from the north to south. Surface drainage is largely controlled by a catch basin located within southwest portion of the parking lot. The catch basin is connected to the stormwater system within McArthur Avenue.

The regional topography slopes downward moving east towards the Rideau River located approximately 950 metres west of the subject site.

There are no buried utilities at the subject site.

A geotechnical investigation completed at the site by Kollaard Associates Inc. in April 2018 indicates the subsurface soil consists of glacial till. Groundwater was measured in a standpipe placed within one of the boreholes at a depth of about 4.0 metres below the existing ground surface in April 2018.

Based on a review of the surficial geology map for the site area available in borehole logs and the well record database, it is expected that the site is underlain by deposits of silt and clay with minor sand and gravel. Bedrock geology maps indicate that the bedrock underlying the site consists of shale of the Billings Formation.



3.2 PAST INVESTIGATIONS

A review of a report entitled Phase I Environmental Site Assessment, 349 Olmstead Street, Ottawa, Ontario, by exp Services Inc., Project Number OTT-00226176-AD, dated May 29, 2015 was completed as part of this assessment along with the Phase I Environmental Site Assessment carried out by Kollaard Associates in April 2018.

Based on the results of the Phase I ESA completed at 349 Olmstead Street, Ottawa, Ontario, no areas of potential environmental concern were identified for that site by exp Services Inc.

A previous Phase I ESA conducted by Kollaard Associates was used to support the preparation of the Phase II ESA for the subject site.

4.0 SCOPE OF THE INVESTIGATION

4.1 OVERVIEW

Soil sampling was carried out to address issues of potential environmental concern identified by a previous Phase I Environmental Site Assessment (ESA) carried out for the site by Kollaard Associates Inc. (KAI) The issue identified is the possible presence of subsurface contamination from a fire that occurred within the building at the site in October 2015. The tasks completed for the Phase II ESA consisted of the following:

- Completion of two exterior boreholes on the exterior for soil sampling carried out on March 28, 2018
- Completion of two interior boreholes for soil sampling on April 11, 2018.
- Submitting soil samples for the analysis of potential contaminants
- Compare analytical results to full generic soil standards (Table 3 - Non-potable)

4.2 MEDIA INVESTIGATED

The soils were investigated at the site. No sediment was encountered at the site.



Soil samples were collected from two exterior boreholes and two interior boreholes to determine the soil quality of the underlying native soils. Soil samples obtained from the boreholes were collected and prepared/preserved in the field using appropriate techniques and submitted to Eurofins Laboratories Ltd. in Nepean, Ontario, for testing. The testing consisted of the select VOCs (BTEX), metals, PHCs F1 to F4 and select semi-volatiles (PAHs).

4.3 PHASE ONE CONCEPTUAL SITE MODEL

Based on the Phase I Conceptual Site Model and information acquired through the course of the Phase II site investigation, the following information is provided for the Phase II property and study area.

- The ground surface across the site is relatively flat lying with a gentle slope downwards from northeast to southwest.
- The Study Area is serviced by municipal water supply and there are no water wells in the Study Area.
- The site is not in a municipal wellhead protection area and is not a current or proposed agricultural use.
- The general stratigraphy at the site consists of about 30 to 40 millimetres of asphaltic concrete followed by a thin layer of granular fill, then fill materials consisting of silty sand with a trace of clay and brick, overlying silty clay to approximately 1.8 metres depth, then by glacial till to approximately 6.2 metres (20 feet). It is considered that the glacial till is of low permeability due to its compact to dense state of packing.
- Refusal to further advancement was encountered on the surface of large boulders or bedrock at about 6.2 metres below existing ground surface.
- Saturated soil conditions were encountered at about 4.5 metres below existing ground surface at the time of borehole investigation in March 2018 and at about 4.0 metres measured in a standpipe installed in BH2. The standpipe was installed in the borehole for geotechnical purposes and not for groundwater sampling purposes.
- Based on a review of the topographical map for the site area, it is expected that the upper groundwater flow at the site is to the west towards the Rideau River located approximately 950 metres west of the subject site.
- Based on a review of the City of Ottawa website zoning information, there are no areas of natural significance within the Phase I Study Area.

Potentially Contaminating Activities (PCA 1 - Subsurface Contamination due to fire): current activities at 257 McArthur Avenue within the Phase I Study Area were identified and include:

PCA 1:

- 257 McArthur Avenue: Possible presence of subsurface contamination due to fire within the building at the site.



Areas of Potential Environmental Concern: Due to the PCA at the subject site, the following APEC was identified at the site in the Phase I ESA, locations as shown in Figure 2:

- APEC 1 – Fill and building debris and residues from former fire

As per Ontario Regulation 153/04, a Potential Contaminating Activity (PCA) is defined as one of fifty-nine (59) industrial operations set out in Table 2 of Schedule D. From that list, no industrial operations were identified for the subject site. However there are some concerns due to the previous fire that occurred in October 2015 within the building.

4.4 DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN

There are no deviations from the original scope of work for the subject investigation.

4.5 IMPEDIMENTS

There were no impediments that prevented the completion of the original defined scope of investigation.

5.0 INVESTIGATION METHOD

5.1 GENERAL

The soil quality at the subject site was investigated at the locations shown on Figure 2 through a borehole investigation. The investigation methods are described in the following sections.

5.2 DRILLING

On March 28, 2018, two boreholes (BH1 and BH2) were put down on the exterior of the building at the site in conjunction with the geotechnical investigation completed for the site. The boreholes were put down using a truck mounted drill rig owned and operated by Marathon Drilling of Greely, Ontario.



On April 23, 2018, two boreholes (BH3 and BH4) were put down within the basement of the building at the site. The boreholes were put down using a hand auger by a member of our engineering staff.

The Borehole Logs are provided herein.

5.3 SUBSURFACE CONDITIONS AND SOIL SAMPLING

The field work was supervised throughout by a member of our engineering staff, who logged the test holes and cared for the samples obtained. The test hole locations are approximately as shown on the attached Site Plan, Figure 2. The test hole logs are provided as Record of Boreholes. The following samples were submitted for laboratory testing:

- BH1 (SS2 - 0.75 to 1.35m and SS4 - 2.28 to 2.88m)
- BH2 (SS2 - 0.75 to 1.35m and 1.52 to 2.13m)
- BH3 and BH4 – SA1 and SA2 from native soils beneath slab in basement

The subsurface soil conditions at the test holes were identified based on visual examination of the samples recovered from the test holes. Groundwater conditions in the test holes, if any, were noted at the time of excavating. Soil samples were collected manually using black nitrile gloves and were placed in laboratory prepared glass jars and immediately placed in coolers. For samples considered for volatile organic compounds (VOC) or BTEX-F1 (benzene, toluene, ethylbenzene, xylenes and petroleum hydrocarbon fraction 1) testing, samples were collected using a core sampler and placed in a laboratory prepared vial containing a methanol preservative. All of the soil samples obtained from the test holes were collected and prepared/preserved in the field using appropriate techniques and submitted to Eurofins in Nepean, Ontario, for testing.

In general, the upper overburden materials encountered at the site are indicated to consist of asphaltic concrete and/or grey crushed stone followed by fill materials (silty clay, silty sand, trace gravel, cobbles and boulders) followed by grey/black silty sand, trace gravel, shale and clay (Glacial Till).



5.4 FIELD SCREENING MEASUREMENTS

No field screening equipment was used for this project.

5.5 GROUNDWATER: MONITORING WELL INSTALLATION

No monitoring wells were installed at the site for this investigation.

5.6 FIELD MEASUREMENT OF WATER QUALITY PARAMETERS

No measurement of field water quality parameters was carried out for this investigation.

5.7 GROUNDWATER SAMPLING

No groundwater sampling was carried out for this investigation

5.8 SEDIMENT SAMPLING

No sediment sampling was carried out for this investigation.

