Venom Powersports LTD.

FINAL REPORT

PHASE II ENVIRONMENTAL SITE ASSESSMENT
6787 HIRAM DRIVE, OTTAWA, ONTARIO

BDC1185

August 17, 2018

CM3 Environmental Inc.

5710 Akins Road Ottawa, Ontario K2S 1B8

TABLE OF CONTENTS

1 Introduction 1
1.1 Areas of Potential Environmental Concern 1
2 Scope of Work 1
3 environmental Standards 2
4 Assessment Activities 2
4.1 Soil Sampling 3
4.2 Field Screening 3
4.3 Monitoring Well Installation 3
4.4 LPH and Water Level Measurement 3
4.5 Groundwater Sampling 3
4.6 Site Survey 4
5 Results and Evaluation 4
5.1 Site Geology 4
5.2 Site Hydrogeology 4
5.2.1 Groundwater 4
5.3 Soil Field Screening 4
5.4 Soil Quality 4
5.5 Groundwater Quality 5
6 Summary and Conclusions 5
7 Closure 7

LIST OF TABLES

Table 1: Groundwater Level Measurements
Table 2: Summary of Soil Analytical Results
Table 3: Summary of Groundwater Analytical Results

LIST OF FIGURES

Figure 1: Site Location
Figure 2: Site Plan
Figure 3: Monitoirng Well Locations

LIST OF APPENDICES

Appendix A: Borehole Logs
Appendix B: Laboratory Reports

1 INTRODUCTION

CM3 Environmental Inc. (CM3) was retained by Venom Powersports LTD. to conduct a Phase II Environmental Site Assessment (ESA) for the property located at 6787 Hiram Drive, Ottawa, Ontario. The work was conducted in compliance with industry accepted standards and practices. The Phase II ESA was recommended by CM3 following the completion of a Phase I ESA at the property for a Site Control Plan Application. The location of the subject property is provided on Figure 1 and a Site Plan is provided as Figure 2.

This work was supervised by Mr. Bruce Cochrane from CM3. Mr. Cochrane is a Professional Geologist (P.Geo), certified Environmental Practitioner (EP) and Ontario Ministry of Environment and Climate Change (MOECC) Qualified Person (QP) who has practised in environmental site assessment and remediation for over 20 years.

1.1 Areas of Potential Environmental Concern

Areas of potential environmental concern (APECs) were identified based on the Potential Contaminating Activities (PCAs) identified in the Phase I ESA. The PCAs were evaluated with respect to the location (source) of the PCA and the potential pathways/migration relative to the subject property and receptors at the subject property. The following APEC and contaminants of concern (COCs) were identified in the Phase I ESA:

Area of Potential Environmental Concern			
APEC	**Location**	**Cause of Concern**	**COC**
1	Western boundary of property	Automobile salvage and recycling	Petroleum hydrocarbons (PHCs), metals, Polycyclic Aromatic Hydrocarbons (PAHs) and volatile organic compounds (VOCs)

The location for the APEC is provided on **Figure 2**.

2 SCOPE OF WORK

The scope of work was developed by CM3 to determine the possible presence of groundwater and/or soil contamination as a result of the identified APEC. The following scope of work was completed as part of CM3's Phase II ESA:

- A preliminary site visit to assess property access and to confirm or identify the proposed borehole/monitoring well locations;
- The determination of the locations of all underground utilities by a third-party utility locator;
- The advancement of four boreholes (2 completed as monitoring wells);
- The continuous collection of soil samples during the drilling and on-site field screening of all soil samples for vapours with a combustible gas meter;

- The selection of a minimum of one soil sample from each borehole for laboratory analysis of the contaminants of concern;
- The measurement of the depth to liquid phase hydrocarbons (LPH) and groundwater in all accessible monitoring wells;
- The collection of groundwater samples from all accessible monitoring wells for laboratory analysis of the contaminants of concern;
- The completion of an elevation and location survey for all boreholes/monitoring wells; and,
- The preparation of this letter report detailing the summary and conclusions of the above described work.

All soil and groundwater samples submitted for laboratory analysis were placed in coolers with ice packs with an accompanying chain of custody, for shipment to Paracel Laboratories (Paracel) of Ottawa, Ontario, for laboratory analysis.

3 ENVIRONMENTAL STANDARDS

The recommended Standards for use at the property are contained within the Ontario Ministry of Environment and Climate Change (MOECC) *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, April 15, 2011. Specifically, the Table 2 Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition and Commercial/Industrial Land-Use were selected. The Table 2 industrial standards would be applicable for use at this site for the following reasons:

- No environmentally sensitive areas are located on site or in the immediate vicinity;
- The soil type has been conservatively estimated to be coarse grained;
- Bedrock is not considered shallow as it is more than 2 meters from ground surface in the area investigated;
- The site is not located within 30 meters of a water body;
- Potable water is supplied in the area by wells; and,
- Land use in the area would be considered commercial and industrial.

4 ASSESSMENT ACTIVITIES

A total of four boreholes (BH1, MW1, BH3 and MW4) were completed by CCC Geotechnical & Environmental LTD. (CCC) of Ottawa, Ontario, on March 22 and July 26, 2018 under supervision of CM3 personnel. All boreholes were advanced using a track mounted CME55 drill rig or portable drilling equipment. Boreholes were advanced from grade to a depth of 5.33 metres below ground surface (m bgs). The borehole locations were based on the following area of potential environmental concern (APEC)

- BH1, MW1, BH3 and MW4 for APEC1.

Please note that BH2 was converted to MW1. The borehole locations are provided on **Figure 3**.

4.1 Soil Sampling

Soil samples were collected continuously from grade to end of borehole at each location using 60 cm long, 5.1 cm diameter split spoon samplers. Soil samples were logged at the time of drilling for grain size, colour, moisture content, and visual or olfactory evidence of impacts. Each soil sample was split for combustible vapour analysis and possible laboratory analysis upon recovery from the split spoon, as described below. The drilling and sampling equipment were washed and rinsed between each sample interval and borehole location to prevent cross-contamination.

Immediately upon recovery, each sample was split into the appropriate laboratory supplied sample containers (jars) for possible analysis and a polyethylene bag for relative combustible vapour analysis. The jarred samples were placed into an iced chilled cooler pending submission to the laboratory for analysis. The bagged samples were used for field screening of relative combustible vapours.

4.2 Field Screening

The bagged soil samples were allowed to equilibrate to ambient temperature prior to combustible vapour measurements. The vapour concentrations were measured and recorded from the bag sample headspace using an RKI Eagle combustible vapour meter calibrated to hexane and operated in methane elimination mode. The intake probe of the vapour meter was inserted into the plastic bag and the highest vapour reading from each sample was recorded.

4.3 Monitoring Well Installation

Borehole BH2 was completed as monitoring well MW1 and the borehole MW4 was completed as monitoring well MW4. Monitoring well construction consisted of 32 mm outside diameter, flush-threaded schedule 40 PVC well screens and risers. At each borehole, a 10-slot well screen was installed in the borehole and a silica sand pack was placed around the outside of the well screen in the annular space of the borehole to a minimum of 0.3 m above the screened interval. A bentonite seal was placed above the sand pack to approximately ground surface. All monitoring wells were capped with lockable j-plugs, and all monitoring wells were finished above grade.

4.4 LPH and Water Level Measurement

The depth to liquid phase hydrocarbons (LPH) and groundwater was measured in monitoring well MW1 on July 26, 2018 and MW1 and MW4 on August 2, 2018 using a Solinst® electronic oil/water interface meter. The depth to LPH (if present) and water were measured to the nearest millimetre from the highest point of the well riser. The interface probe was cleaned and rinsed with distilled water between each well to prevent cross contamination.

4.5 Groundwater Sampling

Groundwater samples were collected from monitoring wells MW1 and MW4 on August 2, 2018. Prior to sampling, each well was purged to remove stagnant water from within the well bore and surrounding annulus to obtain samples that were representative of formation groundwater.

Groundwater purging and sampling was conducted using dedicated 5/8" O.D. LDPE tubing and foot valves, installed at each well. Groundwater samples were collected in laboratory supplied sample containers, directly from the outlet of the LDPE tubing. Following collection, the samples were placed into an iced chilled cooler pending submission to the laboratory for analysis.

4.6 Site Survey

The locations of all boreholes/monitoring wells were referenced to existing site features.

5 RESULTS AND EVALUATION

5.1 Site Geology

The site stratigraphy was determined based on the borehole drilling. In general, the stratigraphy consisted of a thin veneer of topsoil in all boreholes at grade except MW4 where sand was noted at grade. The underlying soils consisted of clayey sand to silty clay to clays. Bedrock was not encountered during the drilling. The stratigraphy is provided on the borehole logs (**Appendix A**).

5.2 Site Hydrogeology

5.2.1 Groundwater

The depth to LPH and water was measured in monitoring well MW1 on July 26 and in monitoring wells MW1 and MW4 on August 2, 2018 (**Table 1**). LPH was not detected in any of the monitoring wells. The water level was 1.488 metres below top of casing on July 26, 2018 and between 1.513 and 2.132 on August 2, 2018. The average groundwater elevation was noted to be in the silty clay at the site.

5.3 Soil Field Screening

A total of 28 soil samples were collected from the boreholes BH1, MW1, BH3 and MW4 for field screening and combustible vapour analysis. Vapour concentrations ranged from 0 parts per million (ppm) to 130 ppm. In general, the vapour concentrations in the soil samples from boreholes were not considered to be elevated except for the sample BH2 SA4 that exhibited a vapour reading of 130 ppm. The soil sample BH2 SA4 was noted to be a wet silty clay that exhibited no olfactory or visual evidence of environmental contamination and the elevated vapour reading is likely attributed to naturally decay of organic material. The soil combustible vapour concentrations and field observations are included on the borehole logs (**Appendix A**).

5.4 Soil Quality

Soil samples BH1 SA1, BH1 SA5, BH2 SA4, MW4 SA1 and MW4 SA3 were submitted to Paracel for analysis of a suite of parameters including BTEX, PHCs F1-F4 fractions, VOCs, PAHs and metals. The soil analyses returned either non-detect results or showed the presence of one or more of the analysed parameters at concentrations that met the MOECC Table 2 SCS.

The soil sample analytical results are summarized in **Table 2**. The soil sample laboratory reports are provided in **Appendix B**.

5.5 Groundwater Quality

Groundwater samples were collected from monitoring well MW1 and MW4 on August 2, 2018 for a suite of analyses including BTEX, PHCs F1-F4 fractions, VOCs, PAHs and metals. The groundwater analyses returned either non-detect results or showed the presence of one or more of the analysed parameters at concentrations that met the MOECC Table 2 SCS.

The groundwater sample analytical results are summarized in **Table 3**. The groundwater sample laboratory reports are provided in **Appendix B**.

6 SUMMARY AND CONCLUSIONS

CM3 Environmental Inc. was retained by Venom Powersports LTD. to carry out a Phase II Environmental Site Assessment for the property located at 6787 Hiram Drive, Ottawa, Ontario. The purpose of the Phase II ESA was to assess the presence of potential soil and groundwater impacts at the site related to an Area of Potential Environmental Concern (APEC) that was identified by a previous Phase I ESA. The Phase II ESA included the advancement of 4 boreholes with 2 completed as monitoring wells, to assess the soil and groundwater conditions at the site. The results of the Phase II ESA are summarized as follows:

Site Characterization

- The soil at the site generally consisted of a topsoil overlying a sandy clay to clay. Bedrock was not encountered during the drilling;
- Groundwater water levels were approximately 1.5 to 2.1 metres below top of casing.
- The observed groundwater levels were in the silty clay; and
- LPH was not present in any monitoring wells.

