December 7, 2015
CB516-14-01

Mr. Gordon McKechnie
Canadian Bank Note Company, Limited
145 Richmond Road
Ottawa, Ontario, K1Z 1A1

Re: **2015 Environmental Site Assessment Program**
975 Gladstone Avenue, Ottawa, ON

Dear Mr. McKechnie,

BluMetric Environmental Inc. (BluMetric™) was retained by Canadian Bank Note Company, Limited (CBN) to complete an Environmental Site Assessment (ESA) program at the CBN facility located at 975 Gladstone Avenue in Ottawa, Ontario (the "Site"). The ESA program was completed as per the Work Plan prepared by BluMetric and dated October 2, 2014. The main objectives of the of the ESA program were as follows:

- Conduct an updated assessment of soil and groundwater quality conditions along the east property line and west side of Loretta Avenue North right-of-way.
- Inventory the groundwater monitoring well network at the Site. Identify those wells where repairs are required and those wells that are beyond repair and/or are of no further use. Provide a plan to complete the required well repairs and well decommissioning and leave in place a suitable monitoring well network for long term groundwater quality monitoring.
- Complete detailed mapping of subsurface utilities in the area of known subsurface impact at the east employee entrance and along the Loretta Avenue North right-of-way. Identify the constraints posed by the presence of these utilities on the excavation of soils in these areas.
- Based on the investigation findings, provide CBN with an action plan to address the risk associated with subsurface environmental impacts located on and off Site.

HISTORICAL INFORMATION SOURCES

All or parts of the following previous studies were available as information sources for this investigation.

- Water and Earth Science Associates Ltd. (WESA) December 16, 1993. Preliminary Investigation at Concrete Sump, B A Banknote Ottawa Facility. WESA Project No. 3148-C.

- WESA December 16, 1993. Preliminary Investigation at Former Heating Oil Tank, B A Banknote Ottawa Facility. WESA Project No, 3148-B.
- WESA January 17, 1994. Preliminary Investigation, Former Heating Oil Tank, B A Banknote, Ottawa Facility. WESA Project No. 3148-B.
- WESA March 1994. Investigation at the Former Heating Oil Tank Area. WESA Project No. 3148-B.
- WESA March 1994. Environmental Site Assessment, B A Banknote Printing Facility. WESA Project No. 3148-C.
- WESA April 7, 1994. Environmental Site Assessment, B A Banknote Printing Facility". WESA Project No. 3148-C.
- WESA April 1995. Off-Site Subsurface Investigation B A Banknote Printing Facility, 975 Gladstone Avenue, Ottawa, Technical Information. WESA Project No. 3703
- WESA May 30, 1995. Subsurface Investigation in the Area of the Former Underground Storage Tank, B A Banknote, 145 Loretta Avenue, Ottawa, Ontario. WESA Project No. 3703
- WESA September 14, 1995. Quarterly Groundwater Sampling Results. WESA Project No. 3703-1
- WESA August 1999. Progress Report Groundwater Monitoring. WESA project No. B034-1
- AGRA Earth & Environmental Ltd. (AGRA) October 1999. Status Report (review of past reports, groundwater sampling and analysis, detailed historical search and discussions with MOE)
- AMEC Earth & Environmental (AMEC) July 21, 2004. Sanitary Discharge Report, BAI Facility, 975 Gladstone Avenue, Ottawa.
- Dillon Consulting Ltd. (Dillon) August 4, 2006. Supplemental Subsurface Characterization Report, BAI Facility, 975 Gladstone Avenue, Ottawa.
- Dillon June 27, 2007. BAI Groundwater Monitoring (April 2007). BAI Facility, 975 Gladstone Avenue, Ottawa.
- Franz Environmental Inc. (Franz) June 30, 2010. 975 Gladstone Ave., BA International Inc., Groundwater Monitoring Program – Spring 2010 Results.
- Franz January 2011. BA International Inc., 2010 Groundwater Monitoring – Fall Sampling Results, 975 Gladstone Ave., Ottawa, ON.
- Franz February 2012. BA International Inc., Groundwater Monitoring – 2011 Summary Report, 975 Gladstone Ave., Ottawa, ON.
- Pinchin Environmental (Pinchin) August 29, 2012. Limited Peer Review – Cost Estimate and Scope of Work, 975 Gladstone Avenue, Ottawa ON. Pinchin File No.:78318.
- Pinchin August 13, 2013. Groundwater Treatment System Inspection and Upgrade Scope of Work and Cost Estimate, 975 Gladstone Avenue, Ottawa ON. Pinchin File No.:78318.001.

- Pinchin September 10, 2013. Off-Site Migration Summary Letter, 975 Gladstone Avenue, Ottawa ON. Pinchin File No.:78318.001.
- Pinchin November 13, 2013. Groundwater Treatment System Recommissioning – Scope of Work and Cost Estimate, 975 Gladstone Avenue, Ottawa ON. Pinchin File No.:78318.001.

SITE DESCRIPTION AND BACKGROUND

Former underground storage tanks (USTs) are considered the source of two areas of subsurface environmental impact documented for the 975 Gladstone Avenue property. Assessment of these areas has been on-going since 1993 and a soil/groundwater remediation system was operated at the site between 2001 and 2007. The two areas of concern for subsurface environmental impact are described as follows:

Former 5000 Imperial Gallon Bunker C Heating Oil Tank at Loretta Avenue North Loading Dock

This former UST was used to contain heating fuel products including Bunker C fuel and No. 2 fuel at different times in the past and was reported to be inactive for at least ten years prior to its removal in 1994. The subject UST was located in the loading dock area adjacent to Loretta Avenue at the north-east side of the facility. The UST and some adjacent soil and groundwater impact were removed in 1994. Not all soil and groundwater impact was removed due to structural concerns with excavation beneath the building and the presence of a natural gas line in the excavation area.

Since 1994, measurable thicknesses of liquid phase hydrocarbon (LPH) have been observed in monitoring wells in the vicinity of the former UST. LPH recovered from the monitoring wells was comprised of a viscous black highly weathered oil/sludge. Soil/groundwater impacts associated with the former UST consist of petroleum hydrocarbon (PHC) in the F3 and F4 fractions which are typical of highly weathered fuel oil and tars. The Bunker C oil impacts are also characterized by elevated concentrations of various polycyclic aromatic hydrocarbon (PAH) chemical parameters.

As of 2011, the area of groundwater impact associated with the former bunker C oil tank included the exterior truck bay, the east employee entrance, and the boiler room. The area was suspected to extend to the east and potentially on to Loretta Avenue (Franz, 2011). LPH has historically been observed at monitoring wells BHD-08 and BH13, both located on the sidewalk adjacent to Loretta Avenue. Neither location contained LPH in 2011. Bunker C oil impacts are typically characterized by low solubility and low mobility in groundwater with the oil typically becoming entrained in the soils. As the oil continues to weather over time, soil permeability is typically reduced and excavation remains as the only viable option for contaminant mass removal.

Former Solvent Storage Tank(s) Beneath East End of Plant

Two solvent storage tanks (reported as 750 and 1,900 litres capacity) were removed during construction of the eastern plant addition in 1979. Four additional USTs used for solvents and petroleum products were located approximately 10 m east of the former UST location and in the mixing room. These USTs were removed by B.A. Banknote in the mid to late 1990s. Contents of these former tanks are reported to have included linseed oil, benzene and various different carrier solvents used in the mixing of inks.

LPH has been observed in monitoring wells in the vicinity of these former USTs since 1994. Past assessments attribute the impacts to the USTs removed in 1979 and not the USTs in the mixing room, removed in the 1990s. The LPH in the monitoring wells is light brown in colour and has a chemical solvent (versus petroleum) odour. Impacts associated with this LPH are detected in the PHC F1 and F2 fractions which are typical of light distillate petroleum products like gasoline and kerosene. Previous sampling events have also detected benzene, toluene, ethylbenzene, xylenes, and various volatile organic compounds (VOCs) in the affected soils and groundwater.

LPH was originally observed in 1994 at monitoring well BH7 located at the 1979 UST removal location. LPH has been observed at BH12, located on the sidewalk and within the Loretta Avenue North right-of-way since approximately 1999, indicating the migration of LPH towards the east. As of 2011, LPH was still apparent at monitoring well BH7 in the former solvent storage and mixing room area and at BH12 located adjacent to the Loretta Avenue North paved roadway. The chemical characteristics of this LPH indicate that it is much more soluble and more mobile in groundwater than Bunker C oil. Where the impacts from the two contaminant source areas overlap the solvent may have a co-solvent effect on the Bunker C oil, increasing its subsurface mobility.

Dual Phase Extraction (DPE) Remediation System

A dual phase extraction (DPE) remediation system was operated at the Site from 2001 to 2007. The DPE system, installed by AGRA Earth & Environmental (AGRA, now AMEC), utilized twelve high-vacuum extraction wells; eight aligned north-south to the east of the building and on the City right-of-way and four aligned east-west in the employee entrance area. A treatment building/shed remains on site adjacent to the east building wall (Photo 1 in Appendix A). Little information is available on the design, operation, or overall effectiveness of the system. DPE systems use a high-vacuum to remove both contaminated groundwater and soil vapor for treatment and disposal. The effectiveness of this type of remediation system is limited by the permeability of soils which becomes reduced with system operation due to fouling of the well installation(s) and adjacent soils. It is understood through a verbal communication with Dillon Consulting Ltd. (Dillon) that the DPE system at 975 Gladstone Avenue was shut down in

2007 due to the fouling of the extraction wells. Franz, February 2012, concluded from its monitoring program that subsurface impacts are generally immobile, despite the presence of some LPH. Franz also concluded that "the low permeability soils would hinder the hydraulic removal of contaminants using the DPE". In 2013, it was proposed by Pinchin Environmental (Pinchin, August 13, 2013) that the fouled extraction wells be removed, a network of horizontal extraction galleries be installed in their place and the DPE system re-commissioned. The extraction wells which extend below the water table are in excess of 5.0 m deep at the Site. A trench excavated to this depth would be required for installation of the proposed horizontal extraction galleries. Excavation of a trench presents a number of concerns including the potential for undermining of the nearby CBN building foundation and the need to protect underground utilities and municipal servicing located beneath the Loretta Avenue North right-of-way. Of note, the location of the east property line for 975 Gladstone Avenue ranges from 0 to 1.4 m east of the building wall (see Figure 1). The Loretta Avenue North sidewalk and the Loretta Avenue North paved roadway are located 3.5 m and 5.0 m east of the property line, respectively. Consequently, the space available for trench excavation is limited and would be subject to City of Ottawa and utility company approvals.

Monitoring Well Network

Historical information indicates that more than 30 monitoring wells have been constructed at the Site since 1993 with some wells removed in conjunction with various UST removals and some wells having been paved over and lost over time. A total of eleven (11) wells (BH-series) are reported to remain on site from the 1993 to 1995 investigations by BluMetric (formerly WESA). A total of nine (9) wells were constructed by AGRA (now AMEC) in 2000 (BH103 to BH206-series) and are reported to remain on site along with the twelve (12) extraction wells installed by AGRA for the DPE system. No construction records for these wells are available. A total of nine (9) wells (BHD-series) were installed by Dillon Consulting Limited in 2006 (Dillon, August 4, 2006) and potentially remain on site. Well construction records for these wells were recently obtained through a City of Ottawa Freedom of Information request.

The two most recent groundwater sampling events for the Site monitoring well network were completed by Franz Environmental Inc. (Franz, February 2012) in November 2011 (BHD-03, BHD-04, BHD-07, BHD-09, BHD-15and BH9) and by Pinchin (Pinchin, September 10, 2013) in May 2013 (BH11, BH12, and BH13). The most recent observations of measurable LPH at the Site have been for monitoring wells BH7 (November 2011) and BH12 (May 2013), both installed in excess of 20 years ago. Black viscous oil with a thickness that could not be measured was also observed in November 2011 for wells at the employee entrance (BH103, BH104, and BH105) and in the boiler room (BH201).

Due to the significant age of some Site wells and the long term exposure of wells to LPH there is a concern whether current observations for these well locations are representative of subsurface conditions.

SITE CONDITION STANDARDS SELECTION

Selection of appropriate site condition standards for comparison to soil and groundwater quality at the Site was determined based on the following:

- The Site is for industrial use and is zoned by the City of Ottawa as general industrial.
- Bedrock is situated at greater than 2 m in depth (i.e. not a shallow soil property).
- No water supply wells are located on the Site or on neighbouring properties within 250 m of the Site (i.e. non potable groundwater use situation).
- Soil texture is classified as medium/fine based on overburden comprised of silt, clay and sandy silt till.

Based on site conditions, the most applicable Ministry of Environment and Climate Change (MOECC) site condition standards (SCS) are the Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition Industrial/Commercial/ Community Property Use (herein referred to as the MOECC Table 3 SCS), as listed in Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011), Standards for medium/fine textured soils are applicable for comparison to soil and groundwater quality sampling results.

UTILITY MAPPING PROGRAM

Detailed mapping of subsurface utilities involved the collection of drawings available from the City of Ottawa Information Centre and a review of drawings in previous Site investigation reports. USL-1 Underground Service Locators Inc. was retained to clear the five (5) proposed drilling locations and to mark all subsurface utilities in the area east of the 975 Gladstone building and extending to the east side of the Loretta Avenue North right-of-way. The marked utility locations were mapped by BluMetric in the field using total station survey methods. The identified utility locations are shown on the attached Figure 1. Photos of the marked utilities are included in Appendix A. The relative depths of the various utilities are provided on Figure 4. In summary, the following utilities were identified for the mapped area:

- 54 inch diameter storm sewer beneath west side of paved roadway.
- 54 inch water main trunk (blue paint in Photos 2, 3, and 4) beneath west side of paved roadway and adjacent to sidewalk.
- 42 inch sanitary sewer beneath east side of paved roadway.
- 12 inch combined sewer at centre of paved roadway.

- 8 inch local water main beneath east side of paved roadway (adjacent to gravel edge).
- 6 inch gas main (yellow flags in Photos 3 and 4) located approximately 1 m east of 975 Gladstone building.

Further to above, the 54 inch diameter water main has been described by the City of Ottawa Environmental Services Department as a 'vital water feeder main'. In the spring of 2015 a moratorium was in place by the City of Ottawa that prohibited excavation or drilling of any kind within 6 m of this water feeder main. In June 2015 the moratorium was lifted with the requirement for no excavation activity causing vibration within 3 m of the water main. To meet the 3 m minimum distance requirement, all five boreholes proposed for the 2015 ESA program were re-located beyond the west side of the pedestrian side walk.

MONITORING WELL NETWORK INVENTORY

The findings from the groundwater monitoring well network inventory are provided as Appendix B and are summarized as follows.

The following ten (10) monitoring wells shown on historical Site drawings could not be found:

- BHD-08, BH 108, BH 109, BH3, BH8, BHD-05, BH201, BH204, BH205, BH206

The following five (5) wells were found and based on observed condition are recommended for sealing and abandonment:

- BH4, BH5, BH6, BH202, BH203

The following seven (7) wells were found and are recommended for repair and use in future Site monitoring:

- BH10, BH12, BHD-01, BHD-02, 103, 104, 105

A total of six (6) monitoring wells (identified herein as Unknown or Unk BH1 to BH6) were found on the east side of Loretta Avenue North. None of the wells found correspond to locations indicated on historical Site drawings. Monitoring wells BHD-07, BHD-09 and BHD-10, indicated on historical drawings to be on the gravel edge to the paved roadway could not be found.

A work plan with costing to complete the required well decommissioning and well repairs will be provided to CBN under separate cover.

DRILLING (SOIL SAMPLING) INVESTIGATION PROGRAM

All field investigation and compliance verification sampling conducted by BluMetric followed the general protocols outlined in the MOECC "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, June 1996 and addenda" as well as the requirements of Ontario Regulation (O. Reg.) 153/04.

Five (5) boreholes were advanced to bedrock refusal and instrumented with monitoring wells (MW1 to MW5) on July 2, 3, and 6, 2015 for the ESA program. All monitoring wells were located on the grass immediately west of the pedestrian sidewalk as required for a minimum 3 m separation from the City water feeder main. The new monitoring well locations have an approximate spacing of 15 m and are shown on Figure 1. Aardvark Drilling Inc. was retained by BluMetric for borehole drilling/sampling and well installation by hollow stem auger methods.

Monitoring well installations were assembled on site and included a slot 10 well screen, placed to straddle the apparent water table. A silica sand pack was placed around the outside of the well screen in the annular space of the borehole. The sand pack was extended a minimum of 0.5 metres above the well screen interval. A bentonite clay seal was placed above the sand pack to within 0.75 m of ground surface. Wells were completed at ground surface with a flush mount manhole cover with locking bolts. All borehole cuttings produced by the drilling program were placed in barrels and disposed by Drain-All Ltd. of Ottawa, Ontario.

Soil samples were collected by split spoon sampler methods during the advancement of each borehole. Soil samples were collected continuously in 0.60 m intervals where subsurface conditions permitted. Soils from each sample interval were placed in sealable plastic bags and field screened for combustible soil headspace vapours using a Gastech Model 1238ME combustible gas indicator operated in "methane elimination" mode. The results of the field screening were used to select two soil samples from each borehole location producing the highest combustible vapour readings for laboratory analysis. Split samples collected in laboratory supplied jars were sent for laboratory analysis of volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and xylenes (BTEX) and for petroleum hydrocarbon (PHC F1 to F4) analysis. Methanol-preserved samples as per O.Reg 153/04 were collected in the field for PHC fraction F1 and BTEX/VOC analysis. The depth of the soil samples and the field combustible vapour headspace readings are presented on the Borehole Logs provided in Appendix C. The only soil samples with combustible vapour headspace readings in excess of 40 ppm were MW1 SS6 from 4.6 to 5.2 m bgs (45 ppm) and MW3 SS5 from 3.9 to 4.4 m bgs (100 ppm). The only soil samples producing a notable petroleum hydrocarbon odour were these same two samples.