5.9 ANALYTICAL TESTING

The following soil samples, obtained from the site on March 28 and April 11, 2018, were submitted to Eurofins in Nepean, Ontario, for testing as described below:

- BH1 - SS2 - 2'6"-4'6" was tested for PHC F1-F4, BTEX, PAHs and Metals (soil)
- BH1 - SS4 - 7'6"-9'6" was tested for PHC F1-F4, BTEX, PAHs and Metals (soil)
- BH2 - SS2 - 2'6"-4'6" was tested for PHC F1-F4, BTEX, PAHs and Metals (soil)
- BH2 - SS3 - 5'-7' was tested for PHC F1-F4, BTEX, PAHs and Metals (soil)
- SA1 - Basement - was tested for PHC F1-F4, BTEX, PAHs and Metals (soil)
- SA2 - Basement - was tested for PHC F1-F4, BTEX, PAHs and Metals (soil)

The test results are included as Attachment A. The results were compared to the MOE *Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act*.



Table 3, dated April 15, 2011, full depth generic site condition standards for residential/parkland/institutional property use in a non-potable groundwater condition.

5.10 RESIDUE MANAGEMENT PROCEDURES

Soil cuttings from each borehole were re-installed within the borehole after samples for laboratory testing were obtained. The soil cuttings did not show any visual or odour indicators of contamination.

5.11 ELEVATION SURVEYING

No elevation surveying was carried out at the site as part of the Phase II ESA.

5.12 QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

Quality assurance and quality control measures were taken to ensure the integrity of the samples and the analytical testing, as follows:

- Samples were obtained using appropriately labelled and prepared containers supplied by a laboratory
- Soil samples were collected manually using black nitrile gloves and were placed in laboratory prepared glass jars and immediately placed in coolers.
- Soil samples for volatiles analyses were collected using disposable plastic syringe plungers and soil was immediately placed into 40 mL vials containing a known pre weighed mass of methanol preservative and stored on ice, pending laboratory submission
- A chain of custody form was completed for the samples which documented the sample movement from collection and includes the sample conditions upon receipt at the laboratory, including temperature of container, hold times, etc.
- Quality control measures were taken by the laboratory by testing blanks and/or duplicates and/or spikes of one or more samples to verify all results



6.0 REVIEW AND EVALUATION

6.1 GEOLOGY

Based on a review of a geotechnical report prepared for the subject site by Kollaard Associates Inc. entitled, Geotechnical Report, Proposed Mixed Use Development – 257 McArthur Avenue, City of Ottawa, Ontario, project 180140, dated April 13, 2018, the overburden consists of some 5.9 to 6.9 metres of fill followed by glacial till. Practical refusal on a large boulder or bedrock was encountered at about 6.2 metres below the existing ground surface. Saturated soil conditions were measured in a standpipe put down within one of the boreholes at about 4.0 metres below existing ground surface on April 11, 2018.

Based on a review of the surficial geology map for the site area, it is expected that the site is underlain by deposits of silt and clay with minor sand and gravel. Bedrock geology maps indicate that the bedrock underlying the site consist of shale of the Billing Formation. The information indicates about a 4-9 metres thickness of clay above shale bedrock.

6.2 GROUNDWATER: ELEVATIONS AND FLOW DIRECTION

Saturated soil conditions were encountered at about 4.5 metres below existing ground surface at the time of borehole investigation in March 28, 2018. Groundwater levels were measured in BH2 on April 11, 2018. At that time, the groundwater level was approximately 4.0 metres below existing ground surface.

The regional topography slopes downward moving west towards the Rideau River located approximately 950 metres west of the subject site. The ground surface across the site and surrounding area is relatively flat lying with a gradual slope from the north to south.

6.3 GROUNDWATER: HYDRAULIC GRADIENTS

No groundwater sampling was carried out for this investigation. Hydraulic gradients were not established.



6.4 COARSE SOIL TEXTURE

The native soils at the site may be considered coarse grained for the purposes of analytical testing. No grain size distribution analyses were carried out on any samples. The results were compared to the Table 3 standards.

6.5 SOIL: FIELD SCREENING

No field screening was carried out on soil samples obtained from the subject site.

6.6 SOIL QUALITY

The results of the laboratory testing indicate the samples met the applicable standards for Table 3, full depth generic site condition standards for PHCs F1 to F4, BTEX, metals and PAHs for residential/parkland/institutional property use in a non-potable groundwater condition for all of the samples tested.

6.7 GROUNDWATER QUALITY

Groundwater was not tested as part of this investigation as the soil did not show any visual or odour indicators of contamination.

6.8 SEDIMENT QUALITY

Sediment samples were not tested as part of this investigation.

6.9 QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

Laboratory blanks tested for quality control measures were within acceptable limits and analysis was not repeated for samples submitted to Eurofins in April 2018.



6.10 PHASE II CONCEPTUAL SITE MODEL

The Phase I Conceptual Site Model (CSM), provided as Section 4.3, provides a description and assessment of areas where potentially contaminating activities (PCAs) have occurred, and areas of potential environmental concern, as well as any subsurface structures or utilities that may affect contaminant distribution and transport. This Phase II CSM provides updated information based on the information provided in this report.

Potential Contaminating Activities and Areas of Potential Environmental Concern

The Phase I CSM identified the following:

- Possible subsurface contamination impacts from a fire within the building at the site.

The Phase II sampling and analytical program was provided to determine whether the APEC identified at the site has resulted in impacts at the subject site. This included testing of soil at the site for the following contaminants of concern; hydrocarbons (PHC F1-F4, BTEX), PAHs and metals.

Subsurface Structures and Utilities

No subsurface structures or utilities were encountered or are known to exist on the subject site with the exception of the sewer, water and natural gas services.

Physical Setting

- The overburden at the site consists of silty sand with a trace of clay fill materials followed by native glacial till.
- Traces of groundwater were measured in a standpipe installed in BH2 at about 4.0 metres below existing ground surface at the time of borehole investigation in March 2018. Groundwater was measured within the boreholes BH3 and BH4 put down below the basement concrete slab at about 0.5 metres.

Distribution and Extent of Soil Impacts

Based on the results of soil sampling and testing carried out for this Phase II ESA, there is no evidence of subsurface contamination from the fire at the site. No testing of the groundwater was completed as the soil did not show any visual evidence or odour indicators of contamination.



The site is scheduled to be redeveloped into multi-unit mixed use residential and commercial development and any fill materials within the footprint of the building and adjacent parking areas are to be removed. When removed, the fill materials should be disposed of at a facility licensed to accept that type of waste. The underlying native soils meet the applicable MOECC standards outlined in Table 3 with respect to PHCs F1 to F4 and BTEX, PAHs and metals. No further soil testing is warranted at this site.

7.0 CONCLUSIONS

Based on the results of soil sampling and testing carried out for this Phase II ESA, there is no evidence of subsurface contamination from the fire in the building at the site. No further soil testing is warranted at this site.

Disclaimer

This letter was prepared for the exclusive use of Bergeron Construction and is based on data and information collected by Kollaard Associates Inc. This letter may not be relied upon by any other person or entity without the express written consent of Bergeron Construction and Kollaard Associates Inc. Any use of this letter by a third party is the responsibility of the third party. Kollaard Associates Inc. accepts no responsibility for damages, if any, sustained by any third party as a result of decisions made or action based on this letter. Kollaard Associates Inc. has relied in good faith on information provided by others. We accept no responsibility for any deficiencies, or inaccuracies in this letter as a result of omissions, misinterpretations, or fraudulent acts of others.

The material in this letter reflects Kollaard Associates Inc. best judgement in view of the scope of work, and information available at the time of preparation. Due to the nature of the investigation and the limited data available, we cannot warrant against undiscovered environmental liabilities. If new information is discovered during future work, including excavations, borings or other studies, Kollaard Associates Inc. should be requested to re-evaluate the conclusions presented in this report and provide amendments as required.



Bergeron Construction
May 1, 2018

-16-

Phase II Environmental Site Assessment
257 McArthur Avenue, Ottawa, Ontario
180140

We trust that this letter is sufficient for your present requirements. If you have any questions concerning this letter, please do not hesitate to contact our office.

Yours truly,
Kollaard Associates Inc.

Dean Tataryn, B.E.S., EP



Colleen Vermeersch, P. Eng.



8.0 REFERENCES

Topographic Map: NRCan Topographic Maps, Ottawa, Ontario, 31 G/5, Edition 11, published 1998, current as of 1994, scale 1:50,000.

Surficial Geology Map: Geological Survey of Canada, Surficial Geology, Ottawa, Ontario, Map 1506A, published 1982, scale 1:50,000.