Soil and Groundwater Impacts

- Concentrations of all analysed parameters for all soil samples were either not-detected or in compliance with the Table 2 SCS for BTEX, VOCs, PHCs and Metal parameters;
- Concentrations of all analysed parameters for all groundwater samples were either not-detected or in compliance with the Table 2 SCS for BTEX, PAHs, VOCs, PHCs and Metal parameters; and
- The one elevated vapour reading for the soil sample collected from BH2 (converted to MW1) is attributed to the decay of natural organic material.

Conclusions

The Phase I ESA identified the adjacent off-site auto recycling facility as an PCA and the western property boundary as APEC 1. The primary contaminants of concern at APEC 1 were BTEX,

PAHs, VOCs, PHCs and Metals. The results of the Phase II ESA showed that all soil and groundwater samples that were analysed comply with the MOECC Table 2 SCS.

In addition, the one soil sample collected from BH2 likely exhibited an elevated vapour reading because of organic material decay. The analysis of this soil sample for BTEX, PHCs in the F1 to F4 fractions, VOCs and PAHs revealed non-detectable concentrations. BH2 was also converted to MW1 and the water sample results for this monitoring well were non-detectable for BTEX, PHCs in the F1 to F4 fractions, VOCs and PAHs. The water sample result for MW1 was also in compliance with the SCS for metals. Considering this, CM3 does not have any health risk concerns with respect to the recorded vapour concentrations for BH2 (converted to MW1).

Based on the Phase II ESA results, CM3 is not recommending any further testing for the APEC 1 and that the monitoring wells MW1 and MW4 should be decommissioned as per Ontario Regulation 903 if they are no longer required.

7 CLOSURE

This report has been prepared and the work referred to in this report has been undertaken by CM3 for Venom Powersports LTD. It is intended for the sole and exclusive use of Venom Powersports LTD. and their authorized agents for the purpose(s) set out in this report. Any use of, reliance on, or decision made based on this report by any person other than Venom Powersports LTD. for any purpose, or by Venom Powersports LTD. for a purpose other than the purpose(s) set out in this report, is the sole responsibility of such person, or Venom Powersports LTD. Venom Powersports LTD. and CM3 make no representation or warranty to any other person with regard to this report and the work referred to in this report and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expense, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report.

This investigation undertaken by CM3 with respect to this report and any conclusions or recommendations made in this report reflect CM3's judgement based on the site conditions observed at the time of the site inspection on the date(s) set out in this report, on information available at the time of preparation of this report, on the interpretation of data collected from the field investigation and on the results of laboratory analyses, which were limited to the quantification in select samples of those substances specifically identified in the report. This report has been prepared for specific application to this site and it is based, in part upon visual observation of the site, subsurface investigation at discrete locations and depths and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, portions of the site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Substances other than those addressed by the investigation described in this report may exist within the site; substances addressed by the investigation may exist in areas of the site not investigated and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken. CM3 expresses no warranty with respect to the accuracy of the laboratory analyses, methodologies used, or presentation of analytical results by the laboratory. Actual concentrations of the substances identified in the samples submitted may vary according to the extraction and testing procedures used.

As the evaluation and conclusions reported herein do not preclude the existence of other chemical compounds and/or that variations of conditions within the site may be possible, this report should be used for informational purposes only and should absolutely not be construed as a comprehensive hydrogeological or chemical characterization of the site. If site conditions change or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

Nothing in this report is intended to constitute or provide a legal opinion. CM3 makes no representation as to the requirements of, or compliance with environmental laws, rules,

regulations or policies established by federal, provincial or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

Other than by the Venom Powersports LTD. as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of CM3.

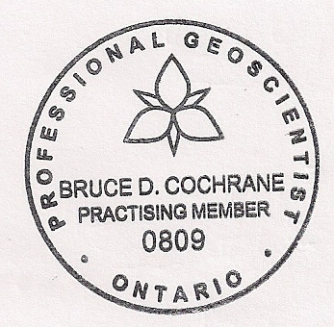
We trust that the above is satisfactory for your purposes at this time. Please feel free to contact the undersigned if you have any questions.

Yours sincerely

CM3 Environmental Inc.

Bruce D. Cochrane P. Geo. EP QP
Principal

Marc MacDonald P.Eng EP QP
Principal

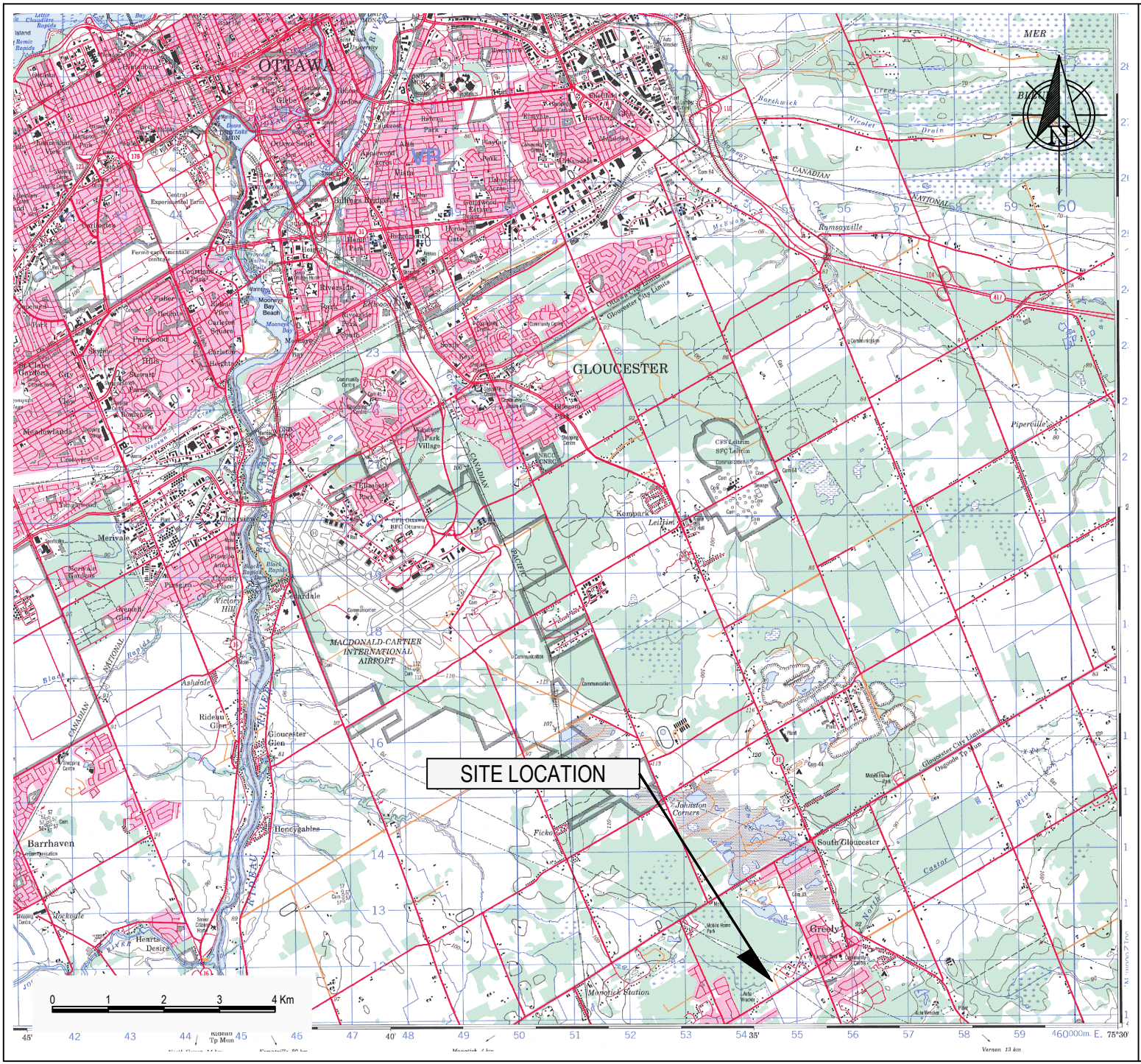


FIGURES

PHASE II ENVIRONMENTAL SITE ASSESSMENT

6787 HIRAM DRIVE, OTTAWA, ONTARIO

BDC1185



cm3 environmental

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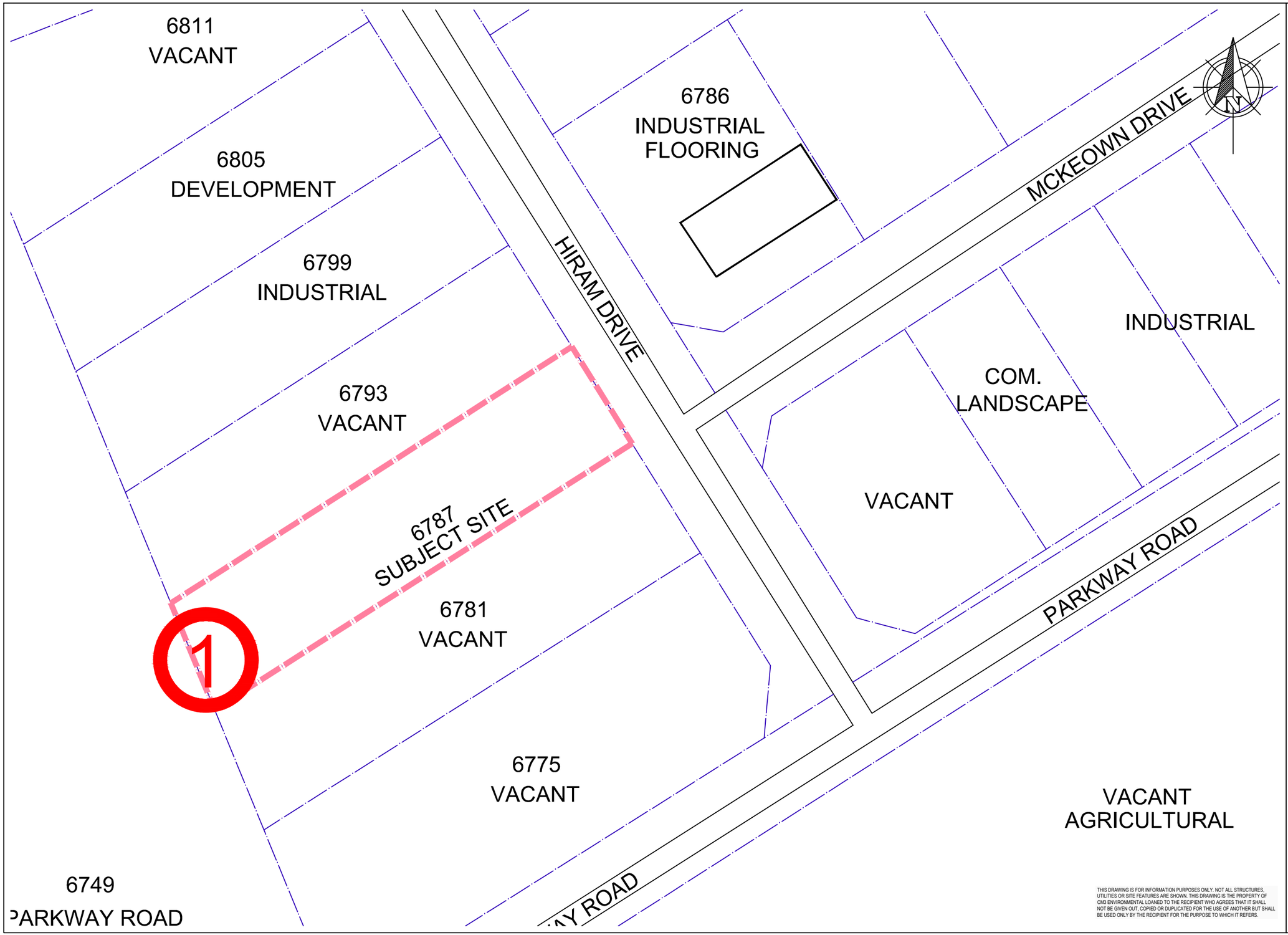
VENOM MOTORSPORTS LTD.