Samples selected for laboratory analysis were submitted to Paracel Laboratories Ltd. (Paracel), a Canadian Association for Laboratory Accreditation (CALA) certified laboratory for chemical analysis. Samples were packed on ice in laboratory-supplied coolers and stored at approximately 4°C until they were submitted to the laboratory for analysis. Complete chain of custody protocols were followed throughout the sampling program. Requested analyses included VOCs and PHC F1 to F4 for all submitted samples and semi-volatiles analyses for samples submitted from boreholes MW1, MW2, and MW3, all located to the east and down gradient of the former Bunker C oil UST location. One blind duplicate sample (Dup #1) for sample MW3 SS5 was submitted for quality assurance and quality control (QAQC) assessment of the laboratory analytical results. All soil sample analytical results are provided in Table 2. All laboratory certificates of analyses are included in Appendix D.

One bulk soil sample of the soil cuttings was submitted to Paracel for Ontario Regulation 558 toxicity characteristic leaching procedure (TCLP) analysis to confirm soils are suitable for disposal at a solid waste landfill. The TCLP results were provided to Drain-All Ltd. prior to soil cuttings disposal. The TCLP laboratory certificate of analysis is included in Appendix D.

GROUNDWATER INVESTIGATION PROGRAM

The groundwater investigation involved the monitoring of static water level elevations, LPH thickness, and combustible vapours at the new monitoring wells and additional monitoring wells that were accessible at the Site.

Static water level and LPH measurements were collected for the monitoring well network using a Solinst® electronic oil/water interface meter prior to purging activity. All well locations were opened to atmospheric pressure and allowed to equilibrate before taking static level observations. The water level and LPH measurements are presented in Table 1. The interface probe tip and tape was cleaned between well locations using a combination of methanol and deionized water. Standpipe combustible vapour readings were obtained for each well location with a Gastech Model 1238ME combustible gas indicator operated in methane elimination mode. The combustible vapour reading results for each well location are included in Table 3. Readings of less than 100 ppm were obtained for all locations with the exception of MW5 (6% LEL) and BH12 (10% LEL), both found to contain solvent LPH.

Groundwater samples were collected on July 16, 2015 from four (4) of the five (5) new monitoring wells (MW1 to MW4) and from eight (8) additional existing Site monitoring wells (Unk-BH1, Unk-BH5, BH7, BHD-03, BH11, BH13, BH9 and BHD-06). New monitoring well MW5 was not sampled because it contained a 1 mm thickness of LPH. All monitoring wells were sampled using low flow (parameter stabilization) sampling methods with a peristaltic pump. During groundwater sample collection, groundwater was pumped until stabilization of indicator

parameters was reached. Indicator parameters included temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), pH and electrical conductivity (EC). Final field readings are presented in Table 3. Upon reaching parameter stabilization, the groundwater was considered representative of aquifer conditions and samples were collected in clean sample bottles provided by the laboratory. Sample bottles were separated from each other using a combination of bubble wrap and plastic bags to prevent any potential cross-contamination within the cooler during shipment. Purge water was collected in a barrel equipped with a cover and stored at the site until proper offsite disposal was conducted by Drain-All Ltd.

Samples collected for laboratory analysis were submitted to Paracel, following strict chain of custody protocols. Samples were packed on ice in laboratory-supplied coolers and stored at approximately 4°C until they were submitted to the laboratory for analysis. Requested analyses included VOCs and PHC F1 to F4 for all well locations near or down gradient (to the east) of the former solvent UST locations and BTEX, semi-volatiles and PHC F1 to F4 analyses for all well locations near or down gradient (to the east) of the former Bunker C oil UST location. One blind duplicate sample (Dup #1) for sample MW4 was submitted for QAQC assessment of investigation results. All laboratory certificates of analyses are included in Appendix D.

ESA INVESTIGATION RESULTS

Hydrogeological Conditions

Each of the five (5) boreholes was advanced to auger refusal which is inferred to be top of bedrock. Refusal was encountered at the following depths below ground surface (bgs): MW1 – 7.11 m, MW2 – 6.70 m, MW3 - 6.32 m, MW4 – 5.49 m, and MW5 – 6.10 m. As indicated in the cross-section in Figure 4, the bedrock surface appears to slope towards the north. As indicated in the borehole logs the bedrock is overlain by 1.5 to 2.0 m of silty sand to sandy site till. The till is overlain by clay which was observed to extend from approximately 2.5 m bgs to 4.5 m bgs. The clay is overlain by sand and gravel fill material.

Static groundwater level measurement data is provided in Table 1. Static water level measurements for the five (5) new monitoring wells (for July 16, 2015) are also indicated on the cross-section in Figure 4. Key observations made from the data in Table 1 include the following:

- The static water table depth at the Site was found to range from a minimum of 3.84 m bgs at BHD-06 to a maximum of 5.22 m bgs at MW5.
- For nearly all monitoring wells located adjacent to the Loretta Avenue North roadway a water table depth of at least 4.5 m bgs is indicated, placing the water table within the clay or top of the till unit.

- Comparison of the static water levels measured at BH9 (3.89 m) and BHD-06 (3.84 m) to static water levels at MW1 (4.02 m) and MW2 (4.43 m) suggest a groundwater flow gradient to the east toward the roadway.
- As indicated on Figure 4, static water levels for the five (5) new monitoring wells indicate a water table that is approximately 0.5 m above the 54 inch diameter storm sewer trunk. Storm sewer systems are typically not water tight and will permit some entry of groundwater if the sewer is below the water table. The water table depth combined with the apparent ground water flow gradient towards the roadway suggests a potential hydraulic influence from the storm sewer trunk.
- The static water table depth of approximately 4.5 m for the new monitoring wells correlates with the depth of highest combustible headspace vapour readings obtained for soils as indicated on the borehole logs in Appendix C for MW1 and MW3.
- LPH was observed at a depth of 5.21 m in new monitoring well MW5 and with a measured thickness of 1 mm.

Due to many of the monitoring wells being located inside the building or in secure areas of the Site it was not possible to get reference elevations for all monitoring well locations. Once monitoring well repairs are completed, a more complete elevation survey is recommended to permit a more detailed assessment of groundwater flow conditions.

Soil Sampling Results

Soil sample analytical results from the drilling investigation are provided in Table 2 in comparison to the MOECC Table 3 SCS. PHC results are also shown on Figure 2. The sample depths for all soil samples analyzed are depicted on the cross-section in Figure 4 for reference purposes.

The VOC results for all soil samples were below laboratory detection limits with the exception of ethylbenzene (0.32 µg/g) and m/p-xylenes (0.67 µg/g) detected for sample MW5 SS6. The measured levels for MW5 SS6 are well below the Table 3 SCS of 19 µg/g for ethylbenzene and 19 µg/g for total xylenes.

The semi volatiles results for all soil samples analyzed were below laboratory detection limits with the exception of fluorene (0.8 µg/g) and pyrene (0.9 µg/g) detected for sample MW3 SS5. The measured levels for MW3 SS5 are well below the Table 3 SCS of 69 µg/g for fluorene and 96 µg/g for pyrene.

Various PHC fractions were detected for soil samples from all borehole locations with the exception of MW4. The Table 3 SCS for PHC F1 (65 µg/g) was marginally exceeded for soil sample MW5 SS6 (68 µg/g) and the MW3 SS5 blind duplicate sample Dup #1 (138 µg/g). The Table 3 SCS for PHC F2 (250 µg/g) was exceeded for soil sample MW3 SS5 (578 µg/g). As indicated on Figure 4, soil samples MW3 SS5 and MW5 SS6 were obtained between 3.9 and 4.8 m bgs and in close proximity of the static water table.

The QAQC blind duplicate sample Dup #1 was collected for sample MW3 SS5. The relative percentage difference (RPD) for the duplicate sample parameter results were assessed to determine whether the analytical results are considered reliable. VOC results returned for both samples are identical. Semi-volatiles were detected for MW3 SS5 and not for Dup#1, but results are considered acceptable. PHC fractions F1 to F4 were detected for both samples and the results in each sample are similar order of magnitude. The difference in measured levels for each sample is potentially due to the heterogeneous nature of the soil samples collected (clayey silt till). In general the QAQC assessment indicates that the laboratory analytical data for soils from this investigation is considered reliable.

The O. Reg. 558 TCLP certificate analysis for the soil sample cuttings is included in Appendix D and indicates that all parameters tested were below the respective O. Reg. 558 threshold values.

Groundwater Sampling Results

Groundwater laboratory analytical results from the July 16, 2015 sampling event are presented in Table 4 in comparison to the MOECC Table 3 SCS. Laboratory Certificates of Analyses for all samples analyzed are included in Appendix D.

Groundwater samples collected from all sample locations, except for BH7, had analytical results below the applicable Table 3 SCS for all parameters analyzed. The groundwater sample collected from BH7 was found to exceed the Table 3 SCS for PHC F1 (750 µg/L) and F2 (150 µg/L). The detected PHC F1 concentration of 3,200 µg/L is approximate 4.3 times the Table 3 SCS. The detected PHC F2 concentration of 9,200 µg/L is nearly 60 times the respective MOECC SCS. As indicated previously herein, monitoring well MW5 contained 1 mm of measurable LPH and was not sampled on July 16, 2015. LPH was also evident for monitoring well BH12 and this well was not sampled on July 16, 2015. BH12 contains a bailer and a LPH thickness could not be measured for the well.

The QAQC blind duplicate sample Dup #1 was collected from monitoring well MW4. All laboratory analytical results for Dup #1 and MW4 were below the laboratory method detection limits. Based on the QAQC assessment the laboratory analytical data for groundwater samples from this investigation is considered reliable.

DISCUSSION OF RESULTS

An ESA program was completed at 975 Gladstone Avenue in Ottawa, Ontario to assess current soil and groundwater quality conditions along the east property line and the west side of the Loretta Avenue North right-of-way. The findings of this assessment are discussed as follows:

Soils

Soil samples were collected from boreholes advanced at five (5) locations with an approximate spacing of 15 m along the Loretta Avenue North right-of-way. Each borehole was situated approximately 3.6 m east of the 975 Gladstone Avenue property line. All boreholes were advanced to refusal, inferred to be bedrock, at depths ranging from 5.5 to 7.1 m bgs. Field measurements for combustible vapours in soil were generally low with elevated readings and petroleum hydrocarbon odours only evident for sample SS6 from 4.6 to 5.2 m bgs at MW1 and sample SS5 from 3.9 to 4.4 m bgs at MW3. Two (2) soil samples per borehole were submitted for laboratory analyses and only one soil sample at MW3 and one soil sample at MW5 exceeded the applicable MOECC SCS for petroleum hydrocarbons in soil. Soil sample MW5 SS6 (4.2 to 4.8 m bgs) marginally exceeded the PHC F1 SCS while soil sample MW3 SS5 (3.9 to 4.4 m bgs) or its blind duplicate sample (Dup#1) exceeded the PHC F1 and PHC F2 SCS by only two times. Consequently, the magnitude of detected soil impacts along the right-of-way is not considered high.

As indicated on Figure 4, the soil impact is situated near the measured static groundwater table between 4.0 and 5.0 m bgs. Consequently, the soil impact is inferred to be the result of LPH migration from sources on the 975 Gladstone Avenue property to the west. Though 1 mm of LPH was measured for monitoring well MW5, soil impacts detected for this borehole location only marginally exceed applicable soil quality standards. Borehole soil samples with detected impacts consist of clay at MW3 and sandy silt with clay till at MW5. The observation of low permeability soils infers that impacts are entrained within the soils and the potential for further migration of impacts is limited.

Groundwater

Groundwater samples were collected for twelve (12) monitoring well locations. Four (4) sample locations (BH7, BH9, BHD-03 and BHD-06) are within the 975 Gladstone Avenue property boundary. Only BH7, located at a former solvent UST location within the plant exceeded the MOECC Table 3 SCS. Six (6) sample locations (MW1, MW2, MW3, BH13, MW4, and BH11) are located immediately east of the 975 Gladstone Avenue property and along the Loretta Avenue North right-of-way with no samples exceeding the MOECC Table 3 SCS. Two (2) sample

locations (Unk BH1 and Unk BH9) are located along the east side of Loretta Avenue North with no samples exceeding the MOECC Table 3 SCS.

Measurable LPH was found for monitoring wells BH12 and MW5. BH12 is located 6 m north of MW5. Both wells are located along the Loretta Avenue North right-of-way and are approximately 10 m east of BH7. The LPH at BH12 and MW5 and the groundwater impact detected for MW7 are inferred to be associated with the same contaminant source (former solvent UST(s). Based on the absence of groundwater impact detected at BHD-03, BH11, and MW4, the inferred area of impact exceeding MOECC Table 3 SCS and/or with the presence of LPH (see Figure 3) extends from the vicinity of BH7 to the roadway (approximately 15 m) and extends approximately 15 m north-south along the right-of–way.

Groundwater impact associated with the former Bunker C oil UST was not detected for monitoring wells sampled in this investigation. Sampling results for BH9, BHD-06, MW1, MW2, and MW3, suggest impacts do not extend on to the Loretta Avenue North right-of-way.

RECOMMENDATIONS

Based on the results of the 2015 ESA program, soil and groundwater impacts remain evident on the City of Ottawa right-of-way. The magnitude of detected soil impacts is not considered high and impacts appear to be entrained within the low permeability clay and till soils. Groundwater impacts that include the presence of LPH are present over a 15 m length of the Loretta Avenue North right-of-way. Again due to the presence of low permeability soils the mobility of groundwater impacts is limited. BluMetric is in agreement with the conclusion provided in the Franz, February 2012 report that "the low permeability soils would hinder the hydraulic removal of contaminants using the DPE". Any remedial excavation program would need to extend to at least 5.0 m depth. It is BluMetric's opinion that this excavation program would pose undue risk for potential structural impacts to the nearby CBN building foundation and may be considered by the City of Ottawa as posing an unacceptable level of risk for impact to the nearby 54 inch diameter water main trunk. Based on the study findings, it is recommended that a contaminant management plan (CMP) be implemented. The CMP should be in place until such time that subsurface impacts can be safely excavated and removed. Components of the CMP should include the following:

1. An Off-Site Management Agreement as described in Policy 7 of Section 4.8.4-Contaminated Sites of the Official Plan should be established with the City of Ottawa. This agreement serves as documentation of CBN's full disclosure of impacts extending on to the City of Ottawa right-of-way. The agreement will also ensure CBN's notification of pending sewer/water upgrades on the Loretta Avenue North right-of-way and its participation/control over the removal/disposal of subsurface impacts on the right-of-way at the time of construction.

2. An annual groundwater monitoring program for on-Site and off-Site monitoring wells should be implemented. The groundwater monitoring program serves as due diligence in monitoring the groundwater impact and assuring the City of Ottawa that the subsurface impact is stable as a minimum and is being monitored. The monitoring wells recommended for annual sampling include: MW1, MW2, MW3, MW4, BH7, BH9, BH10, BH11, BHD-06, BH104, BH105, BHD-01, BHD-02, BHD-03, and Unk BH5.
3. Passive hydrophobic skimmers should be installed at BH12 and MW5 to collect LPH in groundwater at these monitoring well locations. The three nearby DPE extraction wells should be inspected and assessed as potential additional locations for LPH removal.
4. The DPE system should be appropriately decommissioned. This should include the sealing and abandonment of all DPE extraction wells that are no longer of use.
5. The monitoring well repairs and well decommissioning recommendations derived from the monitoring well inventory (presented previously herein) should be implemented.

CLOSURE

The information presented herein is based on field observations and laboratory testing of soil samples collected at the specified locations. It is not intended to be a definitive investigation of contamination or other environmental concerns that may exist on-site. Every effort was made to collect representative samples from the borehole sampling locations. The conclusions presented in this report represent our professional opinion, in light of the terms of reference, scope of work, and any limiting conditions noted herein.

Should you have any questions regarding this report or require more information, please do not hesitate to contact the undersigned at (613) 839-3053.

Respectfully Submitted,
BluMetric Environmental Inc.