Bedrock Geology Map: Geological Survey of Canada, Generalized Bedrock Geology, Ottawa-Hull, Ontario and Quebec, Map 1508A, published 1979, scale 1:125,000.

9.0 QUALIFICATIONS OF ASSESSORS

Colleen Vermeersch, P.Eng.

Colleen Vermeersch is an engineer with Kollaard Associates Inc. in Kemptville, Ontario. Colleen has been conducting Phase I ESAs in accordance with the CSA Standard and Environmental Protection Act for more than four years. Colleen has conducted more than thirty Phase I ESAs for commercial/residential clients over her career and several Phase II ESAs, some of which have involved clean up supervision. Colleen Vermeersch obtained a Bachelor of Engineering (Environmental) from Carleton University in 2007 and achieved professional status in 2012.

Colleen joined Kollaard Associates Inc. in 2007 and has worked on numerous environmental and hydrogeological projects since that time. Colleen is fully trained in carrying out and analyzing pumping tests, and field and lab based testing to determine soil and aquifer properties, such as hydraulic conductivity, transmissivity and groundwater flow directions/gradients, as these apply to contaminant transport and migration, coordinating and conducting environmental site assessments, environmental remediation, and storage tank assessment and removal.

Dean Tataryn, B.E.S., EP – Senior Environmental Professional

Mr. Dean Tataryn is a Senior Environmental Professional (EP) with Kollaard Associates Inc. in Kemptville, Ontario. Mr. Dean Tataryn has been conducting Phase I ESAs in accordance with the CSA Standard and Environmental Protection Act for more than 21 years. Mr. Tataryn has conducted more than 150 Phase I, II and III ESAs for commercial/residential clients over his career. Mr. Tataryn obtained a Bachelor of Environmental Studies (Honours Urban and Regional Planning) and a Certificate in Environmental Assessment from the University of Waterloo in 1995. Mr. Tataryn obtained his Environmental Professional (EP) designation in June of 2010.

EP certification is available exclusively to experienced professionals who have five or more years of relevant environmental work experience. Recipients of the EP designation have demonstrated that their skills and knowledge meet or exceed the National Occupational Standards (NOS) to ensure that they possess the specific environmental competencies required in their fields of practice. The NOS are a comprehensive list of skill statements that describe the competencies required for environmental work in Canada. The NOS provides a rigorous, nationally validated benchmark of the skills, knowledge and experience relevant for practice within the environment sector in the areas of



environmental protection, resource management, environmental sustainability, environmental management, environmental auditing and/or greenhouse gas reporting.

Mr. Tataryn joined Kollaard Associates Inc. in 2005 and has worked on numerous environmental, geotechnical and hydrogeological assessment projects over his career. Mr. Tataryn is fully trained in coordinating and conducting environmental site assessments, environmental remediation, reclamation and restoration, contamination and spill inspections, and storage tank assessment and removal.

Kollaard Associates is an engineering consulting firm that provides a complete range of engineering services for developers, builders and homeowners in Eastern Ontario. Kollaard Associates specializes in providing civil, structural, geotechnical, hydrogeological and environmental services to our clients. Kollaard Associates Inc. has been established as a team of engineers and consultants since 2005. Mr. William Kollaard, P.Eng., owner and president, is responsible for the overall company development and management of the firm.

Project No: 180140

Record of Borehole: BH1



Project: Phase II ESA

Client: Bergeron Construction

Contractor: Marathon Drilling

Location: 257 McArthur Avenue, Ottawa, ON

Engineer: Colleen Vermeersch

SUBSURFACE PROFILE			SAMPLE				VOC Concentration ■ 100 200 300 400 ppm ● 20 40 60 80 %LEL	Piezometer or Standpipe Installation
Depth (Metres)	Strata Plot	Description	Elevation	Number	Type	Recovery		
0		Ground Surface						
		Grey crushed stone (FILL)	0.00					
1		Grey brown silty clay, trace sand and brick (FILL)						
		Yellow brown silty sand, trace clay (FILL)						
2		Grey/black silty sand, trace gravel, cobbles, boulders and clay (GLACIAL TILL)	1.80					
3								
4								
5								
6								
6		End of Borehole, refusal on larger boulders or bedrock	6.17					Borehole dry, March 28, 2018.
7								
8								
9								
10								
11								

Drill Method: CME-75

Datum: N/A

Drill Date: March 28, 2018

210 Prescott Street
Kemptville, Ontario
K0G 1J0

Checked by: DT

Hole Size: 200 mm

Sheet: 1 of 1

Project No: 180140

Record of Borehole: BH2

Project: Phase II ESA

Client: Bergeron Construction

Contractor: Marathon Drilling

Location: 257 McArthur Avenue, Ottawa, ON

Engineer: Colleen Vermeersch

SUBSURFACE PROFILE			SAMPLE				VOC Concentration ■ 100 200 300 400 ppm ● 20 40 60 80 %LEL	Piezometer or Standpipe Installation
Depth (Metres)	Strata Plot	Description	Elevation	Number	Type	Recovery		
0		Ground Surface ASPHALTIC CONCRETE	0.00					
		Grey crushed stone (FILL)						
1		Yellow brown to grey brown silty clay (FILL)	0.85					
2		Grey silty sand, trace clay and gravel (GLACIAL TILL), becoming weathered bedrock with depth	1.82					
3								
4								
5								
6		End of Borehole, practical refusal on large boulder or bedrock	5.94					
7								Water observed in borehole at approximately 4.5 metres below the existing ground surface on March 28, 2018. Water level measured in standpipe at about 4.0 metres below existing ground surface, April 11, 2018.
8								
9								
10								
11								

Drill Method: CME-75

Datum: N/A

Drill Date: March 28, 2018

210 Prescott Street
Kemptville, Ontario
K0G 1J0

Checked by: DT

Hole Size: 200 mm

Sheet: 1 of 1

Project No: 180140

Record of Borehole: BH3




Project: PHASE II ESA

Client: Bergeron Construction

Contractor:

Location: See Figure 2

Engineer: Colleen Vermeersch

SUBSURFACE PROFILE			SAMPLE				VOC Concentration ■ ppm ■ 100 300 ● %LEL ● 20 40 60 80	Well or Standpipe Installation
Depth (Metres)	Strata Plot	Description	Elevation	Number	Type	Lab Analysis		
0		Ground Surface						
		Concrete Floor	0.00			PHC's F1 to F4 + BTEX, PAHs, Reg 153/04 Metals only		
		Grey clear stone (FILL)						
		Grey/black silty sand, trace gravel, shale and clay (GLACIAL TILL)	0.25					
		End of Borehole	0.50					
1								
2								
3								

Drill Method: Portable

Datum: local

Drill Date: April 23, 2018

210 Prescott Street, Unit 1
Kemptville, Ontario
K0G 1J0

Checked by: DT

Sheet: 1 of 1



Trace of water observed in borehole at about 0.4 metres below existing floor slab, April 11, 2018.

Project No: 180140

Record of Borehole: BH4






Project: PHASE II ESA

Client: Bergeron Construction

Contractor:

Location: See Figure 2

Engineer: Colleen Vermeersch

SUBSURFACE PROFILE			SAMPLE				VOC Concentration ■ ppm ■ 100 300 ● %LEL ● 20 40 60 80	Well or Standpipe Installation
Depth (Metres)	Strata Plot	Description	Elevation	Number	Type	Lab Analysis		
0		Ground Surface						
		Concrete Floor	0.00					
		Grey clear stone (FILL)				PHC's F1 to F4 + BTEX, PAHs, Reg 153/04 Metals only		
		Grey/black silty sand, trace gravel, shale and clay (GLACIAL TILL)	0.23					
		End of Borehole	0.50					 Trace of water observed in borehole at about 0.5 metres below existing floor slab, April 11, 2018.
1								
2								
3								