PHASE II ENVIRONMENTAL SITE ASSESSMENT
6787 HIRAM DRIVE
OTTAWA, ON

SITE LOCATION

Project: BDC1185	Drawn By: MWM
Date: AUG 2018	Reviewed By: BDC
Scale: AS SHOWN	Figure: 1



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LEGEND

- PROPERTY BOUNDARY
- SITE
- RESIDENCE/BUILDING

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

1. OFF-SITE AUTOMOBILE SALVAGE AND RECYCLING

Scale 1:1000

0 10 20 30 40

(Approx. When plotted 11x17)

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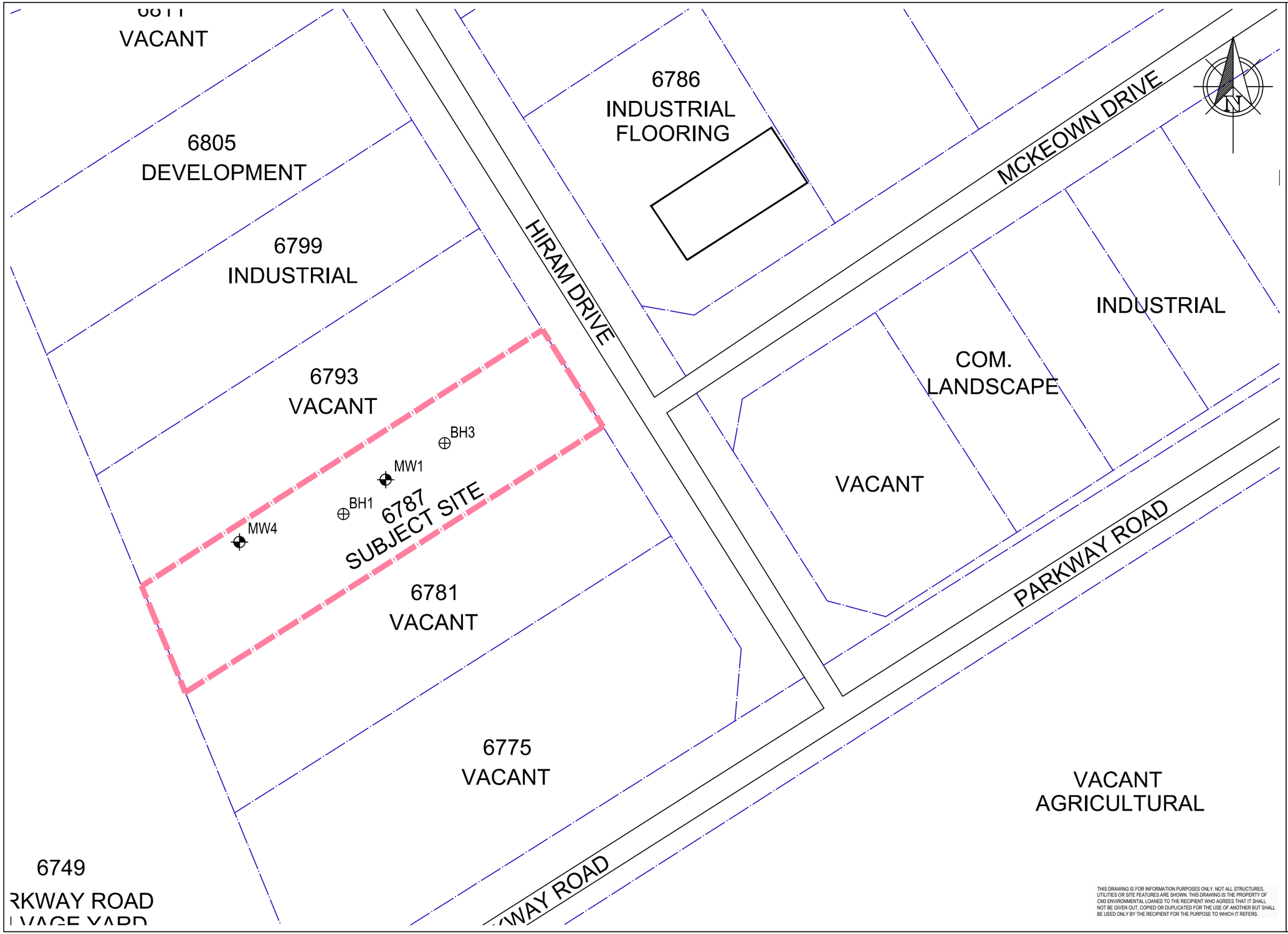
VENOM MOTORSPORTS LTD.

PHASE I ENVIRONMENTAL SITE ASSESSMENT
6787 HIRAM DRIVE
OTTAWA, ON

SITE PLAN

Project: BDC1185	Drawn By: MWM
Date: AUG 2018	Reviewed By: BDC
Scale: 1:1000	Figure: 2



LEGEND

- PROPERTY BOUNDARY
- SITE
- RESIDENCE/BUILDING
- BOREHOLE
- MONITORING WELL

Scale 1:1000

0 10 20 30 40

(Approx. When plotted 11x17)

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PHASE II ENVIRONMENTAL SITE ASSESSMENT
6787 HIRAM DRIVE
OTTAWA, ON

BOREHOLE AND MONITORING WELL LOCATIONS

Project: BDC1185	Drawn By: MWM
Date: AUG 2018	Reviewed By: BDC
Scale: 1:1000	Figure: 3

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TABLES

PHASE II ENVIRONMENTAL SITE ASSESSMENT

6787 HIRAM DRIVE, OTTAWA, ONTARIO

BDC1185

Table 1:
Groundwater Level Measurements
6787 Hiram Drive, Ottawa
BDC1185

Well ID	Date	TOC (marl)	Depth to LPH (mbtoc)	Depth to GW (mbtoc)	Elevation LPH (marl)	Elevation GW (marl)	Elevation Corr. GW (marl)	LPH Thickness (m)	Comments
MW1	26-Jul-18	NM	--	1.488	--	--	--	---	
MW1	2-Aug-18	NM	--	1.513	--	--	--	---	
MW4	2-Aug-18	NM	--	2.132	--	--	--	---	

Notes:

TOC - top of casing
marl - metres above arbitrary reference level
mbtoc - metres below top of casing
LPH - liquid phase hydrocarbons
GW - groundwater
Corr. GW - corrected water level calculated for monitoring wells containing LPH, assuming an LPH density of 0.86 g/ml
NM - not measured
-- - no value/LPH not present

Table 2:
Summary of Soil Analytical Results
6787 Hiram Drive, Ottawa, Ontario
BDC1185

Parameter depth (m)> location> sample date>	MDL	MOECC Table 2 SCS	BH1SA1 0.0 to 0.76 22-Mar-18	BH1 SA5 3.05 to 3.81 22-Mar-18	BH2 SA4 2.3 to 3.05 22-Mar-18	MW4SA1 0.0 to 0.76 26-Jul-18	MW4 SA3 1.52 to 2.3 26-Jul-18
BTEX							
Benzene	0.02	0.32	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Ethylbenzene	0.05	1.1	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Toluene	0.05	6.4	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
m/p-Xylene	0.05	NV	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
o-Xylene	0.05	NV	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Xylenes, total	0.05	26	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Hydrocarbons							
F1 PHCs (C6-C10)	7	55	N/A	ND (7)	ND (7)	N/A	ND (7)
F2 PHCs (C10-C16)	4	230	N/A	ND (4)	ND (4)	N/A	ND (4)
F3 PHCs (C16-C34)	8	1700	N/A	ND (8)	ND (8)	N/A	ND (8)
F4 PHCs (C34-C50)	6	3300	N/A	ND (6)	ND (6)	N/A	ND (6)
Volatiles							
Acetone	0.5	16	N/A	ND (0.50)	ND (0.50)	N/A	ND (0.50)
Bromodichloromethane	0.05	1.5	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Bromoform	0.05	0.61	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Bromomethane	0.05	0.05	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Carbon Tetrachloride	0.05	0.21	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Chlorobenzene	0.05	2.4	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Chloroform	0.05	0.47	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Dibromochloromethane	0.05	2.3	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Dichlorodifluoromethane	0.05	16	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,2-Dichlorobenzene	0.05	1.2	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,3-Dichlorobenzene	0.05	9.6	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,4-Dichlorobenzene	0.05	0.2	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,1-Dichloroethane	0.05	0.47	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,2-Dichloroethane	0.05	0.05	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,1-Dichloroethylene	0.05	0.064	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
cis-1,2-Dichloroethylene	0.05	1.9	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
trans-1,2-Dichloroethylene	0.05	1.3	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,2-Dichloropropane	0.05	0.16	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
cis-1,3-Dichloropropylene	0.05	NV	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
trans-1,3-Dichloropropylene	0.05	NV	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,3-Dichloropropene, total	0.05	0.059	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Ethylene dibromide (dibromoethane, 1,2-)	0.05	0.05	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Hexane	0.05	46	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Methyl Ethyl Ketone (2-Butanone)	0.5	70	N/A	ND (0.50)	ND (0.50)	N/A	ND (0.50)
Methyl Isobutyl Ketone	0.5	31	N/A	ND (0.50)	ND (0.50)	N/A	ND (0.50)
Methyl tert-butyl ether	0.05	1.6	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Methylene Chloride	0.05	1.6	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Styrene	0.05	34	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,1,1,2-Tetrachloroethane	0.05	0.087	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,1,2,2-Tetrachloroethane	0.05	0.05	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Tetrachloroethylene	0.05	1.9	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,1,1-Trichloroethane	0.05	6.1	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
1,1,2-Trichloroethane	0.05	0.05	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Trichloroethylene	0.05	0.055	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Trichlorofluoromethane	0.05	4.0	N/A	ND (0.05)	ND (0.05)	N/A	ND (0.05)
Vinyl Chloride	0.02	0.032	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Metals							
Antimony	1.0	40	ND (1)	N/A	N/A	ND (1.0)	N/A
Arsenic	1.0	18	2	N/A	N/A	2.2	N/A
Barium	1.0	670	63	N/A	N/A	84.7	N/A
Beryllium	1.0	8.0	ND (0.5)	N/A	N/A	0.5	N/A
Boron	1.0	120	7.2	N/A	N/A	11.0	N/A
Cadmium	0.5	1.9	ND (0.5)	N/A	N/A	ND (0.5)	N/A
Chromium	1.0	160	13	N/A	N/A	17.0	N/A
Cobalt	1.0	80	3	N/A	N/A	4.7	N/A
Copper	1.0	230	ND (5)	N/A	N/A	10.6	N/A
Lead	1.0	120	7	N/A	N/A	9.2	N/A
Molybdenum	1.0	40	ND (1)	N/A	N/A	ND (1.0)	N/A
Nickel	1.0	270	ND (5)	N/A	N/A	9.9	N/A
Selenium	1.0	5.5	1	N/A	N/A	ND (1.0)	N/A
Silver	0.5	40	ND (0.3)	N/A	N/A	ND (0.3)	N/A
Thallium	1.0	3.3	ND (1)	N/A	N/A	ND (1.0)	N/A
Uranium	1.0	33	ND (1)	N/A	N/A	ND (1.0)	N/A
Vanadium	1.0	86	23	N/A	N/A	28.4	N/A
Zinc	1.0	340	24	N/A	N/A	ND (20.0)	N/A
Boron, Available	0.5	2	N/A	N/A	N/A	ND (0.5)	N/A
Chrominum (VI)	0.2	8	N/A	N/A	N/A	ND (0.2)	N/A
Mercury	0.1	3.9	N/A	N/A	N/A	ND (0.1)	N/A
Semi-Volatiles (PAHs)							
Acenaphthene	0.02	21	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Acenaphthylene	0.02	0.15	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Anthracene	0.02	0.67	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Benzo[a]anthracene	0.02	0.96	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Benzo[a]pyrene	0.02	0.3	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Benzo[b]fluoranthene	0.02	0.96	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Benzo[g,h,i]perylene	0.02	9.6	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Benzo[k]fluoranthene	0.02	0.96	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Chrysene	0.02	9.6	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Dibenzo[a,h]anthracene	0.02	0.1	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Fluoranthene	0.02	9.6	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Fluorene	0.02	62	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Indeno[1,2,3-cd]pyrene	0.02	0.76	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
1-Methylnaphthalene	0.02	30	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
2-Methylnaphthalene	0.02	30	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Methylnaphthalene (1&2)	0.04	30	N/A	ND (0.04)	ND (0.04)	N/A	ND (0.04)
Naphthalene	0.01	9.6	N/A	ND (0.01)	ND (0.01)	N/A	ND (0.01)
Phenanthrene	0.02	12	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)
Pyrene	0.02	96	N/A	ND (0.02)	ND (0.02)	N/A	ND (0.02)