Jessica Petrocco, M. Eng., EIT
Environmental Scientist

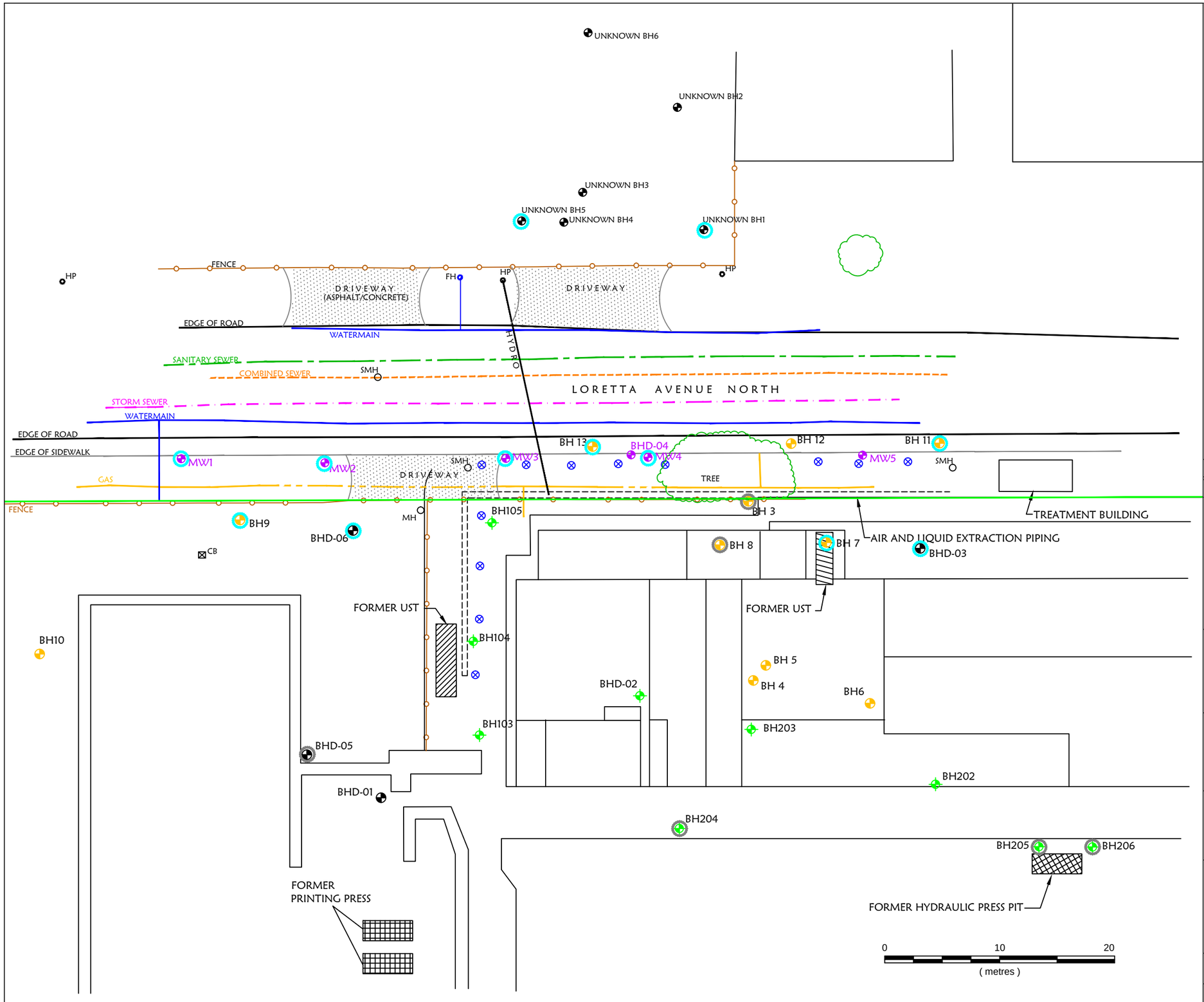
Robert Hillier, B.Sc., P. Geo., QP^{ESA}
Project Manager / Senior Hydrogeologist

Encl. Figure 1 – Monitoring Well Site Plan
Figure 2 – Soil Analytical Results
Figure 3 – Groundwater Analytical Results
Figure 4 – Cross Section

Table 1 – Static Groundwater Level Measurements
Table 2 – Summary of Soil Quality Data
Table 3 – Field Parameters
Table 4 – Summary of Groundwater Quality Data

Appendix A – Photo Log
Appendix B – Monitoring Well Inventory
Appendix C – Borehole Logs
Appendix D – Laboratory Certificates of Analysis

Ref: B516-14-01 CBN Gladstone Site Assessment – Final Report Dec 2015



LEGEND

- Monitoring Well (BluMetric, 2015) (2 Inch)
- Monitoring Well (AMEC) (4 Inch)
- DPE Recovery Well (AMEC) (18 Inch)
- Monitoring Well (WESA) (1 1/4 Inch)
- Monitoring Well (DILLON) (1 1/4 Inch)
- Monitoring Well Not Found
- Groundwater Monitoring Well Sampled July 2015
- Property Boundary

N

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC. DO NOT SCALE DRAWING. THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.

Plan Reference: Pinchin Environmental, Sept. 2013

CLIENT

CANADIAN BANK NOTE COMPANY LTD.
975 GLADSTONE AVENUE
OTTAWA, ON

PROJECT

ENVIRONMENTAL SITE ASSESSMENT PROGRAM

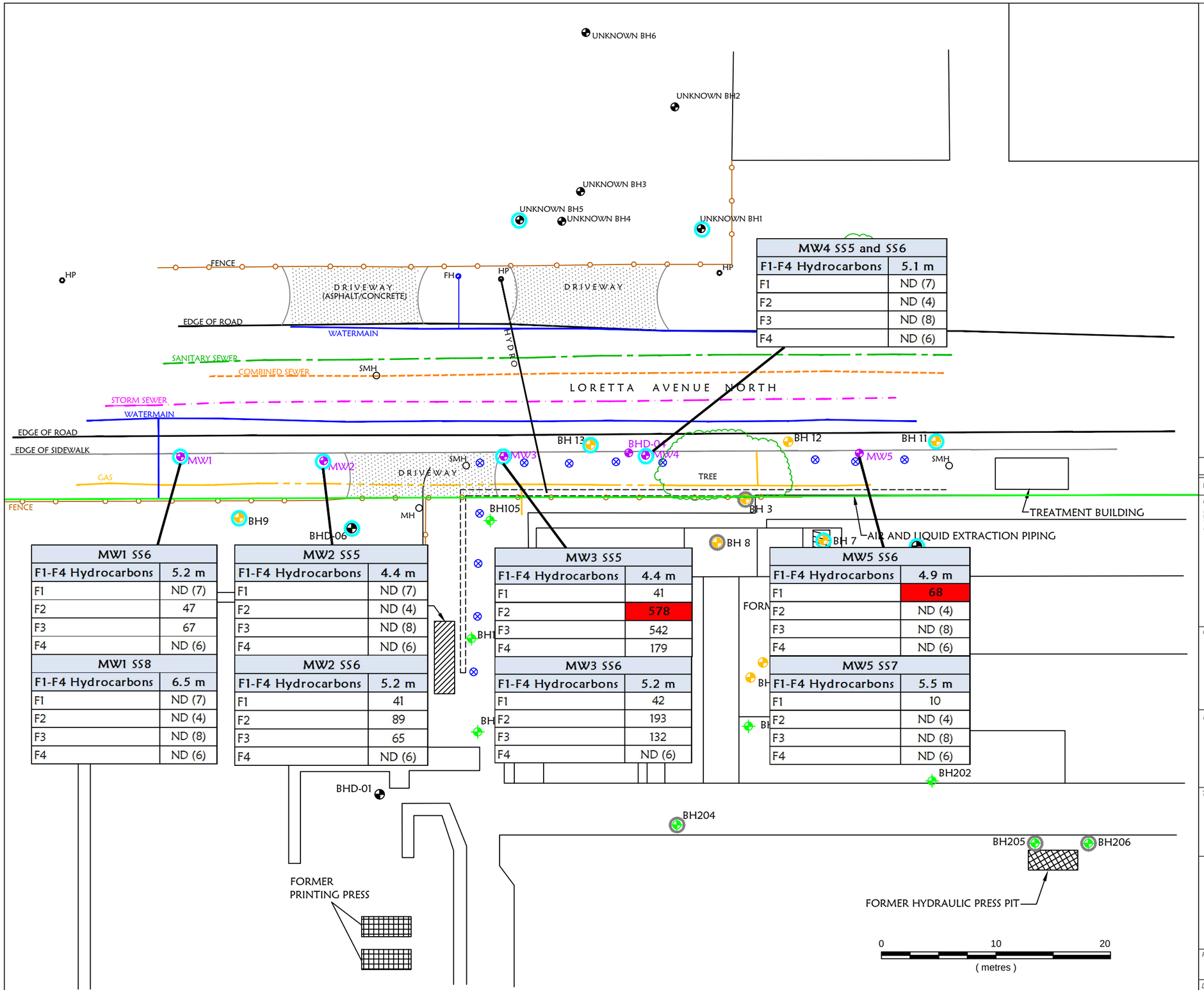
TITLE

MONITORING WELL SITE PLAN

BluMetric Environmental
3108 Carp Road PO Box 430
Ottawa, Ontario K0A 1L0
TEL: (613) 839-3053
FAX: (613) 839-5376
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
CB0516-14-01	2015-11-09

DRAWN	CHECKED	DWG NO.	REV
CMR	RH	1	0



MW4 SS5 and SS6	
F1-F4 Hydrocarbons	5.1 m
F1	ND (7)
F2	ND (4)
F3	ND (8)
F4	ND (6)

MW1 SS6	
F1-F4 Hydrocarbons	5.2 m
F1	ND (7)
F2	47
F3	67
F4	ND (6)

MW1 SS8	
F1-F4 Hydrocarbons	6.5 m
F1	ND (7)
F2	ND (4)
F3	ND (8)
F4	ND (6)

MW2 SS5	
F1-F4 Hydrocarbons	4.4 m
F1	ND (7)
F2	ND (4)
F3	ND (8)
F4	ND (6)

MW2 SS6	
F1-F4 Hydrocarbons	5.2 m
F1	41
F2	89
F3	65
F4	ND (6)

MW3 SS5	
F1-F4 Hydrocarbons	4.4 m
F1	41
F2	578
F3	542
F4	179

MW3 SS6	
F1-F4 Hydrocarbons	5.2 m
F1	42
F2	193
F3	132
F4	ND (6)

MW5 SS6	
F1-F4 Hydrocarbons	4.9 m
F1	68
F2	ND (4)
F3	ND (8)
F4	ND (6)

MW5 SS7	
F1-F4 Hydrocarbons	5.5 m
F1	10
F2	ND (4)
F3	ND (8)
F4	ND (6)

LEGEND

- Monitoring Well (BluMetric, 2015) (2 Inch)
- Monitoring Well (AMEC) (4 Inch)
- DPE Recovery Well (AMEC) (18 Inch)
- Monitoring Well (WESA) (1 1/4 Inch)
- Monitoring Well (DILLON) (1 1/4 Inch)
- Monitoring Well Not Found
- Groundwater Monitoring Well Sampled July 2015
- Property Boundary

Parameter	Abbreviation	MOECC Table 3
F1-F4 Hydrocarbons		
F1 (C6-C10 Hydrocarbons)	F1	65
F2 (C10-C16 Hydrocarbons)	F2	250
F3 (C16-C34 Hydrocarbons)	F3	2500
F4 (C34-C50 Hydrocarbons)	F4	6600

Notes:

- All units are in ug/g

ND (6) - Non detect (method detection limit)

68 - Concentration exceeds MOECC Table 3 SCS

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC. DO NOT SCALE DRAWING. THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.

Plan Reference: Pinchin Environmental, Sept. 2013

CLIENT

CANADIAN BANK NOTE COMPANY LTD.
975 GLADSTONE AVENUE
OTTAWA, ON

PROJECT

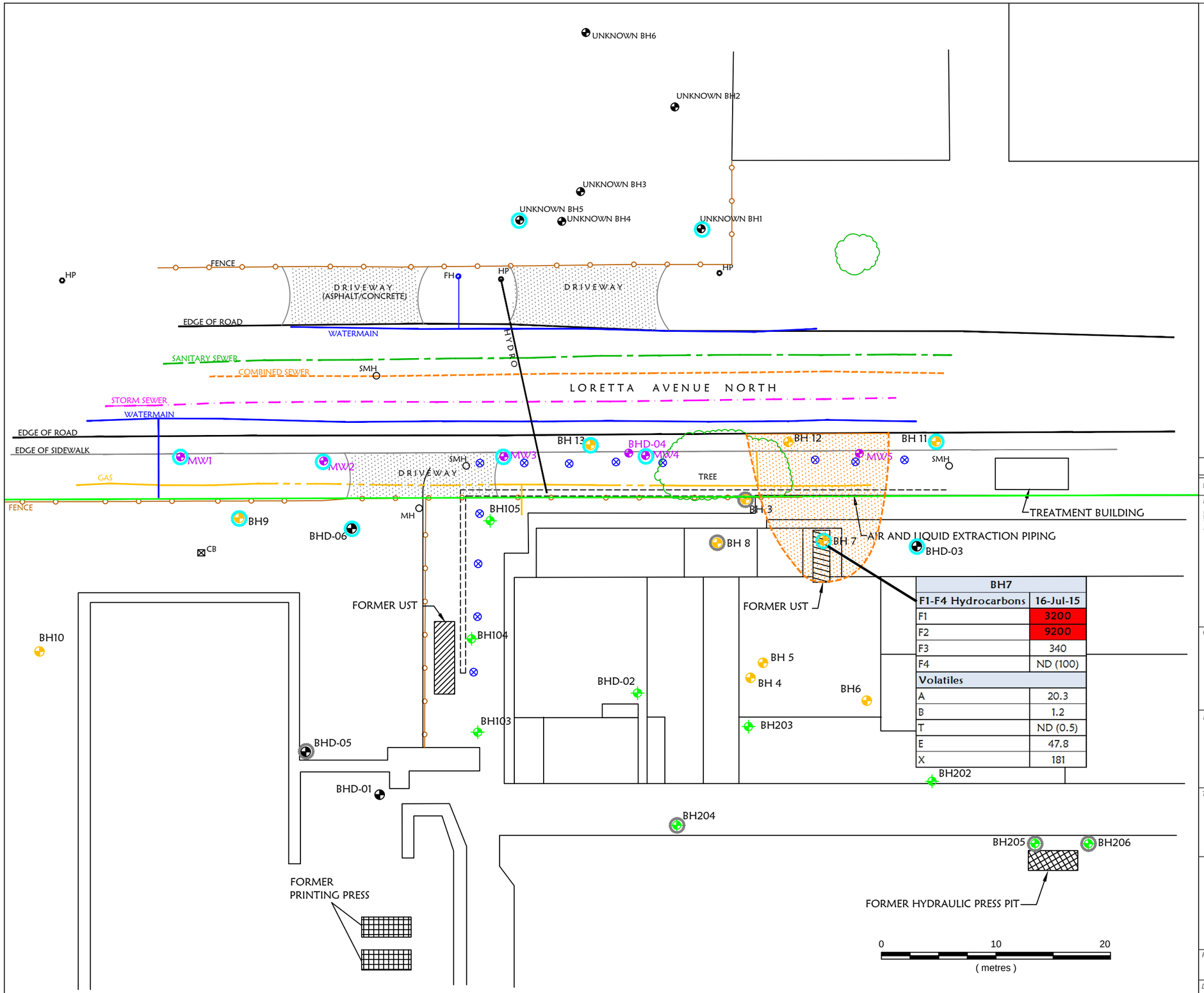
ENVIRONMENTAL SITE ASSESSMENT PROGRAM

TITLE

SOIL ANALYTICAL RESULTS

BluMetric Environmental
3108 Carp Road PO Box 430
Ottawa, Ontario K0A 1L0
TEL: (613) 839-3053
FAX: (613) 839-5376
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE		
CB0516-14-01	2015-11-09		
DRAWN	CHECKED	DWG NO.	REV
CMR	RH	2	0



BH7	
F1-F4 Hydrocarbons	**16-Jul-15**
F1	3200
F2	9200
F3	340
F4	ND (100)
Volatiles	
A	20.3
B	1.2
T	ND (0.5)
E	47.8
X	181

LEGEND

- Monitoring Well (BluMetric, 2015) (2 Inch)
- Monitoring Well (AMEC) (4 Inch)
- DPE Recovery Well (AMEC) (18 Inch)
- Monitoring Well (WESA) (1 1/4 Inch)
- Monitoring Well (DILLON) (1 1/4 Inch)
- Monitoring Well Not Found
- Groundwater Monitoring Well Sampled July 2015
- Property Boundary
- Inferred Area of Groundwater Impact Exceeding MOECC Table 3 SCS

Parameter	Abbreviation	MOECC Table 3
F1-F4 Hydrocarbons		
F1 (C6-C10 Hydrocarbons)	F1	750
F2 (C10-C16 Hydrocarbons)	F2	150
F3 (C16-C34 Hydrocarbons)	F3	500
F4 (C34-C50 Hydrocarbons)	F4	500
BTEX		
Acetone	A	130,000
Benzene	B	430
Toluene	T	18000
Ethylbenzene	E	2300
Xylenes	X	4200

Notes:
- All units are in ug/g
- ND (100) - Non detect (method detection limit)
- 3200 - Concentration exceeds MOECC Table 3 SCS

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

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Plan Reference: Pinchin Environmental, Sept. 2013