Drill Method: Portable

Datum: local

Drill Date: April 23, 2018

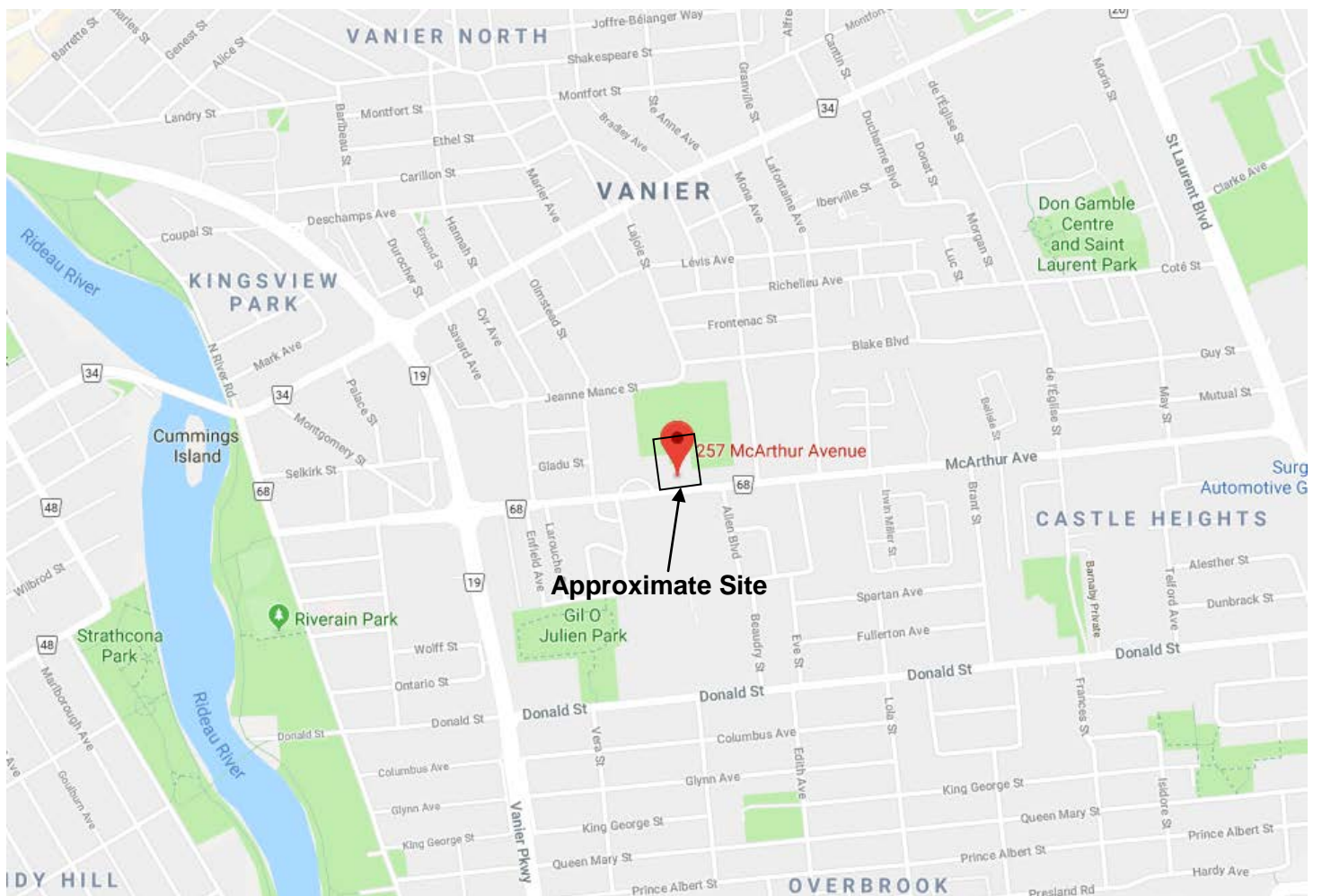
210 Prescott Street, Unit 1
Kemptville, Ontario
K0G 1J0

Checked by: DT

Sheet: 1 of 1

KEY PLAN

FIGURE 1



NOT TO SCALE



Kollaard Associates
Engineers

Project No. **180140**

Date **March 2018**



DRAWING NUMBER:
FIGURE 2

LEGEND:

SUBJECT SITE

AREA OF POTENTIAL ENVIRONMENTAL CONCERN (APEC)

APPROXIMATE BOREHOLE LOCATION
BH1

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING REPORT.

REFERENCE: PLAN SUPPLIED BY OTTAWA EMAPS

REV.	NAME	DATE	DESCRIPTION

Kollaard Associates
Engineers

PO, BOX 189, 210 PRESCOTT ST (613) 860-0923
KEMPTVILLE ONTARIO info@kollaard.ca
K0G 1J0 FAX (613) 258-0475
<http://www.kollaard.ca>

CLIENT:
BERGERON CONSTRUCTION

PROJECT:
PHASE II ENVIRONMENTAL
SITE ASSESSMENT
CONCEPTUAL SITE MODEL

LOCATION:
257 MCARTHUR AVENUE
CITY OF OTTAWA, ONTARIO

DESIGNED BY: --	DATE: MAY 2018
DRAWN BY: DT	SCALE: AS SHOWN

KOLLAARD FILE NUMBER:
180140



ATTACHMENT A
LABORATORY TESTING RESULTS

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Mr. Dean Tataryn
Invoice to: Kollaard Associates Inc.
PO#: 180140

Report Number: 1804529
Date Submitted: 2018-03-29
Date Reported: 2018-04-06
Project: 180140
COC #: 194024
Temperature (C): 7
Custody Seal:

Page 1 of 11

Dear Dean Tataryn:

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

Sample Comment Summary

Sample ID: 1351355 BH1-SS2-2'6"-4'6" Metals spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte. Metals duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the MRL.
--

Report Comments:

Addrine Thomas, Inorganics Supervisor

Long Qu, Organics Supervisor

Eurofins Ottawa is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on our CALA scope of accreditation. It can be found at <http://www.cala.ca/scopes/2602.pdf>.

Eurofins (Ottawa) is certified and accredited for specific parameters by OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils). Licensed by Ontario MOE for specific tests in drinking water.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required.

Environment Testing

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Mr. Dean Tataryn
PO#: 180140
Invoice to: Kollaard Associates Inc.

Report Number: 1804529
Date Submitted: 2018-03-29
Date Reported: 2018-04-06
Project: 180140
COC #: 194024

Exceedence Summary

Sample I.D.	Group	Analyte	Result	Units	Criteria

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Mr. Dean Tataryn
PO#: 180140
Invoice to: Kollaard Associates Inc.

Report Number: 1804529
Date Submitted: 2018-03-29
Date Reported: 2018-04-06
Project: 180140
COC #: 194024

Guideline = O.Reg 153-T3-Res/Park-Coarse

VOCs

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 .: 2018-03-28 BH1-SS2-2 "6"-4'6"	1351356 Soil153 .: 2018-03-28 BH1-SS4-7 "6"-9'6"	1351357 Soil153 .: 2018-03-28 BH2-SS2-2 "6"-4'6"	1351358 Soil153 .: 2018-03-28 BH2-SS3-5 "-7"
---	---	---	---

Analyte	Batch No	MRL	Units	Guideline				
Benzene	342887	0.02	ug/g	STD 0.21	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	342887	0.05	ug/g	STD 2	<0.05	<0.05	<0.05	<0.05
Toluene	342887	0.20	ug/g	STD 2.3	<0.20	<0.20	<0.20	<0.20
Xylene Mixture	342888	0.05	ug/g	STD 3.1	<0.05	<0.05	<0.05	<0.05
Xylene, m/p-	342887	0.05	ug/g		<0.05	<0.05	<0.05	<0.05
Xylene, o-	342887	0.05	ug/g		<0.05	<0.05	<0.05	<0.05

Inorganics

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 .: 2018-03-28 BH1-SS2-2 "6"-4'6"	1351356 Soil153 .: 2018-03-28 BH1-SS4-7 "6"-9'6"	1351357 Soil153 .: 2018-03-28 BH2-SS2-2 "6"-4'6"	1351358 Soil153 .: 2018-03-28 BH2-SS3-5 "-7"
---	---	---	---