Notes:

ppm - All concentrations provided in parts per million (micrograms per gram - µg/g)
"ND" - Less than detection limits indicated
NV - No standard listed
N/A - Not Analyzed
MDL - Laboratory reportable detection limit
MOECC Table 2 SCS - Ontario Ministry of Environment and Climate Change (MOECC) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA (April 15, 2011) MOECC Table 2 SCS Commercial property use, coarse grained soil
Bold / Italics - Concentration exceeds MOECC Table 2 SCS
Underline - MDL above applicable Table 2 SCS (refer to laboratory report)

Table 3:
Summary of Groundwater Analytical Results
6787 Hiram Drive, Ottawa, Ontario
BDC1185

Parameter location> sample date>	MDL	MOECC Table 2 SCS	MW1 2-Aug-18	MW4 2-Aug-18
BTEX				
Benzene	0.5	5	ND (0.5)	ND (0.5)
Ethylbenzene	0.5	2.4	ND (0.5)	ND (0.5)
Toluene	0.5	24	ND (0.5)	ND (0.5)
m/p-Xylene	0.5	NV	ND (0.5)	ND (0.5)
o-Xylene	0.5	NV	ND (0.5)	ND (0.5)
Xylenes, total	0.5	300	ND (0.5)	ND (0.5)
Hydrocarbons				
F1 PHCs (C6-C10)	25	750	ND (25)	ND (25)
F2 PHCs (C10-C16)	100	150	ND (100)	ND (100)
F3 PHCs (C16-C34)	100	500	ND (100)	ND (100)
F4 PHCs (C34-C50)	100	500	ND (100)	ND (100)
Volatiles				
Acetone	5	2700	ND (5.0)	ND (5.0)
Bromodichloromethane	0.5	16	ND (0.5)	ND (0.5)
Bromoform	0.5	25	ND (0.5)	ND (0.5)
Bromomethane	0.5	0.89	ND (0.5)	ND (0.5)
Carbon Tetrachloride	0.2	0.79	ND (0.2)	ND (0.2)
Chlorobenzene	0.5	30	ND (0.5)	ND (0.5)
Chloroform	0.5	2.4	ND (0.5)	ND (0.5)
Dibromochloromethane	0.5	25	ND (0.5)	ND (0.5)
Dichlorodifluoromethane	1	590	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	0.5	3	ND (0.5)	ND (0.5)
1,3-Dichlorobenzene	0.5	59	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	0.5	1	ND (0.5)	ND (0.5)
1,1-Dichloroethane	0.5	5	ND (0.5)	ND (0.5)
1,2-Dichloroethane	0.5	1.6	ND (0.5)	ND (0.5)
1,1-Dichloroethylene	0.5	1.6	ND (0.5)	ND (0.5)
cis-1,2-Dichloroethylene	0.5	1.6	ND (0.5)	ND (0.5)
trans-1,2-Dichloroethylene	0.5	1.6	ND (0.5)	ND (0.5)
1,2-Dichloropropane	0.5	5	ND (0.5)	ND (0.5)
cis-1,3-Dichloropropylene	0.5	NV	ND (0.5)	ND (0.5)
trans-1,3-Dichloropropylene	0.5	NV	ND (0.5)	ND (0.5)
1,3-Dichloropropene, total	0.5	0.5	ND (0.5)	ND (0.5)
Ethylene dibromide (dibromoethane, 1,2-)	0.2	0.2	ND (0.2)	ND (0.2)
Hexane	1	51	ND (1.0)	ND (1.0)
Methyl Ethyl Ketone (2-Butanone)	5	1800	ND (5.0)	ND (5.0)
Methyl Isobutyl Ketone	5	640	ND (5.0)	ND (5.0)
Methyl tert-butyl ether	2	15	ND (2.0)	ND (2.0)
Methylene Chloride	5	50	ND (5.0)	ND (5.0)
Styrene	0.5	5.4	ND (0.5)	ND (0.5)
1,1,1,2-Tetrachloroethane	0.5	1.1	ND (0.5)	ND (0.5)
1,1,2,2-Tetrachloroethane	0.5	1	ND (0.5)	ND (0.5)
Tetrachloroethylene	0.5	1.6	ND (0.5)	ND (0.5)
1,1,1-Trichloroethane	0.5	200	ND (0.5)	ND (0.5)
1,1,2-Trichloroethane	0.5	4.7	ND (0.5)	ND (0.5)
Trichloroethylene	0.5	1.6	ND (0.5)	ND (0.5)
Trichlorofluoromethane	1	150	ND (1.0)	ND (1.0)
Vinyl Chloride	0.5	0.5	ND (0.5)	ND (0.5)
Metals				
Mercury	0.1	0.29	ND (0.1)	ND (0.1)
Antimony	0.5	6	ND (0.5)	ND (0.5)
Arsenic	1	25	1	ND (1)
Barium	1	1000	231	372
Beryllium	0.5	4	ND (0.5)	ND (0.5)
Boron	10	5000	52	47
Cadmium	0.1	2.7	ND (0.1)	ND (0.1)
Chromium	1	50	ND (1)	ND (1)
Chromiun IV	10	25	ND (10)	ND (10)
Cobalt	0.5	3.8	2.6	2.6
Copper	0.5	87	2.5	3.2
Lead	0.1	10	0.1	0.1
Molybdenum	0.5	70	1.4	2.0
Nickel	1	490	7	8
Selenium	1	10	ND (1)	ND (1)
Silver	0.1	1.5	ND (0.1)	ND (0.1)
Sodium	200	490000	36800	21700
Thallium	0.1	2	ND (0.1)	ND (0.1)
Uranium	0.1	20	8.5	5.7
Vanadium	0.5	6.2	ND (0.5)	0.5
Zinc	5	1100	6	24
Semi-Volatiles (PAHs)				
Acenaphthene	0.05	4.1	ND (0.05)	ND (0.05)
Acenaphthylene	0.05	1	ND (0.05)	ND (0.05)
Anthracene	0.01	2.4	ND (0.01)	ND (0.01)
Benzo[a]anthracene	0.01	1	ND (0.01)	ND (0.01)
Benzo[a]pyrene	0.01	0.01	ND (0.01)	ND (0.01)
Benzo[b]fluoranthene	0.05	0.1	ND (0.05)	ND (0.05)
Benzo[g,h,i]perylene	0.05	0.2	ND (0.05)	ND (0.05)
Benzo[k]fluoranthene	0.05	0.1	ND (0.05)	ND (0.05)
Chrysene	0.05	0.1	ND (0.05)	ND (0.05)
Dibenzo[a,h]anthracene	0.05	0.2	ND (0.05)	ND (0.05)
Fluoranthene	0.01	0.41	ND (0.01)	ND (0.01)
Fluorene	0.05	120	ND (0.05)	ND (0.05)
Indeno[1,2,3-cd]pyrene	0.05	0.2	ND (0.05)	ND (0.05)
1-Methylnaphthalene	0.05	3.2	ND (0.05)	ND (0.05)
2-Methylnaphthalene	0.05	3.2	ND (0.05)	ND (0.05)
Methylnaphthalene (1&2)	0.1	3.2	ND (0.10)	ND (0.10)
Naphthalene	0.05	11	ND (0.05)	ND (0.05)
Phenanthrene	0.05	1	ND (0.05)	ND (0.05)
Pyrene	0.01	4.1	ND (0.01)	ND (0.01)

Notes:

ppb	- All concentrations provided in parts per billion (micrograms per litre - µg/L)
ND	- Less than detection limits indicated (refer to laboratory report)
NV	- No standard listed
N/A	- Not analyzed
MDL	- Laboratory reportable detection limit
1	- Detection limit raised due to matrix interference
MOECC Table 2 SCS	- Ontario Ministry of Environment and Climate Change (MOECC) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA (April 15, 2011) MOECC Table 2 SCS commercial property use, coarse grained soil
Bold / Italics	- Concentration exceeds MOECC Table 2 SCS
Underline	- MDL above applicable Table 2 SCS (refer to laboratory report)

APPENDIX A

BOREHOLE AND MONITORING WELL RECORDS

PHASE II ENVIRONMENTAL SITE ASSESSMENT

6787 HIRAM DRIVE, OTTAWA, ONTARIO

BDC1185

BOREHOLE LOG

CM³ JOB NO: BDC1185

CLIENT: **Venom Powersports LTD**
PROJECT: **6787 Hiram Drive**
6787 Hiram Drive
Ottawa Ontario

BOREHOLE NO: BH1
SURFACE ELEVATION:

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA: ORGANIC VAPOUR LEVEL (ppmv) 1 10 100 1000	BOREHOLE COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
		SA1			**TOPSOIL** Black, dry **SILTY CLAY** Dark brown, frozen	0				
1		SA2			**CLAYEY SAND** Fine, Brown, moist	0				1.0
2		SA3			**SILTY CLAY** Firm low plasticity, soft @ 3.81m, Grey, wet	0				2.0
		SA4				0				
3		SA5				10				3.0
4		SA6				0				4.0
5		SA7				0				5.0