CLIENT

CANADIAN BANK NOTE COMPANY LTD.
975 GLADSTONE AVENUE
OTTAWA, ON

PROJECT

ENVIRONMENTAL SITE ASSESSMENT PROGRAM

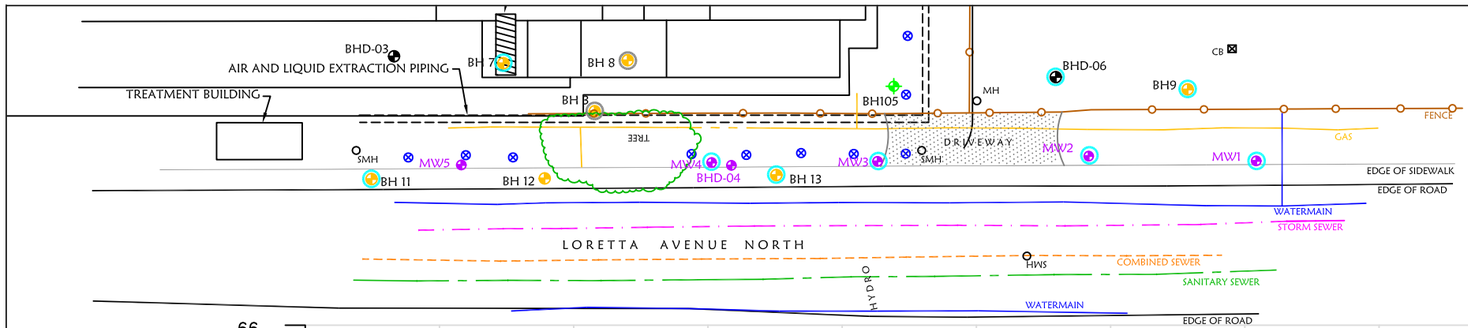
TITLE

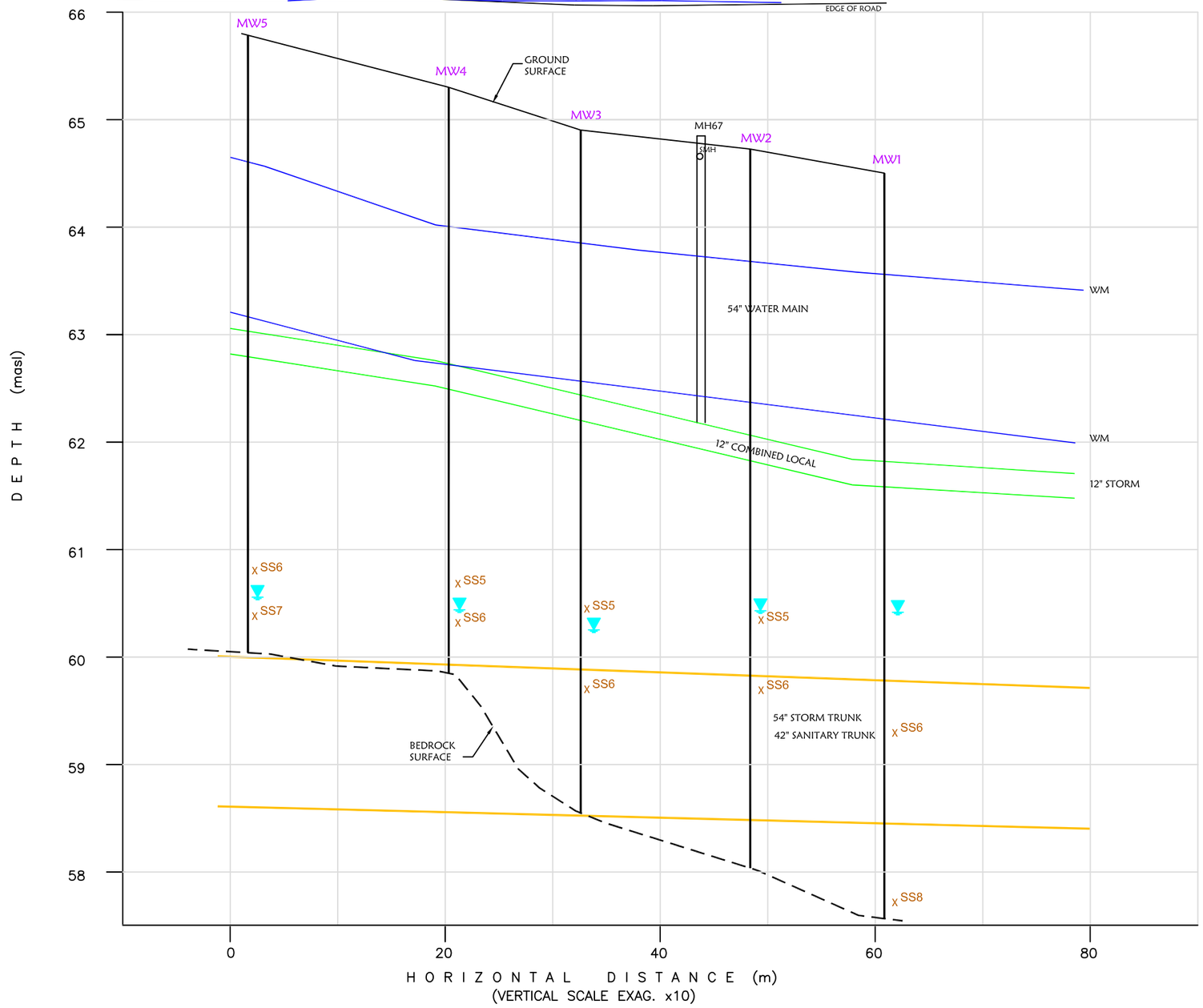
GROUNDWATER ANALYTICAL RESULTS

BluMetric Environmental
3108 Carp Road PO Box 430
Ottawa, Ontario K0A 1L0
TEL: (613) 839-3053
FAX: (613) 839-5376
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
CB0516-14-01	2015-11-09

DRAWN	CHECKED	DWG NO.	REV
CMR	RH	3	0





LEGEND

- Monitoring Well (BluMetric, 2015) (2 Inch)
- Monitoring Well (AMEC) (4 Inch)
- DPE Recovery Well (AMEC) (18 Inch)
- Monitoring Well (WESA) (1 1/4 Inch)
- Monitoring Well (DILLON) (1 1/4 Inch)
- Monitoring Well Not Found
- Groundwater Monitoring Well Sampled July 2015
- Static water level - July 16, 2015
- SS5 X Soil sample analyzed

N

0 10 20
(metres)

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC. DO NOT SCALE DRAWING. THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.

Plan Reference: Pinchin Environmental, Sept. 2013

CLIENT

CANADIAN BANK NOTE COMPANY LTD.
975 GLADSTONE AVENUE
OTTAWA, ON

PROJECT

ENVIRONMENTAL SITE ASSESSMENT PROGRAM

TITLE

CROSS SECTION

BluMetric Environmental
3108 Carp Road PO Box 430
Ottawa, Ontario K0A 1L0
TEL: (613) 839-3053
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Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE		
CB0516-14-01	2015-09-30		
DRAWN	CHECKED	DWG NO.	REV
CMR	BA	4	0

Table 1: Static Groundwater Level Measurements
Canadian Bank Note Company Limited
975 Gladstone Avenue, Ottawa, ON

Updated: 9-Sep-15

Well ID	Reference Elevation (masl)*				8-Jul-15				16-Jul-15			
					Depth to		Elevation		Depth to		Elevation	
	Top of PVC	Ground Surface	Top of Screen	Bottom of Screen	LNAPL (mbTPVC)	Water (mbTPVC)	LNAPL (mbTPVC)	Water (masl)	LNAPL (mbTPVC)	Water (mbTPVC)	LNAPL (mbTPVC)	Water (masl)
MW1	64.47	64.54	60.69	57.54	-	3.93	-	60.54	-	4.02	-	60.46
MW2	64.47	64.73	61.03	58.03	-	4.28	-	60.19	-	4.43	-	60.05
MW3	64.89	64.96	61.64	58.64	-	4.56	-	60.33	-	4.65	-	60.25
MW4	65.23	65.30	62.81	59.81	-	4.63	-	60.60	-	4.83	-	60.41
MW5	65.76	65.81	63.21	60.21	5.109	5.110	60.651	60.650	5.219	5.220	60.541	60.540
BH7	-	-	-	-	-	4.45	-	-	-	4.52	-	-
BH9	-	64.49	-	-	-	2.30	-	-	-	3.89	-	60.60
BH11	-	65.96	-	-	-	5.05	-	-	-	5.14	-	60.82
BH12	-	65.62	-	-	-	bailer	-	-	-	bailer	-	-
BH13	-	65.15	-	-	-	4.43	-	-	-	4.49	-	60.66
BHD-01	-	-	-	-	-	dry	-	-	-	-	-	-
BHD-02	-	-	-	-	-	3.33	-	-	-	-	-	-
BHD-03	-	-	-	-	-	4.40	-	-	-	4.40	-	-
BHD-04	65.11	65.27	-	-	-	4.80	-	60.31	-	-	-	-
BHD-06	-	-	-	-	-	-	-	-	-	3.84	-	-
Unknown BH1	-	-	-	-	-	4.27	-	-	-	4.27	-	-
Unknown BH3	-	-	-	-	-	4.76	-	-	-	4.76	-	-
Unknown BH4	-	-	-	-	-	4.58	-	-	-	4.58	-	-
Unknown BH5	-	-	-	-	-	4.45	-	-	-	4.45	-	-
Unknown BH6	-	-	-	-	-	4.69	-	-	-	4.69	-	-

Notes:

* Reference elevation of 64.66 for combined sewer manhole lid on Loretta Ave, opposite east plant entrance.
mbTPVC - metres below top of PVC
masl - metres above sea level
LNAPL - Light non-aqueous phase liquid

Table 2: Summary of Soil Quality Data
Canadian Bank Note Company Limited
975 Gladstone Avenue, Ottawa, ON

Parameter	Units	MDL	MOECC Table 3[1]	Sample ID										
				MW1 SS6	MW1 SS8	MW2 SS5	MW2 SS6	MW3 SS5	Dup#1	MW3 SS6	MW4 SS5	MW4 SS6	MW5 SS6	MW5 SS7
			Sample date >	6-Jul-15	6-Jul-15	3-Jul-15	3-Jul-15	3-Jul-15	3-Jul-15	3-Jul-15	2-Jul-15	2-Jul-15	2-Jul-15	2-Jul-15
			Sample Depth (m)>	4.6-5.2	6.1-6.5	3.9-4.4	4.6-5.1	3.9-4.4	3.9-4.4	4.6-5.1	3.9-4.4	4.6-5.1	4.2-4.8	4.9-5.5
Volatiles														
Acetone	ug/g dry	0.50	28 ug/g dry	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Benzene	ug/g dry	0.02	0.4 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Bromodichloromethane	ug/g dry	0.05	18 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Bromoform	ug/g dry	0.05	1.7 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Bromomethane	ug/g dry	0.05	0.05 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Carbon Tetrachloride	ug/g dry	0.05	1.5 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Chlorobenzene	ug/g dry	0.05	2.7 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Chloroform	ug/g dry	0.05	0.18 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Dibromochloromethane	ug/g dry	0.05	13 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Dichlorodifluoromethane	ug/g dry	0.05	25 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,2-Dichlorobenzene	ug/g dry	0.05	8.5 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,3-Dichlorobenzene	ug/g dry	0.05	12 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,4-Dichlorobenzene	ug/g dry	0.05	0.84 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1-Dichloroethane	ug/g dry	0.05	21 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,2-Dichloroethane	ug/g dry	0.05	0.05 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1-Dichloroethylene	ug/g dry	0.05	0.48 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
cis-1,2-Dichloroethylene	ug/g dry	0.05	37 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
trans-1,2-Dichloroethylene	ug/g dry	0.05	9.3 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,2-Dichloropropane	ug/g dry	0.05	0.68 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
cis-1,3-Dichloropropylene	ug/g dry	0.05		ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
trans-1,3-Dichloropropylene	ug/g dry	0.05		ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,3-Dichloropropene, total	ug/g dry	0.05	0.21 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,2-Dibromoethane	ug/g dry	0.05	0.05 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Ethylbenzene	ug/g dry	0.05	19 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.32	ND (0.05)
Hexane	ug/g dry	0.05	88 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Methyl Ethyl Ketone (2-Butanone	ug/g dry	0.50	88 ug/g dry	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Methyl Isobutyl Ketone	ug/g dry	0.50	210 ug/g dry	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Methyl tert-butyl ether	ug/g dry	0.05	3.2 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Methylene Chloride	ug/g dry	0.05	2 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Styrene	ug/g dry	0.05	43 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,1,2-Tetrachloroethane	ug/g dry	0.05	0.11 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,2,2-Tetrachloroethane	ug/g dry	0.05	0.094 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Tetrachloroethylene	ug/g dry	0.05	21 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Toluene	ug/g dry	0.05	78 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,1-Trichloroethane	ug/g dry	0.05	12 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,2-Trichloroethane	ug/g dry	0.05	0.11 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Trichloroethylene	ug/g dry	0.05	0.61 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Trichlorofluoromethane	ug/g dry	0.05	5.8 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Vinyl Chloride	ug/g dry	0.02	0.25 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
m/p-Xylene	ug/g dry	0.05		ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.67	ND (0.05)
o-Xylene	ug/g dry	0.05		ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Xylenes, total	ug/g dry	0.05	30 ug/g dry	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.67	ND (0.05)
Hydrocarbons														
F1 PHCs (C6-C10)	ug/g dry	7	65 ug/g dry	ND (7)	ND (7)	ND (7)	41	41	138	42	ND (7)	ND (7)	68	10
F2 PHCs (C10-C16)	ug/g dry	4	250 ug/g dry	47	ND (4)	ND (4)	89	578	127	193	ND (4)	ND (4)	ND (4)	ND (4)
F3 PHCs (C16-C34)	ug/g dry	8	2500 ug/g dry	67	ND (8)	ND (8)	65	542	146	132	ND (8)	ND (8)	ND (8)	ND (8)
F4 PHCs (C34-C50)	ug/g dry	6	6600 ug/g dry	ND (6)	ND (6)	ND (6)	ND (6)	179	35	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
Semi-Volatiles														
Acenaphthene	ug/g dry	0.02	96 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Acenaphthylene	ug/g dry	0.02	0.17 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Anthracene	ug/g dry	0.02	0.74 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Benzo[a]anthracene	ug/g dry	0.02	0.96 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Benzo[a]pyrene	ug/g dry	0.02	0.3 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Benzo[b]fluoranthene	ug/g dry	0.02	0.96 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Benzo[g,h,i]perylene	ug/g dry	0.02	9.6 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Benzo[k]fluoranthene	ug/g dry	0.02	0.96 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Chrysene	ug/g dry	0.02	9.6 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Dibenzo[a,h]anthracene	ug/g dry	0.02	0.1 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Fluoranthene	ug/g dry	0.02	9.6 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Fluorene	ug/g dry	0.02	69 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.08	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Indeno[1,2,3-cd]pyrene	ug/g dry	0.02	0.95 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
1-Methylnaphthalene	ug/g dry	0.02	85 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
2-Methylnaphthalene	ug/g dry	0.02	85 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Methylnaphthalene (1&2)	ug/g dry	0.04	85 ug/g dry	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	N/A	N/A	N/A	N/A
Naphthalene	ug/g dry	0.01	28 ug/g dry	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A	N/A	N/A	N/A
Phenanthrene	ug/g dry	0.02	16 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A
Pyrene	ug/g dry	0.02	96 ug/g dry	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.09	ND (0.02)	ND (0.02)	N/A	N/A	N/A	N/A

Notes:

* - Ministry of Environment "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" April 15, 2011.
Table 3 - Full depth soils in a non-potable groundwater condition for medium to fine textured soils in an Industrial setting

ND (1.0) Not detected at (reported method detection limit)

NV No vlaue

N/A Denotes Not Analyzed

Concentration > MOE Table 3 SCS

Soil analyses completed by Paracel Laboratories Ltd., Ottawa

Table 3: Field Parameters
Canadian Bank Note Company Limited
975 Gladstone Avenue, Ottawa, ON

Field Parameter	BHD-06	BH7	BH9	MW1	MW2	BH13	MW3	MW4	BH11	Unk-BH1	
	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	8-Jul-15	16-Jul-15
DO-Dissolved Oxygen (mg/L)	0.49	2.50	0.41	1.75	2.40	4.65	0.56	6.36	1.49	-	3.86
ORP-Oxidation-Reduction Potential (mV)	-87.1	79.0	-66.0	203.2	153.8	106.9	61.9	166.9	46.9	-	158.7
Temperature (°C)	16.52	17.59	18.93	14.37	14.25	16.73	14.59	14.48	15.54	-	15.27
pH	6.71	6.04	8.11	5.84	6.32	7.11	7.07	7.29	6.92	-	6.75
Conductivity (µS/cm)	3.39	14.23	0.31	3563	5.07	2116	2.89	1.19	2334.00	-	2.47
Headspace Reading (ppm)*	0	25	0	25	0	0	45	30	20	40	35

Notes:

field readings obtained with YSI 556 MPS

* PVC standpipe measurement using an RKI Eagle Portable Multi-Gas Detector

LEL - lower explosive limit

- not measured

Table 3: Field Parameters
Canadian Bank Note Company Limited
975 Gladstone Avenue, Ottawa, ON

Field Parameter	Unk-BH5		BHD-03	MW5	BH12	BHD-04	Unk-BH3		Unk-BH4		Unk-BH6
	8-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	8-Jul-15	16-Jul-15	8-Jul-15	16-Jul-15	16-Jul-15
DO-Dissolved Oxygen (mg/L)	-	0.89	1.01	-	-	-	-	-	-	-	-
ORP-Oxidation-Reduction Potential (mV)	-	142.4	50.4	-	-	-	-	-	-	-	-
Temperature (°C)	-	14.95	17.33	-	-	-	-	-	-	-	-
pH	-	6.59	6.37	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	3.67	4151.00	-	-	-	-	-	-	-	-
Headspace Reading (ppm)*	40	30	0	6 % LEL	10 % LEL	0	25	20	45	75	0

Notes:

field readings obtained with YSI 556 MPS

* PVC standpipe measurement using an RKI Eagle Portable Multi-Gas Detector

LEL - lower explosive limit

- not measured

Table 4: Summary of Groundwater Quality Data
Canadian Bank Note Company Limited
975 Gladstone Avenue, Ottawa, ON