Analyte	Batch No	MRL	Units	Guideline				
Antimony	342881	1	ug/g	STD 7.5	<1	<1	<1	<1
Arsenic	342881	1	ug/g	STD 18	2	5	4	6
Barium	342881	1	ug/g	STD 390	58	191	87	134
Beryllium	342881	1	ug/g	STD 4	<1	<1	<1	<1
Boron (total)	342881	5	ug/g	STD 120	<5	5	<5	5
Cadmium	342881	0.5	ug/g	STD 1.2	<0.5	<0.5	<0.5	<0.5
Chromium Total	342881	1	ug/g	STD 160	24	18	40	52
Cobalt	342881	1	ug/g	STD 22	7	10	9	12
Copper	342881	1	ug/g	STD 140	14	23	14	26
Lead	342881	1	ug/g	STD 120	4	10	13	16
Molybdenum	342881	1	ug/g	STD 6.9	<1	5	<1	2
Nickel	342881	1	ug/g	STD 100	16	33	21	38
Selenium	342881	1	ug/g	STD 2.4	<1	<1	<1	<1

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

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

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Project: 180140
COC #: 194024

Guideline = O.Reg 153-T3-Res/Park-Coarse

Inorganics

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 : 2018-03-28 BH1-SS2-2 '6"-4'6"	1351356 Soil153 : 2018-03-28 BH1-SS4-7 '6"-9'6"	1351357 Soil153 : 2018-03-28 BH2-SS2-2 '6"-4'6"	1351358 Soil153 : 2018-03-28 BH2-SS3-5 "-7'
--	--	--	--

Analyte	Batch No	MRL	Units	Guideline
---------	----------	-----	-------	-----------

Silver	342881	0.2	ug/g	STD 20	<0.2	<0.2	<0.2	<0.2
Thallium	342881	1	ug/g	STD 1	<1	<1	<1	<1
Uranium	342881	0.5	ug/g	STD 23	0.9	1.8	0.8	0.8
Vanadium	342881	2	ug/g	STD 86	30	26	41	52
Zinc	342881	2	ug/g	STD 340	31	43	47	50

Moisture

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 : 2018-03-28 BH1-SS2-2 '6"-4'6"	1351356 Soil153 : 2018-03-28 BH1-SS4-7 '6"-9'6"
--	--

Analyte	Batch No	MRL	Units	Guideline
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Moisture-Humidite	342997	0.1	%		15.1	7.0
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Date Submitted: 2018-03-29
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Project: 180140
COC #: 194024

Guideline = O.Reg 153-T3-Res/Park-Coarse

Petroleum Hydrocarbons

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 .: 2018-03-28 BH1-SS2-2 '6"-4'6"	1351356 Soil153 .: 2018-03-28 BH1-SS4-7 '6"-9'6"	1351357 Soil153 .: 2018-03-28 BH2-SS2-2 '6"-4'6"	1351358 Soil153 .: 2018-03-28 BH2-SS3-5 "-7"
---	---	---	---

Analyte	Batch No	MRL	Units	Guideline
---------	----------	-----	-------	-----------

Moisture-Humidite	208523	0.1	%				19.2	20.1
Petroleum Hydrocarbons F1	290004	10	ug/g	STD 55	<10	<10	<10	<10
Petroleum Hydrocarbons F1	290004	10	ug/g		<10	<10	<10	<10
Petroleum Hydrocarbons F2	342997	10	ug/g	STD 98	<10	<10	<10	<10
Petroleum Hydrocarbons F3	342997	20	ug/g	STD 300	<20	<20	<20	<20
Petroleum Hydrocarbons F4	342997	20	ug/g	STD 2800	<20		<20	<20
	343112	20	ug/g	STD 2800		<20		

Semi-Volatiles

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 .: 2018-03-28 BH1-SS2-2 '6"-4'6"	1351356 Soil153 .: 2018-03-28 BH1-SS4-7 '6"-9'6"	1351357 Soil153 .: 2018-03-28 BH2-SS2-2 '6"-4'6"	1351358 Soil153 .: 2018-03-28 BH2-SS3-5 "-7"
---	---	---	---

Analyte	Batch No	MRL	Units	Guideline
---------	----------	-----	-------	-----------

Acenaphthene	343130	0.05	ug/g	STD 7.9	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	343130	0.05	ug/g	STD 0.15	<0.05	<0.05	<0.05	<0.05
Anthracene	343130	0.05	ug/g	STD 0.67	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	343130	0.05	ug/g	STD 0.5	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	343130	0.05	ug/g	STD 0.3	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	343130	0.05	ug/g	STD 0.78	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	343130	0.05	ug/g	STD 6.6	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	343130	0.05	ug/g	STD 0.78	<0.05	<0.05	<0.05	<0.05
Chrysene	343130	0.05	ug/g	STD 7	<0.05	<0.05	<0.05	<0.05
Dibenz[a h]anthracene	343130	0.05	ug/g	STD 0.1	<0.05	<0.05	<0.05	<0.05
Fluoranthene	343130	0.05	ug/g	STD 0.69	<0.05	<0.05	<0.05	<0.05
Fluorene	343130	0.05	ug/g	STD 62	<0.05	<0.05	<0.05	<0.05

Results relate only to the parameters tested on the samples submitted.
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Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Mr. Dean Tataryn
PO#: 180140
Invoice to: Kollaard Associates Inc.

Report Number: 1804529
Date Submitted: 2018-03-29
Date Reported: 2018-04-06
Project: 180140
COC #: 194024

Guideline = O.Reg 153-T3-Res/Park-Coarse

Semi-Volatiles

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 _____ 2018-03-28 BH1-SS2-2 '6"-4'6"	1351356 Soil153 _____ 2018-03-28 BH1-SS4-7 '6"-9'6"	1351357 Soil153 _____ 2018-03-28 BH2-SS2-2 '6"-4'6"	1351358 Soil153 _____ 2018-03-28 BH2-SS3-5 "-7'
--	--	--	--

Analyte	Batch No	MRL	Units	Guideline
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Indeno[1 2 3-cd]pyrene	343130	0.05	ug/g	STD 0.38	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 1-	343130	0.05	ug/g	STD 0.99	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-	343130	0.05	ug/g	STD 0.99	<0.05	<0.05	<0.05	<0.05
Naphthalene	343130	0.05	ug/g	STD 0.6	<0.05	<0.05	<0.05	<0.05
Phenanthrene	343130	0.05	ug/g	STD 6.2	<0.05	<0.05	<0.05	<0.05
Pyrene	343130	0.05	ug/g	STD 78	<0.05	<0.05	<0.05	<0.05

PHC Surrogates Rec

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355 Soil153 _____ 2018-03-28 BH1-SS2-2 '6"-4'6"	1351356 Soil153 _____ 2018-03-28 BH1-SS4-7 '6"-9'6"	1351357 Soil153 _____ 2018-03-28 BH2-SS2-2 '6"-4'6"	1351358 Soil153 _____ 2018-03-28 BH2-SS3-5 "-7'
--	--	--	--

Analyte	Batch No	MRL	Units	Guideline
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Alpha-androstrane	342997	0	%		80	104	96	80
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COC #: 194024

Guideline = O.Reg 153-T3-Res/Park-Coarse

VOC Surrogates

Lab I.D.
Sample Matrix
Sample Time
Sampling Date
Sample I.D.

1351355	1351356	1351357	1351358
Soil153	Soil153	Soil153	Soil153
_____	_____	_____	_____
2018-03-28	2018-03-28	2018-03-28	2018-03-28
BH1-SS2-2	BH1-SS4-7	BH2-SS2-2	BH2-SS3-5
'6"-4'6"	'6"-9'6"	'6"-4'6"	"-7'

Analyte	Batch No	MRL	Units	Guideline
---------	----------	-----	-------	-----------

Toluene-d8	342887	0	%		101	99	99	100
------------	--------	---	---	--	-----	----	----	-----

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

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Date Reported: 2018-04-06
Project: 180140
COC #: 194024