End of borehole at 5.33 m

DRILLING METHOD: Hollow Stem Auger Drilling

Notes: SPLIT SPOON

DRILL DATE: March 22, 2018 LOGGED BY: SDC

BOREHOLE LOG

CM³ JOB NO: BDC1185

CLIENT: **Venom Powersports LTD**
PROJECT: **6787 Hiram Drive**
6787 Hiram Drive
Ottawa Ontario

BOREHOLE NO: BH3
SURFACE ELEVATION:

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA: ORGANIC VAPOUR LEVEL (ppmv) 1 10 100 1000	BOREHOLE COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
		SA1			**TOPSOIL** Black, frozen **CLAYEY SAND** firm, low plasticity, Brown, moist	0				
1		SA2			**SILTY CLAY** hard, low plasticity, Grey, wet	0				1.0
2		SA3				0				2.0
		SA4				40				
3		SA5				0				3.0
4		SA6				0				4.0
5		SA7				0				5.0
					End of borehole at 5.33 m					

DRILLING METHOD: Hollow Stem Auger Drilling

Notes: SPLIT SPOON

DRILL DATE: March 22, 2018 LOGGED BY: SDC

BOREHOLE LOG

CM³ JOB NO: BDC1185

CLIENT: **Venom Powersports LTD**
PROJECT: **6787 Hiram Drive**
6787 Hiram Drive
Ottawa Ontario

BOREHOLE NO: MW1
SURFACE ELEVATION:

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA: ORGANIC VAPOUR LEVEL (ppmv)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
-1									stickup, jplug	-1.0
					Ground Surface					
0					**TOPSOIL** Black, frozen					0.0
		SA1			**SILTY CLAY** Dark brown, dry	0			bentonite seal 32 mm solid PVC pipe	
					SANDY CLAY soft, high plasticity, Grey, moist					
1		SA2			**SILTY CLAY** hard, low plasticity, Grey, wet	0				1.0
									silica sand	
		SA3				20				
2										2.0
									32 mm 010 slot PVC pipe	
		SA4				130				
3										3.0
		SA5				10				
4										4.0
		SA6				10				
					End of borehole at 4.57 m					

Field test data scale: 1, 10, 100, 1000

DRILLING METHOD: Hollow Stem Auger Drilling

DRILL DATE: March 22, 2018 LOGGED BY: SDC

Notes: SPLIT SPOON

BOREHOLE LOG

CM³ JOB NO: BDC1185

CLIENT: **Venom Powersports LTD**
PROJECT: **6787 Hiram Drive**
6787 Hiram Drive
Ottawa Ontario

BOREHOLE NO: MW4
SURFACE ELEVATION:

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA – ORGANIC VAPOUR LEVEL (ppmv)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
-1									stickup, jplug	-1.0
					Ground Surface					
0					**SAND** brown, moist				bentonite seal 32 mm solid PVC pipe	0.0
		SA1				5				
1		SA2			**CLAY** Firm, Low plasticity, grey, moist	0				1.0
					SILTY CLAY grey, wet				silica sand	
2		SA3				30				2.0
		SA4				20				
3										3.0
		SA5				10			32 mm 010 slot PVC pipe	
4		SA6				0				4.0
5		SA7				0				5.0
					End of borehole at 5.33 m					

Organic vapour level scale: 1, 10, 100, 1000

DRILLING METHOD: Hollow Stem Auger Drilling

Notes: SPLIT SPOON

DRILL DATE: July 26, 2018 LOGGED BY: SDC

APPENDIX B

LABORATORY ANALYTICAL REPORTS

PHASE II ENVIRONMENTAL SITE ASSESSMENT

6787 HIRAM DRIVE, OTTAWA, ONTARIO

BDC1185

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

300 - 2319 St. Laurent Blvd
Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

CM3 Environmental Inc.

5710 Akins Road
Ottawa, ON K2S 1B8
Attn: Bruce Cochrane

Client PO: 6787 Hicom
Project: BDC1179
Custody: 115662

Report Date: 28-Mar-2018
Order Date: 22-Mar-2018

Order #: 1812530

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

Paracel ID	Client ID
1812530-01	BH1SA1
1812530-02	BH1SA5
1812530-03	BH25SA4

Approved By:

Dale Robertson, BSc
Laboratory Director

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

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hicom

Report Date: 28-Mar-2018
Order Date: 22-Mar-2018
Project Description: BDC1179

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	28-Mar-18	28-Mar-18
PHC F1	CWS Tier 1 - P&T GC-FID	26-Mar-18	28-Mar-18
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	22-Mar-18	25-Mar-18
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	22-Mar-18	27-Mar-18
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	26-Mar-18	28-Mar-18
Solids, %	Gravimetric, calculation	26-Mar-18	26-Mar-18

PARACEL LABORATORIES LTD.

Order #: 1812530

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hicom

Report Date: 28-Mar-2018
Order Date: 22-Mar-2018
Project Description: BDC1179

	Client ID:	BH1SA1	BH1SA5	BH25SA4	-
	Sample Date:	03/22/2018 09:00	03/22/2018 09:00	03/22/2018 09:00	-
	Sample ID:	1812530-01	1812530-02	1812530-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	70.8	87.9	86.6	-
Metals					
Antimony	1 ug/g dry	<1	-	-	-
Arsenic	1 ug/g dry	2	-	-	-
Barium	1 ug/g dry	63	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	7.2	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5 ug/g dry	13	-	-	-
Cobalt	1 ug/g dry	3	-	-	-
Copper	5 ug/g dry	<5	-	-	-
Lead	1 ug/g dry	7	-	-	-
Molybdenum	1 ug/g dry	<1	-	-	-
Nickel	5 ug/g dry	<5	-	-	-
Selenium	1 ug/g dry	1	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1 ug/g dry	<1	-	-	-
Uranium	1 ug/g dry	<1	-	-	-
Vanadium	10 ug/g dry	23	-	-	-
Zinc	20 ug/g dry	24	-	-	-
Volatiles					
Acetone	0.50 ug/g dry	-	<0.50	<0.50	-
Benzene	0.02 ug/g dry	-	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	-	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	-	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	-	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	-	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hicom

Report Date: 28-Mar-2018
Order Date: 22-Mar-2018
Project Description: BDC1179

	Client ID:	BH1SA1	BH1SA5	BH25SA4	-
	Sample Date:	03/22/2018 09:00	03/22/2018 09:00	03/22/2018 09:00	-
	Sample ID:	1812530-01	1812530-02	1812530-03	-
	MDL/Units	Soil	Soil	Soil	-
1,2-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	-	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Ethylene dibromide (dibromoethan	0.05 ug/g dry	-	<0.05	<0.05	-
Hexane	0.05 ug/g dry	-	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	-	<0.05	<0.05	-
Styrene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
Toluene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	-	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	-	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	-	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	-	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	-	96.6%	93.0%	-
Dibromofluoromethane	Surrogate	-	60.0%	68.8%	-
Toluene-d8	Surrogate	-	105%	107%	-

Hydrocarbons

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

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hicom

Report Date: 28-Mar-2018
Order Date: 22-Mar-2018
Project Description: BDC1179

	Client ID:	BH1SA1	BH1SA5	BH25SA4	-
	Sample Date:	03/22/2018 09:00	03/22/2018 09:00	03/22/2018 09:00	-
	Sample ID:	1812530-01	1812530-02	1812530-03	-
	MDL/Units	Soil	Soil	Soil	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	-	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	-	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	-	<0.02	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	-	<0.02	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	-	<0.02	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	-	<0.02	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	-	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	-	<0.02	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	-	<0.02	<0.02	-
Fluorene	0.02 ug/g dry	-	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	-	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	-	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	-	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	-	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	-	<0.02	<0.02	-
Pyrene	0.02 ug/g dry	-	<0.02	<0.02	-
2-Fluorobiphenyl	Surrogate	-	66.3%	65.8%	-
Terphenyl-d14	Surrogate	-	83.3%	91.5%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1	ug/g						
Arsenic	ND	1	ug/g						
Barium	ND	1	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5	ug/g						
Cobalt	ND	1	ug/g						
Copper	ND	5	ug/g						
Lead	ND	1	ug/g						
Molybdenum	ND	1	ug/g						
Nickel	ND	5	ug/g						
Selenium	ND	1	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1	ug/g						
Uranium	ND	1	ug/g						
Vanadium	ND	10	ug/g						
Zinc	ND	20	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*0.831*		*ug/g*		*62.3*	*50-140*			
Surrogate: Terphenyl-d14	*1.45*		*ug/g*		*109*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hicom