Parameter	Units	MDL	MOECC Table 3[1]	Sample												
				Unk-BH1	Unk-BH5	BH7	BHD-03	BH11	MW4	Dup#1	MW1	MW2	MW3	BH13	BH9	BHD-06
			Sample date >	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
Volatiles																
Acetone	ug/L	5.0	130000 ug/L	ND (5.0)	ND (5.0)	20.3	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	ug/L	0.5	430 ug/L	ND (0.5)	ND (0.5)	1.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Bromodichloromethane	ug/L	0.5	85000 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Bromoform	ug/L	0.5	770 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Bromomethane	ug/L	0.5	56 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	ug/L	0.2	8.4 ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobenzene	ug/L	0.5	630 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Chloroform	ug/L	0.5	22 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Dibromochloromethane	ug/L	0.5	82000 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	ug/L	1.0	4400 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	ug/L	0.5	9600 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	ug/L	0.5	9600 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	ug/L	0.5	67 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethane	ug/L	0.5	3100 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane	ug/L	0.5	12 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloropropane	ug/L	0.5	140 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropylene	ug/L	0.5	NV	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropylene	ug/L	0.5	NV	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,3-Dichloropropene, total	ug/L	0.5	45 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dibromoethane	ug/L	0.2	0.83 ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	ug/L	0.5	2300 ug/L	ND (0.5)	ND (0.5)	47.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Hexane	ug/L	1.0	520 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	N/A	N/A	N/A	N/A	N/A	N/A
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	1500000 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	N/A	N/A	N/A	N/A	N/A	N/A
Methyl Isobutyl Ketone	ug/L	5.0	580000 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	N/A	N/A	N/A	N/A	N/A	N/A
Methyl tert-butyl ether	ug/L	2.0	1400 ug/L	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Chloride	ug/L	5.0	5500 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	N/A	N/A	N/A	N/A	N/A	N/A
Styrene	ug/L	0.5	9100 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	ug/L	0.5	28 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	ug/L	0.5	15 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Tetrachloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	ug/L	0.5	18000 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	ug/L	0.5	6700 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2-Trichloroethane	ug/L	0.5	30 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Trichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Trichlorofluoromethane	ug/L	1.0	2500 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	ug/L	0.5	1.7 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
m/p-Xylene	ug/L	0.5	NV	ND (0.5)	ND (0.5)	181	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
o-Xylene	ug/L	0.5	NV	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Xylenes, total	ug/L	0.5	4200 ug/L	ND (0.5)	ND (0.5)	181	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	ug/L	0.5	430 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	0.5	2300 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Toluene	ug/L	0.5	18000 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
m/p-Xylene	ug/L	0.5	NV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
o-Xylene	ug/L	0.5	NV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Xylenes, total	ug/L	0.5	4200 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Hydrocarbons																
F1 PHCs (C6-C10)	ug/L	25	750 ug/L	ND (25)	ND (25)	3200	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)
F2 PHCs (C10-C16)	ug/L	100	150 ug/L	ND (100)	ND (100)	9200	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
F3 PHCs (C16-C34)	ug/L	100	500 ug/L	ND (100)	ND (100)	340	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
F4 PHCs (C34-C50)	ug/L	100	500 ug/L	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
F1 + F2 PHCs	ug/L	125	NV	ND (125)	ND (125)	12400	ND (125)	ND (125)	ND (125)	ND (125)	N/A	N/A	N/A	N/A	N/A	N/A
F3 + F4 PHCs	ug/L	200	NV	ND (200)	ND (200)	340	ND (200)	ND (200)	ND (200)	ND (200)	N/A	N/A	N/A	N/A	N/A	N/A
F1 + F2 PHCs	ug/L	125	NV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (125)	ND (125)	ND (125)	ND (125)	ND (125)	ND (125)
F3 + F4 PHCs	ug/L	200	NV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)
Semi-Volatiles																
Acenaphthene	ug/L	0.05	1700 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Acenaphthylene	ug/L	0.05	1.8 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Anthracene	ug/L	0.01	2.4 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.03	ND (0.01)
Benzo[a]anthracene	ug/L	0.01	4.7 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.15	ND (0.01)
Benzo[a]pyrene	ug/L	0.01	0.81 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.19	ND (0.01)
Benzo[b]fluoranthene	ug/L	0.05	0.75 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.35	ND (0.05)
Benzo[g,h,i]perylene	ug/L	0.05	0.2 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.11	ND (0.05)
Benzo[k]fluoranthene	ug/L	0.05	0.4 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.18	ND (0.05)
Chrysene	ug/L	0.05	1 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.23	ND (0.05)
Dibenzo[a,h]anthracene	ug/L	0.05	0.52 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Fluoranthene	ug/L	0.01	130 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.52	ND (0.01)
Fluorene	ug/L	0.05	400 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Indeno[1,2,3-cd]pyrene	ug/L	0.05	0.2 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.11	ND (0.05)
1-Methylnaphthalene	ug/L	0.05	1800 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
2-Methylnaphthalene	ug/L	0.05	1800 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Methylnaphthalene (1&2)	ug/L	0.10	1800 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
Naphthalene	ug/L	0.05	6400 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.10	ND (0.05)
Phenanthrene	ug/L	0.05	580 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.38	ND (0.05)
Pyrene	ug/L	0.01	68 ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.41	ND (0.01)

Notes:

1 Ministry of Environment "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" April 15, 2011.
Table 3 - Full depth soils in a non-potable groundwater condition for medium to fine textured soils in an Industrial setting

ND (1.0) Not detected at (reported method detection limit)
NV No value
N/A Denotes Not Analyzed
5 Concentration > MOE Table 3 SCS
Groundwater analyses completed by Paracel Laboratories Ltd., Ottawa

APPENDIX A

Photo Log

Photo 1 - DPE System Treatment Shed

Photo 2 - 1372mm Water Main Adjacent to Sidewalk

Photo 3 - Marked Utilities Looking North

Photo 4 - Marked Utilities Looking South

Photo 5 - Drill Rig Setup at MW3

Photo 6 - Drill Rig Setup at MW5

Photo 7 - Aerial View of Investigation Area

Photo 8 - Passive Hydrophobic Petro-Bailer at BH12

APPENDIX B

Monitoring Well Inventory

Table 1b: Well Inventory Inside CBN			
Well ID	Well Depth (m)	Static Spring 2015 (m)	Observation
BH3	-	-	Reported dry in the past, paved over.
BH4	-	-	Reported not accessible in the past, found on July 8 2015 visit
BH5	-	-	Reported in past no free phase product, no odour, found on July 8, 2015 visit
BH6	-	-	Reported in past no free phase product, no odour, found on July 8, 2015 visit
BH7	-	4.45*	Found, 1 1/4 " PVC, purged 1 L, poor recovery, flush mount lid broken, mater flex 1/2" bolts
BH8	-	-	Reported not found, storage area, could possibly be located if storage was sorted
BH9	-	2.3	Broken flush mount, 1 bolt snapped, PVC broken and needs to be lowered (fixed), missing j plug, new j plug installed, purged 15 L, dry, silty, grey colour
BH10	-	-	1 bolt snapped off, j plug damaged
BHD-01	-	-	Found, 1 1/4" PVC, not purged, no water level taken
BHD-02	-	3.33	1 1/4" PVC, black stained tubing, not purged, 1 bolt snapped off
BHD-03	-	4.32	Found, 1 1/4" PVC, purged 6-7 L, 1 bolt snapped off
BHD-05	-	-	Reported paved over in the past, found lid, no PVC riser
BHD-06	-	-	Bolts snapped off flush mount
103	-	-	4" PVC, bolts snapped off flush mount
104	-	-	4" PVC, flush mount damaged, bolts snapped off, water inside flush mount
105	-	-	Reported dry in the past, 4" PVC, bolts snapped off
BH201	-	-	Not found
BH202	-	-	Found, Reported dry in the past
BH203	-	-	Found, Reported dry in the past
BH204	-	-	Reported not found, covered over with poly floor, across from post office vault # 2 door
BH205	-	-	Reported not found
BH206	-	-	Reported not found

Notes:

* Approximate water level

not found

sampling program

recommended for abandonment

repair/maintain as monitoring well

Table 1a: Well Inventory Outside CBN			
Well ID	**Well Depth (m)**	**Static Spring 2015 (m)**	**Observation**
BH11	6.88	5.07	flush mount cap damaged, bolts snapped off, PVC needs to be lowered, not a good seal around flush mount, missing a j plug, slight HC odour, purged dry, black residue, removed 6.5 cm from riser, added j plug
BH12	-	-	Flush mount cap damaged, missing 1 bolt, new bolt was installed, moderate HC odour, Hydrophobic bailer installed in the past
BH13	5.76	4.43	No HC odour, threads damaged on flush mount, j plug damaged, new j plug installed, not a good seal around flush mount, purged dry, good recovery, 3 L purged, replaced old tubing
BHD-08	-	-	Not found, reported not found from past
BHD-04	-	4.8	purged 20 L, cloudy, brown colour, flush mount shifted, bolts snapped off, flush mount sunk into ground
BH 108	-	-	Not found, reported destroyed from past
BH 109	-	-	Not found, reported destroyed from past
MW1	7.0	3.93	purged 20 L, silty, grey colour
MW2	6.7	4.28	Purged 20 L, silty, grey colour, slight sheen, no odour
MW3	6.3	4.56	purged 15 L, dryed up a few times, good recovery, silty, cleared up a bit,
MW4	5.5	4.63	purged 10 L, dryed up a few times, good recovery, silty, cleared up a bit
MW5	5.7	5.11	purged 4 L, poor recovery, cloudy, grey colour, picked up 1 mm of product on interface probe

Notes:

not found

sampling program

recommended for abandonment

repair/maintain as monitoring well

Table 1c: Well Inventory Across the Street from CBN			
Well ID	**Well Depth (m)**	**Static Spring 2015 (m)**	**Observation**
Unknown 1*	6.03	4.28	Not a good seal around flush mount, missing j plug, top of PVC Broken (fixed), new j plug installed. Purged 9 L cloudy to clear
Unknown 2*	-	-	No bolts, flush mount cap seized onto flush mount
Unknown 3*	6.64	4.73	Needs 1 bolt, PVC needs to be lowered, j plug damaged. Purged 20 L, cloudy, grey colour.
Unknown 4*	-	4.47	lock seized on j plug, no tubing, new tubing installed, new j plug installed
Unknown 5*	5.53	4.42	purged 5 L to dry, rusty brown colour, cloudy
Unknown 6*	4.67	4.64	Not a good seal around flush mount, missing j plug, PVC needs to be lowered, missing 3 bolts, soil is flush with PVC

Notes:

not found

sampling program

recommended for abandonment

repair/maintain as monitoring well

APPENDIX C

Borehole Logs

BH ID: MW1

Project No.: C-B0516-14-01
Client: Canadian Banknote Compamy Ltd.
Report: Environmental Site Assessment
Site Address: 975 Gladstone Ave., Ottawa, ON

Elevation Ground: *64.54 m*
TOP: *64.47 m*
MOECC Well Tag: A175223
UTM NAD83 (Zone 18T): 5028142 N, 443926 E

Depth (m)	Description	Depth (m) / Elev. (m.a.s.l.)	Sample ID	Type	Blow Counts	Recovery (%)	Lab Analysis	Headspace Vapour Level CGD (ppm)	Construction	Notes
	Ground Surface	0.00 / 64.54								
0	**Fill** Topsoil overlaying brown, damp, sandy gravel.	0.76 / 63.78								coarse gravel base
1	**Fill** Loose, brown, damp, fine grained sand. **Fill** Loose, brown, damp, gravel.	1.37 / 63.17	SS1		3 5 4 3	54		20.0		
	Fill Soft, greenish brown, damp, silty clay, trace gravel.	1.98 / 62.56	SS2		1 1 4 4	54		20.0		
2	**Fill** Loose, moist to wet, fine grained, sandy silt, clay and gravel. Trace dark grey stained clayey silt.	2.74 / 61.80	SS3		1 3 3 5	63		20.0		bentonite gravel seal
3	**Clay** Very stiff, greenish grey, damp to moist, pryable, blocky, fissured, non-plastic.	4.11 / 60.43	SS4		1 5 7 9	100		20.0		
			SS5		2 2 4 5	100		30.0		GW = 4.085 mbg (16/7/2015)
4	**Clay** Stiff to soft, moist to wet, grey, plastic, some silt. Slight odours present.		SS6		1 1 2 1	100	BTEX PHCs, VOCs, PAHs	45.0		
5	**Sand Till** Compact to dense, grey, wet, trace clay and gravel.	5.33 / 59.21	SS7		1 3 7 3	67		20.0		50mm slot 10 PVC screen with 3M silica sand pack
			SS8		2 3 17 14	71	BTEX PHCs, VOCs, PAHs	20.0		
6			SS9		18 26 for 4"	80		20.0		
7	End of bh at 7.11 m	7.11 / 57.43								
8	Well Completion Details: Screened interval from 3.96 m to 7.01 m below surface. Elevation at top of pipe (TOP) = 64.47 m									
9	Groundwater Information: Depth to groundwater from TOP = 4.015 m (16/7/2015)									

Drill Date: July 6, 2015
Drilled By: Aardvark Drilling Ltd.
Drilling Method: Hollow Stem Auger
Hole Diameter: 0.2 m (OD)
Datum: Sewer MH 64.66 m
Logged By: B.A.
Checked By: R.H.

Notes: SPLIT SPOON

Sheet 1 of 1

BH MW OB LOGV1.0 C-B0516-14-01 CBN.GPJ WESA TEMPLATE V1.2.GDT 10/6/15

BH ID: MW2

Project No.: C-B0516-14-01
Client: Canadian Banknote Compamy Ltd.
Report: Environmental Site Assessment
Site Address: 975 Gladstone Ave.
Ottawa, ON

Elevation Ground: *64.73 m*
TOP: *64.47 m*
MOECC Well Tag: A175222
UTM NAD83 (Zone 18T): 5028129 N
443930 E

Depth (m)	Description	Depth (m) / Elev. (m.a.s.l.)	Sample ID	Type	Blow Counts	Recovery (%)	Lab Analysis	Headspace Vapour Level CGD (ppm)	Construction	Notes
	Ground Surface	0.00 / 64.73								
0	**Fill** Topsoil overlaying brown, damp, sandy gravel.	0.76 / 63.97	SS1		2 2 4 3	38		20.0		coarse gravel base
1	**Fill** Loose, greyish brown, damp, gravel, clay, trace topsoil.	1.67 / 63.06	SS2		2 4 5 2	33		20.0		bentonite gravel seal
2	**Fill** Loose, brown, moist, gravelly sand.	2.59 / 62.14	SS3		3 6 5 5	58		20.0		
3	**Clay** Stiff, olive, damp to moist, blocky, fissured, crumbles, some silt.		SS4		2 5 5 5	100		25.0		
4			SS5		3 3 5 5	100	BTEX PHCs, VOCs, PAHs	25.0		
	- 4.57m soft, mottled.	4.72 / 60.01								GW = 4.685 mbg (16/7/2015)
5	**Clay** Soft, greenish grey, moist, plastic, some silt.	5.00 / 59.73	SS6		1 1 1 2	100	BTEX PHCs, VOCs, PAHs	35.0		
	Clayey Silt Soft, greenish grey, moist to wet, some sand, trace gravel.	5.33 / 59.40								50mm slot 10 PVC screen with 3M silica sand pack
	Sandy Silt Till Very loose, grey, wet, fine grained, trace to some clay.		SS7		2 1 1 1	58		20.0		
6	**Sandy Silt Till** Loose, grey, wet, trace clay, trace gravel. Auger refusal 6.7m.	6.10 / 58.63	SS8		3 3 50 for 4"	13		20.0		
		6.70 / 58.03								
7	End of bh at 6.70 m									
	Well Completion Details: Screened interval from 3.66 m to 6.70 m below surface Elevation at top of pipe (TOP) = 64.47 m									
8	Groundwater Information: Depth to groundwater from TOP = 4.425 m (16/7/2015)									
9										

Drill Date: July 3, 2015
Drilled By: Aardvark Drilling Ltd.
Drilling Method: Hollow Stem Auger
Hole Diameter: 0.2 m (OD)
Datum: Sewer MH 64.66 m
Logged By: B.A.
Checked By: R.H.

Notes: SPLIT SPOON

Sheet 1 of 1

BH MW OB LOGV1.0 C-B0516-14-01 CBN.GPJ WESA TEMPLATE V1.2.GDT 10/6/15

BH ID: MW3

Project No.: C-B0516-14-01
Client: Canadian Banknote Compamy Ltd.
Report: Environmental Site Assessment
Site Address: 975 Gladstone Ave.
Ottawa, ON

Elevation Ground: *64.96 m*
TOP: *64.89 m*
MOECC Well Tag: A175221
UTM NAD83 (Zone 18T): 5028115 N
443936 E

Depth (m)	Description	Depth (m) / Elev. (m.a.s.l.)	Sample ID	Type	Blow Counts	Recovery (%)	Lab Analysis	Headspace Vapour Level CGD (ppm)	Construction	Notes
	Ground Surface	0.00 / 64.96						10 100 1000 10000		
0	**Fill** Loose to compact, brown, moist to damp, Sand and Gravel.		SS1		1 2 2 10	13		20.0		coarse gravel base
1			SS2		2 5 7 24	17		20.0		bentonite gravel seal
2		2.29 / 62.67	SS3		11 11 11 17	63		20.0		
3	**Fill** Compact, greyish brown, damp, sandy Gravel, some cobbles.	3.35 / 61.61	SS4		18 5 8 3	79		20.0		
4	**Clay** Soft, light brown, moist, pryable.	4.06 / 60.90	SS5		1 1 1 2	100	BTEX PHCs, VOCs, PAHs (Dup#1)	100.0		
	Clay soft, grey, moist, blocky, some silt. Black stained fissures, odours present 4.5m.	4.57 / 60.39	SS6		2 3 2 2	100	BTEX PHCs, VOCs, PAHs	25.0		50mm ø 0.010" PVC Slotted with 3M silica sand pack
5	**Sandy Silt Till** Loose, grey, wet, with some clay.	5.18 / 59.78	SS7		2 2 7 20 for 4"	64		20.0		
6	**Silty Sand Till** Loose, grey, wet, fine grained, trace gravel. Auger refusal 6.32m.	6.32 / 58.64								
7	End of bh at 6.32 m Well Completion Details: Screened interval from 3.28 m to 6.32 m below surface Elevation at top of pipe (TOP) = 64.89 m Groundwater Information: Depth to groundwater from TOP = 4.645 m (16/7/2015)									

Drill Date: July 3, 2015
Drilled By: Aardvark Drilling Ltd.
Drilling Method: Hollow Stem Auger
Hole Diameter: 0.2 m (OD)
Datum: Sewer MH 64.66 m
Logged By: B.A.
Checked By: R.H.