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
208523	Moisture-Humidite							
290004	Petroleum Hydrocarbons F1	<10 ug/g	96	80-120	95	60-140	0	0-30
290004	Petroleum Hydrocarbons F1-BTEX							
342881	Silver	<0.2 ug/g	106	70-130	125	70-130	14	0-20
342881	Arsenic	<1 ug/g	103	70-130	114	70-130	4	0-20
342881	Boron (total)	<5 ug/g	104	70-130	125	70-130	2	0-20
342881	Barium	<1 ug/g	111	70-130	97	70-130	4	0-20
342881	Beryllium	<1 ug/g	107	70-130	118	70-130	4	0-20
342881	Cadmium	<0.5 ug/g	114	70-130	125	70-130	4	0-20
342881	Cobalt	<1 ug/g	117	70-130	128	70-130	4	0-20
342881	Chromium Total	<1 ug/g	108	70-130	161	70-130	2	0-20
342881	Copper	<1 ug/g	105	70-130	109	70-130	5	0-20
342881	Molybdenum	<1 ug/g	112	70-130	120	70-130	5	0-20
342881	Nickel	<1 ug/g	107	70-130	118	70-130	4	0-20
342881	Lead	<1 ug/g	109	70-130	116	70-130	3	0-20
342881	Antimony	<1 ug/g	83	70-130	114	70-130	52	0-20
342881	Selenium	<1 ug/g	107	70-130	117	70-130	21	0-20
342881	Thallium	<1 ug/g	111	70-130	115	70-130	1	0-20
342881	Uranium	<0.5 ug/g	105	70-130	111	70-130	8	0-20
342881	Vanadium	<2 ug/g	109	70-130	130	70-130	5	0-20
342881	Zinc	<2 ug/g	108	70-130	101	70-130	6	0-20
342887	Benzene	<0.02 ug/g	105	60-130	113	50-140	0	0-50
342887	Ethylbenzene	<0.05 ug/g	99	60-130	104	50-140	0	0-50
342887	m/p-xylene	<0.05 ug/g	96	60-130	91	50-140	0	0-50
342887	o-xylene	<0.05 ug/g	95	60-130	91	50-140	0	0-50
342887	Toluene	<0.20 ug/g	108	60-130	112	50-140	0	0-50
342888	Xylene Mixture							
342997	Petroleum Hydrocarbons F2	<10 ug/g	104	80-120	60	60-140	0	0-30
342997	Petroleum Hydrocarbons F3	<20 ug/g	104	80-120	60	60-140	30	0-30
342997	Petroleum Hydrocarbons F4	<20 ug/g	104	80-120	60	60-140	0	0-30
342997	Moisture-Humidite	<0.1 %	100	80-120			1	
343112	Petroleum Hydrocarbons F4	<20 ug/g	100	80-120	74	60-140	0	0-30
343130	Methylnaphthalene, 1-			50-140		50-140		0-40

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Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Mr. Dean Tataryn
PO#: 180140
Invoice to: Kollaard Associates Inc.

Report Number: 1804529
Date Submitted: 2018-03-29
Date Reported: 2018-04-06
Project: 180140
COC #: 194024

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
343130	Methlynaphthalene, 2-			50-140		50-140		0-40
343130	Acenaphthene	<0.05 ug/g	58	50-140		50-140		0-40
343130	Acenaphthylene	<0.05 ug/g	51	50-140		50-140		0-40
343130	Anthracene	<0.05 ug/g	61	50-140		50-140		0-40
343130	Benz[a]anthracene	<0.05 ug/g	54	50-140		50-140		0-40
343130	Benzo[a]pyrene	<0.05 ug/g	67	50-140		50-140		0-40
343130	Benzo[b]fluoranthene	<0.05 ug/g	70	50-140		50-140		0-40
343130	Benzo[ghi]perylene	<0.05 ug/g	62	50-140		50-140		0-40
343130	Benzo[k]fluoranthene	<0.05 ug/g	70	50-140		50-140		0-40
343130	Chrysene	<0.05 ug/g	69	50-140		50-140		0-40
343130	Dibenz[a h]anthracene	<0.05 ug/g	60	50-140		50-140		0-40
343130	Fluoranthene	<0.05 ug/g	63	50-140		50-140		0-40
343130	Fluorene	<0.05 ug/g	59	50-140		50-140		0-40
343130	Indeno[1 2 3-cd]pyrene	<0.05 ug/g	62	50-140		50-140		0-40
343130	Naphthalene	<0.05 ug/g	57	50-140		50-140		0-40
343130	Phenanthrene	<0.05 ug/g	61	50-140		50-140		0-40
343130	Pyrene	<0.05 ug/g	64	50-140		50-140		0-40

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Date Submitted: 2018-03-29
Date Reported: 2018-04-06
Project: 180140
COC #: 194024

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
208523	Moisture-Humidite	GC/FID	2018-04-04	2018-04-04	C_M	CCME
290004	Petroleum Hydrocarbons F1	GC/FID	2018-04-03	2018-04-03	TJB	CCME
290004	Petroleum Hydrocarbons F1-BTEX	GC/FID	2018-04-03	2018-04-03	TJB	CCME
342881	Silver		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Arsenic		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Boron (total)		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Barium		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Beryllium		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Cadmium		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Cobalt		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Chromium Total		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Copper		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Molybdenum		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Nickel		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Lead		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Antimony		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Selenium		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Thallium		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Uranium		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Vanadium		2018-04-02	2018-04-02	SKH	EPA 200.8
342881	Zinc		2018-04-02	2018-04-02	SKH	EPA 200.8
342887	Benzene	GC/MS	2018-04-02	2018-04-02	TJB	V 8260B
342887	Ethylbenzene	GC/MS	2018-04-02	2018-04-02	TJB	V 8260B
342887	m/p-xylene	GC/MS	2018-04-02	2018-04-02	TJB	V 8260B
342887	o-xylene	GC/MS	2018-04-02	2018-04-02	TJB	V 8260B
342887	Toluene	GC/MS	2018-04-02	2018-04-02	TJB	V 8260B
342888	Xylene Mixture	GC/MS	2018-04-03	2018-04-03	TJB	V 8260B
342997	Petroleum Hydrocarbons F2	GC/FID	2018-04-02	2018-04-04	C_M	CCME
342997	Petroleum Hydrocarbons F3	GC/FID	2018-04-02	2018-04-04	C_M	CCME
342997	Petroleum Hydrocarbons F4	GC/FID	2018-04-02	2018-04-04	C_M	CCME
342997	Moisture-Humidite	Oven	2018-04-02	2018-04-04	C_M	C SM2540B
343112	Petroleum Hydrocarbons F4	GC/FID	2018-04-05	2018-04-06	C_M	CCME
343130	Methylnaphthalene, 1-		2018-03-30	2018-04-04	C_M	P 8270

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Report Number: 1804529
Date Submitted: 2018-03-29
Date Reported: 2018-04-06
Project: 180140
COC #: 194024

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
343130	Methylnaphthalene, 2-		2018-03-30	2018-04-04	C_M	P 8270
343130	Acenaphthene		2018-03-30	2018-04-04	C_M	P 8270
343130	Acenaphthylene		2018-03-30	2018-04-04	C_M	P 8270
343130	Anthracene		2018-03-30	2018-04-04	C_M	P 8270
343130	Benz[a]anthracene		2018-03-30	2018-04-04	C_M	P 8270
343130	Benzo[a]pyrene		2018-03-30	2018-04-04	C_M	P 8270
343130	Benzo[b]fluoranthene		2018-03-30	2018-04-04	C_M	P 8270
343130	Benzo[ghi]perylene		2018-03-30	2018-04-04	C_M	P 8270
343130	Benzo[k]fluoranthene		2018-03-30	2018-04-04	C_M	P 8270
343130	Chrysene		2018-03-30	2018-04-04	C_M	P 8270
343130	Dibenz[a h]anthracene		2018-03-30	2018-04-04	C_M	P 8270
343130	Fluoranthene		2018-03-30	2018-04-04	C_M	P 8270
343130	Fluorene		2018-03-30	2018-04-04	C_M	P 8270
343130	Indeno[1 2 3-cd]pyrene		2018-03-30	2018-04-04	C_M	P 8270
343130	Naphthalene		2018-03-30	2018-04-04	C_M	P 8270
343130	Phenanthrene		2018-03-30	2018-04-04	C_M	P 8270
343130	Pyrene		2018-03-30	2018-04-04	C_M	P 8270

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210 Prescott St., Box 189
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K0G 1J0
Attention: Mr. Dean Tataryn
Invoice to: Kollaard Associates Inc.
PO#: 180140

Report Number: 1805301
Date Submitted: 2018-04-11
Date Reported: 2018-04-18
Project: 180140
COC #: 195654
Temperature (C): 9
Custody Seal:

Page 1 of 11

Dear Dean Tataryn:

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

Report Comments:

Addrine Thomas, Inorganics Supervisor

Long Qu, Organics Supervisor

Eurofins Ottawa is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on our CALA scope of accreditation. It can be found at <http://www.cala.ca/scopes/2602.pdf>.