Report Date: 28-Mar-2018
Order Date: 22-Mar-2018
Project Description: BDC1179

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*3.06*		*ug/g*		*95.7*	*50-140*			
Surrogate: Dibromofluoromethane	*1.94*		*ug/g*		*60.5*	*50-140*			
Surrogate: Toluene-d8	*3.55*		*ug/g*		*111*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Antimony	ND	1	ug/g dry	ND			0.0	30	
Arsenic	2.2	1	ug/g dry	2.2			1.5	30	
Barium	69.7	1	ug/g dry	66.2			5.1	30	
Beryllium	ND	0.5	ug/g dry	ND			0.0	30	
Boron	67.1	5.0	ug/g dry	62.2			7.6	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium	18.0	5	ug/g dry	17.4			3.1	30	
Cobalt	5.4	1	ug/g dry	5.0			6.8	30	
Copper	14.2	5	ug/g dry	13.5			4.6	30	
Lead	17.0	1	ug/g dry	16.2			5.2	30	
Molybdenum	ND	1	ug/g dry	ND			0.0	30	
Nickel	13.0	5	ug/g dry	12.7			2.6	30	
Selenium	ND	1	ug/g dry	ND			0.0	30	
Silver	ND	0.3	ug/g dry	ND			0.0	30	
Thallium	ND	1	ug/g dry	ND			0.0	30	
Uranium	ND	1	ug/g dry	ND			0.0	30	
Vanadium	26.9	10	ug/g dry	25.6			4.9	30	
Zinc	33.1	20	ug/g dry	31.8			4.2	30	
Physical Characteristics									
% Solids	74.6	0.1	% by Wt.	81.9			9.3	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND				40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	ND				40	
Pyrene	ND	0.02	ug/g dry	ND				40	
Surrogate: 2-Fluorobiphenyl	*1.02*		*ug/g dry*		*64.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.66*		*ug/g dry*		*105*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND				50	
Benzene	ND	0.02	ug/g dry	ND				50	
Bromodichloromethane	ND	0.05	ug/g dry	ND				50	
Bromoform	ND	0.05	ug/g dry	ND				50	
Bromomethane	ND	0.05	ug/g dry	ND				50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND				50	
Chlorobenzene	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Dibromochloromethane	ND	0.05	ug/g dry	ND				50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND				50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Ethylene dibromide (dibromoethane	ND	0.05	ug/g dry	ND				50	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND				50	
Trichloroethylene	ND	0.05	ug/g dry	ND				50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND				50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: 4-Bromofluorobenzene	*3.39*		*ug/g dry*		*96.7*	*50-140*			
Surrogate: Dibromofluoromethane	*2.66*		*ug/g dry*		*76.0*	*50-140*			
Surrogate: Toluene-d8	*3.59*		*ug/g dry*		*103*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	183	7	ug/g		91.5	80-120			
F2 PHCs (C10-C16)	74	4	ug/g	ND	76.5	60-140			
F3 PHCs (C16-C34)	161	8	ug/g	ND	80.5	60-140			
F4 PHCs (C34-C50)	132	6	ug/g	ND	98.8	60-140			
Metals									
Antimony	45.4		ug/L	ND	90.6	70-130			
Arsenic	49.6		ug/L	ND	97.5	70-130			
Barium	82.5		ug/L	26.5	112	70-130			
Beryllium	54.9		ug/L	ND	110	70-130			
Boron	78.6		ug/L	24.9	108	70-130			
Cadmium	46.4		ug/L	ND	92.8	70-130			
Chromium	63.9		ug/L	7.0	114	70-130			
Cobalt	56.3		ug/L	2.0	109	70-130			
Copper	59.4		ug/L	5.4	108	70-130			
Lead	61.9		ug/L	6.5	111	70-130			
Molybdenum	44.8		ug/L	ND	89.1	70-130			
Nickel	61.3		ug/L	5.1	112	70-130			
Selenium	47.1		ug/L	ND	93.8	70-130			
Silver	41.1		ug/L	ND	82.1	70-130			
Thallium	54.9		ug/L	ND	110	70-130			
Uranium	54.8		ug/L	ND	109	70-130			
Vanadium	66.9		ug/L	10.2	113	70-130			
Zinc	57.4		ug/L	ND	89.4	70-130			
Semi-Volatiles									
Acenaphthene	0.218	0.02	ug/g	ND	110	50-140			
Acenaphthylene	0.175	0.02	ug/g	ND	88.8	50-140			
Anthracene	0.160	0.02	ug/g	ND	81.0	50-140			
Benzo [a] anthracene	0.147	0.02	ug/g	ND	74.5	50-140			
Benzo [a] pyrene	0.146	0.02	ug/g	ND	73.9	50-140			
Benzo [b] fluoranthene	0.197	0.02	ug/g	ND	99.8	50-140			
Benzo [g,h,i] perylene	0.142	0.02	ug/g	ND	71.8	50-140			
Benzo [k] fluoranthene	0.198	0.02	ug/g	ND	100	50-140			
Chrysene	0.176	0.02	ug/g	ND	89.3	50-140			
Dibenzo [a,h] anthracene	0.147	0.02	ug/g	ND	74.6	50-140			
Fluoranthene	0.176	0.02	ug/g	ND	89.1	50-140			
Fluorene	0.193	0.02	ug/g	ND	97.8	50-140			
Indeno [1,2,3-cd] pyrene	0.144	0.02	ug/g	ND	72.8	50-140			
1-Methylnaphthalene	0.152	0.02	ug/g	ND	77.2	50-140			
2-Methylnaphthalene	0.141	0.02	ug/g	ND	71.6	50-140			
Naphthalene	0.197	0.01	ug/g	ND	100	50-140			
Phenanthrene	0.174	0.02	ug/g	ND	88.2	50-140			
Pyrene	0.171	0.02	ug/g	ND	86.7	50-140			
Surrogate: 2-Fluorobiphenyl	*1.16*		*ug/g*		*73.4*	*50-140*			
Volatiles									
Acetone	10.0	0.50	ug/g		100	50-140			
Benzene	3.49	0.02	ug/g		87.1	60-130			
Bromodichloromethane	3.03	0.05	ug/g		75.8	60-130			
Bromoform	3.98	0.05	ug/g		99.6	60-130			
Bromomethane	4.12	0.05	ug/g		103	50-140			
Carbon Tetrachloride	2.41	0.05	ug/g		60.2	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chlorobenzene	4.05	0.05	ug/g		101	60-130			
Chloroform	3.24	0.05	ug/g		81.0	60-130			
Dibromochloromethane	4.12	0.05	ug/g		103	60-130			
Dichlorodifluoromethane	3.58	0.05	ug/g		89.5	50-140			
1,2-Dichlorobenzene	3.92	0.05	ug/g		98.0	60-130			
1,3-Dichlorobenzene	3.88	0.05	ug/g		97.0	60-130			
1,4-Dichlorobenzene	3.89	0.05	ug/g		97.3	60-130			
1,1-Dichloroethane	3.29	0.05	ug/g		82.2	60-130			
1,2-Dichloroethane	3.37	0.05	ug/g		84.4	60-130			
1,1-Dichloroethylene	4.03	0.05	ug/g		101	60-130			
cis-1,2-Dichloroethylene	3.17	0.05	ug/g		79.3	60-130			
trans-1,2-Dichloroethylene	3.31	0.05	ug/g		82.9	60-130			
1,2-Dichloropropane	3.26	0.05	ug/g		81.5	60-130			
cis-1,3-Dichloropropylene	2.64	0.05	ug/g		65.9	60-130			
trans-1,3-Dichloropropylene	2.80	0.05	ug/g		69.9	60-130			
Ethylbenzene	4.39	0.05	ug/g		110	60-130			
Ethylene dibromide (dibromoethane	3.34	0.05	ug/g		83.5	60-130			
Hexane	2.42	0.05	ug/g		60.5	60-130			
Methyl Ethyl Ketone (2-Butanone)	7.63	0.50	ug/g		76.3	50-140			
Methyl Isobutyl Ketone	6.88	0.50	ug/g		68.8	50-140			
Methyl tert-butyl ether	6.55	0.05	ug/g		65.5	50-140			
Methylene Chloride	3.98	0.05	ug/g		99.6	60-130			
Styrene	4.05	0.05	ug/g		101	60-130			
1,1,1,2-Tetrachloroethane	3.66	0.05	ug/g		91.6	60-130			
1,1,2,2-Tetrachloroethane	3.90	0.05	ug/g		97.4	60-130			
Tetrachloroethylene	4.29	0.05	ug/g		107	60-130			
Toluene	4.15	0.05	ug/g		104	60-130			
1,1,1-Trichloroethane	3.37	0.05	ug/g		84.2	60-130			
1,1,2-Trichloroethane	3.17	0.05	ug/g		79.2	60-130			
Trichloroethylene	3.52	0.05	ug/g		87.9	60-130			
Trichlorofluoromethane	3.81	0.05	ug/g		95.3	50-140			
Vinyl chloride	4.00	0.02	ug/g		100	50-140			
m,p-Xylenes	8.94	0.05	ug/g		112	60-130			
o-Xylene	4.62	0.05	ug/g		116	60-130			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

5710 Akins Road
Ottawa, ON K2S 1B8
Attn: Bruce Cochrane

Client PO: 6787 Miram
Project: BDC1185
Custody: 42795

Report Date: 1-Aug-2018
Order Date: 26-Jul-2018

Order #: 1830466

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

Paracel ID	Client ID
1830466-01	MW4SA1
1830466-02	MW4SA3

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Miram

Report Date: 01-Aug-2018
Order Date: 26-Jul-2018
Project Description: BDC1185

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	27-Jul-18	27-Jul-18
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	26-Jul-18	27-Jul-18
Mercury by CVAA	EPA 7471B - CVAA, digestion	30-Jul-18	31-Jul-18
PHC F1	CWS Tier 1 - P&T GC-FID	27-Jul-18	28-Jul-18
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	26-Jul-18	28-Jul-18
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	31-Jul-18	1-Aug-18
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	26-Jul-18	30-Jul-18
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	27-Jul-18	28-Jul-18
Solids, %	Gravimetric, calculation	27-Jul-18	27-Jul-18

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Miram

Report Date: 01-Aug-2018
Order Date: 26-Jul-2018
Project Description: BDC1185

	Client ID:	MW4SA1	MW4SA3	-	-
	Sample Date:	07/26/2018 09:00	07/26/2018 09:00	-	-
	Sample ID:	1830466-01	1830466-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	80.3	56.7	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	2.2	-	-	-
Barium	1.0 ug/g dry	84.7	-	-	-
Beryllium	0.5 ug/g dry	0.5	-	-	-
Boron	5.0 ug/g dry	11.0	-	-	-
Boron, available	0.5 ug/g dry	<0.5	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	17.0	-	-	-
Chromium (VI)	0.2 ug/g dry	<0.2	-	-	-
Cobalt	1.0 ug/g dry	4.7	-	-	-
Copper	5.0 ug/g dry	10.6	-	-	-
Lead	1.0 ug/g dry	9.2	-	-	-
Mercury	0.1 ug/g dry	<0.1	-	-	-
Molybdenum	1.0 ug/g dry	<1.0	-	-	-
Nickel	5.0 ug/g dry	9.9	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	28.4	-	-	-
Zinc	20.0 ug/g dry	<20.0	-	-	-
Volatiles					
Acetone	0.50 ug/g dry	-	<0.50	-	-
Benzene	0.02 ug/g dry	-	<0.02	-	-
Bromodichloromethane	0.05 ug/g dry	-	<0.05	-	-
Bromoform	0.05 ug/g dry	-	<0.05	-	-
Bromomethane	0.05 ug/g dry	-	<0.05	-	-
Carbon Tetrachloride	0.05 ug/g dry	-	<0.05	-	-
Chlorobenzene	0.05 ug/g dry	-	<0.05	-	-
Chloroform	0.05 ug/g dry	-	<0.05	-	-
Dibromochloromethane	0.05 ug/g dry	-	<0.05	-	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	-

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Miram

Report Date: 01-Aug-2018
Order Date: 26-Jul-2018
Project Description: BDC1185

	Client ID:	MW4SA1	MW4SA3	-	-
	Sample Date:	07/26/2018 09:00	07/26/2018 09:00	-	-
	Sample ID:	1830466-01	1830466-02	-	-
	MDL/Units	Soil	Soil	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	-
1,1-Dichloroethane	0.05 ug/g dry	-	<0.05	-	-
1,2-Dichloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	-
1,2-Dichloropropane	0.05 ug/g dry	-	<0.05	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	-	<0.05	-	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	-	-
Ethylene dibromide (dibromoethan	0.05 ug/g dry	-	<0.05	-	-
Hexane	0.05 ug/g dry	-	<0.05	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	<0.50	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	-	-
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	-	-
Methylene Chloride	0.05 ug/g dry	-	<0.05	-	-
Styrene	0.05 ug/g dry	-	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	-
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	-	-
Toluene	0.05 ug/g dry	-	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	-	<0.05	-	-
Trichloroethylene	0.05 ug/g dry	-	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g dry	-	<0.05	-	-
Vinyl chloride	0.02 ug/g dry	-	<0.02	-	-
m,p-Xylenes	0.05 ug/g dry	-	<0.05	-	-
o-Xylene	0.05 ug/g dry	-	<0.05	-	-
Xylenes, total	0.05 ug/g dry	-	<0.05	-	-
4-Bromofluorobenzene	Surrogate	-	97.3%	-	-
Dibromofluoromethane	Surrogate	-	95.5%	-	-
Toluene-d8	Surrogate	-	91.5%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	<7	-	-

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Miram

Report Date: 01-Aug-2018
Order Date: 26-Jul-2018
Project Description: BDC1185

	Client ID:	MW4SA1	MW4SA3	-	-
	Sample Date:	07/26/2018 09:00	07/26/2018 09:00	-	-
	Sample ID:	1830466-01	1830466-02	-	-
	MDL/Units	Soil	Soil	-	-
F2 PHCs (C10-C16)	4 ug/g dry	-	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	-	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	-	<6	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	<0.02	-	-
Acenaphthylene	0.02 ug/g dry	-	<0.02	-	-
Anthracene	0.02 ug/g dry	-	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g dry	-	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g dry	-	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	-	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	-	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	-	<0.02	-	-
Chrysene	0.02 ug/g dry	-	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	<0.02	-	-
Fluoranthene	0.02 ug/g dry	-	<0.02	-	-
Fluorene	0.02 ug/g dry	-	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	-	<0.04	-	-
Naphthalene	0.01 ug/g dry	-	<0.01	-	-
Phenanthrene	0.02 ug/g dry	-	<0.02	-	-
Pyrene	0.02 ug/g dry	-	<0.02	-	-
2-Fluorobiphenyl	Surrogate	-	79.1%	-	-
Terphenyl-d14	Surrogate	-	92.7%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.21*		*ug/g*		*90.4*	*50-140*			
Surrogate: Terphenyl-d14	*1.40*		*ug/g*		*105*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.85*		*ug/g*		*111*	*50-140*			
Surrogate: Dibromofluoromethane	*7.26*		*ug/g*		*90.7*	*50-140*			
Surrogate: Toluene-d8	*6.01*		*ug/g*		*75.1*	*50-140*			