Notes: SPLIT SPOON

Sheet 1 of 1

BH MW OB LOGV1.0 C-B0516-14-01 CBN.GPJ WESA TEMPLATE V1.2.GDT 10/6/15

BH ID: MW4

Project No.: C-B0516-14-01
Client: Canadian Banknote Compamy Ltd.
Report: Environmental Site Assessment
Site Address: 975 Gladstone Ave., Ottawa, ON

Elevation Ground: *65.30 m*
TOP: *65.23 m*
MOECC Well Tag: A175220
UTM NAD83 (Zone 18T): 5028103 N, 443940 E

SUBSURFACE PROFILE				SAMPLE						WELL COMPLETION	
Depth (m)	Symbol	Description	Depth (m) / Elev. (m.a.s.l.)	Sample ID	Type	Blow Counts	Recovery (%)	Lab Analysis	Headspace Vapour Level CGD (ppm) 10 100 1000 10000	Construction	Notes
		Ground Surface	0.00 / 65.30								
0–1		**Fill** Compact, medium brown, damp, Sand and Gravel, trace topsoil, trace brick fragments.		SS1		2 6 6 8	38		25.0		coarse gravel base
1–2				SS2		9 6 13 12	45		20.0		bentonite gravel seal
2–3			2.74 / 62.56	SS3		16 35 26 6	75		20.0		
3–4		**Clay** Firm, greenish-grey, moist, blocky, fissured, some silt.		SS4		1 2 2 3	100		20.0		
4–5		**Sandy Silt Till** Firm, grey, moist to wet, fine grained, some clay, trace gravel.	4.04 / 61.26	SS5		1 1 3 3	100	BTEX PHCs, VOC	20.0		50mm slot 10 PVC screen with 3M silica sand pack
		Silty Sand Till Loose, grey, wet, fine grained, some gravel. Fine grained gravel layer at approx. 4.88m.	4.57 / 60.73	SS6		1 2 3 6	79	BTEX PHCs, VOC	20.0		GW = 4.895 mbg (16/7/2015)
			5.49 / 59.81	SS7		1/	100		20.0		
5–6		End of bh at 5.49 m Well Completion Details: Screened interval from 2.43 m to 5.48 m below surface Elevation at top of pipe (TOP) = 65.23 m Groundwater Information: Depth to groundwater from TOP = 4.825 m (16/7/2015)									
6–9											

Drill Date: July 2, 2015
Drilled By: Aardvark Drilling Ltd.
Drilling Method: Hollow Stem Auger
Hole Diameter: 0.2 m (OD)
Datum: Sewer MH 64.66 m
Logged By: B.A.
Checked By: R.H.

Notes: SPLIT SPOON

Sheet 1 of 1

BH MW OB LOGV1.0 C-B0516-14-01 CBN.GPJ WESA TEMPLATE V1.2.GDT 10/6/15

BH ID: MW5

Project No.: C-B0516-14-01
Client: Canadian Banknote Compamy Ltd.
Report: Environmental Site Assessment
Site Address: 975 Gladstone Ave.
Ottawa, ON

Elevation Ground: *65.81 m*
TOP: *65.76 m*
MOECC Well Tag: A175219
UTM NAD83 (Zone 18T): 5028086 N
443948 E

Depth (m)	Description	Depth (m) / Elev. (m.a.s.l.)	Sample ID	Type	Blow Counts	Recovery (%)	Lab Analysis	Headspace Vapour Level CGD (ppm)	Construction	Notes
	Ground Surface	0.00 / 65.81						10 100 1000 10000		
0	**Fill** Topsoil layer overlaying light brown sand, trace gravel.	0.76 / 65.05								coarse gravel base
1	**Fill** Compact, greyish brown, damp, gravelly Sand.	1.98 / 63.83	SS1		4 14 13 19	67		25.0		bentonite gravel seal
			SS2		3 18 16 7	75		20.0		
2	**Clay** Stiff, greyish brown, damp to moist, blocky, fissured, some silt.		SS3		2 4 6 8	100		20.0		
3	- 3.05m plastic		SS4		2 3 5 6	100		20.0		
4	**Clayey Silt** Soft, grey, wet, trace gravel.	4.00 / 61.81	SS5		1 2 2 2	100		20.0		50mm slot 10 PVC screen with 3M silica sand pack
	Sandy Silt Till Very loose, grey, moist to wet, trace to some clay, trace gravel. Odours present.	4.59 / 61.22	SS6		1 1 1 1	100	BTEX PHCs, VOCs	20.0		
5	**Silty Sand Till** Compact, grey, wet, trace gravel, trace clay. Odours present 14.9m.	5.10 / 60.71	SS7		1 1 1 10	100	BTEX PHCs, VOCs	20.0		GW = 5.270 mbg (16/7/2015)
6	End of bh at 6.10 m	6.10 / 59.71	SS8		1 2 8 12	50		20.0		native soil collaspe
7	Well Completion Details: Screened interval from 2.59 m to 5.64 m below surface Elevation at top of pipe (TOP) = 65.76 m									
8	Groundwater Information: Depth to groundwater from TOP = 5.220 m (16/7/2015)									
9										

Drill Date: July 2, 2015
Drilled By: Aardvark Drilling Ltd.
Drilling Method: Hollow Stem Auger
Hole Diameter: 0.2 m (OD)
Datum: Sewer MH 64.66 m
Logged By: B.A.
Checked By: R.H.

Notes: SPLIT SPOON

Sheet 1 of 1

BH MW OB LOGV1.0 C-B0516-14-01 CBN.GPJ WESA TEMPLATE V1.2.GDT 10/6/15

APPENDIX D

Laboratory Certificates of Analysis

PARACEL LABORATORIES LTD. | TRUSTED. RESPONSIVE. RELIABLE.

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www.paracellabs.com

Certificate of Analysis

BluMetric Environmental Inc. (Carp)

P.O. Box 430, 3108 Carp Rd.
Carp, ON K0A 1L0
Attn: Rob Hillier

Phone: (613) 839-3053
Fax: (613) 839-5376

Client PO: CBN Loretta Ave
Project: C-B0516-14-01
Custody: 105383

Report Date: 9-Jul-2015
Order Date: 3-Jul-2015
Order #: 1527349

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

Paracel ID	Client ID
1527349-01	MW5 SS6
1527349-02	MW5 SS7
1527349-03	MW4 SS5
1527349-04	MW4 SS6
1527349-05	MW3 SS5
1527349-06	MW3 SS6
1527349-07	MW2 SS5
1527349-08	MW2 SS6
1527349-09	Dup#1

Approved By: 

Mark Foto, M.Sc. For 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 circumstances be liable to you in connection with this work

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	6-Jul-15	7-Jul-15
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	6-Jul-15	7-Jul-15
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	6-Jul-15	8-Jul-15
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	6-Jul-15	7-Jul-15
Solids, %	Gravimetric, calculation	6-Jul-15	6-Jul-15

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW5 SS6	MW5 SS7	MW4 SS5	MW4 SS6
	Sample Date:	02-Jul-15	02-Jul-15	02-Jul-15	02-Jul-15
	Sample ID:	1527349-01	1527349-02	1527349-03	1527349-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	71.4	87.3	81.3	89.9
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	0.32	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethan	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW5 SS6	MW5 SS7	MW4 SS5	MW4 SS6
	Sample Date:	02-Jul-15	02-Jul-15	02-Jul-15	02-Jul-15
	Sample ID:	1527349-01	1527349-02	1527349-03	1527349-04
	MDL/Units	Soil	Soil	Soil	Soil
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	0.67	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	0.67	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	99.3%	104%	104%	104%
Dibromofluoromethane	Surrogate	88.6%	94.9%	95.6%	95.8%
Toluene-d8	Surrogate	95.3%	95.2%	98.1%	98.2%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	68	10	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW3 SS5	MW3 SS6	MW2 SS5	MW2 SS6
	Sample Date:	03-Jul-15	03-Jul-15	03-Jul-15	03-Jul-15
	Sample ID:	1527349-05	1527349-06	1527349-07	1527349-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	78.2	87.5	69.2	70.8
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethar	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW3 SS5	MW3 SS6	MW2 SS5	MW2 SS6
	Sample Date:	03-Jul-15	03-Jul-15	03-Jul-15	03-Jul-15
	Sample ID:	1527349-05	1527349-06	1527349-07	1527349-08
	MDL/Units	Soil	Soil	Soil	Soil
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	98.2%	99.3%	104%	98.5%
Dibromofluoromethane	Surrogate	91.4%	95.4%	95.4%	94.8%
Toluene-d8	Surrogate	102%	98.7%	101%	98.6%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	41	42	<7	41
F2 PHCs (C10-C16)	4 ug/g dry	578	193	<4	89
F3 PHCs (C16-C34)	8 ug/g dry	542	132	<8	65
F4 PHCs (C34-C50)	6 ug/g dry	179	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	0.08	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW3 SS5	MW3 SS6	MW2 SS5	MW2 SS6
	Sample Date:	03-Jul-15	03-Jul-15	03-Jul-15	03-Jul-15
	Sample ID:	1527349-05	1527349-06	1527349-07	1527349-08
	MDL/Units	Soil	Soil	Soil	Soil
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	0.09	<0.02	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	60.6%	53.4%	44.6% [3]	59.6%
Terphenyl-d14	Surrogate	61.1%	108%	58.8%	63.4%

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	Dup#1	-	-	-
	Sample Date:	03-Jul-15	-	-	-
	Sample ID:	1527349-09	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	74.9	-	-	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Ethylene dibromide (dibromoethar	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	-	-	-

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	Dup#1	-	-	-
	Sample Date:	03-Jul-15	-	-	-
	Sample ID:	1527349-09	-	-	-
	MDL/Units	Soil	-	-	-
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	99.1%	-	-	-
Dibromofluoromethane	Surrogate	94.4%	-	-	-
Toluene-d8	Surrogate	98.3%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	138	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	127	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	146	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	35	-	-	-
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	-	-	-

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	Dup#1	-	-	-
	Sample Date:	03-Jul-15	-	-	-
	Sample ID:	1527349-09	-	-	-
	MDL/Units	Soil	-	-	-
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	67.9%	-	-	-
Terphenyl-d14	Surrogate	75.2%	-	-	-

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

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						
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	*0.680*		*ug/g*		*51.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.07*		*ug/g*		*80.3*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
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						

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*7.51*		*ug/g*		*93.9*	*50-140*			
Surrogate: Dibromofluoromethane	*6.38*		*ug/g*		*79.8*	*50-140*			
Surrogate: Toluene-d8	*8.07*		*ug/g*		*101*	*50-140*			

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

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)	473	4	ug/g dry	378			22.1	30	
F3 PHCs (C16-C34)	2110	8	ug/g dry	1270			49.4	30	QR-04
F4 PHCs (C34-C50)	1970	6	ug/g dry	953			69.8	30	QR-04
Physical Characteristics									
% Solids	76.4	0.1	% by Wt.	80.0			4.6	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	*0.936*		*ug/g dry*	*ND*	*62.3*	*50-140*			
Surrogate: Terphenyl-d14	*1.14*		*ug/g dry*	*ND*	*75.9*	*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	
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	

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*8.95*		*ug/g dry*	*ND*	*101*	*50-140*			
Surrogate: Dibromofluoromethane	*8.22*		*ug/g dry*	*ND*	*92.3*	*50-140*			
Surrogate: Toluene-d8	*8.94*		*ug/g dry*	*ND*	*100*	*50-140*			

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	203	7	ug/g	ND	101	80-120			
F2 PHCs (C10-C16)	443	4	ug/g	578	-117	60-140			QM-06
F3 PHCs (C16-C34)	583	8	ug/g	542	17.3	60-140			QM-06
F4 PHCs (C34-C50)	368	6	ug/g	179	119	60-140			
Semi-Volatiles									
Acenaphthene	0.176	0.02	ug/g	ND	93.7	50-140			
Acenaphthylene	0.116	0.02	ug/g	ND	61.6	50-140			
Anthracene	0.138	0.02	ug/g	ND	73.8	50-140			
Benzo [a] anthracene	0.133	0.02	ug/g	ND	70.9	50-140			
Benzo [a] pyrene	0.131	0.02	ug/g	ND	69.7	50-140			
Benzo [b] fluoranthene	0.136	0.02	ug/g	ND	72.4	50-140			
Benzo [g,h,i] perylene	0.147	0.02	ug/g	ND	78.6	50-140			
Benzo [k] fluoranthene	0.206	0.02	ug/g	ND	110	50-140			
Chrysene	0.148	0.02	ug/g	ND	79.0	50-140			
Dibenzo [a,h] anthracene	0.151	0.02	ug/g	ND	80.2	50-140			
Fluoranthene	0.130	0.02	ug/g	ND	69.1	50-140			
Fluorene	0.124	0.02	ug/g	ND	65.9	50-140			
Indeno [1,2,3-cd] pyrene	0.146	0.02	ug/g	ND	78.0	50-140			
1-Methylnaphthalene	0.125	0.02	ug/g	ND	66.7	50-140			
2-Methylnaphthalene	0.151	0.02	ug/g	ND	80.7	50-140			
Naphthalene	0.164	0.01	ug/g	ND	87.7	50-140			
Phenanthrene	0.136	0.02	ug/g	ND	72.5	50-140			
Pyrene	0.140	0.02	ug/g	ND	74.8	50-140			
Surrogate: 2-Fluorobiphenyl	*1.02*		*ug/g*		*67.8*	*50-140*			
Volatiles									
Acetone	6.22	0.50	ug/g	ND	62.2	50-140			
Benzene	3.98	0.02	ug/g	ND	99.5	60-130			
Bromodichloromethane	3.76	0.05	ug/g	ND	94.0	60-130			
Bromoform	3.65	0.05	ug/g	ND	91.3	60-130			
Bromomethane	3.45	0.05	ug/g	ND	86.4	50-140			
Carbon Tetrachloride	3.82	0.05	ug/g	ND	95.5	60-130			
Chlorobenzene	3.76	0.05	ug/g	ND	94.0	60-130			
Chloroform	3.40	0.05	ug/g	ND	85.1	60-130			
Dibromochloromethane	3.60	0.05	ug/g	ND	90.1	60-130			
Dichlorodifluoromethane	2.74	0.05	ug/g	ND	68.5	50-140			
1,2-Dichlorobenzene	3.79	0.05	ug/g	ND	94.8	60-130			
1,3-Dichlorobenzene	3.85	0.05	ug/g	ND	96.2	60-130			
1,4-Dichlorobenzene	3.79	0.05	ug/g	ND	94.7	60-130			
1,1-Dichloroethane	3.86	0.05	ug/g	ND	96.5	60-130			
1,2-Dichloroethane	3.95	0.05	ug/g	ND	98.6	60-130			
1,1-Dichloroethylene	4.70	0.05	ug/g	ND	118	60-130			
cis-1,2-Dichloroethylene	3.69	0.05	ug/g	ND	92.2	60-130			
trans-1,2-Dichloroethylene	3.79	0.05	ug/g	ND	94.9	60-130			
1,2-Dichloropropane	3.67	0.05	ug/g	ND	91.8	60-130			
cis-1,3-Dichloropropylene	3.68	0.05	ug/g	ND	92.1	60-130			
trans-1,3-Dichloropropylene	3.67	0.05	ug/g	ND	91.7	60-130			
Ethylbenzene	4.02	0.05	ug/g	ND	101	60-130			
Ethylene dibromide (dibromoethane	3.67	0.05	ug/g	ND	91.9	60-130			

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hexane	3.94	0.05	ug/g	ND	98.5	60-130			
Methyl Ethyl Ketone (2-Butanone)	6.01	0.50	ug/g	ND	60.1	50-140			
Methyl Isobutyl Ketone	9.19	0.50	ug/g	ND	91.9	50-140			
Methyl tert-butyl ether	10.7	0.05	ug/g	ND	107	50-140			
Methylene Chloride	3.75	0.05	ug/g	ND	93.8	60-130			
Styrene	3.78	0.05	ug/g	ND	94.6	60-130			
1,1,1,2-Tetrachloroethane	3.82	0.05	ug/g	ND	95.6	60-130			
1,1,2,2-Tetrachloroethane	3.53	0.05	ug/g	ND	88.4	60-130			
Tetrachloroethylene	3.89	0.05	ug/g	ND	97.2	60-130			
Toluene	4.08	0.05	ug/g	ND	102	60-130			
1,1,1-Trichloroethane	3.90	0.05	ug/g	ND	97.4	60-130			
1,1,2-Trichloroethane	3.72	0.05	ug/g	ND	93.0	60-130			
Trichloroethylene	3.55	0.05	ug/g	ND	88.8	60-130			
Trichlorofluoromethane	4.09	0.05	ug/g	ND	102	50-140			
Vinyl chloride	3.59	0.02	ug/g	ND	89.7	50-140			
m,p-Xylenes	7.41	0.05	ug/g	ND	92.6	60-130			
o-Xylene	3.70	0.05	ug/g	ND	92.5	60-130			

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave Project Description: C-B0516-14-01

Qualifier Notes:

Sample Qualifiers :

3 : The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

QC Qualifiers :

QM-06 : Due to noted non-homogeneity of the QC sample matrix, the spike recoveries were out side the accepted range. Batch data accepted based on other QC.

QR-04 : Duplicate results exceeds RPD limits due to non-homogeneous matrix.

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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Chain of Custody
(Lab Use Only)
№ 105383

Client Name: BluMetric	Project Reference: CBN Loretta Ave	TAT: [X] Regular [ ] 3 Day
Contact Name: Rob Hillier	Quote # HQ-03044	[ ] 2 Day [ ] 1 Day
Address: 3108 Carp Rd PO Box 430 Carp ON K0A 1L0	PO # C-B0516-14-01	Date Required:
Telephone: 613-839-3053 ext 233	Email Address: rhillier@wesa.ca	

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

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

Required Analyses

Paracel Order Number:
SOil-1527849
TCLP-1527850

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	TCLP						
1	MW5 SS6	S		2	July 2/15	am	✓	✓										950ml + 1 vial		
2	MW5 SS7	S		2	↓	am	✓	✓										↓		
3	MW4 SS5	S		2		pm	✓	✓												
4	MW4 SS6	S		2	↓	pm	✓	✓												
5	MW3 SS5	S		2	July 3/15	am	✓	✓	✓											
6	MW3 SS6	S		2		am	✓	✓	✓											
7	MW2 SS5	S		2		pm	✓	✓	✓											
8	MW2 SS6	S		2		pm	✓	✓	✓											
9	Dup #1	S		2			✓	✓	✓									↓		
10	TCLP	S		3	July 2/15	pm								✓	120ml + 250ml + 1 vial					

Comments:
TCLP WSI Landfill Navan.