Eurofins (Ottawa) is certified and accredited for specific parameters by OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils). Licensed by Ontario MOE for specific tests in drinking water.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required.

Environment Testing

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Mr. Dean Tataryn
PO#: 180140
Invoice to: Kollaard Associates Inc.

Report Number: 1805301
Date Submitted: 2018-04-11
Date Reported: 2018-04-18
Project: 180140
COC #: 195654

Exceedence Summary

Sample I.D.	Group	Analyte	Result	Units	Criteria

Client: Kollaard Associates Inc.
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Report Number: 1805301
Date Submitted: 2018-04-11
Date Reported: 2018-04-18
Project: 180140
COC #: 195654

Guideline = O.Reg 153-T3-Res/Park-Coarse

VOCs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	1353240	1353241
					Sample Matrix	Soil153	Soil153
					Sample Type		
					Sample Date	2018-04-11	2018-04-11
					Sampling Time		
					Sample I.D.	SA1-Base	SA2-Base
					ment	ment	
Benzene	343637	0.02	ug/g	STD 0.21		<0.02	<0.02
Ethylbenzene	343637	0.05	ug/g	STD 2		<0.05	<0.05
Toluene	343637	0.20	ug/g	STD 2.3		<0.20	<0.20
Xylene Mixture	343638	0.05	ug/g	STD 3.1		<0.05	<0.05
Xylene, m/p-	343637	0.05	ug/g			<0.05	<0.05
Xylene, o-	343637	0.05	ug/g			<0.05	<0.05

Misc/Others

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	1353240	1353241
					Sample Matrix	Soil153	Soil153
					Sample Type		
					Sample Date	2018-04-11	2018-04-11
					Sampling Time		
					Sample I.D.	SA1-Base	SA2-Base
					ment	ment	
Antimony	343569	1	ug/g	STD 7.5		<1	<1
Arsenic	343569	1	ug/g	STD 18		6	5
Barium	343569	1	ug/g	STD 390		107	85
Beryllium	343569	1	ug/g	STD 4		<1	<1
Boron (total)	343569	5	ug/g	STD 120		6	6
Cadmium	343569	0.5	ug/g	STD 1.2		<0.5	<0.5
Chromium Total	343569	1	ug/g	STD 160		18	22
Cobalt	343569	1	ug/g	STD 22		14	9
Copper	343569	1	ug/g	STD 140		32	24
Lead	343569	1	ug/g	STD 120		12	10
Molybdenum	343569	1	ug/g	STD 6.9		4	4
Nickel	343569	1	ug/g	STD 100		44	37
Selenium	343569	1	ug/g	STD 2.4		<1	1

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Report Number: 1805301
Date Submitted: 2018-04-11
Date Reported: 2018-04-18
Project: 180140
COC #: 195654

Guideline = O.Reg 153-T3-Res/Park-Coarse

Misc/Others

Guideline = O.Reg 153-T3-Res/Park-Coarse					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1353240	1353241
<u>Misc/Others</u>						Soil153	Soil153
						2018-04-11	2018-04-11
						SA1-Base ment	SA2-Base ment
						Analyte	Batch No
Silver	343569	0.2	ug/g	STD 20	<0.2	<0.2	
Thallium	343569	1	ug/g	STD 1	<1	<1	
Uranium	343569	0.5	ug/g	STD 23	1.2	1.2	
Vanadium	343569	2	ug/g	STD 86	28	25	
Zinc	343569	2	ug/g	STD 340	66	42	

Petroleum Hydrocarbons

<u>Petroleum Hydrocarbons</u>					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1353240 Soil153 2018-04-11 SA1-Base ment	1353241 Soil153 2018-04-11 SA2-Base ment
Analyte	Batch No	MRL	Units	Guideline			
Moisture-Humidite	208523	0.1	ug/g		13.7	11.0	
PHC's F1	290004	10	ug/g	STD 55	<10	<10	
PHC's F1-BTEX	343639	10	ug/g		<10	<10	
PHC's F2	343791	10	ug/g	STD 98	<10	<10	
PHC's F3	343791	20	ug/g	STD 300	<20	<20	
PHC's F4	343791	20	ug/g	STD 2800	<20	<20	

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COC #: 195654

Guideline = O.Reg 153-T3-Res/Park-Coarse

Semi-Volatiles

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1353240
Soil153

1353241
Soil153

2018-04-11

2018-04-11

SA1-Base
ment

SA2-Base
ment

Analyte

Batch No

MRL

Units

Guideline

Acenaphthene

343779

0.05

ug/g

STD 7.9

<0.05

<0.05

Acenaphthylene

343779

0.05

ug/g

STD 0.15

<0.05

<0.05

Anthracene

343779

0.05

ug/g

STD 0.67

<0.05

<0.05

Benz[a]anthracene

343779

0.05

ug/g

STD 0.5

<0.05

<0.05

Benzo[a]pyrene

343779

0.05

ug/g

STD 0.3

<0.05

<0.05

Benzo[b]fluoranthene

343779

0.05

ug/g

STD 0.78

<0.05

<0.05

Benzo[ghi]perylene

343779

0.05

ug/g

STD 6.6

<0.05

<0.05

Benzo[k]fluoranthene

343779

0.05

ug/g

STD 0.78

<0.05

<0.05

Chrysene

343779

0.05

ug/g

STD 7

<0.05

<0.05

Dibenz[a h]anthracene

343779

0.05

ug/g

STD 0.1

<0.05

<0.05

Fluoranthene

343779

0.05

ug/g

STD 0.69

<0.05

<0.05

Fluorene

343779

0.05

ug/g

STD 62

<0.05

<0.05

Indeno[1 2 3-cd]pyrene

343779

0.05

ug/g

STD 0.38

<0.05

<0.05

Methlynaphthalene, 1-

343779

0.05

ug/g

STD 0.99

<0.05

<0.05

Methlynaphthalene, 2-

343779

0.05

ug/g

STD 0.99

<0.05

<0.05

Naphthalene

343779

0.05

ug/g

STD 0.6

<0.05

<0.05

Phenanthrene

343779

0.05

ug/g

STD 6.2

<0.05

<0.05

Pyrene

343779

0.05

ug/g

STD 78

<0.05

<0.05

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Report Number: 1805301
Date Submitted: 2018-04-11
Date Reported: 2018-04-18
Project: 180140
COC #: 195654

Guideline = O.Reg 153-T3-Res/Park-Coarse

PHC Surrogates Rec

Guideline = O.Reg 153-T3-Res/Park-Coarse					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1353240 Soil153 2018-04-11 SA1-Base ment	1353241 Soil153 2018-04-11 SA2-Base ment
<u>PHC Surrogates Rec</u>							
Analyte	Batch No	MRL	Units	Guideline			
Alpha-androstrane	343791	0	%				

VOC Surrogates

<u>VOC Surrogates</u>					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1353240 Soil153 2018-04-11 SA1-Base ment	1353241 Soil153 2018-04-11 SA2-Base ment
Analyte	Batch No	MRL	Units	Guideline			
Toluene-d8	343637	0	%			101	102