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Miram

Report Date: 01-Aug-2018
Order Date: 26-Jul-2018
Project Description: BDC1185

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			0.0	30	
Arsenic	1.4	1.0	ug/g dry	1.3			9.4	30	
Barium	44.5	1.0	ug/g dry	44.6			0.2	30	
Beryllium	ND	0.5	ug/g dry	ND			0.0	30	
Boron, available	ND	0.5	ug/g dry	ND			0.0	35	
Boron	11.5	5.0	ug/g dry	10.0			14.3	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium (VI)	ND	0.2	ug/g dry	ND				35	
Chromium	14.3	5.0	ug/g dry	14.1			1.2	30	
Cobalt	5.8	1.0	ug/g dry	5.6			2.6	30	
Copper	11.4	5.0	ug/g dry	23.4			68.8	30	QR-01
Lead	5.3	1.0	ug/g dry	6.0			12.6	30	
Mercury	ND	0.1	ug/g dry	ND			0.0	30	
Molybdenum	ND	1.0	ug/g dry	ND			0.0	30	
Nickel	13.8	5.0	ug/g dry	13.3			3.4	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.3	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Uranium	ND	1.0	ug/g dry	ND			0.0	30	
Vanadium	24.4	10.0	ug/g dry	24.8			1.4	30	
Zinc	ND	20.0	ug/g dry	ND			0.0	30	
Physical Characteristics									
% Solids	93.2	0.1	% by Wt.	93.0			0.2	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND				40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	ND				40	
Pyrene	ND	0.02	ug/g dry	ND				40	
Surrogate: 2-Fluorobiphenyl	*0.990*		*ug/g dry*		*66.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.20*		*ug/g dry*		*81.2*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND				50	
Benzene	ND	0.02	ug/g dry	ND				50	
Bromodichloromethane	ND	0.05	ug/g dry	ND				50	
Bromoform	ND	0.05	ug/g dry	ND				50	
Bromomethane	ND	0.05	ug/g dry	ND				50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND				50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chlorobenzene	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Dibromochloromethane	ND	0.05	ug/g dry	ND				50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND				50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Ethylene dibromide (dibromoethane	ND	0.05	ug/g dry	ND				50	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND				50	
Trichloroethylene	ND	0.05	ug/g dry	ND				50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND				50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: 4-Bromofluorobenzene	*14.1*		*ug/g dry*		*99.9*	*50-140*			
Surrogate: Dibromofluoromethane	*12.7*		*ug/g dry*		*89.7*	*50-140*			
Surrogate: Toluene-d8	*12.9*		*ug/g dry*		*91.3*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	202	7	ug/g		101	80-120			
F2 PHCs (C10-C16)	93	4	ug/g	ND	108	60-140			
F3 PHCs (C16-C34)	249	8	ug/g	ND	118	60-140			
F4 PHCs (C34-C50)	142	6	ug/g	ND	106	60-140			
Metals									
Antimony	48.1		ug/L	ND	96.0	70-130			
Arsenic	49.5		ug/L	ND	97.9	70-130			
Barium	70.3		ug/L	17.8	105	70-130			
Beryllium	56.6		ug/L	ND	113	70-130			
Boron, available	4.27	0.5	ug/g	ND	85.4	70-122			
Boron	56.2		ug/L	ND	104	70-130			
Cadmium	49.2		ug/L	ND	98.2	70-130			
Chromium (VI)	4.5	0.2	ug/g		90.5	70-130			
Chromium	56.6		ug/L	5.6	102	70-130			
Cobalt	53.1		ug/L	2.2	102	70-130			
Copper	56.0		ug/L	9.4	93.3	70-130			
Lead	55.8		ug/L	2.4	107	70-130			
Mercury	1.39	0.1	ug/g	ND	92.8	70-130			
Molybdenum	47.7		ug/L	ND	95.4	70-130			
Nickel	56.6		ug/L	5.3	102	70-130			
Selenium	48.3		ug/L	ND	96.5	70-130			
Silver	48.4		ug/L	ND	96.8	70-130			
Thallium	52.5		ug/L	ND	105	70-130			
Uranium	52.2		ug/L	ND	104	70-130			
Vanadium	60.8		ug/L	ND	102	70-130			
Zinc	56.2		ug/L	ND	99.5	70-130			
Semi-Volatiles									
Acenaphthene	0.210	0.02	ug/g	ND	114	50-140			
Acenaphthylene	0.213	0.02	ug/g	ND	115	50-140			
Anthracene	0.175	0.02	ug/g	ND	94.3	50-140			
Benzo [a] anthracene	0.183	0.02	ug/g	ND	98.8	50-140			
Benzo [a] pyrene	0.196	0.02	ug/g	ND	106	50-140			
Benzo [b] fluoranthene	0.182	0.02	ug/g	ND	98.3	50-140			
Benzo [g,h,i] perylene	0.187	0.02	ug/g	ND	101	50-140			
Benzo [k] fluoranthene	0.185	0.02	ug/g	ND	99.9	50-140			
Chrysene	0.225	0.02	ug/g	ND	122	50-140			
Dibenzo [a,h] anthracene	0.180	0.02	ug/g	ND	96.9	50-140			
Fluoranthene	0.193	0.02	ug/g	ND	104	50-140			
Fluorene	0.207	0.02	ug/g	ND	112	50-140			
Indeno [1,2,3-cd] pyrene	0.193	0.02	ug/g	ND	104	50-140			
1-Methylnaphthalene	0.164	0.02	ug/g	ND	88.4	50-140			
2-Methylnaphthalene	0.176	0.02	ug/g	ND	95.0	50-140			
Naphthalene	0.192	0.01	ug/g	ND	104	50-140			
Phenanthrene	0.192	0.02	ug/g	ND	104	50-140			
Pyrene	0.199	0.02	ug/g	ND	108	50-140			
Surrogate: 2-Fluorobiphenyl	*1.24*		*ug/g*		*83.8*	*50-140*			
Volatiles									
Acetone	9.99	0.50	ug/g		99.9	50-140			
Benzene	4.27	0.02	ug/g		107	60-130			
Bromodichloromethane	4.23	0.05	ug/g		106	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	4.64	0.05	ug/g		116	60-130			
Bromomethane	4.27	0.05	ug/g		107	50-140			
Carbon Tetrachloride	4.96	0.05	ug/g		124	60-130			
Chlorobenzene	3.71	0.05	ug/g		92.7	60-130			
Chloroform	4.82	0.05	ug/g		121	60-130			
Dibromochloromethane	4.23	0.05	ug/g		106	60-130			
Dichlorodifluoromethane	3.53	0.05	ug/g		88.2	50-140			
1,2-Dichlorobenzene	3.45	0.05	ug/g		86.2	60-130			
1,3-Dichlorobenzene	3.23	0.05	ug/g		80.8	60-130			
1,4-Dichlorobenzene	3.05	0.05	ug/g		76.3	60-130			
1,1-Dichloroethane	3.95	0.05	ug/g		98.7	60-130			
1,2-Dichloroethane	4.42	0.05	ug/g		111	60-130			
1,1-Dichloroethylene	4.03	0.05	ug/g		101	60-130			
cis-1,2-Dichloroethylene	4.46	0.05	ug/g		111	60-130			
trans-1,2-Dichloroethylene	3.80	0.05	ug/g		94.9	60-130			
1,2-Dichloropropane	4.29	0.05	ug/g		107	60-130			
cis-1,3-Dichloropropylene	3.94	0.05	ug/g		98.4	60-130			
trans-1,3-Dichloropropylene	3.86	0.05	ug/g		96.6	60-130			
Ethylbenzene	3.78	0.05	ug/g		94.6	60-130			
Ethylene dibromide (dibromoethane	3.88	0.05	ug/g		97.0	60-130			
Hexane	2.64	0.05	ug/g		66.0	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.21	0.50	ug/g		82.1	50-140			
Methyl Isobutyl Ketone	10.2	0.50	ug/g		102	50-140			
Methyl tert-butyl ether	11.3	0.05	ug/g		113	50-140			
Methylene Chloride	3.27	0.05	ug/g		81.8	60-130			
Styrene	3.86	0.05	ug/g		96.6	60-130			
1,1,1,2-Tetrachloroethane	4.20	0.05	ug/g		105	60-130			
1,1,2,2-Tetrachloroethane	3.60	0.05	ug/g		90.1	60-130			
Tetrachloroethylene	3.90	0.05	ug/g		97.4	60-130			
Toluene	3.03	0.05	ug/g		75.9	60-130			
1,1,1-Trichloroethane	4.78	0.05	ug/g		119	60-130			
1,1,2-Trichloroethane	3.22	0.05	ug/g		80.4	60-130			
Trichloroethylene	4.06	0.05	ug/g		101	60-130			
Trichlorofluoromethane	4.82	0.05	ug/g		121	50-140			
Vinyl chloride	3.17	0.02	ug/g		79.1	50-140			
m,p-Xylenes	7.48	0.05	ug/g		93.6	60-130			
o-Xylene	3.76	0.05	ug/g		94.1	60-130			

Qualifier Notes:

Login Qualifiers :

Received at temperature > 25C
Applies to samples: MW4SA1, MW4SA3

QC Qualifiers :

QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

5710 Akins Road
Ottawa, ON K2S 1B8
Attn: Bruce Cochrane

Client PO: 6787 Hiram
Project: BDC1185
Custody: 42566

Report Date: 9-Aug-2018
Order Date: 2-Aug-2018

Order #: 1831395

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

Paracel ID	Client ID
1831395-01	MW1
1831395-02	MW4

Approved By:

Dale Robertson, BSc
Laboratory Director

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

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hiram

Report Date: 09-Aug-2018
Order Date: 2-Aug-2018
Project Description: BDC1185

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - water	MOE E3056 - colourimetric	8-Aug-18	8-Aug-18
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	3-Aug-18	3-Aug-18
Metals, ICP-MS	EPA 200.8 - ICP-MS	8-Aug-18	8-Aug-18
PHC F1	CWS Tier 1 - P&T GC-FID	6-Aug-18	7-Aug-18
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	2-Aug-18	7-Aug-18
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	7-Aug-18	8-Aug-18
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	6-Aug-18	7-Aug-18

PARACEL LABORATORIES LTD.