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): B Andress	Date/Time: July 3/15 4:39	Date/Time: JUL 03 2015 05:07	Date/Time: JUL 3 15
Date/Time: July 3/15 4:30	Temperature: 9.9 °C	Temperature: 16.3 °C	pH Verified [X] By: N/A

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Certificate of Analysis

BluMetric Environmental Inc. (Carp)

P.O. Box 430, 3108 Carp Rd.
Carp, ON K0A 1L0
Attn: Rob Hillier

Phone: (613) 839-3053
Fax: (613) 839-5376

Client PO: CBN Loretta Ave
Project: C-B0516-14-01
Custody: 105383

Report Date: 9-Jul-2015
Order Date: 3-Jul-2015
Order #: 1527350

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

Paracel ID	Client ID
1527350-01	TCLP

Approved By: Mark Foto

Mark Foto, M.Sc. For 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 circumstances be liable to you in connection with this work

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Flashpoint	Penski Martin Closed Cup	7-Jul-15	7-Jul-15
REG 558 - Benzene	EPA 624 - P&T GC-MS	8-Jul-15	8-Jul-15
REG 558 - Cyanide	MOE E3015- Auto Colour	7-Jul-15	8-Jul-15
REG 558 - Fluoride	EPA 340.2 - ISE	8-Jul-15	8-Jul-15
REG 558 - Mercury by CVAA	EPA 7470A - Cold Vapour AA	7-Jul-15	7-Jul-15
REG 558 - Metals, ICP-MS	EPA 6020: ICP-MS, digestion	8-Jul-15	8-Jul-15
REG 558 - NO3/NO2	EPA 300.1 - IC	7-Jul-15	7-Jul-15
Solids, %	Gravimetric, calculation	6-Jul-15	6-Jul-15
TPH (diesel)	based on E3398/EPA3546 - GC-FID, extraction	6-Jul-15	7-Jul-15
TPH (gasoline)	E3398 - P&T GC-FID, extraction	6-Jul-15	7-Jul-15

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	TCLP	-	-	-
	Sample Date:	02-Jul-15	-	-	-
	Sample ID:	1527350-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	89.4	-	-	-
Flashpoint	°C	>70	-	-	-
EPA 1311 - TCLP Leachate Inorganics					
Arsenic	0.05 mg/L	<0.05	-	-	-
Barium	0.05 mg/L	0.81	-	-	-
Boron	0.05 mg/L	<0.05	-	-	-
Cadmium	0.01 mg/L	<0.01	-	-	-
Chromium	0.05 mg/L	<0.05	-	-	-
Lead	0.05 mg/L	<0.05	-	-	-
Mercury	0.005 mg/L	<0.005	-	-	-
Selenium	0.05 mg/L	<0.05	-	-	-
Silver	0.05 mg/L	<0.05	-	-	-
Uranium	0.05 mg/L	<0.05	-	-	-
Fluoride	0.05 mg/L	0.15	-	-	-
Nitrate as N	1 mg/L	<1	-	-	-
Nitrite as N	1 mg/L	<1	-	-	-
Cyanide, free	0.02 mg/L	<0.02	-	-	-
EPA 1311 - TCLP Leachate Organics					
Benzene	0.005 mg/L	<0.005	-	-	-
Toluene-d8	Surrogate	97.9%	-	-	-
Hydrocarbons					
TPH (gasoline)	10 ug/g dry	15	-	-	-
TPH (diesel)	10 ug/g dry	<10	-	-	-

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Arsenic	ND	0.05	mg/L						
Barium	ND	0.05	mg/L						
Boron	ND	0.05	mg/L						
Cadmium	ND	0.01	mg/L						
Chromium	ND	0.05	mg/L						
Lead	ND	0.05	mg/L						
Mercury	ND	0.005	mg/L						
Selenium	ND	0.05	mg/L						
Silver	ND	0.05	mg/L						
Uranium	ND	0.05	mg/L						
Fluoride	ND	0.05	mg/L						
Nitrate as N	ND	1	mg/L						
Nitrite as N	ND	1	mg/L						
Cyanide, free	ND	0.02	mg/L						
EPA 1311 - TCLP Leachate Organics									
Benzene	ND	0.005	mg/L						
Surrogate: Toluene-d8	*0.0322*		*mg/L*		*101*	*76-118*			
Hydrocarbons									
TPH (gasoline)	ND	10	ug/g						
TPH (diesel)	ND	10	ug/g						

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Arsenic	ND	0.05	mg/L	ND			0.0	29	
Barium	ND	0.05	mg/L	ND			0.0	34	
Boron	0.054	0.05	mg/L	0.064			16.9	33	
Cadmium	ND	0.01	mg/L	ND			0.0	33	
Chromium	ND	0.05	mg/L	ND			0.0	32	
Lead	0.057	0.05	mg/L	ND			0.0	32	
Mercury	ND	0.005	mg/L	ND			0.0	20	
Selenium	ND	0.05	mg/L	ND			0.0	28	
Silver	ND	0.05	mg/L	ND			0.0	28	
Uranium	ND	0.05	mg/L	ND			0.0	27	
Fluoride	ND	0.05	mg/L	ND			0.0	20	
Nitrate as N	ND	1	mg/L	ND				20	
Nitrite as N	ND	1	mg/L	ND				20	
Cyanide, free	ND	0.02	mg/L	ND				20	
Hydrocarbons									
TPH (gasoline)	ND	10	ug/g dry	ND				40	
Physical Characteristics									
% Solids	76.4	0.1	% by Wt.	80.0			4.6	25	

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave Project Description: C-B0516-14-01

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Arsenic	51.0		ug/L	0.564	101	83-119			
Barium	55.3		ug/L	4.46	102	83-116			
Boron	55.4		ug/L	6.39	98.1	71-128			
Cadmium	48.5		ug/L	ND	97.6	78-119			
Chromium	49.2		ug/L	1.42	95.6	80-124			
Lead	46.7		ug/L	0.082	93.2	77-126			
Mercury	0.0299	0.005	mg/L	ND	99.6	78-134			
Selenium	49.3		ug/L	1.34	95.9	81-125			
Silver	48.8		ug/L	0.129	97.4	70-128			
Uranium	47.9		ug/L	0.367	95.1	70-131			
Fluoride	0.50		mg/L	0.03	93.6	70-130			
Nitrate as N	1		mg/L	ND	99.0	81-112			
Nitrite as N	1		mg/L	ND	97.5	76-107			
Cyanide, free	0.030	0.02	mg/L	ND	101	60-136			
EPA 1311 - TCLP Leachate Organics									
Benzene	35.5		ug/L	ND	88.7	55-141			
Surrogate: Toluene-d8	*0.0286*		*mg/L*		*89.3*	*76-118*			
Hydrocarbons									
TPH (gasoline)	203	10	ug/g	ND	101	68-117			
TPH (diesel)	234	10	ug/g	ND	117	49.3-134.8			

Certificate of Analysis

Report Date: 09-Jul-2015
Order Date:3-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave Project Description: C-B0516-14-01

Qualifier Notes:

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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.

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Chain of Custody
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№ 105383

Page 1 of 2

Client Name: BluMetric	Project Reference: CBN Loretta Ave	TAT: [X] Regular [ ] 3 Day
Contact Name: Rob Hillier	Quote # HQ-03044	[ ] 2 Day [ ] 1 Day
Address: 3108 Carp Rd PO Box 430 Carp ON K0A 1L0	PO # C-B0516-14-01	Date Required:
Telephone: 613-839-3053 ext 233	Email Address: rhillier@wesa.ca	

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

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

Required Analyses

Paracel Order Number: 1527349 1527350

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	TCLP						
1	MW5 SS6	S		2	July 2/15	am	✓	✓												
2	MW5 SS7	S		2		am	✓	✓												
3	MW4 SS5	S		2		pm	✓	✓												
4	MW4 SS6	S		2		pm	✓	✓												
5	MW3 SS5	S		2	July 3/15	am	✓	✓	✓											
6	MW3 SS6	S		2		am	✓	✓	✓											
7	MW2 SS5	S		2		pm	✓	✓	✓											
8	MW2 SS6	S		2		pm	✓	✓	✓											
9	Dup #1	S		2			✓	✓	✓											
10	TCLP	S		3	July 3/15	pm								✓						

Comments: TPH gas/diesel/mid as per Rob.
TCLP WSI Landfill Naven.

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): R Andres	Date/Time: July 3/15 4:39	Date/Time: [illegible]	Date Time: July 3 15
Date/Time: July 3/15 4:30	Temperature: 9.9 °C	Temperature: 16.3 °C	pH Verified [X] By: N/A

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Certificate of Analysis

BluMetric Environmental Inc. (Carp)

P.O. Box 430, 3108 Carp Rd.
Carp, ON K0A 1L0
Attn: Rob Hillier

Phone: (613) 839-3053
Fax: (613) 839-5376

Client PO: CBN Loretta Ave
Project: C-B0516-14-01
Custody: 105382

Report Date: 10-Jul-2015
Order Date: 6-Jul-2015
Order #: 1528076

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

Paracel ID	Client ID
1528076-01	MW1 SS6
1528076-02	MW1 SS8

Approved By: 

Mark Foto, M.Sc. For 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 circumstances be liable to you in connection with this work

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	7-Jul-15	10-Jul-15
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	8-Jul-15	9-Jul-15
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	7-Jul-15	8-Jul-15
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	7-Jul-15	10-Jul-15
Solids, %	Gravimetric, calculation	7-Jul-15	7-Jul-15

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW1 SS6	MW1 SS8	-	-
	Sample Date:	06-Jul-15	06-Jul-15	-	-
	Sample ID:	1528076-01	1528076-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	69.4	89.5	-	-
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	-	-
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	-	-

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW1 SS6	MW1 SS8	-	-
	Sample Date:	06-Jul-15	06-Jul-15	-	-
	Sample ID:	1528076-01	1528076-02	-	-
	MDL/Units	Soil	Soil	-	-
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	105%	104%	-	-
Dibromofluoromethane	Surrogate	100%	99.6%	-	-
Toluene-d8	Surrogate	98.1%	98.2%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g dry	47	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	67	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-
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	-	-

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave

Project Description: C-B0516-14-01

	Client ID:	MW1 SS6	MW1 SS8	-	-
	Sample Date:	06-Jul-15	06-Jul-15	-	-
	Sample ID:	1528076-01	1528076-02	-	-
	MDL/Units	Soil	Soil	-	-
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	68.1%	56.8%	-	-
Terphenyl-d14	Surrogate	78.7%	104%	-	-

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

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						
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	*0.965*		*ug/g*		*72.4*	*50-140*			
Surrogate: Terphenyl-d14	*1.25*		*ug/g*		*93.5*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
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						

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*8.00*		*ug/g*		*100*	*50-140*			
Surrogate: Dibromofluoromethane	*7.75*		*ug/g*		*96.8*	*50-140*			
Surrogate: Toluene-d8	*7.82*		*ug/g*		*97.8*	*50-140*			

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

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)	45	4	ug/g dry	47			4.6	30	
F3 PHCs (C16-C34)	23	8	ug/g dry	67			96.9	30	QR-01
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	75.4	0.1	% by Wt.	74.9			0.7	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	*1.29*		*ug/g dry*	*ND*	*67.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.92*		*ug/g dry*	*ND*	*100*	*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	
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	

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*11.0*		*ug/g dry*	*ND*	*103*	*50-140*			
Surrogate: Dibromofluoromethane	*10.6*		*ug/g dry*	*ND*	*99.1*	*50-140*			
Surrogate: Toluene-d8	*10.5*		*ug/g dry*	*ND*	*97.9*	*50-140*			

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	200	7	ug/g	ND	100	80-120			
F2 PHCs (C10-C16)	95	4	ug/g	ND	106	80-120			
F3 PHCs (C16-C34)	214	8	ug/g	ND	115	80-120			
F4 PHCs (C34-C50)	148	6	ug/g	ND	119	80-120			
Semi-Volatiles									
Acenaphthene	0.146	0.02	ug/g	ND	60.7	50-140			
Acenaphthylene	0.145	0.02	ug/g	ND	60.2	50-140			
Anthracene	0.128	0.02	ug/g	ND	53.2	50-140			
Benzo [a] anthracene	0.138	0.02	ug/g	ND	57.4	50-140			
Benzo [a] pyrene	0.134	0.02	ug/g	ND	55.7	50-140			
Benzo [b] fluoranthene	0.139	0.02	ug/g	ND	58.0	50-140			
Benzo [g,h,i] perylene	0.156	0.02	ug/g	ND	64.9	50-140			
Benzo [k] fluoranthene	0.158	0.02	ug/g	ND	65.6	50-140			
Chrysene	0.147	0.02	ug/g	ND	61.1	50-140			
Dibenzo [a,h] anthracene	0.148	0.02	ug/g	ND	61.5	50-140			
Fluoranthene	0.167	0.02	ug/g	ND	69.7	50-140			
Fluorene	0.171	0.02	ug/g	ND	71.2	50-140			
Indeno [1,2,3-cd] pyrene	0.161	0.02	ug/g	ND	66.9	50-140			
1-Methylnaphthalene	0.199	0.02	ug/g	ND	82.8	50-140			
2-Methylnaphthalene	0.193	0.02	ug/g	ND	80.5	50-140			
Naphthalene	0.163	0.01	ug/g	ND	68.0	50-140			
Phenanthrene	0.128	0.02	ug/g	ND	53.2	50-140			
Pyrene	0.177	0.02	ug/g	ND	73.6	50-140			
Surrogate: 2-Fluorobiphenyl	*0.875*		*ug/g*		*65.6*	*50-140*			
Volatiles									
Acetone	10.9	0.50	ug/g	ND	109	50-140			
Benzene	4.45	0.02	ug/g	ND	111	60-130			
Bromodichloromethane	4.35	0.05	ug/g	ND	109	60-130			
Bromoform	3.54	0.05	ug/g	ND	88.4	60-130			
Bromomethane	2.94	0.05	ug/g	ND	73.5	50-140			
Carbon Tetrachloride	4.14	0.05	ug/g	ND	103	60-130			
Chlorobenzene	3.88	0.05	ug/g	ND	97.1	60-130			
Chloroform	3.56	0.05	ug/g	ND	89.0	60-130			
Dibromochloromethane	3.69	0.05	ug/g	ND	92.3	60-130			
Dichlorodifluoromethane	3.64	0.05	ug/g	ND	91.0	50-140			
1,2-Dichlorobenzene	3.87	0.05	ug/g	ND	96.6	60-130			
1,3-Dichlorobenzene	3.83	0.05	ug/g	ND	95.7	60-130			
1,4-Dichlorobenzene	3.67	0.05	ug/g	ND	91.8	60-130			
1,1-Dichloroethane	3.52	0.05	ug/g	ND	87.9	60-130			
1,2-Dichloroethane	3.80	0.05	ug/g	ND	95.1	60-130			
1,1-Dichloroethylene	4.19	0.05	ug/g	ND	105	60-130			
cis-1,2-Dichloroethylene	3.87	0.05	ug/g	ND	96.7	60-130			
trans-1,2-Dichloroethylene	3.73	0.05	ug/g	ND	93.2	60-130			
1,2-Dichloropropane	4.33	0.05	ug/g	ND	108	60-130			
cis-1,3-Dichloropropylene	4.47	0.05	ug/g	ND	112	60-130			
trans-1,3-Dichloropropylene	4.28	0.05	ug/g	ND	107	60-130			
Ethylbenzene	4.02	0.05	ug/g	ND	101	60-130			
Ethylene dibromide (dibromoethane	3.68	0.05	ug/g	ND	91.9	60-130			

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave
Project Description: C-B0516-14-01

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hexane	3.70	0.05	ug/g	ND	92.6	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.87	0.50	ug/g	ND	88.7	50-140			
Methyl Isobutyl Ketone	9.99	0.50	ug/g	ND	99.9	50-140			
Methyl tert-butyl ether	10.9	0.05	ug/g	ND	109	50-140			
Methylene Chloride	3.95	0.05	ug/g	ND	98.8	60-130			
Styrene	3.78	0.05	ug/g	ND	94.6	60-130			
1,1,1,2-Tetrachloroethane	3.63	0.05	ug/g	ND	90.8	60-130			
1,1,2,2-Tetrachloroethane	3.42	0.05	ug/g	ND	85.5	60-130			
Tetrachloroethylene	3.59	0.05	ug/g	ND	89.8	60-130			
Toluene	4.07	0.05	ug/g	ND	102	60-130			
1,1,1-Trichloroethane	4.21	0.05	ug/g	ND	105	60-130			
1,1,2-Trichloroethane	4.20	0.05	ug/g	ND	105	60-130			
Trichloroethylene	4.09	0.05	ug/g	ND	102	60-130			
Trichlorofluoromethane	4.09	0.05	ug/g	ND	102	50-140			
Vinyl chloride	3.88	0.02	ug/g	ND	97.1	50-140			
m,p-Xylenes	7.76	0.05	ug/g	ND	97.0	60-130			
o-Xylene	3.91	0.05	ug/g	ND	97.7	60-130			

Certificate of Analysis

Report Date: 10-Jul-2015
Order Date:6-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**
Client PO: CBN Loretta Ave Project Description: C-B0516-14-01

Qualifier Notes:

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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Chain of Custody
(Lab Use Only)

№ 105382

Page 1 of 1

Client Name: Blumetric	Project Reference: CBN Loretta Ave	TAT: [X] Regular [ ] 3 Day
Contact Name: Rob Hillier	Quote # HQ-03044	[ ] 2 Day [ ] 1 Day
Address: 3108 Carp Rd PO Box 430 Carp, ON K0A 1L0	PO # C-B0516-14-01	Date Required:
Telephone: 613-839-3053 ext 233	Email Address: rhillier@wesa.ca	

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

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

Required Analyses

Paracel Order Number: 1528076

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
1	MW1 SS6	S		2	July 6/15	am	✓	✓	✓				
2	MW1 SS8	S		2		am	✓	✓	✓				
3													
4													
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery: walk in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: D.Charlebois	Verified By: D.Charlebois
Relinquished By (Print): B. Andrus	Date/Time: July 6/15 12:45	Date/Time: July 6 5:00	Date/Time: July 6 5:12
Date/Time: July 6/15 12:20	Temperature: 10.4°C	Temperature: 0.1 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

BluMetric Environmental Inc. (Carp)

P.O. Box 430, 3108 Carp Rd.
Carp, ON K0A 1L0
Attn: Rob Hillier

Client PO: CBN Gladstone HQ-03044
Project: C-B0516-14-01
Custody: 105214

Report Date: 23-Jul-2015
Order Date: 17-Jul-2015

Order #: 1529380

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

Paracel ID	Client ID
1529380-01	Unk-BH1
1529380-02	Unk-BH5
1529380-03	BH7
1529380-04	BHD-03
1529380-05	BH11
1529380-06	MW4
1529380-07	Dup#1
1529380-08	MW1
1529380-09	MW2
1529380-10	MW3
1529380-11	BH13
1529380-12	BH9
1529380-13	BHD-06

Approved By:

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.