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Project: 180140
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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
208523	Moisture-Humidite							
290004	PHC's F1	<10 ug/g	100	80-120	99	60-140	0	0-30
343569	Silver	<0.2 ug/g	100	70-130	102	70-130	1	0-20
343569	Arsenic	<1 ug/g	99	70-130	99	70-130	4	0-20
343569	Boron (total)	<5 ug/g	100	70-130	144	70-130	2	0-20
343569	Barium	<1 ug/g	105	70-130	170	70-130	5	0-20
343569	Beryllium	<1 ug/g	103	70-130	95	70-130	4	0-20
343569	Cadmium	<0.5 ug/g	103	70-130	103	70-130	2	0-20
343569	Cobalt	<1 ug/g	98	70-130	96	70-130	0	0-20
343569	Chromium Total	<1 ug/g	103	70-130	481	70-130	25	0-20
343569	Copper	<1 ug/g	103	70-130	102	70-130	3	0-20
343569	Molybdenum	<1 ug/g	98	70-130	100	70-130	1	0-20
343569	Nickel	<1 ug/g	102	70-130	90	70-130	16	0-20
343569	Lead	<1 ug/g	105	70-130	99	70-130	4	0-20
343569	Antimony	<1 ug/g	83	70-130	95	70-130	17	0-20
343569	Selenium	<1 ug/g	106	70-130	103	70-130	12	0-20
343569	Thallium	<1 ug/g	107	70-130	98	70-130	10	0-20
343569	Uranium	<0.5 ug/g	106	70-130	103	70-130	8	0-20
343569	Vanadium	<2 ug/g	101	70-130	121	70-130	0	0-20
343569	Zinc	<2 ug/g	110	70-130	184	70-130	4	0-20
343637	Benzene	<0.02 ug/g	105	60-130	113	50-140	0	0-50
343637	Ethylbenzene	<0.05 ug/g	99	60-130	104	50-140	0	0-50
343637	Xylene, m/p-	<0.05 ug/g	96	60-130	91	50-140	0	0-50
343637	Xylene, o-	<0.05 ug/g	95	60-130	91	50-140	0	0-50
343637	Toluene	<0.20 ug/g	108	60-130	112	50-140	0	0-50
343638	Xylene Mixture							
343639	PHC's F1-BTEX							
343779	Methylnaphthalene, 1-	<0.05 ug/g	75	50-140		50-140		0-40
343779	Methylnaphthalene, 2-	<0.05 ug/g	75	50-140		50-140		0-40
343779	Acenaphthene	<0.05 ug/g	76	50-140		50-140		0-40
343779	Acenaphthylene	<0.05 ug/g	80	50-140		50-140		0-40
343779	Anthracene	<0.05 ug/g	80	50-140		50-140		0-40
343779	Benz[a]anthracene	<0.05 ug/g	74	50-140		50-140		0-40

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210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Mr. Dean Tataryn
PO#: 180140
Invoice to: Kollaard Associates Inc.

Report Number: 1805301
Date Submitted: 2018-04-11
Date Reported: 2018-04-18
Project: 180140
COC #: 195654

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
343779	Benzo[a]pyrene	<0.05 ug/g	70	50-140		50-140		0-40
343779	Benzo[b]fluoranthene	<0.05 ug/g	67	50-140		50-140		0-40
343779	Benzo[ghi]perylene	<0.05 ug/g	75	50-140		50-140		0-40
343779	Benzo[k]fluoranthene	<0.05 ug/g	78	50-140				0-40
343779	Chrysene	<0.05 ug/g	78	50-140		50-140		0-40
343779	Dibenz[a h]anthracene	<0.05 ug/g	76	50-140		50-140		0-40
343779	Fluoranthene	<0.05 ug/g	81	50-140		50-140		0-40
343779	Fluorene	<0.05 ug/g	80	50-140		50-140		0-40
343779	Indeno[1 2 3-cd]pyrene	<0.05 ug/g	92	50-140		50-140		0-40
343779	Naphthalene	<0.05 ug/g	80	50-140		50-140		0-40
343779	Phenanthrene	<0.05 ug/g	74	50-140		50-140		0-40
343779	Pyrene	<0.05 ug/g	82	50-140		50-140		0-40
343791	PHC's F2	<10 ug/g	104	80-120	95	60-140	0	0-30
343791	PHC's F3	<20 ug/g	104	80-120	95	60-140	0	0-30
343791	PHC's F4	<20 ug/g	104	80-120	95	60-140	0	0-30

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Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
208523	Moisture-Humidite	GC/FID	2018-04-18	2018-04-18	C_M	CCME
290004	PHC's F1	GC/FID	2018-04-16	2018-04-16	TJB	CCME
343569	Silver		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Arsenic		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Boron (total)		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Barium		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Beryllium		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Cadmium		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Cobalt		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Chromium Total		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Copper		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Molybdenum		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Nickel		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Lead		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Antimony		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Selenium		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Thallium		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Uranium		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Vanadium		2018-04-13	2018-04-13	H_D	EPA 200.8
343569	Zinc		2018-04-13	2018-04-13	H_D	EPA 200.8
343637	Benzene	GC/MS	2018-04-12	2018-04-12	TJB	V 8260B
343637	Ethylbenzene	GC/MS	2018-04-12	2018-04-12	TJB	V 8260B
343637	Xylene, m/p-	GC/MS	2018-04-12	2018-04-12	TJB	V 8260B
343637	Xylene, o-	GC/MS	2018-04-12	2018-04-12	TJB	V 8260B
343637	Toluene	GC/MS	2018-04-12	2018-04-12	TJB	V 8260B
343638	Xylene Mixture	GC/MS	2018-04-16	2018-04-16	TJB	V 8260B
343639	PHC's F1-BTEX	GC/FID	2018-04-16	2018-04-16	TJB	CCME
343779	Methylnaphthalene, 1-		2018-04-12	2018-04-13	C_M	P 8270
343779	Methylnaphthalene, 2-		2018-04-12	2018-04-13	C_M	P 8270
343779	Acenaphthene		2018-04-12	2018-04-13	C_M	P 8270
343779	Acenaphthylene		2018-04-12	2018-04-13	C_M	P 8270
343779	Anthracene		2018-04-12	2018-04-13	C_M	P 8270
343779	Benz[a]anthracene		2018-04-12	2018-04-13	C_M	P 8270

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Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
343779	Benzo[a]pyrene		2018-04-12	2018-04-13	C_M	P 8270
343779	Benzo[b]fluoranthene		2018-04-12	2018-04-13	C_M	P 8270
343779	Benzo[ghi]perylene		2018-04-12	2018-04-13	C_M	P 8270
343779	Benzo[k]fluoranthene		2018-04-12	2018-04-13	C_M	P 8270
343779	Chrysene		2018-04-12	2018-04-13	C_M	P 8270
343779	Dibenz[a h]anthracene		2018-04-12	2018-04-13	C_M	P 8270
343779	Fluoranthene		2018-04-12	2018-04-13	C_M	P 8270
343779	Fluorene		2018-04-12	2018-04-13	C_M	P 8270
343779	Indeno[1 2 3-cd]pyrene		2018-04-12	2018-04-13	C_M	P 8270
343779	Naphthalene		2018-04-12	2018-04-13	C_M	P 8270
343779	Phenanthrene		2018-04-12	2018-04-13	C_M	P 8270
343779	Pyrene		2018-04-12	2018-04-13	C_M	P 8270
343791	PHC's F2	GC/FID	2018-04-18	2018-04-18	RRK	CCME
343791	PHC's F3	GC/FID	2018-04-18	2018-04-18	RRK	CCME
343791	PHC's F4	GC/FID	2018-04-18	2018-04-18	RRK	CCME

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Petroleum Hydrocarbons - CCME Checklist

Samples were analysed by Eurofins Ottawa Method AMCCME2, "Petroleum Hydrocarbons in Water and Soil, CCME/TPH", "Petroleum Hydrocarbons in Water and Soil, CCME/TPH". These methods comply with the reference method for the CCME CWS PHC and are validated for use in the laboratory. Eurofins Ottawa is accredited by CALA (ISO 17025) for all CCME F1-F4 fractions as listed in this report. Eurofins Mississauga is accredited by SCC (ISO 17025) for all CCME F1-F4 fractions as listed in this report. Data for QC samples (blank, duplicate, spike) are available on request

Holding/Analysis Times	Yes/No	If NO, then reasons
All fractions analyzed within recommended hold times/analysis times?	Yes	
F1		
nC6 and nC10 response factors within 30% of toluene	Yes	
BTEX was subtracted from F1 fraction	Yes	
If YES, was F1-BTEX (C6-C10) reported	Yes	
F2		
nC10, nC16 and nC34 response factors within 10% of their average (F2-F4)	Yes	
Linearity within 15% (F2-F4)	Yes	
Napthalene was subtracted from F2 fraction		
If YES was F2-Napthalene reported		
F3		
PAH (selected compounds) subtracted from F3 fraction		
If YES was F3-PAH reported		
F4		
C50 response factor within 70% of nC10+nC16+nC34 average	Yes	
Chromatogram descended to baseline by retention time of C50	Yes	
if NO was F4 (C34-C50) gravimetric reported		

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