Order #: 1831395

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hiram

Report Date: 09-Aug-2018
Order Date: 2-Aug-2018
Project Description: BDC1185

	Client ID:	MW1	MW4	-	-
	Sample Date:	08/02/2018 09:00	08/02/2018 09:00	-	-
	Sample ID:	1831395-01	1831395-02	-	-
	MDL/Units	Water	Water	-	-
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	-	-
Antimony	0.5 ug/L	<0.5	<0.5	-	-
Arsenic	1 ug/L	1	<1	-	-
Barium	1 ug/L	231	372	-	-
Beryllium	0.5 ug/L	<0.5	<0.5	-	-
Boron	10 ug/L	52	47	-	-
Cadmium	0.1 ug/L	<0.1	<0.1	-	-
Chromium	1 ug/L	<1	<1	-	-
Chromium (VI)	10 ug/L	<10	<10	-	-
Cobalt	0.5 ug/L	2.6	2.6	-	-
Copper	0.5 ug/L	2.5	3.2	-	-
Lead	0.1 ug/L	0.1	0.1	-	-
Molybdenum	0.5 ug/L	1.4	2.0	-	-
Nickel	1 ug/L	7	8	-	-
Selenium	1 ug/L	<1	<1	-	-
Silver	0.1 ug/L	<0.1	<0.1	-	-
Sodium	200 ug/L	36800	21700	-	-
Thallium	0.1 ug/L	<0.1	<0.1	-	-
Uranium	0.1 ug/L	8.5	5.7	-	-
Vanadium	0.5 ug/L	<0.5	0.5	-	-
Zinc	5 ug/L	6	24	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hiram

Report Date: 09-Aug-2018
Order Date: 2-Aug-2018
Project Description: BDC1185

	Client ID:	MW1	MW4	-	-
	Sample Date:	08/02/2018 09:00	08/02/2018 09:00	-	-
	Sample ID:	1831395-01	1831395-02	-	-
	MDL/Units	Water	Water	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethan	0.2 ug/L	<0.2	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	93.4%	92.2%	-	-
Dibromofluoromethane	Surrogate	95.0%	95.8%	-	-
Toluene-d8	Surrogate	94.1%	93.8%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-

Certificate of Analysis
Client: CM3 Environmental Inc.
Client PO: 6787 Hiram

Report Date: 09-Aug-2018
Order Date: 2-Aug-2018
Project Description: BDC1185

	Client ID:	MW1	MW4	-	-
	Sample Date:	08/02/2018 09:00	08/02/2018 09:00	-	-
	Sample ID:	1831395-01	1831395-02	-	-
	MDL/Units	Water	Water	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	-	-
Acenaphthylene	0.05 ug/L	<0.05	<0.05	-	-
Anthracene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	-	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-
Chrysene	0.05 ug/L	<0.05	<0.05	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	-	-
Fluoranthene	0.01 ug/L	<0.01	<0.01	-	-
Fluorene	0.05 ug/L	<0.05	<0.05	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	-	-
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	-
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	-
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	-	-
Naphthalene	0.05 ug/L	<0.05	<0.05	-	-
Phenanthrene	0.05 ug/L	<0.05	<0.05	-	-
Pyrene	0.01 ug/L	<0.01	<0.01	-	-
2-Fluorobiphenyl	Surrogate	83.1%	71.1%	-	-
Terphenyl-d14	Surrogate	111%	83.5%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*18.7*		*ug/L*		*93.7*	*50-140*			
Surrogate: Terphenyl-d14	*18.5*		*ug/L*		*92.3*	*50-140*			
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*79.9*		*ug/L*		*99.9*	*50-140*			
Surrogate: Dibromofluoromethane	*75.8*		*ug/L*		*94.8*	*50-140*			
Surrogate: Toluene-d8	*72.5*		*ug/L*		*90.6*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND				30	
Metals									
Mercury	ND	0.1	ug/L	ND			0.0	20	
Antimony	ND	0.5	ug/L	ND			0.0	20	
Arsenic	ND	1	ug/L	ND			0.0	20	
Barium	22.8	1	ug/L	22.5			1.2	20	
Beryllium	ND	0.5	ug/L	ND			0.0	20	
Boron	20	10	ug/L	20			4.3	20	
Cadmium	ND	0.1	ug/L	ND			0.0	20	
Chromium (VI)	ND	10	ug/L	ND				20	
Chromium	ND	1	ug/L	ND			0.0	20	
Cobalt	ND	0.5	ug/L	ND			0.0	20	
Copper	1.06	0.5	ug/L	1.08			1.6	20	
Lead	ND	0.1	ug/L	ND			0.0	20	
Molybdenum	1.10	0.5	ug/L	1.12			1.3	20	
Nickel	ND	1	ug/L	ND			0.0	20	
Selenium	ND	1	ug/L	ND			0.0	20	
Silver	ND	0.1	ug/L	ND			0.0	20	
Sodium	17300	200	ug/L	17900			3.7	20	
Thallium	ND	0.1	ug/L	ND			0.0	20	
Uranium	ND	0.1	ug/L	ND			0.0	20	
Vanadium	ND	0.5	ug/L	ND			0.0	20	
Zinc	8	5	ug/L	9			11.3	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: 4-Bromofluorobenzene	*73.5*		*ug/L*		*91.8*	*50-140*			
Surrogate: Dibromofluoromethane	*70.6*		*ug/L*		*88.2*	*50-140*			
Surrogate: Toluene-d8	*74.2*		*ug/L*		*92.7*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1760	25	ug/L		88.0	68-117			
F2 PHCs (C10-C16)	1660	100	ug/L		104	60-140			
F3 PHCs (C16-C34)	4300	100	ug/L		110	60-140			
F4 PHCs (C34-C50)	3040	100	ug/L		123	60-140			
Metals									
Mercury	2.76	0.1	ug/L	ND	92.2	70-130			
Antimony	47.6		ug/L	ND	94.8	80-120			
Arsenic	47.5		ug/L	ND	93.9	80-120			
Barium	68.1		ug/L	22.5	91.2	80-120			
Beryllium	47.0		ug/L	ND	94.0	80-120			
Boron	66		ug/L	20	90.2	80-120			
Cadmium	48.3		ug/L	ND	96.6	80-120			
Chromium (VI)	184	10	ug/L	ND	92.0	70-130			
Chromium	49.5		ug/L	ND	98.5	80-120			
Cobalt	46.7		ug/L	ND	93.3	80-120			
Copper	46.4		ug/L	1.08	90.6	80-120			
Lead	44.9		ug/L	ND	89.7	80-120			
Molybdenum	44.9		ug/L	1.12	87.5	80-120			
Nickel	47.0		ug/L	ND	92.8	80-120			
Selenium	48.7		ug/L	ND	97.0	80-120			
Silver	48.5		ug/L	ND	97.0	80-120			
Sodium	18000		ug/L	17900	4.43	80-120			
Thallium	47.5		ug/L	ND	95.0	80-120			
Uranium	48.7		ug/L	ND	97.3	80-120			
Vanadium	49.9		ug/L	ND	99.4	80-120			
Zinc	54		ug/L	9	91.6	80-120			
Semi-Volatiles									
Acenaphthene	4.11	0.05	ug/L		82.2	50-140			
Acenaphthylene	3.78	0.05	ug/L		75.5	50-140			
Anthracene	5.12	0.01	ug/L		102	50-140			
Benzo [a] anthracene	4.55	0.01	ug/L		91.0	50-140			
Benzo [a] pyrene	5.36	0.01	ug/L		107	50-140			
Benzo [b] fluoranthene	5.90	0.05	ug/L		118	50-140			
Benzo [g,h,i] perylene	5.29	0.05	ug/L		106	50-140			
Benzo [k] fluoranthene	5.85	0.05	ug/L		117	50-140			
Chrysene	5.19	0.05	ug/L		104	50-140			
Dibenzo [a,h] anthracene	5.39	0.05	ug/L		108	50-140			
Fluoranthene	4.29	0.01	ug/L		85.7	50-140			
Fluorene	4.37	0.05	ug/L		87.3	50-140			
Indeno [1,2,3-cd] pyrene	5.66	0.05	ug/L		113	50-140			
1-Methylnaphthalene	5.07	0.05	ug/L		101	50-140			
2-Methylnaphthalene	5.61	0.05	ug/L		112	50-140			
Naphthalene	4.74	0.05	ug/L		94.7	50-140			
Phenanthrene	4.72	0.05	ug/L		94.4	50-140			
Pyrene	4.45	0.01	ug/L		89.0	50-140			
Surrogate: 2-Fluorobiphenyl	*16.7*		*ug/L*		*83.4*	*50-140*			
Volatiles									
Acetone	76.4	5.0	ug/L		76.4	50-140			
Benzene	35.5	0.5	ug/L		88.7	60-130			
Bromodichloromethane	39.4	0.5	ug/L		98.6	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	47.3	0.5	ug/L		118	60-130			
Bromomethane	27.1	0.5	ug/L		67.8	50-140			
Carbon Tetrachloride	40.8	0.2	ug/L		102	60-130			
Chlorobenzene	38.4	0.5	ug/L		96.0	60-130			
Chloroform	35.8	0.5	ug/L		89.6	60-130			
Dibromochloromethane	45.9	0.5	ug/L		115	60-130			
Dichlorodifluoromethane	29.6	1.0	ug/L		74.1	50-140			
1,2-Dichlorobenzene	43.7	0.5	ug/L		109	60-130			
1,3-Dichlorobenzene	44.7	0.5	ug/L		112	60-130			
1,4-Dichlorobenzene	43.7	0.5	ug/L		109	60-130			
1,1-Dichloroethane	31.4	0.5	ug/L		78.4	60-130			
1,2-Dichloroethane	39.8	0.5	ug/L		99.4	60-130			
1,1-Dichloroethylene	28.9	0.5	ug/L		72.3	60-130			
cis-1,2-Dichloroethylene	25.5	0.5	ug/L		63.7	60-130			
trans-1,2-Dichloroethylene	29.9	0.5	ug/L		74.8	60-130			
1,2-Dichloropropane	37.3	0.5	ug/L		93.2	60-130			
cis-1,3-Dichloropropylene	39.1	0.5	ug/L		97.8	60-130			
trans-1,3-Dichloropropylene	41.9	0.5	ug/L		105	60-130			
Ethylbenzene	40.1	0.5	ug/L		100	60-130			
Ethylene dibromide (dibromoethane	42.2	0.2	ug/L		105	60-130			
Hexane	40.1	1.0	ug/L		100	60-130			
Methyl Ethyl Ketone (2-Butanone)	115	5.0	ug/L		115	50-140			
Methyl Isobutyl Ketone	106	5.0	ug/L		106	50-140			
Methyl tert-butyl ether	88.0	2.0	ug/L		88.0	50-140			
Methylene Chloride	28.2	5.0	ug/L		70.4	60-130			
Styrene	38.2	0.5	ug/L		95.6	60-130			
1,1,1,2-Tetrachloroethane	44.9	0.5	ug/L		112	60-130			
1,1,2,2-Tetrachloroethane	42.0	0.5	ug/L		105	60-130			
Tetrachloroethylene	42.1	0.5	ug/L		105	60-130			
Toluene	37.9	0.5	ug/L		94.8	60-130			
1,1,1-Trichloroethane	38.6	0.5	ug/L		96.6	60-130			
1,1,2-Trichloroethane	39.6	0.5	ug/L		99.0	60-130			
Trichloroethylene	34.6	0.5	ug/L		86.5	60-130			
Trichlorofluoromethane	33.3	1.0	ug/L		83.3	60-130			
Vinyl chloride	32.9	0.5	ug/L		82.2	50-140			
m,p-Xylenes	84.2	0.5	ug/L		105	60-130			
o-Xylene	41.9	0.5	ug/L		105	60-130			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.