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	17-Jul-15	18-Jul-15
PHC F1	CWS Tier 1 - P&T GC-FID	17-Jul-15	17-Jul-15
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	17-Jul-15	20-Jul-15
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	21-Jul-15	22-Jul-15
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	17-Jul-15	17-Jul-15

Certificate of Analysis

Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	Unk-BH1	Unk-BH5	BH7	BHD-03
	Sample Date:	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
	Sample ID:	1529380-01	1529380-02	1529380-03	1529380-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	20.3	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	1.2	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	47.8	<0.5
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	<2.0
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5

Certificate of Analysis

Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	Unk-BH1	Unk-BH5	BH7	BHD-03
	Sample Date:	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
	Sample ID:	1529380-01	1529380-02	1529380-03	1529380-04
	MDL/Units	Water	Water	Water	Water
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	181	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	181	<0.5
4-Bromofluorobenzene	Surrogate	117%	114%	92.1%	94.7%
Dibromofluoromethane	Surrogate	95.8%	97.2%	99.2%	92.8%
Toluene-d8	Surrogate	114%	112%	90.6%	112%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	3200	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	9200	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	340	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
F1 + F2 PHCs	125 ug/L	<125	<125	12400	<125
F3 + F4 PHCs	200 ug/L	<200	<200	340	<200

Certificate of Analysis

Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	BH11	MW4	Dup#1	MW1
	Sample Date:	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
	Sample ID:	1529380-05	1529380-06	1529380-07	1529380-08
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	<0.2	<0.2	<0.2	-
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	-
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-

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Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	BH11	MW4	Dup#1	MW1
	Sample Date:	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
	Sample ID:	1529380-05	1529380-06	1529380-07	1529380-08
	MDL/Units	Water	Water	Water	Water
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate	106%	112%	105%	-
Dibromofluoromethane	Surrogate	94.6%	95.9%	96.4%	-
Toluene-d8	Surrogate	110%	113%	112%	-
Benzene	0.5 ug/L	-	-	-	<0.5
Ethylbenzene	0.5 ug/L	-	-	-	<0.5
Toluene	0.5 ug/L	-	-	-	<0.5
m,p-Xylenes	0.5 ug/L	-	-	-	<0.5
o-Xylene	0.5 ug/L	-	-	-	<0.5
Xylenes, total	0.5 ug/L	-	-	-	<0.5
Toluene-d8	Surrogate	-	-	-	112%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
F1 + F2 PHCs	125 ug/L	-	-	-	<125
F1 + F2 PHCs	125 ug/L	<125	<125	<125	-
F3 + F4 PHCs	200 ug/L	-	-	-	<200
F3 + F4 PHCs	200 ug/L	<200	<200	<200	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	-	-	<0.05
Acenaphthylene	0.05 ug/L	-	-	-	<0.05
Anthracene	0.01 ug/L	-	-	-	<0.01
Benzo [a] anthracene	0.01 ug/L	-	-	-	<0.01
Benzo [a] pyrene	0.01 ug/L	-	-	-	<0.01
Benzo [b] fluoranthene	0.05 ug/L	-	-	-	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	-	-	-	<0.05

Certificate of Analysis

Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	BH11	MW4	Dup#1	MW1
	Sample Date:	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
	Sample ID:	1529380-05	1529380-06	1529380-07	1529380-08
	MDL/Units	Water	Water	Water	Water
Benzo [k] fluoranthene	0.05 ug/L	-	-	-	<0.05
Chrysene	0.05 ug/L	-	-	-	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	-	<0.05
Fluoranthene	0.01 ug/L	-	-	-	<0.01
Fluorene	0.05 ug/L	-	-	-	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	-	<0.05
1-Methylnaphthalene	0.05 ug/L	-	-	-	<0.05
2-Methylnaphthalene	0.05 ug/L	-	-	-	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	-	-	-	<0.10
Naphthalene	0.05 ug/L	-	-	-	<0.05
Phenanthrene	0.05 ug/L	-	-	-	<0.05
Pyrene	0.01 ug/L	-	-	-	<0.01
2-Fluorobiphenyl	Surrogate	-	-	-	90.4%
Terphenyl-d14	Surrogate	-	-	-	104%

Certificate of Analysis

Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	MW2	MW3	BH13	BH9
	Sample Date:	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
	Sample ID:	1529380-09	1529380-10	1529380-11	1529380-12
	MDL/Units	Water	Water	Water	Water
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene-d8	Surrogate	115%	111%	112%	112%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
F1 + F2 PHCs	125 ug/L	<125	<125	<125	<125
F3 + F4 PHCs	200 ug/L	<200	<200	<200	<200
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Anthracene	0.01 ug/L	<0.01	<0.01	<0.01	0.03
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	<0.01	0.15
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	<0.01	0.19
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	0.35
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	<0.05	0.11
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05	0.18
Chrysene	0.05 ug/L	<0.05	<0.05	<0.05	0.23
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.01 ug/L	<0.01	<0.01	<0.01	0.52
Fluorene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	<0.05	0.11
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	0.05 ug/L	<0.05	<0.05	<0.05	0.10
Phenanthrene	0.05 ug/L	<0.05	<0.05	<0.05	0.38
Pyrene	0.01 ug/L	<0.01	<0.01	<0.01	0.41
2-Fluorobiphenyl	Surrogate	96.4%	74.3%	74.4%	99.9%

Certificate of Analysis

Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	MW2	MW3	BH13	BH9
	Sample Date:	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15
	Sample ID:	1529380-09	1529380-10	1529380-11	1529380-12
	MDL/Units	Water	Water	Water	Water
Terphenyl-d14	Surrogate	107%	105%	103%	92.5%

Certificate of Analysis

Report Date: 23-Jul-2015

Client: **BluMetric Environmental Inc. (Carp)**

Order Date:17-Jul-2015

Client PO: CBN Gladstone HQ-03044

Project Description: C-B0516-14-01

	Client ID:	BHD-06	-	-	-
	Sample Date:	16-Jul-15	-	-	-
	Sample ID:	1529380-13	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Benzene	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
Toluene-d8	Surrogate	113%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-
F1 + F2 PHCs	125 ug/L	<125	-	-	-
F3 + F4 PHCs	200 ug/L	<200	-	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	-	-	-
Acenaphthylene	0.05 ug/L	<0.05	-	-	-
Anthracene	0.01 ug/L	<0.01	-	-	-
Benzo [a] anthracene	0.01 ug/L	<0.01	-	-	-
Benzo [a] pyrene	0.01 ug/L	<0.01	-	-	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	-	-	-
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	-	-	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	-	-	-
Chrysene	0.05 ug/L	<0.05	-	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	-	-	-
Fluoranthene	0.01 ug/L	<0.01	-	-	-
Fluorene	0.05 ug/L	<0.05	-	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	-	-	-
1-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-
2-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	-	-	-
Naphthalene	0.05 ug/L	<0.05	-	-	-
Phenanthrene	0.05 ug/L	<0.05	-	-	-
Pyrene	0.01 ug/L	<0.01	-	-	-
2-Fluorobiphenyl	Surrogate	100%	-	-	-

Client ID:		BHD-06	-	-	-
Sample Date:		16-Jul-15	-	-	-
Sample ID:		1529380-13	-	-	-
	MDL/Units	Water	-	-	-
Terphenyl-d14	Surrogate	105%	-	-	-

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						
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	*16.3*		*ug/L*		*81.7*	*50-140*			
Surrogate: Terphenyl-d14	*22.3*		*ug/L*		*111*	*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						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*67.5*		*ug/L*		*84.3*	*50-140*			
Surrogate: Dibromofluoromethane	*79.1*		*ug/L*		*98.8*	*50-140*			
Surrogate: Toluene-d8	*68.0*		*ug/L*		*85.0*	*50-140*			
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Toluene	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: Toluene-d8	*68.0*		*ug/L*		*85.0*	*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	
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: 4-Bromofluorobenzene	*68.5*		*ug/L*	*ND*	*85.7*	*50-140*			
Surrogate: Dibromofluoromethane	*70.3*		*ug/L*	*ND*	*87.8*	*50-140*			
Surrogate: Toluene-d8	*67.4*		*ug/L*	*ND*	*84.3*	*50-140*			
Benzene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Toluene	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: Toluene-d8	*67.4*		*ug/L*	*ND*	*84.3*	*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)	1990	25	ug/L	ND	99.4	68-117			
F2 PHCs (C10-C16)	1240	100	ug/L	ND	68.8	60-140			
F3 PHCs (C16-C34)	2990	100	ug/L	ND	80.5	60-140			
F4 PHCs (C34-C50)	3150	100	ug/L	ND	127	60-140			
Semi-Volatiles									
Acenaphthene	5.07	0.05	ug/L	ND	101	50-140			
Acenaphthylene	4.64	0.05	ug/L	ND	92.7	50-140			
Anthracene	3.84	0.01	ug/L	ND	76.8	50-140			
Benzo [a] anthracene	3.87	0.01	ug/L	ND	77.4	50-140			
Benzo [a] pyrene	4.59	0.01	ug/L	ND	91.9	50-140			
Benzo [b] fluoranthene	5.12	0.05	ug/L	ND	102	50-140			
Benzo [g,h,i] perylene	3.65	0.05	ug/L	ND	73.0	50-140			
Benzo [k] fluoranthene	5.91	0.05	ug/L	ND	118	50-140			
Chrysene	5.14	0.05	ug/L	ND	103	50-140			
Dibenzo [a,h] anthracene	5.24	0.05	ug/L	ND	105	50-140			
Fluoranthene	4.47	0.01	ug/L	ND	89.4	50-140			
Fluorene	4.65	0.05	ug/L	ND	93.0	50-140			
Indeno [1,2,3-cd] pyrene	5.24	0.05	ug/L	ND	105	50-140			
1-Methylnaphthalene	6.47	0.05	ug/L	ND	129	50-140			
2-Methylnaphthalene	6.35	0.05	ug/L	ND	127	50-140			
Naphthalene	4.81	0.05	ug/L	ND	96.2	50-140			
Phenanthrene	4.44	0.05	ug/L	ND	88.9	50-140			
Pyrene	4.60	0.01	ug/L	ND	91.9	50-140			
Surrogate: 2-Fluorobiphenyl	*18.6*		*ug/L*		*92.8*	*50-140*			
Volatiles									
Acetone	69.3	5.0	ug/L	ND	69.3	50-140			
Benzene	28.8	0.5	ug/L	ND	72.0	60-130			
Bromodichloromethane	31.3	0.5	ug/L	ND	78.2	60-130			
Bromoform	34.2	0.5	ug/L	ND	85.6	60-130			
Bromomethane	26.6	0.5	ug/L	ND	66.6	50-140			
Carbon Tetrachloride	34.3	0.2	ug/L	ND	85.7	60-130			
Chlorobenzene	27.8	0.5	ug/L	ND	69.5	60-130			
Chloroform	30.4	0.5	ug/L	ND	75.9	60-130			
Dibromochloromethane	31.4	0.5	ug/L	ND	78.6	60-130			
Dichlorodifluoromethane	21.3	1.0	ug/L	ND	53.4	50-140			
1,2-Dichlorobenzene	29.9	0.5	ug/L	ND	74.8	60-130			
1,3-Dichlorobenzene	29.7	0.5	ug/L	ND	74.2	60-130			
1,4-Dichlorobenzene	30.6	0.5	ug/L	ND	76.6	60-130			
1,1-Dichloroethane	30.4	0.5	ug/L	ND	76.0	60-130			
1,2-Dichloroethane	30.4	0.5	ug/L	ND	75.9	60-130			
1,1-Dichloroethylene	28.3	0.5	ug/L	ND	70.8	60-130			
cis-1,2-Dichloroethylene	28.8	0.5	ug/L	ND	72.1	60-130			
trans-1,2-Dichloroethylene	28.6	0.5	ug/L	ND	71.6	60-130			
1,2-Dichloropropane	30.1	0.5	ug/L	ND	75.3	60-130			
cis-1,3-Dichloropropylene	32.6	0.5	ug/L	ND	81.4	60-130			
trans-1,3-Dichloropropylene	26.6	0.5	ug/L	ND	66.4	60-130			
Ethylbenzene	31.5	0.5	ug/L	ND	78.7	60-130			
Ethylene dibromide (dibromoethane, 1,2	31.4	0.2	ug/L	ND	78.5	60-130			
Hexane	27.8	1.0	ug/L	ND	69.4	60-130			
Methyl Ethyl Ketone (2-Butanone)	67.6	5.0	ug/L	ND	67.6	50-140			
Methyl Isobutyl Ketone	79.0	5.0	ug/L	ND	79.0	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methyl tert-butyl ether	90.7	2.0	ug/L	ND	90.7	50-140			
Methylene Chloride	27.7	5.0	ug/L	ND	69.2	60-130			
Styrene	31.6	0.5	ug/L	ND	79.0	60-130			
1,1,1,2-Tetrachloroethane	32.4	0.5	ug/L	ND	80.9	60-130			
1,1,2,2-Tetrachloroethane	29.9	0.5	ug/L	ND	74.8	60-130			
Tetrachloroethylene	29.9	0.5	ug/L	ND	74.8	60-130			
Toluene	29.0	0.5	ug/L	ND	72.6	60-130			
1,1,1-Trichloroethane	32.8	0.5	ug/L	ND	81.9	60-130			
1,1,2-Trichloroethane	30.8	0.5	ug/L	ND	77.1	60-130			
Trichloroethylene	27.8	0.5	ug/L	ND	69.6	60-130			
Trichlorofluoromethane	30.7	1.0	ug/L	ND	76.7	60-130			
Vinyl chloride	31.5	0.5	ug/L	ND	78.8	50-140			
m,p-Xylenes	61.1	0.5	ug/L	ND	76.4	60-130			
o-Xylene	30.3	0.5	ug/L	ND	75.8	60-130			
Benzene	28.8	0.5	ug/L	ND	72.0	60-130			
Ethylbenzene	31.5	0.5	ug/L	ND	78.7	60-130			
Toluene	29.0	0.5	ug/L	ND	72.6	60-130			
m,p-Xylenes	61.1	0.5	ug/L	ND	76.4	60-130			
o-Xylene	30.3	0.5	ug/L	ND	75.8	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.

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Page 1 of 2

Client Name: BluMetric	Project Reference: CBN Gladstone
Contact Name: Rob Hillier	Quote # HQ-03044
Address: 3108 Carp Rd PO Box 430 Carp, ON K0A 1L0	PO # C-B0516-14-01
Telephone: 613 839 3053 ext 233	Email Address: rhillier@wesa.ca

TAT: [X] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day
Date Required: _____

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

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

Paracel Order Number: 1529380

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)							
1	Unk-BH1	GW		3	July 16/15	am	✓	✓												
2	Unk-BH5	GW		3		am	✓	✓												
3	BH7	GW		3		am	✓	✓												
4	BH3-03	GW		3		am	✓	✓												
5	BH11	GW		3		am	✓	✓												
6	mw4	GW		3		pm	✓	✓												
7	Dup #1	GW		3		-	✓	✓												
8																				
9																				
10																				

Comments: Poured out water from bottom of coolers.

Method of Delivery: Drop Box

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: SUNEEPORN DOKMAI	Verified By: D charlebois
Relinquished By (Print): B. Andress	Date/Time: July 17/15 7:10am	Date/Time: JUL 17 2015 11:33	Date/Time: July 17 11:42
Date/Time: July 16/15 5:30pm	Temperature: 16.4 °C	Temperature: 12.8 °C	pH Verified [ ] By: N/A

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Page 2 of 2

Client Name: BluMetric	Project Reference: CBN Gladstone
Contact Name: Rob Hillier	Quote #: HQ-03044
Address: 3108 Carp Rd, PO Box 430, Carp ON. K0A1L0	PO #: C-B0516-14-01
Telephone: 613-839-3053 ext 233	Email Address: rhillier@wesa.ca

TAT: [X] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day
Date Required: _____

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

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

Required Analyses

Paracel Order Number: 1529380

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
1	MW1	GW		4	July 16/15	pm	✓		✓				
2	MW2	GW		4		pm	✓		✓				
3	MW3	GW		4		pm	✓		✓				
4	BH13	GW		4		pm	✓		✓				
5	BH9	GW		4		pm	✓		✓				
6	BH5-06	GW		4	↓	pm	✓		✓				
7													
8													
9													
10													

Comments: Poured out water from bottom of coolers.

Method of Delivery: Drop Box

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: SUNBEPORN DOKMAI	Verified By: D Charbonneau
Relinquished By (Print): B Andress	Date/Time: July 17/15 7:11am	Date/Time: JUL 17 2015 11:33	Date/Time: July 17 11:43
Date/Time: July 16/15 5:30pm	Temperature: 16.4 °C	Temperature: 12.8 °C	pH Verified [ ] By: N/A